CHAPTER

34

NAVIGATION

CHAPTER 34
NAVIGATION

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29	Oct 15/2024	
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R 32	Feb 15/2025	
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212	Oct 15/2024	
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214	Feb 15/2021	
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303	Oct 15/2024	
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313	Oct 15/2024	
34-11-00 (cont)		
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517	Jun 15/2023	
518	Oct 15/2024	
519	Oct 15/2021	
520	Jun 15/2024	
521	Oct 15/2024	
522	Jun 15/2023	

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34-11-00 (cont)		
523	Jun 15/2024	
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525	Jun 15/2023	
526	Jun 15/2024	
527	Oct 15/2024	
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R 402	Feb 15/2025	
R 403	Feb 15/2025	
O 404	Feb 15/2025	
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R 410	Feb 15/2025	
R 411	Feb 15/2025	
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R 418	Feb 15/2025	
O 419	Feb 15/2025	
O 420	Feb 15/2025	
O 421	Feb 15/2025	
O 422	Feb 15/2025	
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34-11-01		
701	Jun 15/2022	
702	Feb 15/2022	
703	Feb 15/2021	

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Subject/Page	Date	COC
34-11-01 (cont)		
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410	Oct 15/2021	
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412	Oct 15/2021	
413	Oct 15/2021	
414	Oct 15/2021	
34-11-02		
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602	Feb 15/2024	
R 603	Feb 15/2025	
O 604	Feb 15/2025	
O 605	Feb 15/2025	
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34-13-01		
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213	Jun 15/2020	
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505	Oct 15/2024	
34-21-00 (cont)		
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536	Feb 15/2023	
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34-21-01		
401	Jun 15/2018	
402	Oct 15/2017	

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34-21-02		
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34-21-02		
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402	Oct 15/2014	
403	Oct 15/2015	
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406	Feb 15/2022	
34-21-03		
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402	Oct 15/2015	
403	Oct 15/2024	
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34-21-04		
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34-21-05		
R 401	Feb 15/2025	
O 402	Feb 15/2025	
34-21-05 (cont)		
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34-21-06		
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410	Feb 15/2023	
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34-21-06		
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34-22-01		
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404	Oct 15/2024	
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203	Oct 15/2015	
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222	Oct 15/2023	
34-23-00		
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402	Jun 15/2018	
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203	Jun 15/2023	
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204	Jun 15/2018	
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34-24-01		
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34-24-02		
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514	Feb 15/2024	
34-31-21		
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402	Jun 15/2024	
403	Feb 15/2023	
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407	Oct 15/2024	
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409	Jun 15/2024	
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34-31-31		
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402	Oct 15/2023	
403	Oct 15/2017	
404	Oct 15/2022	
405	Oct 15/2024	
406	Oct 15/2023	

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34-31-42		
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R 202	Feb 15/2025	
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R 208	Feb 15/2025	
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R 407	Feb 15/2025	
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413	Oct 15/2024	C
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R 212	Feb 15/2025	
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R 503	Feb 15/2025	
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O 506	Feb 15/2025	
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R 405	Feb 15/2025	
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407	Oct 15/2024	
408	Oct 15/2024	
409	Oct 15/2024	C
410	Oct 15/2024	C
411	Oct 15/2024	C

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34-33-11 (cont)		
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413	Oct 15/2024	
414	Oct 15/2024	
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416	Oct 15/2024	
R 417	Feb 15/2025	
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426	Oct 15/2024	C
R 427	Feb 15/2025	C
428	Oct 15/2024	C
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34-33-11		
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34-36-00		
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34-36-01 (cont)		
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34-36-01		
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34-36-04		
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406	Jun 15/2023	
34-36-05		
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402	Nov 15/2022	
403	Nov 15/2022	

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34-36-05 (cont)		
404	Nov 15/2022	
405	Nov 15/2022	
406	Nov 15/2022	
407	Jun 15/2023	
408	BLANK	
34-36-06 Config 2		
401	Jun 15/2023	
402	Nov 15/2022	
403	Nov 15/2022	
404	Jun 15/2023	
405	Jun 15/2023	
406	BLANK	
34-43-00		
R 201	Feb 15/2025	
O 202	Feb 15/2025	
203	Oct 15/2015	
204	Oct 15/2020	
205	Oct 15/2020	
206	Oct 15/2020	
34-43-00 Config 1		
501	Oct 15/2024	
502	Oct 15/2024	
503	Oct 15/2024	
504	Oct 15/2024	
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510	Oct 15/2024	
511	Oct 15/2024	
512	Oct 15/2024	
513	Oct 15/2024	
514	Oct 15/2024	
34-43-00 Config 2		
501	Oct 15/2024	
502	Oct 15/2024	
34-43-00 Config 2 (cont)		
503	Jun 15/2018	
504	Feb 15/2016	
505	Oct 15/2020	
506	Oct 15/2020	
507	Oct 15/2020	
508	Oct 15/2020	
509	Oct 15/2020	
510	Oct 15/2020	
34-43-00 Config 3		
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502	Oct 15/2020	
503	Oct 15/2024	
504	Oct 15/2015	
505	Oct 15/2020	
506	Oct 15/2020	
507	Oct 15/2020	
508	Oct 15/2020	
509	Oct 15/2020	
510	BLANK	
34-43-09		
401	Oct 15/2022	
402	Oct 15/2022	
403	Oct 15/2022	
404	BLANK	
34-43-09		
701	Feb 15/2016	
702	BLANK	
34-43-10		
401	Feb 15/2015	
402	Oct 15/2015	
403	Jun 15/2019	
404	BLANK	
34-43-10		
701	Oct 15/2022	
702	BLANK	
34-43-11		
401	Jun 15/2021	
402	Oct 15/2024	
403	Feb 15/2024	
404	Feb 15/2024	
405	Oct 15/2024	
406	Feb 15/2024	
407	Feb 15/2024	
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413	Oct 15/2024	
414	Jun 15/2024	
415	Feb 15/2024	
416	Oct 15/2024	
417	Oct 15/2024	
418	Oct 15/2024	
419	Jun 15/2024	
420	BLANK	
34-43-11		
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602	Oct 15/2021	
603	Oct 15/2024	
604	Oct 15/2024	
605	Oct 15/2021	
606	Oct 15/2021	
607	Oct 15/2021	
608	Oct 15/2024	
609	Oct 15/2024	
610	Oct 15/2021	
611	Oct 15/2021	
612	BLANK	
34-43-21		
401	Oct 15/2024	
402	Oct 15/2024	
403	Oct 15/2024	

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Subject/Page	Date	COC
34-43-21 (cont)		
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406	Oct 15/2024	
407	Oct 15/2024	
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34-43-31		
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402	Oct 15/2024	
R 403	Feb 15/2025	
R 404	Feb 15/2025	
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406	Oct 15/2024	
407	Oct 15/2024	
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34-43-33		
401	Jun 15/2021	
402	Feb 15/2015	
403	Oct 15/2015	
404	Oct 15/2015	
405	Jun 15/2023	
406	Feb 15/2015	
34-43-41		
401	Oct 15/2024	
402	Oct 15/2024	
403	Feb 15/2022	
404	Oct 15/2024	
405	Feb 15/2023	
406	Oct 15/2024	
407	Oct 15/2024	
408	Oct 15/2024	
409	Feb 15/2022	
410	BLANK	
34-43-42		
401	Oct 15/2017	
402	Oct 15/2015	
34-43-42 (cont)		
403	Oct 15/2017	
404	Oct 15/2019	
34-43-51		
401	Oct 15/2024	
402	Oct 15/2024	
403	Oct 15/2024	
404	Oct 15/2024	
34-43-51 Config 2		
401	Oct 15/2024	
402	Oct 15/2024	
403	Oct 15/2024	
404	Oct 15/2024	
405	Oct 15/2024	
406	Oct 15/2024	
407	Oct 15/2024	
408	BLANK	
34-43-52		
401	Feb 15/2016	
402	Jun 15/2016	
403	Jun 15/2019	
404	Jun 15/2019	
34-43-91		
401	Oct 15/2023	
402	Oct 15/2015	
403	Oct 15/2024	
404	Oct 15/2024	
405	Oct 15/2024	
406	Oct 15/2024	
407	Oct 15/2024	
408	BLANK	
34-45-00		
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202	Oct 15/2024	
203	Oct 15/2024	
204	Oct 15/2015	
205	Oct 15/2017	
206	BLANK	
34-45-00 Config 1		
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214	Oct 15/2023	
34-45-00		
501	Oct 15/2021	
R 502	Feb 15/2025	
R 503	Feb 15/2025	
O 504	Feb 15/2025	
505	Oct 15/2024	
506	Oct 15/2024	
507	Jun 15/2024	
508	Jun 15/2024	
509	Oct 15/2022	
510	Oct 15/2024	
511	Oct 15/2022	
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514	Oct 15/2022	
515	Jun 15/2024	
516	Feb 15/2023	
517	Feb 15/2023	
518	Jun 15/2021	
519	Jun 15/2021	
520	Jun 15/2021	
521	Jun 15/2021	

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Subject/Page	Date	COC
34-45-00 (cont)		
522	Jun 15/2021	
523	Jun 15/2024	
524	Oct 15/2022	
525	Oct 15/2024	
526	Oct 15/2022	
527	Oct 15/2022	
528	Jun 15/2021	
529	Jun 15/2021	
530	Oct 15/2024	
531	Oct 15/2024	
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533	Oct 15/2024	
534	Oct 15/2022	
535	Oct 15/2022	
536	Oct 15/2022	
537	Oct 15/2022	
538	BLANK	
34-45-01		
401	Oct 15/2024	
402	Jun 15/2021	
403	Jun 15/2021	
404	Oct 15/2024	
405	Oct 15/2024	
406	BLANK	
34-45-02		
O 401	Feb 15/2025	C
R 402	Feb 15/2025	
O 403	Feb 15/2025	
404	Oct 15/2024	
405	Oct 15/2024	
406	Feb 15/2017	
407	Oct 15/2024	C
408	Oct 15/2024	C
409	Oct 15/2024	C
410	Feb 15/2017	C
411	Oct 15/2024	C
412	Oct 15/2024	
34-45-02 (cont)		
413	Oct 15/2024	
414	Oct 15/2024	
415	Oct 15/2024	
416	Oct 15/2024	C
417	Oct 15/2024	C
418	Oct 15/2024	C
419	Oct 15/2024	C
420	Oct 15/2024	C
34-46-00		
R 201	Feb 15/2025	
O 202	Feb 15/2025	
O 203	Feb 15/2025	
R 204	Feb 15/2025	
O 205	Feb 15/2025	
R 206	Feb 15/2025	
207	Oct 15/2021	
R 208	Feb 15/2025	
O 209	Feb 15/2025	
O 210	Feb 15/2025	
O 211	Feb 15/2025	
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213	Nov 15/2022	
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34-46-00 Config 2		
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523	Oct 15/2024	
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526	Oct 15/2024	
34-46-01		
401	Oct 15/2017	
402	Oct 15/2015	
403	Oct 15/2024	
404	Oct 15/2024	
405	Oct 15/2024	
406	Oct 15/2024	

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Subject/Page	Date	COC
34-46-01 (cont)		
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408	BLANK	
34-46-02		
401	Jun 15/2021	
R 402	Feb 15/2025	
R 403	Feb 15/2025	
404	Oct 15/2015	
405	Oct 15/2024	
R 406	Feb 15/2025	
O 407	Feb 15/2025	
408	BLANK	
34-51-00		
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202	Feb 15/2015	
203	Oct 15/2015	
204	Feb 15/2015	
34-51-00		
501	Oct 15/2024	
502	Oct 15/2024	
503	Oct 15/2024	
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519	Oct 15/2024	
520	Oct 15/2024	
34-51-00 (cont)		
521	Jun 15/2023	
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34-51-01		
401	Oct 15/2014	
402	Oct 15/2017	
403	Oct 15/2015	
404	Oct 15/2020	
405	Oct 15/2020	
406	BLANK	
34-51-02		
401	Jun 15/2016	
402	Jun 15/2016	
403	Jun 15/2016	
404	Oct 15/2024	
405	Oct 15/2024	
406	Oct 15/2024	
407	Oct 15/2024	
408	Oct 15/2024	
34-53-00		
201	Oct 15/2022	
202	Oct 15/2022	
203	Jun 15/2018	
204	Jun 15/2021	
34-53-00		
R 501	Feb 15/2025	
502	Oct 15/2024	
R 503	Feb 15/2025	
R 504	Feb 15/2025	
R 505	Feb 15/2025	
R 506	Feb 15/2025	
R 507	Feb 15/2025	
R 508	Feb 15/2025	
R 509	Feb 15/2025	
O 510	Feb 15/2025	
O 511	Feb 15/2025	
O 512	Feb 15/2025	
R 513	Feb 15/2025	
34-53-00 (cont)		
O 514	Feb 15/2025	
O 515	Feb 15/2025	
O 516	Feb 15/2025	
R 517	Feb 15/2025	
R 518	Feb 15/2025	
O 519	Feb 15/2025	
O 520	Feb 15/2025	
O 521	Feb 15/2025	
O 522	Feb 15/2025	
O 523	Feb 15/2025	
R 524	Feb 15/2025	
R 525	Feb 15/2025	
O 526	Feb 15/2025	
R 527	Feb 15/2025	
O 528	Feb 15/2025	
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O 532	Feb 15/2025	
O 533	Feb 15/2025	
O 534	Feb 15/2025	
R 535	Feb 15/2025	
O 536	Feb 15/2025	
O 537	Feb 15/2025	
R 538	Feb 15/2025	
R 539	Feb 15/2025	
R 540	Feb 15/2025	
R 541	Feb 15/2025	
O 542	Feb 15/2025	
O 543	Feb 15/2025	
O 544	Feb 15/2025	
O 545	Feb 15/2025	
O 546	Feb 15/2025	
O 547	Feb 15/2025	
O 548	Feb 15/2025	
O 549	Feb 15/2025	

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Subject/Page	Date	COC
34-53-00 (cont)		
R 550	Feb 15/2025	
R 551	Feb 15/2025	
O 552	Feb 15/2025	
O 553	Feb 15/2025	
O 554	Feb 15/2025	
O 555	Feb 15/2025	
O 556	Feb 15/2025	
O 557	Feb 15/2025	
O 558	Feb 15/2025	
O 559	Feb 15/2025	
O 560	Feb 15/2025	
R 561	Feb 15/2025	
O 562	Feb 15/2025	
O 563	Feb 15/2025	
O 564	BLANK	
D 565	Feb 15/2025	
D 566	BLANK	
34-53-01		
401	Oct 15/2024	C
402	Jun 15/2024	
403	Feb 15/2017	
404	Oct 15/2024	C
405	Oct 15/2024	C
406	Oct 15/2024	C
407	Jun 15/2023	C
408	Oct 15/2024	
409	Jun 15/2024	
R 410	Feb 15/2025	
R 411	Feb 15/2025	
412	Oct 15/2024	C
413	Oct 15/2024	C
414	Oct 15/2024	C
415	Oct 15/2024	C
R 416	Feb 15/2025	C
O 417	Feb 15/2025	C
418	BLANK	
34-53-02		
401	Jun 15/2022	
402	Oct 15/2017	
403	Oct 15/2017	
R 404	Feb 15/2025	
R 405	Feb 15/2025	
R 406	Feb 15/2025	
R 407	Feb 15/2025	
408	BLANK	
34-53-03		
401	Jun 15/2019	
402	Jun 15/2018	
403	Jun 15/2021	
R 404	Feb 15/2025	
R 405	Feb 15/2025	
406	BLANK	
34-53-04		
401	Oct 15/2014	
402	Oct 15/2015	
403	Oct 15/2015	
404	Jun 15/2023	
R 405	Feb 15/2025	
R 406	Feb 15/2025	
34-55-00		
201	Feb 15/2018	
202	Oct 15/2017	
34-55-00		
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502	Oct 15/2022	
503	Oct 15/2024	
504	Jun 15/2023	
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509	Jun 15/2023	
510	Jun 15/2023	
34-55-11		
401	Oct 15/2024	C
402	Jun 15/2022	
403	Jun 15/2018	
404	Oct 15/2024	C
405	Oct 15/2024	C
406	Oct 15/2024	C
407	Oct 15/2024	C
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412	Oct 15/2024	C
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414	Oct 15/2024	C
415	Oct 15/2024	C
416	Oct 15/2024	C
417	Oct 15/2024	C
418	BLANK	
34-55-21		
401	Feb 15/2018	
402	Oct 15/2017	
403	Oct 15/2015	
404	Jun 15/2019	
405	Jun 15/2019	
406	BLANK	
34-57-00		
201	Oct 15/2024	
202	Oct 15/2024	
203	Oct 15/2024	
204	BLANK	
34-57-00		
501	Oct 15/2024	
502	Oct 15/2024	
503	Oct 15/2024	
504	Oct 15/2024	
505	Oct 15/2024	
506	Oct 15/2024	

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Subject/Page	Date	COC
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508	Oct 15/2024	
509	Oct 15/2024	
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34-57-01		
401	Oct 15/2024	
R 402	Feb 15/2025	
O 403	Feb 15/2025	
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407	Oct 15/2024	
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34-57-02		
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403	Oct 15/2024	
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407	Oct 15/2024	
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34-57-03		
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403	Oct 15/2015	
404	Oct 15/2024	
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406	Oct 15/2024	
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408	Oct 15/2024	
34-58-00		
201	Jun 15/2021	
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203	Jun 15/2021	
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34-58-00		
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34-58-02		
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408	Jun 15/2022	
34-61-00		
R 201	Feb 15/2025	
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O 206	Feb 15/2025	
O 207	Feb 15/2025	
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O 214	Feb 15/2025	
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R 216	Feb 15/2025	
R 217	Feb 15/2025	
R 218	Feb 15/2025	
34-61-00 (cont)		
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O 231	Feb 15/2025	
R 232	Feb 15/2025	
O 233	Feb 15/2025	
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R 239	Feb 15/2025	
O 240	Feb 15/2025	
R 241	Feb 15/2025	
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R 247	Feb 15/2025	
R 248	Feb 15/2025	
249	Oct 15/2023	
250	BLANK	
34-61-00		
501	Oct 15/2024	
502	Oct 15/2024	
503	Oct 15/2024	

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Subject/Page	Date	COC
34-61-00 (cont)		
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R 505	Feb 15/2025	
R 506	Feb 15/2025	
O 507	Feb 15/2025	
R 508	Feb 15/2025	
509	Oct 15/2024	
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O 517	Feb 15/2025	
O 518	Feb 15/2025	
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R 520	Feb 15/2025	
O 521	Feb 15/2025	
R 522	Feb 15/2025	
R 523	Feb 15/2025	
O 524	BLANK	
34-61-01		
201	Oct 15/2024	
202	Oct 15/2024	
203	Oct 15/2024	
204	Oct 15/2023	
205	Oct 15/2023	
206	Feb 15/2020	
207	Oct 15/2024	
208	Oct 15/2024	
209	Jun 15/2016	
210	Oct 15/2024	
211	Oct 15/2024	
212	Jun 15/2016	
34-61-01		
301	Oct 15/2023	
302	Oct 15/2023	
34-61-01 (cont)		
303	Oct 15/2023	
304	Oct 15/2019	
305	Jun 15/2019	
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34-61-01		
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402	Feb 15/2018	
403	Oct 15/2015	
404	Oct 15/2024	
405	Oct 15/2024	
406	BLANK	
34-61-02		
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402	Jun 15/2023	
403	Feb 15/2020	
404	Oct 15/2024	
405	Oct 15/2024	
406	Oct 15/2024	
34-61-03		
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203	Jun 15/2023	
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34-61-03		
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402	Oct 15/2024	
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R 408	Feb 15/2025	
A 409	Feb 15/2025	
A 410	Feb 15/2025	
A 411	Feb 15/2025	
A 412	BLANK	
34-61-04		
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403	Oct 15/2024	
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408	Oct 15/2024	
409	Oct 15/2024	
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CHAPTER 34
NAVIGATION

SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
NAVIGATION - DDG MAINTENANCE PROCEDURES	34-00-00		901	LOM ALL
MMEL 34-20 (DDPG) Preparation - Low Range Radio Altimeter (LRRA) Inoperative TASK 34-00-00-040-802			901	LOM ALL
MMEL 34-20 (DDPG) Restoration - Low Range Radio Altimeter (LRRA) Inoperative TASK 34-00-00-440-802			902	LOM ALL
MMEL 34-36 (DDPG) Preparation - Flight Management Computer System (FMCS) Inoperative TASK 34-00-00-040-804			904	LOM ALL
MMEL 34-36 (DDPG) Restoration - Flight Management Computer System (FMCS) Inoperative TASK 34-00-00-440-804			905	LOM ALL
MMEL 34-40 (DDPG) Preparation - Traffic Collision and Avoidance System (TCAS) Inoperative TASK 34-00-00-040-801			906	LOM ALL
MMEL 34-40 (DDPG) Restoration - Traffic Collision and Avoidance System (TCAS) Inoperative TASK 34-00-00-440-801			906	LOM ALL
STATIC AND TOTAL AIR PRESSURE SYSTEM - MAINTENANCE PRACTICES	34-11-00		201	LOM ALL
Static and Total Air Pressure System - Deactivation TASK 34-11-00-040-801			201	LOM ALL
Static and Total Air Pressure System - Activation TASK 34-11-00-440-801			203	LOM ALL
Captain's Total Air Pressure System - Pressurization TASK 34-11-00-790-803			203	LOM ALL
Static and Total Air Pressure System - Pressurization TASK 34-11-00-790-802			207	LOM ALL

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STATIC AND TOTAL AIR PRESSURE SYSTEM - SERVICING	34-11-00		301	LOM ALL
Pitot Static System - Flushing TASK 34-11-00-170-802			301	LOM ALL
Pitot Static System - Draining TASK 34-11-00-680-801			324	LOM ALL
Pitot System - Detailed Inspection of Drains TASK 34-11-00-210-801			324	LOM ALL
Static System - Detailed Inspection of Drains TASK 34-11-00-210-802			325	LOM ALL
STATIC AND TOTAL AIR PRESSURE SYSTEM - ADJUSTMENT/TEST	34-11-00		501	LOM ALL
Left Static System Low-range Leak Test TASK 34-11-00-790-804			501	LOM ALL
Right Static System Low-range Leak Test TASK 34-11-00-790-806			509	LOM ALL
Alternate Static System Low-range Leak Test TASK 34-11-00-790-808			514	LOM ALL
Left Pitot System Leak Test TASK 34-11-00-790-810			519	LOM ALL
Right Pitot System Leak Test TASK 34-11-00-790-811			523	LOM ALL
Alternate Pitot System Leak Test TASK 34-11-00-790-812			525	LOM ALL
Left Static System Full-range Leak Test TASK 34-11-00-790-813			528	LOM ALL
Right Static System Full-range Leak Test TASK 34-11-00-790-814			534	LOM ALL
Alternate Static System Full-range Leak Test TASK 34-11-00-790-815			539	LOM ALL
Altimetry System Test TASK 34-11-00-780-802			545	LOM ALL
Alternative Test: PFD - Static System Only TASK 34-11-00-780-803			578	LOM ALL

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PITOT PROBE - REMOVAL/INSTALLATION	34-11-01		401	LOM ALL
Pitot Probe - Removal TASK 34-11-01-000-801			401	LOM ALL
Pitot Probe - Installation TASK 34-11-01-400-801			414	LOM ALL
PITOT PROBE - INSPECTION/CHECK	34-11-01		601	LOM ALL
Pitot Probe Detailed Inspection TASK 34-11-01-200-804			601	LOM ALL
Pitot Probe Special Detailed Inspection TASK 34-11-01-200-803			602	LOM ALL
PITOT PROBE - CLEANING/PAINTING	34-11-01		701	LOM ALL
Pitot Probe Cleaning TASK 34-11-01-100-801			701	LOM ALL
STATIC PORT - REMOVAL/INSTALLATION	34-11-02		401	LOM ALL
Primary Static Port Removal TASK 34-11-02-020-801			401	LOM ALL
Primary Static Port Installation TASK 34-11-02-400-801			405	LOM ALL
Alternate Static Port Removal TASK 34-11-02-000-803			407	LOM ALL; 737-600, 737-800 OR 737-900
Alternate Static Port Installation TASK 34-11-02-400-803			412	LOM ALL; 737-600, 737-800 OR 737-900
STATIC PORT - INSPECTION/CHECK	34-11-02		601	LOM ALL
Static Port - Detailed Inspection TASK 34-11-02-200-803			601	LOM ALL
Static Port - Special Detailed Inspection TASK 34-11-02-200-801			602	LOM ALL

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
AIR DATA INSTRUMENTS - ADJUSTMENT/TEST	34-13-00		501	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR
Air Data Instruments - System Test TASK 34-13-00-730-801			501	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR
STANDBY ALTIMETER/AIRSPEED INDICATOR - MAINTENANCE PRACTICES	34-13-01		201	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR
Standby Altimeter/Airspeed Indicator - Deactivation TASK 34-13-01-040-801			201	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR
Standby Altimeter/Airspeed Indicator - Activation TASK 34-13-01-440-801			203	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR
STANDBY ALTIMETER/AIRSPEED INDICATOR - REMOVAL/INSTALLATION	34-13-01		401	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR
Standby Altimeter/Airspeed Indicator - Removal TASK 34-13-01-000-801			401	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR
Standby Altimeter/Airspeed Indicator - Installation TASK 34-13-01-400-801			405	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR
MACH AIRSPEED WARNING SYSTEM - ADJUSTMENT/TEST	34-16-00		501	LOM ALL
Mach Airspeed Warning System - Aural Warning Discrete Output Test TASK 34-16-00-730-801			501	LOM ALL

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AIR DATA INERTIAL REFERENCE SYSTEM - MAINTENANCE PRACTICES	34-21-00		201	LOM ALL
Air Data Inertial Reference System - Deactivation TASK 34-21-00-040-801			201	LOM ALL
Air Data Inertial Reference System - Activation TASK 34-21-00-440-801			202	LOM ALL
Air Data Inertial Reference System - Alignment from the FMC CDU TASK 34-21-00-820-801			203	LOM ALL
Air Data Inertial Reference System - Alignment from the ISDU TASK 34-21-00-820-802			206	LOM ALL
IR Radial Position Error Check TASK 34-21-00-200-801			209	LOM ALL
Inertial Reference Residual Groundspeed Error Check TASK 34-21-00-200-802			213	LOM ALL
AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST	34-21-00		501	LOM ALL
Air Data Inertial Reference System - Operational Test TASK 34-21-00-710-801			501	LOM ALL
Air Data Inertial Reference System Source Select - Operational Test TASK 34-21-00-710-802			509	LOM ALL
Inertial Reference - System Test TASK 34-21-00-730-801			514	LOM ALL
Air Data Reference - System Test TASK 34-21-00-730-802			523	LOM ALL
AIR DATA INERTIAL REFERENCE UNIT - REMOVAL/INSTALLATION	34-21-01		401	LOM ALL
Air Data Inertial Reference Unit Removal TASK 34-21-01-000-801			401	LOM ALL
Air Data Inertial Reference Unit - Installation TASK 34-21-01-400-801			404	LOM ALL

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INERTIAL SYSTEM DISPLAY UNIT - REMOVAL/INSTALLATION	34-21-02		401	LOM ALL
Inertial System Display Unit Removal TASK 34-21-02-000-801			401	LOM ALL
Inertial System Display Unit Installation TASK 34-21-02-400-801			404	LOM ALL
INERTIAL SYSTEM DISPLAY UNIT - SERVICING	34-21-02		301	LOM ALL
Replacement of a Numeric/Alphanumeric Readout Lamp or a Decimal/Degree/Minute Lamp TASK 34-21-02-900-801			301	LOM ALL
IRS MODE SELECT UNIT - REMOVAL/INSTALLATION	34-21-03		401	LOM ALL
IRS Mode Select Unit Removal TASK 34-21-03-000-801			401	LOM ALL
IRS Mode Select Unit Installation TASK 34-21-03-400-801			403	LOM ALL
AIR DATA MODULE - REMOVAL/INSTALLATION	34-21-04		401	LOM ALL
Pitot Air Data Module - Removal TASK 34-21-04-000-801			401	LOM ALL
Pitot Air Data Module - Installation TASK 34-21-04-400-801			405	LOM ALL
Static Air Data Module - Removal TASK 34-21-04-000-802			406	LOM ALL
Static Air Data Module - Installation TASK 34-21-04-400-802			410	LOM ALL
ANGLE OF ATTACK SENSOR - REMOVAL/INSTALLATION	34-21-05		401	LOM ALL
Angle of Attack Sensor Removal TASK 34-21-05-000-801			401	LOM ALL
Angle of Attack Sensor Installation TASK 34-21-05-400-801			404	LOM ALL
ANGLE OF ATTACK SENSOR - ADJUSTMENT/TEST	34-21-05		501	LOM ALL
Angle of Attack System Test TASK 34-21-05-730-801			501	LOM ALL

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ANGLE OF ATTACK SENSOR - INSPECTION/CHECK	34-21-05		601	LOM ALL
Angle of Attack Sensor - Inspection TASK 34-21-05-200-801			601	LOM ALL
TOTAL AIR TEMPERATURE PROBE - REMOVAL/INSTALLATION	34-21-06		401	LOM ALL
Total Air Temperature Probe - Removal TASK 34-21-06-000-801			401	LOM ALL
Total Air Temperature Probe - Installation TASK 34-21-06-400-801			406	LOM ALL
TOTAL AIR TEMPERATURE PROBE - INSPECTION/CHECK	34-21-06		601	LOM ALL
Total Air Temperature Probe - Inspection TASK 34-21-06-000-802			601	LOM ALL
IRS MASTER CAUTION UNIT - REMOVAL/INSTALLATION	34-21-07		401	LOM ALL
IRS Master Caution Unit Removal TASK 34-21-07-000-801			401	LOM ALL
IRS Master Caution Unit Installation TASK 34-21-07-400-801			404	LOM ALL
RADIO MAGNETIC INDICATOR - MAINTENANCE PRACTICES	34-22-01		201	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464
Radio Magnetic Indicator - Deactivation TASK 34-22-01-040-801			201	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464
Radio Magnetic Indicator - Activation TASK 34-22-01-440-801			202	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464
RADIO MAGNETIC INDICATOR - REMOVAL/INSTALLATION	34-22-01		401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464
Radio Magnetic Indicator (RMI) Removal TASK 34-22-01-000-801			401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464
Radio Magnetic Indicator (RMI) Installation TASK 34-22-01-400-801			404	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
STANDBY MAGNETIC COMPASS - MAINTENANCE PRACTICES	34-23-00		201	LOM ALL
Standby Magnetic Compass - Deactivation TASK 34-23-00-040-801			201	LOM ALL
Standby Magnetic Compass - Activation TASK 34-23-00-440-801			204	LOM ALL
Compass Calibration Tool – Master Compass Option TASK 34-23-00-820-801			204	LOM ALL
Formal Compass Swing and Compass Card - Airplane Inertial Reference System (IRS) Option TASK 34-23-00-820-802			210	LOM ALL
Formal Compass Swing and Compass Card - Compass Rose Site Option TASK 34-23-00-820-804			214	LOM ALL
Standby Magnetic Compass - Degaussing TASK 34-23-00-820-803			217	LOM ALL
Standby Magnetic Compass System (Spot Check) - Inspection TASK 34-23-00-730-801			221	LOM ALL
STANDBY MAGNETIC COMPASS - REMOVAL/INSTALLATION	34-23-00		401	LOM ALL
Standby Magnetic Compass Removal TASK 34-23-00-000-801			401	LOM ALL
Standby Magnetic Compass Installation TASK 34-23-00-400-801			403	LOM ALL
STANDBY MAGNETIC COMPASS LIGHT - MAINTENANCE PRACTICES	34-23-01		201	LOM ALL
Standby Magnetic Compass Light - Removal TASK 34-23-01-000-802			201	LOM ALL
Standby Magnetic Compass Light - Installation TASK 34-23-01-400-802			203	LOM ALL

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STANDBY ATTITUDE REFERENCE SYSTEM - MAINTENANCE PRACTICES	34-24-00		201	LOM ALL
Standby Attitude Reference System - Deactivation TASK 34-24-00-040-801			201	LOM ALL
Standby Attitude Reference System - Activation TASK 34-24-00-440-801			204	LOM ALL
STANDBY ATTITUDE REFERENCE SYSTEM - ADJUSTMENT/TEST	34-24-00		501	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR
Standby Attitude Reference System - System Test TASK 34-24-00-730-801			501	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR
STANDBY ATTITUDE INDICATOR LIGHT - REMOVAL/INSTALLATION	34-24-01		201	LOM 411, 426, 432
Standby Attitude Indicator Light Removal TASK 34-24-01-000-802			201	LOM 411, 426, 432
Standby Attitude Indicator Light Installation TASK 34-24-01-400-802			203	LOM 411, 426, 432
STANDBY ATTITUDE INDICATOR - REMOVAL/INSTALLATION	34-24-01		401	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR
Standby Attitude Indicator Removal TASK 34-24-01-000-801			401	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR
Standby Attitude Indicator Installation TASK 34-24-01-400-801			404	LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR
INTEGRATED STANDBY FLIGHT DISPLAY - MAINTENANCE PRACTICES	34-24-02	91	201	LOM 428-431, 450, 465-999; LOM 427 PRE SB 737-22-1306
Integrated Standby Flight Display Alignment TASK 34-24-02-820-801-091		91	201	LOM 428-431, 450, 465-999; LOM 427 PRE SB 737-22-1306

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INTEGRATED STANDBY FLIGHT DISPLAY - REMOVAL/INSTALLATION	34-24-02		401	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
Integrated Standby Flight Display Removal TASK 34-24-02-000-801			401	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
Integrated Standby Flight Display Installation TASK 34-24-02-400-801			404	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
INTEGRATED STANDBY FLIGHT DISPLAY - ADJUSTMENT/TEST	34-24-02		501	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
Integrated Standby Flight Display - Operational Test TASK 34-24-02-710-801			501	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
Integrated Standby Flight Display - System Test TASK 34-24-02-730-801			502	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
ISFD Dedicated Battery System - Operational Test TASK 34-24-02-710-802			509	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
ISFD DEDICATED BATTERY CHARGER - REMOVAL/INSTALLATION	34-24-03		401	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
ISFD Dedicated Battery Charger Removal TASK 34-24-03-000-801			401	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999
ISFD Dedicated Battery Charger Installation TASK 34-24-03-400-801			404	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

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INSTRUMENT LANDING SYSTEM - MAINTENANCE PRACTICES	34-31-00		201	LOM ALL
Instrument Landing System - Deactivation TASK 34-31-00-040-801			201	LOM ALL
Instrument Landing System - Activation TASK 34-31-00-440-801			202	LOM ALL
INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST	34-31-00		501	LOM ALL
Instrument Landing System - Operational Test TASK 34-31-00-710-801			501	LOM ALL
Instrument Landing System - System Test TASK 34-31-00-730-801			511	LOM ALL
ILS GLIDE SLOPE ANTENNA - REMOVAL/INSTALLATION	34-31-21		401	LOM ALL
ILS Glide Slope Antenna - Removal TASK 34-31-21-000-801			401	LOM ALL
ILS Glide Slope Antenna - Installation TASK 34-31-21-400-801			405	LOM ALL
LOCALIZER ANTENNA - REMOVAL/INSTALLATION	34-31-31		401	LOM ALL
Localizer Antenna Removal TASK 34-31-31-000-801			401	LOM ALL
Localizer Antenna Installation TASK 34-31-31-400-801			405	LOM ALL
ILS AND MULTI-MODE RECEIVER (MMR) - MAINTENANCE PRACTICES	34-31-42		201	LOM 402, 406, 407, 412, 415, 423, 424, 437, 438, 445
Part Number Check of the Software TASK 34-31-42-700-801			201	LOM 402, 406, 407, 412, 415, 423, 424, 437, 438, 445
MMR Software Part Number Verification Check TASK 34-31-42-700-802			203	LOM 402, 406, 407, 412, 415, 423, 424
Software Installation with a PDL TASK 34-31-42-470-801			204	LOM 402, 406, 407, 412, 415, 423, 424, 437, 438, 445
MMR NVM Download TASK 34-31-42-970-801			208	LOM 437, 438, 445

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ILS AND MULTI-MODE RECEIVER (MMR) - REMOVAL/INSTALLATION	34-31-42		401	LOM ALL
ILS and Multi-Mode Receiver (MMR) - Removal TASK 34-31-42-000-801			401	LOM ALL
ILS and Multi-Mode Receiver (MMR) - Installation TASK 34-31-42-400-801			404	LOM ALL
NAVIGATION CONTROL PANEL - REMOVAL/INSTALLATION	34-31-52		401	LOM ALL
Navigation Control Panel Removal TASK 34-31-52-000-801			401	LOM ALL
Navigation Control Panel Installation TASK 34-31-52-400-801			403	LOM ALL
RF POWER DIVIDER - REMOVAL/INSTALLATION	34-31-62		401	LOM ALL
RF Power Divider Removal TASK 34-31-62-000-801			401	LOM ALL
RF Power Divider Installation TASK 34-31-62-400-801			404	LOM ALL
LOCALIZER ANTENNA SWITCH - REMOVAL/INSTALLATION	34-31-72		401	LOM ALL
Localizer Antenna Switch Removal TASK 34-31-72-000-801			401	LOM ALL
Localizer Antenna Switch Installation TASK 34-31-72-400-801			405	LOM ALL
MARKER BEACON SYSTEM - MAINTENANCE PRACTICES	34-32-00		201	LOM ALL
Marker Beacon System - Deactivation TASK 34-32-00-040-801			201	LOM ALL
Marker Beacon System - Activation TASK 34-32-00-440-801			203	LOM ALL
MARKER BEACON SYSTEM - ADJUSTMENT/TEST	34-32-00		501	LOM ALL
Marker Beacon System - Operational Test TASK 34-32-00-710-801			501	LOM ALL
Marker Beacon System - System Test TASK 34-32-00-730-801			502	LOM ALL

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MARKER BEACON ANTENNA - REMOVAL/INSTALLATION	34-32-11		401	LOM ALL
Marker Beacon Antenna Removal TASK 34-32-11-000-801			401	LOM ALL
Marker Beacon Antenna with Gasket - Removal TASK 34-32-11-000-802			404	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
Marker Beacon Antenna Installation TASK 34-32-11-400-801			406	LOM ALL
Marker Beacon Antenna with Gasket - Installation TASK 34-32-11-400-802			409	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
LOW RANGE RADIO ALTIMETER (LRRA) SYSTEM - MAINTENANCE PRACTICES	34-33-00		201	LOM ALL
Low Range Radio Altimeter System - Deactivation TASK 34-33-00-040-801			201	LOM ALL
Low Range Radio Altimeter System - Activation TASK 34-33-00-440-801			204	LOM ALL
Radio Altitude Simulation Test TASK 34-33-00-700-801			204	LOM ALL
LOW RANGE RADIO ALTIMETER (LRRA) SYSTEM - ADJUSTMENT/TEST	34-33-00		501	LOM ALL
Low Range Radio Altimeter (LRRA) System - Operational Test TASK 34-33-00-710-801			501	LOM ALL
Low Range Radio Altimeter (LRRA) System - System Test TASK 34-33-00-730-801			502	LOM ALL
LOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION	34-33-11		401	LOM ALL
Low Range Radio Altimeter (LRRA) Antenna Removal (With O-Ring) TASK 34-33-11-000-801			401	LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395
Low Range Radio Altimeter (LRRA) Antenna Removal (With Gasket) TASK 34-33-11-000-803			405	LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395

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Low Range Radio Altimeter (LRRA) Antenna with Gasket - Removal TASK 34-33-11-000-802			409	LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395
Low Range Radio Altimeter (LRRA) Antenna Installation (With O-Ring) TASK 34-33-11-400-801			412	LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395
Low Range Radio Altimeter (LRRA) Antenna Installation (With Gasket) TASK 34-33-11-400-803			415	LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395
Low Range Radio Altimeter (LRRA) Antenna with Gasket - Installation TASK 34-33-11-400-802			426	LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395
LOW RANGE RADIO ALTIMETER ANTENNA - INSPECTION/CHECK	34-33-11		601	LOM ALL
Low Range Radio Altimeter (LRRA) Antenna Inspection and Check TASK 34-33-11-211-802			601	LOM ALL
LRRA RECEIVER/TRANSMITTER - REMOVAL/INSTALLATION	34-33-21		401	LOM ALL
Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal TASK 34-33-21-000-801			401	LOM ALL
Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation TASK 34-33-21-400-801			404	LOM ALL
HEAD UP DISPLAY SYSTEM - MAINTENANCE PRACTICES	34-36-00		201	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
Head-up Display System - Deactivation TASK 34-36-00-040-801			201	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
Head-up Display System - Activation TASK 34-36-00-440-801			204	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
Overhead Unit Desiccant Servicing TASK 34-36-00-000-801			204	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

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HEAD UP DISPLAY SYSTEM - ADJUSTMENT/TEST	34-36-00		501	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Operational Test TASK 34-36-00-710-801			501	LOM 412, 415, 423, 424, 439, 441, 466-999
HUD Operational Test TASK 34-36-00-710-802			503	LOM 432, 464
HUD System Test TASK 34-36-00-730-801			505	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HGS COMPUTER - SOFTWARE INSTALLATION	34-36-01		201	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
Software Installation with the ADL TASK 34-36-01-470-801			202	LOM 432
Software Installation with the PDL TASK 34-36-01-470-802			208	LOM 412, 415, 423, 424, 439, 441, 464, 466-999
Software Installation with an Enhanced Airborne Data Loader TASK 34-36-01-470-803			217	LOM 464, 466-999
Part Number Check of the Software TASK 34-36-01-750-801			226	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
Operational Check of the HGS to FDR Interface TASK 34-36-01-730-801			226	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD COMPUTER - REMOVAL/INSTALLATION	34-36-01		401	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Computer Removal TASK 34-36-01-000-801			401	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Computer Installation TASK 34-36-01-400-801			404	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD CONTROL PANEL - REMOVAL/INSTALLATION	34-36-03		401	LOM 412, 415, 423, 424, 439, 441, 466-999
HUD Control Panel Removal TASK 34-36-03-000-801			401	LOM 412, 415, 423, 424, 439, 441, 466-999
HUD Control Panel Installation TASK 34-36-03-400-801			403	LOM 412, 415, 423, 424, 439, 441, 466-999

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HUD COMBINER - REMOVAL/INSTALLATION	34-36-04		401	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Combiner - Removal TASK 34-36-04-000-801			401	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Combiner Installation TASK 34-36-04-400-801			404	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD OVERHEAD UNIT - REMOVAL/INSTALLATION	34-36-05		401	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Overhead Unit Removal TASK 34-36-05-000-801			401	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Overhead Unit Installation TASK 34-36-05-400-801			405	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD ANNUNCIATOR PANEL (HAP) - REMOVAL/INSTALLATION	34-36-06	2	401	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Annunciator Panel Removal TASK 34-36-06-000-804-002		2	401	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
HUD Annunciator Panel Installation TASK 34-36-06-400-803-002		2	404	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999
WEATHER RADAR (WXR) SYSTEM - MAINTENANCE PRACTICES	34-43-00		201	LOM ALL
Weather Radar (WXR) System - Deactivation TASK 34-43-00-040-801			201	LOM ALL
Weather Radar (WXR) System - Activation TASK 34-43-00-440-801			204	LOM ALL
Flight History Data Download TASK 34-43-00-970-801			205	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
WEATHER RADAR (WXR) SYSTEM - ADJUSTMENT/TEST	34-43-00	1	501	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999
Weather Radar (WXR) System - Operational Test TASK 34-43-00-710-802-001		1	501	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

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Weather Radar (WXR) System - System Test TASK 34-43-00-730-802-001		1	506	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999
WEATHER RADAR (WXR) SYSTEM - ADJUSTMENT/TEST	34-43-00	2	501	LOM 411, 432
Weather Radar (WXR) System - Operational Test TASK 34-43-00-710-803-002		2	501	LOM 411, 432
Weather Radar (WXR) System - System Test TASK 34-43-00-730-803-002		2	505	LOM 411, 432
WEATHER RADAR (WRX) SYSTEM - ADJUSTMENT/TEST	34-43-00	3	501	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar (WXR) System - Operational Test TASK 34-43-00-710-804-003		3	501	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar (WXR) System - System Test TASK 34-43-00-730-804-003		3	505	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
WEATHER RADAR RECEIVER/TRANSMITTER MOUNT FILTER - REMOVAL/INSTALLATION	34-43-09		401	LOM 411, 432
Weather Radar Receiver/Transmitter Mount Filter Removal TASK 34-43-09-000-801			401	LOM 411, 432
Weather Radar Receiver/Transmitter Mount Filter Installation TASK 34-43-09-400-801			403	LOM 411, 432
WEATHER RADAR RECEIVER/TRANSMITTER MOUNT FILTER - CLEANING/PAINTING	34-43-09		701	LOM 411, 432
Weather Radar R/T Mount Filter Cleaning TASK 34-43-09-100-801			701	LOM 411, 432
WEATHER RADAR PROCESSOR MOUNT FAN FILTER - REMOVAL/INSTALLATION	34-43-10		401	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar Processor Mount Fan Filter Removal TASK 34-43-10-000-801			401	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

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Weather Radar Processor Mount Fan Filter Installation TASK 34-43-10-400-801			403	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
WEATHER RADAR PROCESSOR MOUNT FAN FILTER - CLEANING	34-43-10		701	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar Processor Mount Fan Filter Cleaning TASK 34-43-10-100-801			701	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
WEATHER RADAR ANTENNA - REMOVAL/INSTALLATION	34-43-11		401	LOM ALL
Weather Radar Antenna Flat Plate Removal TASK 34-43-11-000-801			401	LOM ALL
Weather Radar Antenna Flat Plate Installation TASK 34-43-11-400-801			408	LOM ALL
Weather Radar Antenna Drive Unit Removal TASK 34-43-11-000-802			410	LOM ALL
Weather Radar Antenna Drive Unit Installation TASK 34-43-11-400-802			415	LOM ALL
WEATHER RADAR ANTENNA - INSPECTION/CHECK	34-43-11		601	LOM ALL
Weather Radar Antenna Flat Plate Inspection TASK 34-43-11-200-801			601	LOM ALL
WEATHER RADAR WAVEGUIDE - REMOVAL/INSTALLATION	34-43-21		401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
WXR Waveguide Removal TASK 34-43-21-000-801			401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
WXR Waveguide Installation TASK 34-43-21-400-801			407	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

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WEATHER RADAR RECEIVER/TRANSMITTER MOUNT - REMOVAL/INSTALLATION	34-43-31		401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
Weather Radar Receiver/Transmitter Mount Removal TASK 34-43-31-000-801			401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
Weather Radar Receiver/Transmitter Mount Installation TASK 34-43-31-400-801			405	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
WEATHER RADAR PROCESSOR MOUNT - REMOVAL/INSTALLATION	34-43-33		401	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar Processor Mount Removal TASK 34-43-33-000-801			401	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar Processor Mount Installation TASK 34-43-33-400-801			405	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
WEATHER RADAR RECEIVER/TRANSMITTER - REMOVAL/INSTALLATION	34-43-41		401	LOM ALL
Weather Radar Receiver/Transmitter Removal TASK 34-43-41-000-801			401	LOM ALL
Weather Radar Receiver/Transmitter Installation TASK 34-43-41-400-801			406	LOM ALL
WEATHER RADAR PROCESSOR - REMOVAL/INSTALLATION	34-43-42		401	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar Processor Removal TASK 34-43-42-000-801			401	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar Processor Installation TASK 34-43-42-400-801			403	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

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WEATHER RADAR RECEIVER/TRANSMITTER MOUNT BLOWER ASSEMBLY - REMOVAL/INSTALLATION	34-43-51		401	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999
Weather Radar R/T Mount Blower Assembly Removal TASK 34-43-51-000-801			401	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999
Weather Radar R/T Mount Blower Assembly Installation TASK 34-43-51-400-801			403	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999
WEATHER RADAR RECEIVER/TRANSMITTER MOUNT BLOWER ASSEMBLY	34-43-51	2	401	LOM 411, 432
Mount Blower Assembly Removal TASK 34-43-51-000-802		2	401	LOM 411, 432
Mount Blower Assembly Installation TASK 34-43-51-400-802		2	406	LOM 411, 432
WEATHER RADAR PROCESSOR MOUNT FAN ASSEMBLY - REMOVAL/INSTALLATION	34-43-52		401	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar Processor Mount Fan Assembly Removal TASK 34-43-52-000-801			401	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
Weather Radar Processor Mount Fan Assembly Installation TASK 34-43-52-400-801			403	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
WEATHER RADAR CONTROL PANEL - REMOVAL/INSTALLATION	34-43-91		401	LOM ALL
Weather Radar Control Panel Removal TASK 34-43-91-000-801			401	LOM ALL
Weather Radar Control Panel Installation TASK 34-43-91-400-801			403	LOM ALL
TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) - MAINTENANCE PRACTICES	34-45-00		201	LOM ALL
Flight History Data Download TASK 34-45-00-970-801			201	LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460

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Traffic Alert and Collision Avoidance System - Deactivation TASK 34-45-00-040-801			202	LOM ALL
Traffic Alert and Collision Avoidance System - Activation TASK 34-45-00-440-801			205	LOM ALL
TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) PREVENTIVE MEASURES - MAINTENANCE PRACTICES	34-45-00	1	201	LOM ALL
System Antenna Checks - Check I TASK 34-45-00-200-801-001		1	201	LOM ALL
TCAS System Coaxial Cable Tests – Check II TASK 34-45-00-200-802-001		1	203	LOM ALL
Suppression Bus Coaxial Cable Checks – Check III TASK 34-45-00-200-803-001		1	211	LOM ALL
TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) - ADJUSTMENT/TEST	34-45-00		501	LOM ALL
TCAS - Operational Test TASK 34-45-00-710-801			501	LOM ALL
TCAS - System Test (With the IFR TCAS-201 Test Set) TASK 34-45-00-730-801			507	LOM ALL
TCAS - System Test (With the TIC TR-220 Test Set) TASK 34-45-00-730-804			514	LOM ALL
TCAS - System Test (With the TIC T-49 Test Set) TASK 34-45-00-730-802			523	LOM ALL
TCAS - System Test (With the IFR-6000 Test Set) TASK 34-45-00-730-803			529	LOM ALL
TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) COMPUTER - REMOVAL/INSTALLATION	34-45-01		401	LOM ALL
TCAS Computer Removal TASK 34-45-01-000-801			401	LOM ALL
TCAS Computer Installation TASK 34-45-01-400-801			404	LOM ALL

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TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) ANTENNA - REMOVAL/INSTALLATION	34-45-02		401	LOM ALL
TCAS Antenna Removal TASK 34-45-02-000-801			401	LOM ALL
TCAS Antenna with Gasket - Removal TASK 34-45-02-000-802			407	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
TCAS Antenna Installation TASK 34-45-02-400-801			411	LOM ALL
TCAS Antenna with Gasket - Installation TASK 34-45-02-400-802			416	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
GROUND PROXIMITY WARNING SYSTEM - MAINTENANCE PRACTICES	34-46-00		201	LOM ALL
Ground Proximity Warning System - Deactivation TASK 34-46-00-040-801			201	LOM ALL
Ground Proximity Warning System - Activation TASK 34-46-00-440-801			203	LOM ALL
Load the Operational Program (OPC) software with ARINC 615-3 Data Loader TASK 34-46-00-470-804			203	LOM 439-447, 450-999
Load the Operational Program Configuration (OPC) software with an Enhanced Airborne Data Loader (eADL) TASK 34-46-00-470-808			208	LOM 440, 442-447, 450-460, 464-999
Verify the Operational Program Configuration (OPC) Part Number TASK 34-46-00-700-803			212	LOM 439-447, 450-999
Verify the Operational Program Configuration (OPC) Part Number with an Enhanced Airborne Data Loader (eADL) TASK 34-46-00-700-804			213	LOM 440, 442-447, 450-460, 464-999
Load the Terrain Database with PCMCIA Flash Card TASK 34-46-00-470-802			214	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

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Verify the Terrain Database Part Number for PCMCIA Flash Card Load TASK 34-46-00-700-801			218	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617
Load the Terrain Database with USB Drive Load TASK 34-46-00-470-803			219	LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617
Load the Terrain Database with ARINC 615A Dataloader TASK 34-46-00-470-805			223	LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617
Verify the Terrain Database Part Number TASK 34-46-00-700-802			226	LOM ALL
Flight History Data Download TASK 34-46-00-970-801			227	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617
Flight History Data Download TASK 34-46-00-970-802			229	LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617
GROUND PROXIMITY WARNING SYSTEM - ADJUSTMENT/TEST	34-46-00	2	501	LOM ALL
Ground Proximity Warning System - Operational Test TASK 34-46-00-710-804-002		2	501	LOM ALL
Ground Proximity Warning System - System Test TASK 34-46-00-730-804-002		2	510	LOM ALL
GROUND PROXIMITY WARNING COMPUTER - REMOVAL/INSTALLATION	34-46-01		401	LOM ALL
Ground Proximity Warning Computer Removal TASK 34-46-01-000-801			401	LOM ALL
Ground Proximity Warning Computer Installation TASK 34-46-01-400-801			405	LOM ALL

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GROUND PROXIMITY WARNING MODULE - REMOVAL/INSTALLATION	34-46-02		401	LOM ALL
Ground Proximity Warning Module Removal TASK 34-46-02-000-801			401	LOM ALL
Ground Proximity Warning Module - Installation TASK 34-46-02-400-801			405	LOM ALL
VOR SYSTEM - MAINTENANCE PRACTICES	34-51-00		201	LOM ALL
VOR - Deactivation TASK 34-51-00-040-801			201	LOM ALL
VOR - Activation TASK 34-51-00-440-801			204	LOM ALL
VOR SYSTEM - ADJUSTMENT/TEST	34-51-00		501	LOM ALL
VOR System - Operational Test TASK 34-51-00-710-801			501	LOM ALL
VOR System - System Test TASK 34-51-00-730-801			507	LOM ALL
VOR/MKR RECEIVER - REMOVAL/INSTALLATION	34-51-01		401	LOM ALL
VOR/MKR Receiver Removal TASK 34-51-01-000-801			401	LOM ALL
VOR/MKR Receiver Installation TASK 34-51-01-400-801			404	LOM ALL
VOR/LOC ANTENNA - REMOVAL/INSTALLATION	34-51-02		401	LOM ALL
VOR/LOC Antenna Removal TASK 34-51-02-000-801			401	LOM ALL
VOR/LOC Antenna Installation TASK 34-51-02-400-801			404	LOM ALL
AIR TRAFFIC CONTROL (ATC) SYSTEM - MAINTENANCE PRACTICES	34-53-00		201	LOM ALL
Air Traffic Control System - Deactivation TASK 34-53-00-040-801			201	LOM ALL
Air Traffic Control System - Activation TASK 34-53-00-440-801			204	LOM ALL

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AIR TRAFFIC CONTROL (ATC) SYSTEM - ADJUSTMENT/TEST	34-53-00		501	LOM ALL
Air Traffic Control System - Operational Test TASK 34-53-00-710-801			501	LOM ALL
ATC System Test (With the ATC-601 Test Set) TASK 34-53-00-730-803			509	LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089
System Test - ATC System (With the TIC T-48 or T-49 Series Test Set) TASK 34-53-00-730-802			525	LOM 404, 411, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 428 PRE SB 737-34-3246; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089
ATC System - System Test (With the IFR-6000 Test Set) TASK 34-53-00-730-805			531	LOM ALL
ATC System Test (With the TR-220 Test Set) TASK 34-53-00-730-806			543	LOM ALL
ATC System - System Test (With the AVX-10K Test Set) TASK 34-53-00-730-807			553	LOM ALL
AIR TRAFFIC CONTROL (ATC) ANTENNA - REMOVAL/INSTALLATION	34-53-01		401	LOM ALL
ATC Antenna Removal TASK 34-53-01-000-801			401	LOM ALL

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ATC Antenna with Gasket - Removal TASK 34-53-01-000-802			404	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
ATC Antenna Installation TASK 34-53-01-400-801			407	LOM ALL
ATC Antenna with Gasket - Installation TASK 34-53-01-400-802			412	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
AIR TRAFFIC CONTROL (ATC) TRANSPONDER - REMOVAL/INSTALLATION	34-53-02		401	LOM ALL
ATC Transponder Removal TASK 34-53-02-020-801			401	LOM ALL
ATC Transponder Installation TASK 34-53-02-400-801			404	LOM ALL
ATC CONTROL PANEL - REMOVAL/INSTALLATION	34-53-03		401	LOM ALL
ATC Control Panel Removal TASK 34-53-03-000-801			401	LOM ALL
ATC Control Panel Installation TASK 34-53-03-400-801			403	LOM ALL
AIR TRAFFIC CONTROL (ATC) ANTENNA SWITCH - REMOVAL/INSTALLATION	34-53-04		401	LOM ALL
ATC Antenna Switch Removal TASK 34-53-04-000-801			401	LOM ALL
ATC Antenna Switch Installation TASK 34-53-04-400-801			404	LOM ALL
DME SYSTEM - MAINTENANCE PRACTICES	34-55-00		201	LOM ALL
DME System - Deactivation TASK 34-55-00-040-801			201	LOM ALL
DME System - Activation TASK 34-55-00-440-801			202	LOM ALL
DME SYSTEM - ADJUSTMENT/TEST	34-55-00		501	LOM ALL
DME System - Operational Test TASK 34-55-00-710-801			501	LOM ALL
DME System - System Test TASK 34-55-00-730-801			503	LOM ALL

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DME ANTENNA - REMOVAL/INSTALLATION	34-55-11		401	LOM ALL
DME Antenna Removal TASK 34-55-11-000-801			401	LOM ALL
DME Antenna with Gasket Removal TASK 34-55-11-000-802			404	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
DME Antenna Installation TASK 34-55-11-400-801			407	LOM ALL
DME Antenna with Gasket Installation TASK 34-55-11-400-802			412	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
DME INTERROGATOR - REMOVAL/INSTALLATION	34-55-21		401	LOM ALL
DME Interrogator Removal TASK 34-55-21-000-801			401	LOM ALL
DME Interrogator Installation TASK 34-55-21-400-801			404	LOM ALL
AUTOMATIC DIRECTION FINDER SYSTEM - MAINTENANCE PRACTICES	34-57-00		201	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999
Automatic Direction Finder System - Deactivation TASK 34-57-00-040-801			201	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999
Automatic Direction Finder System - Activation TASK 34-57-00-440-801			202	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999
AUTOMATIC DIRECTION FINDER SYSTEM - ADJUSTMENT/TEST	34-57-00		501	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999
Automatic Direction Finder System - System Test TASK 34-57-00-730-802			501	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
ADF ANTENNA - REMOVAL/INSTALLATION	34-57-01		401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA
ADF Antenna - Removal TASK 34-57-01-000-801			401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA
ADF Antenna - Installation TASK 34-57-01-400-801			407	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA
ADF CONTROL PANEL - REMOVAL/INSTALLATION	34-57-02		401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL
ADF Control Panel - Removal TASK 34-57-02-000-801			401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL
ADF Control Panel - Installation TASK 34-57-02-400-801			405	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL
ADF RECEIVER - REMOVAL/INSTALLATION	34-57-03		401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER
ADF Receiver Removal TASK 34-57-03-000-801			401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER
ADF Receiver Installation TASK 34-57-03-400-801			405	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER

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CHAPTER 34
NAVIGATION

SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
GLOBAL POSITIONING SYSTEM - MAINTENANCE PRACTICES	34-58-00		201	LOM ALL
Global Positioning System - Deactivation TASK 34-58-00-040-801			201	LOM ALL
Global Positioning System - Activation TASK 34-58-00-440-801			204	LOM ALL
GLOBAL POSITIONING SYSTEM - ADJUSTMENT/TEST	34-58-00		501	LOM ALL
Global Positioning System - Operational Test TASK 34-58-00-710-802			501	LOM ALL
Global Positioning System - System Test TASK 34-58-00-730-802			502	LOM ALL
GPS ANTENNA - REMOVAL/INSTALLATION	34-58-02		401	LOM ALL
GPS Antenna - Removal TASK 34-58-02-000-802			401	LOM ALL
GPS Antenna - Installation TASK 34-58-02-400-802			404	LOM ALL
FLIGHT MANAGEMENT COMPUTER SYSTEM - MAINTENANCE PRACTICES	34-61-00		201	LOM ALL
FMC Deactivation TASK 34-61-00-040-801			201	LOM ALL
FMC Activation TASK 34-61-00-440-801			203	LOM ALL
FMC Software Installation with an Airborne Data Loader TASK 34-61-00-470-804			204	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438
FMC Software Installation with an Enhanced Airborne Data Loader TASK 34-61-00-470-811			210	LOM 429-431, 440, 442-447, 450-460, 464-999
FMC Software Installation with a Portable Data Loader TASK 34-61-00-470-805			215	LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999
FMC Software Crossload TASK 34-61-00-470-806			223	LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
FMC Software Configuration Check TASK 34-61-00-750-801			224	LOM ALL
CDU Software Installation with an Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) TASK 34-61-00-470-807			226	LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; LOM 404 PRE SB 737-23-1484
CDU Software Installation with a Portable Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) TASK 34-61-00-470-808			228	LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999
CDU Software Installation with an Enhanced Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) TASK 34-61-00-470-812			232	LOM 429-431, 440, 442-447, 450-460, 464-999
CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) TASK 34-61-00-750-802			236	LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 PRE SB 737-23-1484
Software Installation when the Airborne Data Loader is Inoperative TASK 34-61-00-470-809			237	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999
FMC Diagnostic Data Transfer TASK 34-61-00-810-801			244	LOM ALL
Setting Zero Fuel Weight TASK 34-61-00-400-801			249	LOM ALL
FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST	34-61-00		501	LOM ALL
Flight Management Computer System - Operational Test TASK 34-61-00-710-801			501	LOM ALL
Flight Management Computer System - System Test TASK 34-61-00-730-801			506	LOM ALL
FMCS Performance Factors - Adjustment TASK 34-61-00-800-801			520	LOM ALL

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CHAPTER 34
NAVIGATION

SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
FMCS CONTROL DISPLAY UNIT - MAINTENANCE PRACTICES	34-61-01		201	LOM ALL
FMCS CDU Cooling Vent and Surfaces Cleaning TASK 34-61-01-100-801			201	LOM ALL
FMCS CDU Display Cleaning TASK 34-61-01-100-802			206	LOM ALL
FMCS CDU Keyboard Removal TASK 34-61-01-000-801			206	LOM ALL
FMCS CDU Keyboard Installation TASK 34-61-01-400-801			210	LOM ALL
FMCS CONTROL DISPLAY UNIT - SERVICING	34-61-01		301	LOM ALL
Annunciator Replacement (CRT CDU P/N 10-XXXXX-XXX) TASK 34-61-01-960-801			301	LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU
EXEC Key Replacement (CRT CDU P/N 10-XXXXX-XXX) TASK 34-61-01-960-802			304	LOM 404 POST SB 737-23-1484
CDU Lamp Test TASK 34-61-01-710-801			305	LOM ALL
FMCS CONTROL DISPLAY UNIT - REMOVAL/INSTALLATION	34-61-01		401	LOM ALL
FMCS Control Display Unit (CDU) Removal TASK 34-61-01-000-802			401	LOM ALL
FMCS Control Display Unit (CDU) - Installation TASK 34-61-01-400-802			404	LOM ALL
FMCS COMPUTER - REMOVAL/INSTALLATION	34-61-02		401	LOM ALL
FMCS Computer Removal TASK 34-61-02-000-801			401	LOM ALL
FMCS Computer Installation TASK 34-61-02-400-801			405	LOM ALL
AIRBORNE DATA LOADER - MAINTENANCE PRACTICES	34-61-03		201	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438
Airborne Data Loader - Deactivation TASK 34-61-03-040-801			201	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438

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SUBJECT	CHAPTER SECTION SUBJECT	CONF	PAGE	EFFECT
Airborne Data Loader - Activation TASK 34-61-03-440-801			201	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438
Airborne Data Loader Head Cleaning TASK 34-61-03-100-801			202	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438
AIRBORNE DATA LOADER - REMOVAL/INSTALLATION	34-61-03		401	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999
Airborne Data Loader Removal TASK 34-61-03-000-801			401	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438
Airborne Data Loader - Installation TASK 34-61-03-400-801			402	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438
Enhanced Airborne Data Loader Removal TASK 34-61-03-000-803			403	LOM 429-431, 440, 442-447, 450-460, 464-999
Enhanced Airborne Data Loader Installation TASK 34-61-03-400-803			407	LOM 429-431, 440, 442-447, 450-460, 464-999
Data Load Selector Panel Removal TASK 34-61-03-000-804			408	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999
Data Load Selector Panel Installation TASK 34-61-03-400-804			411	LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999
FMCS TRANSFER RELAYS - REMOVAL/INSTALLATION	34-61-04		401	LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999
FMCS Transfer Relay Removal TASK 34-61-04-000-801			401	LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999
FMCS Transfer Relay Installation TASK 34-61-04-400-801			405	LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

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NAVIGATION - DDG MAINTENANCE PROCEDURES

1. General

A. This procedure has the maintenance tasks for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Procedures Guide (DDPG). These tasks prepare the airplane for flight with systems/components that are inoperative.

B. This procedure also has the tasks that put the airplane back to its usual condition.

C. These are the tasks for the components in the navigation system:

(1) MMEL 34-20 (DDPG) Preparation - Low Range Radio Altimeter (LRRA) Inoperative

(2) MMEL 34-20 (DDPG) Restoration - Low Range Radio Altimeter (LRRA) Inoperative

(3) MMEL 34-36 (DDPG) Preparation - Flight Management Computer System (FMCS) Inoperative

(4) MMEL 34-36 (DDPG) Restoration - Flight Management Computer System (FMCS) Inoperative

(5) MMEL 34-40 (DDPG) Preparation - Traffic Collision and Avoidance System (TCAS) Inoperative

(6) MMEL 34-40 (DDPG) Restoration - Traffic Collision and Avoidance System (TCAS) Inoperative

TASK 34-00-00-040-802

2. MMEL 34-20 (DDPG) Preparation - Low Range Radio Altimeter (LRRA) Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Low Range Radio Altimeter (LRRA) inoperative.

B. References

Reference	Title
32-00-00-040-815	MMEL 32-17-01 (DDPG) Preparation - PSEU Fault (P/B 901)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. LRRA Deactivation, Left

SUBTASK 34-00-00-040-002

(1) Open this circuit breaker and install safety lock:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

NOTE: With one radio altimeter not operating, the SPEED BRAKE DO NOT ARM light will come on from the ground when speed brake handle is moved from the DOWN detent.

SUBTASK 34-00-00-410-001

(2) For airplanes without Flight Control Computer (FCC) Operational Program Software (OPS) 2212-HNP-03B-05 or later installed, re-initialize the FCC associated with the inoperative radio altimeter by momentarily opening and then closing the applicable P18-1 panel FCC circuit breaker.

NOTE: Rockwell Collins FCC OPS part numbers are considered to be equivalent to Honeywell FCC OPS part number 2212-HNP-03B-05 and later.

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SUBTASK 34-00-00-040-005

(3) For airplanes with Proximity Switch Electronic Unit (PSEU) part number 285A1600-5 or earlier, refer to MMEL 32-17-01 (DDPG) Preparation - PSEU Fault, TASK 32-00-00-040-815. An invalid radio altimeter signal will generate a dispatchable PSEU fault.

E. LRRA Deactivation, Right

SUBTASK 34-00-00-040-003

(1) Open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

NOTE: With one radio altimeter not operating, the SPEED BRAKE DO NOT ARM light will come on from the ground when speed brake handle is moved from the DOWN detent.

SUBTASK 34-00-00-410-002

(2) For airplanes without FCC OPS 2212-HNP-03B-05 or later installed, re-initialize the FCC associated with the inoperative radio altimeter by momentarily opening and then closing the applicable P6-2 panel FCC circuit breaker.

NOTE: Rockwell Collins FCC OPS part numbers are considered to be equivalent to Honeywell FCC OPS part number 2212-HNP-03B-05 and later.

SUBTASK 34-00-00-040-006

(3) For airplanes with PSEU part number 285A1600–5 or earlier, refer to MMEL 32-17-01 (DDPG) Preparation - PSEU Fault, TASK 32-00-00-040-815. An invalid radio altimeter signal will generate a dispatchable PSEU fault.

——— END OF TASK ———

TASK 34-00-00-440-802

3. MMEL 34-20 (DDPG) Restoration - Low Range Radio Altimeter (LRRA) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Low Range Radio Altimeter (LRRA) inoperative.

B. References

Reference	Title
32-00-00-440-815	MMEL 32-17-01 (DDPG) Restoration - PSEU Fault (P/B 901)
34-33-00-710-801	Low Range Radio Altimeter (LRRA) System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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D. LRRA Reactivation, Left

SUBTASK 34-00-00-440-002

(1) Remove the safety lock and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

SUBTASK 34-00-00-410-003

(2) For airplanes without Flight Control Computer (FCC) Operational Program Software (OPS) 2212-HNP-03B-05 or later installed, re-initialize the FCC associated with the inoperative radio altimeter by momentarily opening and then closing the applicable P18-1 panel FCC circuit breaker.

NOTE: Rockwell Collins FCC OPS part numbers are considered to be equivalent to Honeywell FCC OPS part number 2212-HNP-03B-05 and later.

SUBTASK 34-00-00-040-007

(3) For airplanes with Proximity Switch Electronic Unit (PSEU) part number 285A1600-5 or earlier, refer to MMEL 32-17-01 (DDPG) Restoration - PSEU Fault, TASK 32-00-00-440-815. An invalid radio altimeter signal will generate a dispatchable PSEU fault.

E. LRRA Reactivation, Right

SUBTASK 34-00-00-440-003

(1) Remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-00-00-410-004

(2) For airplanes without FCC OPS 2212-HNP-03B-05 or later installed, re-initialize the FCC associated with the inoperative radio altimeter by momentarily opening and then closing the applicable P6-2 panel FCC circuit breaker.

NOTE: Rockwell Collins FCC OPS part numbers are considered to be equivalent to Honeywell FCC OPS part number 2212-HNP-03B-05 and later.

SUBTASK 34-00-00-040-008

(3) For airplanes with PSEU part number 285A1600-5 or earlier, refer to MMEL 32-17-01 (DDPG) Restoration - PSEU Fault, TASK 32-00-00-440-815. An invalid radio altimeter signal will generate a dispatchable PSEU fault.

F. FCC-A Re-initialization (left)

SUBTASK 34-00-00-440-004

(1) Momentarily open and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
D	2	C01045	AFCS SYS A FCC DC

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G. FCC-B Re-initialization (right)

SUBTASK 34-00-00-440-005

(1) Momentarily open and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	3	C01046	AFCS SYS B FCC DC

H. LRRA Repair

SUBTASK 34-00-00-740-002

(1) Do this task: Low Range Radio Altimeter (LRRA) System - Operational Test, TASK 34-33-00-710-801.

SUBTASK 34-00-00-810-003

(2) Go to the Fault Code Index in the Fault Isolation Manual (FIM) and find the fault code (the first two digits of the fault code are the FIM chapter).

(a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.

(b) Find the task number on the same line as the maintenance message number.

SUBTASK 34-00-00-810-004

(3) Go to the task in the FIM and do the steps in the task.

END OF TASK

TASK 34-00-00-040-804

4. MMEL 34-36 (DDPG) Preparation - Flight Management Computer System (FMCS) Inoperative

A. General

(1) This task gives the maintenance steps that prepare the airplane for flight with the Flight Management Computer System (FMCS) inoperative.

B. References

Reference	Title
22-31-00-040-801	Autothrottle System - Deactivation (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. FMCS Deactivation

SUBTASK 34-00-00-040-009

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

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SUBTASK 34-00-00-040-010

(2) Deactivate the Autothrottle System (TASK 22-31-00-040-801).

END OF TASK

TASK 34-00-00-440-804

5. MMEL 34-36 (DDPG) Restoration - Flight Management Computer System (FMCS) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with a Flight Management Computer System (FMCS) inoperative.

B. References

Reference	Title
22-31-00-440-801	Autothrottle System - Activation (P/B 201)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. FMCS Activation

SUBTASK 34-00-00-440-007

(1) Activate the Autothrottle System (TASK 22-31-00-440-801).

SUBTASK 34-00-00-440-008

(2) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

E. FMCS Repair

SUBTASK 34-00-00-710-001

(1) Do this task: Flight Management Computer System - Operational Test, TASK 34-61-00-710-801.

SUBTASK 34-00-00-810-007

(2) Go to the Fault Code Index in the Fault Isolation Manual (FIM) and find the fault code (the first two digits of the fault code are the FIM chapter).

(a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.

(b) Find the task number on the same line as the maintenance message number.

SUBTASK 34-00-00-810-008

(3) Go to the task in the FIM and do the steps in the task.

END OF TASK

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TASK 34-00-00-040-801

6. MMEL 34-40 (DDPG) Preparation - Traffic Collision and Avoidance System (TCAS) Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Traffic Collision and Avoidance System (TCAS) inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. TCAS Deactivation

SUBTASK 34-00-00-040-001

(1) Open this circuit breaker and install safety lock:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

——— END OF TASK ———

TASK 34-00-00-440-801

7. MMEL 34-40 (DDPG) Restoration - Traffic Collision and Avoidance System (TCAS) Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Traffic Collision and Avoidance System (TCAS) inoperative.

B. References

Reference	Title
FIM 34-45 TASK 801	Traffic Alert and Collision Avoidance System (TCAS) BITE Procedure

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. TCAS Reactivation

SUBTASK 34-00-00-440-001

(1) Remove the safety lock and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

E. TCAS Repair

SUBTASK 34-00-00-740-001

(1) Do this task: FIM 34-45 TASK 801.

SUBTASK 34-00-00-810-001

(2) Go to the Fault Code Index in the FIM and find the fault code (the first two digits of the fault code are the FIM chapter).

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(a) For each correlated maintenance message, find the maintenance message number to the right side of the fault code.

(b) Find the task number on the same line as the maintenance message number.

SUBTASK 34-00-00-810-002

(3) Go to the task in the FIM and do the steps in the task.

——— END OF TASK ———

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STATIC AND TOTAL AIR PRESSURE SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Static and Total Air Pressure System Deactivation.

(2) Static and Total Air Pressure System Activation.

(3) Pressurization of the Captain's Total Air Pressure System to simulate an airspeed.

(4) Pressurization of the Static and Total Air Pressure System to simulate an altitude and airspeed.

TASK 34-11-00-040-801

2. Static and Total Air Pressure System - Deactivation

(Figure 201)

A. General

(1) This procedure removes electrical power from the Static and Total Air Pressure System.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-11-00-860-203

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

D. Static and Total Air Pressure System - Tryout

NOTE: This tryout is to make sure the Static and Total Air Pressure System is in a zero energy state.

SUBTASK 34-11-00-860-204

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-00-700-001

(2) At the Probe Heat Panel on the FWD OVHD Panel (P5) do the following:

(a) Push the probe heat switches “A” and “B” to the ON position.

(b) Make sure the amber warning lights come on.

NOTE: Amber system warning lights come on when a probe does not have heat.

END OF TASK

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Pitot Probe
Figure 201/34-11-00-990-804

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TASK 34-11-00-440-801

3. Static and Total Air Pressure System - Activation

(Figure 201)

A. General

(1) This procedure adds electrical power to the Static and Total Air Pressure System.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-11-00-860-205

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

END OF TASK

TASK 34-11-00-790-803

4. Captain's Total Air Pressure System - Pressurization

A. General

(1) This task contains the steps to pressurize the Captain's Total Air Pressure System.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance)
	Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit)
	Part #: CSA75700HT-3 Supplier: 3BSK6 Part #: P75701-4 Supplier: 38002 Part #: P75701M2-3 Supplier: 38002
SPL-1917	Fixture - Test, Angle of Attack Sensor, ROSEMOUNT AOA's
	Part #: J34002-19 Supplier: 81205 Opt Part #: A34012-19 Supplier: 81205 Opt Part #: A34012-24 Supplier: 81205 Opt Part #: J34002-18 Supplier: 81205

D. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Prepare for the Captain's Total Air Pressure System - Pressurization

SUBTASK 34-11-00-860-062

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-11-00-860-063

(2) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 34-11-00-730-002

CAUTION

OBEY THESE PRECAUTIONS BEFORE YOU APPLY PRESSURE TO THE PITOT- STATIC SYSTEM. IF YOU DO NOT OBEY THESE PRECAUTIONS, DAMAGE TO THE EQUIPMENT AND INSTRUMENTS CAN OCCUR.

(3) Obey these precautions before you apply pressure to the pitot system.

(a) Supply the electrical power for the ADIRS before you make the total pressure hook-up.

(b) Keep power on until the pressure hook-up is opened.

(c) Pressure changes must be flow controlled to prevent sudden changes in pressure and possible damage to the air data hardware.

(d) Keep the total pressure in the range of 3.26 to 41.34 inches Hg.

(e) When you adjust the pressure, make sure the rate of change of airspeed is less than 300 knots per minute.

(f) Make sure the difference between the static and pitot line pressure is not larger than 10 inches Hg.

(g) Make sure the autopilot system stays off during the test.

CAUTION

MAKE SURE YOU DO NOT SUPPLY ELECTRICAL POWER TO THE PITOT PROBE HEATER. IF YOU DO, YOU CAN DAMAGE THE PITOT PROBE.

(h) Make sure the pitot probe heaters stay off during the test.

(i) Make sure the AOA vanes are set to 0 ±5 degree, with respect to the AOA sensor alignment pin with an angle of attack probe test fixture, SPL-1917.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. Captain's Total Air Pressure System - Pressurization

SUBTASK 34-11-00-860-064

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT

SUBTASK 34-11-00-480-086

(2) Attach a red paper tag that has PITOT PROBES COVERED or STATIC PORTS COVERED in black letters, to the left control wheel in the flight deck with wire.

WARNING

WHEN THE PITOT PROBES HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE PITOT PROBES HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE PITOT PROBES, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

CAUTION

MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(3) Install the pitot test adapter, COM-1916, on the left pitot probe.

SUBTASK 34-11-00-480-087

(4) Connect the air data model test set, COM-1914 to the pitot test adapter, COM-1916.

SUBTASK 34-11-00-790-057

CAUTION

MAKE SURE THAT THE PRESSURE IN THE ADM IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG WILL CAUSE DAMAGE TO THE ADM.

CAUTION

DO NOT DISCONNECT THE PITOT SYSTEM TEST ADAPTER WHEN THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE. DAMAGE TO THE AIR DATA MODULES CAN OCCUR IF THE SYSTEM IS NOT AT AMBIENT PRESSURE.

(5) Operate the air data model test set, COM-1914 to apply the desired pressure to the pitot system.

SUBTASK 34-11-00-790-058

(6) Stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-059

(7) Read the appropriate instrument.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-065

(1) Put the system back to ambient pressure.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-080-046

> **CAUTION** DO NOT DISCONNECT THE PITOT SYSTEM TEST ADAPTER WHEN THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE. IF YOU DO, DAMAGE TO THE ADM CAN OCCUR.

(2) Disconnect the air data model test set, COM-1914 from the pitot test adapter, COM-1916.

SUBTASK 34-11-00-080-047

(3) Remove the pitot test adapter, COM-1916, from the pitot probe.

SUBTASK 34-11-00-860-066

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-11-00-080-125

(5) Remove the red paper tag that has PITOT PROBES COVERED or STATIC PORTS COVERED in black letters, from the left control wheel in the flight deck.

SUBTASK 34-11-00-860-067

(6) Do this task: Remove External Power, TASK 24-22-00-860-814.

END OF TASK

TASK 34-11-00-790-802

5. Static and Total Air Pressure System - Pressurization

A. General

(1) This task contains the steps to pressurize the static and total air pressure system.

B. References

Reference	Title
25-52-06-000-801	Cargo Compartment Sidewall Lining - Removal (P/B 401)
25-52-06-400-801	Cargo Compartment Sidewall Lining - Installation (P/B 401)
34-11-00-990-814	Figure: Static System Drains (P/B 301)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance)
	Part #: ADSE 650 Supplier: 3BSK6
	Part #: ADTS2000 Supplier: 52892
	Part #: ADTS3350ER Supplier: 52892
	Part #: ADTS405MKII Supplier: U0427
	Part #: ADTS530 Supplier: U0427
	Part #: ADTS552F Supplier: U0427
	Part #: ADTS553F Supplier: U0427
	Part #: ADTS554F Supplier: U0427
	Part #: D60340MK Supplier: K1474
	Part #: DPS1000 Supplier: 21844
	Part #: MODEL 6300 Supplier: 0RDZ5
	Part #: MPS34C Supplier: 48RQ2
	Part #: MPS43B Supplier: A0197
	Part #: MPS45 Supplier: 48RQ2
	Part #: MPS49 Supplier: 48RQ2
	Part #: TES9463 Supplier: 88277
	Opt Part #: 01-0987-00 Supplier: 41364
	Opt Part #: 18910480000 Supplier: 89944
	Opt Part #: 18910920000 Supplier: 89944
	Opt Part #: ADTS405F Supplier: U0427
	Opt Part #: ADTS505 Supplier: U0427
	Opt Part #: D60302 Supplier: K1474
	Opt Part #: D60340 Supplier: K1474
	Opt Part #: D60383 Supplier: K1474
	Opt Part #: DPS350 Supplier: 21844
	Opt Part #: DPS450 Supplier: 21844
	Opt Part #: DPS500 Supplier: 21844
	Opt Part #: MPS31C Supplier: 48RQ2
	Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit)
	Part #: CSA75700HT-3 Supplier: 3BSK6
	Part #: P75701-4 Supplier: 38002
	Part #: P75701M2-3 Supplier: 38002
COM-1921	Adapter - Static Test
	Part #: 33410LH-125-4 Supplier: 38002
	Part #: ADA737-678 Supplier: 38002
	Part #: AK737-900 Supplier: 3BSK6
	Part #: CSTL19725-4 Supplier: 3BSK6
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting
	Part #: 1QF2-3-64C Supplier: 24984
SPL-1917	Fixture - Test, Angle of Attack Sensor, ROSEMOUNT AOA's
	Part #: J34002-19 Supplier: 81205
	Opt Part #: A34012-19 Supplier: 81205
	Opt Part #: A34012-24 Supplier: 81205
	Opt Part #: J34002-18 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Prepare for the Static and Total Air Pressure System - Pressurization

SUBTASK 34-11-00-730-003

> **CAUTION** OBEY THESE PRECAUTIONS BEFORE YOU APPLY PRESSURE TO THE PITOT- STATIC SYSTEM. IF YOU DO NOT OBEY THESE PRECAUTIONS, DAMAGE TO THE EQUIPMENT AND INSTRUMENTS CAN OCCUR.

(1) Obey these precautions before you apply pressure to the pitot-static system.

> **CAUTION** MAKE SURE YOU DO NOT SUPPLY ELECTRICAL POWER TO THE PITOT PROBE HEATER. IF YOU DO, YOU CAN DAMAGE THE PITOT PROBE.

(a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

(b) Supply the electrical power to the ADIRS before you make the static or total pressure connections.

(c) Keep electrical power on the ADIRS until all pressure connections are opened.

(d) Make sure that the Autopilot Flight Director System is off during the test.

(e) Pressure changes must be flow controlled to prevent sudden changes in pressure and possible damage to the air data hardware.

1) Static pressure will be applied to all systems at the same time.

a) Keep the static pressure in the range of 3.26 to 33.31 inches Hg.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

b) Do not let the static pressure to be more than 28 inches Hg. from the ambient pressure.

c) Keep the static line pressure less than the pitot line pressure.

2) Pitot pressure will be applied to all systems at the same time.

a) Keep the total pressure in the range of 3.26 to 41.34 inches Hg.

3) Make sure the difference between the static and pitot line pressure is not larger than 10 inches Hg.

4) When you adjust the static pressure, make sure the rate of change of altitude is less than 5,000 feet per minute.

5) When you adjust the pitot pressure, make sure the rate of change of airspeed is less than 300 knots per minute.

(f) Do not connect or disconnect the test equipment while you have pressure in the pitot-static system.

SUBTASK 34-11-00-860-068

(2) Turn the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter through the full range.

SUBTASK 34-11-00-860-069

(3) Set the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter to 29.92 inches of Hg.

SUBTASK 34-11-00-860-070

WARNING	MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Set the ATC mode switch on the ATC control panel, P8-29, to the STBY position.

SUBTASK 34-11-00-860-071

(5) Set the AOA vanes to 0 ±5 degrees, with respect to the AOA sensor alignment pin with an angle of attack probe test fixture, SPL-1917.

H. Installation of Pitot Probe adapters

SUBTASK 34-11-00-480-237

(1) Install the adapters on the Captains, First Officers, and Alternate pitot probes.

(2) Connect the adapters to the air data model test set, COM-1914.

I. Installation of Drain Coupling

SUBTASK 34-11-00-480-160

WARNING	WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. IN ADDITION, ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT DECK AS A REMINDER THAT THE STATIC PORTS ARE COVERED. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(WARNING PRECEDES)

> **CAUTION**
> DO NOT EXTEND THE TAPE INTO THE STATIC PORTS. DAMAGE TO THE SURFACE OF THE PORT CAN OCCUR WHEN YOU REMOVE THE TAPE.

(1) Seal these static ports with vinyl adhesive Scotch Brand No.471 tape, G02219:

(a) Seal the upper and lower primary static ports and the alternate static port on the right side of the fuselage.

(b) Seal the upper and lower primary static ports and the alternate static port on the left side of the fuselage.

SUBTASK 34-11-00-480-161

(2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment.

(a) Do this task: Cargo Compartment Sidewall Lining - Removal, TASK 25-52-06-000-801.

SUBTASK 34-11-00-010-023

(3) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-11-00-480-162

(4) Remove the caps from the left, right and alternate static system drains, refer to Figure 34-11-00-990-814.

SUBTASK 34-11-00-480-163

(5) Install the coupling, COM-1927, on the left, right and alternate static system drains.

SUBTASK 34-11-00-480-164

(6) Connect the air data model test set, COM-1914 to each coupling, COM-1927.

J. Installation of Static Port Adapter

SUBTASK 34-11-00-480-165

> **CAUTION**
> INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(1) Install the static test adapter, COM-1921, on the static ports at these locations:

(a) The captain's static port on the right side of the fuselage.

(b) The first officer's static port on the right side of the fuselage.

(c) The alternate static port on the right side of the fuselage.

SUBTASK 34-11-00-480-166

> **WARNING**
> WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. IN ADDITION, ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT DECK AS A REMINDER THAT THE STATIC PORTS ARE COVERED. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(WARNING PRECEDES)

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(2) Seal the static ports at these locations with Scotch Brand No.471 tape, G02219:

(a) The captain's static port on the left side of the fuselage.

(b) The first officer's static port on the left side of the fuselage.

(c) The alternate static port on the left side of the fuselage.

K. Static and Total Air Pressure System - Pressurization

SUBTASK 34-11-00-780-001

(1) Apply the desired pressures to the static and total air pressure system.

SUBTASK 34-11-00-800-001

(2) Stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-970-001

(3) Read the appropriate instrument.

L. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-080-087

(1) Removal of Drain Coupling, 1QF2-3-64

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(a) Disconnect the air data model test set, COM-1914 from each coupling, COM-1927.

(b) Disconnect each coupling, COM-1927, from the left, right and alternate static system drains.

(c) Install the cap on the left and right static system drains.

(d) Do a visual inspection of the quick-disconnect fittings that you connected.

1) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

> **WARNING** DO NOT FILL OR CHANGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY AND IT CAN CAUSE INJURY.

(e) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

1) The Captain, First Officers and the Alternate static ports on the right side of the fuselage.

2) The Captain, First Officers and the Alternate static ports on the left side of the fuselage.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(f) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment.

1) Do this task: Cargo Compartment Sidewall Lining - Installation, TASK 25-52-06-400-801.

(g) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-11-00-480-169

(2) Removal of Static Port Adapter

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(a) Disconnect the air data model test set, COM-1914, from the static test adapter, COM-1921.

> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(b) Remove the static test adapter, COM-1921, from the static ports at these locations:

1) The captain's static port on the right side of the fuselage.
2) The first officer's static port on the right side of the fuselage.
3) The alternate static port on the right side of the fuselage.

> **WARNING** DO NOT FILL OR CHANGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY AND IT CAN CAUSE INJURY.

(c) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

1) The captain's static port on the left side of the fuselage.
2) The first officer's static port on the left side of the fuselage.
3) The alternate static port on the right side of the fuselage.

SUBTASK 34-11-00-080-090

(3) Removal of the Probe Adapters:

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(a) Disconnect the air data model test set, COM-1914 from each pitot test adapter, COM-1916.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-860-073

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STATIC AND TOTAL AIR PRESSURE SYSTEM - SERVICING

1. General

A. This procedure has these tasks:

(1) Pitot Static System - Flushing

(2) Pitot Static System - Draining

(3) Pitot System - Detailed Inspection of Drains

(4) Static System - Detailed Inspection of Drains

B. The draining procedure removes or assures the absence of liquid collected in the pitot static system drains. The flushing procedure removes or assures the absence of any foreign matter in the pitot static lines.

TASK 34-11-00-170-802

2. Pitot Static System - Flushing

(Figure 301, Figure 302, Figure 303 and Figure 304)

A. General

(1) This task is used to flush the pitot static system. The tasks are listed separately by system:

(a) Captain's static system (left static)

(b) First Officer (F/O) static system (right static)

(c) Captain's pitot system (left pitot)

(d) F/O pitot system (right pitot)

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(e) Alternate static system to the Integrated Standby Flight Display (ISFD) and the Cabin Altitude and Differential Pressure Indicator

LOM 411, 426, 432

(f) Alternate static system to the Standby Altimeter/Airspeed Indicator (SAAI) and the Cabin Altitude and Differential Pressure Indicator

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(g) Auxiliary pitot system to the ISFD

LOM 411, 426, 432

(h) Auxiliary pitot system to the SAAI.

LOM ALL

B. References

Reference	Title
21-33-02-000-801	Cabin Altitude and Differential Pressure Indicator Removal (P/B 401)
21-33-02-400-801	Cabin Altitude and Differential Pressure Indicator Installation (P/B 401)
25-52-06-000-801	Cargo Compartment Sidewall Lining - Removal (P/B 401)
25-52-06-400-801	Cargo Compartment Sidewall Lining - Installation (P/B 401)
25-52-09-000-801	Cargo Compartment Ceiling Liner - Removal (P/B 401)
25-52-09-400-801	Cargo Compartment Ceiling Liner - Installation (P/B 401)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Title
34-11-00-790-804	Left Static System Low-range Leak Test (P/B 501)
34-11-00-790-806	Right Static System Low-range Leak Test (P/B 501)
34-11-00-790-808	Alternate Static System Low-range Leak Test (P/B 501)
34-11-00-790-810	Left Pitot System Leak Test (P/B 501)
34-11-00-790-811	Right Pitot System Leak Test (P/B 501)
34-11-00-790-812	Alternate Pitot System Leak Test (P/B 501)
34-11-01-000-801	Pitot Probe - Removal (P/B 401)
34-11-01-100-801	Pitot Probe Cleaning (P/B 701)
34-11-01-200-804	Pitot Probe Detailed Inspection (P/B 601)
34-11-01-400-801	Pitot Probe - Installation (P/B 401)
34-11-02-000-803	Alternate Static Port Removal (P/B 401)
34-11-02-020-801	Primary Static Port Removal (P/B 401)
34-11-02-200-803	Static Port - Detailed Inspection (P/B 601)
34-11-02-400-801	Primary Static Port Installation (P/B 401)
34-11-02-400-803	Alternate Static Port Installation (P/B 401)
34-13-01-000-801	Standby Altimeter/Airspeed Indicator - Removal (P/B 401)
34-13-01-400-801	Standby Altimeter/Airspeed Indicator - Installation (P/B 401)
34-24-02-000-801	Integrated Standby Flight Display Removal (P/B 401)
34-24-02-400-801	Integrated Standby Flight Display Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit) Part #: CSA75700HT-3 Supplier: 3BSK6 Part #: P75701-4 Supplier: 38002 Part #: P75701M2-3 Supplier: 38002
COM-1926	Coupling - Quick Disconnect, Pitot System Drain Line Part #: 1QF2-2-64A Supplier: 24984
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984
SPL-15058	Test Adapter Kit - Pitot Static Continuity Leak and Flushing Part #: A34017-24 Supplier: 81205
STD-3940	Air Source - Regulated, Dry Filtered, 0-150 psig
STD-6777	Assembly - Cap, Pressure Seal, Flareless Tube (Standard MS9513-04 or BACC14AD-04)

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

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E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
112A	Forward Access Door
117A	Electronic Equipment Access Door

G. Prepare for the Pitot-Static System Flushing

SUBTASK 34-11-00-040-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 411, 426, 432			
D	10	C00357	STBY ALTM/ASI VIB
LOM ALL			
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT
LOM 402, 406, 411, 412, 415, 416, 422-434, 437-447, 450-999; LOM 404, 407, 420 POST SB 737-30A1063			
D	8	C01946	PROBE AUTO HEAT CAPT
D	9	C01947	PROBE AUTO HEAT F/O

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM ALL			
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

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SUBTASK 34-11-00-860-255

(2) Make sure that the pitot static systems are at ambient pressure.

SUBTASK 34-11-00-680-005

(3) Do this task: Pitot Static System - Draining, TASK 34-11-00-680-801.

H. Left Static System Flushing

SUBTASK 34-11-00-211-001

(1) Inspect the left static system ports, do this task: Static Port - Detailed Inspection, TASK 34-11-02-200-803.

SUBTASK 34-11-00-480-256

(2) Apply Scotch Brand No.471 tape, G02219, to the Captain's right lower static port located at STA 410, WL 218, RBL 73.

SUBTASK 34-11-00-010-029

(3) Remove the applicable forward cargo compartment ceiling liner to access the left static Air Data Module (ADM), do this task: Cargo Compartment Ceiling Liner - Removal, TASK 25-52-09-000-801.

SUBTASK 34-11-00-020-081

CAUTION MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(4) Disconnect the static hose from the left static ADM located at STA 409, WL 205, LBL 0.35.

NOTE: The quick-disconnect fitting has a spring loaded valve that will automatically close the line once disconnected from the ADM.

SUBTASK 34-11-00-420-062

(5) Put a protective cover on the pneumatic connector of the left static ADM.

SUBTASK 34-11-00-020-082

WARNING MAKE SURE THAT YOU TEMPORARILY ATTACH THE DISCONNECTED HOSES TO PREVENT MOVEMENT. IF YOU DO NOT, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Temporarily secure the static hose to prevent movement.

SUBTASK 34-11-00-010-030

(7) Remove the applicable forward cargo sidewall liner to access the left static system drain, do this task: Cargo Compartment Sidewall Lining - Removal, TASK 25-52-06-000-801.

SUBTASK 34-11-00-480-257

(8) Connect the coupling, COM-1927, to the left static system drain fitting No. 3 (FWD drain) located at STA 410, WL 180, LBL 56.

SUBTASK 34-11-00-480-282

(9) Connect the regulated air source, STD-3940, to the coupling, COM-1927.

SUBTASK 34-11-00-170-084

(10) Apply 15 psi (103 kPa) of dry filtered air to the left static system.

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(a) Make sure that air comes out freely and unrestricted from the Captain's left upper static port located at STA 410, WL 220, LBL 73.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-085

(11) Continue for three minutes or more.

(a) If debris can not be cleared from the Captain's left upper static port, do the following steps:

1) Remove the static port (TASK 34-11-02-020-801).

2) Apply 15 psi (103 kPa) of dry filtered air to the left static system.

3) Reinstall the static port (TASK 34-11-02-400-801).

4) Apply 15 psi (103 kPa) of dry filtered air to the left static system to make sure that there is no more debris.

SUBTASK 34-11-00-170-086

(12) Stop blowing air into the left static system.

SUBTASK 34-11-00-170-125

(13) Return the system to ambient pressure.

SUBTASK 34-11-00-480-258

(14) Apply Scotch Brand No.471 tape, G02219, to the Captain's left upper static port.

SUBTASK 34-11-00-080-138

(15) Remove Scotch Brand No.471 tape, G02219, from the Captain's right lower static port.

SUBTASK 34-11-00-170-088

(16) Apply 15 psi (103 kPa) of dry filtered air to the left static system.

(a) Make sure that air comes out freely and unrestricted from the Captain's right lower static port.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-089

(17) Continue for three minutes or more.

(a) If debris can not be cleared from the Captain's right lower static port, do the following steps:

1) Remove the static port (TASK 34-11-02-020-801).

2) Apply 15 psi (103 kPa) of dry filtered air to the left static system.

3) Reinstall the static port (TASK 34-11-02-400-801).

4) Apply 15 psi (103 kPa) of dry filtered air to the left static system to make sure that there is no more debris.

SUBTASK 34-11-00-170-090

(18) Stop blowing air into the left static system.

SUBTASK 34-11-00-170-126

(19) Return the system to ambient pressure.

SUBTASK 34-11-00-480-259

(20) Apply Scotch Brand No.471 tape, G02219, to the Captain's right lower static port.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-480-260

(21) Connect the coupling, P/N 1QM1-4-64A, from Test Adapter Kit - Pitot, SPL-15058, to the left static ADM hose located at STA 409, WL 205, LBL 0.35.

SUBTASK 34-11-00-170-091

(22) Apply 15 psi (103 kPa) of dry filtered air to the left static system.

(a) Make sure that air comes out freely and unrestricted from the left static ADM hose.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-092

(23) Continue for three minutes or more.

SUBTASK 34-11-00-170-127

(24) Stop blowing air into the left static system.

SUBTASK 34-11-00-170-128

(25) Return the system to ambient pressure.

SUBTASK 34-11-00-080-139

(26) Disconnect the coupling, P/N 1QM1-4-64A, from the left static ADM hose.

SUBTASK 34-11-00-080-140

(27) Disconnect the regulated air source, STD-3940, and coupling, COM-1927, from the left static system drain fitting No. 3 (FWD drain).

SUBTASK 34-11-00-020-083

(28) Remove the protective cover from the left static ADM.

SUBTASK 34-11-00-420-063

CAUTION

MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(29) Connect the left static hose to the left static ADM.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-790-149

(30) Do this task: Left Static System Low-range Leak Test, TASK 34-11-00-790-804.

(a) Make sure that you remove the tape from the Captain's left upper and right lower static ports after the leak check.

I. Right Static System Flushing

SUBTASK 34-11-00-211-002

(1) Inspect the right static system ports, do this task: Static Port - Detailed Inspection, TASK 34-11-02-200-803.

SUBTASK 34-11-00-480-261

(2) Apply Scotch Brand No.471 tape, G02219, to the F/O left lower static port located at STA 410, WL 218, LBL 73.

SUBTASK 34-11-00-010-031

(3) Remove the applicable forward cargo compartment ceiling liner to access the right static ADM, do this task: Cargo Compartment Ceiling Liner - Removal, TASK 25-52-09-000-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-020-084

> **CAUTION**
> MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(4) Disconnect the static hose from the right static ADM located at STA 430, WL 205, RBL 0.35.

NOTE: The quick-disconnect fitting has a spring loaded valve that will automatically close the line once disconnected from the ADM.

SUBTASK 34-11-00-420-064

(5) Put a protective cover on the pneumatic connector of the right static ADM.

SUBTASK 34-11-00-020-085

> **WARNING**
> MAKE SURE THAT YOU TEMPORARILY ATTACH THE DISCONNECTED HOSES TO PREVENT MOVEMENT. IF YOU DO NOT, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Temporarily secure the static hose to prevent movement.

SUBTASK 34-11-00-010-032

(7) Remove the applicable forward cargo sidewall liner to access the right static system drain, do this task: Cargo Compartment Sidewall Lining - Removal, TASK 25-52-06-000-801.

SUBTASK 34-11-00-480-262

(8) Connect the coupling, COM-1927, to the right static system drain fitting No. 4 (aft drain) located at STA 410, WL 180, LBL 56.

SUBTASK 34-11-00-480-283

(9) Connect the regulated air source, STD-3940, to the coupling, COM-1927.

SUBTASK 34-11-00-170-093

(10) Apply 15 psi (103 kPa) of dry filtered air to the right static system.

(a) Make sure that air comes out freely and unrestricted from the F/O right upper static port located at STA 410, WL 220, RBL 73.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-094

(11) Continue for three minutes or more.

(a) If debris can not be cleared from the F/O right upper static port, do the following steps:

1) Remove the static port (TASK 34-11-02-020-801).
2) Apply 15 psi (103 kPa) of dry filtered air to the right static system.
3) Reinstall the static port (TASK 34-11-02-400-801).
4) Apply 15 psi (103 kPa) of dry filtered air to the right static system to make sure that there is no more debris.

SUBTASK 34-11-00-170-095

(12) Stop blowing air into the right static system.

SUBTASK 34-11-00-170-129

(13) Return the system to ambient pressure.

SUBTASK 34-11-00-480-263

(14) Apply Scotch Brand No.471 tape, G02219, to the F/O right upper static port.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-080-141

(15) Remove Scotch Brand No.471 tape, G02219, from the F/O left lower static port.

SUBTASK 34-11-00-170-096

(16) Apply 15 psi (103 kPa) of dry filtered air to the right static system.

(a) Make sure that air comes out freely and unrestricted from the F/O left lower static port.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-097

(17) Continue for three minutes or more.

(a) If debris can not be cleared from the F/O left lower static port, do the following steps:

1) Remove the static port (TASK 34-11-02-020-801).

2) Apply 15 psi (103 kPa) of dry filtered air to the right static system.

3) Reinstall the static port (TASK 34-11-02-400-801).

4) Apply 15 psi (103 kPa) of dry filtered air to the right static system to make sure that there is no more debris.

SUBTASK 34-11-00-170-098

(18) Stop blowing air into the right static system.

SUBTASK 34-11-00-170-130

(19) Return the system to ambient pressure.

SUBTASK 34-11-00-480-264

(20) Apply Scotch Brand No.471 tape, G02219, to the F/O left lower static port.

SUBTASK 34-11-00-480-265

(21) Connect the coupling, P/N 1QM1-4-64A, from the Test Adapter Kit - Pitot, SPL-15058, to the right static ADM hose located at STA 430, WL 205, RBL 0.35.

SUBTASK 34-11-00-170-099

(22) Apply 15 psi (103 kPa) of dry filtered air to the right static system.

(a) Make sure that air comes out freely and unrestricted from the right static ADM hose.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-100

(23) Continue for three minutes or more.

SUBTASK 34-11-00-170-131

(24) Stop blowing air into the right static system.

SUBTASK 34-11-00-170-132

(25) Return the system to ambient pressure.

SUBTASK 34-11-00-080-142

(26) Disconnect the coupling, P/N 1QM1-4-64A, from the right static ADM hose.

SUBTASK 34-11-00-080-143

(27) Disconnect the regulated air source, STD-3940, and coupling, COM-1927, from the right static system drain fitting No. 4 (aft drain).

SUBTASK 34-11-00-020-086

(28) Remove the protective cover from the right static ADM.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-420-065

> **CAUTION**
> MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(29) Connect the right static hose to the Right Static ADM.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-790-150

(30) Do this task: Right Static System Low-range Leak Test, TASK 34-11-00-790-806.

(a) Make sure that you remove the tape from the F/O right upper and left lower static ports after the leak check.

J. Left Pitot System Flushing

SUBTASK 34-11-00-211-003

(1) Inspect the left pitot probe, do this task: Pitot Probe Detailed Inspection, TASK 34-11-01-200-804.

SUBTASK 34-11-00-010-033

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-11-00-020-087

> **CAUTION**
> MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(3) Disconnect the pitot hose from the left pitot ADM located at STA 200, WL 175, LBL 13.

NOTE: The quick-disconnect fitting has a spring loaded valve that will automatically close the line once disconnected from the ADM.

SUBTASK 34-11-00-420-066

(4) Put a protective cover on the pneumatic connector of the left pitot ADM.

SUBTASK 34-11-00-020-088

> **WARNING**
> MAKE SURE THAT YOU TEMPORARILY ATTACH THE DISCONNECTED HOSES TO PREVENT MOVEMENT. IF YOU DO NOT, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Temporarily secure the pitot hose to prevent movement.

SUBTASK 34-11-00-480-266

(6) Connect the coupling, COM-1926, to the left pitot system drain fitting No. 1 located at STA 210, WL 171, LBL 15.

SUBTASK 34-11-00-480-284

(7) Connect the regulated air source, STD-3940, to the coupling, COM-1926.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-170-101

(8) Apply 15 psi (103 kPa) of dry filtered air to the left pitot system.

(a) Make sure that air comes out freely and unrestricted from the left pitot probe.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-102

(9) Continue for three minutes or more.

(a) If debris can not be cleared from the left pitot system, do the following steps:

1) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

2) Do this task: Pitot Probe Cleaning, TASK 34-11-01-100-801.

3) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

4) Apply 15 psi (103 kPa) of dry filtered air to the left pitot system.

a) Make sure that air comes out freely and unrestricted from the left pitot probe.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

5) Continue for three minutes or more.

SUBTASK 34-11-00-170-103

(10) Stop blowing air into the left pitot system.

SUBTASK 34-11-00-170-133

(11) Return the system to ambient pressure.

SUBTASK 34-11-00-480-267

(12) Install the pitot test adapter, COM-1916, to the left pitot probe.

SUBTASK 34-11-00-480-268

(13) Install a cap assembly, STD-6777, to the end of the pitot test adapter, COM-1916, to seal the left pitot probe.

SUBTASK 34-11-00-480-269

(14) Connect the coupling, P/N 1QM1-4-64A, from Test Adapter Kit - Pitot, SPL-15058, to the left pitot ADM hose located at STA 200, WL 175, LBL 13.

SUBTASK 34-11-00-170-104

(15) Apply 15 psi (103 kPa) of dry filtered air to the left pitot system.

(a) Make sure that air comes out freely and unrestricted from the left pitot ADM hose.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-105

(16) Continue for three minutes or more.

SUBTASK 34-11-00-170-134

(17) Stop blowing air into the left pitot system.

SUBTASK 34-11-00-170-135

(18) Return the system to ambient pressure.

SUBTASK 34-11-00-080-144

(19) Disconnect the coupling, P/N 1QM1-4-64A, from the left pitot ADM hose.

SUBTASK 34-11-00-080-145

(20) Disconnect the regulated air source, STD-3940, and coupling, COM-1926, from the left pitot drain fitting No. 1.

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SUBTASK 34-11-00-020-089

(21) Remove the protective cover from the left pitot ADM.

SUBTASK 34-11-00-420-067

> **CAUTION** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(22) Connect the left pitot hose to the left pitot ADM.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-790-151

(23) Do this task: Left Pitot System Leak Test, TASK 34-11-00-790-810.

(a) Make sure that the pitot test adapter, COM-1916, is removed after the leak test.

K. Right Pitot System Flushing

SUBTASK 34-11-00-211-004

(1) Inspect the right pitot probe, do this task: Pitot Probe Detailed Inspection, TASK 34-11-01-200-804.

SUBTASK 34-11-00-010-034

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-11-00-020-090

> **CAUTION** MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(3) Disconnect the pitot hose from the right pitot ADM located at STA 200, WL 177, RBL 18.

NOTE: The quick-disconnect fitting has a spring loaded valve that will automatically close the line once disconnected from the ADM.

SUBTASK 34-11-00-420-068

(4) Put a protective cover on the pneumatic connector of the right pitot ADM.

SUBTASK 34-11-00-020-091

> **WARNING** MAKE SURE THAT YOU TEMPORARILY ATTACH THE DISCONNECTED HOSES TO PREVENT MOVEMENT. IF YOU DO NOT, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Temporarily secure the pitot hose to prevent movement.

SUBTASK 34-11-00-480-270

(6) Connect the coupling, COM-1926, to the right pitot system drain fitting No. 2 located at STA 204, WL 171, RBL 15.

SUBTASK 34-11-00-480-285

(7) Connect the regulated air source, STD-3940, to the coupling, COM-1926.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-170-106

(8) Apply 15 psi (103 kPa) of dry filtered air to the right pitot system.

(a) Make sure that air comes out freely and unrestricted from the right pitot probe.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-107

(9) Continue for three minutes or more.

(a) If debris can not be cleared from the right pitot probe, do the following steps:

1) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

2) Do this task: Pitot Probe Cleaning, TASK 34-11-01-100-801.

3) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

4) Apply 15 psi (103 kPa) of dry filtered air to the right pitot system.

a) Make sure that air comes out freely and unrestricted from the right pitot probe.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

5) Continue for three minutes or more.

SUBTASK 34-11-00-170-108

(10) Stop blowing air into the right pitot system.

SUBTASK 34-11-00-170-136

(11) Return the system to ambient pressure.

SUBTASK 34-11-00-480-271

(12) Install the pitot test adapter, COM-1916, to the right pitot probe.

SUBTASK 34-11-00-480-272

(13) Install a cap assembly, STD-6777, to the end of the pitot test adapter, COM-1916, to seal the right pitot probe.

SUBTASK 34-11-00-480-273

(14) Connect the coupling, P/N 1QM1-4-64A, from Test Adapter Kit - Pitot, SPL-15058, to the right pitot ADM hose located at STA 200, WL 177, RBL 18.

SUBTASK 34-11-00-170-109

(15) Apply 15 psi (103 kPa) of dry filtered air to the right pitot system.

(a) Make sure that air comes out freely and unrestricted from the right pitot probe ADM hose.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-110

(16) Continue for three minutes or more.

SUBTASK 34-11-00-170-137

(17) Stop blowing air into the right pitot system.

SUBTASK 34-11-00-170-138

(18) Return the system to ambient pressure.

SUBTASK 34-11-00-080-146

(19) Disconnect the coupling, P/N 1QM1-4-64A, from the right pitot ADM hose.

SUBTASK 34-11-00-080-147

(20) Disconnect the regulated air source, STD-3940, and coupling, COM-1926, from the right pitot drain fitting No. 2.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-020-092

(21) Remove the protective cover from the right pitot ADM.

SUBTASK 34-11-00-420-069

> **CAUTION**
> MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(22) Connect the right pitot hose to the right pitot ADM.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-790-152

(23) Do this task: Right Pitot System Leak Test, TASK 34-11-00-790-811.

(a) Make sure that the pitot test adapter, COM-1916, is removed after the leak test.

L. Alternate Static System Flushing

SUBTASK 34-11-00-211-005

(1) Inspect the alternate system static ports, do this task: Static Port - Detailed Inspection, TASK 34-11-02-200-803.

SUBTASK 34-11-00-480-274

(2) Apply Scotch Brand No.471 tape, G02219, to the right alternate static port located at STA 430, WL 167, RBL 49.

SUBTASK 34-11-00-010-036

(3) Do this task: Cabin Altitude and Differential Pressure Indicator Removal, TASK 21-33-02-000-801.

SUBTASK 34-11-00-020-093

> **WARNING**
> MAKE SURE THAT YOU TEMPORARILY ATTACH THE DISCONNECTED HOSES TO PREVENT MOVEMENT. IF YOU DO NOT, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Temporarily secure the static hose to prevent movement.

SUBTASK 34-11-00-010-035

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(5) Do this task: Integrated Standby Flight Display Removal, TASK 34-24-02-000-801.

LOM 411, 426, 432

(6) Do this task: Standby Altimeter/Airspeed Indicator - Removal, TASK 34-13-01-000-801.

LOM ALL

SUBTASK 34-11-00-020-094

> **WARNING**
> MAKE SURE THAT YOU TEMPORARILY ATTACH THE DISCONNECTED HOSES TO PREVENT MOVEMENT. IF YOU DO NOT, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(7) Temporarily secure the static and pitot hoses to prevent movement.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-010-037

(8) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-11-00-480-275

(9) Connect the coupling, COM-1927, to the alternate static system drain fitting No. 5 located at STA 326, WL 155, RBL 18.

SUBTASK 34-11-00-480-286

(10) Connect the regulated air source, STD-3940, to the coupling, COM-1927.

SUBTASK 34-11-00-170-111

(11) Apply 15 psi (103 kPa) of dry filtered air to the alternate static system.

(a) Make sure that air comes out freely and unrestricted from the left alternate static port located at STA 430, WL 167, LBL 49.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-112

(12) Continue for three minutes or more.

(a) If debris can not be cleared from the left alternate static port, do the following steps:

1) Remove the static port (TASK 34-11-02-000-803).

2) Apply 15 psi (103 kPa) of dry filtered air to the alternate static system.

3) Reinstall the static port (TASK 34-11-02-400-803).

4) Apply 15 psi (103 kPa) of dry filtered air to the alternate static system to make sure that there is no more debris.

SUBTASK 34-11-00-170-113

(13) Stop blowing air into the alternate static system.

SUBTASK 34-11-00-170-139

(14) Return the system to ambient pressure.

SUBTASK 34-11-00-480-276

(15) Apply Scotch Brand No.471 tape, G02219, to the left alternate static port.

SUBTASK 34-11-00-080-148

(16) Remove Scotch Brand No.471 tape, G02219, from the right alternate static port.

SUBTASK 34-11-00-170-114

(17) Apply 15 psi (103 kPa) of dry filtered air to the alternate static system.

(a) Make sure that air comes out freely and unrestricted from the right alternate static port.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-115

(18) Continue for three minutes or more.

(a) If debris can not be cleared from the right alternate static port, do the following steps:

1) Remove the static port (TASK 34-11-02-000-803).

2) Apply 15 psi (103 kPa) of dry filtered air to the alternate static system.

3) Reinstall static port (TASK 34-11-02-400-803).

4) Apply 15 psi (103 kPa) of dry filtered air to the alternate static system to make sure that there is no more debris.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-170-116

(19) Stop blowing air into the alternate static system.

SUBTASK 34-11-00-170-140

(20) Return the system to ambient pressure.

SUBTASK 34-11-00-480-277

(21) Apply Scotch Brand No.471 tape, G02219, to the right alternate static port.

SUBTASK 34-11-00-480-278

(22) Connect the coupling, P/N 1QM1-3-64A, from Test Adapter Kit - Pitot, SPL-15058, to the Cabin Altitude and Differential Pressure Indicator static hose located at STA 220, WL 260, RBL 3.

SUBTASK 34-11-00-170-117

(23) Apply 15 psi (103 kPa) of dry filtered air to the alternate static system.

(a) Make sure that air comes out freely and unrestricted from the Cabin Altitude and Differential Pressure Indicator static hose.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-118

(24) Continue for three minutes or more.

SUBTASK 34-11-00-170-141

(25) Stop blowing air into the alternate static system.

SUBTASK 34-11-00-170-142

(26) Return the system to ambient pressure.

SUBTASK 34-11-00-080-149

(27) Disconnect the coupling, P/N 1QM1-3-64A, from the Cabin Altitude and Differential Pressure Indicator static hose.

SUBTASK 34-11-00-480-279

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(28) Connect the coupling, P/N 1QM1-3-64A, from Test Adapter Kit - Pitot, SPL-15058, to the ISFD static hose.

LOM 411, 426, 432

(29) Connect the coupling, P/N 1QM1-3-64A, from Test Adapter Kit - Pitot, SPL-15058, to the SAAI static hose.

LOM ALL

SUBTASK 34-11-00-170-119

(30) Apply 15 psi (103 kPa) of dry filtered air to the alternate static system.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(a) Make sure that air comes out freely and unrestricted from the ISFD static hose.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

LOM 411, 426, 432

(b) Make sure that air comes out freely and unrestricted from the SAAI static hose.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-170-120

(31) Continue for three minutes or more.

SUBTASK 34-11-00-170-143

(32) Stop blowing air into the alternate static system.

SUBTASK 34-11-00-170-144

(33) Return the system to ambient pressure.

SUBTASK 34-11-00-080-150

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(34) Disconnect the coupling, P/N 1QM1-3-64A, from the ISFD static hose.

LOM 411, 426, 432

(35) Disconnect the coupling, P/N 1QM1-3-64A, from the SAAI static hose.

LOM ALL

SUBTASK 34-11-00-080-151

(36) Disconnect the regulated air source, STD-3940, and coupling, COM-1927, from the alternate static drain fitting No. 5.

SUBTASK 34-11-00-410-019

(37) Do this task: Cabin Altitude and Differential Pressure Indicator Installation, TASK 21-33-02-400-801.

SUBTASK 34-11-00-410-020

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(38) If the alternate pitot system needs to be flushed, do not reinstall the ISFD and proceed to the alternate pitot flushing steps.

LOM 411, 426, 432

(39) If the alternate pitot system needs to be flushed, do not reinstall the SAAI and proceed to the alternate pitot flushing steps.

LOM ALL

SUBTASK 34-11-00-410-021

(40) If the alternate pitot system does not need to be flushed, do the following steps:

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(a) Do this task: Integrated Standby Flight Display Installation, TASK 34-24-02-400-801.

LOM 411, 426, 432

(b) Do this task: Standby Altimeter/Airspeed Indicator - Installation, TASK 34-13-01-400-801.

LOM ALL

(c) Do this task: Alternate Static System Low-range Leak Test, TASK 34-11-00-790-808.

1) Make sure that you remove the tape from the alternate static ports after the leak test.

M. Alternate Pitot System Flushing

SUBTASK 34-11-00-211-006

(1) Inspect the auxiliary pitot probe, do this task: Pitot Probe Detailed Inspection, TASK 34-11-01-200-804.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-010-038

(2) If you did not flush the alternate static system, do the following steps:

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(a) Do this task: Integrated Standby Flight Display Removal, TASK 34-24-02-000-801.

LOM 411, 426, 432

(b) Do this task: Standby Altimeter/Airspeed Indicator - Removal, TASK 34-13-01-000-801.

LOM ALL

> **WARNING** MAKE SURE THAT YOU TEMPORARILY ATTACH THE DISCONNECTED HOSES TO PREVENT MOVEMENT. IF YOU DO NOT, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Temporarily secure the static and pitot hoses to prevent movement.

SUBTASK 34-11-00-480-280

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(3) Connect the coupling, P/N 1QM1-2-64A, from Test Adapter Kit - Pitot, SPL-15058, to the ISFD pitot hose.

LOM 411, 426, 432

(4) Connect the coupling, P/N 1QM1-2-64A, from Test Adapter Kit - Pitot, SPL-15058, to the SAAI pitot hose.

LOM ALL

SUBTASK 34-11-00-480-281

(5) Connect the regulated air source, STD-3940, to the coupling, P/N 1QM1-2-64A, on the pitot hose.

SUBTASK 34-11-00-170-121

(6) Apply 15 psi (103 kPa) of dry filtered air to the alternate pitot system.

(a) Make sure that air comes out freely and unrestricted from the auxiliary pitot probe.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

SUBTASK 34-11-00-170-122

(7) Continue for three minutes or more.

(a) If debris can not be cleared from the alternate pitot system, do these tasks:

1) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

2) Do this task: Pitot Probe Cleaning, TASK 34-11-01-100-801.

3) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

4) Apply 15 psi (103 kPa) of dry filtered air to the alternate pitot system.

a) Make sure that air comes out freely and unrestricted from the auxiliary pitot probe.

NOTE: Differences in sound and feel of the airflow may be a sign of debris in the system.

5) Continue for three minutes or more.

SUBTASK 34-11-00-170-123

(8) Stop blowing air into the alternate pitot system.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-170-145

(9) Return the system to the ambient pressure.

SUBTASK 34-11-00-080-152

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(10) Disconnect the coupling, P/N 1QM1-2-64A, and the regulated air source, STD-3940, from the ISFD pitot hose.

LOM 411, 426, 432

(11) Disconnect the coupling, P/N 1QM1-2-64A, and the regulated air source, STD-3940, from the SAAI pitot hose.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

SUBTASK 34-11-00-410-022

CAUTION

MAKE SURE THAT THE SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT, OR DISCONNECT A HOSE TO, OR FROM AN AIR DATA MODULE. IF YOU DO NOT, DAMAGE TO THE AIR DATA MODULE CAN OCCUR.

(12) Do this task: Integrated Standby Flight Display Installation, TASK 34-24-02-400-801.

LOM 411, 426, 432

SUBTASK 34-11-00-410-026

CAUTION

MAKE SURE THAT THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT THE PITOT HOSE AND STATIC HOSE TO THE INTEGRADED STANBY FLIGHT DISPLAY, IF PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE DISPLAY CAN OCCUR.

(13) Do this task: Standby Altimeter/Airspeed Indicator - Installation, TASK 34-13-01-400-801.

LOM ALL

SUBTASK 34-11-00-790-153

(14) If you flushed the alternate static system, do this task: Alternate Static System Low-range Leak Test, TASK 34-11-00-790-808.

(a) Make sure that you remove the tape from the alternate static ports after the leak test.

SUBTASK 34-11-00-790-154

(15) Do this task: Alternate Pitot System Leak Test, TASK 34-11-00-790-812.

N. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-410-023

(1) Close these access panels:

Number	Name/Location
112A	Forward Access Door
117A	Electronic Equipment Access Door

SUBTASK 34-11-00-410-024

(2) Install the cargo compartment ceiling liner, do this task: Cargo Compartment Ceiling Liner - Installation, TASK 25-52-09-400-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-410-025

(3) Install the cargo compartment sidewall liner, do this task: Cargo Compartment Sidewall Lining - Installation, TASK 25-52-06-400-801.

SUBTASK 34-11-00-440-001

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 411, 426, 432			
D	10	C00357	STBY ALTM/ASI VIB
LOM ALL			
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT
LOM 402, 406, 411, 412, 415, 416, 422-434, 437-447, 450-999; LOM 404, 407, 420 POST SB 737-30A1063			
D	8	C01946	PROBE AUTO HEAT CAPT
D	9	C01947	PROBE AUTO HEAT F/O

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM ALL			
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Static Port Location
Figure 301/34-11-00-990-812

ECCN 9E991 BOEING PROPRIETARY - See title page for details

RIGHT SIDE ALTERNATE STATIC PORT LOCATION SHOWN
(LEFT SIDE IS OPPOSITE)

A

2928551 S0000707819_V1

Alternate Static Port
Figure 302/34-11-00-990-813

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ELECTRONIC EQUIPMENT COMPARTMENT

FORWARD CARGO COMPARTMENT

L99116 S0006576473_V2

Static System Drains
Figure 303/34-11-00-990-814

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FORWARD EQUIPMENT COMPARTMENT

L99129 S0006576475_V3

Pitot System Drains
Figure 304/34-11-00-990-815

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-11-00-680-801

3. Pitot Static System - Draining

A. General

(1) There are five drain assemblies for the pitot static system.

(a) Captain's Pitot system drain (Figure 304).

(b) First Officer's Pitot system drain (Figure 304).

(c) Captain's Static system drain (Figure 303).

(d) First Officer's Static system drain (Figure 303).

(e) Alternate Static system drain (Figure 303).

B. Standard Tools and Equipment

(1) Receptacle and/or absorbent cloth for collecting small amount of liquid from each drain.

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
117	Electrical and Electronics Compartment - Left
121	Forward Cargo Compartment - Left

D. Procedure

SUBTASK 34-11-00-680-003

(1) Examine the drain assembly for moisture in the system.

(2) Do these steps to drain the assembly, if moisture is visible.

(a) To remove the drain cap push up and twist to release the cap.

(b) Turn the drain cap over and put the raised part of the cap into the bottom of the drain body.

(c) Push the drain cap into the drain body to open the spring-loaded seal.

(d) Drain all of the fluid from the assembly onto the absorbent cloth or into the receptacle.

(e) Reinstall the drain cap on the drain assembly.

(f) Make sure that the drain cap is securely connected to the drain assembly.

——— END OF TASK ———

TASK 34-11-00-210-801

4. Pitot System - Detailed Inspection of Drains

(Figure 304)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Procedure

SUBTASK 34-11-00-210-001

(1) Do a detailed inspection for moisture for the Captains and First Officers pitot system drains.

NOTE: The alternate pitot system does not have a drain fitting. The probe is at the lowest part of the system line so that moisture can drain from the probe.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-680-001

(2) If you find moisture in at least one of the locations above, do this task: Pitot Static System - Draining, TASK 34-11-00-680-801.

——— END OF TASK ———

TASK 34-11-00-210-802

5. Static System - Detailed Inspection of Drains

(Figure 303)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left

B. Procedure

SUBTASK 34-11-00-210-002

(1) Do a detailed inspection for moisture in the static system drains for these systems:

(a) Alternate Static System

(b) First Officers Static System

(c) Captains Static System

SUBTASK 34-11-00-680-002

(2) If you find moisture in at least one of the locations above, do this task: Pitot Static System - Draining, TASK 34-11-00-680-801.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STATIC AND TOTAL AIR PRESSURE SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) Left Static System Low-range Leak Test

(2) Right Static System Low-range Leak Test

(3) Alternate Static System Low-range Leak Test

(4) Left Pitot System Leak Test

(5) Right Pitot System Leak Test

(6) Alternate Pitot System Leak Test

(7) Left Static System Full-range Leak Test

(8) Right Static System Full-range Leak Test

(9) Alternate Static System Full-range Leak Test

(10) Altimetry System Test

(11) Alternative Test: PFD - Static System Only

TASK 34-11-00-790-804

2. Left Static System Low-range Leak Test

(Figure 501)

A. General

(1) You must do the static system low-range leak test when you remove a fitting other than a quick disconnect. You must do the low-range leak test after you flush the pitot-static system.

(2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. References

Reference	Title
25-52-06-000-801	Cargo Compartment Sidewall Lining - Removal (P/B 401)
25-52-06-400-801	Cargo Compartment Sidewall Lining - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1921	Adapter - Static Test Part #: 33410LH-125-4 Supplier: 38002 Part #: ADA737-678 Supplier: 38002 Part #: AK737-900 Supplier: 3BSK6 Part #: CSTL19725-4 Supplier: 3BSK6
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984
COM-13545	Air Data Test Set (non RVSM) used for Leak Checks Part #: 1811HA-463 Supplier: 21844 Part #: 6005KTQA1-103 Supplier: 35012 Part #: MODEL 6150 Supplier: 0RDZ5 Opt Part #: ADC800 Supplier: 41364

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Prepare for the Low-range Leak Test

SUBTASK 34-11-00-860-075

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-076

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-077

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-198

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

G. Installation of Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-092

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(1) Seal these two primary static ports with vinyl adhesive Scotch Brand No.471 tape, G02219.

(a) The CAPTAIN static port on the right side of the fuselage.

(b) The CAPTAIN static port on the left side of the fuselage.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-480-093

(2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To do this, do this task: Cargo Compartment Sidewall Lining - Removal, TASK 25-52-06-000-801

SUBTASK 34-11-00-480-094

(3) Remove the cap from the No. 3 Captain's Static Drain.

NOTE: The No. 3 Captain's Static Drain is the forward drain, and is connected to the left static system.

SUBTASK 34-11-00-480-096

(4) Install the coupling, COM-1927, on the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-480-210

(5) Connect the air data model test set, COM-1914 or the Air Data Test Set (non RVSM), COM-13545 to the coupling, COM-1927.

H. Installation of Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-012

CAUTION INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(1) Install the static test adapter, COM-1921, on the CAPTAIN static port, on the right side of the fuselage.

SUBTASK 34-11-00-480-211

(2) Connect the air data test set to the static test adapter, COM-1921.

SUBTASK 34-11-00-400-013

WARNING WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

CAUTION DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(3) Seal the CAPTAIN static port on the left side of the fuselage with Scotch Brand No.471 tape, G02219.

I. Left Static System Low-range Leak Test

SUBTASK 34-11-00-790-060

CAUTION MAKE SURE THAT THE PRESSURE IN THE AIR DATA MODULE (ADM) IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1,350 MB) WILL CAUSE DAMAGE TO THE ADM.

(1) Operate the air data test set to apply a vacuum to the static system equal to 5,000 feet of altitude above field elevation (ambient pressure minus 5.25 ± 0.25 in. Hg).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-790-061

(2) When the system reaches 5,000 feet above field elevation, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-062

(3) Set the air data test set for the leak check.

SUBTASK 34-11-00-790-063

(4) Make sure the altitude does not decrease more than 80 feet (0.07 in. Hg) in one minute.

SUBTASK 34-11-00-860-080

(5) Put the system back to ambient pressure.

J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-114

CAUTION	MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set from the coupling, COM-1927.

SUBTASK 34-11-00-080-115

(2) Disconnect the coupling, COM-1927, from the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-480-213

(3) Install the cap on the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-210-004

(4) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-480-214

(5) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To do this, do this task: Cargo Compartment Sidewall Lining - Installation, TASK 25-52-06-400-801

SUBTASK 34-11-00-080-116

WARNING	FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED SENSING AND ALTITUDE SENSING SIGNALS, MAY LEAD TO LOSS OF SAFE FLIGHT.

CAUTION	DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(6) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

(a) The CAPTAIN static port on the right side of the fuselage.

(b) The CAPTAIN static port on the left side of the fuselage.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-215

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set, from the static test adapter, COM-1921.

SUBTASK 34-11-00-480-216

> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static test adapter, COM-1921, from the CAPTAIN static port on the right side of the fuselage.

SUBTASK 34-11-00-080-054

> **WARNING** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

> **CAUTION** DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the CAPTAIN static port on the left side of the fuselage.

L. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-199

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

——— **END OF TASK** ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Pitot Static Leakage Test
Figure 501/34-11-00-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Pitot Static Leakage Test
Figure 501/34-11-00-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-11-00-790-806

3. Right Static System Low-range Leak Test

(Figure 501)

A. General

(1) You must do the static system low-range leak test when you remove a fitting other than a quick disconnect. You must do the low-range leak test after you flush the pitot-static system.

(2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. References

Reference	Title
25-52-06-000-801	Cargo Compartment Sidewall Lining - Removal (P/B 401)
25-52-06-400-801	Cargo Compartment Sidewall Lining - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197

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(Continued)

Reference	Description
COM-1921	Adapter - Static Test Part #: 33410LH-125-4 Supplier: 38002 Part #: ADA737-678 Supplier: 38002 Part #: AK737-900 Supplier: 3BSK6 Part #: CSTL19725-4 Supplier: 3BSK6
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984
COM-13545	Air Data Test Set (non RVSM) used for Leak Checks Part #: 1811HA-463 Supplier: 21844 Part #: 6005KTQA1-103 Supplier: 35012 Part #: MODEL 6150 Supplier: 0RDZ5 Opt Part #: ADC800 Supplier: 41364

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Prepare for the Low-range Leak Test

SUBTASK 34-11-00-860-091

WARNING

MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-092

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-093

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-860-218

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

G. Installation of the Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-106

WARNING WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

CAUTION DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(1) Seal these two primary static ports with vinyl adhesive Scotch Brand No.471 tape, G02219.

(a) The FIRST OFFICER static port on the left side of the fuselage.

(b) The FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-480-107

(2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To do this, do this task: Cargo Compartment Sidewall Lining - Removal, TASK 25-52-06-000-801

SUBTASK 34-11-00-480-108

(3) Remove the cap from the No. 4 First Officer's Static Drain.

NOTE: The No. 4 First Officer's Static Drain is the aft drain, and is connected to the right static system.

SUBTASK 34-11-00-400-014

(4) Install the coupling, COM-1927, on the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-400-015

(5) Connect the air data model test set, COM-1914 or the Air Data Test Set (non RVSM), COM-13545 to the coupling, COM-1927.

H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-001

CAUTION INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(1) Install the static test adapter, COM-1921, on the FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-400-016

(2) Connect the air data test set to the static test adapter, COM-1921.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-400-017

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(3) Seal the FIRST OFFICER static port on the left side of the fuselage with Scotch Brand No.471 tape, G02219.

I. Right Static System Low-range Leak Test

SUBTASK 34-11-00-790-068

> **CAUTION** MAKE SURE THAT THE PRESSURE IN THE AIR DATA MODULE (ADM) IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1,350 MB) WILL CAUSE DAMAGE TO THE ADM.

(1) Operate the air data test set to apply a vacuum to the static system equal to 5,000 feet of altitude above field elevation (ambient pressure minus 5.25 ± 0.25 in. Hg).

SUBTASK 34-11-00-790-069

(2) When the system reaches 5,000 feet above field elevation, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-070

(3) Set the air data test set for the leak check.

SUBTASK 34-11-00-790-071

(4) Make sure the altitude does not decrease more than 80 feet (0.07 in. Hg) in one minute.

SUBTASK 34-11-00-860-096

(5) Put the system back to ambient pressure.

J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-092

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set from the coupling, COM-1927.

SUBTASK 34-11-00-080-093

(2) Disconnect the coupling, COM-1927, from the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-480-173

(3) Install the cap on the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-210-005

(4) Do a visual inspection of the quick-disconnect fittings that you connected.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-480-217

(5) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To do this, do this task: Cargo Compartment Sidewall Lining - Installation, TASK 25-52-06-400-801

SUBTASK 34-11-00-080-094

WARNING	FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

CAUTION	DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(6) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

(a) The FIRST OFFICER static port on the right side of the fuselage.

(b) The FIRST OFFICER static port on the left side of the fuselage.

K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-175

CAUTION	MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set from the static test adapter, COM-1921.

SUBTASK 34-11-00-480-176

CAUTION	REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static test adapter, COM-1921, from the FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-080-058

WARNING	FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

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(WARNING PRECEDES)

CAUTION	DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the FIRST OFFICER static port on the left side of the fuselage.

L. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-220

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

——— END OF TASK ———

TASK 34-11-00-790-808

4. Alternate Static System Low-range Leak Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) You must do the static system low-range leak test when you remove a fitting other than a quick disconnect. You must do the low-range leak test after you flush the pitot-static system.

(2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1921	Adapter - Static Test Part #: 33410LH-125-4 Supplier: 38002 Part #: ADA737-678 Supplier: 38002 Part #: AK737-900 Supplier: 3BSK6 Part #: CSTL19725-4 Supplier: 3BSK6
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984
COM-13545	Air Data Test Set (non RVSM) used for Leak Checks Part #: 1811HA-463 Supplier: 21844 Part #: 6005KTQA1-103 Supplier: 35012 Part #: MODEL 6150 Supplier: 0RDZ5 Opt Part #: ADC800 Supplier: 41364

C. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

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(Continued)

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Low-range Leak Test

SUBTASK 34-11-00-860-107

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-108

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-109

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

G. Installation of the Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-118

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(1) Seal the two alternate static ports with vinyl adhesive Scotch Brand No.471 tape, G02219 at these locations:

(a) The ALTERNATE static port on the right side of the fuselage.

(b) The ALTERNATE static port on the left side of the fuselage.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-480-119

(2) Remove the cap from the No. 5 Alternate Static Drain, in the electronic equipment compartment, below the E-5 rack.

Get access to the drain in the electronic equipment compartment through this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-11-00-400-019

(3) Install the coupling, COM-1927, on the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-400-020

(4) Connect the air data model test set, COM-1914 or the Air Data Test Set (non RVSM), COM-13545 to the coupling, COM-1927.

H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-004

CAUTION INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(1) Install the static test adapter, COM-1921, on the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-400-021

(2) Connect the air data test set to the static test adapter, COM-1921.

SUBTASK 34-11-00-400-022

WARNING WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

CAUTION DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(3) Seal the ALTERNATE static port on the right side of the fuselage with Scotch Brand No.471 tape, G02219.

I. Alternate Static System Low-range Leak Test

SUBTASK 34-11-00-790-076

(1) Operate the air data test set to apply a vacuum to the static system equal to 5,000 feet of altitude above field elevation (ambient pressure minus 5.25 ± 0.25 in. Hg).

SUBTASK 34-11-00-790-077

(2) When the system reaches 5,000 feet above field elevation, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-078

(3) Set the air data test set for the leak check.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-790-079

(4) Make sure the altitude does not decrease more than 80 feet (0.07 in. Hg) in one minute.

SUBTASK 34-11-00-860-112

(5) Put the system back to ambient pressure.

J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-096

CAUTION	MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set from the coupling, COM-1927.

SUBTASK 34-11-00-080-097

(2) Disconnect the coupling, COM-1927, from the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-480-179

(3) Install the cap on the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-210-006

(4) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-080-098

WARNING	FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

CAUTION	DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(5) Remove the Scotch Brand No.471 tape, G02219, from the ALTERNATE static ports at these locations:

(a) The ALTERNATE static port on the right side of the fuselage.

(b) The ALTERNATE static port on the left side of the fuselage.

K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-181

CAUTION	MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set from the static test adapter, COM-1921.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-480-182

> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static test adapter, COM-1921, from the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-080-063

> **WARNING** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

> **CAUTION** DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the ALTERNATE static port on the right side of the fuselage.

END OF TASK

TASK 34-11-00-790-810

5. Left Pitot System Leak Test

(Figure 501)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit) Part #: CSA75700HT-3 Supplier: 3BSK6 Part #: P75701-4 Supplier: 38002 Part #: P75701M2-3 Supplier: 38002
COM-13545	Air Data Test Set (non RVSM) used for Leak Checks Part #: 1811HA-463 Supplier: 21844 Part #: 6005KTQA1-103 Supplier: 35012 Part #: MODEL 6150 Supplier: 0RDZ5 Opt Part #: ADC800 Supplier: 41364

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Prepare for the Leak Test

SUBTASK 34-11-00-860-123

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-124

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-125

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-126

(4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

D. Installation of Pitot Probe Adapter

SUBTASK 34-11-00-480-130

> **CAUTION** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(1) Install the pitot test adapter, COM-1916 on the pitot probe on the left side of the forward fuselage.

SUBTASK 34-11-00-480-131

(2) Connect the air data model test set, COM-1914 or the Air Data Test Set (non RVSM), COM-13545 to the pitot test adapter, COM-1916.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Left Pitot System Leak Test

SUBTASK 34-11-00-790-084

> **CAUTION** MAKE SURE THAT THE PRESSURE IN THE AIR DATA MODULE (ADM) IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1,350 MB) WILL CAUSE DAMAGE TO THE ADM.

(1) Operate the air data test set to apply pressure of 4.53 ±0.16 in/Hg (2.22 ±0.08 psig) (gauge), 2.22 ±0.08 psig (153.1 ±5.5 mBar), or 300 ±5 knots.

SUBTASK 34-11-00-790-085

(2) When the test pressure is reached, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-086

(3) Set the air data test set for the leak check.

SUBTASK 34-11-00-790-087

(4) Make sure the pressure does not decrease more than 0.16 in/Hg (5.4 mBar) (approximately 5 knots) in one minute.

SUBTASK 34-11-00-860-129

(5) Put the system back to ambient pressure.

F. Removal of Pitot Probe Adapter

SUBTASK 34-11-00-080-069

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set from the pitot test adapter, COM-1916.

SUBTASK 34-11-00-080-070

(2) Remove the pitot test adapter, COM-1916 from the pitot probe.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-131

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

——— **END OF TASK** ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-11-00-790-811

6. Right Pitot System Leak Test

(Figure 501)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit) Part #: CSA75700HT-3 Supplier: 3BSK6 Part #: P75701-4 Supplier: 38002 Part #: P75701M2-3 Supplier: 38002
COM-13545	Air Data Test Set (non RVSM) used for Leak Checks Part #: 1811HA-463 Supplier: 21844 Part #: 6005KTQA1-103 Supplier: 35012 Part #: MODEL 6150 Supplier: 0RDZ5 Opt Part #: ADC800 Supplier: 41364

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Prepare for the Leak Test

SUBTASK 34-11-00-860-133

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-134

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-135

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-136

(4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

D. Installation of Pitot Probe Adapter

SUBTASK 34-11-00-480-133

> **CAUTION** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(1) Install the pitot test adapter, COM-1916 on the upper pitot probe on the right side of the forward fuselage.

SUBTASK 34-11-00-480-134

(2) Connect the air data model test set, COM-1914 or the Air Data Test Set (non RVSM), COM-13545 to the pitot test adapter, COM-1916.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Right Pitot System Leak Test

SUBTASK 34-11-00-790-088

> **CAUTION** MAKE SURE THAT THE PRESSURE IN THE AIR DATA MODULE (ADM) IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1,350 MB) WILL CAUSE DAMAGE TO THE ADM.

(1) Operate the air data test set to apply pressure of 4.53 ±0.16 in/Hg (2.22 ±0.08 psig) (gauge), 2.22 ±0.08 psig (153.1 ±5.5 mBar), or 300 ±5 knots.

SUBTASK 34-11-00-790-089

(2) When the test pressure is reached, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-090

(3) Set the air data test set for the leak check.

SUBTASK 34-11-00-790-091

(4) Make sure the pressure does not decrease more than 0.16 inches Hg (5.4 mB) (approximately 5 knots) in one minute.

SUBTASK 34-11-00-860-139

(5) Put the system back to ambient pressure.

F. Removal of the Pitot Probe Adapter

SUBTASK 34-11-00-080-071

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set from the pitot test adapter, COM-1916.

SUBTASK 34-11-00-080-072

(2) Remove the pitot test adapter, COM-1916 from the pitot probe.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-141

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

END OF TASK

TASK 34-11-00-790-812

7. Alternate Pitot System Leak Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance)
	Part #: ADSE 650 Supplier: 3BSK6
	Part #: ADTS2000 Supplier: 52892
	Part #: ADTS3350ER Supplier: 52892
	Part #: ADTS405MKII Supplier: U0427
	Part #: ADTS530 Supplier: U0427
	Part #: ADTS552F Supplier: U0427
	Part #: ADTS553F Supplier: U0427
	Part #: ADTS554F Supplier: U0427
	Part #: D60340MK Supplier: K1474
	Part #: DPS1000 Supplier: 21844
	Part #: MODEL 6300 Supplier: 0RDZ5
	Part #: MPS34C Supplier: 48RQ2
	Part #: MPS43B Supplier: A0197
	Part #: MPS45 Supplier: 48RQ2
	Part #: MPS49 Supplier: 48RQ2
	Part #: TES9463 Supplier: 88277
	Opt Part #: 01-0987-00 Supplier: 41364
	Opt Part #: 18910480000 Supplier: 89944
	Opt Part #: 18910920000 Supplier: 89944
	Opt Part #: ADTS405F Supplier: U0427
	Opt Part #: ADTS505 Supplier: U0427
	Opt Part #: D60302 Supplier: K1474
	Opt Part #: D60340 Supplier: K1474
	Opt Part #: D60383 Supplier: K1474
	Opt Part #: DPS350 Supplier: 21844
	Opt Part #: DPS450 Supplier: 21844
	Opt Part #: DPS500 Supplier: 21844
	Opt Part #: MPS31C Supplier: 48RQ2
	Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit)
	Part #: CSA75700HT-3 Supplier: 3BSK6
	Part #: P75701-4 Supplier: 38002
	Part #: P75701M2-3 Supplier: 38002
COM-13545	Air Data Test Set (non RVSM) used for Leak Checks
	Part #: 1811HA-463 Supplier: 21844
	Part #: 6005KTQA1-103 Supplier: 35012
	Part #: MODEL 6150 Supplier: 0RDZ5
	Opt Part #: ADC800 Supplier: 41364

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Prepare for the Leak Test

SUBTASK 34-11-00-860-143

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-144

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-145

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-146

(4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

D. Installation of the Pitot Probe Adapter

SUBTASK 34-11-00-480-136

> **CAUTION** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(1) Install the pitot test adapter, COM-1916 on the lower pitot probe on the right side of the forward fuselage.

SUBTASK 34-11-00-480-137

(2) Connect the air data model test set, COM-1914 or the Air Data Test Set (non RVSM), COM-13545 to the pitot test adapter, COM-1916.

E. Alternate Pitot System Leak Test

SUBTASK 34-11-00-790-092

(1) Operate the air data test set to apply pressure of 4.53 ±0.16 inches Hg (gauge), (2.22 ±0.08 psig) (153.4 ±5.4 mB), or 300 ±5 knots.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-790-093

(2) When the test pressure is reached, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-094

(3) Set the air data test set for the leak check.

SUBTASK 34-11-00-790-095

(4) Make sure the pressure does not decrease more than 0.16 inches Hg (5.4 mB) (approximately 5 knots) in one minute.

SUBTASK 34-11-00-860-149

(5) Put the system back to ambient pressure.

F. Removal of the Pitot Probe Adapter

SUBTASK 34-11-00-080-073

CAUTION	MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data test set from the pitot test adapter, COM-1916.

SUBTASK 34-11-00-080-074

(2) Remove the pitot test adapter, COM-1916 from the pitot probe.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-151

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

END OF TASK

TASK 34-11-00-790-813

8. Left Static System Full-range Leak Test

(Figure 501)

A. General

(1) The static system full-range leak test is not required. However, leaks are easier to detect with the higher pressure.

(2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. References

Reference	Title
25-52-06-000-801	Cargo Compartment Sidewall Lining - Removal (P/B 401)
25-52-06-400-801	Cargo Compartment Sidewall Lining - Installation (P/B 401)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1921	Adapter - Static Test Part #: 33410LH-125-4 Supplier: 38002 Part #: ADA737-678 Supplier: 38002 Part #: AK737-900 Supplier: 3BSK6 Part #: CSTL19725-4 Supplier: 3BSK6
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Zone	Area
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

F. Prepare for the Leak Test

SUBTASK 34-11-00-860-153

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-154

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-155

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-201

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

G. Installation of the Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-400-024

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(1) Seal these static ports on the with Scotch Brand No.471 tape, G02219:

(a) The CAPTAIN static port on the right side of the fuselage.

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(b) The CAPTAIN static port on the left side of the fuselage.

SUBTASK 34-11-00-480-141

(2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To open it, do this task: Cargo Compartment Sidewall Lining - Removal, TASK 25-52-06-000-801.

SUBTASK 34-11-00-480-142

(3) Remove the cap from the No. 3 Captain's Static Drain.

NOTE: The No. 3 Captain's Static Drain is the forward drain and is connected to the left static system.

SUBTASK 34-11-00-400-007

(4) Install the coupling, COM-1927, on the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-400-025

(5) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-008

CAUTION	INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(1) Install the static test adapter, COM-1921, on the CAPTAIN static port, on the right side of the fuselage.

SUBTASK 34-11-00-400-026

(2) Connect the air data model test set, COM-1914 to the static test adapter, COM-1921.

SUBTASK 34-11-00-400-027

WARNING	WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

CAUTION	DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(3) Seal the CAPTAIN static port on the left side of the fuselage with Scotch Brand No.471 tape, G02219.

I. Left Static System Full-range Leak Test

SUBTASK 34-11-00-790-101

CAUTION	DO NOT MAKE THE STATIC PRESSURE LESS THAN 4 INCH HG (135.5 MILLIBARS). STATIC PRESSURE LESS THAN 4 INCH HG (135.5 MILLIBARS) CAN CAUSE DAMAGE TO THE AIR DATA MODULE.

(1) Use the air data model test set, COM-1914 to supply a vacuum of 18.82 in. Hg. (637.3 millibars), but do not make the static pressure less than 4.3 in. Hg. (145.6 millibars) absolute.

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(a) When you apply pressure to the static system, make sure that the rate is less than 5,000 feet for each minute.

SUBTASK 34-11-00-790-102

(2) When the system reaches 25,000 feet, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-103

(3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-104

(4) Make sure the pressure does not decrease more than 0.20 inches Hg or 6.77 mB (approximately 400 feet) in one minute.

SUBTASK 34-11-00-860-158

(5) Put the system back to ambient pressure.

(a) When you release pressure from the static system, make sure that the rate is less than 5,000 feet for each minute.

J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-100

CAUTION

MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-101

(2) Disconnect the coupling, COM-1927, from the No. 3 Captains Static Drain.

SUBTASK 34-11-00-480-185

(3) Install the cap on the No. 3 Captain's Static Drain.

SUBTASK 34-11-00-210-007

(4) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-480-218

(5) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To close it, do this task: Cargo Compartment Sidewall Lining - Installation, TASK 25-52-06-400-801.

SUBTASK 34-11-00-480-223

WARNING

FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

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(WARNING PRECEDES)

> **CAUTION** DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(6) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

(a) The CAPTAIN static port on the right side of the fuselage.

(b) The CAPTAIN static port on the left side of the fuselage.

K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-187

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the static test adapter, COM-1921.

SUBTASK 34-11-00-480-188

> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static test adapter, COM-1921, from the CAPTAIN static port on the right side of the fuselage.

SUBTASK 34-11-00-480-189

> **WARNING** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

> **CAUTION** DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the Scotch Brand No.471 tape, G02219, from the CAPTAIN static port on the left side of the fuselage.

L. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-202

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

END OF TASK

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TASK 34-11-00-790-814

9. Right Static System Full-range Leak Test

(Figure 501)

A. General

(1) The static system full-range leak test is not required. However, leaks are easier to detect with the higher pressure.

(2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. References

Reference	Title
25-52-06-000-801	Cargo Compartment Sidewall Lining - Removal (P/B 401)
25-52-06-400-801	Cargo Compartment Sidewall Lining - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197

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(Continued)

Reference	Description
COM-1921	Adapter - Static Test Part #: 33410LH-125-4 Supplier: 38002 Part #: ADA737-678 Supplier: 38002 Part #: AK737-900 Supplier: 3BSK6 Part #: CSTL19725-4 Supplier: 3BSK6
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

F. Prepare for the Leak Test

SUBTASK 34-11-00-860-161

WARNING

MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-162

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-163

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

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G. Installation of Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-400-010

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(1) Seal these static ports with vinyl adhesive Scotch Brand No.471 tape, G02219:

(a) The FIRST OFFICER static port on the left side of the fuselage.

(b) The FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-400-028

(2) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To open it, do this task: Cargo Compartment Sidewall Lining - Removal, TASK 25-52-06-000-801.

SUBTASK 34-11-00-400-029

(3) Remove the cap from the No. 4 First Officer's Static Drain.

NOTE: The No. 4 First Officer's Static Drain is the aft drain, and is connected to the right static system.

SUBTASK 34-11-00-400-030

(4) Install the coupling, COM-1927, on the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-400-031

(5) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-011

> **CAUTION** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(1) Install the static test adapter, COM-1921, on the FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-400-032

(2) Connect the air data model test set, COM-1914 to the static test adapter, COM-1921.

SUBTASK 34-11-00-400-033

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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(WARNING PRECEDES)

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(3) Seal the FIRST OFFICER static port on the left side of the fuselage with vinyl adhesive Scotch Brand No.471 tape, G02219.

I. Right Static System Full-range Leak Test

SUBTASK 34-11-00-790-105

> **CAUTION** DO NOT MAKE THE STATIC PRESSURE LESS THAN 4 INCH HG (135.5 MILLIBARS). STATIC PRESSURE LESS THAN 4 INCH HG (135.5 MILLIBARS) CAN CAUSE DAMAGE TO THE AIR DATA MODULE.

(1) Use the air data model test set, COM-1914 to supply a vacuum of 18.82 in. Hg. (637.3 millibars), but do not make the static pressure less than 4.3 in. Hg. (145.6 millibars) absolute.

(a) When you apply pressure to the static system, make sure that the rate is less than 5,000 feet for each minute.

SUBTASK 34-11-00-790-106

(2) When the system reaches 25,000 feet, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-107

(3) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-108

(4) Make sure the pressure does not decrease more than 0.20 inches Hg or 6.77 mB (approximately 400 feet) in one minute.

SUBTASK 34-11-00-860-166

(5) Put the system back to ambient pressure.

(a) When you release pressure from the static system, make sure that the rate is less than 5,000 feet for each minute.

J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-104

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-105

(2) Disconnect the coupling, COM-1927, from the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-480-197

(3) Install the cap on the No. 4 First Officer's Static Drain.

SUBTASK 34-11-00-210-008

(4) Do a visual inspection of the quick-disconnect fittings that you connected.

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(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-480-220

(5) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment. To close it, do this task: Cargo Compartment Sidewall Lining - Installation, TASK 25-52-06-400-801.

SUBTASK 34-11-00-080-106

WARNING	FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

CAUTION	DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(6) Remove the Scotch Brand No.471 tape, G02219, from the static ports at these locations:

(a) The FIRST OFFICER static port on the right side of the fuselage.

(b) The FIRST OFFICER static port on the left side of the fuselage.

K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-199

CAUTION	MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the static test adapter, COM-1921.

SUBTASK 34-11-00-080-107

CAUTION	REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static test adapter, COM-1921, from the FIRST OFFICER static port on the right side of the fuselage.

SUBTASK 34-11-00-080-108

WARNING	FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

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(WARNING PRECEDES)

CAUTION	DO NOT CAUSE A BLOCKAGE OR DAMAGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY.

(3) Remove the Scotch Brand No.471 tape, G02219, from the FIRST OFFICER static port on the left side of the fuselage.

END OF TASK

TASK 34-11-00-790-815

10. Alternate Static System Full-range Leak Test

(Figure 501)

A. General

(1) The static system full-range leak test is not required. However, leaks are easier to detect with the higher pressure.

(2) You can use either the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit) Part #: CSA75700HT-3 Supplier: 3BSK6 Part #: P75701-4 Supplier: 38002 Part #: P75701M2-3 Supplier: 38002
COM-1921	Adapter - Static Test Part #: 33410LH-125-4 Supplier: 38002 Part #: ADA737-678 Supplier: 38002 Part #: AK737-900 Supplier: 3BSK6 Part #: CSTL19725-4 Supplier: 3BSK6
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984

C. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

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(Continued)

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the Leak Test

SUBTASK 34-11-00-860-169

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-170

(2) Make sure that the Autopilot Flight Director System is off.

SUBTASK 34-11-00-860-171

(3) Make sure that the IRS R and IRS L switches on the IRS Mode Select Unit, located on the P5-69 panel, are in the off position.

SUBTASK 34-11-00-860-172

(4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F. Installation of Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-11-00-480-153

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. IN ADDITION, ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT DECK AS A REMINDER THAT THE STATIC PORTS ARE COVERED. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(WARNING PRECEDES)

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORTS.

(1) Seal these static ports with vinyl adhesive Scotch Brand No.471 tape, G02219:

(a) The ALTERNATE static port on the right side of the fuselage.

(b) The ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-480-154

(2) Remove the cap from the No. 5 Alternate Static Drain, in the electronic equipment compartment, below the E-5 rack.

SUBTASK 34-11-00-480-155

(3) Install the coupling, COM-1927, on the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-480-221

(4) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

G. Installation of Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-11-00-400-034

> **CAUTION** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(1) Install the static test adapter, COM-1921, on the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-480-222

(2) Connect the air data model test set, COM-1914 to the static test adapter, COM-1921.

SUBTASK 34-11-00-400-035

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. IN ADDITION, ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT DECK AS A REMINDER THAT THE STATIC PORTS ARE COVERED. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(3) Seal the ALTERNATE static port on the right side of the fuselage with Scotch Brand No.471 tape, G02219.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

H. Installation of the Pitot Probe Adapter

SUBTASK 34-11-00-480-158

> **CAUTION** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(1) Install the pitot test adapter, COM-1916, on the lower pitot probe on the right side of the forward fuselage.

SUBTASK 34-11-00-480-159

(2) Connect the air data model test set, COM-1914 to the pitot test adapter, COM-1916.

I. Alternate Static System Full-range Leak Test

SUBTASK 34-11-00-790-109

> **CAUTION** KEEP THE RATE OF STATIC CHANGE BELOW 5000 FEET FOR EACH MINUTE. KEEP THE DIFFERENTIAL PRESSURE BETWEEN THE PITOT AND STATIC SYSTEM LESS THAN 10 INCHES OF MERCURY (339 MILLIBARS). IF YOU DO NOT OBEY, DAMAGE TO THE INDICATORS CAN OCCUR.

(1) Operate the air data model test set, COM-1914 to apply vacuum to the alternate pitot system to keep the pressure difference between the pitot and static systems less than 10 inches Hg (339 mB).

SUBTASK 34-11-00-790-123

> **CAUTION** DO NOT MAKE THE STATIC PRESSURE LESS THAN 4 INCH HG (135.5 MILLIBARS). STATIC PRESSURE LESS THAN 4 INCH HG (135.5 MILLIBARS) CAN CAUSE DAMAGE TO THE AIR DATA MODULE.

(2) Use the air data model test set, COM-1914 to supply a vacuum of 18.82 in. Hg. (637.3 millibars), but do not make the static pressure less than 4.3 in. Hg. (145.6 millibars) absolute.

   (a) When you apply pressure to the static system, make sure that the rate is less than 5,000 feet for each minute.

SUBTASK 34-11-00-790-110

(3) When the system reaches 25,000 feet, stop for one minute to allow the system to stabilize.

SUBTASK 34-11-00-790-111

(4) Set the air data model test set, COM-1914 for the leak check.

SUBTASK 34-11-00-790-112

(5) Make sure the pressure does not decrease more than 0.20 inches Hg or 6.77 mB (approximately 400 feet) in one minute.

SUBTASK 34-11-00-860-174

(6) Put the system back to ambient pressure.

   (a) When you release pressure from the static system, make sure that the rate is less than 5,000 feet for each minute.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

J. Removal of Drain Coupling, 1QF2-3-64C

SUBTASK 34-11-00-080-082

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

SUBTASK 34-11-00-080-117

(2) Disconnect the coupling, COM-1927 from the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-080-083

(3) Install the cap on the No. 5 Alternate Static Drain.

SUBTASK 34-11-00-210-009

(4) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-11-00-080-086

> **WARNING** FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

> **WARNING** DO NOT FILL OR CHANGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY AND IT CAN CAUSE INJURY.

(5) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the alternate static ports at these locations:

(a) The ALTERNATE static port on the right side of the fuselage.

(b) The ALTERNATE static port on the left side of the fuselage.

K. Removal of Static Port Adapter, 33410LH-125-4

SUBTASK 34-11-00-480-203

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the static test adapter, COM-1921.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-480-204

> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(2) Remove the static test adapter, COM-1921, from the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-11-00-480-205

> **WARNING** DO NOT FILL OR CHANGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY AND IT CAN CAUSE INJURY.

(3) Remove the Scotch Brand No.471 tape, G02219, from the ALTERNATE static port on the right side of the fuselage.

L. Removal of the Probe Adapters

SUBTASK 34-11-00-080-110

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(1) Disconnect the air data model test set, COM-1914 from the pitot test adapter, COM-1916.

SUBTASK 34-11-00-080-118

(2) Remove the pitot test adapter, COM-1916, from the auxiliary pitot probe.

M. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-860-175

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

END OF TASK

TASK 34-11-00-780-802

11. Altimetry System Test

(Figure 502, Figure 503, Figure 504)

NOTE: This procedure is a scheduled maintenance task.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

A. General

(1) This task gives instructions to test the altimetry system for correct operation of the Air Data Systems (ADS).

(2) You can use the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
25-52-06 P/B 401	CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION
34-21-04 P/B 401	AIR DATA MODULE - REMOVAL/INSTALLATION

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1562	Analyzer - Data Bus, ARINC 429 Part #: 01-1001-05 Supplier: 0Z3C6 Part #: 01-1001-12 Supplier: 0Z3C6 Part #: 403557 Supplier: CG603 Part #: 800-0630 Supplier: 1JSZ6 Part #: DT400H-01 Supplier: 0Z3C6 Part #: UA1410 Supplier: 0H231 Opt Part #: 01-1001-10 Supplier: 0Z3C6 Opt Part #: 01-1404-00 Supplier: 41364 Opt Part #: 1116-4000-21 Supplier: A0197 Opt Part #: 429EBP Supplier: 41364 Opt Part #: 429EX Supplier: 41364 Opt Part #: 702125-01 Supplier: CG603 Opt Part #: DT400H Supplier: 0Z3C6 Opt Part #: MODEL 429HBA Supplier: 5J927 Opt Part #: TYPE 030/026 Supplier: $0494
COM-1579	Analyzer - Databus, Datatrac Models 600, 650, 650H Part #: DT-600 Supplier: 0Z3C6 Opt Part #: 01-1405-00 Supplier: 41364 Opt Part #: 100-600-001 Supplier: 41364

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(Continued)

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance)
	Part #: ADSE 650 Supplier: 3BSK6
	Part #: ADTS2000 Supplier: 52892
	Part #: ADTS3350ER Supplier: 52892
	Part #: ADTS405MKII Supplier: U0427
	Part #: ADTS530 Supplier: U0427
	Part #: ADTS552F Supplier: U0427
	Part #: ADTS553F Supplier: U0427
	Part #: ADTS554F Supplier: U0427
	Part #: D60340MK Supplier: K1474
	Part #: DPS1000 Supplier: 21844
	Part #: MODEL 6300 Supplier: 0RDZ5
	Part #: MPS34C Supplier: 48RQ2
	Part #: MPS43B Supplier: A0197
	Part #: MPS45 Supplier: 48RQ2
	Part #: MPS49 Supplier: 48RQ2
	Part #: TES9463 Supplier: 88277
	Opt Part #: 01-0987-00 Supplier: 41364
	Opt Part #: 18910480000 Supplier: 89944
	Opt Part #: 18910920000 Supplier: 89944
	Opt Part #: ADTS405F Supplier: U0427
	Opt Part #: ADTS505 Supplier: U0427
	Opt Part #: D60302 Supplier: K1474
	Opt Part #: D60340 Supplier: K1474
	Opt Part #: D60383 Supplier: K1474
	Opt Part #: DPS350 Supplier: 21844
	Opt Part #: DPS450 Supplier: 21844
	Opt Part #: DPS500 Supplier: 21844
	Opt Part #: MPS31C Supplier: 48RQ2
	Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit)
	Part #: CSA75700HT-3 Supplier: 3BSK6
	Part #: P75701-4 Supplier: 38002
	Part #: P75701M2-3 Supplier: 38002
COM-1921	Adapter - Static Test
	Part #: 33410LH-125-4 Supplier: 38002
	Part #: ADA737-678 Supplier: 38002
	Part #: AK737-900 Supplier: 3BSK6
	Part #: CSTL19725-4 Supplier: 3BSK6
COM-1926	Coupling - Quick Disconnect, Pitot System Drain Line
	Part #: 1QF2-2-64A Supplier: 24984
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting
	Part #: 1QF2-3-64C Supplier: 24984
SPL-1917	Fixture - Test, Angle of Attack Sensor, ROSEMOUNT AOA's
	Part #: J34002-19 Supplier: 81205
	Opt Part #: A34012-19 Supplier: 81205
	Opt Part #: A34012-24 Supplier: 81205
	Opt Part #: J34002-18 Supplier: 81205

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(Continued)

Reference	Description
SPL-3896	Box - Breakout, Multipurpose, 100/124 pin Part #: C22005-22 Supplier: 81205 Opt Part #: C22005-1 Supplier: 81205
SPL-3897	Assembly - Cable, Flight Control Computer and/or Digital Flight Control System Testing Part #: C22005-25 Supplier: 81205 Part #: C22005-32 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Prepare for the System Test

SUBTASK 34-11-00-860-223

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-11-00-010-027

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-860-222

> **CAUTION**
> MAKE SURE YOU DO NOT SUPPLY ELECTRICAL POWER TO THE PITOT PROBE HEATER. IF YOU DO, YOU CAN DAMAGE THE PITOT PROBE.

> **CAUTION**
> MAKE SURE THAT YOU USE EXTERNAL POWER TO DO THE TEST. IF YOU DO NOT OBEY, THE APU WILL NOT SUPPLY SUFFICIENT POWER AND FAULT MESSAGES WILL SHOW.

(3) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 34-11-00-860-225

(4) Follow these maintenance practices for the altimetry system test:

(a) Do not connect or disconnect the test equipment while you have pressure in the pitot-static system.

(b) Make sure that the test equipment, pitot system and static systems are clean and free of contamination.

(c) Make sure that there are no leaks in the test equipment.

(d) Make sure that the tape used to seal the static ports does not get inside the static port holes.

(e) Make sure that the tape and/or test adapters do not damage or change the surfaces of the pitot probes or static ports.

(f) Make sure that the air data test set is placed on the same level (0 ±1 ft (0.00 ±0.30 m)) as the passenger cabin floor, cargo compartment floor, or on the ground.

1) The location of the test set determines the height correction values used to calculate Air Data Module (ADM) error (Figure 503).

(g) Keep the static pressure applied within the range of 3.26 in/Hg (110.40 mBar) to 39.865 in/Hg (1349.98 mBar).

> **CAUTION**
> MAKE SURE THAT PRESSURE APPLIED TO THE PITOT -STATIC SYSTEM IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1350 MBAR) WILL CAUSE DAMAGE TO THE ADM.

(h) Make sure that the total pressure applied to the pitot system is static pressure only and does not include pitot pressure.

NOTE: This test requires zero airspeed.

(i) During adjustment of static pressure, make sure that the rate of change of altitude is less than 5,000 feet per minute.

(j) Make sure that the Autopilot Flight Director System is OFF during the test.

(k) Supply electrical power to the Air Data Inertial Reference System (ADIRS) before you make the Static or Total pressure connection.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-860-250

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure that the Air Traffic Control (ATC) transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

SUBTASK 34-11-00-860-249

(6) Turn the altimeter BARO knobs, on the captain's Electronic Flight Instrument System (EFIS) control panel, F/O's EFIS control panel, and standby altimeter through the full range.

(7) Set the altimeter BARO knobs, on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter to 29.92 in/Hg (1013.2 mBar).

SUBTASK 34-11-00-860-254

(8) Set the Angle of Attack (AOA) vanes to 0 ±5 degrees, with respect to the AOA sensor alignment pin with an angle of attack probe test fixture, SPL-1917.

H. Captain (CAPT) Altimetry System Test Set Installation

SUBTASK 34-11-00-480-247

> **CAUTION** SUPPORT THE TEST HOSES AND THE ADAPTER SO THEY ADD NO WEIGHT ON THE PITOT PROBES. FAILURE TO DO SO COULD CAUSE THE PITOT PROBES TO NOT BE ALIGNED AND TO BE DAMAGED.

(1) Connect the air data test set to the CAPT pitot and static systems with one test setup from these options:

Option 1: Static Adapter Test Setup

Test Setup		
Figure	Description	More Data
Figure 502 (Sheet 1)	Supply pitot and static pressure from air data test set to Left Pitot and Left Static ADM	
Figure 502 (Sheet 2)	Supply static pressure from air data test set to Left Pitot and Left Static ADM	
Figure 502 (Sheet 9)	Supply Pitot and static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM	(a)
Figure 502 (Sheet 10)	Supply static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM	(a)
(a) CAPT altimetry system test and F/O altimetry system test can be run at the same time when this setup is used.		

(a) Install the pitot test adapter, COM-1916, on the CAPT pitot probe.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION

INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(b) Install the static test adapter, COM-1921, on the CAPT static port.

(c) Connect the air data model test set, COM-1914, to the pitot test adapter, COM-1916, and static test adapter, COM-1921.

WARNING

WHEN THE STATIC PORTS HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE STATIC PORTS HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE STATIC PORTS, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

CAUTION

DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(d) Seal the remaining CAPT static ports with Scotch Brand No.471 tape, G02219.

Option 2: System Drain Test Setup

Test Setup		
Figure	Description	More Data
Figure 502 (Sheet 3)	Supply pitot and static pressure from air data test set to Left Pitot and Left Static ADM through system drain fittings	
Figure 502 (Sheet 4)	Supply static pressure from air data test set to Left Pitot and Left Static ADM through system drain fittings	
Figure 502 (Sheet 11)	Supply pitot and static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM through system drain fittings	(a)
Figure 502 (Sheet 12)	Supply static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM through system drain fittings	(a)
(a) CAPT altimetry system test and F/O altimetry system test can be run at the same time when this setup is used.		

(e) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment (CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION, PAGEBLOCK 25-52-06/401).

(f) Remove the caps on the CAPT pitot and static system drain fittings.

(g) Install the quick-disconnect coupling, COM-1926, on the CAPT pitot system drain fitting.

(h) Install the quick-disconnect coupling, COM-1927, on the CAPT static system drain fitting.

(i) Install the pitot test adapter, COM-1916, on the CAPT pitot probe.

(j) Install caps on the pitot test adapter, COM-1916.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING

WHEN THE STATIC PORTS HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE STATIC PORTS HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE STATIC PORTS, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

CAUTION

DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(k) Seal the remaining CAPT static ports with, Scotch Brand No.471 tape, G02219.

(l) Connect the air data model test set, COM-1914, to the quick-disconnect couplings, coupling, COM-1926, and coupling, COM-1927.

I. First Officer (F/O) Altimetry System Test Set Installation

SUBTASK 34-11-00-780-008

CAUTION

SUPPORT THE TEST HOSES AND THE ADAPTER SO THEY ADD NO WEIGHT ON THE PITOT PROBES. FAILURE TO DO SO COULD CAUSE THE PITOT PROBES TO NOT BE ALIGNED AND TO BE DAMAGED.

(1) Connect the air data model test set, COM-1914, to the F/O pitot and static systems with one test setup from these options:

Option 3: Static Adapter Test Setup

Test Setup		
Figure	Description	More Data
Figure 502 (Sheet 5)	Supply pitot and static pressure from air data test set to Right Pitot and Right Static ADM	
Figure 502 (Sheet 6)	Supply static pressure from air data test set to Right Pitot and Right Static ADM	
Figure 502 (Sheet 9)	Supply Pitot and static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM	(a)
Figure 502 (Sheet 10)	Supply static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM	(a)
(a) CAPT altimetry system test and F/O altimetry system test can be run at the same time when this setup is used.		

(a) Install the pitot test adapter, COM-1916, on the F/O pitot probe.

CAUTION

INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(b) Install the static test adapter, COM-1921, on the F/O static port.

(c) Connect the air data model test set, COM-1914, to the pitot test adapter, COM-1916, and static test adapter, COM-1921.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING

WHEN THE STATIC PORTS HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE STATIC PORTS HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE STATIC PORTS, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

CAUTION

DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(d) Seal the remaining F/O static ports with, Scotch Brand No.471 tape, G02219.

Option 4: System Drain Test Setup

Test Setup		
Figure	Description	More Data
Figure 502 (Sheet 7)	Supply pitot and static pressure from air data test set to Right Pitot and Right Static ADM through system drain fittings	
Figure 502 (Sheet 8)	Supply static pressure from air data test set to Right Pitot and Right Static ADM through system drain fittings	
Figure 502 (Sheet 11)	Supply pitot and static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM through system drain fittings	(a)
Figure 502 (Sheet 12)	Supply static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM through system drain fittings	(a)
(a) CAPT altimetry system test and F/O altimetry system test can be run at the same time when this setup is used.		

(e) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment (CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION, PAGEBLOCK 25-52-06/401).

(f) Remove the caps on the F/O pitot and static system drain fittings.

(g) Install the quick-disconnect coupling, COM-1926, on the F/O Pitot System Drain Fitting.

(h) Install the quick-disconnect coupling, COM-1927, on the F/O Static System Drain Fitting.

(i) Install the pitot test adapter, COM-1916, on the F/O pitot probe.

(j) Install caps on the pitot test adapter, COM-1916.

WARNING

WHEN THE STATIC PORTS HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE STATIC PORTS HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE STATIC PORTS, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(WARNING PRECEDES)

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(k) Seal the remaining F/O static ports with, Scotch Brand No.471 tape, G02219.

(l) Connect the air data model test set, COM-1914, to the quick-disconnect couplings, coupling, COM-1926, and coupling, COM-1927.

J. Captain (CAPT) Altimetry System Test - ARINC 429 Bus Analyzer Method

NOTE: Two methods are available to test the accuracy of the altimetry system; the ARINC 429 Bus Analyzer Method or the Primary Flight Display (PFD) Method (TASK 34-11-00-780-803). Either method may be used to accomplish the test.

SUBTASK 34-11-00-780-006

(1) Do the CAPT FCC-A (M01875) altimetry System Test as follows:

NOTE: The ARINC 429 bus analyzer testing method tests the pitot and static ADMs. Testing of the pitot ADM accuracy is optional, but recommended when this method is used.

LOM ALL; AIRPLANES WITH ROCKWELL COLLINS FCC INSTALLED

(a) Rockwell Collins Flight Control Computer (FCC):

1) Connect the ARINC 429 Bus analyzer, COM-1562, or databus analyzer, COM-1579, Hi/Lo probes to the FCC on the E1 shelf, left test connector J3, to pin 51 (Hi) and pin 52 (Lo).

NOTE: A breakout box, SPL-3896, and cable, SPL-3897, can be used to connect the data bus analyzer and the FCC.

a) Set equipment ID to 038 on the ARINC 429 Bus Analyzer for the instrument to display the correct engineering units.

NOTE: Figure 504 may be used to change binary data to the correct engineering units if the bus analyzer does not have this function.

LOM ALL; AIRPLANES WITH HONEYWELL FCC INSTALLED

(b) Honeywell FCC:

1) Connect the ARINC 429 Bus analyzer, COM-1562, or databus analyzer, COM-1579, Hi/Lo probes to the FCC on the E1 shelf, left test connector (J3), to Pin 88 (Hi) and Pin 89 (Lo).

NOTE: A breakout box, SPL-3896, and cable, SPL-3897, can be used to connect the data bus analyzer and the FCC.

a) Set equipment ID to 038 on the ARINC 429 Bus Analyzer for the instrument to display the correct engineering units.

NOTE: Figure 504 may be used to change binary data to the correct engineering units if the bus analyzer does not have this function.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-00-780-007

> **CAUTION** MAKE SURE THAT PRESSURE APPLIED TO THE PITOT -STATIC SYSTEM IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1350 MBAR) WILL CAUSE DAMAGE TO THE ADM.

(2) Apply Static pressure with the air data model test set, COM-1914, for each test point and record test results with one of the following and the appropriate height offset table:

Table of Test Input and Tolerance Requirements

Figure	Description
Figure 502 (Sheet 13)	Measurement Unit: inches of Mercury (inHg)
Figure 502 (Sheet 14)	Measurement Unit: millibars (mb)
Figure 503	Height Offset Tables

SUBTASK 34-11-00-960-003

(3) If the CAPT altimetry system test fails, do the following:

(a) Replace the ADM (AIR DATA MODULE - REMOVAL/INSTALLATION, PAGEBLOCK 34-21-04/401).

(b) Do the CAPT altimetry system test.

K. First Officers (F/O) Altimetry System Test - ARINC 429 Bus Analyzer Method

NOTE: Two methods are available to test the accuracy of the altimetry system; the ARINC 429 Bus Analyzer Method or the PFD Method (TASK 34-11-00-780-803). Either method may be used to accomplish the test.

SUBTASK 34-11-00-480-248

(1) Do the F/O FCC-B (M01876) altimetry System Test as follows:

NOTE: The ARINC 429 bus analyzer testing method tests the pitot and static ADMs. Testing of the pitot ADM accuracy is optional, but recommended when this method is used.

LOM ALL; AIRPLANES WITH ROCKWELL COLLINS FCC INSTALLED

(a) Rockwell Collins FCC:

1) Connect the ARINC 429 Bus analyzer, COM-1562, or databus analyzer, COM-1579, Hi/Lo probes to the FCC on the E1 shelf, right test connector J3, to pin 51 (Hi) and pin 52 (Lo).

NOTE: A breakout box, SPL-3896, and cable, SPL-3897, can be used to connect the data bus analyzer and the FCC.

a) Set equipment ID to 038 on the ARINC 429 Bus Analyzer for the instrument to display the correct engineering units.

NOTE: Figure 504 may be used to change binary data to the correct engineering units if the bus analyzer does not have this function.

LOM ALL; AIRPLANES WITH HONEYWELL FCC INSTALLED

(b) Honeywell FCC:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL; AIRPLANES WITH HONEYWELL FCC INSTALLED (Continued)

1) Connect the ARINC 429 Bus analyzer, COM-1562, or databus analyzer, COM-1579, Hi/Lo probes to the FCC on the E1 shelf, right test connectors (J3), to Pin 88 (Hi) and Pin 89 (Lo).

NOTE: A breakout box, SPL-3896, and cable, SPL-3897, can be used to connect the data bus analyzer and the FCC.

a) Set equipment ID to 038 on the ARINC 429 Bus Analyzer for the instrument to display the correct engineering units.

NOTE: Figure 504 may be used to change binary data to the correct engineering units if the bus analyzer does not have this function.

LOM ALL

SUBTASK 34-11-00-780-009

CAUTION MAKE SURE THAT PRESSURE APPLIED TO THE PITOT -STATIC SYSTEM IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1350 MBAR) WILL CAUSE DAMAGE TO THE ADM.

(2) Apply Static pressure with the air data model test set, COM-1914, for each test point and record test results with one of the following and the appropriate height offset table:

Table of Test Input and Tolerance Requirements

Figure	Description
Figure 502 (Sheet 15)	Measurement Unit: inches of Mercury (inHg)
Figure 502 (Sheet 16)	Measurement Unit: millibars (mb)
Figure 503	Height Offset Tables

SUBTASK 34-11-00-960-004

(3) If the F/O altimetry system test fails, do the following:

(a) Replace the ADM (AIR DATA MODULE - REMOVAL/INSTALLATION, PAGEBLOCK 34-21-04/401).

(b) Do the F/O altimetry system test.

L. Captain (CAPT) Altimetry System Test Set Removal

SUBTASK 34-11-00-080-126

(1) Return CAPT pitot and static systems to ambient pressure state and remove air data model test set, COM-1914, set as follows:

CAUTION RELEASE THE PRESSURE OR THE VACUUM CONTINUOUSLY AND AT THE SAME TIME FOR THE PITOT AND STATIC SYSTEMS. IF YOU DO NOT, YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

(a) Release the pressure or vacuum on the CAPT pitot and static systems to ambient pressure with the air data model test set, COM-1914.

(b) Remove the ARINC 429 Data Bus analyzer, COM-1562, or databus analyzer, COM-1579, if one was used.

(c) Disconnect the air data model test set, COM-1914, from the CAPT pitot and static systems as follows:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Option 1, static adapter test setup:

a) Disconnect the air data model test set, COM-1914, from the static test adapter, COM-1921, and pitot test adapter, COM-1916.

b) Remove pitot test adapter, COM-1916, from the CAPT pitot probe.

> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

c) Remove the static test adapter, COM-1921, from the CAPT static port.

> **WARNING** ENSURE THAT ALL TAPE AND TAPE RESIDUE IS REMOVED FROM THE PITOT AND STATIC PORTS. FAILURE TO REMOVE THIS MAY CAUSE INCORRECT INFORMATION TO THE FLIGHT CREW AND SYSTEM PLACING THE AIRCRAFT AT RISK.

d) Remove the Scotch Brand No.471 tape, G02219, from the remaining CAPT static ports.

2) Option 2, system drain test setup:

a) Disconnect the air data model test set, COM-1914, from the coupling, COM-1926, and coupling, COM-1927.

> **WARNING** ENSURE THAT ALL TAPE AND TAPE RESIDUE IS REMOVED FROM THE PITOT AND STATIC PORTS. FAILURE TO REMOVE THIS MAY CAUSE INCORRECT INFORMATION TO THE FLIGHT CREW AND SYSTEM PLACING THE AIRCRAFT AT RISK.

b) Remove Scotch Brand No.471 tape, G02219, from the remaining CAPT static ports.

c) Remove the pitot test adapter, COM-1916, on the CAPT pitot probe.

d) Remove the quick-disconnect coupling, COM-1926, and the coupling, COM-1927, from the drain fittings.

e) Install caps on the CAPT pitot and static system drain fittings.

f) Do a General Visual Inspection (GVI) of the CAPT pitot and static system drain fittings.

<1> Make sure that the actuation ring is fully engaged on the lock pins.

<2> Make sure that the color lock ring indicator shows that the system drain fitting is connected correctly.

g) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment (CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION, PAGEBLOCK 25-52-06/401).

M. First Officer (F/O) Altimetry System Test Set Removal

SUBTASK 34-11-00-080-127

(1) Return F/O pitot and static systems to ambient pressure state and remove air data model test set, COM-1914, as follows:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

> **CAUTION**
> RELEASE THE PRESSURE OR THE VACUUM CONTINUOUSLY AND AT THE SAME TIME FOR THE PITOT AND STATIC SYSTEMS. IF YOU DO NOT, YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

(a) Release the pressure or vacuum on the F/O pitot and static systems to ambient pressure using the air data model test set, COM-1914.

(b) Remove the ARINC 429 Data Bus analyzer, COM-1562, or databus analyzer, COM-1579, if one was used.

(c) Disconnect the air data model test set, COM-1914, from the F/O pitot and static systems as follows:

1) Option 3, static adapter test setup:

a) Disconnect the air data model test set, COM-1914, from the static test adapter, COM-1921, and pitot test adapter, COM-1916.

b) Remove pitot test adapters from the F/O pitot probe.

> **CAUTION**
> REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

c) Remove static test adapter from the F/O static port.

> **WARNING**
> ENSURE THAT ALL TAPE AND TAPE RESIDUE IS REMOVED FROM THE PITOT AND STATIC PORTS. FAILURE TO REMOVE THIS MAY CAUSE INCORRECT INFORMATION TO THE FLIGHT CREW AND SYSTEM PLACING THE AIRCRAFT AT RISK.

d) Remove Scotch Brand No.471 tape, G02219, from the remaining F/O static ports.

2) Option 4, system drain test setup:

a) Disconnect the air data model test set, COM-1914, from the coupling, COM-1926, and coupling, COM-1927.

> **WARNING**
> ENSURE THAT ALL TAPE AND TAPE RESIDUE IS REMOVED FROM THE PITOT AND STATIC PORTS. FAILURE TO REMOVE THIS MAY CAUSE INCORRECT INFORMATION TO THE FLIGHT CREW AND SYSTEM PLACING THE AIRCRAFT AT RISK.

b) Remove the Scotch Brand No.471 tape, G02219, from the remaining F/O static ports.

c) Remove the pitot test adapter, COM-1916, on the F/O pitot probe.

d) Remove the quick-disconnect coupling, COM-1926, and the coupling, COM-1927, from the drain fittings.

e) Install caps on the F/O pitot and static system drain fittings.

f) Do a GVI of the F/O pitot and static system drain fittings.

<1> Make sure that the actuation ring of the drain fitting is fully engaged on the lock pins.

<2> Make sure that the color lock ring indicator shows that the system drain fitting is connected correctly.

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g) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment (CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION, PAGEBLOCK 25-52-06/401).

N. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-000-001

(1) Remove the angle of attack probe test fixture, SPL-1917, from the applicable AOA sensor.

SUBTASK 34-11-00-410-018

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-11-00-860-228

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-11-00-860-236

(4) If electrical power is not necessary, do this task: Remove External Power, TASK 24-22-00-860-814.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2503742 S0000588766_V1

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 1 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2503747 S0000588767_V1

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 2 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 3 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2503759 S0000588769_V1

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 4 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2503768 S0000588770_V1

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 5 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 6 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2503780 S0000588772_V1

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 7 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2503783 S0000588773_V1

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 8 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 9 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 10 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 11 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 12 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAPT ALTIMETRY SYSTEM TEST - TEST INPUT, MEASUREMENT UNIT: INCHES OF MERCURY (INHG)

Test Point	Static Pressure, P s (inHg)	Pilot Pressure, Q c (inHg)	A	B	C	Air Data Test Set, Static Pressure Output (inHg)	Recorded Pilot Pressure, ARINC 429 Label 242 (inHg)	Differential Pressure = Col A - Col B - Col C (inHg)	Tolerance of the Differential Pressure (inHg)	D	E	Air Data Test Set, Static Pressure Output (inHg)	F	Air Data Test Set, Height Correction (inHg)	Recorded Static Pressure, ARINC 429 Label 245 (inHg)	Differential Pressure = Col D - Col E - Col F (inHg)	Tolerance of the Differential Pressure (inHg)	More Data
1	29.921 +/- 0.029	No Entry		(b)					+/- 0.014		(b)						+/- 0.014	(a)
2	9.272 +/- 0.029	No Entry		(b)					+/- 0.012		(b)						+/- 0.012	(a)
3	5.611 +/- 0.029	No Entry		(b)					+/- 0.012		(b)						+/- 0.012	(a)
4	9.272 +/- 0.029	No Entry		(b)					+/- 0.012		(b)						+/- 0.012	(a)
5	29.921 +/- 0.029	No Entry		(b)					+/- 0.014		(b)						+/- 0.014	(a)
	Entry to the Air Data Test Set		Total (Pitot) Pressure Measurement - Left Pitot ADM							Static Pressure Measurement - Left Static ADM								

(a) Allow one minute after the air data test set reaches the input static pressure value before recording measurements.

(b) Height correction values in Column B and E are determined by the location the test set is placed. Refer to Height Offset (inHg) table.

1 IF BINARY DATA HAS NOT BEEN CORRECTLY CHANGED TO PRESSURE DATA, REFER TO ADS-ENGINEERING DATA CONVERSION INFORMATION FIGURE FOR MANUAL CONVERSION.

2503967 S0000588778_V8

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 13 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAPT ALTIMETRY SYSTEM TEST - TEST INPUT, MEASUREMENT UNIT: MILLIBARS (MB)

Test Point	Static Pressure, P s (mb)		Pitot Pressure, Q c (mb)	A	Air Data Test Set, Static Pressure Output (mb)	B	Air Data Test Set Height Correction (mb)	C	Recorded Pitot Pressure, ARINC 429 Label 242 (mb)		Differential Pressure = Col A - Col B - Col C (mb)		Tolerance of the Differential Pressure	D	Air Data Test Set, Static Pressure Output (mb)	E	Air Data Test Set, Height Correction (mb)	F	Recorded Static Pressure, ARINC 429 Label 245 (mb)		Differential Pressure = Col D - Col E - Col F (mb)		Tolerance of the Differential Pressure (mb)		More Data
1	1013 +/- 1.0	No Entry				(b)						+/- 0.48				(b)						+/- 0.48		(a)	
2	314 +/- 1.0	No Entry				(b)						+/- 0.41				(b)						+/- 0.41		(a)	
3	190 +/- 1.0	No Entry				(b)						+/- 0.41				(b)						+/- 0.41		(a)	
4	314 +/- 1.0	No Entry				(b)						+/- 0.41				(b)						+/- 0.41		(a)	
5	1013 +/- 1.0	No Entry				(b)						+/- 0.48				(b)						+/- 0.48		(a)	
	Entry to the Air Data Test Set				Total (Pitot) Pressure Measurement - Left Pitot ADM									Static Pressure Measurement - Left Static ADM											

(a) Allow one minute after the air data test set reaches the input static pressure value before recording measurements.

(b) Height correction values in Column B and E are determined by the location the test set is placed. Refer to Height offset (mb) table.

1 IF BINARY DATA HAS NOT BEEN CORRECTLY CHANGED TO PRESSURE DATA, REFER TO ADS-ENGINEERING DATA CONVERSION INFORMATION FIGURE FOR MANUAL CONVERSION.

2503992 S0000588780_V8

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 14 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O ALTIMETRY SYSTEM TEST - TEST INPUT, MEASUREMENT UNIT: INCHES OF MERCURY (INHG)

Test Point	Static Pressure, P s (inHg)	Pitot Pressure , Q c (inHg)	A	B	Air Data Test Set, Static Pressure Output (inHg)	C	Air Data Test Set Set Height Correction (inHg)	Recorded Pitot Pressure, ARINC 429 Label 242 (inHg)	Differential Pressure = Col A - Col B - Col C (inHg)	Tolerance of the Differential Pressure (inHg)	D	E	Air Data Test Set, Static Pressure Output (inHg)	Air Data Test Set, Height Correction (inHg)	F	Recorded Static Pressure, ARINC 429 Label 245 (inHg)	Differential Pressure = Col D - Col E - Col F (inHg)	Tolerance of the Differential Pressure (inHg)	More Data
1	29.921 +/- 0.029	No Entry		(b)						+/- 0.014		(b)						+/- 0.014	(a)
2	9.272 +/- 0.029	No Entry		(b)						+/- 0.012		(b)						+/- 0.012	(a)
3	5.611 +/- 0.029	No Entry		(b)						+/- 0.012		(b)						+/- 0.012	(a)
4	9.272 +/- 0.029	No Entry		(b)						+/- 0.012		(b)						+/- 0.012	(a)
5	29.921 +/- 0.029	No Entry		(b)						+/- 0.014		(b)						+/- 0.014	(a)
Entry to the Air Data Test Set			Total (Pitot) Pressure Measurement - Right Pitot ADM								Static Pressure Measurement - Right Static ADM								

(a) Allow one minute after the air data test set reaches the input static pressure value before recording measurements.

(b) Height correction values in Column B and E are determined by the location the test set is placed. Refer to Height Offset (inHg) table.

1 IF BINARY DATA HAS NOT BEEN CORRECTLY CHANGED TO PRESSURE DATA, REFER TO ADS-ENGINEERING DATA CONVERSION INFORMATION FIGURE FOR MANUAL CONVERSION.

2504004 S0000588781_V8

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 15 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O ALTIMETRY SYSTEM TEST - TEST INPUT, MEASUREMENT UNIT: MILLIBARS (MB)

Test Point	Static Pressure, P_s (mb)	Pilot Pressure, Q_c (mb)	A	B	C	Air Data Test Set, Static Pressure Output (mb)	Air Data Test Set Height Correction (mb)	Recorded Pitot Pressure, ARINC 429 Label 242 (mb)	Differential Pressure = Col A - Col B - Col C (mb)	Tolerance of the Differential Pressure (mb)	D	Air Data Test Set, Static Pressure Output (mb)	Air Data Test Set, Height Correction (mb)	Recorded Static Pressure, ARINC 429 Label 245 (mb) 1	Differential Pressure = Col D - Col E - Col F (mb)	Tolerance of the Differential Pressure (mb)	F	More Data
1	1013 +/- 1.0	No Entry		(b)					+/- 0.48		(b)					+/- 0.48		(a)
2	314 +/- 1.0	No Entry		(b)					+/- 0.41		(b)					+/- 0.41		(a)
3	190 +/- 1.0	No Entry		(b)					+/- 0.41		(b)					+/- 0.41		(a)
4	314 +/- 1.0	No Entry		(b)					+/- 0.41		(b)					+/- 0.41		(a)
5	1013 +/- 1.0	No Entry		(b)					+/- 0.48		(b)					+/- 0.48		(a)
Entry to the Air Data Test Set			Total (Pitot) Pressure Measurement - Right Pitot ADM								Static Pressure Measurement - Right Static ADM							

(a) Allow one minute after the air data test set reaches the input static pressure value before recording measurements.

(b) Height correction values in Column B and E are determined by the location the test set is placed. Refer to Height Offset (mb) table.

1 IF BINARY DATA HAS NOT BEEN CORRECTLY CHANGED TO PRESSURE DATA, REFER TO ADS-ENGINEERING DATA CONVERSION INFORMATION FIGURE FOR MANUAL CONVERSION.

2504005 S0000588782_V8

ADS - ALTIMETRY SYSTEM TEST - TEST SCHEMATIC
Figure 502/34-11-00-990-805 (Sheet 16 of 16)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAPT AND F/O ALTIMETRY SYSTEM TEST - HEIGHT OFFSET TABLES

Height Offset (ft)		
Test Set Location	Test Point	Static
Passenger floor	1	0
	2	0
	3	0
	4	0
	5	0
Cargo floor	1	4
	2	4
	3	4
	4	4
	5	4
Ground	1	9
	2	9
	3	9
	4	9
	5	9

Height Offset (mb)			
Test Set Location	Test Point	Total	Static
Passenger floor	1	-0.073	0
	2	-0.029	0
	3	-0.019	0
	4	-0.029	0
	5	-0.073	0
Cargo floor	1	0.073	0.145
	2	0.029	0.057
	3	0.019	0.038
	4	0.029	0.057
	5	0.073	0.145
Ground	1	0.256	0.330
	2	0.100	0.128
	3	0.066	0.085
	4	0.100	0.128
	5	0.256	0.330

Height Offset (inHg)			
Test Set Location	Test Point	Total	Static
Passenger floor	1	-0.002	0
	2	-0.001	0
	3	-0.001	0
	4	-0.001	0
	5	-0.002	0
Cargo floor	1	0.002	0.004
	2	0.001	0.002
	3	0.001	0.001
	4	0.001	0.002
	5	0.002	0.004
Ground	1	0.007	0.010
	2	0.003	0.004
	3	0.002	0.002
	4	0.003	0.004
	5	0.007	0.010

NOTE:

SELECT THE SET OF HEIGHT CORRECTION VALUES FOR THE LOCATION CLOSEST TO THE AIR DATA TEST SET.

28238 50 S0000654051_V2

ADS - CAPT AND F/O ALTIMETRY SYSTEM TEST - HEIGHT OFFSET TABLES
Figure 503/34-11-00-990-808

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Engineering Data Conversion Information

To convert binary data from ARINC 429 Bus Analyzer to engineering data, perform the following:

For ADIRU Label 242 or 245:

a) Make a record of bits 28 through 13. Bits 28 through 13 are the data bits, where bit 28 is the most significant bit and bit 13 is the lease significant bit.

b) Convert bits 28 through 13 from binary to decimal then multiply decimal value by 0.03125 to get the static pressure in mb.

For Example:

Label 245 Bit Position	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	Label 245 decimal value	Conversion rate decimal to mb	Results in mb
Example Binary Data	0	1	1	1	1	1	1	0	1	0	1	0	0	0	0	0	32416	0.03125	1013
Conversion to Decimal	0	2^14	2^13	2^12	2^11	2^10	2^9	0	2^7	0	2^5	0	0	0	0	0			
Decimal Values	0	16384	8192	4096	2048	1024	512	0	128	0	32	0	0	0	0	0	32416	0.03125	1013
Example Binary Data	0	0	1	0	0	1	1	1	0	1	0	0	0	0	0	0	10048	0.03125	314
Conversion to Decimal	0	0	2^13	0	0	2^10	2^9	2^8	0	2^6	0	0	0	0	0	0			
Decimal Values	0	0	8192	0	0	1024	512	256	0	64	0	0	0	0	0	0	10048	0.03125	314
Example Binary Data	0	0	0	1	0	1	1	1	1	1	0	0	0	0	0	0	6080	0.03125	190
Conversion to Decimal	0	0	0	2^12	0	2^10	2^9	2^8	2^7	2^6	0	0	0	0	0	0			
Decimal Values	0	0	0	4096	0	1024	512	256	128	64	0	0	0	0	0	0	6080	0.03125	190

2504008 S0000588802_V2

ADS - ENGINEERING DATA CONVERSION INFORMATION
Figure 504/34-11-00-990-809

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TASK 34-11-00-780-803

12. Alternative Test: PFD - Static System Only

(Figure 502, Figure 505, Figure 503)

A. General

(1) This task gives instructions to test altimetry system for correct operation of the Air Data Systems (ADS).

(2) You can use the drain coupling or the static port adapter to pressurize the static system. The drain coupling is recommended, but the static port adapter can be used if the drain coupling is not available.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
25-52-06 P/B 401	CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION
34-21-04 P/B 401	AIR DATA MODULE - REMOVAL/INSTALLATION

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance)
	Part #: ADSE 650 Supplier: 3BSK6
	Part #: ADTS2000 Supplier: 52892
	Part #: ADTS3350ER Supplier: 52892
	Part #: ADTS405MKII Supplier: U0427
	Part #: ADTS530 Supplier: U0427
	Part #: ADTS552F Supplier: U0427
	Part #: ADTS553F Supplier: U0427
	Part #: ADTS554F Supplier: U0427
	Part #: D60340MK Supplier: K1474
	Part #: DPS1000 Supplier: 21844
	Part #: MODEL 6300 Supplier: 0RDZ5
	Part #: MPS34C Supplier: 48RQ2
	Part #: MPS43B Supplier: A0197
	Part #: MPS45 Supplier: 48RQ2
	Part #: MPS49 Supplier: 48RQ2
	Part #: TES9463 Supplier: 88277
	Opt Part #: 01-0987-00 Supplier: 41364
	Opt Part #: 18910480000 Supplier: 89944
	Opt Part #: 18910920000 Supplier: 89944
	Opt Part #: ADTS405F Supplier: U0427
	Opt Part #: ADTS505 Supplier: U0427
	Opt Part #: D60302 Supplier: K1474
	Opt Part #: D60340 Supplier: K1474
	Opt Part #: D60383 Supplier: K1474
	Opt Part #: DPS350 Supplier: 21844
	Opt Part #: DPS450 Supplier: 21844
	Opt Part #: DPS500 Supplier: 21844
	Opt Part #: MPS31C Supplier: 48RQ2
	Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit)
	Part #: CSA75700HT-3 Supplier: 3BSK6
	Part #: P75701-4 Supplier: 38002
	Part #: P75701M2-3 Supplier: 38002
COM-1921	Adapter - Static Test
	Part #: 33410LH-125-4 Supplier: 38002
	Part #: ADA737-678 Supplier: 38002
	Part #: AK737-900 Supplier: 3BSK6
	Part #: CSTL19725-4 Supplier: 3BSK6
COM-1926	Coupling - Quick Disconnect, Pitot System Drain Line
	Part #: 1QF2-2-64A Supplier: 24984
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting
	Part #: 1QF2-3-64C Supplier: 24984
SPL-1917	Fixture - Test, Angle of Attack Sensor, ROSEMOUNT AOA's
	Part #: J34002-19 Supplier: 81205
	Opt Part #: A34012-19 Supplier: 81205
	Opt Part #: A34012-24 Supplier: 81205
	Opt Part #: J34002-18 Supplier: 81205

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D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Prepare for the System Test

SUBTASK 34-11-00-860-256

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-11-00-010-043

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-11-00-860-257

CAUTION

MAKE SURE YOU DO NOT SUPPLY ELECTRICAL POWER TO THE PITOT PROBE HEATER. IF YOU DO, YOU CAN DAMAGE THE PITOT PROBE.

CAUTION

MAKE SURE THAT YOU USE EXTERNAL POWER TO DO THE TEST. IF YOU DO NOT OBEY, THE APU WILL NOT SUPPLY SUFFICIENT POWER AND FAULT MESSAGES WILL SHOW.

NOTE: THIS ALTERNATIVE TEST ONLY TESTS THE STATIC Air Data Module (ADM) IN THE AIRPLANE.

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(3) If electrical power is removed, supply electrical power to the airplane, do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 34-11-00-860-258

(4) Do the following maintenance practices for the CAPT (Captain) and First Officer (F/O) Static System Tests:

(a) Do not connect or disconnect the test equipment while you have pressure in the pitot-static system.

(b) Make sure that the test equipment, pitot system and static systems are clean and free of contamination.

(c) Make sure that there are no leaks in the test equipment.

(d) Make sure that the tape used to seal the static ports does not get inside the static port holes.

(e) Make sure that the tape and/or test adapters do not damage or change the surfaces of the pitot probes or static ports.

(f) Make sure that the air data test set is placed on the same level (0 ±1 ft (0.00 ±0.30 m)) as the passenger cabin floor, cargo compartment floor, or on the ground.

1) The location of the test set determines the height correction values used to calculate ADM error (Figure 503).

(g) Keep the static pressure in the range of 3.26 in/Hg (110.40 mBar) to 39.865 in/Hg (1349.98 mBar).

CAUTION MAKE SURE THAT PRESSURE APPLIED TO THE PITOT -STATIC SYSTEM IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1350 MBAR) WILL CAUSE DAMAGE TO THE ADM.

(h) Make sure that the total pressure applied to the pitot system is static pressure only. Static pressure does not include pitot pressure. Zero airspeed is necessary for this test.

(i) During adjustment of static pressure, make sure that the rate of change of altitude is less than 5,000 feet per minute.

(j) Make sure that the Autopilot Flight Director System is OFF during the test.

(k) Supply electrical power to the Air Data Inertial Reference System (ADIRS) before you make the Static or Total pressure connection.

SUBTASK 34-11-00-860-259

WARNING MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure that the Air Traffic Control (ATC) transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

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SUBTASK 34-11-00-860-260

(6) Turn the altimeter BARO knobs, on the captain's Electronic Flight Instrument System (EFIS) control panel, F/O EFIS control panel, and standby altimeter through the full range.

(7) Set the altimeter BARO knobs on the captain's EFIS control panel, F/O EFIS control panel, and standby altimeter to 29.92 in/Hg (1013.21 mBar).

SUBTASK 34-11-00-860-261

(8) Set the Angle of Attack (AOA) vanes to 0 ±5 degrees, with respect to the AOA sensor alignment pin with an angle of attack probe test fixture, SPL-1917.

H. Captain (CAPT) Altimetry System Test Set Installation

SUBTASK 34-11-00-480-287

CAUTION SUPPORT THE TEST HOSES AND THE ADAPTER SO THEY ADD NO WEIGHT ON THE PITOT PROBES. FAILURE TO DO SO COULD CAUSE THE PITOT PROBES TO NOT BE ALIGNED AND TO BE DAMAGED.

(1) Connect the air data test set to the CAPT pitot and static systems with one test setup from these options:

Option 1: Static Adapter Test Setup

Test Setup		
Figure	Description	More Data
Figure 502 (Sheet 1)	Supply pitot and static pressure from air data test set to Left Pitot and Left Static ADM	
Figure 502 (Sheet 2)	Supply static pressure from air data test set to Left Pitot and Left Static ADM	
Figure 502 (Sheet 9)	Supply Pitot and static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM	(a)
Figure 502 (Sheet 10)	Supply static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM	(a)
(a) CAPT altimetry system test and F/O altimetry system test can be run at the same time when this setup is used.		

(a) Install the pitot test adapter, COM-1916, on the CAPT pitot probe.

CAUTION INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(b) Install the static test adapter, COM-1921, on the CAPT static port.

(c) Connect the air data model test set, COM-1914, to the pitot test adapter, COM-1916, and static test adapter, COM-1921.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING

WHEN THE STATIC PORTS HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE STATIC PORTS HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE STATIC PORTS, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

CAUTION

DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(d) Seal the remaining CAPT static ports with Scotch Brand No.471 tape, G02219.

Option 2: System Drain Test Setup

Test Setup		
Figure	Description	More Data
Figure 502 (Sheet 3)	Supply pitot and static pressure from air data test set to Left Pitot and Left Static ADM through system drain fittings	
Figure 502 (Sheet 4)	Supply static pressure from air data test set to Left Pitot and Left Static ADM through system drain fittings	
Figure 502 (Sheet 11)	Supply pitot and static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM through system drain fittings	(a)
Figure 502 (Sheet 12)	Supply static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM through system drain fittings	(a)
(a) CAPT altimetry system test and F/O altimetry system test can be run at the same time when this setup is used.		

(e) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment (CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION, PAGEBLOCK 25-52-06/401).

(f) Remove the caps on the CAPT pitot and static system drain fittings.

(g) Install the quick-disconnect coupling, COM-1926, on the CAPT pitot system drain fitting.

(h) Install the quick-disconnect coupling, COM-1927, on the CAPT static system drain fitting.

(i) Install the pitot test adapter, COM-1916, on the CAPT pitot probe.

(j) Install caps on the pitot test adapter, COM-1916.

WARNING

WHEN THE STATIC PORTS HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE STATIC PORTS HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE STATIC PORTS, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

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(WARNING PRECEDES)

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(k) Seal the remaining CAPT static ports with, Scotch Brand No.471 tape, G02219.

(l) Connect the air data model test set, COM-1914, to the quick-disconnect couplings, coupling, COM-1926, and coupling, COM-1927.

I. First Officer (F/O) Altimetry System Test Set Installation

SUBTASK 34-11-00-480-288

> **CAUTION** SUPPORT THE TEST HOSES AND THE ADAPTER SO THEY ADD NO WEIGHT ON THE PITOT PROBES. FAILURE TO DO SO COULD CAUSE THE PITOT PROBES TO NOT BE ALIGNED AND TO BE DAMAGED.

(1) Connect the air data model test set, COM-1914, to the F/O pitot and static systems with one test setup from these options:

Option 3: Static Adapter Test Setup

Test Setup		
Figure	Description	More Data
Figure 502 (Sheet 5)	Supply pitot and static pressure from air data test set to Right Pitot and Right Static ADM	
Figure 502 (Sheet 6)	Supply static pressure from air data test set to Right Pitot and Right Static ADM	
Figure 502 (Sheet 9)	Supply Pitot and static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM	(a)
Figure 502 (Sheet 10)	Supply static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM	(a)
(a) CAPT altimetry system test and F/O altimetry system test can be run at the same time when this setup is used.		

(a) Install the pitot test adapter, COM-1916, on the F/O pitot probe.

> **CAUTION** INSTALL THE STATIC PORT ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(b) Install the static test adapter, COM-1921, on the F/O static port.

(c) Connect the air data model test set, COM-1914, to the pitot test adapter, COM-1916, and static test adapter, COM-1921.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING

WHEN THE STATIC PORTS HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE STATIC PORTS HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE STATIC PORTS, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

CAUTION

DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(d) Seal the remaining F/O static ports with, Scotch Brand No.471 tape, G02219.

Option 4: System Drain Test Setup

Test Setup		
Figure	Description	More Data
Figure 502 (Sheet 7)	Supply pitot and static pressure from air data test set to Right Pitot and Right Static ADM through system drain fittings	
Figure 502 (Sheet 8)	Supply static pressure from air data test set to Right Pitot and Right Static ADM through system drain fittings	
Figure 502 (Sheet 11)	Supply pitot and static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM through system drain fittings	(a)
Figure 502 (Sheet 12)	Supply static pressure from air data test set to Left Pitot, Right Pitot, Left Static, and Right Static ADM through system drain fittings	(a)
(a) CAPT altimetry system test and F/O altimetry system test can be run at the same time when this setup is used.		

(e) Open the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment (CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION, PAGEBLOCK 25-52-06/401).

(f) Remove the caps on the F/O pitot and static system drain fittings.

(g) Install the quick-disconnect coupling, COM-1926, on the F/O Pitot System Drain Fitting.

(h) Install the quick-disconnect coupling, COM-1927, on the F/O Static System Drain Fitting.

(i) Install the pitot test adapter, COM-1916, on the F/O pitot probe.

(j) Install caps on the pitot test adapter, COM-1916.

WARNING

WHEN THE STATIC PORTS HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE STATIC PORTS HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE STATIC PORTS, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(WARNING PRECEDES)

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(k) Seal the remaining F/O static ports with, Scotch Brand No.471 tape, G02219.

(l) Connect the air data model test set, COM-1914, to the quick-disconnect couplings, coupling, COM-1926, and coupling, COM-1927.

J. Captain (CAPT) Alternative Altimetry System Test - PFD Method

SUBTASK 34-11-00-780-019

(1) Do the CAPT Static System Test as follows:

NOTE: The Primary Flight Display (PFD) testing method only makes sure that the static ADM is accurate. Testing the pitot ADM is not required to make sure of altimetry system accuracy.

NOTE: The PFD method may be used to make sure that the pitot ADM is accurate by moving the pitot ADM into the static ADM location.

(a) Set the barometric correction to STD on the CAPT and F/O PFD.

SUBTASK 34-11-00-780-020

> **CAUTION** MAKE SURE THAT PRESSURE APPLIED TO THE PITOT -STATIC SYSTEM IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1350 MBAR) WILL CAUSE DAMAGE TO THE ADM.

(2) Apply Static pressure with the air data model test set, COM-1914, for each test point and record test results from the CAPT PFD using the following:

Table of Test Input and Tolerance Requirements

Figure	Description
Figure 505	Measurement Unit: Feet
Figure 503	Height Offset Table (ft)

(a) Allow the indicated vertical speed to reduce to zero before recording CAPT PFD altitude.

SUBTASK 34-11-00-960-009

(3) If the CAPT alternative altimetry system test fails do the following:

(a) Replace the ADM (AIR DATA MODULE - REMOVAL/INSTALLATION, PAGEBLOCK 34-21-04/401).

(b) Do the CAPT alternative altimetry system test.

K. First Officers (F/O) Alternative Altimetry System Test - PFD Method

SUBTASK 34-11-00-780-021

(1) Do the F/O Static System Test as follows:

NOTE: The PFD testing method only makes sure that the static ADM is accurate. Testing the pitot ADM is not required to make sure of altimetry system accuracy.

NOTE: The PFD method may be used to make sure that the pitot ADM is accurate by moving the pitot ADM into the static ADM location.

(a) Set the barometric correction to STD on the CAPT and F/O PFD.

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SUBTASK 34-11-00-780-022

> **CAUTION** MAKE SURE THAT PRESSURE APPLIED TO THE PITOT -STATIC SYSTEM IS NOT TOO HIGH. PRESSURE THAT IS MORE THAN 39.865 INCHES HG (1350 MBAR) WILL CAUSE DAMAGE TO THE ADM.

(2) Apply Static pressure with the air data model test set, COM-1914, for each test point and record test results from the F/O PFD using the following:

Table of Test Input and Tolerance Requirements

Figure	Description
Figure 505	Measurement Unit: Feet
Figure 503	Height Offset Table (ft)

(a) Allow the indicated vertical speed to reduce to zero before recording F/O PFD altitude.

SUBTASK 34-11-00-960-010

(3) For the F/O alternative altimetry system test failure do this:

(a) Replace the ADM (AIR DATA MODULE - REMOVAL/INSTALLATION, PAGEBLOCK 34-21-04/401).

(b) Do the F/O alternative altimetry system test.

L. Captain (CAPT) Altimetry System Test Set Removal

SUBTASK 34-11-00-080-153

(1) Return CAPT pitot and static systems to ambient pressure state and remove air data model test set, COM-1914, set as follows:

> **CAUTION** RELEASE THE PRESSURE OR THE VACUUM CONTINUOUSLY AND AT THE SAME TIME FOR THE PITOT AND STATIC SYSTEMS. IF YOU DO NOT, YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

(a) Release the pressure or vacuum on the CAPT pitot and static systems to ambient pressure with the air data model test set, COM-1914.

(b) Disconnect the air data model test set, COM-1914, from the CAPT pitot and static systems as follows:

1) Option 1, static adapter test setup:

a) Disconnect the air data model test set, COM-1914, from the static test adapter, COM-1921, and pitot test adapter, COM-1916.

b) Remove pitot test adapter, COM-1916, from the CAPT pitot probe.

> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

c) Remove the static test adapter, COM-1921, from the CAPT static port.

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> **WARNING** ENSURE THAT ALL TAPE AND TAPE RESIDUE IS REMOVED FROM THE PITOT AND STATIC PORTS. FAILURE TO REMOVE THIS MAY CAUSE INCORRECT INFORMATION TO THE FLIGHT CREW AND SYSTEM PLACING THE AIRCRAFT AT RISK.

d) Remove the Scotch Brand No.471 tape, G02219, from the remaining CAPT static ports.

2) Option 2, system drain test setup:

a) Disconnect the air data model test set, COM-1914, from the coupling, COM-1926, and coupling, COM-1927.

> **WARNING** ENSURE THAT ALL TAPE AND TAPE RESIDUE IS REMOVED FROM THE PITOT AND STATIC PORTS. FAILURE TO REMOVE THIS MAY CAUSE INCORRECT INFORMATION TO THE FLIGHT CREW AND SYSTEM PLACING THE AIRCRAFT AT RISK.

b) Remove Scotch Brand No.471 tape, G02219, from the remaining CAPT static ports.

c) Remove the pitot test adapter, COM-1916, on the CAPT pitot probe.

d) Remove the quick-disconnect coupling, COM-1926, and the coupling, COM-1927, from the drain fittings.

e) Install caps on the CAPT pitot and static system drain fittings.

f) Do a General Visual Inspection (GVI) of the CAPT pitot and static system drain fittings.

<1> Make sure that the actuation ring is fully engaged on the lock pins.

<2> Make sure that the color lock ring indicator shows that the system drain fitting is connected correctly.

g) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment (CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION, PAGEBLOCK 25-52-06/401).

M. First Officer (F/O) Altimetry System Test Set Removal

SUBTASK 34-11-00-080-154

(1) Return F/O pitot and static systems to ambient pressure state and remove air data model test set, COM-1914, as follows:

> **CAUTION** RELEASE THE PRESSURE OR THE VACUUM CONTINUOUSLY AND AT THE SAME TIME FOR THE PITOT AND STATIC SYSTEMS. IF YOU DO NOT, YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

(a) Release the pressure or vacuum on the F/O pitot and static systems to ambient pressure using the air data model test set, COM-1914.

(b) Disconnect the air data model test set, COM-1914, from the F/O pitot and static systems as follows:

1) Option 3, static adapter test setup:

a) Disconnect the air data model test set, COM-1914, from the static test adapter, COM-1921, and pitot test adapter, COM-1916.

b) Remove pitot test adapters from the F/O pitot probe.

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> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

c) Remove static test adapter from the F/O static port.

> **WARNING** ENSURE THAT ALL TAPE AND TAPE RESIDUE IS REMOVED FROM THE PITOT AND STATIC PORTS. FAILURE TO REMOVE THIS MAY CAUSE INCORRECT INFORMATION TO THE FLIGHT CREW AND SYSTEM PLACING THE AIRCRAFT AT RISK.

d) Remove Scotch Brand No.471 tape, G02219, from the remaining F/O static ports.

2) Option 4, system drain test setup:

a) Disconnect the air data model test set, COM-1914, from the coupling, COM-1926, and coupling, COM-1927.

> **WARNING** ENSURE THAT ALL TAPE AND TAPE RESIDUE IS REMOVED FROM THE PITOT AND STATIC PORTS. FAILURE TO REMOVE THIS MAY CAUSE INCORRECT INFORMATION TO THE FLIGHT CREW AND SYSTEM PLACING THE AIRCRAFT AT RISK.

b) Remove the Scotch Brand No.471 tape, G02219, from the remaining F/O static ports.

c) Remove the pitot test adapter, COM-1916, on the F/O pitot probe.

d) Remove the quick-disconnect coupling, COM-1926, and the coupling, COM-1927, from the drain fittings.

e) Install caps on the F/O pitot and static system drain fittings.

f) Do a GVI of the F/O pitot and static system drain fittings.

<1> Make sure that the actuation ring of the drain fitting is fully engaged on the lock pins.

<2> Make sure the color lock ring indicator shows that the system drain fitting is connected correctly.

g) Close the primary static system drain access panel, on the left sidewall lining, in the forward cargo compartment (CARGO COMPARTMENT SIDEWALL LININGS - REMOVAL/INSTALLATION, PAGEBLOCK 25-52-06/401).

N. Put the Airplane Back to Its Usual Condition

SUBTASK 34-11-00-000-003

(1) Remove the angle of attack probe test fixture, SPL-1917, from the applicable AOA sensor.

SUBTASK 34-11-00-410-027

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

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SUBTASK 34-11-00-860-262

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-11-00-860-263

(4) If no longer necessary, remove electrical power, do this task: Remove External Power, TASK 24-22-00-860-814.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAPT AND F/O STATIC SYSTEM ONLY TEST - TEST INPUT, MEASUREMENT UNIT: FEET

Test Point	Input Target Altitude (ft)	A	B	C	D	E	F	Air Data Test Set, Altitude Output (ft)	Air Data Test Set, Height Correction (ft)	Primary Flight Display, Altitude (ft)	Differential Altitude = Col A + Col B - Col C (ft)	Tolerance of the Differential Altitude	Air Data Test Set, Altitude Output (ft)	Air Data Test Set, Height Correction (ft)	Primary Flight Display, Altitude (ft)	Differential Altitude = Col D + Col E - Col F (ft)	Tolerance of the Differential Altitude (ft)	More Data
1	0 +/- 27		(b)			(b)						+/- 15					+/- 15	(a)
2	29,048 +/- 71		(b)			(b)						+/- 30					+/- 30	(a)
3	39,651 +/- 106		(b)			(b)						+/- 45					+/- 45	(a)
4	29,048 +/- 71		(b)			(b)						+/- 30					+/- 30	(a)
5	0 +/- 27		(b)			(b)						+/- 15					+/- 15	(a)
	Entry to the Air Data Test Set		Static Pressure Measurement - Left Static ADM			Static Pressure Measurement - Right Static ADM												

(a) Allow one minute after the air data test set reaches the input static pressure value before recording measurements.

(b) Height correction values in Column B and E are determined by the location the test set is placed. Refer to Height offset (ft) table.

2805329 S0000643269_V3

AIR DATA SYSTEM - CAPT AND F/O STATIC SYSTEM ONLY TEST - TEST INPUT MEASUREMENT UNIT: FEET
Figure 505/34-11-00-990-816

ECCN 9E991 BOEING PROPRIETARY - See title page for details

PITOT PROBE - REMOVAL/INSTALLATION

1. General

A. This procedure contains the following tasks:

(1) A removal of the pitot probe

(2) An installation of the pitot probe.

TASK 34-11-01-000-801

2. Pitot Probe - Removal

(Figure 401, Figure 403, Figure 404)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Pitot Probe Removal

SUBTASK 34-11-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-01-140-004

WARNING

MAKE SURE THAT THE PITOT PROBE HEAT IS OFF. A HOT PROBE CAN CAUSE INJURIES TO PERSONNEL.

CAUTION

MAKE SURE THAT THE AREA AROUND THE PITOT PROBE IS CLEAR OF UNWANTED MATERIAL. CONTAMINATION OF THE PITOT SYSTEM CAN OCCUR.

(2) Use the sealant removal tool, COM-2481, to remove the sealant from around the baseplate [1] of the pitot probe [9].

SUBTASK 34-11-01-020-002

(3) Remove the screws [7] from the baseplate [1] of the pitot probe [9].

SUBTASK 34-11-01-020-003

(4) Do these steps to loosen the pitot probe [9] from the airplane skin:

(a) Hold the probe strut [8].

LOM ALL; AIRPLANES WITH NO BONDING JUMPER OR BONDING JUMPER ON THE BASEPLATE

(b) Loosen the gasket [3].

LOM ALL; AIRPLANES WITH BONDING JUMPER ON BONDING PLATE

(c) Loosen the bonding plate [12] and gasket [3].

LOM ALL; AIRPLANES WITH BONDING JUMPER ON GROUNDING PLATE ASSEMBLY

(d) Loosen the grounding plate assembly [14].

LOM ALL

(e) Pull the pitot probe [9] out from the airplane skin until you can get access to the pitot hose fitting [11] and electrical connector [6] on the base of the pitot probe [9].

SUBTASK 34-11-01-020-005

(5) Remove the long screw [10] from the pitot probe [9] side of the electrical connector [6].

SUBTASK 34-11-01-020-006

(6) Disconnect the electrical connector [6].

SUBTASK 34-11-01-420-001

(7) Install the long screw [10] in the electrical connector [6].

(a) Temporarily attach the electrical connector [6] to the airplane structure with tape to keep it safe.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL; AIRPLANES WITH BONDING JUMPER ON THE BASEPLATE

SUBTASK 34-11-01-020-097

(8) Disconnect the bonding jumper [13] from the baseplate [1].

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426

SUBTASK 34-11-01-020-004

CAUTION	USE TWO WRENCHES TO APPLY COUNTER PRESSURE ON THE FITTING DURING DISASSEMBLY. USE ONE WRENCH ON EACH SIDE OF THE FITTING. IF YOU DO NOT OBEY THIS INSTRUCTION, DAMAGE TO THE TUBE OR FITTING CAN OCCUR.

(9) Disconnect the pitot hose fitting [11] at the base of the pitot probe [9] (Figure 402).

(a) Use one wrench on each side to apply counter pressure on the fitting.

LOM 427-434, 437-447, 450-999

SUBTASK 34-11-01-020-098

CAUTION	USE TWO WRENCHES TO APPLY COUNTER PRESSURE ON THE FITTING DURING DISASSEMBLY. USE ONE WRENCH ON EACH SIDE OF THE FITTING. IF YOU DO NOT OBEY THIS INSTRUCTION, DAMAGE TO THE TUBE OR FITTING CAN OCCUR.

(10) Disconnect the pitot hose fitting [11] and elbow [15] from the pitot probe [9] (Figure 402).

(a) Use one wrench on each side to apply counter pressure on the fitting.

LOM ALL

SUBTASK 34-11-01-020-009

(11) Put a cap on the pitot hose fitting [11] to keep out unwanted material.

NOTE: This step is not necessary when you replace the pitot probe immediately.

SUBTASK 34-11-01-020-008

(12) Temporarily attach the pitot hose fitting [11] to the airplane structure with tape so that it does not fall inside the fuselage.

SUBTASK 34-11-01-020-100

(13) Remove the pitot probe [9] with the baseplate [1] as a full assembly.

(a) Remove the gasket [3].

1) If the gasket [3] is damaged, discard it.

NOTE: The gasket can be used again if it is not damaged. It is not necessary to install a new gasket if to get a new one will cause a flight delay. You can use the used gasket if it is in a serviceable condition. Replace the used gasket with a new gasket in seven days or less.

SUBTASK 34-11-01-020-011

(14) If it is necessary, remove the baseplate [1] from the pitot probe [9].

(a) Remove the lockwire [2] and discard it.

(b) Remove the bolts [4] and washers [5] from the baseplate [1].

NOTE: Hardened sealant can be softened with heat for easier removal. The baseplate and pitot probe may be heated in an oven, 150°F (66°C) for 20 minutes to soften the sealant.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Remove the baseplate [1].

SUBTASK 34-11-01-020-012

(15) Keep the baseplate [1] for another installation.

NOTE: The baseplates are not interchangeable between positions.

LOM ALL; AIRPLANES WITH BONDING JUMPER ON BONDING PLATE

SUBTASK 34-11-01-030-001

(16) Disconnect the bonding jumper [13] from the bonding plate [12].

SUBTASK 34-11-01-030-002

(17) Remove the bonding plate [12] and gasket [3].

NOTE: The bonding plate can be reused if not damaged.

LOM ALL; AIRPLANES WITH BONDING JUMPER ON GROUNDING PLATE ASSEMBLY

SUBTASK 34-11-01-020-062

(18) Disconnect the bonding jumper [13] from the grounding plate assembly [14].

SUBTASK 34-11-01-020-063

(19) Remove the grounding plate assembly [14] and discard it.

NOTE: The grounding plate assembly can be reused if not damaged (bonded gasket).

LOM ALL; AIRPLANES WITH NO BONDING JUMPER OR BONDING JUMPER ON THE BASEPLATE

SUBTASK 34-11-01-020-013

(20) Remove the gasket [3].

LOM ALL

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Pitot Probe Installation
Figure 401/34-11-01-990-801 (Sheet 1 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAPTAIN'S PITOT PROBE SHOWN
(FIRST OFFICER'S AND ALTERNATE ARE OPPOSITE)

A

F61610 S0006576497_V3

Pitot Probe Installation
Figure 401/34-11-01-990-801 (Sheet 2 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAPTAIN'S PITOT PROBE SHOWN
(FIRST OFFICER'S AND ALTERNATE ARE OPPOSITE)

A

D32972 S0000151496_V4

Pitot Probe Installation
Figure 401/34-11-01-990-801 (Sheet 3 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAPTAIN'S PITOT PROBE SHOWN
(FIRST OFFICER'S AND ALTERNATE ARE OPPOSITE)

A

2128611 S0000460032_V5

Pitot Probe Installation
Figure 401/34-11-01-990-801 (Sheet 4 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 EXCESS TUBING SHOULD BE PUSHED UP INTO FRAME CAVITY WHICH WILL ALLOW WATER TO FLOW TO THE DRAIN OR OUT THE PROBE.

2 ELBOW FITTING IS THE PART OF THE FLEXIBLE PITOT HOSE ASSEMBLY.

3 PITOT PROBE TUBE INSTALLED WITH A 45 DEGREES ELBOW FITTING MUST BE ORIENTED TO ENSURE POSITIVE DRAINAGE OF THE HOSE, NO KINKING, AND NO CONTACT WITH SURROUNDING STRUCTURE.

Pitot Probe Flex Hose Installation
Figure 402/34-11-01-990-813 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 ELBOW FITTING IS THE PART OF THE FLEXIBLE PITOT HOSE ASSEMBLY.

2 THE CENTER OF THE 90 DEGREES ELBOW FITTING MUST BE ALIGNED WITH THE ALIGNMENT MARK. THE ALIGNMENT MARK IS 8.6 DEGREES ABOVE THE CENTER OF THE PITOT PROBE. THIS WILL PREVENT MOISTURE FROM COLLECTING IN LOW SPOTS OF THE PITOT ASSEMBLY AND PITOT HOSE.

2130516 S0000459996_V4

Pitot Probe Flex Hose Installation
Figure 402/34-11-01-990-813 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 ELBOW FITTING IS THE PART OF THE FLEXIBLE PITOT HOSE ASSEMBLY.

2 THE CENTER OF THE 90 DEGREES ELBOW MUST BE ALIGNED WITH THE ALIGNMENT MARK. THE ALIGNMENT MARK IS 8.6 DEGREES ABOVE THE CENTER OF THE PITOT PROBE. THIS WILL PREVENT MOISTURE FROM COLLECTING IN LOW SPOTS OF THE PITOT ASSEMBLY AND PITOT HOSE.

3032963 S0000803403_V2

Pitot Probe Flex Hose Installation
Figure 402/34-11-01-990-813 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 APPLY SEALANT AROUND THE HEAD OF TWO BOLTS.
2 APPLY SEALANT TO BRIDGE GAP ONLY BETWEEN PITOT PROBE SENSOR AND THE BASEPLATE.
3 APPLY SEALANT ON THE LINE BETWEEN THE BASEPLATE AND THE STRUT OF THE PITOT PROBE.

2797201 S0000637415_V2

Pitot Probe Sealant Application
Figure 403/34-11-01-990-809

ECCN 9E991 BOEING PROPRIETARY - See title page for details

3009898 S0000783508_V1

Pitot Probe Electrical Connector Polarity
Figure 404/34-11-01-990-810

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-11-01-400-801

3. Pitot Probe - Installation

(Figure 401, Figure 402)

A. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
34-11-00-790-810	Left Pitot System Leak Test (P/B 501)
34-11-00-790-811	Right Pitot System Leak Test (P/B 501)
34-11-00-790-812	Alternate Pitot System Leak Test (P/B 501)
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)
SRM 51-40-02	Structural Repair Manual
SSM 20-20-10	SWPM
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1523	Stand and Personnel Lifting Equipment - General Purpose Part #: B-14 Supplier: 05060 Part #: B-9 Supplier: 05060 Part #: Z-45-25J Supplier: 59497
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Gasket	34-11-01-03-015	LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-454

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
3 (cont.)		34-11-01-03-015A	LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-454
		34-11-01-03-045	LOM 402, 404, 406, 455-999
		34-11-01-03-050	LOM 402, 404, 406, 455-999
		34-11-01-03-201	LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-454
		34-11-01-03-202	LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-454
		34-11-01-03-240	LOM 402, 404, 406, 455-999
		34-11-01-03-245	LOM 402, 404, 406, 455-999
14	Grounding plate assembly	34-11-01-03-008	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-454
		34-11-01-03-016	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-454
		34-11-01-03-165	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-454
		34-11-01-03-200	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-454

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Pitot Probe Installation

SUBTASK 34-11-01-860-166

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-01-110-001

(2) For the surface of the baseplate [1], do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

SUBTASK 34-11-01-420-002

(3) If removed, do these steps to install the pitot probe [9] on the baseplate [1]:

(a) Put the pitot probe [9] on the baseplate [1].

(b) Install the bolts [4] and washers [5].

(c) Install the MS20995NC32 lockwire, G01912, on the bolts [4] (TASK 20-10-44-400-801).

(d) Measure the resistance between the baseplate [1] and the probe strut [8] with an intrinsically safe approved bonding meter, COM-1550 (SSM 20-20-10).

(e) Make sure that the resistance is not more than 0.0005 ohm (0.5 milliohms).

(f) Apply sealant, A00247, to the parts that follow (Figure 403):

NOTE: It is not necessary to apply the sealant immediately, if the cure time will cause a flight delay. The sealant should be applied as soon as possible to keep moisture out of the area between the probe and airplane skin. The sealant deferral must not exceed a maximum of eight weeks.

1) Around the head of the two bolts [4].

2) A thin layer to the clearance between the pitot probe [9] and the baseplate [1].

3) A thin layer on the line between the baseplate [1] and the probe strut [8].

LOM ALL; AIRPLANES WITH NO BONDING JUMPER OR BONDING JUMPER ON THE BASEPLATE

SUBTASK 34-11-01-420-005

(4) Put the new gasket [3] into position on the baseplate [1].

NOTE: It is not necessary to install a new gasket if to get a new one will cause a flight delay. You can use the used gasket if it is in a serviceable condition. Replace the used gasket with a new gasket in seven days or less.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426

SUBTASK 34-11-01-420-006

(5) Do these steps to connect the pitot hose fitting [11] to the pitot probe [9] (Figure 402):

(a) If installed, remove the cap from the pitot hose fitting [11].

(b) Connect the pitot hose fitting [11] to the pitot probe [9].

LOM 402, 404, 406, 407

1) Make sure that the pitot probe tube with the 45 degrees elbow fitting is installed to let the hose drain.

a) Make sure that the pitot probe tube does not kink, and does not touch the structure.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 412, 415, 416, 420, 422-426

2) Make sure that the center of the 90 degrees elbow fitting is aligned with the alignment mark on the inboard side of the baseplate [1] .

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426

3) Make sure that the flexible pitot line is not twisted and does not have a kink.

CAUTION	USE TWO WRENCHES TO APPLY COUNTER PRESSURE ON THE FITTING DURING DISASSEMBLY. USE ONE WRENCH ON EACH SIDE OF THE FITTING. IF YOU DO NOT OBEY THIS INSTRUCTION, DAMAGE TO THE TUBE OR FITTING CAN OCCUR.

CAUTION	MAKE SURE THAT YOU DO NOT BEND THE PRESSURE LINE FROM THE BASEPLATE TO THE PITOT HOSE FITTING WHEN YOU TIGHTEN THE PITOT HOSE FITTING. IF YOU DO NOT OBEY, THIS CAN CAUSE DAMAGE TO THE PITOT PROBE.

(c) Tighten the pitot hose fitting [11] to 104 in-lb (11.8 N·m) - 116 in-lb (13.1 N·m).

1) Use one wrench on each side to apply counter pressure on the fitting.

2) Make sure that the pressure line from the baseplate [1] to the pitot hose fitting [11] is not bent.

a) If the pressure line is bent, replace the pitot probe [9].

LOM 427-434, 437-447, 450-999

SUBTASK 34-11-01-420-071

(6) Do these steps to connect the pitot hose fitting [11] to the pitot probe [9] (Figure 402):

(a) If installed, remove the cap from the pitot hose fitting [11].

(b) Connect the pitot hose fitting [11] with the elbow [15] to the pitot probe [9].

1) Make sure that the center of the 90 degrees elbow [15] is aligned with the alignment mark on the inboard side of the baseplate [1].

2) Make sure that the flexible pitot line is not twisted and does not have a kink.

CAUTION	USE TWO WRENCHES TO APPLY COUNTER PRESSURE ON THE FITTING DURING DISASSEMBLY. USE ONE WRENCH ON EACH SIDE OF THE FITTING. IF YOU DO NOT OBEY THIS INSTRUCTION, DAMAGE TO THE TUBE OR FITTING CAN OCCUR.

CAUTION	MAKE SURE THAT YOU DO NOT BEND THE PRESSURE LINE FROM THE BASEPLATE TO THE PITOT PROBE FITTING WHEN YOU TIGHTEN THE ELBOW. IF YOU DO NOT OBEY, THIS CAN CAUSE DAMAGE TO THE PITOT PROBE.

(c) Tighten the elbow [15] to the pitot probe [9] to 133 in-lb (15.0 N·m) - 147 in-lb (16.6 N·m).

1) Use one wrench on each side to apply counter pressure on the fitting.

2) Make sure that the pressure line from the baseplate [1] to the pitot hose fitting [11] is not bent.

a) If the pressure line is bent, replace the pitot probe [9].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL; AIRPLANES WITH BONDING JUMPER ON THE BASEPLATE

SUBTASK 34-11-01-420-070

(7) Connect the bonding jumper [13] to the baseplate [1].

LOM ALL; AIRPLANES WITH BONDING JUMPER ON BONDING PLATE

SUBTASK 34-11-01-430-001

(8) Put the bonding plate [12] and new gasket [3] into position on the baseplate [1].

NOTE: It is not necessary to install a new gasket if to get a new one will cause a flight delay. You can use the used gasket if it is in a serviceable condition. Replace the used gasket with a new gasket in seven days or less.

SUBTASK 34-11-01-430-002

(9) Connect the bonding jumper [13] to the bonding plate [12].

LOM ALL; AIRPLANES WITH BONDING JUMPER ON GROUNDING PLATE ASSEMBLY

SUBTASK 34-11-01-420-048

(10) Put the grounding plate assembly [14] into position on the baseplate [1].

SUBTASK 34-11-01-420-049

(11) Connect the bonding jumper [13] to the grounding plate assembly [14].

LOM ALL

SUBTASK 34-11-01-210-001

(12) Do these steps to connect the electrical connector [6] to the pitot probe [9]:

(a) Examine the electrical connector [6] for loose, bent, or broken pins.

(b) Remove the long screw [10] from the electrical connector [6].

CAUTION BE CAREFUL WHEN YOU CONNECT THE ELECTRICAL CONNECTOR TO THE PITOT PROBE. IF YOU DO NOT OBEY, DAMAGE TO THE WIRE BUNDLE AT THE ELECTRICAL CONNECTOR CAN OCCUR.

(c) Connect the electrical connector [6] to the pitot probe [9].

1) Make sure that the pins are connected correctly (Figure 404).

NOTE: Pin B is the pin on the side that is nearest to the offset screw hole.

(d) Install the long screw [10] in the electrical connector [6].

SUBTASK 34-11-01-800-002

CAUTION MAKE SURE THAT THE PITOT PROBE AND INSULATION MATERIAL DO NOT TOUCH. IF YOU DO NOT OBEY, BURN DAMAGE ON THE PITOT PROBE AND INSULATION MATERIAL CAN OCCUR.

(13) If it is necessary, move the insulation blanket, to allow clearance between the pitot probe [9] and blanket.

SUBTASK 34-11-01-420-010

CAUTION DO NOT LET DUST, DIRT, OR OTHER UNWANTED MATERIAL GET IN THE PORTS. CONTAMINATION CAN CAUSE DAMAGE TO THE SYSTEM.

(14) Do these steps to install the pitot probe [9]:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Hold the probe strut [8] and put the pitot hose fitting [11] and electrical connector [6] into position on the airplane skin.

1) Make sure that there is not a loop or downward oriented dip in the flexible pitot hose when the pitot hose fitting [11] is put in the installation hole.

NOTE: A loop or downward oriented dip in the flexible pitot hose can cause water accumulation. Water accumulation can cause an erratic airspeed indication, resulting in an Indicated Airspeed (IAS) disagree message.

2) Make sure that the pressure line from the baseplate [1] to the pitot hose fitting [11] is not bent.

a) If the pressure line is bent, replace the pitot probe [9].

(b) Put the pitot probe [9] into position on the airplane skin.

LOM 427-434, 437-447, 450-999

1) Measure the baseplate [1] to skin misfair at the forward and aft edges of the baseplate [1] to be within +/-0.040 in. (1.0 mm).

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426

2) Measure the baseplate [1] to skin misfair at the forward and aft edges of the baseplate [1] to be within +/-0.040 in. (1.0 mm).

a) If the +/-0.040 in. (1.0 mm) tolerance is exceeded, one of the forward three pitot probes [9] can be installed within +/-0.050 in. (1.3 mm).

b) The other two pitot probes [9] must be installed within +/-0.040 in. (1.0 mm).

LOM ALL

SUBTASK 34-11-01-420-011

(15) Install the screws [7] in the baseplate [1] of the pitot probe [9].

(a) Apply compound, C00528, to the screws [7] and baseplate [1] hole.

(b) Install the screws [7] in the baseplate [1] of the pitot probe [9].

(c) Tighten the screws [7] to 32 in-lb (3.6 N·m) - 39 in-lb (4.4 N·m).

SUBTASK 34-11-01-760-001

(16) Do these steps to complete the bonding measurement check:

(a) Measure the resistance between the strut of the pitot probe [9] and airplane skin (SWPM 20-20-00).

1) Use an intrinsically safe approved bonding meter, COM-1550.

2) Make sure that the resistance is 0.010 ohm (10 milliohms) or less.

(b) If the resistance is more than 0.010 ohm (10 milliohms), do these steps:

LOM ALL; AIRPLANES WITH BONDING JUMPER

1) Make sure that the bonding jumper [13] is correctly attached to the inboard side of the airplane skin.

a) Make sure that the bonding jumper [13] is free of corrosion.

b) Make sure that the mounting fasteners of the bonding jumper [13] are free of corrosion.

c) If it is necessary, tighten the mounting fasteners.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2) Remove the pitot probe [9].
3) Clean the bonding surfaces, including the countersunk holes in the pitot probe [9] (SWPM 20-20-00).
4) Replace the screws with new screws.
5) Install the pitot probe [9].
6) Measure the resistance between the strut of the pitot probe [9] and the airplane skin (SWPM 20-20-00).
   a) Use an intrinsically safe approved bonding meter, COM-1550.
   b) Make sure that the resistance is 0.010 ohm (10 milliohms) or less.
7) If the resistance is more than 0.010 ohm (10 milliohms), do these steps:
   a) Remove the pitot probe [9].
   b) Replace the nutplates and rivets that attach the pitot probe [9] (SRM 51-40-02).
   c) Install the pitot probe [9].
   d) Measure the resistance between the strut of the pitot probe [9] and the airplane skin (SWPM 20-20-00).
      <1> Use an intrinsically safe approved bonding meter, COM-1550.
      <2> Make sure that the resistance is 0.010 ohm (10 milliohms) or less.

G. Pitot Probe Installation Test

SUBTASK 34-11-01-790-001

(1) Do the leak check for the applicable pitot probe [9]:
   (a) For the captain's pitot probe, do this task: Left Pitot System Leak Test, TASK 34-11-00-790-810.
   (b) For the first officer's pitot probe, do this task: Right Pitot System Leak Test, TASK 34-11-00-790-811.
   (c) For the alternate pitot probe, do this task: Alternate Pitot System Leak Test, TASK 34-11-00-790-812.

SUBTASK 34-11-01-860-178

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT
C	4	C00236	HEATERS ELEV PITOT LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

   (a) Make sure that the amber OVERHEAT indicator lights on the window and pitot heat module, located on the P5 FWD overhead panel, go off.

SUBTASK 34-11-01-860-173

(3) Put the PROBE HEAT A switch in the ON position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure that the CAPT PITOT, L ELEV PITOT, L ALPHA VANE, and TEMP PROBE lights on the window and pitot heat module go off.

SUBTASK 34-11-01-860-174

(4) Put the PROBE HEAT B switch in the ON position.

(a) Make sure that the F/O PITOT, R ELEV PITOT, R ALPHA VANE, and AUX PITOT lights on the window and pitot heat module go off.

SUBTASK 34-11-01-700-002

WARNING DO NOT TOUCH AIR DATA SENSORS WHEN HOT. A HOT AIR DATA SENSOR CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Do one of these methods to make sure that the air data sensor heaters get warm:

- Spray the air data sensors with water to check for heat.
- Measure the temperature of the sensor with an infrared or contact thermometer.
- Look at the sensor with an infrared or thermal imager.

NOTE: You will need a work platform, COM-1523, or equivalent to get access to the elevator pitot probe. If you use an infrared or thermal imager to check for heat, then you do not need the stand.

LOM 404, 416, 443, 444

SUBTASK 34-11-01-860-175

(6) Press and hold the TAT TEST switch.

(a) Make sure that the TAT probe heaters get warm.

SUBTASK 34-11-01-860-176

(7) Release the TAT TEST switch.

LOM ALL

SUBTASK 34-11-01-860-177

LOM 404, 407, 420 PRE SB 737-30A1063

(8) Put the PROBE HEAT switches in the OFF position.

LOM 402, 406, 411, 412, 415, 416, 422-434, 437-447, 450-999; LOM 404, 407, 420 POST SB 737-30A1063

(9) Put the PROBE HEAT switches in the AUTO position.

LOM ALL

SUBTASK 34-11-01-390-002

CAUTION DO NOT USE TOO MUCH SEALANT. TOO MUCH SEALANT CAN CAUSE DAMAGE WHEN YOU REMOVE THE PROBE. IF YOU DO NOT USE SUFFICIENT SEALANT, CORROSION CAN OCCUR.

(10) Apply an aerodynamic fillet seal to the clearance between the baseplate [1] and the airplane skin with sealant, A00247 (TASK 51-31-00-390-806).

NOTE: It is not necessary to apply the sealant immediately, if the cure time will cause a flight delay. The sealant should be applied as soon as possible to keep moisture out of the area between the probe and airplane skin. The sealant deferral must not exceed a maximum of eight weeks.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure that the baseplate [1] and sealant are flat with the airplane skin.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

PITOT PROBE - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An inspection of the pitot probe

(2) A special detailed inspection of the pitot probe.

C. Replace the pitot probe if the damage or wear limits are out of tolerance.

TASK 34-11-01-200-804

2. Pitot Probe Detailed Inspection

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
34-11-01-100-801	Pitot Probe Cleaning (P/B 701)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Pitot Probe Detailed Inspection

SUBTASK 34-11-01-860-167

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-01-210-006

(2) Visually examine the pitot probe for damage or unwanted material in the drain holes, the pitot opening, or the contour of the probe.

NOTE: Using a flashlight, look for debris or blockage within the first few inches of Pitot probe tip, inspect up to the water dam internal feature of the probe.

SUBTASK 34-11-01-220-023

(3) If unwanted moisture, debris, or other material is found, clean the inner surface of the pitot probe (TASK 34-11-01-100-801).

SUBTASK 34-11-01-220-017

(4) Make sure that the edge of the pitot opening is sharp.

SUBTASK 34-11-01-220-018

(5) Make sure that the inner surface of the probe tip is smooth and rounded.

SUBTASK 34-11-01-220-019

(6) Make sure that the outer surface of the probe tip is smooth and rounded.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-01-220-020

(7) Make sure that the leading edge of the pitot probe does not have nicks.

SUBTASK 34-11-01-220-024

(8) Make sure that the leading edge of the pitot scarf is even.

SUBTASK 34-11-01-220-022

(9) If the detailed inspection of the pitot probe is not satisfactory, do a special detailed inspection of the pitot probe (TASK 34-11-01-200-803).

SUBTASK 34-11-01-860-168

(10) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

END OF TASK

TASK 34-11-01-200-803

3. Pitot Probe Special Detailed Inspection

(Figure 601)

A. General

(1) You can use a micrometer or you can use gages or wires to measure damage to the tip and the leading edge of the pitot probe. To measure most accurately, a micrometer is recommended. To use a micrometer, you must remove the pitot probe from the airplane.

B. References

Reference	Title
34-11-01-000-801	Pitot Probe - Removal (P/B 401)
34-11-01-400-801	Pitot Probe - Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2039	Micrometer, Optical (Accuracy +/-.001 Inch) Part #: MODEL 966A1 Supplier: 0ZYB5 Opt Part #: 8400K Supplier: 65956

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Pitot Probe Special Detailed Inspection

SUBTASK 34-11-01-860-169

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-11-01-210-004

(2) Visually examine the pitot probe for damage or unwanted material in the drain holes, the pitot opening, or the contour of the probe.

SUBTASK 34-11-01-210-015

(3) Visually examine pitot probe outer head for defects (dents, nicks & scratches) that exceed 0.025 in. (0.635 mm) over the rest of the head, and exceed 0.125 in. (3.175 mm) on the strut section of the pitot probe.

SUBTASK 34-11-01-020-061

(4) If you will use a micrometer, COM-2039, for the inspection of the pitot probe, remove the pitot probe.

(a) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

NOTE: When the pitot probe is on the airplane, you cannot hold the micrometer sufficiently stable to measure accurately. If you will use gages or wires for the inspection, it is not necessary to remove the pitot probe.

NOTE: Gages or wires to 0.015 in. (0.381 mm) - 0.470 in. (11.938 mm), can be used to measure nicks, dents, or scratches in or around the opening of a pitot probe.

SUBTASK 34-11-01-220-012

(5) Make sure that the edge of the pitot opening is sharp.

NOTE: New probes are sharpened to 0.008 in. (0.203 mm) maximum flat.

LOM ALL; AIRPLANES WITHOUT PITOT PROBE PART NUMBER 0851HT-2

(a) Make sure that the opening sharpness is no more than 0.025 in. (0.635 mm).

LOM ALL; AIRPLANES WITH PITOT PROBE PART NUMBER 0851HT-2

(b) Make sure that the opening sharpness is no more than 0.015 in. (0.381 mm).

LOM ALL

(c) Replace the pitot probe if the damage is more than the limit, do these tasks:

- Pitot Probe - Removal, TASK 34-11-01-000-801
- Pitot Probe - Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-220-013

WARNING IF PITOT PROBE DAMAGE OR WORN AREAS ARE MORE THAN THE LIMITS SHOWN IN FIGURE 601, YOU MUST REPLACE THE PROBE. IF YOU DO NOT REPLACE THE PROBE, ERRORS IN AIR DATA CAN HAVE AN UNWANTED EFFECT ON SAFE FLIGHT.

(6) Make sure that the inner surface of the probe tip is smooth and rounded.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL; AIRPLANES WITHOUT PITOT PROBE PART NUMBER 0851HT-2

(a) Make sure that the pitot probe has no dents more than 0.060 in. (1.524 mm) in depth.

LOM ALL; AIRPLANES WITH PITOT PROBE PART NUMBER 0851HT-2

(b) Make sure that the pitot probe has no dents more than 0.030 in. (0.762 mm).

LOM ALL

(c) Make sure that the surface damage does not affect more than 1/5 (20%) of the lip area.

(d) If the damage is more than the limit, replace the pitot probe.

1) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

2) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-220-014

(7) Make sure that the outer surface of the probe tip is smooth and rounded.

LOM ALL; AIRPLANES WITHOUT PITOT PROBE PART NUMBER 0851HT-2

(a) Make sure that the pitot probe tip is not flared out more than 0.470 in. (11.938 mm).

LOM ALL; AIRPLANES WITH PITOT PROBE PART NUMBER 0851HT-2

(b) Make sure that the pitot probe is not flared out more than 0.305 in. (7.747 mm).

LOM ALL

(c) Replace the pitot probe if the damage is more than the limit, do these tasks:

- Pitot Probe - Removal, TASK 34-11-01-000-801
- Pitot Probe - Installation, TASK 34-11-01-400-801.

SUBTASK 34-11-01-220-015

(8) Make sure that the leading edge of the pitot probe does not have nicks.

(a) If there are two or more nicks to 0.050 in. (1.270 mm) - 0.060 in. (1.524 mm) in depth, replace the pitot probe.

1) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

2) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

(b) If there is a nick more than 0.060 in. (1.524 mm) in depth, replace the pitot probe.

1) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

2) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

LOM ALL; AIRPLANES WITH PITOT PROBE PART NUMBER 0851HT-2

SUBTASK 34-11-01-220-025

(9) Make sure that the leading edge of the pitot scarf has no slope.

(a) Replace the pitot probe if the side to side difference is more than 0.015 in. (0.381 mm).

1) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

2) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

LOM ALL

SUBTASK 34-11-01-420-044

(10) If you removed the pitot probe for the inspection, re-install it.

(a) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-01-860-170

(11) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Pitot Probe Inspection
Figure 601/34-11-01-990-802 (Sheet 1 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

PITOT FLAT

B

PITOT DENT IN

B

PITOT FLARE OUT

B

PITOT NICK

B

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Pitot Probe Inspection
Figure 601/34-11-01-990-802 (Sheet 2 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Pitot Probe Inspection
Figure 601/34-11-01-990-802 (Sheet 3 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

PITOT SCARF

B

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Pitot Probe Inspection
Figure 601/34-11-01-990-802 (Sheet 4 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

PITOT PROBE - CLEANING/PAINTING

1. General

A. This procedure shows how to clean the inner and outer surfaces of the pitot probe.

TASK 34-11-01-100-801

2. Pitot Probe Cleaning

A. General

> **CAUTION**
> DO NOT PAINT THE PITOT PROBE. PAINT ON THE PITOT PROBE CAN CAUSE THE PITOT SYSTEM TO MALFUNCTION.

(1) The pitot probe must not be painted.

(2) To make sure that the probes do not have any damage, do this task: Pitot Probe Special Detailed Inspection, TASK 34-11-01-200-803.

B. References

Reference	Title
34-11-01-000-801	Pitot Probe - Removal (P/B 401)
34-11-01-200-803	Pitot Probe Special Detailed Inspection (P/B 601)
34-11-01-400-801	Pitot Probe - Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-3940	Air Source - Regulated, Dry Filtered, 0-150 psig
STD-11587	Syringe (Commercial available)
STD-20143	Bit - Drill, 0.028 Inch Diameter

D. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Clean the Inner Surface of the Pitot Probe

SUBTASK 34-11-01-000-001

(1) Do this task: Pitot Probe - Removal, TASK 34-11-01-000-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-01-160-001

WARNING BEFORE YOU USE COMPRESSED AIR, PUT ON GOGGLES FOR EYE PROTECTION. DO NOT POINT THE NOZZLE AT OTHER PERSONNEL. IF YOU DO NOT OBEY THESE PRECAUTIONS, INJURIES TO PERSONNEL CAN OCCUR.

CAUTION DO NOT USE MORE THAN 60 PSI (414 KPA) OF DRY, COMPRESSED AIR IN THE PITOT PROBE. AIR PRESSURE MORE THAN 60 PSI (414 KPA) CAN CAUSE DAMAGE TO THE PITOT PROBE.

(2) Use up to 60 psi (414 kPa) from a regulated air source, STD-3940 to force air through the line and out the ports on the pitot probe.

SUBTASK 34-11-01-170-001

(3) If unwanted material remains, do the steps that follow:

(a) Soak or flush the unit with water until it is clean.

(b) If debris still adheres to the pitot probe interior, use a syringe, STD-11587 to flush the pitot probe with a water and alcohol, B00130 solution.

(c) Drain the probe of the cleaning solution.

WARNING BEFORE YOU USE COMPRESSED AIR, PUT ON GOGGLES FOR EYE PROTECTION. DO NOT POINT THE NOZZLE AT OTHER PERSONNEL. IF YOU DO NOT OBEY THESE PRECAUTIONS, INJURIES TO PERSONNEL CAN OCCUR.

CAUTION DO NOT USE MORE THAN 60 PSI (414 KPA) OF DRY, COMPRESSED AIR IN THE PITOT PROBE. AIR PRESSURE MORE THAN 60 PSI (414 KPA) CAN CAUSE DAMAGE TO THE PITOT PROBE.

(d) Use up to 60 psi (414 kPa) from a regulated air source, STD-3940 to force air through the line and out the ports on the pitot probe.

SUBTASK 34-11-01-140-001

CAUTION MAKE SURE THE DRILL BIT DOES NOT MAKE THE DRAIN HOLE LARGER WHEN YOU CLEAN IT. DAMAGE TO THE PITOT PROBE CAN OCCUR.

(4) Do the following steps to clear blockage in the drain holes:

(a) Put a small 0.028 inch diameter drill bit, STD-20143 at the opening of the drain hole.

(b) With minimal pressure, slowly rotate the 0.028 inch diameter drill bit, STD-20143 with thumb and index finger and use the 0.028 inch diameter drill bit, STD-20143 point and spiral to pull debris from the hole.

(c) Make sure to avoid cutting into and raising burrs on the outer edge of the drain hole.

WARNING BEFORE YOU USE COMPRESSED AIR, PUT ON GOGGLES FOR EYE PROTECTION. DO NOT POINT THE NOZZLE AT OTHER PERSONNEL. IF YOU DO NOT OBEY THESE PRECAUTIONS, INJURIES TO PERSONNEL CAN OCCUR.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(WARNING PRECEDES)

> **CAUTION** DO NOT USE MORE THAN 60 PSI (414 KPA) OF DRY, COMPRESSED AIR IN THE PITOT PROBE. AIR PRESSURE MORE THAN 60 PSI (414 KPA) CAN CAUSE DAMAGE TO THE PITOT PROBE.

(d) Use up to 60 psi (414 kPa) from a regulated air source, STD-3940 to force air through the line and out the ports on the pitot probe.

SUBTASK 34-11-01-410-014

(5) Do this task: Pitot Probe - Installation, TASK 34-11-01-400-801.

G. Clean the Outer Surface of the Pitot Probe

SUBTASK 34-11-01-140-002

> **CAUTION** DO NOT PERMIT SOLVENTS, OIL, OR GREASE TO GET ON THE PITOT PROBE. SOLVENTS, OIL, OR GREASE CAN CAUSE DAMAGE TO THE PITOT PROBE.

(1) Use clean water to remove unwanted materials from the outer surface of the pitot probe.

SUBTASK 34-11-01-140-003

(2) Dry the pitot probe with a cotton wiper, G00034.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STATIC PORT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the primary static port

(2) An installation of the primary static port

(3) A removal of the alternate static port

(4) An installation of the alternate static port.

TASK 34-11-02-020-801

2. Primary Static Port Removal

(Figure 401)

A. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
25-21-46-000-801	Sidewall Panel - Removal (P/B 401)
25-22-00-000-801	Passenger Seat - Removal (P/B 401)
25-80-00-000-801	Insulation Blanket Removal (P/B 401)

B. Location Zones

Zone	Area
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

C. Primary Static Port Removal

SUBTASK 34-11-02-010-005

(1) For the applicable passenger seats, do this task: Passenger Seat - Removal, TASK 25-22-00-000-801.

SUBTASK 34-11-02-010-006

(2) For the applicable sidewall panel, do this task: Sidewall Panel - Removal, TASK 25-21-46-000-801.

SUBTASK 34-11-02-010-007

(3) For the applicable insulation blanket, do this task: Insulation Blanket Removal, TASK 25-80-00-000-801.

SUBTASK 34-11-02-020-017

(4) Loosen the union [9] that connects the hose [2] to the primary static port [6].

SUBTASK 34-11-02-020-018

WARNING DO NOT BEND OR TWIST THE STATIC HOSE WHEN YOU CONNECT IT. A BENT OR TWISTED STATIC HOSE CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

(5) Disconnect the hose [2].

SUBTASK 34-11-02-020-019

(6) Remove the union [9] from the primary static port [6].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-02-020-020

(7) Remove the o-ring [8] from the primary static port [6].

SUBTASK 34-11-02-020-021

(8) Put a cap on the hose [2] to prevent contamination.

SUBTASK 34-11-02-020-022

(9) Use the sealant removal tool to remove the sealant from around the primary static port [6] and retaining nut [3].

SUBTASK 34-11-02-020-023

(10) For the lockwire [7] on the retaining nut [3], do this task: Lockwire, Cotter Pins, and Lockrings - Removal, TASK 20-10-44-000-801.

SUBTASK 34-11-02-020-024

CAUTION

DO NOT CAUSE DAMAGE TO THE OUTER SURFACE OF THE AIRPLANE SKIN. THIS CAN CAUSE THE STATIC SYSTEM TO BE INACCURATE.

(11) Remove the retaining nut [3], washer [4], and washer [5].

SUBTASK 34-11-02-020-025

(12) Remove the primary static port [6] from the mounting hole.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

PRIMARY STATIC PORTS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

A

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Primary Static Port Installation
Figure 401/34-11-02-990-802 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

PRIMARY STATIC PORT ASSEMBLY (EXAMPLE)

B

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Primary Static Port Installation
Figure 401/34-11-02-990-802 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-11-02-400-801

3. Primary Static Port Installation

(Figure 401)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-50-11-910-801	Standard Torque Values (P/B 201)
25-21-46-400-801	Sidewall Panel - Installation (P/B 401)
25-22-00-400-802	Passenger Seat - Installation (P/B 401)
25-80-00-400-801	Insulation Blanket Installation (P/B 401)
34-11-00-790-804	Left Static System Low-range Leak Test (P/B 501)
34-11-00-790-806	Right Static System Low-range Leak Test (P/B 501)
34-11-02-200-801	Static Port - Special Detailed Inspection (P/B 601)
51-21-95-300-801	Chemical Conversion Coating Application (P/B 701)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SRM 51-10-01	Structural Repair Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-20848	Rivet Shaver Part #: ZT405AIR Supplier: 67179 Opt Part #: ZT306 Supplier: 67179

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

D. Location Zones

Zone	Area
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

E. Installation Procedure

SUBTASK 34-11-02-390-001

(1) Apply sealant, A00247, on the inner surface of the static port installation hole.

SUBTASK 34-11-02-420-001

(2) Put the primary static port in the mounting hole.

SUBTASK 34-11-02-420-002

(3) Install the washer [5], washer [4] and retaining nut [3] on the primary static port [6].

SUBTASK 34-11-02-420-003

(4) Tighten the retaining nut [3] to 100 in-lb (11.3 N·m)-105 in-lb (11.9 N·m).

SUBTASK 34-11-02-420-004

(5) For the retaining nut [3], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

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SUBTASK 34-11-02-420-005

(6) Make sure that the primary static port flushness is no more than 0.003 in. (0.076 mm) above the airplane skin.

(a) Use the rivet shaver, COM-20848, to make the static port flush to the airplane skin (SRM 51-10-01).

SUBTASK 34-11-02-220-003

(7) Make sure that there are no scratches, burrs, or deformations on the static port finish and around the sensing holes in the primary static port.

SUBTASK 34-11-02-210-002

(8) Make sure that there is no unwanted material in the holes of the primary static port.

SUBTASK 34-11-02-620-001

(9) For the surface of the primary static port, do this task: Chemical Conversion Coating Application, TASK 51-21-95-300-801.

SUBTASK 34-11-02-420-006

(10) Install the o-ring [8] on the union [9].

SUBTASK 34-11-02-420-007

(11) Install the union [9] on the primary static port [6].

CAUTION APPLY COUNTER PRESSURE TO THE STATIC PORT. IF YOU DO NOT, THE STATIC PORT CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

(a) Make sure that you apply counter pressure to the primary static port while you install the union [9].

SUBTASK 34-11-02-420-041

(12) Tighten the union [9] (Standard Torque Values, TASK 20-50-11-910-801).

SUBTASK 34-11-02-390-002

(13) For the retaining nut [3] and the primary static port, do this task: Fastener Seal Application, TASK 51-31-00-390-805.

SUBTASK 34-11-02-420-008

(14) Remove the cap from the hose [2].

SUBTASK 34-11-02-420-009

CAUTION DO NOT BEND OR TWIST THE STATIC HOSE WHEN YOU DISCONNECT IT. A BENT OR TWISTED STATIC HOSE CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

(15) Connect the hose [2] to the primary static port.

CAUTION APPLY COUNTER PRESSURE TO THE STATIC PORT. IF YOU DO NOT, THE STATIC PORT CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

(a) Make sure that you apply counter pressure to the union [9] while you install the fitting [1].

SUBTASK 34-11-02-420-010

(16) Tighten the fitting [1] (Standard Torque Values, TASK 20-50-11-910-801).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-11-02-700-003

(17) Do a detailed inspection of the primary static port. To do the inspection, do this task: Static Port - Special Detailed Inspection, TASK 34-11-02-200-801.

SUBTASK 34-11-02-790-001

(18) For the primary static system, do the applicable leak test below:

(a) Do this task: Left Static System Low-range Leak Test, TASK 34-11-00-790-804.

(b) Do this task: Right Static System Low-range Leak Test, TASK 34-11-00-790-806.

SUBTASK 34-11-02-410-001

(19) For the insulation blanket, do this task: Insulation Blanket Installation, TASK 25-80-00-400-801.

SUBTASK 34-11-02-410-002

(20) For the sidewall panel, do this task: Sidewall Panel - Installation, TASK 25-21-46-400-801.

SUBTASK 34-11-02-410-003

(21) For the passenger seats, do this task: Passenger Seat - Installation, TASK 25-22-00-400-802.

END OF TASK

LOM ALL; 737-600, 737-800 OR 737-900

TASK 34-11-02-000-803

4. Alternate Static Port Removal

(Figure 402)

A. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
25-52-06-000-801	Cargo Compartment Sidewall Lining - Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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LOM ALL; 737-600, 737-800 OR 737-900 (Continued)

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

I

C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

D. Removal Procedure

SUBTASK 34-11-02-010-008

(1) For the applicable cargo liner, do this task: Cargo Compartment Sidewall Lining - Removal, TASK 25-52-06-000-801.

SUBTASK 34-11-02-020-026

(2) Loosen the fitting [1] that connects the hose [2] to the alternate static port [11].

SUBTASK 34-11-02-020-027

CAUTION DO NOT BEND OR TWIST THE HOSE [2] WHEN YOU DISCONNECT THE HOSE [2]. A BENT OR TWISTED HOSE [2] CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

(3) Disconnect the hose [2].

SUBTASK 34-11-02-020-028

(4) Put a cap on the hose [2] to prevent contamination.

SUBTASK 34-11-02-020-029

(5) Remove the fitting [1] from the alternate static port [11].

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LOM ALL; 737-600, 737-800 OR 737-900 (Continued)

SUBTASK 34-11-02-020-030

(6) Remove the o-ring [8] from the alternate static port [11].

SUBTASK 34-11-02-140-004

(7) Use the sealant removal tool, COM-2481 to remove the sealant from around the alternate static port [11] and the retaining nut [3].

SUBTASK 34-11-02-020-031

(8) For the lockwire [7] on the retaining nut [3], do this task: Lockwire, Cotter Pins, and Lockrings - Removal, TASK 20-10-44-000-801.

SUBTASK 34-11-02-020-032

CAUTION

DO NOT CAUSE DAMAGE TO THE OUTER SURFACE OF THE AIRPLANE SKIN. THIS CAN CAUSE THE STATIC SYSTEM TO BE INACCURATE.

(9) Remove the retaining nut [3] and washer [9].

SUBTASK 34-11-02-020-033

(10) Remove the alternate static port [11] from its mounting hole.

SUBTASK 34-11-02-020-034

(11) Remove the laminated shim [10] from the assembly.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

RIGHT SIDE ALTERNATE STATIC PORT LOCATION SHOWN
(LEFT SIDE IS OPPOSITE)

A

H77635 S0006576530_V2

Alternate Static Port Installation
Figure 402/34-11-02-990-808 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ALTERNATE STATIC PORT ASSEMBLY

B

H77551 S0006576531_V2

Alternate Static Port Installation
Figure 402/34-11-02-990-808 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-11-02-400-803

5. **Alternate Static Port Installation**

(Figure 402)

A. **References**

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
25-52-06-400-801	Cargo Compartment Sidewall Lining - Installation (P/B 401)
34-11-00-790-808	Alternate Static System Low-range Leak Test (P/B 501)
34-11-02-200-801	Static Port - Special Detailed Inspection (P/B 601)
51-21-95-300-801	Chemical Conversion Coating Application (P/B 701)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SRM 51-10-01	Structural Repair Manual

B. **Consumable Materials**

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

C. **Location Zones**

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

D. **Alternate Static Port Installation**

SUBTASK 34-11-02-390-005

(1) Apply sealant, A00247, on the inner surface of the static port installation hole.

SUBTASK 34-11-02-420-021

(2) Install the laminated shim [10] on the alternate static port [11].

SUBTASK 34-11-02-420-022

(3) Put the alternate static port [11] in the mounting hole.

SUBTASK 34-11-02-420-023

(4) Install the washer [9] and retaining nut [3] on the alternate static port [11].

SUBTASK 34-11-02-420-024

(5) Tighten the retaining nut [3] to 100 in-lb (11.3 N·m) - 105 in-lb (11.9 N·m).

SUBTASK 34-11-02-420-025

(6) For the retaining nut [3], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

SUBTASK 34-11-02-420-026

CAUTION

DO NOT MICRO-SHAVE THE COUNTER-BORE IN THE ALTERNATE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE PORT WHICH CAN CAUSE AN INCORRECT INDICATION FOR ALTITUDE.

(7) Make the alternate static port flush with the airplane skin to + 0.003/- 0.00 inch (+0.076/-0.00 mm).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) If it is necessary, add the laminated shim [10] to make the static port flush (SRM 51-10-01).

SUBTASK 34-11-02-220-007

(8) Make sure that there are no scratches, burrs, or deformations on the static port finish and around the sensing holes in the alternate static port [11].

SUBTASK 34-11-02-210-005

(9) Make sure that there is no unwanted material in the holes of the alternate static port [11].

SUBTASK 34-11-02-140-005

(10) For the surface of the alternate static port [11], do this task: Chemical Conversion Coating Application, TASK 51-21-95-300-801.

SUBTASK 34-11-02-420-027

(11) Install the o-ring [8] on the fitting [1].

SUBTASK 34-11-02-420-028

(12) Install the fitting [1] on the alternate static port [11].

CAUTION APPLY COUNTER PRESSURE TO THE ALTERNATE STATIC PORT. IF YOU DO NOT, THE STATIC PORT CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

(a) Make sure that you apply counter pressure to the alternate static port [11] while you install the fitting [1].

(b) Tighten the fitting [1] to 170 ±9 in-lb (19.2 ±1.0 N·m).

SUBTASK 34-11-02-390-006

(13) For the retaining nut [3] and the alternate static port [11], do this task: Fastener Seal Application, TASK 51-31-00-390-805.

SUBTASK 34-11-02-420-029

(14) Remove the cap from the hose [2].

SUBTASK 34-11-02-420-030

CAUTION DO NOT BEND OR TWIST THE STATIC HOSE WHEN YOU CONNECT IT. A BENT OR TWISTED STATIC HOSE CAN CAUSE THE STATIC SYSTEM TO MALFUNCTION.

(15) Connect the hose [2] to the fitting [1].

CAUTION APPLY COUNTER PRESSURE TO THE ALTERNATE STATIC PORT. IF YOU DO NOT, THE STATIC PORT CAN ROTATE AND CAUSE INCORRECT OPERATION OF THE STATIC SYSTEM.

(a) Make sure that you apply counter pressure to the fitting [1] while you install the hose [2].

(b) Tighten the hose [2] to 170 ±9 in-lb (19.2 ±1.0 N·m).

SUBTASK 34-11-02-700-002

(16) Do the detailed inspection of the alternate static port, do this task: Static Port - Special Detailed Inspection, TASK 34-11-02-200-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL; 737-600, 737-800 OR 737-900 (Continued)

SUBTASK 34-11-02-790-003

(17) For the alternate static system, do this task: Alternate Static System Low-range Leak Test, TASK 34-11-00-790-808.

SUBTASK 34-11-02-410-005

(18) For the applicable sidewall liner, do this task: Cargo Compartment Sidewall Lining - Installation, TASK 25-52-06-400-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STATIC PORT - INSPECTION/CHECK

1. **General**
   A. This procedure contains scheduled maintenance task data.
   B. This procedure has these tasks:
      (1) A detailed inspection of the static ports and the skin surface near the port
      (2) A special detailed inspection of the static ports and the skin surface near the port.

TASK 34-11-02-200-803

2. **Static Port - Detailed Inspection**
(Figure 601 or Figure 602)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
34-11-02-000-803	Alternate Static Port Removal (P/B 401)
34-11-02-020-801	Primary Static Port Removal (P/B 401)
34-11-02-400-801	Primary Static Port Installation (P/B 401)
34-11-02-400-803	Alternate Static Port Installation (P/B 401)
SRM 51-10-01	Structural Repair Manual

B. Location Zones

Zone	Area
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

C. Inspection Procedure

SUBTASK 34-11-02-220-011

(1) Visually examine the static port for damage.

SUBTASK 34-11-02-210-008

(2) Visually examine the holes in the port for contamination or the presence of moisture.
   (a) On the ground in heavy rain, a gradual atmospheric temperature and/or pressure change can cause water streaming over the flush static ports to be ‘pulled’ into the static port by capillary action. The water may only be at the static port inlet holes and not pulled all the way into the plumbing and show up in the drain tubes.
   (b) If it is suspected that moisture is trapped in a static port by capillary action, try swiping one's thumb over the port. This may break the surface tension and release any water that is trapped in the static port opening. Slight movement of the aircraft may also clear any trapped moisture right at the static port opening.

SUBTASK 34-11-02-900-008

(3) If there is a problem with a primary static port, replace the port.
   (a) These are the tasks:
      Primary Static Port Removal, TASK 34-11-02-020-801,
      Primary Static Port Installation, TASK 34-11-02-400-801.

SUBTASK 34-11-02-900-009

(4) If there is a problem with an alternate static port, replace the port.

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LOM ALL; 737-600, 737-800 OR 737-900

(a) These are the tasks:

Alternate Static Port Removal, TASK 34-11-02-000-803,

Alternate Static Port Installation, TASK 34-11-02-400-803.

LOM ALL

SUBTASK 34-11-02-220-012

(5) Visually examine the surface of the airplane skin in a three inch radius around the port:

(a) Make sure that the surface of the skin is not rough.

(b) If the skin is rough, refer to the Structural Repair Manual (SRM 51-10-01).

SUBTASK 34-11-02-200-001

(6) If the detailed inspection of the static port is not satisfactory, do the Static Port - Special Detailed Inspection (TASK 34-11-02-200-801).

END OF TASK

TASK 34-11-02-200-801

3. Static Port - Special Detailed Inspection

(Figure 601 or Figure 602)

A. References

Reference	Title
10-12-02-620-803	Service and Protection on 14 Day (2 Week) Cycles (P/B 201)
34-11-02-020-801	Primary Static Port Removal (P/B 401)
34-11-02-400-801	Primary Static Port Installation (P/B 401)
51-00-58	STANDARD TREATMENT METHODS
SRM 51-10-01	Structural Repair Manual
SRM 51-10-03	Structural Repair Manual
SRM 53-30-01-1A-2	Structural Repair Manual

B. Consumable Materials

Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770
G50933	Cloth - Cleaning, Low-Lint Cloth (General Use)	A-A-59323 Type II (Supersedes MIL-C-85043)

C. Location Zones

Zone	Area
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

D. Inspection Procedure for the Primary Static Ports

SUBTASK 34-11-02-220-001

(1) Visually examine the primary static port for damage.

(a) Make sure that the depth of any scratches on the port are less than 0.010 in. (0.254 mm).

SUBTASK 34-11-02-210-001

(2) Visually examine the holes in the port for contamination.

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SUBTASK 34-11-02-900-001

(3) If there is a problem with a primary static port, replace the port, do these tasks:
- Primary Static Port Removal, TASK 34-11-02-020-801
- Primary Static Port Installation, TASK 34-11-02-400-801.

SUBTASK 34-11-02-900-003

(4) Measure the step height of the primary static ports.

NOTE: The step height is the distance between the surface of the skin and the primary static ports.

(a) Make sure that the primary static port step height is 0 in. (0 mm) - 0.003 in. (0.076 mm) above the skin.

(b) If the step height is too low, then replace the port, do these tasks:
- Primary Static Port Removal, TASK 34-11-02-020-801
- Primary Static Port Installation, TASK 34-11-02-400-801.

(c) If the step height is too high, then decrease the port step height (SRM 51-10-03).

SUBTASK 34-11-02-210-006

(5) Visually examine the airplane skin surface in a 3 in. (76 mm) radius around the static port.

(a) Make sure that there are no damages on the skin.

1) If damage is present, repair the damaged area (SRM 53-30-01-1A-2).

(b) Make sure that the surface of the skin is not rough.

1) If the skin is rough, refer to the Structural Repair Manual (SRM) (SRM 51-10-01).

(c) For skin surface discolorations, do these steps:

1) Clean the static port external surface and surrounding bare aluminum skin with low-lint cleaning cloth, G50933, moist with alcohol, B50073.

2) If it is necessary, polish around the static port (SUBJECT 51-00-58).

a) Do not polish the static port.

b) Remove or apply a protective cover on the ports before polishing.

c) Keep aerodynamic smoothness (SRM 51-10-01).

SUBTASK 34-11-02-900-004

(6) Find the surface waviness of the airplane skin in the area of each primary static port:

(a) Find the primary static ports on each side of the airplane.

(b) Measure the skin waviness in an approximate 3.0 in. (76.20 mm) area around each primary static port.

1) Align the center of a metal 6-inch scale with the center of the static port.

2) Measure horizontally.

(c) Examine the area for a dip or bulge condition (Table 601).

Table 601/34-11-02-993-806

Skin Condition	Description
Dip	The skin touches the two ends of the scale but not the middle part of the scale.
Bulge	The skin touches the middle part of the scale but not at the ends of the scale. There are two types of bulges:

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Table 601/34-11-02-993-806 (Continued)

Skin Condition	Description
Bulge with Movement	The 6-inch scale can easily move up or down on the bulge.
Bulge with Plateau	The 6-inch scale is on a level area of the bulge and is resistant to up and down movement.

(d) Measure and record the waviness:

NOTE: Use the table in Figure 601 (Sheet 2) as an example. Record the data in the table in Figure 601 (Sheet 3). A dip value is always a negative number. A bulge value is always a positive number.

1) For a dip, use these steps:
   a) Use a feeler gage to measure the maximum clearance between the scale and the skin.
   b) Record this data as a negative number.
2) For a bulge with movement, use these steps:
   a) Move the scale up or down to make the end touch the skin.
   b) When one end touches the skin, use a feeler gage to measure the clearance between the high end of the scale and the skin.
   c) Move the other end of the scale against the skin.
   d) Measure the clearance.
   e) Use the larger of the two values and record the data as a positive number.
3) For a bulge with plateau, use these steps:
   a) Put the scale on the level area.
   b) Use a feeler gage to measure the clearance between the two ends of the scale and the skin.
   c) Use the larger of the two values and record the data as a positive number.

(e) Calculate the waviness for each of the four static ports.

1) Use this formula if the measurements above and below the static ports are dips:
   a) Waviness = (DIP above + DIP below)/2
2) Use this formula if the measurements above and below the static ports are bulges with movement:
   a) Waviness = (BULGE above + BULGE below)/4
3) Use this formula if the measurements above and below the static ports are bulges with plateau:
   a) Waviness = (BULGE above + BULGE below)/2
4) Use this formula if one measurement is a dip and the other measurement is a bulge with movement:
   a) Waviness = (DIP + 1/2 BULGE)/2
5) Use this formula if one measurement is a dip and the other measurement is a bulge with plateau:
   a) Waviness = (DIP + BULGE)/2

(f) Make sure that the waviness is not more than 0 in. (0 mm) - 0.02 in. (0.51 mm).

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SUBTASK 34-11-02-900-005

(7) If the skin waviness is not satisfactory, refer to the SRM 51-10-01 and SRM 51-10-03.

SUBTASK 34-11-02-900-006

(8) Make sure that rivets in a 3 in. (76 mm) radius from the center of a static pressure port are flush with the skin surface to a tolerance of 0 in. (0 mm) - 0.003 in. (0.076 mm).

(a) If any of the conditions above are not satisfactory, refer to the SRM 51-10-01 and SRM 51-10-03.

E. Inspection Procedure for the Alternate Static Ports

SUBTASK 34-11-02-220-008

(1) Visually examine the alternate static port for damage.

(a) Make sure that the depth of any scratches on the port are less than 0.010 in. (0.254 mm).

SUBTASK 34-11-02-210-009

(2) Visually examine the airplane skin surface in a 3 in. (76 mm) radius around the static port.

(a) For skin surface discolorations, do these steps:

1) Clean the static port external surface and surrounding bare aluminum skin with low-lint cleaning cloth, G50933, moist with alcohol, B50073 (TASK 10-12-02-620-803).

2) If it is necessary, polish around the static port (SUBJECT 51-00-58).

a) Do not polish the static port.

b) Remove or apply a protective cover on the ports before polishing.

c) Keep aerodynamic smoothness (SRM 51-10-01).

SUBTASK 34-11-02-220-013

(3) Inspect the alternate static ports with the following steps:

(a) Put the edge of a steel rule horizontally across the center of the static pressure port.

(b) Make sure that the space between the skin and the steel rule does not exceed 0.010 in. (0.254 mm) within 3 in. (76 mm) forward and aft of the center of the static port.

(c) Make sure that rivets in a 3 in. (76 mm) radius from the center of a static pressure port are flush with the skin surface to a tolerance of 0 in. (0 mm) - 0.003 in. (0.076 mm).

(d) Make sure that the alternate static port step height is 0 in. (0 mm) - 0.003 in. (0.076 mm) above the skin.

SUBTASK 34-11-02-220-009

(4) If any of the conditions above are not satisfactory, refer to the SRM 51-10-01 and SRM 51-10-03.

END OF TASK

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(LEFT SIDE)

(RIGHT SIDE)

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Primary Static Port Inspection
Figure 601/34-11-02-990-801 (Sheet 1 of 3)

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LEFT SIDE								
	LOCATION	DIP	BULGE WITH MOVEMENT			BULGE WITH PLATEAU		
		MAXIMUM	FORWARD	AFT	MAXIMUM	FORWARD	AFT	MAXIMUM
UPPER PORT	1	-0.010						
	2	-0.004						
	WAVINESS	-0.007						
LOWER PORT	3		0.008	0.000	0.008			
	4		0.020	0.010	0.020			
	WAVINESS				0.007			
RIGHT SIDE								
	LOCATION	DIP	BULGE WITH MOVEMENT			BULGE WITH PLATEAU		
		MAXIMUM	FORWARD	AFT	MAXIMUM	FORWARD	AFT	MAXIMUM
UPPER PORT	1	-0.010						
	2	-0.000						
	WAVINESS	-0.005						
LOWER PORT	3					0.008	0.000	0.008
	4					0.020	0.010	0.020
	WAVINESS							0.014

EXAMPLE CALCULATIONS OF SKIN WAVINESS MEASUREMENT NEAR PRIMARY STATIC PORTS

L49588 S0006576539_V2

Primary Static Port Inspection
Figure 601/34-11-02-990-801 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LEFT SIDE								
	LOCATION	**DIP**	**BULGE WITH MOVEMENT**			**BULGE WITH PLATEAU**		
		MAXIMUM	FORWARD	AFT	MAXIMUM	FORWARD	AFT	MAXIMUM
UPPER PORT	1							
	2							
	WAVINESS							
LOWER PORT	3							
	4							
	WAVINESS							
RIGHT SIDE								
	LOCATION	**DIP**	**BULGE WITH MOVEMENT**			**BULGE WITH PLATEAU**		
		MAXIMUM	FORWARD	AFT	MAXIMUM	FORWARD	AFT	MAXIMUM
UPPER PORT	1							
	2							
	WAVINESS							
LOWER PORT	3							
	4							
	WAVINESS							

FORM FOR SKIN WAVINESS MEASUREMENT NEAR PRIMARY STATIC PORTS

L49603 S0006576540_V2

Primary Static Port Inspection
Figure 601/34-11-02-990-801 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G03179 S0006576541_V3

Alternate Static Port Inspection
Figure 602/34-11-02-990-805

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR DATA INSTRUMENTS - ADJUSTMENT/TEST

1. General
   A. This procedure contains scheduled maintenance task data.
   B. This procedure has this task:
      (1) A system test of the Standby Altimeter/Airspeed Indicator.

TASK 34-13-00-730-801

2. Air Data Instruments - System Test

A. General

(1) These instructions apply to the task:

(a) When you apply pressure to a static system, the rate must not be more than 5,000 feet for each minute.

(b) When you release pressure from a static system, the rate must not be more than 5,000 feet for each minute.

(c) When you apply pressure to a pitot system, the rate must not be more than 300 knots for each minute.

(d) When you release pressure from a pitot system, the rate must not be more than 300 knots for each minute.

(e) Do not connect or disconnect the test equipment while you have pressure in the pitot-static system.

(f) Make sure that you do these steps before installing the probe adapter on the probe:

1) Flush the probe adapter with water.

2) Use equal parts of water and ethylene glycol when the temperature is between 32°F (0°C) and -40°F (-40°C).

3) Blow dry, filtered air through the adapter.

4) Wipe the probe with a damp cloth.

(g) Make sure that the seals used on the static ports do not extend into the static ports.

(h) Make sure that you do not cause damage to the surface of the static ports when you remove the seals.

(i) At each test value, permit the pressure to become stable for one minute.

(j) Do not hit or shake the indicators before you read the values.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit) Part #: CSA75700HT-3 Supplier: 3BSK6 Part #: P75701-4 Supplier: 38002 Part #: P75701M2-3 Supplier: 38002
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984

D. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

E. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. Prepare for the System Test

LOM 411, 426, 432

SUBTASK 34-13-00-860-011

> **WARNING** MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-860-001

LOM 411, 426, 432

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-860-002

> **CAUTION** MAKE SURE THAT YOU USE EXTERNAL POWER TO DO THE TEST. IF YOU DO NOT OBEY, THE APU WILL NOT SUPPLY SUFFICIENT POWER AND FAULT MESSAGES WILL SHOW.

(3) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 34-13-00-750-001

(4) Make sure that you feel vibration on the casing of the Standby Altimeter/Airspeed Indicator.

SUBTASK 34-13-00-860-004

(5) Set the BARO scale of the standby indicator to 29.92 inches of mercury (1013 millibars).

SUBTASK 34-13-00-480-001

> **CAUTION** DO NOT EXTEND THE SEALS INTO THE STATIC PORTS. DAMAGE TO THE SURFACE OF THE PORT CAN OCCUR WHEN YOU REMOVE THE SEAL.

(6) Seal the alternate static ports with vinyl adhesive Scotch Brand No.471 tape, G02219 at these locations:

(a) The static port located at STA 430, WL 167, RBL 49.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(b) The static port located at STA 430, WL 167, LBL 49.

SUBTASK 34-13-00-480-003

(7) Remove the cap from the alternate static drain located near STA 226, WL 155, RBL 18, in the electronic equipment compartment below the E-5 rack.

SUBTASK 34-13-00-480-007

(8) Install the coupling, COM-1927, on the alternate static drain.

SUBTASK 34-13-00-480-006

(9) Connect the air data model test set, COM-1914, to the coupling, COM-1927.

SUBTASK 34-13-00-170-001

LOM 411, 426, 432

CAUTION	FLUSH THE PITOT SYSTEM TEST ADAPTER WITH WATER BEFORE YOU ATTACH THE ADAPTER TO THE PROBE. DAMAGE TO THE PROBE OR THE ADAPTER CAN OCCUR.

(10) Flush the pitot test adapter, COM-1916, with water.

(a) Use equal parts of water and ethylene glycol when the temperature is between 32°F (0°C) and -40°F (-40°C).

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-480-008

LOM 411, 426, 432

(11) Blow dry, filtered air through the pitot test adapter, COM-1916.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-480-009

(12) Wipe the probe with a damp cloth.

SUBTASK 34-13-00-480-004

LOM 411, 426, 432

CAUTION	MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(13) Install the pitot test adapter, COM-1916, on the lower pitot probe located at STA 192, WL 213, RBL 34.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-480-005

LOM 411, 426, 432

(14) Connect the air data model test set, COM-1914, to the pitot test adapter, COM-1916.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-010-001

(15) Lower the P5 forward overhead panel.

(a) Loosen the 1/4-turn fasteners that hold the P5 forward overhead panel in position and let the panel rotate downward.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-13-00-020-001

> **CAUTION** THE CABIN ALTITUDE DIFFERENTIAL PRESSURE INDICATOR MUST BE DISCONNECTED FROM ITS STATIC PRESSURE SOURCE AND THE SOURCE CAPPED. FAILURE TO DISCONNECT THE CABIN DIFFERENTIAL PRESSURE INDICATOR MAY RESULT IN DAMAGE TO THE INDICATOR.

(16) Disconnect the alternate static hose from the cabin altitude differential pressure indicator located behind the P5 forward overhead panel.

G. Air Data Instruments Test

SUBTASK 34-13-00-860-005

(1) Apply pressure to the alternate pitot and alternate static systems for each test point as shown in (Table 501):

Table 501/34-13-00-993-801

TEST POINT	STATIC (In. Hg)	PITOT (In. Hg)	STBY ALT. (feet)	STBY A/S (knots)
1	29.921	30.311	0±30	90±3.5
2	24.896	27.996	5,000±50	250±3.5
3	16.886	17.703	15,000±110	130±3.5
4	11.104	17.013	25,000±160	340±8
5	7.041	10.963	35,000±210	279±6
6	5.286	7.95	41,000±235	233±6

SUBTASK 34-13-00-730-001

(2) Make sure that the altitude and airspeed information displayed on the standby altitude/airspeed indicator is in tolerance for each test point shown in Table 501.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-13-00-860-006

(1) Put the system back to ambient pressure.

SUBTASK 34-13-00-080-001

> **CAUTION** DO NOT DISCONNECT THE PITOT SYSTEM TEST ADAPTER WHEN THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE. DAMAGE TO THE AIR DATA MODULES CAN OCCUR IF THE SYSTEM IS NOT AT AMBIENT PRESSURE.

(2) Disconnect the air data model test set, COM-1914, and the coupling, COM-1927, from the alternate static drain located near STA 226, WL 155, RBL 18.

SUBTASK 34-13-00-080-002

(3) Install the cap on the alternate static drain.

SUBTASK 34-13-00-080-003

(4) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from both of the alternate static ports.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING MAKE SURE THAT ALL TAPE IS REMOVED FROM STATIC PORTS BEFORE FLIGHT. IF YOU DO NOT REMOVE THE TAPE, IT CAN CAUSE A MALFUNCTION OF THE AIRCRAFT IN FLIGHT. THIS CAN KILL PERSONS AND CAN CAUSE DAMAGE TO THE AIRCRAFT.

(a) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the static port located at STA 430, WL 167, RBL 49.

(b) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 from the static port located at STA 430, WL 167, LBL 49.

SUBTASK 34-13-00-080-004

LOM 411, 426, 432

CAUTION DO NOT DISCONNECT THE PITOT SYSTEM TEST ADAPTER WHEN THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE. DAMAGE TO THE AIR DATA MODULES CAN OCCUR IF THE SYSTEM IS NOT AT AMBIENT PRESSURE.

(5) Disconnect the air data model test set, COM-1914, from the pitot test adapter, COM-1916.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-080-005

LOM 411, 426, 432

(6) Remove the pitot test adapter, COM-1916, from the pitot probe.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-410-001

(7) Connect the alternate static hose to the cabin altitude differential pressure indicator located behind the P5 forward overhead panel.

SUBTASK 34-13-00-210-001

(8) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-13-00-410-002

(9) Lift the P5 forward overhead panel to the closed position and turn the 1/4-turn fasteners.

SUBTASK 34-13-00-860-007

LOM 411, 426, 432

(10) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 426, 432 (Continued)

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

SUBTASK 34-13-00-860-008

(11) Do this task: Remove External Power, TASK 24-22-00-860-814.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY ALTIMETER/AIRSPEED INDICATOR - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Standby Altimeter/Airspeed Indicator Deactivation.

(2) Standby Altimeter/Airspeed Indicator Activation.

TASK 34-13-01-040-801

2. Standby Altimeter/Airspeed Indicator - Deactivation

(Figure 201)

A. General

(1) This procedure removes electrical power from the Standby Altimeter/Airspeed Indicator.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-13-01-860-006

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
D	8	C00701	EMER PANEL LTG

D. Standby Altimeter/Airspeed Indicator - Tryout

NOTE: This tryout is to make sure the Standby Altimeter/Airspeed Indicator is in a zero energy state.

SUBTASK 34-13-01-860-007

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
D	8	C00701	EMER PANEL LTG

SUBTASK 34-13-01-700-001

(2) Make sure the Standby Altimeter/Airspeed Indicator lights are not on.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

2382212 S0000545833_V1

Standby Altimeter/Airspeed Indicator
Figure 201/34-13-01-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-13-01-440-801

3. Standby Altimeter/Airspeed Indicator - Activation

(Figure 201)

A. General

(1) This procedure adds electrical power to the Standby Altimeter/Airspeed Indicator.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-13-01-860-008

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
D	8	C00701	EMER PANEL LTG

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY ALTIMETER/AIRSPEED INDICATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the standby altimeter/airspeed indicator.

(2) An installation of the standby altimeter/airspeed indicator.

TASK 34-13-01-000-801

2. Standby Altimeter/Airspeed Indicator - Removal

(Figure 401)

A. References

Reference	Title
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-13-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
D	8	C00701	EMER PANEL LTG

SUBTASK 34-13-01-020-001

(2) Remove the standby altimeter/airspeed indicator [3]:

(a) Loosen the two adjustment screws [1] adjacent to the indicator [3] (Figure 401).

(b) Do not remove the adjustment screws [1]. Loosen the adjustment screws [1] until the standby altimeter/airspeed indicator [3] can be removed.

> **CAUTION**
> CAREFULLY PULL THE INDICATOR FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLE AND THE HOSES ON THE REAR OF THE INDICATOR.

(c) Pull the indicator [3] from the instrument panel until you can get access to the electrical connector [4], pitot hose [5] and static hose [6].

NOTE: If the indicator [3] is not easy to remove, loosen the remaining two mounting screws [2] to make the removal procedure easier.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION DO NOT DISCONNECT THE PITOT-STATIC SYSTEM HOSES WHEN THE SYSTEM IS NOT AT AMBIENT PRESSURE. THIS CAN CAUSE DAMAGE TO THE INDICATOR.

(d) Disconnect the pitot hose [5] and static hose [6] from the indicator [3].

(e) Disconnect the electrical connector [4].

(f) Remove the indicator [3].

(g) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

(h) Disconnect the quick disconnect fitting, if installed, from the indicator [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

F73470 S0006576565_V2

Standby Altimeter/Airspeed Indicator Installation
Figure 401/34-13-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2422174 S0000560377_V1

Standby Altimeter Tolerances - Ground
Figure 402/34-13-01-990-803

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-13-01-400-801

3. Standby Altimeter/Airspeed Indicator - Installation

(Figure 401)

A. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Connector Cover Removal (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-11-00-790-808	Alternate Static System Low-range Leak Test (P/B 501)
34-11-00-790-812	Alternate Pitot System Leak Test (P/B 501)

B. Tools/Equipment

Reference	Description
STD-1014	Wrench - Torque, 0 to 150 in-lbs (0 to 16.9 N-m)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Indicator	31-11-31-05-063	LOM 411
		34-13-01-02-020	LOM 411
		34-13-01-03-020	LOM 426, 432

D. Location Zones

Zone	Area
211	Flight Compartment - Left

E. Installation Procedure

SUBTASK 34-13-01-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
D	8	C00701	EMER PANEL LTG

SUBTASK 34-13-01-420-001

(2) Install the standby altimeter/airspeed indicator [3]:

(a) Install the quick disconnect fitting you removed, if necessary, to the indicator [3].

(b) Do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-40-12-000-804.

(c) Examine the electrical connector [4] for bent or broken pins.

(d) Connect the electrical connector [4] at the rear of the indicator [3].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION DO NOT CONNECT THE PITOT-STATIC SYSTEM HOSES WHEN THE SYSTEM IS NOT AT AMBIENT PRESSURE. THIS CAN CAUSE DAMAGE TO THE INDICATOR.

(e) Connect the pitot hose [5] and static hose [6] to the indicator [3].

(f) Do a visual inspection to make sure that the pitot-static system hose connections and quick-disconnect fittings that you connected are locked in the sealed position.

1) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

(g) Install the indicator [3] into the instrument panel.

(h) Tighten the two adjustment screws [1] adjacent to the indicator [3] (Figure 401).

NOTE: If necessary, tighten the two mounting screws [2].

SUBTASK 34-13-01-420-002

(3) If you removed or installed a quick disconnect fitting from or to the hose, tighten the fitting using torque wrench, STD-1014 to 100 in-lb (11.3 N·m) to 105 in-lb (11.9 N·m).

SUBTASK 34-13-01-860-003

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-13-01-860-004

(5) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	10	C00357	STBY ALTM/ASI VIB

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
D	8	C00701	EMER PANEL LTG

SUBTASK 34-13-01-750-001

(6) Make sure that the indicator [3] lights are on.

SUBTASK 34-13-01-860-009

(7) Set the BARO scale of the standby altimeter to the same value as the captain's and/or first officer's primary flight display (PFD).

SUBTASK 34-13-01-700-002

(8) Make sure that the difference in altitude between the standby altimeter and the captain's or first officer's PFD is less than or equal to the limit found in Figure 402.

SUBTASK 34-13-01-780-001

(9) If you install a quick-disconnect fitting on the replacement indicator, do these steps:

NOTE: If you do a replacement or installation of a quick-disconnect fitting, you must do a leak check. If you only disconnect a quick-disconnect fitting, no leak check is required.

(a) Do this task: Alternate Pitot System Leak Test, TASK 34-11-00-790-812.

(b) Do this task: Alternate Static System Low-range Leak Test, TASK 34-11-00-790-808.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-13-01-860-005

(10) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

MACH AIRSPEED WARNING SYSTEM - ADJUSTMENT/TEST

1. General
   A. This procedure contains scheduled maintenance task data.
   B. This procedure has this task:
      (1) An aural warning discrete output test of the Mach Airspeed Warning System.
      NOTE: The aural warning discrete output test will not work if the airplane is facing into 30 knots or greater headwinds.

TASK 34-16-00-730-801

2. Mach Airspeed Warning System - Aural Warning Discrete Output Test

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Aural Warning Discrete Output Test

SUBTASK 34-16-00-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

D. Test Procedure

SUBTASK 34-16-00-710-001

(1) Push and hold the NO. 1 MACH AIRSPEED WARNING TEST switch on the P5 panel.
   (a) Make sure you hear the warning clacker.

SUBTASK 34-16-00-860-005

(2) Release the NO. 1 MACH AIRSPEED WARNING TEST switch.
   (a) Make sure you cannot hear the warning clacker.

SUBTASK 34-16-00-710-002

(3) Push and hold the NO. 2 MACH AIRSPEED WARNING TEST switch on the P5 panel.
   (a) Make sure you hear the warning clacker.

SUBTASK 34-16-00-860-006

(4) Release the NO. 2 MACH AIRSPEED WARNING TEST switch.
   (a) Make sure you cannot hear the warning clacker.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-16-00-840-001

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1. General

A. This procedure has these tasks:

(1) Air Data Inertial Reference System (ADIRS) Deactivation

(2) Air Data Inertial Reference System (ADIRS) Activation

(3) Air Data Inertial Reference System (ADIRS) alignment from the FMC CDU

(4) An alignment of the ADIRS from the ISDU

(5) An IR radial position error check procedure

(6) An IR residual groundspeed error check procedure.

TASK 34-21-00-040-801

2. Air Data Inertial Reference System - Deactivation

A. General

(1) This procedure removes electrical power to the ADIRS system.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-21-00-040-001

(1) If the ADIRS is powered on, set the Mode Select Unit (MSU) to OFF for at least 30 seconds.

SUBTASK 34-21-00-860-081

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. ADIRS - Tryout

NOTE: This tryout is to make sure the ADIRS system is in a zero energy state.

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SUBTASK 34-21-00-860-082

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-00-860-084

(2) Do these steps to access the ADIRS maintenance index on the CDU:

(a) Push the INIT REF key.

1) Make sure the CDU shows the PERF INIT page.

(b) Push the LSK 6L adjacent to the INDEX> prompt on the CDU.

1) Make sure the CDU shows the INIT REF INDEX 1/1 page.

(c) Push the LSK 6R adjacent to the MAINT> prompt on the CDU.

1) Make sure the CDU shows the MAINT BITE INDEX 1/1 page.

(d) Push the LSK 4L adjacent to the <ADIRS prompt on the CDU.

1) Make sure the CDU does not show the ADIRS BITE INDEX page.

——— END OF TASK ———

TASK 34-21-00-440-801

3. Air Data Inertial Reference System - Activation

A. General

(1) This procedure adds electrical power to the ADIRS system.

NOTE: Moving the MSU from the OFF position to any other position does not apply electrical power to the ADIRS.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Procedure

SUBTASK 34-21-00-860-083

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

END OF TASK

TASK 34-21-00-820-801

4. Air Data Inertial Reference System - Alignment from the FMC CDU

A. General

(1) This task provides instructions to align the air data inertial reference system (ADIRS) at regular latitude and high latitude.

(a) Regular latitude alignment is from latitude 70.2 degrees South to latitude 70.2 degrees North. A regular latitude alignment takes 10 minutes.

(b) High latitude alignment is from latitude 70.2 degrees to latitude 78.2 degrees North or South. The high latitude alignment takes 17 minutes.

(c) Above the latitude of 78.2 degrees North and below the latitude of 78.2 degrees South, you cannot accurately align the ADIRS.

(2) The aligned ADIRS will prevent the airplane movement. Airplane weight, high winds, servicing work, or the loading and unloading of cargo or passengers can cause airplane movement. The ADIRS will restart the full alignment if too much of movement is sensed during the alignment period.

(3) The airplane's present position latitude and longitude are necessary to align the ADIRS. This can be possibly change from the latitude and longitude of the local airport. The latitude and longitude entry must be in 1 degree or less of the airplane's position or the ADIRU will not align. If available, it is recommended to use the GPS calculated airplane position.

(4) Multiple entries of invalid latitude and longitude will cause the ADIRU to declare an Inertial Reference (IR) failure (Code 02). If this occurs, the ADIRU IR failure can be cleared by performing a complete power down sequence and restarting the alignment process again using a valid latitude and longitude entry. A valid latitude and longitude entry may need to be entered several times before the fault will clear.

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B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-21-00-860-054

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-00-860-055

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-00-860-056

(3) Make sure the Flight Management Computer System is on (TASK 34-61-00-710-801).

SUBTASK 34-21-00-820-001

(4) Do these steps to align the ADIRS at regular latitude:

(a) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the NAV position.

1) A regular latitude alignment takes 10 minutes. Make a note of the present time for later use in this procedure.

(b) Make sure the ON DC lights on the IRS MSU come on for a short time.

(c) Make sure the ALIGN lights on the IRS MSU come on.

NOTE: It is acceptable for the ALIGN lights to come on before or after the ON DC lights.

(d) Do these steps to enter the latitude and longitude from a control display unit (CDU):

NOTE: CDU data lines that permit a selection are identified with a caret (< or >). The CDU has 12 line-select-keys (LSK). Six keys are on each side of the display. LSK 1L thru 6L are on the left side, and LSK 1R thru 6R are on the right side.

1) Push the INIT REF key on the CDU.

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2) Push the LSK 6L adjacent to the <INDEX prompt on the CDU.
   a) Make sure the CDU shows the INIT/REF INDEX 1/1 page.
3) Push the LSK 2L adjacent to the <POS prompt on the CDU.
   a) Make sure the CDU shows the POS INIT 1/3 page.
4) Put the latitude and longitude data in the scratch pad line of the CDU.

   NOTE: Do not put a space between the latitude and longitude. The format of the latitude and longitude data is as follows:

   Latitude and longitude: XDDMM.MYDDDMM.M

   Where:

   X is N or S for latitude

   Y is E or W for longitude

   D is the number of degrees

   M is the number of minutes
5) Push the LSK 4R adjacent to the SET IRS POS> prompt on the CDU.
   a) Make sure the CDU shows the latitude and longitude below the SET IRS POS line.
      <1> Re-enter the same present position (latitude, longitude) again if the ALIGN lights start to flash.
6) After 10 minutes, make sure the ALIGN lights on the IRS MSU go off.

   NOTE: The ADIRS is now aligned and in the navigation mode.

SUBTASK 34-21-00-820-002

(5) Do these steps to align the ADIRS at high latitude:
   (a) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the ALIGN position.
      1) A high latitude alignment takes 17 minutes. Make a note of the present time for later use in this procedure.
   (b) Make sure the ON DC lights on the IRS MSU come on for a short time.
   (c) Make sure the ALIGN lights on the IRS MSU come on.

   NOTE: It is acceptable for the ALIGN lights to come on before or after the ON DC lights.
   (d) Do these steps to enter the latitude and longitude from a control display unit (CDU):

   NOTE: CDU data lines that permit a selection are identified with a caret (< or >). The CDU has 12 line-select-keys (LSK). Six keys are on each side of the display. LSK 1L thru 6L are on the left side, and LSK 1R thru 6R are on the right side.
      1) Push the INIT REF key on the CDU.
      2) Push the LSK 6L adjacent to the <INDEX prompt on the CDU.
         a) Make sure the CDU shows the INIT/REF INDEX 1/1 page.
      3) Push the LSK 2L adjacent to the <POS prompt on the CDU.
         a) Make sure the CDU shows the POS INIT 1/3 page.
      4) Put the latitude and longitude data in the scratch pad line of the CDU.

      NOTE: Do not put a space between the latitude and longitude. The format of the latitude and longitude data is as follows:

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Latitude and longitude: XDDMM.MYDDDMM.M

Where:

X is N or S for latitude

Y is E or W for longitude

D is the number of degrees

M is the number of minutes

5) Push the LSK 4R adjacent to the SET IRS POS> prompt on the CDU.

a) Make sure the CDU shows the latitude and longitude below the SET IRS POS line.

<1> Re-enter the same present position (latitude, longitude) again if the ALIGN lights start to flash.

6) After 17 minutes, set the mode select switches on the IRS MSU to the NAV position.

a) Make sure the ALIGN lights on the IRS MSU go off.

NOTE: The ADIRS is now aligned and in the navigation mode.

——— **END OF TASK** ———

TASK 34-21-00-820-802

5. Air Data Inertial Reference System - Alignment from the ISDU

A. General

(1) This task provides instructions to align the air data inertial reference system (ADIRS) from the inertial system display unit (ISDU) at regular latitude and high latitude.

(a) Regular latitude alignment is from latitude 70.2 degrees South to latitude 70.2 degrees North. A regular latitude alignment takes 10 minutes.

(b) High latitude alignment is from latitude 70.2 degrees to latitude 78.2 degrees North or South. The high latitude alignment takes 17 minutes.

(c) Above the latitude of 78.2 degrees North and below the latitude of 78.2 degrees South, you cannot accurately align the ADIRS.

(2) The aligned ADIRS will prevent the airplane movement. Airplane weight, high winds, servicing work, or the loading and unloading of cargo or passengers can cause the airplane movement. The ADIRS will restart the full alignment if too much of movement is sensed during the alignment period.

(3) The airplane's present position latitude and longitude are necessary to align the ADIRS. This can be possibly change from the latitude and longitude of the local airport. The latitude and longitude entry must be in 1 degree or less of the airplane's position or the ADIRU will not align. If available, it is recommended to use the GPS calculated airplane position.

(4) Multiple entries of invalid latitude and longitude will cause the ADIRU to declare an Inertial Reference (IR) failure (Code 02). If this occurs, the ADIRU IR failure can be cleared by performing a complete power down sequence and restarting the alignment process again using a valid latitude and longitude entry. A valid latitude and longitude entry may need to be entered several times before the fault will clear.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

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(Continued)

Reference	Title
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-21-00-860-057

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-00-860-058

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-00-860-059

(3) Make sure the Flight Management Computer System is on (TASK 34-61-00-710-801).

SUBTASK 34-21-00-820-003

(4) Do these steps to align the ADIRS at regular latitude:

(a) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the NAV position.

1) A regular latitude alignment takes 10 minutes. Make a note of the present time for later use in this procedure.

(b) Make sure the ON DC lights on the IRS MSU come on for a short time.

(c) Make sure the ALIGN lights on the IRS MSU come on.

NOTE: It is acceptable for the ALIGN lights to come on before or after the ON DC lights.

(d) Do these steps to enter the latitude and longitude from the ISDU:

1) Set the DSPL SEL switch on the ISDU to the PPOS position.

2) Push the applicable N or S key on the ISDU.

3) Put in the degrees and minutes of the local latitude on the ISDU.

a) Make sure the latitude shows on the left side of the ISDU.

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b) Make sure the ENT key light on the ISDU comes on.

4) Push the ENT key on the ISDU to transmit the latitude to the ADIRUs.

5) Push the applicable W or E key on the ISDU.

6) Put in the degrees and minutes of the local longitude on the ISDU.

a) Make sure the longitude shows on the right side of the ISDU.

b) Make sure the ENT key light on the ISDU comes on.

7) Push the ENT key on the ISDU to transmit the longitude to the ADIRUs.

a) Re-enter the same present position (latitude, longitude) again if the ALIGN lights start to flash.

8) After 10 minutes, make sure the ALIGN lights on the IRS MSU go off.

NOTE: The ADIRS is now aligned and in the navigation mode.

SUBTASK 34-21-00-820-004

(5) Do these steps to align the ADIRS at high latitude:

(a) Set the mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the ALIGN position.

1) A high latitude alignment takes 17 minutes. Make a note of the present time for later use in this procedure.

(b) Make sure the ON DC lights on the IRS MSU come on for a short time.

(c) Make sure the ALIGN lights on the IRS MSU come on.

NOTE: It is acceptable for the ALIGN lights to come on before or after the ON DC lights.

(d) Do these steps to enter the latitude and longitude from the ISDU:

1) Set the DSPL SEL switch on the ISDU to the PPOS position.

2) Push the applicable N or S key on the ISDU.

3) Put in the degrees and minutes of the local latitude on the ISDU.

a) Make sure the latitude shows on the left side of the ISDU.

b) Make sure the ENT key light on the ISDU comes on.

4) Push the ENT key on the ISDU to transmit the latitude to the ADIRUs.

5) Push the applicable W or E key on the ISDU.

6) Put in the degrees and minutes of the local longitude on the ISDU.

a) Make sure the longitude shows on the right side of the ISDU.

b) Make sure the ENT key light on the ISDU comes on.

7) Push the ENT key on the ISDU to transmit the longitude to the ADIRUs.

a) Re-enter the same present position (latitude, longitude) again if the ALIGN lights start to flash.

8) After 17 minutes, set the mode select switches on the IRS MSU to the NAV position.

a) Make sure the ALIGN lights on the IRS MSU go off.

NOTE: The ADIRS is now aligned and in the navigation mode.

END OF TASK

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TASK 34-21-00-200-801

6. IR Radial Position Error Check

(Figure 201)

A. General

(1) This task provides the instructions to do a check of the inertial reference (IR) radial position error.

(2) At the end of a flight, the radial position error of the IR can be calculated by comparing the IR final position to the airport position. The IR position data is available on the control display unit (CDU).

NOTE: The IR radial position error calculation is not the same as the FMS calculation of IRS drift displayed on the IRS MONITOR page.

NOTE: The Radial Position Error Check compares the IRS position to the LAT/LON position of the airplane while it is on the ground, and not moving. It is based on the length of time the ADIRU has been in NAV mode. This calculation is a more accurate representation of ADIRU IR drift than the FMS calculated value displayed on the IRS MONITOR page.

(3) The IR radial position error limits are shown in a chart in this procedure.

B. References

Reference	Title
34-21-01-000-801	Air Data Inertial Reference Unit Removal (P/B 401)
34-21-01-400-801	Air Data Inertial Reference Unit - Installation (P/B 401)

C. Procedure

SUBTASK 34-21-00-860-073

(1) Make sure the mode select switches on the mode select unit (MSU) are in the NAV position.

NOTE: You must record the IR position data at the end of the flight while the IR stays in the NAV mode.

SUBTASK 34-21-00-200-001

(2) Do these steps to enter the airport identification into the CDU.

(a) Push the RTE key on the CDU.

1) Make sure the RTE 1/1 shows on the CDU.

(b) Put the airport identification into the CDU scratchpad.

(c) Push the line select key (LSK) adjacent to the DEST on the CDU.

1) Make sure the airport identification shows below the DEST on the CDU.

SUBTASK 34-21-00-200-002

(3) Do these steps to enter the airplane present position into the CDU:

NOTE: When the airplane is parked at an airport gate, the present position of the airplane is the gate latitude and longitude.

(a) Put the gate latitude and longitude into the CDU scratchpad.

NOTE: Do not use a space between the latitude and longitude. The format of the latitude and longitude data is as follows:

Latitude and longitude: XDDMM.MYDDDMM.M

Where:

X is N or S for latitude

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Y is E or W for longitude

D is the number of degrees

M is the number of minutes

(b) Push the LEGS key on the CDU.

1) Make sure the LEGS 1/3 page shows on the CDU.

(c) Push the LSK 1L on the CDU.

1) Make sure an identification waypoint of the gate latitude and longitude shows adjacent to the LSK 1L on the CDU.

(d) Record the number in nautical miles that shows next to the first identification waypoint.

NOTE: The first identification way point is the active waypoint that shows at the top of the LEGS 1/3 page.

SUBTASK 34-21-00-200-003

(4) Do these steps to transfer the left IRS position from the POS REF page to the LEGS page on the CDU:

(a) Push the INIT/REF key on the CDU.

1) Make sure the INIT/REF INDEX page shows on the CDU.

(b) Push the LSK adjacent to the <POS prompt on the CDU.

1) Make sure the POS INIT 1/3 page shows on the CDU.

(c) Push the NEXT PAGE key on the CDU.

1) Make sure the POS REF 2/3 page shows on the CDU.

(d) Push the LSK adjacent to the IRS L on the CDU.

1) Make sure the left IRS latitude and longitude data show on the CDU scratchpad.

(e) Push the LEGS key on the CDU.

1) Make sure the LEGS 1/3 page shows on the CDU.

(f) Push the LSK 2L on the CDU.

1) Make sure an identification waypoint of the IRS latitude and longitude shows adjacent to the LSK 2L on the CDU.

(g) Record the number in nautical miles that shows next to the second identification waypoint.

(h) Repeat these steps to record the number in nautical miles for the right IRS.

SUBTASK 34-21-00-200-004

(5) The difference between the gate and the IRS waypoints in nautical miles is the IR radial position error.

SUBTASK 34-21-00-200-005

(6) Compare the IR radial position error and the time the IRS was in the NAV mode to the radial position error limits (Figure 201).

SUBTASK 34-21-00-020-001

(7) If one of these conditions occurs, replace the applicable ADIRU:

(a) The IR radial position error is in the REPLACE-1 FLIGHT area.

(b) The IR radial position error is in the REPLACE-2 CONSECUTIVE FLIGHTS area for the second consecutive flight.

(c) These are the tasks:

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Air Data Inertial Reference Unit Removal, TASK 34-21-01-000-801

Air Data Inertial Reference Unit - Installation, TASK 34-21-01-400-801

END OF TASK

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IR Radial Position Error
Figure 201/34-21-00-990-804

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TASK 34-21-00-200-802

7. Inertial Reference Residual Groundspeed Error Check

A. General

(1) This task provides the instructions to do a check of the inertial reference (IR) residual groundspeed error.

NOTE: The residual ground speed error check at the end of a flight is valid if a full alignment, or a fast realignment, was performed at the beginning of the flight, to reset the ADIRU's residual ground speed.

(2) Groundspeed readout must be taken before the airplane has been stationary for three minutes. The system may zero the display after three minutes.

NOTE: The residual ground speed must be taken right after the airplane comes to rest. Otherwise it may continue to change, influenced by the inertial system's drift, and not be an accurate depiction of the residual ground speed after a flight leg.

(3) The display of groundspeed may be blank after three minutes.

NOTE: The residual ground speed is also displayed on the Flight Management System (FMS) Control Display Unit (CDU) POS REF page 2/3.

B. References

Reference	Title
34-21-01-000-801	Air Data Inertial Reference Unit Removal (P/B 401)
34-21-01-400-801	Air Data Inertial Reference Unit - Installation (P/B 401)

C. Procedure

SUBTASK 34-21-00-860-075

(1) Set the SYS switch to the L position on the ISDU.

SUBTASK 34-21-00-200-006

(2) Set the DSPL switch to the TRK/GS position on the ISDU.

SUBTASK 34-21-00-200-007

(3) When the airplane is stationary, the ISDU display shows the residual groundspeed error.

SUBTASK 34-21-00-200-008

(4) Make sure these conditions do not occur:

(a) The residual groundspeed error is 15 knots or larger after each of two consecutive flights, one after the other.

(b) The residual groundspeed error is 21 knots or larger at the end of one flight.

SUBTASK 34-21-00-200-009

(5) If one of these conditions occurs replace the ADIRU.

These are the tasks:

Air Data Inertial Reference Unit Removal, TASK 34-21-01-000-801,

Air Data Inertial Reference Unit - Installation, TASK 34-21-01-400-801.

SUBTASK 34-21-00-200-010

(6) Set the SYS switch to the R position.

SUBTASK 34-21-00-200-011

(7) Do the procedure again for the right ADIRU.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An operational test of the Air Data Inertial Reference System (ADIRS)

NOTE: The ADIRS operational test is inhibited if the Computed Airspeed (CAS) is more than 30 knots.

(2) An operational test of the ADIRS Source Select

(3) A system test of the Inertial Reference (IR)

(4) A system test of the Air Data Reference (ADR).

TASK 34-21-00-710-801

2. Air Data Inertial Reference System - Operational Test

A. General

(1) This task contains these tests:

(a) The self-test of the Inertial Reference System (IRS)

(b) The self-test of the Air Data Reference (ADR) system

(c) The Built-In-Test Equipment (BITE) ground test of the Inertial Reference (IR)

(d) The BITE ground test of the ADR.

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
FIM 34-21 TASK 801	ADIRS BITE Procedure

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Operational Test

SUBTASK 34-21-00-860-065

(1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	3	C00170	MACH WARN SYS-1

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(Continued)

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	7	C00549	MACH WARN SYS -2
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-00-860-066

WARNING MAKE SURE YOU OPEN THE TE FLAP LOAD RELIEF CIRCUIT BREAKER. FAILURE TO OPEN TE FLAP LOAD RELIEF CIRCUIT BREAKER MAY RESULT IN INJURY TO PERSONNEL.

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-21-00-860-004

CAUTION YOU MUST PULL AND TURN SOME SWITCHES. IF YOU TRY TO TURN THESE SWITCHES BEFORE YOU PULL THEM, YOU CAN DAMAGE THE SWITCH.

(3) Make sure that the mode select switches, on the Mode Select Unit (MSU), are in the OFF position.

SUBTASK 34-21-00-860-005

(4) Set the IRS Transfer switch, on the P5 overhead panel, to the NORMAL position.

SUBTASK 34-21-00-860-076

(5) Set the mode select switch, on the P7 captain's and first officer's Electronic Flight Instrument System (EFIS) control panel, to the VOR position.

SUBTASK 34-21-00-860-006

(6) Set the Very High Frequency (VHF) NAV switch, on the P5 overhead panel, to the NORMAL position.

SUBTASK 34-21-00-860-117

(7) Set the DISPLAY SOURCE selector, on the P5 overhead panel, to the AUTO position.

SUBTASK 34-21-00-860-007

(8) Set the CONTROL PANEL switch, on the P5 overhead panel, to the NORMAL position.

SUBTASK 34-21-00-860-008

(9) Set the EQUIPMENT COOLING switch, on the P5 overhead panel, to the NORMAL position.

SUBTASK 34-21-00-860-009

(10) Set the Flight Management Computer System (FMCS) switch, on the P5 overhead panel, to the NORMAL position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-00-860-010

(11) Set the STBY PWR switch, on the P5 overhead panel, to the AUTO position.

SUBTASK 34-21-00-860-111

WARNING	MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(12) Make sure that the Air Traffic Control (ATC) transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch, on the P8 ATC control panel, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch, on the P8 ATC control panel, to STBY.

LOM ALL

SUBTASK 34-21-00-860-116

CAUTION	YOU MUST PULL AND TURN SOME SWITCHES. IF YOU TRY TO TURN THESE SWITCHES BEFORE YOU PULL THEM, YOU CAN DAMAGE THE SWITCH.

(13) Make sure that the Air Data Inertial Reference System (ADIRS) is aligned (Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801).

E. Air Data Inertial Reference System Self-Test

SUBTASK 34-21-00-740-001

(1) Do a self-test of the left IR system, do these steps:

(a) Set the SYS DSPL switch, on the Inertial System Display Unit (ISDU), to the L position.

(b) Set and hold the DSPL SEL switch, on the ISDU, in the TEST position.

NOTE: The DSPL SEL switch is spring-loaded in the TEST position. It will return to the TK/GS position when released. Release the switch to stop the test. You will possibly have to do this step again to see all results of the test.

(c) For seconds 0-2, make sure that:

1) The display segments and indicators on the ISDU come on.

2) The ALIGN, FAULT, ON DC, and DC FAIL annunciators, on the left side of the MSU, come on.

3) The MASTER CAUTION and IRS lights, on the captain's glareshield, come on.

(d) For seconds 2-10, make sure that:

1) The display segments and indicators on the ISDU are blank.

2) The ALIGN, FAULT, ON DC, and DC FAIL annunciators, on the left side of the MSU, go off.

3) The MASTER CAUTION and IRS lights, on the captain's glareshield, go off.

4) The HDG flag comes into view and the compass card goes out of view on the captain's Navigation Display (ND) and Primary Flight Display (PFD).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

5) The HDG flag, on the Standby Radio Magnetic Indicator (RMI), comes into view.

LOM ALL

6) The ATT flag, on the captain's PFD, comes into view.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

7) The VERT flag, on the captain's PFD, comes into view.

LOM 404, 465-999 PRE SB 737-31-1650

8) The VSI flag, on the captain's PFD, comes into view.

LOM ALL

(e) For seconds 10 and on, make sure that:

1) The 5° pitch up shows on the captain's PFD.

NOTE: The PITCH disagree message can also be displayed on the PFD by the Common Display System (CDS).

2) The 45° roll right shows on the captain's PFD.

3) The 15° heading shows on the captain's PFD and ND.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

4) The 15° heading shows on the RMI.

LOM ALL

5) The -10° slip/skid indicator angle shows on the captain's PFD.

NOTE: The slip/skid indicator shows below the bank pointer on the PFD.

6) The vertical speed of -600 feet/minute descending (down pitch) shows on the captain's PFD.

(f) Set the IRS switch, on the P5 overhead panel, to the BOTH ON R position.

1) Make sure that the captain's heading is shown on both the captain and first officer PFDs.

(g) Release the DSPL SEL switch.

(h) Set the IRS Transfer switch, on the P5 overhead panel, to the NORMAL position.

SUBTASK 34-21-00-710-001

(2) Do the self-test of the right IR system, do these steps:

(a) Set the SYS DSPL switch, on the ISDU, to the R position.

(b) Set and hold the DSPL SEL switch, on the ISDU, in the TEST position.

NOTE: The DSPL SEL switch is spring-loaded in the TEST position. It will return to the TK/GS position when released. Release the switch to stop the test. You will possibly have to do this step again to see all results of the test.

(c) For seconds 0-2, make sure that:

1) The display segments and indicators, on the ISDU, come on.

2) The ALIGN, FAULT, ON DC, and DC FAIL annunciators on the right side of the MSU come on.

3) The MASTER CAUTION light on the first officer's glareshield comes on.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(d) For seconds 2-10, make sure that:

1) The display segments and indicators, on the ISDU, go off.

2) The ALIGN, FAULT, ON DC, and DC FAIL annunciators, on the right side of the MSU, go off.

3) The MASTER CAUTION light, on the first officer's glareshield, goes off.

4) The HDG flag comes into view and the compass card goes out of view on the first officer's PFD and ND.

5) The ATT flag, on the first officer's PFD, comes into view.

LOM 404, 465-999 PRE SB 737-31-1650

6) The VSI flag, on the first officer's PFD, comes into view.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

7) The VERT flag, on the first officer's PFD, comes into view.

LOM ALL

(e) For seconds 10 and on, make sure that:

1) The 5° pitch up shows on the first officer's PFD.

NOTE: The PITCH disagree message can also be displayed on the PFD by the CDS.

2) The 45° roll right shows on the first officer's PFD.

3) The 15° heading shows on the first officer's PFD and ND.

4) The -10° slip/skid indicator angle shows on the first officer's PFD.

5) The vertical speed of -600 feet/minute descending (down pitch) shows on the first officer's PFD.

(f) Set the IRS switch, on the P5 overhead panel, to the BOTH ON L position.

1) Make sure that the captain's heading is shown on both the captain and first officer PFDs.

(g) Release the DSPL SEL switch.

(h) Set the IRS Transfer switch, on the P5 overhead panel, to the NORMAL position.

SUBTASK 34-21-00-710-002

(3) Do the self-test of the left ADR system, do these steps:

(a) Push the MACH AIRSPEED WARNING TEST NO. 1 switch, on the P5 aft overhead panel, for a moment.

1) Make sure that the overspeed warning clacker comes on momentarily.

(b) Push the MACH AIRSPEED WARNING TEST NO. 2 switch, on the P5 overhead panel, for a moment.

1) Make sure that the overspeed warning clacker comes on momentarily.

(c) Set the left mode select switch, on the MSU, to the ALIGN position.

(d) Set the left altimeter baro correction data to 29.92 in/Hg (101.32 kPa).

(e) Set the SYS DSPL switch, on the ISDU, to the L position.

(f) Set and hold the DSPL SEL switch, on the ISDU, in the TEST position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(g) For the 0-2 seconds, make sure that the overspeed warning clacker comes on for 2 seconds.

(h) After 7 seconds, make sure that:

1) The altitude of 10,000 ±40 ft (3048 ±12 m) on the captain's PFD.

2) The true airspeed of 170 ±4 knots (315 ±7 km/h) shows on the captain's ND.

3) Total air temperature of 95 ±4°F (35 ±2°C) shows on the engine display.

(i) Release the DSPL SEL switch.

SUBTASK 34-21-00-710-003

(4) Do the self-test of the right ADR system, do these steps:

(a) Push the MACH AIRSPEED WARNING TEST NO. 1 switch, on the P5 overhead panel, for a moment.

1) Make sure that the overspeed warning clacker comes on momentarily.

(b) Push the MACH AIRSPEED WARNING TEST NO. 2 switch, on the P5 overhead panel, for a moment.

1) Make sure that the overspeed warning clacker comes on momentarily.

(c) Set the right mode select switch, on the MSU, to the ALIGN position.

(d) Set the right altimeter baro correction data to 29.92 in/Hg (101.32 kPa).

(e) Set the SYS DSPL switch, on the ISDU, to the R position.

(f) Set and hold the DSPL SEL switch, on the ISDU, in the TEST position.

(g) For the 0-2 seconds, make sure that the overspeed warning clacker comes on for 2 seconds.

(h) After 7 seconds, make sure that:

1) The altitude of 10,000 ft (3048 m) feet shows on the first officer's PFD.

2) The mach indication on the first officer's PFD is blank.

3) The true airspeed of 170 ±4 knots (315 ±7 km/h) shows on the first officer's ND.

(i) Release the DSPL SEL switch.

F. Air Data Inertial Reference System BITE Test

SUBTASK 34-21-00-860-012

(1) Do these steps to access the ADIRS maintenance index on the Control Display Unit (CDU):

NOTE: CDU data lines that permit a selection are identified with a caret (< or >). The CDU has 12 line-select-keys. Six keys are on each side of the display. 1L thru 6L are on the left side, and 1R thru 6R are on the right side.

(a) Push the INIT REF key.

1) Make sure that the CDU shows the PERF INIT page.

(b) Push the LSK 6L adjacent to the INDEX> prompt on the CDU.

1) Make sure that the CDU shows the INIT REF INDEX 1/1 page.

(c) Push the LSK 6R adjacent to the MAINT> prompt on the CDU.

1) Make sure that the CDU shows the MAINT BITE INDEX 1/1 page.

(d) Push the LSK 4L adjacent to the <ADIRS prompt on the CDU.

1) Make sure that the CDU shows the ADIRS BITE INDEX page.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-00-710-004

(2) Access the left ADIRS current faults, do these steps:

(a) Push the LSK 1L adjacent to the <ADIRS L prompt on the CDU.

1) Make sure that the CDU shows the ADIRS L BITE MAIN MENU page.

(b) Push the LSK 1L adjacent to the <CURRENT STATUS prompt on the CDU.

1) Make sure that the CDU shows the ADIRS L BITE CURRENT FAULTS page.

2) Make sure that the CDU shows the NO CURRENT FAULTS message.

NOTE: If there is a maintenance message that shows on the CDU, you can go to the ADIRS fault isolation procedures to fix the fault FIM 34-21 TASK 801.

SUBTASK 34-21-00-710-005

(3) Access the right ADIRS current faults, do these steps.

(a) If you are not at the ADIRS BITE page, do these steps:

1) Push the LSK 6L adjacent to the INDEX> prompt on the CDU to access the ADIRS L BITE MAIN MENU page.

2) Push the LSK 6L adjacent to the adjacent to the <INDEX prompt on the CDU to access the MAINT BITE INDEX 1/1 page.

3) Push the LSK 4L adjacent to the <ADIRS prompt on the CDU to access the ADIRS BITE page.

(b) Push the LSK 2L adjacent to the <ADIRS R prompt on the CDU from the ADIRS BITE 1/1 page.

1) Make sure that the CDU shows the ADIRS R BITE MAIN MENU page.

(c) Push the LSK 1L adjacent to the <CURRENT STATUS prompt on the CDU.

1) Make sure that the CDU shows the ADIRS R BITE CURRENT FAULTS page.

2) Make sure that the CDU shows the NO CURRENT FAULTS message.

NOTE: If there is a maintenance message that shows on the CDU, you can go to the ADIRS fault isolation procedure to fix the fault FIM 34-21 TASK 801.

(d) Push the LSK 6L adjacent to the <INDEX prompt on the CDU two times.

1) Make sure that the CDU shows the MAIN BITE INDEX 1/1 page.

(e) Push the LSK 6L adjacent to the INDEX prompt on the CDU.

SUBTASK 34-21-00-740-002

(4) Do a BITE ground test of the left and right IRS, do these steps:

NOTE: You can do a separate ground test of the left ADIRS and the right ADIRS. The ADIRS L BITE MAIN MENU contains the ground test for the left ADIRS. The ADIRS R BITE MAIN MENU contains the ground test for the right ADIRS.

(a) Make sure that the Air Data Inertial Reference Unit (ADIRU) align to the NAV mode, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(b) Push the LSK 3L adjacent to the <ADIRS-IR L+R GND TEST prompt on the CDU from the ADIRS BITE 1/1 page.

1) Make sure that the CDU shows the ADIRS-IR L+R BITE GROUND TEST 1/3 page.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Push the LSK 5L adjacent to the <TEST START prompt on the CDU to start the IR ground test.

NOTE: After you start the test, you can push the LSK 5R adjacent to the TEST STOP> prompt on the CDU to stop the test.

1) For seconds 0-2, make sure that:
   a) All the display segments and indicators, on the ISDU, come on.
   b) The ALIGN, FAULT, ON DC, and DC FAIL annunciators, on the MSU, come on.
   c) The MASTER CAUTION and IRS lights, on the glareshield, come on.
2) For seconds 2-10, make sure that:
   a) All the display segments and indicators, on the ISDU, are blank.
   b) The ALIGN, FAULT, ON DC, and DC FAIL annunciators, on the MSU, go off.
   c) The HDG flag comes into view and the compass card goes out of view on the PFD.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

   d) The HDG flag, on the Standby RMI, comes into view.

LOM ALL

   e) The ATT flags, on the PFD, come into view.

LOM 404, 465-999 PRE SB 737-31-1650

   f) The VSI flag, on the captain's secondary display, comes into view.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

   g) The VERT flag, on the captain's PFD, comes into view.

LOM 404, 465-999 PRE SB 737-31-1650

   h) The VSI flag, on the first officer's primary display, comes into view.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

   i) The VERT flag, on the first officer's PFD, comes into view.

LOM ALL

3) Push the NEXT PAGE key, on the CDU, to go to page 2/3 of this test.
4) For seconds 10 and on, make sure that:
   a) The 5° pitch up angles show on the PFDs.
   b) The 45° roll right angles on the PFDs.
   c) The groundspeed of 200 knots (370 km/h) shows on the ISDU display.
   d) The latitude of N22°30.0' shows on the ISDU display.

      NOTE: The CDU will indicate N22deg.50.
   e) The longitude of E22°30.0' shows on the ISDU display.

      NOTE: The CDU will indicate E22deg.50.
5) Push the LSK 5R adjacent to the <TEST STOP prompt, on the CDU, to stop the test.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

6) Push the INIT REF key, on the CDU, to go out of the ADIRS BITE page.

SUBTASK 34-21-00-710-006

(5) Do a ground test for the left and right ADR system, do these steps:

(a) Push the LSK 4L adjacent to the <ADIRS-ADR L+R GND TEST prompt on the CDU from the ADIRS BITE 1/1 page.

1) Make sure that the CDU shows the ADIRS-ADR L+R BITE GROUND TEST 1/2 page.

(b) Push the LSK 5L adjacent to the <TEST START prompt on the CDU to start the ADR ground test.

NOTE: After you start the test, you can push the LSK 5R adjacent to the <TEST STOP prompt on the CDU to stop the test.

(c) For 0-2 seconds, make sure that:

1) The overspeed warning and the flags, on the PFDs, come into view.

(d) For 0-7 seconds, make sure that:

1) The ALT flag shows on the captain's PFD.

2) The ALT flag shows on the first officer's PFD.

3) The total air temperature does not show on the engine display.

(e) For seconds 7 and on, make sure that:

1) The altitude of 10,000 ft (3048 m) shows on the captain's PFD.

2) The altitude of 10,000 ft (3048 m) shows on the first officer's PFD.

3) The true airspeed of 170 knots (315 km/h) show on the captain's ND.

4) The true airspeed of 170 knots (315 km/h) shows on the first officer's ND.

(f) Push the LSK 5R adjacent to the <TEST STOP prompt, on the CDU, to stop the test.

(g) Push the MASTER CAUTION reset switch.

1) Make sure that the MASTER CAUTION and IRS lights, on the captain's glareshield, go off.

(h) Push the INIT REF key, on the CDU, to go out of the ADIRS BITE page.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-00-860-013

(1) Set the mode select switches, on the MSU, to the OFF position.

SUBTASK 34-21-00-860-050

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

END OF TASK

TASK 34-21-00-710-802

3. Air Data Inertial Reference System Source Select - Operational Test

NOTE: This procedure is a scheduled maintenance task.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

A. General

(1) This task contains these tests:

(a) The Self-Test of the inertial reference (IR) system

(b) The self-test of the air data reference (ADR) system.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Operational Test

SUBTASK 34-21-00-860-087

(1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	3	C00170	MACH WARN SYS-1
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	7	C00549	MACH WARN SYS -2
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-00-860-088

WARNING MAKE SURE THAT YOU OPEN THE FLAP LOAD RELIEF CIRCUIT BREAKER. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURY TO PERSONNEL CAN OCCUR.

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-00-860-089

> **CAUTION**
> BE CAREFUL TO NOTICE THAT YOU MUST PULL AND THEN TURN SOME SWITCHES. IF YOU TRY TO TURN THESE SWITCHES BEFORE YOU PULL THEM, YOU CAN CAUSE DAMAGE TO THEM.

(3) Make sure that the mode select switches on the Mode Select Unit (MSU) are in the OFF position.

SUBTASK 34-21-00-860-090

(4) Set the IRS Transfer switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-091

(5) Set the mode select switch on the captain's and first officer's EFIS control panel to the VOR position.

SUBTASK 34-21-00-860-092

(6) Set the VHF NAV switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-093

(7) Set the CDS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-094

(8) Set the EQUIPMENT COOLING switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-095

(9) Set the FMCS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-096

(10) Set the STBY PWR switch on the P5 overhead panel to the AUTO position.

SUBTASK 34-21-00-860-113

> **WARNING**
> MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(11) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM ALL

D. Inertial Reference System - Self-Test

SUBTASK 34-21-00-740-003

(1) Do these steps to do a self-test of the left IR system:

> **CAUTION**
> BE CAREFUL TO NOTICE THAT YOU MUST PULL AND THEN TURN SOME SWITCHES. IF YOU TRY TO TURN THESE SWITCHES BEFORE YOU PULL THEM, YOU CAN CAUSE DAMAGE TO THEM.

(a) Set the mode select switches on the MSU to the ALIGN position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Make sure that the ALIGN lights on the MSU are on.

(b) Set the SYS DSPL switch on the Inertial System Display Unit (ISDU) to the L position.

(c) Set and hold the DSPL SEL switch on the ISDU in the TEST position.

NOTE: The DSPL SEL switch is spring-loaded in the TEST position. It will return to the TK/GS position when released. Release the switch to stop the test. You will possibly have to do this step again to see all results of the test.

(d) For seconds 0-2, make sure that:

1) The display segments and indicators on the ISDU come on.

2) The ALIGN, FAULT, ON DC, and DC FAIL annunciators on the left side of the MSU come on.

3) The MASTER CAUTION and IRS lights on the captain's glareshield come on.

(e) For seconds 2-10, make sure that:

1) The display segments and indicators on the ISDU are blank.

2) The FAULT, ON DC, and DC FAIL annunciators on the left side of the MSU go off.

3) The MASTER CAUTION and IRS lights on the captain's glareshield go off.

4) The HDG flag comes into view and the compass card goes out of view on the captain's Navigation Display (ND) and Primary Flight Display (PFD).

5) The HDG flag on the Standby Radio Magnetic Indicator (RMI) comes into view.

6) The ATT flag on the captain's PFD comes into view.

7) The VERT flag on the captain's PFD comes into view.

(f) For seconds 10 and on, make sure that:

1) The 5° pitch up shows on the captain's PFD.

2) The 45° roll right shows on the captain's PFD.

3) The 15° heading shows on the captain's PFD and ND.

4) The 15° heading shows on the RMI.

5) The -10° slip/skid indicator angle shows on the captain's PFD.

NOTE: The slip/skid indicator shows below the bank pointer on the PFD.

6) The vertical speed of -600 feet/minute descending (down pitch) shows on the captain's PFD.

(g) Set the IRS switch on the P5 overhead panel to BOTH ON R.

1) Make sure that “---” shows in the HDG field on the ND or actual heading is shown if the system is fully aligned.

(h) Release the DSPL SEL switch.

(i) Set the IRS Transfer switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-710-007

(2) Do these steps to do the self-test of the right IR system:

(a) Set the SYS DSPL switch on the ISDU to the R position.

(b) Set and hold the DSPL SEL switch on the ISDU in the TEST position.

NOTE: The DSPL SEL switch is spring-loaded in the TEST position. It will return to the TK/GS position when released. Release the switch to stop the test. You will possibly have to do this step again to see all results of the test.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) For seconds 0-2, make sure that:

1) The display segments and indicators on the ISDU come on.

2) The ALIGN, FAULT, ON DC, and DC FAIL annunciators on the right side of the MSU come on.

3) The MASTER CAUTION light on the first officer's glareshield comes on.

(d) For seconds 2-10, make sure that:

1) The display segments and indicators on the ISDU go off.

2) The FAULT, ON DC, and DC FAIL annunciators on the right side of the MSU go off.

3) The MASTER CAUTION light on the first officer's glareshield goes off.

4) The HDG flag comes into view and the compass card goes out of view on the first officer's PFD and ND.

5) The ATT flag on the first officer's PFD comes into view.

6) The VERT flag on the first officer's PFD comes into view.

(e) For seconds 10 and on, make sure that:

1) The 5° pitch up shows on the first officer's PFD.

2) The 45° roll right shows on the first officer's PFD.

3) The 15° heading shows on the first officer's PFD and ND.

4) The -10° slip/skid indicator angle shows on the first officer's PFD.

5) The vertical speed of -600 feet/minute descending (down pitch) shows on the first officer's PFD.

(f) Set the IRS switch on the P5 overhead panel to BOTH ON L.

1) Make sure that “---” shows in the HDG field on the ND or actual heading is displayed if the system is fully aligned.

(g) Release the DSPL SEL switch.

(h) Set the IRS Transfer switch on the P5 overhead panel to the NORMAL position.

E. Air Data Inertial Reference System - Self-Test

SUBTASK 34-21-00-710-008

(1) Do these steps to do the self-test of the left ADR system:

(a) Push the MACH AIRSPEED WARNING TEST NO. 1 switch on the P5 aft overhead panel for a moment.

1) Make sure that the overspeed warning clacker comes on momentarily.

(b) Push the MACH AIRSPEED WARNING TEST NO. 2 switch on the P5 aft overhead panel for a moment.

1) Make sure that the overspeed warning clacker comes on momentarily.

(c) Set the left mode select switch on the MSU to the ALIGN position.

(d) Set the left altimeter baro correction data to 29.92 in/Hg (101.32 kPa).

(e) Set the SYS DSPL switch on the ISDU to the L position.

(f) Set and hold the DSPL SEL switch on the ISDU in the TEST position.

(g) For the 0-2 seconds, make sure that the overspeed warning clacker comes on for 2 seconds.

(h) After 7 seconds, make sure that:

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1) The altitude of 10,000 ±40 ft (3048 ±12 m) shows on the captain's PFD.
2) The true airspeed of 170 ±4 knots (196 ±5 mph) shows on the captain's ND.
3) Total air temperature of 95 ±4°F (35 ±2°C) shows on the engine display.

(i) Release the DSPL SEL switch.

SUBTASK 34-21-00-710-009

(2) Do these steps to do the self-test of the right ADR system:

(a) Push the MACH AIRSPEED WARNING TEST NO. 1 switch on the P5 aft overhead panel for a moment.

1) Make sure that the overspeed warning clacker comes on momentarily.

(b) Push the MACH AIRSPEED WARNING TEST NO. 2 switch on the P5 aft overhead panel for a moment.

1) Make sure that the overspeed warning clacker comes on momentarily.

(c) Set the right mode select switch on the MSU to the ALIGN position.

(d) Set the right altimeter baro correction data to 29.92 in/Hg (101.32 kPa).

(e) Set the SYS DSPL switch on the ISDU to the R position.

(f) Set and hold the DSPL SEL switch on the ISDU in the TEST position.

(g) For the 0-2 seconds, make sure that the overspeed warning clacker comes on for 2 seconds.

(h) After 7 seconds, make sure that:

1) The altitude of 10,000 ±40 ft (3048 ±12 m) shows on the first officer's PFD.
2) The Mach indication on the first officer's PFD is blank.
3) The true airspeed of 170 ±4 knots (196 ±5 mph) shows on the first officer's ND.

(i) Release the DSPL SEL switch.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-00-860-098

(1) Set the mode select switches on the MSU to the OFF position.

SUBTASK 34-21-00-860-099

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

END OF TASK

TASK 34-21-00-730-801

4. Inertial Reference - System Test

A. General

(1) The system test contains these tests:

(a) The ON DC Operation and No Cooling Warning Test

(b) The MSU ALIGN and DC FAIL Annunciator and MCU DC FAIL Annunciator Test

(c) The Master Dim and Test

(d) The Five Minute Time Delay Check

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(e) The ISDU/FMC digital and MCU fault discrete interface test.

B. References

Reference	Title
21-27-00-700-802	Equipment Cooling Fans - Operational Test (P/B 501)
23-43-00-710-801	Flight and Ground Crew Call System - Operational Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)
31-62-00-710-801	Common Display System - Operational Test (P/B 501)
32-09-10-710-801	Proximity Switch Electronics Unit (PSEU) - Operational Test (P/B 501)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the IR System Test

SUBTASK 34-21-00-860-015

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-00-860-067

(2) Make sure the equipment cooling system is operational (TASK 21-27-00-700-802).

SUBTASK 34-21-00-860-068

(3) Make sure the common display system (CDS) is operational (TASK 31-62-00-710-801).

SUBTASK 34-21-00-860-069

(4) Make sure the flight management computer system (FMCS) is operational (TASK 34-61-00-710-801).

SUBTASK 34-21-00-860-070

(5) Make sure the proximity switch electronics unit (PSEU) is operational (TASK 32-09-10-710-801).

SUBTASK 34-21-00-860-071

(6) Make sure the flight crew call system is operational (TASK 23-43-00-710-801).

SUBTASK 34-21-00-860-016

(7) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

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CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-00-860-017

WARNING FAILURE TO OPEN THE FLAP LOAD RELIEF CIRCUIT BREAKER MAY CAUSE INJURY TO PERSONNEL.

(8) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-21-00-860-018

(9) Make sure the mode select switches on the MSU are in the OFF position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

SUBTASK 34-21-00-860-019

(10) Set the IRS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-020

(11) Set the VHF NAV switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-021

(12) Set the CDS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-022

(13) Set the EQUIPMENT COOLING switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-023

(14) Set the FMCS switch on the P5 overhead panel to the NORMAL position.

SUBTASK 34-21-00-860-024

(15) Set the STBY PWR switch on the P5 overhead panel to the AUTO position.

E. ON DC Operation and No Cooling Warning Test

SUBTASK 34-21-00-860-025

(1) Do these steps to do a check of the ADIRU ON DC Operation.

(a) Set the mode select switches on the MSU to the ATT position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

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(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	7	C01007	ADIRU LEFT AC

1) Make sure the left ON DC light on the MSU comes on.
2) Make sure the MASTER CAUTION and the IRS lights on the glareshield come on.
3) After at least 25 seconds, make sure the crew call horn sounds.

(c) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	7	C01007	ADIRU LEFT AC

1) Make sure the crew call horn stops.
2) Make sure the left ON DC light on the MSU goes off.

(d) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

1) Make sure the right ON DC light on the MSU comes on.
2) Make sure the MASTER CAUTION and the IRS lights on the captain's glareshield come on.
3) After at least 25 seconds, make sure the crew call horn sounds.

(e) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

1) Make sure the crew call horn stops.
2) Make sure the right ON DC light on the MSU goes off.

SUBTASK 34-21-00-860-034

(2) Do these steps to do a ADIRU No Cooling Warning Test:

(a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
C	14	C01435	EQPT COOLING EXHAUST FAN CONT NORMAL

1) Make sure the EQUIPMENT COOLING OFF light on the P5 overhead panel is on.
2) Within 60 seconds after the EQUIPMENT COOLING OFF light comes on, make sure the crew call horn sounds.

(b) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
C	14	C01435	EQPT COOLING EXHAUST FAN CONT NORMAL

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1) Make sure the EQUIPMENT COOLING OFF light on the P5 overhead panel goes off.

2) Make sure the crew call horn stops.

(c) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
C	12	C01116	EQPT COOLING SUPPLY FAN CONT-NORMAL

1) Make sure the EQUIPMENT COOLING OFF light on the P5 overhead panel is on.

2) Within 60 seconds after the EQUIPMENT COOLING OFF light comes on, make sure the crew call horn sounds.

(d) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
C	12	C01116	EQPT COOLING SUPPLY FAN CONT-NORMAL

1) Make sure the EQUIPMENT COOLING OFF light on the P5 overhead panel goes off.

2) Make sure the crew call horn stops.

(e) Set the mode select switches on the MSU to the OFF position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

F. DC FAIL and ALIGN Annunciators Test

SUBTASK 34-21-00-730-011

(1) Do these steps to do a DC FAIL and ALIGN Annunciators Test:

(a) Set the left mode select switch on the MSU to the ATT position.

1) Make sure the left ALIGN light on the MSU comes on for not more than 40 seconds.

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC

1) Make sure the left DC FAIL light on the MSU comes on.

2) Make sure the MASTER CAUTION and IRS light on the pilot's glareshield come on.

(c) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC

1) Make sure the left DC FAIL light goes off.

(d) Push the MASTER CAUTION button on the pilot's glareshield to turn off the MASTER CAUTION and the IRS light.

(e) Set the left mode select switch on the MSU to the OFF position.

(f) Set the right mode select switch on the MSU to the ATT position.

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1) Make sure the right ALIGN light on the MSU comes on for not more than 40 seconds.

(g) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	17	C01010	ADIRU RIGHT DC

1) Make sure the right DC FAIL light on the MSU comes on.

2) Make sure the MASTER CAUTION and IRS lights on the captain's glareshield come on.

(h) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	17	C01010	ADIRU RIGHT DC

1) Make sure the right DC FAIL light goes off.

(i) Push the MASTER CAUTION button on the captain's glareshield to turn off the MASTER CAUTION and the IRS light.

(j) Set the mode select switch on the MSU to the OFF position.

G. Master Dim and Test

SUBTASK 34-21-00-860-039

(1) Do these steps to do a Master Dim and Test for the ADIRS:

(a) Align the left and right ADIRS in the ALIGN mode (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(b) Make sure the mode select switches on the MSU are in the ALIGN position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

(c) Set the DSPL SEL switch on the ISDU to the PPOS position.

(d) Turn the inner DSPL SEL switch (BRT) on the ISDU clockwise.

(e) Set and hold the DIM and TEST switch on the pilot's center instrument panel to the TEST position.

1) Make sure all of the lights on the ISDU come on bright.

2) Make sure all of the lights on the MSU come on bright.

(f) Release the DIM and TEST switch.

(g) Turn the inner DSPL SEL switch (BRT) on the ISDU counterclockwise.

(h) Set the DIM and TEST switch on the pilot's center instrument panel to the DIM position.

1) Make sure the ALIGN lights on the MSU are dim.

2) Push the lights on the MSU one at a time.

3) Make sure the lights come on dim one at a time.

(i) Set the DIM and TEST switch on the pilot's center instrument panel to the BRT position.

1) Make sure only the ALIGN lights on the MSU are on.

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(j) Set the mode select switches on the MSU to the OFF position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

H. Five Minute Time Delay Check

SUBTASK 34-21-00-860-041

(1) Do these steps to do a Five Minute Time Delay Check:

(a) Set the mode select switches on the MSU to the ALIGN position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

(b) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

1) In less than 30 seconds, make sure the crew call horn sounds.

(c) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

1) Make sure the crew call horn stops.
2) Set the STANDBY POWER switch on the P5 overhead panel to the BAT position.
3) Make sure the ALIGN lights on the MSU are on.
4) Make sure the DC lights on the MSU are on.
5) After approximately 5 seconds, make sure the MASTER CAUTION and IRS lights on the pilot's glareshield come on.
6) After 5 minutes, make sure that:
   a) The ALIGN and ON DC lights on the right side of the MSU are off.
   b) The ALIGN and ON DC lights on the left side of the MSU are on.

(d) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

(e) Push the MASTER CAUTION switch on the pilot's glareshield to turn off the MASTER CAUTION and the IRS lights.

(f) Set the left and right mode select switches on the MSU to the OFF position for at least 30 seconds.

1) Make sure the ALIGN lights go off.

(g) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

(h) Wait for approximately 2 seconds, then

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	7	C01007	ADIRU LEFT AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

(i) Set the STANDBY POWER switch on the P5 overhead panel to the AUTO position.

I. ISDU/FMC Digital and MCU Fault Discrete Interface Test

SUBTASK 34-21-00-860-045

(1) Do these steps to do a ISDU/FMC Digital and MCU Discrete Interface Test:

(a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2

LOM ALL

(b) Set the left and right mode select switches on the MSU to the NAV position.

(c) Set the SYS DSPL switch on the ISDU to the PPOS position.

1) Make sure the left and right ALIGN lights on the MSU are on.

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(d) Set the SYS DSPL switch on the ISDU to the L position.

(e) Push the INIT REF key on the CDU 1.

1) Make sure the PERF INIT page shows on the CDU 1.

(f) Push the LSK 6L adjacent to the <INDEX prompt on the CDU.

1) Make sure the INIT/REF INDEX page shows on the CDU 1.

(g) Push the LSK 2L adjacent to the <POS prompt on the CDU.

1) Make sure the POS INIT 1/3 page shows on the CDU 1.

(h) Enter the latitude of N0000.0 and the longitude of E00000.0 on the CDU 1.

1) Make sure the latitude and longitude show on the scratch pad of the CDU 1.

(i) Push the LSK 4R adjacent to the POS> prompt on the CDU.

1) Make sure the latitude and longitude show on the line 9 of the CDU 1.

2) Wait until the left and right ALIGN lights on the MSU start flashing.

NOTE: This may take up to 10 minutes.

3) Make sure the ENTER IRS POSITION shows on the CDU 1.

4) Make sure the latitude of N00°00.0' and the longitude of E000°00.0' show on the ISDU.

(j) Set the SYS DSPL on the ISDU to the R position.

1) Make sure the latitude of N00°00.0' and the longitude of E000°00.0' show on the ISDU.

(k) Set the SYS DSPL on the ISDU to the L position.

(l) Re-enter the latitude of N0000.0 and the longitude of E00000.0 on the CDU 1.

1) Make sure the latitude and longitude show on the scratch pad of the CDU 1.

(m) Push the LSK 4R adjacent to the POS> prompt on the CDU.

1) Make sure the latitude and longitude show on the line 9 of the CDU 1.

2) Make sure the left and right ALIGN lights on the MSU come on steadily.

3) Make sure the left and right ALIGN lights start to flash when the alignment time reaches zero on the ISDU.

(n) Enter the incorrect latitude of N00°00.0' on the ISDU.

(o) Push the ENT key on the ISDU to send the latitude data.

(p) Enter the correct longitude on the ISDU.

NOTE: The correct longitude is dependent on the location of the airplane.

(q) Push the ENT key on the ISDU to send the longitude data.

1) Make sure the left and right ALIGN and FAULT lights come on.

2) Make sure the MASTER CAUTION and the IRS lights on the glareshield come on.

(r) Enter the correct latitude on the ISDU.

NOTE: The correct latitude is dependent on the location of the airplane.

(s) Push the ENT key on the ISDU to send the latitude data.

(t) Enter the correct longitude on the ISDU.

NOTE: The correct longitude is dependent on the location of the airplane.

(u) Push the ENT key on the ISDU to send the longitude data.

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1) Make sure the left and right FAULT lights go off.

(v) Push the MASTER CAUTION switch on the glareshield to turn off the MASTER CAUTION and the IRS lights.

(w) Set the DSPL SEL switch to the HDG/STS position.

1) Make sure there is no fault code shown on the ISDU.

2) Make sure the left ALIGN light on the MSU comes on steadily or goes off.

3) Make sure the aircraft true heading shows on the ISDU when the ALIGN light on the MSU went off.

(x) Set the SYS DSPL switch on the ISDU to the R position.

1) Make sure there is no fault code shown on the ISDU.

2) Make sure the right ALIGN light on the MSU comes on steadily or goes off.

3) Make sure the aircraft true heading shows on the ISDU when the ALIGN light on the MSU went off.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-00-860-051

(1) Set the mode select switches on the MSU to the OFF position.

NOTE: Some switches must be pulled before you turn them. If you try to turn these switches before you pull them, you can damage them.

SUBTASK 34-21-00-860-072

(2) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2

LOM ALL

SUBTASK 34-21-00-860-052

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

END OF TASK

TASK 34-21-00-730-802

5. Air Data Reference - System Test

(Figure 501)

A. General

(1) This task contains these tests:

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ALTITUDE/AIRSPEED INDICATOR

(a) ADM and standby altimeter/airspeed indicator test

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999; AIRPLANES WITH INTEGRATED STANDBY FLIGHT DISPLAY (ISFD)

(b) ADM and integrated standby flight display test

LOM ALL

(c) TAT probe and TAT probe heater test

(d) Angle of Attack (AOA) ADIRU Interface Test

LOM 411, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(e) ALTERNATE VMO/MMO switch test

LOM ALL

B. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
24-22-00-860-813	Supply External Power (P/B 201)
34-11-01-200-804	Pitot Probe Detailed Inspection (P/B 601)
34-11-02-200-803	Static Port - Detailed Inspection (P/B 601)
34-21-05-730-801	Angle of Attack System Test (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1562	Analyzer - Data Bus, ARINC 429 Part #: 01-1001-05 Supplier: 0Z3C6 Part #: 01-1001-12 Supplier: 0Z3C6 Part #: 403557 Supplier: CG603 Part #: 800-0630 Supplier: 1JSZ6 Part #: DT400H-01 Supplier: 0Z3C6 Part #: UA1410 Supplier: 0H231 Opt Part #: 01-1001-10 Supplier: 0Z3C6 Opt Part #: 01-1404-00 Supplier: 41364 Opt Part #: 1116-4000-21 Supplier: A0197 Opt Part #: 429EBP Supplier: 41364 Opt Part #: 429EX Supplier: 41364 Opt Part #: 702125-01 Supplier: CG603 Opt Part #: DT400H Supplier: 0Z3C6 Opt Part #: MODEL 429HBA Supplier: 5J927 Opt Part #: TYPE 030/026 Supplier: $0494
COM-1579	Analyzer - Databus, Datatrac Models 600, 650, 650H Part #: DT-600 Supplier: 0Z3C6 Opt Part #: 01-1405-00 Supplier: 41364 Opt Part #: 100-600-001 Supplier: 41364

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(Continued)

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
SPL-1917	Fixture - Test, Angle of Attack Sensor, ROSEMOUNT AOA's Part #: J34002-19 Supplier: 81205 Opt Part #: A34012-19 Supplier: 81205 Opt Part #: A34012-24 Supplier: 81205 Opt Part #: J34002-18 Supplier: 81205
SPL-3896	Box - Breakout, Multipurpose, 100/124 pin Part #: C22005-22 Supplier: 81205 Opt Part #: C22005-1 Supplier: 81205
SPL-3897	Assembly - Cable, Flight Control Computer and/or Digital Flight Control System Testing Part #: C22005-25 Supplier: 81205 Part #: C22005-32 Supplier: 81205
STD-1336	Thermometer - Digital, 0-150 +/- 2 Degrees F, with a Probe, Thermocouple or Equivalent

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Prepare for the Air Data Reference System Test

SUBTASK 34-21-00-860-079

> **WARNING** KEEP PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER AND NOSE GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-21-00-860-085

> **CAUTION** MAKE SURE THAT YOU USE EXTERNAL POWER TO DO THE TEST. IF YOU DO NOT OBEY, THE APU WILL NOT SUPPLY SUFFICIENT POWER AND FAULT MESSAGES WILL SHOW.

(2) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 34-21-00-730-004

> **CAUTION** OBEY THESE PRECAUTIONS BEFORE YOU APPLY PRESSURE TO THE PITOT- STATIC SYSTEM. IF YOU DO NOT OBEY THESE PRECAUTIONS, DAMAGE TO THE EQUIPMENT AND INSTRUMENTS CAN OCCUR.

(3) Obey these precautions before you apply pressure to the pitot-static system.

(a) Make sure that the Air Data Inertial Reference System (ADIRS) has power when you install or remove the air data model test set, COM-1914.

NOTE: This is to prevent possible incorrect pressure indications, unwanted fault messages, and system activations.

(b) Pressure changes must be flow controlled to prevent sudden changes in pressure and possible damage to the air data hardware.

(c) Keep the static pressure in the range of 3.26 to 33.31 inches Hg.

(d) Do not permit the static pressure to be more than 28 inches Hg. from the ambient pressure.

(e) Keep the total pressure in the range of 3.26 to 41.34 inches Hg.

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(f) When you adjust the pressure, make sure that the rate of change of altitude is less than 5,000 feet per minute.

(g) When you adjust the pressure, make sure that the rate of change of airspeed is less than 300 knots per minute.

(h) Keep the static line pressure less than the pitot line pressure.

(i) Make sure that the difference between the static and pitot line pressure is not larger than 10 inches Hg.

(j) Make sure that the autopilot system stays off during the test.

> **CAUTION**
> MAKE SURE YOU DO NOT SUPPLY ELECTRICAL POWER TO THE PITOT PROBE HEATER. IF YOU DO, YOU CAN DAMAGE THE PITOT PROBE.

(k) Make sure that the pitot probe heaters stay off during the test.

> **WARNING**
> MAKE SURE THAT THE AOA HEAT IS NOT ON. IF YOU DO NOT, INJURY TO PERSONS CAN OCCUR.

(l) Make sure that the Angle of Attack (AOA) probe heaters stay off during the test.

(m) Connect the captain's, F/O's, and alternate static systems together during the test.

(n) Apply static pressure to all systems at the same time.

(o) Connect the captain's, F/O's, and alternate pitot tubes together during the test.

(p) Apply pitot pressure to all systems at the same time.

SUBTASK 34-21-00-860-114

> **WARNING**
> MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the Mode Select switch on the ATC control panel, P8, to STBY.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the Mode Reply switch on the ATC control panel, P8, to STBY.

LOM 411, 426, 432

H. ADM and Standby Altimeter/Airspeed Indicator Test

SUBTASK 34-21-00-730-007

(1) Do these steps to do an Air Data Module (ADM) and Standby Altimeter/Airspeed Indicator Test:

(a) Disconnect and plug the static pressure line at the cabin differential pressure indicator.

(b) Turn the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter through the full range.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 426, 432 (Continued)

(c) Set the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and standby altimeter to 29.92 inches of Hg.

(d) Install the angle of attack probe test fixture, SPL-1917 to the left and right AOA vanes.

(e) Set the AOA vanes to zero degrees +/-5°, with respect to the AOA sensor Alignment Pin [3].

(f) Examine the pitot probes, do this task: Pitot Probe Detailed Inspection, TASK 34-11-01-200-804.

(g) Examine the static ports, do this task: Static Port - Detailed Inspection, TASK 34-11-02-200-803.

(h) Connect the air data model test set, COM-1914, to the airplane.

(i) Apply pressures as shown in the table below for all the test points.

NOTE: At each test value, permit the pressure to become stable for one minute.

All values must be in the limits shown.

Do not hit or shake the indicators before you read the values.

Read the indicators at the same time for each value.

Make sure that the indicators move smoothly during pressure changes.

Table 501/34-21-00-993-801

Test Point	Static Pressure in. Hg	Altitude feet	Pitot Pressure in. Hg	Airspeed Knots
1	29.921	0	30.311	90
2	24.896	5,000	27.996	250
3	16.886	15,000	17.703	130
4	11.104	25,000	17.013	340
5	7.041	35,000	10.963	280
6	5.286	41,000	7.95	233

1) Make sure that all the outputs are within the limits specified in the table below.

NOTE: The altitude and airspeed values on primary flight display indicators do not match the altitude and airspeed pressure from the test set. This is because the test set display does not use static source error correction.

a) Use this table:

Table 502/34-21-00-993-805

Test Point	Primary Altitude feet	Primary Airspeed knots	Standby Altimeter feet	Standby Airspeed Knots
1	-38±15	85±2	0±30	90±3.5
2	4,688±25	238±2	5,000±70	250±5
3	14,880±25	123±2	15,000±110	130±3.5
4	23,887±50	325±2	25,000±160	340±8
5	33,930±60	267±2	35,000±210	279±6

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 426, 432 (Continued)

Table 502/34-21-00-993-805 (Continued)

Test Point	Primary Altitude feet	Primary Airspeed knots	Standby Altimeter feet	Standby Airspeed Knots
6	40,018±70	222±2	41,000±235	233±6

2) Make sure that the differences between the captain's and first officer's primary altimeters and airspeed indicators are not larger than the values shown in the table below.

Table 503/34-21-00-993-807

Test Point	Altitude Input feet	Altimeters feet	Airspeed Input knots	Airspeed Indicators knots
1	0	<30	90	<4
2	5,000	<50	250	<4
3	15,000	<50	130	<4
4	25,000	<100	340	<4
5	35,000	<120	280	<4
6	41,000	<140	233	<4

(j) Remove the pressure from the pitot static lines.

(k) Disconnect the air data model test set, COM-1914.

(l) Remove the angle of attack probe test fixture, SPL-1917 from the left and right AOA vanes.

(m) Connect the cabin altitude differential pressure indicator to its static pressure source.

SUBTASK 34-21-00-210-001

(2) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

I. ADM and Integrated Standby Flight Display Test

SUBTASK 34-21-00-730-012

(1) Do these steps to do an ADM and Integrated Standby Flight Display (ISFD) Test:

(a) Disconnect and plug the static pressure line at the cabin differential pressure indicator.

(b) Turn the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and ISFD through the full range.

(c) Set the altimeter BARO knobs on the captain's EFIS control panel, F/O's EFIS control panel, and ISFD to 29.92 inches of Hg.

(d) Install the angle of attack probe test fixture, SPL-1917 to the left and right AOA vanes.

(e) Set the AOA vanes to zero degrees +/-5°, with respect to the AOA sensor Alignment Pin [3].

(f) Examine the pitot probes, do this task: Pitot Probe Detailed Inspection, TASK 34-11-01-200-804.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(g) Examine the static ports, do this task: Static Port - Detailed Inspection, TASK 34-11-02-200-803.

(h) Connect the air data model test set, COM-1914, to the airplane.

(i) Apply pressures as shown in the table below for all the test points.

NOTE: At each test value, permit the pressure to become stable for one minute.

All values must be in the limits shown.

Do not hit or shake the indicators before you read the values.

Read the indicators at the same time for each value.

Make sure that the indicators move smoothly during pressure changes.

Table 504/34-21-00-993-808

Test Point	Static Pressure in. Hg	Altitude feet	Pitot Pressure in. Hg	Airspeed Knots
1	29.921	0	30.311	90
2	24.896	5,000	27.996	250
3	16.886	15,000	17.703	130
4	11.104	25,000	17.013	340
5	7.041	35,000	10.963	280
6	5.286	41,000	7.95	233

1) Make sure that all the outputs are within the limits specified in the table below.

Use this table:

Table 505/34-21-00-993-812

Test Point	Primary Altitude feet	Primary Airspeed knots	Standby Altitude feet	Standby Airspeed Knots
1	-38±15	85±2	0±30	90±3.5
2	4,688±25	238±2	5,000±70	250±5
3	14,880±25	123±2	15,000±110	130±3.5
4	23,887±50	325±2	25,000±160	340±8
5	33,930±60	267±2	35,000±210	279±6
6	40,018±70	222±2	41,000±235	233±6

2) Make sure that the differences between the captain's and first officer's primary altimeters and airspeed indicators are not larger than the values shown in the table below.

Table 506/34-21-00-993-814

Test Point	Altitude Input feet	Altimeters feet	Airspeed Input knots	Airspeed Indicators knots
1	0	<30	90	<4
2	5,000	<50	250	<4

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999 (Continued)

Table 506/34-21-00-993-814 (Continued)

Test Point	Altitude Input feet	Altimeters feet	Airspeed Input knots	Airspeed Indicators knots
3	15,000	<50	130	<4
4	25,000	<100	340	<4
5	35,000	<120	280	<4
6	41,000	<140	233	<4

(j) Remove the pressure from the pitot static lines.

(k) Disconnect the air data model test set, COM-1914.

(l) Remove the angle of attack probe test fixture, SPL-1917 from the left and right AOA vanes.

(m) Connect the cabin altitude differential pressure indicator to its static pressure source.

SUBTASK 34-21-00-210-002

(2) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

LOM ALL

J. TAT Probe and TAT Probe Heater Test

SUBTASK 34-21-00-860-048

(1) Do these steps to do the Total Air Temperature (TAT) probe and TAT probe heater test:

(a) Make sure that the air data model test set, COM-1914, test fixtures, adapters, and clamps were removed from the airplane external probes.

(b) Use the 0-150 +/- 2 degrees F digital thermometer, STD-1336 to check the temperature of the TAT probe.

(c) Wait until the temperature shown on the thermometer is steady, then record the TAT value.

(d) Record the TAT shown on the engine display.

(e) Make sure that the TAT on the engine display is within 2 degrees of the thermometer temperature.

(f) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	4	C00236	HEATERS ELEV PITOT LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(g) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
C	3	C01072	HEATERS ALPHA VANE LEFT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	16	C00570	PROBE INDICATION F/O
F	18	C00569	PROBE INDICATION CAPT

(h) Set the PROBE HEAT A switch on the forward overhead panel, P5, to the ON position.

LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-999; AIRPLANES WITHOUT ASPIRATED TAT SYSTEM

(i) Make sure that the TAT on the engine display increases after you permit time for the heaters to warm up.

LOM 404, 416, 443, 444; AIRPLANES WITH ASPIRATED TAT SYSTEM

(j) Push and hold the TAT test switch on the P5-9 panel.

1) Make sure that the TAT on the engine display increases after you permit time for the heaters to warm up.

(k) Release the TAT test switch.

LOM ALL

(l) Set the PROBE HEAT A switch on the forward overhead panel, P5, to the OFF/AUTO position.

LOM ALL; AIRPLANES WITH COLLINS E-FCC HARDWARE INSTALLED

(m) Connect the analyzer, COM-1562, or databus analyzer, COM-1579 to the FCC-A test connector J3, pin 51 (HI) and pin 52 (LO) to read the left Air Data Inertial Reference Unit (ADIRU) output, ADR label 270.

NOTE: A box, SPL-3896 and cable, SPL-3897 can be used to connect the data bus analyzer and the flight control computer.

LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-999; AIRPLANES WITHOUT ASPIRATED TAT SYSTEM

(n) Set the PROBE HEAT A switch on the forward overhead panel, P5, to the ON position.

1) Make sure that the ADR label 270 bits 14, 16, and 17 are set to "1".

LOM 404, 416, 443, 444; AIRPLANES WITH ASPIRATED TAT SYSTEM

(o) Set the PROBE HEAT A switch on the forward overhead panel, P5, to the ON position.

1) Make sure that the ADR label 270 bits 14, and 17 are set to "1".

(p) Push and hold the TAT test switch on the P5-9 panel.

1) Make sure that the ADR label 270 bit 16 is set to “1”.

(q) Release the TAT test switch on the P5-9 panel.

1) Make sure that the ADR label 270 bit 16 is set to “0”.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-999; AIRPLANES WITHOUT ASPIRATED TAT SYSTEM

(r) Set the PROBE HEAT A switch on the forward overhead panel, P5, to the OFF/AUTO position.

1) Make sure that the ADR label 270 bits 14, 16, and 17 are set to "0".

LOM 404, 416, 443, 444; AIRPLANES WITH ASPIRATED TAT SYSTEM

(s) Set the PROBE HEAT A switch on the forward overhead panel, P5, to the OFF/AUTO position.

1) Make sure that the ADR label 270 bits 14, and 17 are set to "0".

LOM ALL

(t) Disconnect the analyzer, COM-1562, or databus analyzer, COM-1579, from the FCC-A test connector J3.

NOTE: Disconnect the box, SPL-3896 and cable, SPL-3897 if you used them to connect the data bus analyzer and the flight control computer.

LOM ALL; AIRPLANES WITH COLLINS E-FCC HARDWARE INSTALLED

(u) Connect the analyzer, COM-1562, or databus analyzer, COM-1579, to the FCC-B test connector J3, pin 51 (HI) and pin 52 (LO) to read the right ADIRU output, ADR label 270.

NOTE: A box, SPL-3896 and cable, SPL-3897 can be used to connect the data bus analyzer and the flight control computer.

LOM ALL

(v) Close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT

LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-999; AIRPLANES WITHOUT ASPIRATED TAT SYSTEM

(w) Set the PROBE HEAT B switch on the forward overhead panel, P5, to the ON position.

1) Make sure that the ADR label 270 bits 14, and 17 are set to "1".

LOM 404, 416, 443, 444; AIRPLANES WITH ASPIRATED TAT SYSTEM

(x) Set the PROBE HEAT B switch on the forward overhead panel, P5, to the ON position.

1) Make sure that the ADR label 270 bits 14, and 17 are set to "1".

LOM 404, 416, 443, 444; AIRPLANES WITH ASPIRATED TAT SYSTEM

(y) Push and hold the TAT test switch on the P5-9 panel.

1) Make sure that the ADR label 270 bits 16 is set to "1".

(z) Release the TAT test switch on the P5-9 panel.

1) Make sure that the ADR label 270 bit 16 is set to “0”.

LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-999; AIRPLANES WITHOUT ASPIRATED TAT SYSTEM

(aa) Set the PROBE HEAT A switch on the forward overhead panel, P5, to the ON position.

1) Make sure that the ADR label 270 bit 16 is set to "1".

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL

(ab) Set the PROBE HEAT B switch on the forward overhead panel, P5, to the OFF/AUTO position.

1) Make sure that the ADR label 270 bits 14, and 17 are set to "0".

LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-999; AIRPLANES WITHOUT ASPIRATED TAT SYSTEM

(ac) Set the PROBE HEAT A switch on the forward overhead panel, P5, to the OFF/AUTO position.

1) Make sure that the ADR label 270 bit 16 is set to "0".

LOM ALL

(ad) Remove the analyzer, COM-1562, or databus analyzer, COM-1579, from the FCC-B test connector J3.

(ae) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	4	C00236	HEATERS ELEV PITOT LEFT
D	4	C00237	HEATERS ELEV PITOT RIGHT
D	6	C00524	HEATERS AUX PITOT

K. AOA Sensor Air Data System (ADS) Interface Test

SUBTASK 34-21-00-700-004

(1) Do the AOA Sensor Test (ADIRU) (Preferred). Refer to:Angle of Attack System Test, TASK 34-21-05-730-801.

L. AOA Sensor Heater Test

SUBTASK 34-21-00-710-010

(1) Do the AOA Sensor (Alpha Vane) Heater Test. Refer to:Angle of Attack System Test, TASK 34-21-05-730-801.

LOM 411, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

M. ALTERNATE VMO/MMO Switch Test

SUBTASK 34-21-00-860-074

(1) Do these steps to do the ALTERNATE VMO/MMO switch test:

LOM 411, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS E-FCC HARDWARE INSTALLED

(a) Connect the analyzer, COM-1562, or databus analyzer, COM-1579, to the FCC-A test connector J3, pin 51(HI) and pin 52(LO) to read the left ADIRU output, ADR label 270.

LOM 411, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(b) At the ALTERNATE VMO/MMO switch in the Electronic Equipment (EE) bay service panel, Maintenance Zone 118, do these steps:

1) Cut the lockwire in the switch guard.

2) Lift the switch guard.

(c) Make sure that the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, is set to the NORM position.

1) Make sure that the ADR label 270 bit 23 is set to "0".

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(d) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the ALTN position.

1) Make sure that the ADR label 270 bit 23 is set to "1".

(e) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the NORM position.

1) Make sure that the ADR label 270 bit 23 is set to "0".

(f) Disconnect the analyzer, COM-1562, or databus analyzer, COM-1579, from the FCC-A test connector J3.

LOM 411, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS E-FCC HARDWARE INSTALLED

(g) Connect the analyzer, COM-1562, or databus analyzer, COM-1579, to the FCC-B test connector J3, pin 51(HI) and pin 52(LO) to read the right ADIRU output, ADR label 270.

LOM 411, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(h) Make sure that the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, is set to the NORM position.

1) Make sure that the ADR label 270 bit 23 is set to "0".

(i) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the ALTN position.

1) Make sure that the ADR label 270 bit 23 is set to "1".

(j) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the NORM position.

1) Make sure that the ADR label 270 bit 23 is set to "0".

(k) Remove the analyzer, COM-1562, or databus analyzer, COM-1579, from the FCC-B test connector J3.

LOM ALL

N. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-00-860-080

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 34-21-00-860-110

(2) At the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, do these steps:

(a) Make sure that the switch is set to the NORM position.

(b) Lower the switch guard.

(c) Safety the switch guard with MS20995NC32 lockwire, G01912 (TASK 20-10-44-400-801).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-00-410-002

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

NOTE:

LEFT AOA SENSOR IS SHOWN, RIGHT AOA SENSOR IS OPPOSITE.

J74791 S0000178076_V3

Angle of Attack (AOA) Alignment
Figure 501/34-21-00-990-805

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR DATA INERTIAL REFERENCE UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

> **CAUTION** DUE TO THE CRITICAL ALIGNMENT OF THE AIR-DATA INERTIAL-REFERENCE UNITS, DISTURBANCE OR REMOVAL OF THE E5-2 SHELF REQUIRES RE-ALIGNMENT. THIS CAN ONLY BE ACCOMPLISHED BY BOEING AOG PERSONNEL USING SPECIALIZED ALIGNMENT TOOLING. CONTACT BOEING BEFORE DISTURBING THE MOUNTING SHELVES.

(1) A removal of the air data inertial reference unit (ADIRU)

(2) An installation of the ADIRU.

B. Two ADIRUs are installed in the main equipment center. The left and right ADIRUs are installed on shelf No. 2 in the E5 electronic equipment rack.

TASK 34-21-01-000-801

2. Air Data Inertial Reference Unit Removal

(Figure 401)

> **CAUTION** DUE TO THE CRITICAL ALIGNMENT OF THE AIR-DATA INERTIAL-REFERENCE UNITS, DISTURBANCE OR REMOVAL OF THE E5-2 SHELF REQUIRES RE-ALIGNMENT. THIS CAN ONLY BE ACCOMPLISHED BY BOEING AOG PERSONNEL USING SPECIALIZED ALIGNMENT TOOLING. CONTACT BOEING BEFORE DISTURBING THE MOUNTING SHELVES.

A. General

(1) This procedure gives instructions to remove the air data inertial reference unit (ADIRU).

(2) The removal instructions are the same for the two ADIRUs.

B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-000-801	E/E Box Removal (P/B 201)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Removal Procedure

SUBTASK 34-21-01-860-001

(1) Set the applicable mode select switch on the IRS mode select unit (MSU) to the OFF position for at least 30 seconds.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-01-860-002

(2) For the left ADIRU, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-01-860-011

(3) For the right ADIRU, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-01-010-001

(4) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(TASK 06-41-00-800-801).

SUBTASK 34-21-01-020-001

WARNING DO NOT REMOVE THE SHIMS FROM THE SHELF. SPECIAL EQUIPMENT AND BOEING AID IS NECESSARY TO ALIGN THE SHELF IF YOU REMOVE THE SHIMS. YOU CANNOT ALIGN THE SHELF IF YOU REMOVE THE SHIMS. IF YOU REMOVE THE SHIMS, THE AIR DATA WILL NOT BE ACCURATE, WHICH CAN CAUSE PROBLEMS WITH SAFETY OF FLIGHT.

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADIRU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADIRU.

CAUTION REMOVAL OF THE ADIRU WILL DISABLE THE GROUND CREW CALL FUNCTION OF THE EQUIPMENT COOLING LOW FLOW DETECTION. THIS COOLING LOW FLOW CONDITION COULD CAUSE DAMAGE TO THE EQUIPMENT.

(5) Remove the ADIRU [1] from the shelf (TASK 20-10-07-000-801).

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ELECTRONIC EQUIPMENT RACK, E5

A

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Air Data Inertial Reference Unit (ADIRU) Installation
Figure 401/34-21-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-21-01-400-801

3. Air Data Inertial Reference Unit - Installation

(Figure 401)

A. General

(1) This procedure gives instructions to install the ADIRU [1].

NOTE: The air data inertial reference unit is referred as the ADIRU in this task.

(2) The installation instructions are the same for the two ADIRUs.

(3) The installation test makes sure that the ADIRU [1] is installed correctly.

B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-400-801	E/E Box Installation (P/B 201)
22-11-00-700-801	Land Verify Test (P/B 201)
22-11-00-700-802	Reset Latches Procedure (P/B 201)
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ADIRU	34-21-01-01-005	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437-447, 450-999
		34-21-01-01-006	LOM 428, 437, 438, 462-464

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Air Data Inertial Reference Unit Installation

SUBTASK 34-21-01-860-016

(1) Make sure the that applicable mode select switch on the Inertial Reference System (IRS) Mode Select Unit (MSU) is in the OFF position.

SUBTASK 34-21-01-860-017

(2) For the left ADIRU, make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-01-860-018

(3) For the right ADIRU, make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

G. Air Data Inertial Reference Unit Installation

SUBTASK 34-21-01-420-001

WARNING

DO NOT REMOVE THE SHIMS FROM THE SHELF. SPECIAL EQUIPMENT AND BOEING AID IS NECESSARY TO ALIGN THE SHELF, IF YOU REMOVE THE SHIMS. YOU CANNOT ALIGN THE SHELF IF YOU REMOVE THE SHIMS. IF YOU REMOVE THE SHIMS, THE AIR DATA WILL NOT BE ACCURATE, WHICH CAN CAUSE PROBLEMS WITH SAFETY OF FLIGHT.

CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADIRU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADIRU.

(1) Install the ADIRU [1] on the shelf (TASK 20-10-07-400-801).

SUBTASK 34-21-01-860-005

(2) For the left ADIRU, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-01-860-012

(3) For the right ADIRU, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-01-410-001

(4) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(TASK 06-41-00-800-801).

H. Air Data Inertial Reference Unit Installation Test

SUBTASK 34-21-01-741-001

(1) Do this task: Air Data Inertial Reference System - Operational Test, TASK 34-21-00-710-801

LOM 428-431, 450, 465-999; LOM 427 PRE SB 737-22-1306

SUBTASK 34-21-01-700-001

(2) If you replaced the ADIRU [1] because of a NO AUTOLAND FAULT, do these tasks before you continue:

(a) Do this task: Land Verify Test, TASK 22-11-00-700-801.

(b) Do this task: Reset Latches Procedure, TASK 22-11-00-700-802.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

INERTIAL SYSTEM DISPLAY UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has two tasks:

(1) A removal of the inertial system display unit (ISDU)

(2) An installation of the ISDU.

B. The ISDU is installed on the P5 overhead panel in the flight compartment.

TASK 34-21-02-000-801

2. Inertial System Display Unit Removal

(Figure 401)

A. General

(1) This procedure gives instructions to remove the ISDU [1].

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-21-02-860-001

(1) Set the two mode select switches on the IRS mode select unit (MSU) to the OFF position for at least 30 seconds.

SUBTASK 34-21-02-860-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-02-020-001

(3) Do these steps to remove the ISDU [1]:

(a) Release the quarter-turn fasteners [2] on the front of the ISDU [1].

> **CAUTION** CAREFULLY REMOVE THE ISDU FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLES ON THE REAR OF THE ISDU.

(b) Carefully lower the ISDU [1] until you can get access to the electrical connectors [3].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Disconnect the electrical connectors [3] from the rear of the ISDU [1].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

INERTIAL SYSTEM DISPLAY UNIT

A

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Inertial System Display Unit Installation
Figure 401/34-21-02-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-21-02-400-801

3. Inertial System Display Unit Installation

(Figure 401)

A. General

(1) This procedure gives instructions to install the ISDU [1].

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ISDU	31-11-94-07B-040	LOM 423, 424
		31-11-94-07B-045	LOM 423, 424
		31-11-94-08E-035	LOM 411, 426
		31-11-95-07B-020	LOM 423, 424
		31-11-95-07N-020	LOM 420
		31-11-95-07P-020	LOM 407
		31-11-95-10-015	LOM 412, 415
		31-11-95-14-035	LOM 402, 404, 406, 416
		31-11-95-23-035	LOM 422, 425
		34-21-02-02-020	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426
		34-21-02-03-020	LOM 427-434, 437-447, 450-999

D. Location Zones

Zone	Area
211	Flight Compartment - Left

E. Installation Procedure

SUBTASK 34-21-02-860-003

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-02-420-001

(2) Do these steps to install the ISDU [1]:

(a) Connect the electrical connectors [3] to the ISDU [1].

(b) Carefully install the ISDU [1] into the P5 panel.

(c) Lock the quarter-turn fasteners [2] on the front of the ISDU [1].

SUBTASK 34-21-02-860-004

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

F. Installation test

SUBTASK 34-21-02-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-02-860-006

(2) Set the two mode select switches on the IRS MSU to the NAV position.

SUBTASK 34-21-02-710-001

(3) Do a test of the ISDU as follows:

(a) Set the SYS DSPL switch on the ISDU [1] to the L position.

(b) Hold the DSPL SEL switch on the ISDU [1] in the TEST position.

(c) Make sure all the annunciators on the left side of the IRS MSU come on for approximately two seconds.

(d) Release the DSPL SEL switch.

(e) Set the SYS DSPL switch on the ISDU [1] to the R position.

(f) Hold the DSPL SEL switch on the ISDU [1] in the TEST position.

(g) Make sure all the annunciators on the right side of the IRS MSU come on for approximately two seconds.

(h) Release the DSPL SEL switch.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-02-860-007

(1) Set the two mode select switches on the IRS MSU to the OFF position for at least 30 seconds.

SUBTASK 34-21-02-860-008

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

INERTIAL SYSTEM DISPLAY UNIT - SERVICING

1. General

A. This procedure contains one task for the replacement of a numeric/alphanumeric readout lamp or decimal/degree/minute lamp in the inertial system display unit (ISDU).

B. You can find the ISDU in the flight compartment on the pilot's overhead panel, P5. The ISDU has thirteen numerical readout lamps as two segments, one six-segment alphanumeric N-S readout lamp, and one seven-segment alphanumeric E-W readout lamp. These lamps are used to display navigational information and malfunction codes. There are also six bi-pin lamps used for decimal/minute/degree indication.

TASK 34-21-02-900-801

2. Replacement of a Numeric/Alphanumeric Readout Lamp or a Decimal/Degree/Minute Lamp

(Figure 301)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Replacement of a Numeric/Alphanumeric Readout Lamp or a Decimal/Degree/Minute Lamp

SUBTASK 34-21-02-980-003

(1) Set the two mode select switches on the inertial reference system (IRS) mode select unit (MSU) to the OFF position.

SUBTASK 34-21-02-860-009

(2) Open these circuit breakers and attach DO-NOT-CLOSE tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-02-010-001

(3) Remove the transparent window filter assembly:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Loosen the two captive screws that hold the window assembly to the ISDU.

NOTE: Make sure that the lamps, spacers, or readouts do not fall into the ISDU.

SUBTASK 34-21-02-960-001

WARNING MAKE SURE THAT YOU DO NOT PUT TOO MUCH PRESSURE ON THE LAMP WHEN YOU USE TWEEZERS. THE LAMP COULD BREAK AND CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(4) Replace the decimal/degree/minute lamp:

(a) Hold the lamp at the bottom with the removal tool and pull straight out to remove it.

(b) Remove and keep the spacer from the lamp.

(c) Make sure that the wires on the new lamp are straight.

(d) Install the spacer.

(e) Carefully install the lamp.

SUBTASK 34-21-02-960-002

(5) Replace the numeric/alphanumeric readout lamp:

(a) Hold the perimeter of the readout lamp with the removal tool and pull straight out to remove it.

(b) Push the new readout lamp into its position.

1) Make sure that the dimple indicator on the lamp is in the top left corner.

SUBTASK 34-21-02-410-001

(6) Install the transparent window filter assembly:

(a) Tighten the two captive screws that hold the window assembly to the ISDU.

SUBTASK 34-21-02-860-010

(7) Remove the DO-NOT-CLOSE tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

D. Replacement test

SUBTASK 34-21-02-760-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-02-980-001

(2) Set the two mode select switches on the IRS MSU to the NAV position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-02-710-002

(3) Do a test of the ISDU as follows:

(a) Set the SYS DSPL switch on the ISDU to the L position.

(b) Hold the DSPL SEL switch on the ISDU in the TEST position.

(c) Make sure that all the annunciators on the left side of the IRS MSU come ON for approximately two seconds.

(d) Release the DSPL SEL switch.

(e) Set the SYS DSPL switch on the ISDU to the R position.

(f) Hold the DSPL SEL switch on the ISDU in the TEST position.

(g) Make sure that all the annunciators on the right side of the IRS MSU come ON for approximately two seconds.

(h) Release the DSPL SEL switch.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-02-940-002

(1) Set the two mode select switches on the IRS MSU to the OFF position.

SUBTASK 34-21-02-940-003

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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ISDU Controls and Displays
Figure 301/34-21-02-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

IRS MODE SELECT UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the IRS mode select unit (MSU)

(2) An installation of the IRS MSU.

B. The IRS MSU is installed on the P5-69 aft overhead panel in the flight compartment.

C. Each mode select switch has a mechanically locked position. The mechanically locked positions prevent accidental movement of the switch. When you change the switch position, you need to pull the switch away from the unit and set the switch to the different position. This will prevent damage to the switch.

TASK 34-21-03-000-801

2. IRS Mode Select Unit Removal

(Figure 401)

A. General

(1) This procedure gives instructions to remove the IRS MSU [2].

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-21-03-860-001

(1) Set the two mode select switches on the IRS MSU [2] to the OFF position.

SUBTASK 34-21-03-860-002

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT
F	10	C00390	OVERHEAD 5V SECONDARY

SUBTASK 34-21-03-020-001

(3) Do these steps to remove the IRS MSU [2]:

(a) Release the quarter-turn fasteners [3] on the front of the IRS MSU [2].

> **CAUTION**
> CAREFULLY REMOVE THE IRS MSU FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLE AT THE REAR OF THE IRS MSU.

(b) Carefully lower the IRS MSU [2] until you can get access to the electrical connector [1].

(c) Disconnect the electrical connector [1] from the rear of the IRS MSU [2].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Mode Select Unit (MSU) Installation
Figure 401/34-21-03-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-21-03-400-801

3. IRS Mode Select Unit Installation

(Figure 401)

A. General

(1) This procedure gives instructions to install the IRS MSU [2].

(2) The installation test makes sure the IRS MSU [2] is installed correctly.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	MSU	34-21-03-01-015	LOM 432
		34-21-03-01-025	LOM 432
		34-21-03-01-200	LOM 427-431, 433, 434, 437-447, 450-999
		34-21-03-01-210	LOM 427-431, 433, 434, 437-447, 450-999
		34-21-03-03-020	LOM 402, 404, 406, 407, 411, 412, 415, 426

D. Location Zones

Zone	Area
211	Flight Compartment - Left

E. Installation Procedure

SUBTASK 34-21-03-860-003

(1) Make sure that these circuit breakers are open and have safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT
F	10	C00390	OVERHEAD 5V SECONDARY

SUBTASK 34-21-03-420-001

(2) Do these steps to install the IRS MSU [2]:

(a) Connect the electrical connector [1] to the IRS MSU [2].

(b) Carefully install the IRS MSU [2] into the P5-69, aft overhead panel.

(c) Lock the quarter-turn fasteners [3] on the front of the IRS MSU [2].

SUBTASK 34-21-03-860-004

(3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT
F	10	C00390	OVERHEAD 5V SECONDARY

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. Installation Test

SUBTASK 34-21-03-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-03-860-006

(2) Set the two mode select switches on the IRS MSU [2] to the NAV position.

SUBTASK 34-21-03-750-001

(3) Make sure the two ON DC annunciators on the IRS MSU [2] come ON for approximately 5 seconds.

SUBTASK 34-21-03-750-002

(4) Make sure the two ALIGN annunciators on the IRS MSU [2] come ON after the two ON DC annunciators go OFF.

NOTE: It is satisfactory for the ALIGN annunciators to come ON before or after the ON DC lights.

SUBTASK 34-21-03-750-003

(5) Adjust the Overhead Panel Light Bright/Dim Control Switch from the OFF position to the fully bright position.

(a) Make sure that the panel lights on the MSU become brighter.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-03-860-007

(1) Set the two mode select switches on the IRS MSU [2] to the OFF position for at least 30 seconds.

SUBTASK 34-21-03-860-008

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR DATA MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the pitot air data module (ADM)

(2) An installation of the pitot ADM

(3) A removal of the static ADM

(4) An installation of the static ADM.

TASK 34-21-04-000-801

2. Pitot Air Data Module - Removal

(Figure 401)

A. General

(1) This procedure gives instructions to remove the pitot ADM [4]. The two pitot ADMs [4] are located in the forward equipment compartment at STA 200, WL 180. They are accessed thru the forward equipment access door.

(2) The removal instructions are the same for the two pitot ADMs [4].

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Pitot Air Data Module Removal

SUBTASK 34-21-04-860-001

(1) For the left ADM [4], open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-04-860-009

(2) For the right ADM [4], open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-04-020-001

(3) Do these steps to remove the pitot ADM [4]:

(a) Disconnect the pneumatic quick disconnect connector [3] from the ADM [4].

(b) Put a protective cover on the pneumatic quick disconnect connector [3] of the ADM [4].

(c) Disconnect the electrical connector [2] from the ADM [4].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(d) Put a protective cover on the electrical connector [2] of the ADM [4].

(e) While you hold the ADM [4], loosen the captive screws [1] at each corner of the ADM [4].

(f) Remove the ADM [4].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Pitot Air Data Module (ADM) Installation
Figure 401/34-21-04-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

PITOT AIR DATA MODULE (ADM)
(EXAMPLE)

B

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Pitot Air Data Module (ADM) Installation
Figure 401/34-21-04-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-21-04-400-801

3. Pitot Air Data Module - Installation

(Figure 401)

A. General

(1) This procedure gives instructions to install the pitot ADM [4]. The two pitot ADMs [4] are located in the forward equipment compartment at STA 200, WL 180. They are accessed thru the forward equipment access door.

(2) The installation instructions are the same for the two pitot ADMs [4].

B. References

Reference	Title
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Pitot Air Data Module Installation

SUBTASK 34-21-04-860-003

(1) For the left ADM [4], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-04-860-010

(2) For the right ADM [4], make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-04-420-001

(3) Do these steps to install the pitot ADM [4]:

(a) Put the ADM [4] into position on the airplane.

(b) Tighten the captive screws [1] at each corner of the ADM [4] to 15 in-lb (1.7 N·m) to 25 in-lb (2.8 N·m).

(c) Remove the protective cover from the electrical connector [2] of the ADM [4].

(d) Examine the electrical connector [2] for loose, bent or broken pins.

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(e) Connect the electrical connector [2] to the ADM [4].

(f) Remove the protective cover from the pneumatic quick disconnect connector [3] of the ADM [4].

(g) Connect the pneumatic quick disconnect connector [3] to the ADM [4].

SUBTASK 34-21-04-210-001

(4) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-21-04-860-004

(5) For the left ADM [4], remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-04-860-011

(6) For the right ADM [4], remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

E. Post Installation Test

SUBTASK 34-21-04-860-005

(1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-21-04-740-001

(2) Do this task: Air Data Inertial Reference System - Operational Test, TASK 34-21-00-710-801.

(a) Make sure the NO CURRENT FAULT message shows on the CDU.

——— END OF TASK ———

TASK 34-21-04-000-802

4. Static Air Data Module - Removal

(Figure 402)

A. General

(1) This procedure gives instructions to remove the static ADM [4]. The two static ADMs [4] are located in the forward cargo compartment at STA 405 and STA 435, WL 206, BL 0. They are accessed thru the forward cargo door.

(2) The removal instructions are the same for the two static ADMs [4].

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B. References

Reference	Title
25-52-09-000-801	Cargo Compartment Ceiling Liner - Removal (P/B 401)

C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

D. Static Air Data Module Removal

SUBTASK 34-21-04-860-002

(1) For the left ADM [3], open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-04-860-012

(2) For the right ADM [3], open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-04-010-001

(3) To remove the ceiling liner for the applicable static ADM [4] in the forward cargo compartment, do this task: Cargo Compartment Ceiling Liner - Removal, TASK 25-52-09-000-801.

SUBTASK 34-21-04-020-002

(4) Do these steps to remove the static ADM [4]:

(a) Disconnect the pneumatic quick disconnect connector [3] from the ADM [4].

(b) Put a protective cover on the pneumatic quick disconnect connector [3] of the ADM [4].

(c) Disconnect the electrical connector [2] from the ADM [4].

(d) Put a protective cover on the electrical connector [2] of the ADM [4].

(e) While you hold the ADM [4], loosen the captive screws [1] at each corner of the ADM [4].

(f) Remove the ADM [4].

END OF TASK

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Static Air Data Module (ADM) Installation
Figure 402/34-21-04-990-802 (Sheet 1 of 2)

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STATIC AIR DATA MODULE (ADM) (EXAMPLE)

B

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Static Air Data Module (ADM) Installation
Figure 402/34-21-04-990-802 (Sheet 2 of 2)

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TASK 34-21-04-400-802

5. Static Air Data Module - Installation

(Figure 402)

A. General

(1) This procedure gives instructions to install the static ADM [4]. The two static ADMs [4] are located in the forward cargo compartment at STA 405 and STA 435, WL 206, BL 0. They are accessed thru the forward cargo door.

(2) The installation instructions are the same for the two static ADM [4].

B. References

Reference	Title
25-52-09-400-801	Cargo Compartment Ceiling Liner - Installation (P/B 401)
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right

D. Static Air Data Module Installation

SUBTASK 34-21-04-860-006

(1) For the left ADM [3], make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-04-860-013

(2) For the right ADM [3], make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-21-04-420-002

(3) Do these steps to install the static ADM [4]:

(a) Put the ADM [4] into position on the airplane.

(b) Tighten the captive screws [1] at each corner of the ADM [4] to 15 in-lb (1.7 N·m) to 25 in-lb (2.8 N·m).

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(c) Remove the protective cover from the electrical connector [2] of the ADM [4].

(d) Examine the electrical connector [2] for loose, bent or broken pins.

(e) Connect the electrical connector [2] to the ADM [4].

(f) Remove the protective cover from the pneumatic quick disconnect connector [3] of the ADM [4].

(g) Connect the pneumatic quick disconnect connector [3] to the ADM [4].

SUBTASK 34-21-04-210-002

(4) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-21-04-410-001

(5) To install the ceiling liner for the applicable static ADM [4] in the forward cargo compartment, do this task: Cargo Compartment Ceiling Liner - Installation, TASK 25-52-09-400-801.

SUBTASK 34-21-04-860-007

(6) For the left ADM [3], remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

SUBTASK 34-21-04-860-014

(7) For the right ADM [3], remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	15	C00426	ADIRU RIGHT EXC
C	17	C01010	ADIRU RIGHT DC

E. Post Installation Test

SUBTASK 34-21-04-860-008

(1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-21-04-740-002

(2) Do this task: Air Data Inertial Reference System - Operational Test, TASK 34-21-00-710-801.

(a) Make sure the NO CURRENT FAULT message shows on the CDU.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ANGLE OF ATTACK SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Angle of Attack (AOA) sensor

(2) An installation of the AOA sensor.

B. Two AOA sensors are installed on the airplane. The left and right AOA sensors are mounted on the left and right sides respectively, outboard and above the nose landing gear wheel well.

TASK 34-21-05-000-801

2. Angle of Attack Sensor Removal

(Figure 401)

A. General

(1) This task gives the instructions to remove the Angle of Attack (AOA) sensor.

(2) The removal instructions are the same for the two AOA sensors.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

C. Location Zones

Zone	Area
115	Nose Landing Gear Wheel Well - Left

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(Continued)

Zone	Area
116	Nose Landing Gear Wheel Well - Right

D. Prepare for the Removal

SUBTASK 34-21-05-860-001

(1) For the left AOA sensor, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	6	C01205	SMYD-1 SNSR EXC AC
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT

(2) For the right AOA sensor, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
C	15	C00426	ADIRU RIGHT EXC

E. AOA Sensor Removal

SUBTASK 34-21-05-020-002

WARNING

MAKE SURE THAT THE AOA HEAT IS NOT ON. IF YOU DO NOT, INJURY TO PERSONS CAN OCCUR.

(1) Do these steps to remove the AOA sensor [1]:

(a) Use a sealant removal tool, COM-2481, to remove the sealant from around the AOA sensor [1].

(b) Remove the screws [2] from the AOA sensor [1].

CAUTION

DO NOT USE TOO MUCH FORCE. TOO MUCH FORCE WILL CAUSE DAMAGE.

(c) Carefully pull the AOA sensor [1] out until you can get to the electrical connectors [5].

(d) Disconnect the electrical connectors [5] from AOA sensor [1].

1) Make sure that the electrical connectors [5] do not fall into the fuselage.

(e) Install protective caps on the electrical connectors [5].

(f) Remove the gasket [4].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

NOTE:

LEFT AOA SENSOR SHOWN, RIGHT AOA SENSOR OPPOSITE.

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Angle of Attack (AOA) Sensor Installation
Figure 401/34-21-05-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-21-05-400-801

3. Angle of Attack Sensor Installation

(Figure 401)

A. General

(1) This task gives the instructions to install the Angle of Attack (AOA) sensor.

(2) The installation instructions are the same for the two AOA sensors.

B. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
34-21-05-730-801	Angle of Attack System Test (P/B 501)
SRM 51-40-02	Structural Repair Manual
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-614	Bonding Meters - Non-Intrinsically Safe (For use in outside Class I, Divisions I & II non-hazardous locations. For hazardous locations, use COM-1550). Part #: 247000 Supplier: 00426 Part #: 620LK Supplier: 1CRL2 Part #: BLR-0003-XX Supplier: KC432 Part #: BT51 Supplier: 00426 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659 Opt Part #: 247001 Supplier: 00426

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	AOA sensor	34-21-05-01A-045	LOM ALL
4	Gasket	34-21-05-01A-030	LOM ALL

F. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G. Angle of Attack Sensor Installation

SUBTASK 34-21-05-860-002

(1) For the left AOA sensor, make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	6	C01205	SMYD-1 SNSR EXC AC
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT

(2) For the right AOA sensor, make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
C	15	C00426	ADIRU RIGHT EXC

SUBTASK 34-21-05-110-001

(3) To clean the surface around the AOA hole and surface of the alignment pins, do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

SUBTASK 34-21-05-390-001

(4) Apply a thin layer of grease, D00633, to the alignment pins on the AOA sensor [1].

SUBTASK 34-21-05-420-001

(5) Do these steps to install the AOA sensor [1]:

(a) Put the new gasket [4] into its position on the AOA sensor [1].

NOTE: It is not necessary to fit a new gasket if acquiring one will cause a flight delay. The old gasket, if in good condition, can be reused and replaced with a new gasket in one week or less.

(b) Remove the protective caps from the electrical connectors [5].

(c) Examine the electrical connectors [5] for loose, bent, or broken pins.

(d) Connect the electrical connectors [5] to the AOA sensor [1].

(e) Carefully put the AOA sensor [1] into position.

(f) Install the screws [2] that hold the AOA sensor [1] to the airplane.

(g) Tighten the screws [2] to 32 in-lb (3.6 N·m) - 39 in-lb (4.4 N·m).

(h) Make sure that the face of the AOA sensor [1] aligns to within 0.04 in. (1.02 mm) or less of the airplane skin.

NOTE: The surface of the sensor base must be flush with the skin surface within +/-0.04 in. (1.02 mm) at the forward and aft edges, upper and lower edge flushness not required.

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(i) Measure the electrical bonding resistance between the base of the AOA sensor [1] and airplane skin (SWPM 20-20-00).

1) Use a non-intrinsically safe bonding meter, COM-614.

2) Make sure that the electrical bonding resistance is less than 0.010 ohm (10 miliohm).

(j) If the electrical bonding resistance is more than 0.010 ohm (10 miliohm), do these steps:

1) Remove the AOA sensor [1].

2) Clean the bonding surfaces, including the countersunk holes in the AOA sensor [1] (SWPM 20-20-00).

3) Replace the screws with new screws.

4) Re-install the AOA sensor [1].

5) Measure the electrical bonding resistance between the base of the AOA sensor [1] and airplane skin (SWPM 20-20-00).

a) Use a non-intrinsically safe bonding meter, COM-614.

b) Make sure that the electrical bonding resistance is less than 0.010 ohm (10 miliohm).

6) If the resistance is more than 0.010 ohms (10 miliohm), do these steps:

a) Remove the AOA sensor [1].

b) Replace the nutplates and rivets that attach the AOA sensor [1] (SRM 51-40-02).

c) Re-install the AOA sensor [1].

d) Measure the electrical bonding resistance between the base of the AOA sensor [1] and airplane skin (SWPM 20-20-00).

<1> Use a non-intrinsically safe bonding meter, COM-614.

<2> Make sure that the electrical bonding resistance is less than 0.010 ohm (10 miliohm).

(k) Apply sealant, A00247, around the AOA sensor [1].

NOTE: It is not necessary to apply the sealant immediately, if the cure time will cause a flight delay. But, you must apply the sealant as soon as possible to keep the moisture out of the area between the probe and airplane skin. The sealant deferral must not exceed a maximum of eight weeks.

NOTE: When sealant has reach the tack-free time, the airplane can be dispatched for flight. Tack-free time is when the sealant has properly adhered and capable of providing maximum protection to a surface.

SUBTASK 34-21-05-860-041

(6) For the left AOA sensor, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	6	C01205	SMYD-1 SNSR EXC AC
E	8	C00425	ADIRU LEFT EXC

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SUBTASK 34-21-05-860-042

(7) For the right AOA sensor, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
C	15	C00426	ADIRU RIGHT EXC

SUBTASK 34-21-05-730-003

(8) Do this task: Angle of Attack System Test, TASK 34-21-05-730-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-05-980-001

(1) Move the AOA sensor vane in a line with the AOA sensor alignment pins.

SUBTASK 34-21-05-860-023

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ANGLE OF ATTACK SENSOR - ADJUSTMENT/TEST

1. General

A. This procedure has this task:

(1) Angle of Attack (AOA) sensor system test.

TASK 34-21-05-730-801

2. Angle of Attack System Test

(Figure 501)

A. General

(1) This task contains the Angle of Attack (AOA) sensor system test (also known as, Alpha Vane).

NOTE: The AOA sensor is required to be tested through both the Air Data Inertial Reference Unit (ADIRU) and the Stall Management Yaw Damper (SMYD).

NOTE: When the AOA vanes are static with no air passing over them, it is normal to observe the values fluctuate from wind, people movement on the airplane, and vibration from engine runs.

NOTE: When the angle of attack probe test fixture, SPL-1917 is not available, follow the alternate procedures to test the AOA sensor.

(2) When testing the AOA sensor output signals to the ADIRU and SMYD, complete the test on the same AOA sensor before testing the other sensor.

B. References

Reference	Title
22-11-00-740-801	Digital Flight Control System (DFCS) - Operational Test (P/B 501)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-21-05 P/B 401	ANGLE OF ATTACK SENSOR - REMOVAL/INSTALLATION
34-21-05-200-801	Angle of Attack Sensor - Inspection (P/B 601)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1917	Fixture - Test, Angle of Attack Sensor, ROSEMOUNT AOA's Part #: J34002-19 Supplier: 81205 Opt Part #: A34012-19 Supplier: 81205 Opt Part #: A34012-24 Supplier: 81205 Opt Part #: J34002-18 Supplier: 81205

D. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left

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(Continued)

Zone	Area
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for AOA Sensor Test

SUBTASK 34-21-05-860-027

(1) Make sure that the ADIRU is operating (Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801).

SUBTASK 34-21-05-860-028

(2) Make sure that Flight Control Computer (FCC) A and B are operational (Digital Flight Control System (DFCS) - Operational Test, TASK 22-11-00-740-801).

(a) Make sure that Library Test No. 10.01 (ADIRU) and 10.22 (SMYD) pass and have no faults for these systems.

SUBTASK 34-21-05-860-029

(3) Do these steps to make sure that the Flight Management Computer (FMC) is powered and has good weight data entered.

NOTE: Zero Fuel Weight (ZFW) is calculated by subtracting the total fuel weight from the combined total weight of the airplane and contents. For the Built-In-Test Equipment (BITE), any number between 70 and 150 (normal ZFW in thousands of pounds) will verify a check pass.

(a) Push the INIT REF button on the Control Display Unit (CDU).

(b) On the PERF INIT page, enter the following:

1) 3L: ZFW prompt, enter 88.0 for lbs or 44 for kg.

NOTE: GW/CRZ CG in 1L will auto calculate after ZFW is entered.

2) 4L: RES prompt, enter 4.0.

3) 5L: CI prompt, enter 30.

SUBTASK 34-21-05-860-030

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-21-05-860-031

(5) On the aft area of the control stand, set the STAB TRIM switch, S272, to the CUTOUT position.

SUBTASK 34-21-05-860-032

(6) On the forward overhead P5 panel, make sure that the VHF NAV and IRS switches, are in the NORMAL positions.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 34-21-05-860-033

(7) On the forward P5 Panel, set the FMC switch to BOTH ON L.

LOM ALL

SUBTASK 34-21-05-860-034

(8) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT

SUBTASK 34-21-05-210-001

WARNING MAKE SURE THAT THE HEATER CIRCUIT BREAKERS ABOVE ARE OPEN AND THE AOA SENSOR HEAT IS OFF BEFORE YOU MOVE THE AOA SENSOR. IF THE HEATER CIRCUIT BREAKERS ARE CLOSED, INJURY TO PERSONS CAN OCCUR.

(9) Make sure that the AOA vane moves smooth from stop to stop and there is no visible damage.

(a) Move the AOA vane from stop to stop.

1) Put the vane in position against one stop, then lightly tap the vane to cause movement to the other stop.

a) Make sure that the vane moves smoothly through a range of approximately 200 degrees with just a light resistance caused by the viscous damper.

NOTE: The vane movement gives the condition of the unit. For a satisfactory unit, the vane moves smoothly and the viscous damper will not let the vane touch the opposite stop. In a damaged unit, the vane moves easily with no resistance and hits the opposite stop, or a mechanical failure locks the mechanism.

b) If the vane does not move smoothly from stop to stop, do one of the following steps:

<1> Do the remaining steps in this task: Angle of Attack Sensor - Inspection, TASK 34-21-05-200-801.

<2> Replace the AOA sensor, do these tasks: ANGLE OF ATTACK SENSOR - REMOVAL/INSTALLATION, PAGEBLOCK 34-21-05/401.

(b) Visually examine AOA sensor for signs of any physical damage.

1) If physical damage is found, do this task: Angle of Attack Sensor - Inspection, TASK 34-21-05-200-801.

G. AOA Sensor Test (ADIRU) (Preferred)

WARNING MAKE SURE THAT THE HEATER CIRCUIT BREAKERS ABOVE ARE OPEN AND THE AOA SENSOR HEAT IS OFF BEFORE YOU MOVE THE AOA SENSOR. IF THE HEATER CIRCUIT BREAKERS ARE CLOSED, INJURY TO PERSONS CAN OCCUR.

SUBTASK 34-21-05-480-002

(1) Install an angle of attack probe test fixture, SPL-1917, on the applicable AOA sensor.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-05-740-001

(2) Push the INIT REF key on the CDU keyboard.

(a) Push the Line Select Key (LSK) that is adjacent to each selection:

1) INDEX
2) MAINT
3) DFCS
4) EXTENDED MAINTENANCE
5) SENSOR VALUES
6) DIGITAL SIGNALS
7) ADIRU-LCL (ADC-BUS)
8) ALPHA (221)
   - A is the left AOA (values are shown in degrees)
   - B is the right AOA (values are shown in degrees)

SUBTASK 34-21-05-740-002

(3) For the applicable AOA sensor (alpha vane) do the steps that follow:

NOTE: The output reading for left AOA sensor is displayed on the A side. The output reading for the right AOA sensor is displayed on the B side.

(a) Move the applicable AOA sensor vane to 0°.

1) Make sure that the value displayed on the CDU is within the limits below:

a) Limits: -1° to +1°

(b) Move the applicable AOA sensor vane, trailing edge up, to 30°.

1) Make sure that the value displayed on the CDU is within the limits below:

a) Limits: +29° to +31°

(c) Move the applicable AOA sensor, trailing edge down, to -30°.

1) Make sure that the value displayed on the CDU is within the limits below:

a) Limits: -29° to -31°

SUBTASK 34-21-05-740-004

(4) Push the LSK adjacent to EXIT until you get out of the BITE.

NOTE: If there are instructions on the CDU display, do the instructions that show on the CDU display.

H. AOA Sensor Test (SMYD) (Preferred)

WARNING

MAKE SURE THAT THE HEATER CIRCUIT BREAKERS ABOVE ARE OPEN AND THE AOA SENSOR HEAT IS OFF BEFORE YOU MOVE THE AOA SENSOR. IF THE HEATER CIRCUIT BREAKERS ARE CLOSED, INJURY TO PERSONS CAN OCCUR.

SUBTASK 34-21-05-740-006

(1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-05-740-010

(2) Push the ON/OFF switch on the SMYD to operate the BITE display.

NOTE: Use SMYD 1 to do the left AOA sensor output test. Use SMYD 2 to do the right AOA output test.

SUBTASK 34-21-05-740-011

(3) Push NO on the SMYD until you see GROUND TEST?

(a) Push YES when you see GROUND TEST?

SUBTASK 34-21-05-740-012

(4) Push NO on the SMYD until you see ANALOG INPUTS?

(a) Push YES when you see ANALOG INPUTS?

SUBTASK 34-21-05-740-013

(5) Push NO on the SMYD until you see AOA SENSOR?

(a) Push YES when you see AOA SENSOR?

1) Make sure that the SMYD does not show these:

a) Open

b) Short

c) Out of Range

SUBTASK 34-21-05-740-014

WARNING MAKE SURE THAT THE HEATER CIRCUIT BREAKERS ABOVE ARE OPEN AND THE AOA SENSOR HEAT IS OFF BEFORE YOU MOVE THE AOA SENSOR. IF THE HEATER CIRCUIT BREAKERS ARE CLOSED, INJURY TO PERSONS CAN OCCUR.

(6) Move the applicable AOA sensor vane to 0°.

NOTE: The AOA SNSR SMYD 1 value is the left AOA vane position in degrees. The AOA SNSR SMYD 2 value is the right AOA vane position in degrees.

(a) Make sure that the value displayed on the applicable SMYD is between the limits.

1) Limits: -1° to +1°

SUBTASK 34-21-05-740-015

(7) Move the applicable AOA sensor vane, trailing edge up, to 30°.

(a) Make sure that the value displayed on the applicable SMYD is between the limits.

1) Limits: +29° to +31°

SUBTASK 34-21-05-740-016

(8) Move the applicable AOA sensor vane, trailing edge down, to -30°.

(a) Make sure that the value displayed on the applicable SMYD is between the limits.

1) Limits: -29° to -31°

SUBTASK 34-21-05-080-002

(9) Remove the angle of attack probe test fixture, SPL-1917 from the applicable AOA sensor.

SUBTASK 34-21-05-860-039

(10) Push the ON/OFF switch on the SMYD.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

I. AOA Sensor Test (ADIRU) (Alternate)

WARNING: MAKE SURE THAT THE HEATER CIRCUIT BREAKERS ABOVE ARE OPEN AND THE AOA SENSOR HEAT IS OFF BEFORE YOU MOVE THE AOA SENSOR. IF THE HEATER CIRCUIT BREAKERS ARE CLOSED, INJURY TO PERSONS CAN OCCUR.

NOTE: This alternate test is used when an AOA vane test fixture is not available.

SUBTASK 34-21-05-740-007

(1) Push the INIT REF key on the CDU keyboard.

(a) Push the LSK that is adjacent to each selection:

1) INDEX
2) MAINT
3) DFCS
4) EXTENDED MAINTENANCE
5) SENSOR VALUES
6) DIGITAL SIGNALS
7) ADIRU-LCL (ADC-BUS)
8) ALPHA (221)
   - A is the left AOA (values are shown in degrees)
   - B is the right AOA (values are shown in degrees)

SUBTASK 34-21-05-740-008

(2) For the applicable AOA sensor (alpha vane) do the steps that follow:

(a) Move and hold the applicable AOA sensor vane to 0°, in a line with the AOA sensor alignment pin hole. (Figure 501)

1) Make sure that the value displayed on the CDU is within the limits below:

a) Limits: -1° to +1°

(b) Move and hold the applicable AOA sensor vane, trailing edge up, to align with the center of the second screw up from the AOA sensor alignment pin hole. (Figure 501)

1) Make sure that the value displayed on the CDU is within the limits below:

a) Limits: +66.5° to +68.5°

(c) Move and hold the applicable AOA sensor, trailing edge down, to align with the center of the second screw below from the AOA sensor alignment pin hole. (Figure 501)

1) Make sure that the value displayed on the CDU is within the limits below:

a) Limits: -66.5° to -68.5°

SUBTASK 34-21-05-740-022

(3) If the AOA sensor does not meet the limits, do the AOA sensor test (ADIRU) preferred method using angle of attack probe test fixture, SPL-1917.

SUBTASK 34-21-05-740-023

(4) Push the LSK adjacent to EXIT until you get out of the BITE.

NOTE: If there are instructions on the CDU display, do the instructions that show on the CDU display.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

J. AOA Sensor Test (SMYD) (Alternate)

WARNING

MAKE SURE THAT THE HEATER CIRCUIT BREAKERS ABOVE ARE OPEN AND THE AOA SENSOR HEAT IS OFF BEFORE YOU MOVE THE AOA SENSOR. IF THE HEATER CIRCUIT BREAKERS ARE CLOSED, INJURY TO PERSONS CAN OCCUR.

SUBTASK 34-21-05-010-002

(1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-21-05-740-018

(2) Push the ON/OFF switch on the SMYD to operate the BITE display.

NOTE: Use SMYD 1 to do the left AOA sensor output test. Use SMYD 2 to do the right AOA output test.

SUBTASK 34-21-05-740-024

(3) Push NO on the SMYD until you see GROUND TEST?

(a) Push YES when you see GROUND TEST?

SUBTASK 34-21-05-740-025

(4) Push NO on the SMYD until you see ANALOG INPUTS?

(a) Push YES when you see ANALOG INPUTS?

SUBTASK 34-21-05-740-026

(5) Push NO on the SMYD until you see AOA SENSOR?

(a) Push YES when you see AOA SENSOR?

1) Make sure that the SMYD does not show these:

a) Open

b) Short

c) Out of Range

SUBTASK 34-21-05-740-019

(6) For the applicable AOA sensor (alpha vane) do the steps that follow:

(a) Move and hold the applicable AOA sensor vane to 0°, in a line with the AOA sensor alignment pin hole. (Figure 501)

1) Make sure that the value displayed on the applicable SMYD is between the limits.

a) Limits: -1° to +1°

(b) Move and hold the applicable AOA sensor vane, trailing edge up, to align with the center of the second screw up from the AOA sensor alignment pin hole. (Figure 501)

1) Make sure that the value displayed on the applicable SMYD is between the limits.

a) Limits: +66.5° to +68.5°

(c) Move and hold the applicable AOA sensor vane, trailing edge down, to align with the center of the second screw down from the AOA sensor alignment pin hole. (Figure 501)

1) Make sure that the value displayed on the applicable SMYD is between the limits.

a) Limits: -66.5° to -68.5°

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-05-740-021

(7) If the AOA sensor does not meet the limits, do the AOA sensor test (SMYD) preferred method using angle of attack probe test fixture, SPL-1917.

SUBTASK 34-21-05-860-040

(8) Push the ON/OFF switch on the SMYD.

K. AOA Sensor (Alpha Vane) Heater Test

SUBTASK 34-21-05-710-001

(1) Do these steps to test the left alpha vane:

(a) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT

(b) Set the PROBE HEAT A switch to the ON position.

1) Make sure the L ALPHA VANE light goes off and the R ALPHA VANE light stays on.

WARNING DO NOT TOUCH AIR DATA SENSORS WHEN HOT. A HOT AIR DATA SENSOR CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Make sure that only the left alpha vane is heating by using one of these methods:

1) Measure the temperature of the sensor with an infrared or contact thermometer.

2) Look at the sensor with an infrared or thermal imager.

(d) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT

(e) Make sure the L ALPHA VANE, R ALPHA VANE, ANTI-ICE, and Master Caution lights are on.

(f) Make sure the left alpha vane is no longer heating.

(g) Push to reset either Master Caution light.

1) Make sure the Master Caution and ANTI-ICE annunciator lights go off.

(h) Set the PROBE HEAT A switch to the AUTO position.

SUBTASK 34-21-05-710-002

(2) Do these steps to test the right alpha vane:

(a) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	3	C01071	HEATERS ALPHA VANE RIGHT

(b) Set the PROBE HEAT B switch to the ON position.

1) Make sure the R ALPHA VANE light goes off and the L ALPHA VANE light stays on.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING DO NOT TOUCH AIR DATA SENSORS WHEN HOT. A HOT AIR DATA SENSOR CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Make sure that only the right alpha vane is heating by using one of these methods:

1) Measure the temperature of the sensor with an infrared or contact thermometer.

2) Look at the sensor with an infrared or thermal imager.

(d) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	3	C01071	HEATERS ALPHA VANE RIGHT

(e) Make sure the L ALPHA VANE, R ALPHA VANE, ANTI-ICE, and Master Caution lights are on.

(f) Make sure the right alpha vane is no longer heating.

(g) Push to reset either Master Caution light.

1) Make sure the Master Caution and ANTI-ICE annunciator lights go off.

(h) Set the PROBE HEAT B switch to the AUTO position.

L. Return Airplane to its Usual Condition

SUBTASK 34-21-05-860-035

(1) Push the captain's or first officer's autopilot disengage switch, on the control wheel, to make sure that the autopilot is disengaged.

SUBTASK 34-21-05-860-036

(2) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-21-05-860-037

(3) On the aft area of the control stand, set the STAB TRIM switch, S272, to the NORMAL position.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 34-21-05-860-038

(4) On the forward P5 Panel, set the FMC switch to NORMAL.

LOM ALL

SUBTASK 34-21-05-410-002

(5) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 USE THIS MOUNT SCREW FOR ALTERNATE AOA SENSOR TEST

2938244 S0000714565_V2

Angle of Attack Sensor
Figure 501/34-21-05-990-803

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ANGLE OF ATTACK SENSOR - INSPECTION/CHECK

1. General

A. This procedure does an inspection of the Angle of Attack (AOA) sensor for proper mechanical movement and damage.

TASK 34-21-05-200-801

2. Angle of Attack Sensor - Inspection

(Figure 601)

A. References

Reference	Title
34-21-05-000-801	Angle of Attack Sensor Removal (P/B 401)

B. Tools/Equipment

Reference	Description
STD-19829	Force Gauge, 0 - 30 grams, +/- 1 gram accuracy

C. Location Zones

Zone	Area
115	Nose Landing Gear Wheel Well - Left
116	Nose Landing Gear Wheel Well - Right

D. Prepare for the Inspection

SUBTASK 34-21-05-860-003

(1) For the left AOA, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT

SUBTASK 34-21-05-860-025

(2) For the right AOA, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	15	C00426	ADIRU RIGHT EXC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Angle of Attack Sensor Inspection

SUBTASK 34-21-05-280-001

> **WARNING**
> MAKE SURE THAT THE AOA HEAT IS NOT ON. IF YOU DO NOT, INJURY TO PERSONS CAN OCCUR.

(1) Make sure that AOA probe heat is off.

SUBTASK 34-21-05-280-002

(2) Move the AOA vane from stop to stop.

(a) Put the vane in position against one stop, then lightly tap the vane to cause movement to the other stop.

1) Make sure that the vane moves smoothly through a range of approximately 200 degrees with just a light resistance caused by the viscous damper.

NOTE: The vane movement gives the condition of the unit. For a satisfactory unit, the vane moves smoothly and the viscous damper will not let the vane touch the opposite stop. In a damaged unit, the vane moves easily with no resistance and hits the opposite stop, or a mechanical failure locks the mechanism.

SUBTASK 34-21-05-280-003

(3) Make sure that the vane counterweight of the AOA sensor does not stick against the upper vane end stop.

(a) Turn the vane in an upward direction and put it against the vane end stop.

(b) Hold the vane firmly against the vane end stop by hand for 3 seconds, then release.

(c) Put the measurement arm of the force gauge, STD-19829, against the AOA vane at the base of the upper trailing edge.

(d) As slowly as possible, move the vane away from the vane upper end stop position with the force gauge, STD-19829.

1) Make sure that you move the vane about 30 to 50 degrees at a time.

2) Make sure that the force gauge, STD-19829, is aligned with the vane.

3) Make sure that only the force gauge, STD-19829, moves the vane.

(e) Record the results.

1) Make sure that the force gauge, STD-19829, reading is less than 0.026 lb (12 g).

a) If the force gauge, STD-19829, reading is more than 0.026 lb (12 g), replace the AOA sensor (TASK 34-21-05-000-801).

SUBTASK 34-21-05-280-010

(4) Make sure that the vane counterweight of the AOA sensor does not stick against the lower vane end stop.

(a) Turn the vane downward and put it against the vane end stop.

(b) Hold the vane firmly against the vane end stop by hand for 3 seconds, then release.

(c) Put the measurement arm of the force gauge, STD-19829, against the AOA vane at the base of the lower trailing edge.

(d) As slowly as possible, move the vane away from the vane lower end stop position with the force gauge, STD-19829.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Make sure that you move the vane about 30 to 50 degrees at a time.
2) Make sure that the force gauge, STD-19829, is aligned with the vane.
3) Make sure that only the force gauge, STD-19829, moves the vane.

(e) Record the results.

1) Make sure that the force gauge, STD-19829, reading is less than 0.026 lb (12 g).

a) If the force gauge, STD-19829, reading is more than 0.026 lb (12 g), replace the AOA sensor (TASK 34-21-05-000-801).

SUBTASK 34-21-05-280-017

(5) Make sure that the vane upper, lower, and outward facing external surfaces do not have any nicks, abrasions or scratches that penetrate the surface.

(a) If damage is found, remove (replace) the vane.

NOTE: Discoloration and/or cosmetic marks on the vane coating are acceptable.

SUBTASK 34-21-05-280-018

(6) Make sure that the trailing edge does not have any nicks or wear that cause the edge to be rounded or chamfered.

(a) If damage is found, remove (replace) the vane.

NOTE: The edge must remain sharp with no deformation or removal of material.

NOTE: Discoloration or cosmetic marks on the surface are acceptable.

SUBTASK 34-21-05-280-019

(7) Make sure that the leading edge does not show erosion or has nicks deeper than 0.1 in. (2.5 mm).

(a) If damage is found, remove (replace) the vane.

SUBTASK 34-21-05-000-001

(8) If the vane was impacted, even without visual signs of external damage, remove and send the vane to a repair facility for testing/analysis to ensure there is no internal damage.

NOTE: Scratches or nicks on the faceplate are acceptable. Surface marks/scratches do not affect the vane aerodynamic performance or the structural integrity of the faceplate.

SUBTASK 34-21-05-280-016

(9) Return the vane to a horizontal position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-05-860-004

(1) For the left AOA, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	8	C00425	ADIRU LEFT EXC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	3	C01072	HEATERS ALPHA VANE LEFT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-05-860-026

(2) For the right AOA, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	3	C01071	HEATERS ALPHA VANE RIGHT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	15	C00426	ADIRU RIGHT EXC

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ANGLE OF ATTACK (AOA) SENSOR (EXAMPLE)

A

1 THE LOWER SURFACE IS BELOW THE UPPER SURFACE

L48287 S0006576636_V5

AOA Sensor - Inspection/Check
Figure 601/34-21-05-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TOTAL AIR TEMPERATURE PROBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Total Air Temperature (TAT) probe

(2) An installation of the TAT probe.

TASK 34-21-06-000-801

2. Total Air Temperature Probe - Removal

(Figure 401)

A. General

(1) This task gives instructions to remove the Total Air Temperature (TAT) probe.

NOTE: Removal of an aspirated TAT probe pneumatic connection requires access through the left side aft nose wheel well access hole.

B. References

Reference	Title
53-14-01-020-801	Nose Wheel Well Access Panels - Removal (P/B 401)

C. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left

D. Access Panels

Number	Name/Location
113BW	Forward Nose Wheel Well Panel

E. Total Air Temperature Probe Removal

SUBTASK 34-21-06-860-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

SUBTASK 34-21-06-020-001

WARNING

MAKE SURE THAT THE TAT PROBE HEAT IS OFF. THE PROBE BECOMES HOT IF IT IS ON. INJURIES TO PERSONNEL CAN OCCUR.

(2) Remove the TAT probe [4] as follows:

LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-999

(a) Do these steps for the TAT probe [4]:

1) Use the sealant removal tool to remove the sealant from around the TAT probe [4].

2) Remove the screws [3] from the TAT probe [4].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION DO NOT PULL THE PROBE AWAY FROM THE FUSELAGE WITH TOO MUCH FORCE. TOO MUCH FORCE ON THE PROBE CAN CAUSE DAMAGE TO THE PROBE ELECTRICAL CABLE.

3) Carefully pull the TAT probe [4] from the fuselage to get access to the electrical connector [1].
4) Carefully disconnect the electrical connector [1] from the TAT probe [4].
   a) Make sure that the electrical connector [1] does not fall into the fuselage.
5) Install a protective cap on the electrical connector [1].

LOM 404, 416, 443, 444

(b) Do these steps for the aspirated probe:
1) Open this left aft side nose wheel access panel:

Number	Name/Location
113BW	Forward Nose Wheel Well Panel

   a) Do this task: Nose Wheel Well Access Panels - Removal, TASK 53-14-01-020-801.
2) Get access to the electrical connector [1] and pneumatic connector of the TAT probe [4] from the left side wheel well access hole.
3) Carefully disconnect the electrical connector [1] from the TAT probe [4].
4) Install a protective cap on the electrical connector [1].
5) Disconnect the pneumatic connector from the ejector fitting [5].
6) Install a protective cap on the ejector fitting [5] and pneumatic connector.
7) Use the sealant removal tool to remove the sealant from around the TAT probe [4].
   a) Remove the sealant from outside the fuselage.
8) Remove the screws [3] from the TAT probe [4].

LOM ALL

(c) Remove the gasket [2].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 USE FOR INSTALLATION OF A NON-ASPIRATED TAT PROBE IN AIRPLANES CONFIGURED WITH A NON-ASPIRATED TAT PROBE.

G24501 S0006576640_V3

Total Air Temperature (TAT) Probe Installation
Figure 401/34-21-06-990-801 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 USE FOR INSTALLATION OF AN ASPIRATED TAT PROBE IN AIRPLANES CONFIGURED WITH A NON-ASPIRATED TAT PROBE.

K19548 S0006576641_V4

Total Air Temperature (TAT) Probe Installation
Figure 401/34-21-06-990-801 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 USE FOR INSTALLATION OF AN ASPIRATED TAT PROBE IN AIRPLANES CONFIGURED WITH AN ASPIRATED TAT PROBE.

G88576 S0006576642_V3

Total Air Temperature (TAT) Probe Installation
Figure 401/34-21-06-990-801 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-21-06-400-801

3. Total Air Temperature Probe - Installation

(Figure 401)

A. General

(1) This task gives instructions to install the Total Air Temperature (TAT) probe.

NOTE: Installation of an aspirated TAT probe requires access through the left side aft nose wheel well access hole.

B. References

Reference	Title
05-51-91-790-801	Cabin Pressure Leak Test (P/B 201)
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
30-31-00-730-801	Pitot Probe, AOA Sensor, and TAT Probe Heater - System Test (P/B 501)
53-14-01-020-801	Nose Wheel Well Access Panels - Removal (P/B 401)
53-14-01-420-801	Nose Wheel Well Access Panels - Installation (P/B 401)
FIM 34-21 TASK 813	TAT Probe Signal Fail - Fault Isolation
SRM 51-40-02	Structural Repair Manual
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-614	Bonding Meters - Non-Intrinsically Safe (For use in outside Class I, Divisions I & II non-hazardous locations. For hazardous locations, use COM-1550). Part #: 247000 Supplier: 00426 Part #: 620LK Supplier: 1CRL2 Part #: BLR-0003-XX Supplier: KC432 Part #: BT51 Supplier: 00426 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659 Opt Part #: 247001 Supplier: 00426

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Gasket	34-21-06-08-020	LOM ALL
4	TAT probe	34-21-06-08-010	LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-465

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
4 (cont.)		34-21-06-08-015	LOM 404, 416, 443, 444, 466-999

F. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left

G. Access Panels

Number	Name/Location
113BW	Forward Nose Wheel Well Panel

H. TAT Probe Installation

NOTE: The following procedure is for installing an aspirated TAT probe in airplanes configured for an aspirated TAT probe, and for installing non-aspirated TAT probe in airplanes configured for non-aspirated TAT probe.

SUBTASK 34-21-06-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

SUBTASK 34-21-06-110-001

(2) Clean and prepare the surface and sides of the installation hole, do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

SUBTASK 34-21-06-420-001

(3) Do these steps to install the TAT probe [4]:

(a) Put the new gasket [2] into its position on the TAT probe [4].

NOTE: It is not necessary to fit a new gasket if acquiring one will cause a flight delay. The old gasket, if in good condition, can be reused and replaced with a new gasket in one week or less.

(b) Remove the protective cap from the electrical connector [1].

(c) Examine the electrical connector [1] for loose, bent, or broken pins.

(d) Connect the electrical connector [1] to the TAT probe [4].

(e) Carefully put the TAT probe [4] into its position.

NOTE: The large intake must point forward.

1) Make sure that remove caps and examine pins before installation.

(f) Install the screws [3] that hold the TAT probe [4] to the airplane.

(g) Tighten the screws [3] to 18 in-lb (2.0 N·m) - 22 in-lb (2.5 N·m).

LOM 404, 416, 443, 444

(h) Do these steps for the aspirated probe:

NOTE: Access through the left side aft nose wheel well access hole is necessary to install the aspirated TAT probe pneumatic connection.

1) Remove the protective cap from the ejector fitting [5] and pneumatic connector.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2) Connect the ejector fitting [5] to the pneumatic connector.

LOM ALL

SUBTASK 34-21-06-760-001

(4) Do these steps to complete the bonding measurement check:

(a) Measure the electrical bonding resistance between the body of the TAT probe [4] and airplane skin (SWPM 20-20-00).

1) Use a non-intrinsically safe bonding meter, COM-614.

2) Make sure that the resistance is 0.010 ohms (10 milliohm) or less.

(b) If the resistance is more than 0.010 ohms (10 milliohm), do these steps:

1) Remove the TAT probe [4].

2) Clean the bonding surfaces, including the countersunk holes in the TAT probe [4] (SWPM 20-20-00).

3) Replace the screws [3] with new screws [3].

4) Install the TAT probe [4].

5) Measure the electrical bonding resistance between the body of the TAT probe [4] and airplane skin (SWPM 20-20-00).

a) Use a non-intrinsically safe bonding meter, COM-614.

b) Make sure that the resistance is 0.010 ohms (10 milliohm) or less.

6) If the resistance is more than 0.010 ohms (10 milliohm), do these steps:

a) Remove the TAT probe [4].

b) Replace the nutplates and rivets that attach the TAT probe [4] (SRM 51-40-02).

c) Install the TAT probe [4].

d) Measure the electrical bonding resistance between the body of the TAT probe [4] and airplane skin (SWPM 20-20-00).

<1> Use a non-intrinsically safe bonding meter, COM-614.

<2> Make sure that the resistance is 0.010 ohms (10 milliohm) or less.

SUBTASK 34-21-06-390-001

(5) Apply sealant, A00247, around the TAT probe [4].

NOTE: It is not necessary to apply the sealant immediately, if the cure time will cause a flight delay. But, you must apply the sealant as soon as possible to keep moisture out of the area between the probe and airplane skin. The sealant must not wait more than a maximum of eight weeks to apply.

SUBTASK 34-21-06-860-003

(6) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

ECCN 9E991 BOEING PROPRIETARY - See title page for details

I. Aspirated TAT Probe in Airplanes Configured with a Non-Aspirated TAT Probe Installation

NOTE: The following procedure is for installing an aspirated TAT probe in place of a non-aspirated TAT probe, and addresses capping the non-used probe bleed line, as well as gaining access to the back of the probe installation to permit access for connecting the electrical connector after positioning the probe onto the side of the fuselage.

SUBTASK 34-21-06-860-008

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

SUBTASK 34-21-06-010-001

(2) If necessary, open this access panel:

Number	Name/Location
113BW	Forward Nose Wheel Well Panel

(a) Do this task: Nose Wheel Well Access Panels - Removal, TASK 53-14-01-020-801.

SUBTASK 34-21-06-110-002

(3) To clean and prepare the surface and sides of the installation hole, do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

SUBTASK 34-21-06-420-002

(4) Do these steps to install an aspirated TAT probe [4] into an airplane configured for a non-aspirated TAT probe:

(a) Put a cap assembly [6] on the ejector fitting [5].

1) Tighten the cap assembly [6] to 18 in-lb (2.0 N·m) - 22 in-lb (2.5 N·m).

(b) Put the new gasket [2] into its position on the TAT probe [4].

NOTE: It is not necessary to fit a new gasket if acquiring one will cause a flight delay. The old gasket, if in good condition, can be reused and replaced with a new gasket in one week or less.

(c) Gain access to the back of the TAT probe [4], do this step:

1) Open this access panel:

Number	Name/Location
113BW	Forward Nose Wheel Well Panel

(d) Remove the protective cap from the electrical connector [1].

(e) Examine the electrical connector [1] for loose, bent, or broken pins.

(f) Carefully put the TAT probe [4] into its position.

NOTE: The large intake should point forward.

(g) Install the screws [3] that hold the TAT probe [4] to the airplane.

(h) Tighten the screws [3] to 18 in-lb (2.0 N·m) - 22 in-lb (2.5 N·m).

(i) Measure the electrical bonding resistance between the body of the TAT probe [4] and airplane skin (SWPM 20-20-00).

1) Use a non-intrinsically safe bonding meter, COM-614.

2) Make sure that the resistance is less than 0.010 ohms (10 milliohm).

(j) If the resistance is more than 0.010 ohms (10 milliohm), do these steps:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Remove the TAT probe [4].
2) Clean the bonding surfaces, including the countersunk holes in the TAT probe [4] (SWPM 20-20-00).
3) Replace the screws [3] with new screws [3].
4) Install the TAT probe [4].
5) Measure the electrical bonding resistance between the body of the TAT probe [4] and airplane skin (SWPM 20-20-00).
   a) Use a non-intrinsically safe bonding meter, COM-614.
   b) Make sure that the resistance is less than 0.010 ohms (10 milliohm).
6) If the resistance is more than 0.010 ohms (10 milliohm), do these steps:
   a) Remove the TAT probe [4].
   b) Replace the nutplates and rivets that attach the TAT probe [4] (SRM 51-40-02).
   c) Install the TAT probe [4].
   d) Measure the electrical bonding resistance between the body of the TAT probe [4] and airplane skin (SWPM 20-20-00).
      <1> Use a non-intrinsically safe bonding meter, COM-614.
      <2> Make sure that the resistance is 0.010 ohms (10 milliohm) or less.

(k) Connect the electrical connector [1] to the TAT probe [4] receptacle as follows:
   1) Gain access to the back of the TAT probe [4] from access panel in the nose wheel well.

(l) Apply sealant, A00247, around the TAT probe [4].

NOTE: It is not necessary to apply the sealant, A00247, immediately, if the cure time will cause a flight delay. But, you must apply the sealant as soon as possible to keep moisture out of the area between the probe and airplane skin. The sealant application must not wait more than a maximum of eight weeks.

SUBTASK 34-21-06-410-002

(5) Close this access panel:

Number	Name/Location
113BW	Forward Nose Wheel Well Panel

(a) Do this task: Nose Wheel Well Access Panels - Installation, TASK 53-14-01-420-801.

SUBTASK 34-21-06-860-009

(6) Close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

J. TAT System Test

SUBTASK 34-21-06-730-001

(1) Do this task: Pitot Probe, AOA Sensor, and TAT Probe Heater - System Test, TASK 30-31-00-730-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-21-06-860-005

(2) Do these steps to get access the Air Data Inertial Reference System (ADIRS) maintenance index on the Control Display Unit (CDU):

NOTE: CDU data lines that permit a selection are identified with a caret (< or >). The CDU has 12 line-select-keys. Six keys are on each side of the display. 1L thru 6L are on the left side, and 1R thru 6R are on the right side.

(a) Push the INIT REF key.

1) Make sure that the CDU shows the INIT REF INDEX 1/1 page.

(b) Push the LSK 6R adjacent to the MAINT> prompt on the CDU.

1) Make sure that the CDU shows the MAINT BITE INDEX 1/1 page.

(c) Push the LSK 4L adjacent to the <ADIRS prompt on the CDU.

1) Make sure that the CDU shows the ADIRS BITE 1/1 page.

SUBTASK 34-21-06-710-002

(3) Do these steps to get access the left ADIRS current faults:

(a) Set the IRS MSU left mode select switch to NAV position.

(b) Push the LSK 1L adjacent to the <ADIRS L prompt on the CDU.

1) Make sure that the CDU shows the ADIRS L BITE MAIN MENU page.

(c) Push the LSK 1L adjacent to the <CURRENT STATUS prompt on the CDU.

1) Make sure that the CDU shows the ADIRS L BITE CURRENT FAULTS page.

2) Make sure that the CDU does not show the TAT PROBE SIGNAL FAIL message.

NOTE: If there is a maintenance message that shows on the CDU, you can go to the ADIRS fault isolation procedures to repair the fault FIM 34-21 TASK 813.

SUBTASK 34-21-06-710-003

(4) Do these steps to access the right ADIRS current faults.

(a) Set the IRS MSU right mode select switch to NAV position.

(b) Push the LSK 2L adjacent to the <ADIRS R prompt on the CDU from the ADIRS BITE 1/1 page.

1) Make sure that the CDU shows the ADIRS R BITE MAIN MENU page.

(c) Push the LSK 1L adjacent to the <CURRENT STATUS prompt on the CDU.

1) Make sure that the CDU shows the ADIRS R BITE CURRENT FAULTS page.

2) Make sure that the CDU does not show the TAT PROBE SIGNAL FAIL message.

NOTE: If there is a maintenance message that shows on the CDU, you can go to the ADIRS fault isolation procedure to fix the fault FIM 34-21 TASK 813.

LOM 404, 416, 443, 444

K. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-06-410-001

(1) Close this access panel:

Number	Name/Location
113BW	Forward Nose Wheel Well Panel

(a) Do this task: Nose Wheel Well Access Panels - Installation, TASK 53-14-01-420-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404, 416, 443, 444 (Continued)

(b) Do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TOTAL AIR TEMPERATURE PROBE - INSPECTION/CHECK

1. General

A. This procedure does an inspection of the Total Air Temperature (TAT) probe for damage.

TASK 34-21-06-000-802

2. Total Air Temperature Probe - Inspection

(Figure 601 or Figure 602)

A. References

Reference	Title
34-21-06-000-801	Total Air Temperature Probe - Removal (P/B 401)
34-21-06-400-801	Total Air Temperature Probe - Installation (P/B 401)

B. Location Zones

Zone	Area
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left

C. Prepare for Inspection.

SUBTASK 34-21-06-860-006

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

D. Procedure

SUBTASK 34-21-06-200-001

WARNING

MAKE SURE THAT THE TAT PROBE HEAT IS OFF. THE PROBE BECOMES HOT IF IT IS ON. INJURIES TO PERSONNEL CAN OCCUR.

(1) Visually examine the Total Air Temperature (TAT) probe of the air inlet scoop and air exit ports for blockages caused by unwanted material.

(a) Make sure that air passes freely through the tube.

1) If there is unwanted material, contamination, or Foreign Object Debris (FOD), then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe - Removal, TASK 34-21-06-000-801

Total Air Temperature Probe - Installation, TASK 34-21-06-400-801

(2) Visually examine the sensor for physical damage such as cracking or separation of parts on the air scoop and strut.

(a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe - Removal, TASK 34-21-06-000-801

Total Air Temperature Probe - Installation, TASK 34-21-06-400-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL; AIRPLANES WITH ASPIRATED TAT PROBES

(3) Check for wear and indentations greater than 0.17 in. (4.32 mm) deep, measured from the leading edge of the strut. When measuring from the trailing edge of the strut, any measurement less than 1.83 in. (46.48 mm) is unacceptable.

(a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe - Removal, TASK 34-21-06-000-801

Total Air Temperature Probe - Installation, TASK 34-21-06-400-801

LOM ALL; AIRPLANES WITH NON-ASPIRATED TAT PROBES

(4) Check for wear and indentations greater than 0.08 in. (2.03 mm) deep, measured from the leading edge of the strut. When measuring from the trailing edge of the strut, any measurement less than 1.57 in. (39.88 mm) is unacceptable.

(a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe - Removal, TASK 34-21-06-000-801

Total Air Temperature Probe - Installation, TASK 34-21-06-400-801

LOM ALL; AIRPLANES WITH ASPIRATED TAT PROBES

(5) Check for wear and indentations greater than 0.04 in. (1.02 mm) deep, measured from the front of scoop. When measuring from back of scoop, any measurement less than 2.11 in. (53.59 mm) is unacceptable.

(a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe - Removal, TASK 34-21-06-000-801

Total Air Temperature Probe - Installation, TASK 34-21-06-400-801

LOM ALL; AIRPLANES WITH NON-ASPIRATED TAT PROBES

(6) Check for wear and indentations greater than 0.04 in. (1.02 mm) deep, measured from the front of scoop. When measuring from back of scoop, any measurement less than 3.46 in. (87.88 mm) is unacceptable.

(a) If there is any cracking or separation visible, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe - Removal, TASK 34-21-06-000-801

Total Air Temperature Probe - Installation, TASK 34-21-06-400-801

(7) Visually check the interior of the air scoop to see if the airbump has worn away. The sensor is serviceable regardless of condition of airbump as long as it is present.

(a) If the airbump has worn away, then replace the TAT probe.

These are the tasks:

Total Air Temperature Probe - Removal, TASK 34-21-06-000-801

Total Air Temperature Probe - Installation, TASK 34-21-06-400-801

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Put the Airplane Back to its Usual Condition.

SUBTASK 34-21-06-860-007

(1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TOTAL AIR TEMPERATURE PROBE

A

1 REJECT: CRACKING AND/OR SEPARATION VISIBLE

U65745 S0000212353_V2

TAT Probe - Inspection/Check
Figure 601/34-21-06-990-805 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

NOTE:

DIMENSIONS ARE STRAIGHT LINE (NOT ALONG CURVED SURFACES).

REJECT: WEAR/INDENTATION EXCEEDING 0.17 INCH (4.32 mm) DEEP FROM FRONT OR MEASURING LESS THAN 1.83 INCHES (46.48 mm) FROM BACK.

NOTE:

DIMENSIONS ARE STRAIGHT LINE (NOT ALONG CURVED SURFACES).

REJECT: WEAR/INDENTATION EXCEEDING 0.04 INCH (1.02 mm) DEEP FROM FRONT OR MEASURING LESS THAN 2.11 INCHES (53.59 mm) FROM BACK.

U65893 S0000212363_V2

TAT Probe - Inspection/Check
Figure 601/34-21-06-990-805 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TOTAL AIR TEMPERATURE PROBE

A

1 REJECT: CRACKING AND/OR SEPARATION VISIBLE

2067983 S0000430002_V2

TAT Probe - Inspection/Check
Figure 602/34-21-06-990-806 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

NOTE:

DIMENSIONS ARE STRAIGHT LINE (NOT ALONG CURVED SURFACES).

REJECT: WEAR/INDENTATION EXCEEDING 0.08 INCH (2.03 mm) DEEP FROM FRONT OR MEASURING LESS THAN 1.57 INCHES (39.88 mm) FROM BACK.

NOTE:

DIMENSIONS ARE STRAIGHT LINE (NOT ALONG CURVED SURFACES).

REJECT: WEAR/INDENTATION EXCEEDING 0.04 INCH (1.02 mm) DEEP FROM FRONT OR MEASURING LESS THAN 3.46 INCHES (87.88 mm) FROM BACK.

2068464 S0000430004_V2

TAT Probe - Inspection/Check
Figure 602/34-21-06-990-806 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2 AIRBUMP FEATURE
3 ACCEPTABLE AIRBUMP PRESENT REGARDLESS OF CONDITION
4 REJECT: AIRBUMP MISSING

2068493 S0000430016_V2

TAT Probe - Inspection/Check
Figure 602/34-21-06-990-806 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

IRS MASTER CAUTION UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the IRS master caution unit (MCU)

(2) An installation of the IRS MCU.

B. The IRS MCU is installed in the P61 panel in the flight compartment.

TASK 34-21-07-000-801

2. IRS Master Caution Unit Removal

(Figure 401)

A. General

(1) This procedure gives instructions to remove the IRS MCU.

B. References

Reference	Title
20-40-12-000-801	ESDS Handling for Printed Circuit Board Removal (P/B 201)
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. IRS Master Caution Unit Removal

SUBTASK 34-21-07-860-001

(1) Set the two mode select switches on the IRS mode select unit (MSU) to the OFF position.

SUBTASK 34-21-07-860-002

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT

SUBTASK 34-21-07-020-001

(3) Do these steps to remove the IRS MCU MODULE assembly [1]:

(a) Release the quarter-turn fasteners [2] on the front of the IRS MCU MODULE assembly [1].

> **CAUTION** DO NOT TOUCH THE IRS MCU MODULE ASSEMBLY BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE IRS MCU.

(b) Before you touch the IRS MCU MODULE assembly [1], do this task: ESDS Handling for Printed Circuit Board Removal, TASK 20-40-12-000-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION

CAREFULLY REMOVE THE IRS MCU MODULE ASSEMBLY FROM THE PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CONNECTORS AT THE REAR OF THE IRS MCU.

(c) Carefully pull the IRS MCU MODULE assembly [1] away from the panel until you can get access to the electrical connectors.

(d) Disconnect the electrical connectors from the rear of the IRS MCU MODULE assembly [1].

(e) Install dust caps on the electrical connectors, do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 AIRPLANES WITH ONE SWITCH ON THE DATA LOADER CONTROL PANEL

2 AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL

K76628 S0006576647_V3

Master Caution Unit Installation
Figure 401/34-21-07-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-21-07-400-801

3. IRS Master Caution Unit Installation

(Figure 401)

A. General

(1) This procedure gives instructions to install the IRS MCU MODULE assembly [1].

(2) The installation test makes sure the IRS MCU MODULE assembly [1] is installed correctly.

B. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Connector Cover Removal (P/B 201)
20-40-12-400-801	ESDS Handling for Printed Circuit Board Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	MODULE assembly	34-21-00-02-005	LOM ALL

D. Location Zones

Zone	Area
212	Flight Compartment - Right

E. Installation Procedure

SUBTASK 34-21-07-860-003

(1) Make sure that these circuit breakers are open and have safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT

SUBTASK 34-21-07-420-001

(2) Do these steps to install the IRS MCU MODULE assembly [1]:

> **CAUTION** DO NOT TOUCH THE IRS MCU MODULE ASSY BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE IRS MCU .

(a) Before you touch the IRS MCU MODULE assembly [1], do this task: ESDS Handling for Printed Circuit Board Installation, TASK 20-40-12-400-801.

(b) Remove the dust caps on the electrical connectors. To remove them, do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-40-12-000-804.

(c) Connect the electrical connectors to the IRS MCU MODULE assembly [1].

> **CAUTION** CAREFULLY INSTALL THE IRS MCU MODULE ASSY INTO THE PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CONNECTORS AT THE REAR OF THE IRS MCU .

(d) Carefully install the IRS MCU MODULE assembly [1] into the P61 panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(e) Lock the quarter-turn fasteners [2] on the front of the IRS MCU MODULE assembly [1].

SUBTASK 34-21-07-860-004

(3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
D	11	C00133	INDICATOR MASTER DIM DIM/TST CONT

F. Installation Test

SUBTASK 34-21-07-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-21-07-860-006

(2) Do this task: Air Data Inertial Reference System - Operational Test, TASK 34-21-00-710-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-21-07-860-007

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

RADIO MAGNETIC INDICATOR - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Radio Magnetic Indicator Deactivation (RMI).

(2) Radio Magnetic Indicator Activation (RMI).

TASK 34-22-01-040-801

2. Radio Magnetic Indicator - Deactivation

(Figure 34-22-01-990-801)

A. General

(1) This procedure removes electrical power to the RMI.

B. References

Reference	Title
34-22-01-990-801	Figure: Radio Magnetic Indicator Installation (P/B 401)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-22-01-860-007

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

E. Radio Magnetic Indicator - Tryout

NOTE: This tryout is to make sure the RMI is in a zero energy state.

SUBTASK 34-22-01-860-011

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

SUBTASK 34-22-01-710-032

(2) Set the Left or Right VOR/ADF Select switch on the RMI to the ADF position.

SUBTASK 34-22-01-710-033

(3) Push the Test button on the front panel of the No 1 or No. 2 ADF Receiver.

(a) Make sure that the bearing pointer does not move.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-22-01-440-801

3. **Radio Magnetic Indicator - Activation**
(Figure 34-22-01-990-801)

A. General

(1) This procedure adds electrical power to the RMI.

B. References

Reference	Title
34-22-01-990-801	Figure: Radio Magnetic Indicator Installation (P/B 401)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-22-01-860-009

(1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

RADIO MAGNETIC INDICATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Radio Magnetic Indicator (RMI).

(2) An installation of the RMI.

B. The RMI is located on the main display panel, P2-1, in the flight compartment.

TASK 34-22-01-000-801

2. Radio Magnetic Indicator (RMI) Removal

(Figure 401)

A. General

(1) This procedure gives instructions to remove the Radio Magnetic Indicator (RMI).

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Radio Magnetic Indicator Removal

SUBTASK 34-22-01-860-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

SUBTASK 34-22-01-020-001

(2) Do these steps to remove the radio magnetic indicator [1]:

(a) Loosen the top right adjustment screw [2] and the bottom left adjustment screw [2].

NOTE: Do not loosen the top left screw [3] or the bottom right screw [3]. These screws hold the clamp behind the instrument panel.

(b) Push on the top right adjustment screw [2] and the bottom left adjustment screw [2] to loosen the clamp.

> **CAUTION** CAREFULLY REMOVE THE RMI FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLE AT THE REAR OF THE RMI. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Carefully pull the radio magnetic indicator [1] away from the instrument panel until you can get access to the electrical connector [4].

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS ON THE RMI. IF YOU TOUCH THESE PINS, ELECTROSTATIC DISCHARGE FROM YOUR BODY CAN CAUSE DAMAGE TO THE RMI.

(d) Disconnect the electrical connector [4] from the radio magnetic indicator [1].

(e) Install protective covers on the electrical connector [4].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(f) Remove the radio magnetic indicator [1].

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

Radio Magnetic Indicator Installation
Figure 401/34-22-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-22-01-400-801

3. Radio Magnetic Indicator (RMI) Installation

(Figure 401)

A. General

(1) This procedure gives instructions to install the Radio Magnetic Indicator (RMI).

(2) The installation test makes sure the RMI is installed correctly.

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Radio magnetic indicator	31-11-31-05-070	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420
		31-11-31-07-065	LOM 422-434, 437-442, 445-447, 451-464
		34-22-07-02-050	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420
		34-22-07-03-020	LOM 422-434, 437-442, 445-447, 451-464

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Radio Magnetic Indicator Installation

SUBTASK 34-22-01-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

SUBTASK 34-22-01-420-001

(2) Do these steps to install the radio magnetic indicator [1]:

(a) Remove the protective covers from the electrical connector [4].

(b) Connect the electrical connector [4] to the rear of the radio magnetic indicator [1].

(c) Carefully install the radio magnetic indicator [1] into the clamp at the rear of the instrument panel.

(d) Tighten the top right adjustment screw [2] and the bottom left adjustment screw [2] on the radio magnetic indicator [1].

SUBTASK 34-22-01-860-003

(3) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

E. Installation Test

SUBTASK 34-22-01-710-001

(1) Set the IRS-L MSU switch on the aft P5 overhead panel to ATT.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-22-01-710-002

(2) Wait until the ALIGN light on the IRS MSU extinguishes.

SUBTASK 34-22-01-710-003

(3) Push H on the IRS DISPLAY unit on the aft overhead panel.

SUBTASK 34-22-01-710-004

(4) Push 0 on the IRS DISPLAY unit on the aft overhead panel.

SUBTASK 34-22-01-710-005

(5) Push ENT on the IRS DISPLAY unit on the aft overhead panel.

SUBTASK 34-22-01-710-006

(6) Make sure that the RMI HDG flag is out of view.

SUBTASK 34-22-01-710-007

(7) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

SUBTASK 34-22-01-710-008

(8) Make sure that the RMI HDG flag comes into view.

SUBTASK 34-22-01-710-009

(9) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	5	C01386	RADIO NAVIGATION RMI

SUBTASK 34-22-01-710-010

(10) Make sure that the RMI HDG flag is out of view.

SUBTASK 34-22-01-710-011

(11) Set the IRS-L MSU switch on the aft P5 overhead panel to ATT.

SUBTASK 34-22-01-710-012

(12) Wait until the ALIGN light on the IRS MSU goes off.

SUBTASK 34-22-01-710-013

(13) Push H on the IRS DISPLAY unit on the aft overhead panel.

SUBTASK 34-22-01-710-014

(14) Push 6 on the IRS DISPLAY unit on the aft overhead panel.

SUBTASK 34-22-01-710-015

(15) Push 0 on the IRS DISPLAY unit on the aft overhead panel.

SUBTASK 34-22-01-710-016

(16) Push ENT on the IRS DISPLAY unit on the aft overhead panel.

SUBTASK 34-22-01-710-017

(17) Make sure that the RMI compass card indicates 60 ±2 degrees.

SUBTASK 34-22-01-710-018

(18) Make sure that the RMI's VOR/ADF select switches are in the VOR position.

SUBTASK 34-22-01-710-019

(19) Select frequency 108.00 MHz on the CAPT's Navigation Control panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-22-01-710-020

(20) Push the TEST switch on the CAPT's Navigation Control Panel.

SUBTASK 34-22-01-710-021

(21) Make sure that the Left Bearing flag is momentarily removed from view on the RMI and the Left Bearing pointer (narrow pointer) moves between 178 and 182 degrees.

NOTE: The bearing flag will be removed for approximately 4 seconds.

SUBTASK 34-22-01-710-022

(22) Select frequency 108.00 MHz on the FO's Navigation Control panel.

SUBTASK 34-22-01-710-023

(23) Push the TEST switch on the FO's Navigation Control Panel.

SUBTASK 34-22-01-710-024

(24) Make sure that the Right Bearing flag is momentarily removed from view on the RMI and the Right Bearing pointer (wide pointer) moves between 178 and 182 degrees.

NOTE: The bearing flag will be removed for approximately 4 seconds.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-442, 445-447, 451-460, 464

SUBTASK 34-22-01-710-025

(25) Set the Left VOR/ADF Select switch on the RMI to the ADF position.

SUBTASK 34-22-01-710-026

(26) Push the Test button on the front of the No 1 ADF Receiver.

NOTE: Test button on ADF control panel may be used if so equipped.

SUBTASK 34-22-01-710-027

(27) Make sure that the Left Bearing pointer slews to 135 ±5 degrees relative to the Heading Lubber Line.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 458-460, 464

SUBTASK 34-22-01-710-029

(28) Set the Right VOR/ADF Select switch on the RMI to the ADF position.

SUBTASK 34-22-01-710-030

(29) Push the Test button on the front panel of the No 2 ADF Receiver.

NOTE: TEST button on ADF Control Panel is acceptable when available.

SUBTASK 34-22-01-710-031

(30) Make sure that the Right Bearing pointer slews to 135 ±5 degrees relative to the Heading Lubber Line.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-22-01-710-028

(1) Set the IRS-L MSU switch to OFF.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY MAGNETIC COMPASS - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Standby Magnetic Compass Deactivation.

(2) Standby Magnetic Compass Activation.

(3) Each task is a different procedure that you can use to do a compass swing of the standby magnetic compass. One procedure is to use a standby compass calibrator (Calibrator Procedure). The other procedure is to tow the airplane around a compass rose (Tow Around Procedure). Use only one of these procedures to do a swing of the standby compass.

NOTE: Air bubbles can occur in the standby magnetic compass because of temperature change and/or decrease of liquid. Maintenance limits made for liquid quantity make sure of satisfactory compass operation. When air bubble is larger than 3/8 inch (9.5 mm) wide and 1/8 inch (3.2 mm) high, with the glass approximately vertical position, replace the standby compass.

(a) Each task has two parts. The first part is to do a swing of the standby compass through four compass points (north, east, south, west). Use this procedure for compass calibration. The second part is to do a swing the standby compass through 12 compass points that are approximately 30 degrees apart. Use this procedure to measure the remaining errors and to make sure the standby compass heading is accurate. Use this data to make the compass correction card. This card must stay with the standby compass.

(4) Standby Magnetic Compass Degaussing.

(5) Standby Magnetic Compass System (Spot Check) Inspection.

B. It is not necessary to keep a constant radius or tangency during airplane tow around the compass rose or swing area. Tow direction is optional. These make no difference when you calculate the solutions.

C. Do not park vehicles less than 220 ft (67 m) from the airplane during the compass swing.

D. You can use the Auxiliary Power Unit (APU) during the compass swing.

TASK 34-23-00-040-801

2. Standby Magnetic Compass - Deactivation

(Figure 201)

A. General

(1) This procedure removes electrical power from the Standby Magnetic Compass.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Procedure

SUBTASK 34-23-00-860-023

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

D. Standby Magnetic Compass -Tryout

NOTE: This tryout is to make sure the Standby Magnetic Compass is in a zero energy state.

SUBTASK 34-23-00-860-024

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-00-700-001

(2) Turn the light switch for the standby compass to the BRIGHT position and make sure the internal light is not illuminated.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

STANDBY MAGNETIC COMPASS

A

2382220 S0000538276_V1

Standby Magnetic Compass
Figure 201/34-23-00-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-23-00-440-801

3. Standby Magnetic Compass - Activation

(Figure 201)

A. General

(1) This procedure adds electrical power to the Standby Magnetic Compass.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-23-00-860-025

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

——— END OF TASK ———

TASK 34-23-00-820-801

4. Compass Calibration Tool – Master Compass Option

(Figure 202)

A. General

(1) Use tools that are not magnetic to adjust the standby magnetic compass.

B. References

Reference	Title
09-11-00-580-801	Maintenance Towing (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
FIM 34-23 TASK 801	Standby Magnetic Compass Error - Fault Isolation

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1925	Calibration Kit - Standby Compass Part #: 2591553-901 Supplier: 3BMV1 Part #: 2591553-903 Supplier: 3BMV1
STD-1167	Tripod - Non-magnetic

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Calibrator Adjustment

SUBTASK 34-23-00-820-001

(1) Calibrate the Standby Compass Calibrator (SCC) (standby compass calibration kit, COM-1925) to the magnetic field at the location of the compass swing area, do these steps:

(a) Put a tripod, STD-1167, at the center of the compass swing area.

(b) Remove the magnet assembly from the SCC.

(c) Remove the knob assembly from the SCC.

(d) Attach a master magnetic compass to the SCC with two mounting screws.

NOTE: It is possible to use an accurate standby magnetic compass for a master magnetic compass.

1) Make sure that the N-S and E-W adjustment screws are at neutral.

(e) Put the SCC/master compass assembly on the tripod, STD-1167.

1) Make sure that the assembly is level.

(f) Turn the assembly until the master magnetic compass shows an indication of magnetic north (N).

(g) Re-install the magnet assembly to the SCC.

(h) Re-install the knob assembly to the SCC.

(i) Turn the top and bottom SCC dials to show an indication of E at the index line.

(j) Make a record of the heading shown on the master magnetic compass.

(k) Turn the top and bottom SCC dials to show an indication of W at the index line.

(l) Make a record of the heading shown on the master magnetic compass.

(m) Turn the magnetic field cancellation adjustment screw on the SCC to decrease the heading errors in each direction (E and W) to a minimum.

(n) Continue to adjust the SCC dials for each direction (E and W).

1) Use the Magnetic Field Cancellation Adjustment (MFCA) screw until the errors are at a minimum.

NOTE: Continue to do this procedure until the error in each direction is at a minimum. When the errors are at a minimum, do not move the MFCA screw until the compass swing is completed.

(o) Remove the master magnetic compass from the SCC.

F. Four Point Calibration Swing Procedure

SUBTASK 34-23-00-580-001

(1) To tow the airplane to the compass swing area, do this task: Maintenance Towing, TASK 09-11-00-580-801.

NOTE: The compass swing area must be a level area with a smooth surface. It must be sufficiently strong to hold the weight of the airplane. The area must be large enough to tow or taxi the airplane.

(a) Make sure that no vehicles other than the tow vehicle are less than 220 ft (67.1 m) from the airplane.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-23-00-860-037

(2) Attach deactuators to the face of the air/ground sensors for the nose and main landing gear, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: The installation of the deactuators will energize the landing gear latch solenoid. Because the landing gear latch solenoid is close to the standby magnetic compass, the solenoid must be energized to create a normal level of magnetic and electrical interference during calibration of the compass.

(a) Let the landing gear latch solenoid stay energized for 20 minutes before you continue.

SUBTASK 34-23-00-860-002

(3) Energize all of the electronic equipment, radios, and flight compartment lights for the usual conditions that occur in flight.

SUBTASK 34-23-00-860-003

(4) Set the ND mode selector, on the left Electronic Flight Instrument System (EFIS) control panel, on the glareshield to the VOR position or to the ILS position.

SUBTASK 34-23-00-860-017

(5) Lower the mounting bracket for the standby magnetic compass to give sufficient space for the SCC:

(a) Loosen the screws on the mounting bracket to let it tilt down.

(b) Move the mounting bracket to you and approximately 15° down.

(c) Tighten the screws on the mounting bracket.

SUBTASK 34-23-00-020-001

(6) Remove the lower left and upper right mounting screws on the standby magnetic compass.

SUBTASK 34-23-00-480-001

(7) Use the two mounting screws to install the SCC on the face of the standby magnetic compass.

SUBTASK 34-23-00-020-002

(8) Disconnect the electrical connectors from the standby magnetic compass.

SUBTASK 34-23-00-820-003

(9) Turn the top and bottom SCC dials to show an indication of E at the index line.

SUBTASK 34-23-00-970-001

(10) Make a record of the heading shown on the standby magnetic compass.

SUBTASK 34-23-00-820-004

(11) Turn the top and bottom SCC dials to show an indication of W at the index line.

SUBTASK 34-23-00-970-002

(12) Make a record of the heading shown on the standby magnetic compass.

SUBTASK 34-23-00-820-005

(13) Turn the E-W adjustment screw on the standby magnetic compass until the error in the last two recorded values is at a minimum.

NOTE: Divide the error in each of the two directions as equally as possible.

SUBTASK 34-23-00-820-006

(14) Turn the top and bottom SCC dials to show an indication of N at the index line.

SUBTASK 34-23-00-970-003

(15) Make a record of the heading shown on the standby magnetic compass.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-23-00-820-007

(16) Turn the top and bottom SCC dials to show an indication of S at the index line.

SUBTASK 34-23-00-970-004

(17) Make a record of the heading shown on the standby magnetic compass.

SUBTASK 34-23-00-820-008

(18) Turn the N-S adjustment screw on the standby magnetic compass until the error in the last two recorded values is at a minimum.

NOTE: Divide the error in each of the two directions as equally as possible.

SUBTASK 34-23-00-820-009

(19) Continue to adjust the SCC dials for each pair of directions (E-W, N-S).

(a) Turn the E-W and N-S adjustment screws until the errors are at a minimum.

SUBTASK 34-23-00-820-019

(20) Continue to do this procedure until the error in each pair of directions is at a minimum.

(a) Start with E-W and turn the E-W adjustment screw.

(b) Do N-S and turn the N-S adjustment screw.

SUBTASK 34-23-00-820-010

(21) When the errors are at a minimum, do the steps that follow for the 12-point accuracy swing.

G. Twelve Point Accuracy Swing Procedure

SUBTASK 34-23-00-580-003

(1) Move the airplane to a location near the center of the compass swing area.

NOTE: For each of the magnetic headings that follow, the remaining deviation for the standby magnetic compass must not be more than ±5 degrees.

SUBTASK 34-23-00-820-011

(2) Adjust the SCC dials to indicate these magnetic headings: 0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, and 330 degrees.

SUBTASK 34-23-00-970-005

(3) Make a record of the magnetic heading, MH, and the standby compass heading, CH, for each 30 degree increment.

SUBTASK 34-23-00-970-006

(4) Make a record of the standby compass heading, CH, in the steer column of the compass correction card for each 30 degree heading increment.

SUBTASK 34-23-00-820-020

(5) If the remaining deviation measurement is out of tolerance, do the four point calibration procedure again.

(a) If it is necessary, do this task: FIM 34-23 TASK 801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-23-00-420-001

(1) Connect the electrical connectors to the standby magnetic compass.

SUBTASK 34-23-00-080-001

(2) Remove the SCC from the face of the standby magnetic compass:

(a) Remove the mounting screws that hold the SCC to the face of the standby magnetic compass.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(b) Remove the SCC.

(c) Install and tighten the mounting screws on the standby magnetic compass.

SUBTASK 34-23-00-860-018

(3) Put the mounting bracket back to its usual position:

(a) Loosen the screws on the mounting bracket.

(b) Push the mounting bracket up and into the mounting slots.

(c) Tighten the screws on the mounting bracket.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Standby Compass Calibrator
Figure 202/34-23-00-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-23-00-820-802

5. Formal Compass Swing and Compass Card - Airplane Inertial Reference System (IRS) Option

A. General

(1) Use tools that are not magnetic to adjust the standby magnetic compass.

(2) The airplane can be taxied, with engines running and equipment on similar to that of normal flight conditions, or it can be towed with Auxiliary Power Unit (APU) on (less flight like). Either is permited. There are two parts. The first part is to do a swing of the standby compass through four compass points (N, E, S, W). Use this procedure for compass calibration. The second part is to do a swing of the standby compass through 12 compass points that are approximately 30 degrees apart. Use this procedure to measure the remaining errors and to make sure that the standby compass heading is accurate. Use this data to make the compass correction card. It is not necessary to keep a constant radius or tangency during airplane taxi or tow around the compass swing area. Direction is optional and makes no difference when you calculate the solutions. The compass swing area must be a level area with a smooth surface. It must be sufficiently strong to hold the weight of the airplane. The area must be large enough to tow or taxi the airplane. Make sure that all vehicles and/or heavy equipment other than the tow vehicle are not less than 250 ft (76.2 m) from the airplane. The horizontal component of the earth's magnetic field must be constant (±1 degree) in the test area. If it is necessary, a hand-held compass can be used to check the compass swing location for magnetic influences other than earth’s magnetic field.

(3) Magnetic declination is the angle between magnetic north and true north. Declination is positive east of true north and negative when west. Magnetic declination changes over time and with location. The local value of magnetic declination is accurate can be obtained with the magnetic declination calculator on this National Oceanic and Atmospheric Administration (NOAA) web site:

- https://www.ngdc.noaa.gov/geomag-web/#declination.

B. References

Reference	Title
27-62-61-400-806	Ground Spoiler Interlock Valve Proximity Sensor Functional Test (P/B 501)
32-09-00-840-801	Prepare to Put the Airplane in the Air Mode (P/B 201)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal On Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1690	Actuators/Deactuators Set - Proximity Sensor Part #: 8-758-01 Supplier: 08748 Part #: A27092-146 Supplier: 81205
STD-7061	Correction Card - Compass

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for a Compass Swing of the Standby Compass

SUBTASK 34-23-00-860-038

(1) Align Inertial Reference System (IRS) and place in NAV (navigation) mode, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-23-00-860-039

(2) Make sure that the headings displayed for captain and first officer are within 1 degree.

SUBTASK 34-23-00-860-040

(3) Add captain and first officer magnetic or true heading, divide in half, and use result for reference headings.

SUBTASK 34-23-00-860-041

(4) Set the Inertial System Display Unit (ISDU) display to read heading.

(a) Set the DSPL SEL switch, on the P5 -70 overhead panel, to the HDG position or to the STS position.

SUBTASK 34-23-00-860-042

(5) Determine IRS magnetic heading accuracy at swing site

(a) Calculate the difference between magnetic heading displayed on the Primary Flight Display (PFD) and true heading displayed on the ISDU to determine swing site IRS magnetic declination angle.

(b) Calculate the difference between swing site IRS magnetic declination angle and NOAA data to determine the airplane's IRS Magnetic Variation (MagVar) table error.

SUBTASK 34-23-00-860-043

(6) Check the difference between the true heading and the magnetic heading, do these steps:

(a) Make sure that the mode selection switch on the IRS Mode Select Unit (MSU), on the P5-69 overhead panel, is in the NAV position.

NOTE: It is necessary to pull the switch to turn it.

(b) Set the DSPL SEL switch, on the P5 -70 overhead panel, to the HDG position or to the STS position.

1) Make sure that the left section displays the true heading.

(c) Make sure that the PFD displays the magnetic heading.

(d) Make sure that the difference between the true heading and magnetic heading is equate to the local magnetic declination.

1) If it is equal, use the magnetic heading from the PFD.

NOTE: An error of less than 1 degree between the left and right IRS heading is within tolerance. Add left and right heading values and divide by 2 and use the result as the magnetic heading for a compass spot check.

2) If it is not equal, use the true heading from the ISDU, and add/subtract the local magnetic declination

SUBTASK 34-23-00-860-044

(7) Determine IRS magnetic heading reference to use.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) For IRS MagVar table error less than or equal to 1 degree, IRS magnetic heading displayed on the PFD can be used for magnetic north reference targets

(b) For IRS MagVar table error greater than 1 degree, or if preferred, IRS true heading displayed on the ISDU with NOAA declination angle can be used for magnetic north reference targets.

SUBTASK 34-23-00-860-045

(8) Make sure that the N-S and E-W adjustment screws on the standby compass are at neutral.

SUBTASK 34-23-00-860-046

(9) Energize all of the electronic equipment, radios, and control cabin lighting for the usual conditions that occur in flight, except as follows:

- Angle of Attack (AOA) Heat
- Pitot Heat
- Total Air Temperature (TAT) Heat
- Drain Mast Heat
- Emergency Exit Lights
- Engine Ignition
- Engine Starting System
- Oxygen System
- Weather Radar
- Windshield Wipers.

SUBTASK 34-23-00-860-047

(10) Set the mode selector, on the Electronic Flight Instrument System (EFIS) control panels, to the VOR position or to the ILS position.

SUBTASK 34-23-00-860-048

(11) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.

SUBTASK 34-23-00-860-049

(12) Attach an actuator on the Ground Spoiler Interlock Valve Proximity Sensor (S1050).

NOTE: The actuator is part of the proximity sensor test set, SPL-1690. For information on the Ground Spoiler Interlock Valve Proximity Sensor, refer to this task: Ground Spoiler Interlock Valve Proximity Sensor Functional Test, TASK 27-62-61-400-806.

SUBTASK 34-23-00-860-050

(13) Attach the deactuators to the face of the air/ground sensors for the nose and main landing gear, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: The installation of the deactuators will energize the landing gear latch solenoid. Because the landing gear latch solenoid is close to the standby magnetic compass, the solenoid must be energized to create a normal level of magnetic and electrical interference during calibration of the compass.

(a) Let the landing gear latch solenoid stay energized for 20 minutes before you continue.

SUBTASK 34-23-00-860-051

(14) Power down and remove all personal electronic devices and personal ferrous material from the flight deck during the entirety of the compass swing.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-23-00-860-052

(15) Position airplane to within +/- 0.5 degrees of the IRS target heading references during four point and twelve point procedures.

F. Four Point Calibration Swing Procedure

SUBTASK 34-23-00-860-053

(1) Turn the airplane to the PFD 0 degrees Mag heading or ISDU (0 + MV) degrees true heading.

SUBTASK 34-23-00-860-054

(2) Adjust the N-S compensation screw on the standby compass to produce a compass heading of N.

SUBTASK 34-23-00-860-055

(3) Turn the airplane to the PFD 90 degrees Mag heading or ISDU (90 + MV) degrees true heading.

SUBTASK 34-23-00-860-056

(4) Adjust the E-W compensation screw on the standby compass to produce a compass heading of E.

SUBTASK 34-23-00-860-057

(5) Turn the airplane to the PFD 180 degrees Mag heading or ISDU (180 + MV) degrees true heading.

SUBTASK 34-23-00-860-058

(6) Record the compass heading, CH(S).

SUBTASK 34-23-00-860-059

(7) Record the A coefficient of single cycle error: A = (CH(S) - 180) / 2.

SUBTASK 34-23-00-860-060

(8) Adjust the N-S compensation screw on the standby compass to produce a compass heading of CH(S) - A.

SUBTASK 34-23-00-860-061

(9) Turn the airplane to the PFD 270 degrees Mag heading or ISDU (270 + MV) +/- 0.5 degrees true heading.

SUBTASK 34-23-00-860-062

(10) Record the compass heading, CH(W).

SUBTASK 34-23-00-860-063

(11) Record the B coefficient of single cycle error: B = (CH(W) - 270) / 2.

SUBTASK 34-23-00-860-064

(12) Adjust the E-W compensation screw on the standby compass to produce a compass heading of CH(W) - B.

SUBTASK 34-23-00-860-065

(13) Do all previous steps again until the resultant error has been minimized on the four headings.

G. Twelve Point Correction Swing Procedure

SUBTASK 34-23-00-860-066

(1) Turn the airplane near the center of the compass swing area for these target reference magnetic headings: 0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, and 330 degrees.

SUBTASK 34-23-00-860-067

(2) Make a record of the magnetic heading (MH) and standby compass heading (CH).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-23-00-860-068

(3) Calculate and make a record of the difference for each 30 degree heading as follows: D= MH - CH

SUBTASK 34-23-00-860-069

(4) During these steps, make sure that each difference is less than ± 3 degrees for all indicated headings.

SUBTASK 34-23-00-860-070

(5) Record steer headings in the STEER column of the compass correction card, STD-7061, for each indicated heading.

NOTE: Steer heading = MH - D except at Magnetic Heading 000 where: Steer heading = 360 - D for positive D or Steer heading = 000 - D for negative D

H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-23-00-860-020

(1) Remove the actuator from the Ground Spoiler Interlock Valve Sensor (S1050).

SUBTASK 34-23-00-860-016

(2) Remove the deactuators from the nose and main landing gear.

SUBTASK 34-23-00-840-002

(3) Do this task: Return the Airplane Systems Back to Their Normal On Ground Condition, TASK 32-09-00-840-802.

SUBTASK 34-23-00-860-013

(4) Set the mode select switches on the IRS MSU to the OFF position for at least 30 seconds.

END OF TASK

TASK 34-23-00-820-804

6. Formal Compass Swing and Compass Card - Compass Rose Site Option

A. General

(1) Use tools that are not magnetic to adjust the standby magnetic compass.

B. References

Reference	Title
09-11-00-580-801	Maintenance Towing (P/B 201)
27-62-61-400-806	Ground Spoiler Interlock Valve Proximity Sensor Functional Test (P/B 501)
32-09-00-840-801	Prepare to Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1690	Actuators/Deactuators Set - Proximity Sensor Part #: 8-758-01 Supplier: 08748 Part #: A27092-146 Supplier: 81205
STD-7061	Correction Card - Compass

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Location Zones

Zone	Area
211	Flight Compartment - Left

E. Formal Compass Swing and Compass Card - Compass Rose Site Option

SUBTASK 34-23-00-860-071

(1) Make sure that the N-S and E-W adjustment screws on the standby compass are at neutral.

SUBTASK 34-23-00-860-072

(2) Energize all of the electronic equipment, radios, and control cabin lighting for the usual conditions that occur in flight, except as follows:

- Angle of Attack (AOA) Heat
- Pitot Heat
- Total Air Temperature (TAT) Heat
- Drain Mast Heat
- Emergency Exit Lights
- Engine Ignition
- Engine Starting System
- Oxygen System
- Weather Radar
- Windshield Wipers.

SUBTASK 34-23-00-860-073

(3) Set the mode selector, on the Electronic Flight Instrument System (EFIS) control panels, to the VOR position or to the ILS position.

SUBTASK 34-23-00-860-074

(4) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.

SUBTASK 34-23-00-860-075

(5) Attach an actuator on the Ground Spoiler Interlock Valve Proximity Sensor (S1050).

NOTE: The actuator is part of the proximity sensor test set, SPL-1690. For information on the Ground Spoiler Interlock Valve Proximity Sensor, refer to this task: Ground Spoiler Interlock Valve Proximity Sensor Functional Test, TASK 27-62-61-400-806.

SUBTASK 34-23-00-860-076

(6) Attach the deactuators to the face of the air/ground sensors for the nose and main landing gear, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: The installation of the deactuators will energize the landing gear latch solenoid. Because the landing gear latch solenoid is close to the standby magnetic compass, the solenoid must be energized to create a normal level of magnetic and electrical interference during calibration of the compass.

(a) Let the landing gear latch solenoid stay energized for 20 minutes before you continue.

SUBTASK 34-23-00-860-077

(7) If the magnetic material (such as a new building) is less than 600 ft (182.9 m) from the compass rose, measure the horizontal component.

NOTE: The horizontal component of the earth's magnetic field must be constant (±1 degree) in the test area.

(a) If the horizontal component is not constant (±1 degree), do not use the compass rose.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-23-00-860-078

(8) Make sure that there are no vehicles or airplanes less than 220 ft (67.1 m) away.

SUBTASK 34-23-00-860-079

(9) Make sure that there are no buildings less than 220 ft (67.1 m) away.

SUBTASK 34-23-00-860-080

(10) To tow the airplane to the compass swing area, do this task: Maintenance Towing, TASK 09-11-00-580-801.

NOTE: The compass swing area must be a level area with a smooth surface. It must be sufficiently strong to hold the weight of the airplane. The area must be large enough to tow or taxi the airplane.

(a) Make sure that no vehicles other than the tow vehicle are less than 220 ft (67.1 m) from the airplane.

SUBTASK 34-23-00-860-081

(11) Energize all of the electronic equipment, radios, and flight compartment lights for the usual conditions that occur in flight.

SUBTASK 34-23-00-860-082

(12) Set the ND mode selector, on the left EFIS control panel, on the glareshield to the VOR position or to the ILS position.

F. Four Point Calibration Swing Procedure

SUBTASK 34-23-00-860-083

(1) Turn the airplane to the Primary Flight Display (PFD) 0 degrees Mag heading or Inertial System Display Unit (ISDU) (0 + MV) degrees true heading.

SUBTASK 34-23-00-860-084

(2) Adjust the N-S compensation screw on the standby compass to produce a compass heading of N.

SUBTASK 34-23-00-860-085

(3) Turn the airplane to the PFD 90 degrees Mag heading or ISDU (90 + MV) degrees true heading.

SUBTASK 34-23-00-860-086

(4) Adjust the E-W compensation screw on the standby compass to produce a compass heading of E.

SUBTASK 34-23-00-860-087

(5) Turn the airplane to the PFD 180 degrees Mag heading or ISDU (180 + MV) degrees true heading.

SUBTASK 34-23-00-860-088

(6) Record the compass heading, CH(S).

SUBTASK 34-23-00-860-089

(7) Record the A coefficient of single cycle error: A = (CH(S) - 180) / 2.

SUBTASK 34-23-00-860-090

(8) Adjust the N-S compensation screw on the standby compass to produce a compass heading of CH(S) - A.

SUBTASK 34-23-00-860-091

(9) Turn the airplane to the PFD 270 degrees Mag heading or ISDU (270 + MV) +/- 0.5 degrees true heading.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-23-00-860-092

(10) Record the compass heading, CH(W).

SUBTASK 34-23-00-860-093

(11) Record the B coefficient of single cycle error: B = (CH(W) - 270) / 2.

SUBTASK 34-23-00-860-094

(12) Adjust the E-W compensation screw on the standby compass to produce a compass heading of CH(W) - B.

SUBTASK 34-23-00-860-095

(13) Do all previous steps again until the resultant error has been minimized on the four headings.

G. Twelve Point Correction Swing Procedure

SUBTASK 34-23-00-860-096

(1) Turn the airplane near the center of the compass swing area for these target reference magnetic headings: 0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, and 330 degrees.

SUBTASK 34-23-00-860-097

(2) Make a record of the magnetic heading (MH) and standby compass heading (CH).

SUBTASK 34-23-00-860-098

(3) Calculate and make a record of the difference for each 30 degree heading as follows: D= MH - CH

SUBTASK 34-23-00-860-099

(4) During these steps, make sure that each difference is less than ± 3 degrees for all indicated headings.

SUBTASK 34-23-00-860-100

(5) Record steer headings in the STEER column of the compass correction card, STD-7061, for each indicated heading.

NOTE: Steer heading = MH - D except at Magnetic Heading 000 where: Steer heading = 360 - D for positive D or Steer heading = 000 - D for negative D

END OF TASK

TASK 34-23-00-820-803

7. Standby Magnetic Compass - Degaussing

(Figure 203)

A. General

(1) Use tools that are not magnetic to adjust the standby magnetic compass.

B. Tools/Equipment

Reference	Description
STD-4745	Compass - Handheld
STD-6158	Coil - Demagnetizing, AC

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Prepare for Standby Magnetic Compass Degaussing

SUBTASK 34-23-00-840-003

(1) Precautions necessary to demagnetize the standby compass are as follows:

(a) Do not permit the AC demagnetizing coil, STD-6158 to remain within 10 ft (3.05 m) of any part of aircraft unless it is energized.

(b) Do not operate the AC demagnetizing coil, STD-6158 in vicinity of magnetic compass.

(c) Care should be taken to ensure that the AC demagnetizing coil, STD-6158 is not actually in contact with surface when used. (To be effective, it should be used as close to surface as possible.)

E. Standby Magnetic Compass Degaussing Procedure.

SUBTASK 34-23-00-820-017

(1) Find and identify the area to be demagnetized as follows:

(a) Move a Handheld Compass, STD-4745, into the area adjacent to the standby compass.

1) Make sure that the needle of the Handheld Compass, STD-4745, points to magnetic north before using it.

(b) If the Handheld Compass, STD-4745, needle moves away from magnetic north, identify the area for demagnetization.

(2) Demagnetize the standby compass area to restore to normal configuration (area about windshields and flight compartment) as follows: (Figure 203)

(a) Deactivate the standby magnetic compass. Do this task: Standby Magnetic Compass - Deactivation, TASK 34-23-00-040-801.

(b) Remove the standby compass and store it in an area away from the aircraft.

(c) Energize the AC demagnetizing coil, STD-6158 at a distance of at least 10 ft (3.05 m) from the aircraft.

CAUTION	MAKE SURE THAT YOU OBEY THE PROCEDURES TO REMOVE THE MAGNETIC PARTICLES FROM THE WINDSHIELD AND THE FLIGHT COMPARTMENT AREAS. KEEP THE TOOL ABOVE THE LOWER PART OF THE WINDSHIELD SILLS. THIS WILL PREVENT DAMAGE TO THE INSTRUMENTS.

(d) Move the AC demagnetizing coil, STD-6158 slowly towards windshield areas, bring the AC demagnetizing coil, STD-6158 as close as possible to the structure without touching the structure. Move it in series of parallel strokes over the entire windshield area.

NOTE: The windshield area is defined as the area from top of windshield aft for a distance of 36 in. (914.4 mm), bounded on each side by the left and right sliding windshields.

(e) Demagnetize the windshield screws by moving the AC demagnetizing coil, STD-6158 in line with the screws.

(f) Slowly withdraw the AC demagnetizing coil, STD-6158 at least 10 ft (3.05 m) from the aircraft before deenergizing.

(g) Check the areas that are degaussed with a Handheld Compass, STD-4745 for signs of any remaining magnetization. If magnetization still exists, repeat process of degaussing until evidence of magnetization disappears.

(h) When the area is satisfactorily demagnetized, install the standby compass.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(i) Activate the standby magnetic compass. Do this task: Standby Magnetic Compass - Activation, TASK 34-23-00-440-801.

SUBTASK 34-23-00-700-002

(3) Do a check of the standby magnetic compass system. Do this task: Formal Compass Swing and Compass Card - Airplane Inertial Reference System (IRS) Option, TASK 34-23-00-820-802 or Compass Calibration Tool – Master Compass Option, TASK 34-23-00-820-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-23-00-940-001

(1) Remove all the tools and equipment from the work area. Make sure the area is clean.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

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Standby Magnetic Compass
Figure 203/34-23-00-990-803

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-23-00-730-801

8. Standby Magnetic Compass System (Spot Check) - Inspection

A. General

(1) This task gives instructions to do a spot check of the standby magnetic compass.

(2) Magnetic declination is the angle between magnetic north and true north. Declination is positive east of true north and negative when west. Magnetic declination changes over time and with location. The local value of magnetic declination is accurate can be confirmed using a magnetic declination calculator on the following National Oceanic and Atmospheric Administration (NOAA) web site:

- https://www.ngdc.noaa.gov/geomag-web/#declination.

(3) The compass swing area must be a level area with a smooth surface away from buildings.

(4) A spot check of the standby magnetic compass may be performed during taxi, with engines running and equipment on similar to that of normal flight conditions.

(5) This task can also be used post storage if airplane on-ground greater than one year at the same heading.

B. References

Reference	Title
09-11-00 P/B 201	TOWING - MAINTENANCE PRACTICES
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Prepare for the Spot Check

SUBTASK 34-23-00-580-014

(1) Tow the airplane to the compass swing area (PAGEBLOCK 09-11-00/201).

SUBTASK 34-23-00-860-031

(2) Energize all of the electronic equipment, radios, and flight compartment lights for the usual conditions that occur in flight.

SUBTASK 34-23-00-820-022

(3) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-23-00-860-032

(4) Set the Navigation Display (ND) mode selector on the left Electronic Flight Instrument System (EFIS) control panel on the glareshield to the VOR/ILS position.

E. Standby Magnetic Compass System (Spot Check) Inspection

SUBTASK 34-23-00-820-023

(1) Check the difference between the true heading and the magnetic heading, do the following steps:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure that the mode selection switch on the Inertial Reference System (IRS) Mode Select Unit (MSU), on the P5-69 overhead panel, is in the NAV position.

NOTE: It is needed to pull the switch to turn it.

(b) Set the DSPL SEL switch, on the P5–70 overhead panel, to the HDG/STS position.

1) Make sure that the left section displays the true heading.

(c) Make sure that the Primary Flight Display (PFD) displays the magnetic heading.

(d) Make sure that the difference between the true heading and the magnetic heading is equate to the local magnetic declination.

1) If it is equal, then use the magnetic heading from the PFD.

NOTE: An error of less than 1 degree between the left and right IRS heading is within tolerance. Add left and right heading values and divide by 2 and use the result as the magnetic heading for a compass spot check.

2) If it is not equal, then use the true heading from the Inertial System Display Unit (ISDU), and add/subtract the local magnetic declination.

SUBTASK 34-23-00-580-016

(2) Turn the airplane and do a compass heading spot checks for at least 4-8 directions spread evenly around the compass.

NOTE: The airplane does not need to stay in the same spot for each heading check point.

SUBTASK 34-23-00-820-024

(3) Make sure that the magnetic compass headings are within the following limits:

- The magnetic compass headings are within 3 degrees of the actual magnetic heading
- The magnetic compass headings plus the compass card corrections are within 1 degree of the actual magnetic heading.

(a) If the magnetic compass headings are not within the limits, do this task: Formal Compass Swing and Compass Card - Airplane Inertial Reference System (IRS) Option, TASK 34-23-00-820-802 or Compass Calibration Tool – Master Compass Option, TASK 34-23-00-820-801.

NOTE: If the magnetic compass headings are within the limits, the calibrating procedure is not required.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY MAGNETIC COMPASS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the standby magnetic compass

(2) An installation of the standby magnetic compass.

B. The standby magnetic compass is installed below the center of the P5 forward overhead panel in the flight compartment.

TASK 34-23-00-000-801

2. Standby Magnetic Compass Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Standby Magnetic Compass Removal

SUBTASK 34-23-00-860-026

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-00-020-003

CAUTION

USE ONLY TOOLS THAT ARE NOT MAGNETIC FOR THE REMOVAL AND THE INSTALLATION OF THE STANDBY MAGNETIC COMPASS. MAGNETIC TOOLS CAN CAUSE DAMAGE TO THE INSTRUMENT.

(2) Remove the standby magnetic compass [1]:

(a) Disconnect the electrical connector [3].

(b) Remove the screws [2] that hold the standby magnetic compass [1] to the mounting bracket.

(c) Remove the standby magnetic compass [1].

(d) Put protective covers on the electrical connector [3] and the connector on the back of the standby magnetic compass [1].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

STANDBY MAGNETIC COMPASS

A

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Standby Magnetic Compass Installation
Figure 401/34-23-00-990-804

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-23-00-400-801

3. Standby Magnetic Compass Installation

(Figure 401)

A. References

Reference	Title
34-23-00-730-801	Standby Magnetic Compass System (Spot Check) - Inspection (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Standby magnetic compass	34-23-01-02-028	LOM ALL
		34-23-01-02-029	LOM ALL
		34-23-01-02-030	LOM ALL

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Standby Magnetic Compass Installation

SUBTASK 34-23-00-860-027

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-00-420-002

> **CAUTION**
> USE ONLY TOOLS THAT ARE NOT MAGNETIC FOR THE REMOVAL AND THE INSTALLATION OF THE STANDBY MAGNETIC COMPASS. MAGNETIC TOOLS CAN CAUSE DAMAGE TO THE INSTRUMENT.

(2) Install the standby magnetic compass [1]:

(a) Remove the protective covers from the electrical connector [3] and the connector on the back of the standby magnetic compass [1].

(b) Examine the electrical connector [3] for bent or broken pins, dirt, and damage.

(c) Install the standby magnetic compass [1] onto the mounting bracket.

(d) Connect the electrical connector [3] to the standby magnetic compass [1].

1) Push the electrical connector [3] until it locks into its position with a click.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL; AIRPLANES WITH AMETEK NON-MOD A COMPASS C-5L

2) Wind 1 inch wide Scotch No. 24 wire mesh tape around the junction of the electrical connector [3] and standby magnetic compass [1] a minimum of three times.

NOTE: Securing the connector with tape only applies to AMETEK C-5L compass that has not been modified to MOD A. An “A” as a suffix to the serial number indicate a MOD A configuration.

NOTE: The tape must touch against the rear of the standby magnetic compass case. Keep sufficient tension on the tape while you wind the junction to make it the shape of the connector. You can use thinner tape, if you wind the connector with a minimum overlap of 50 percent. Wind all parts of the connector within 1 inch of the compass with a minimum of three wrappings. Temporarily secure the end of the tape.

3) Wind the mesh tape a minimum of two times with 1 inch wide Scotch No. 70 or A-A-59163 Type I self-fusing silicone rubber tape.

NOTE: Keep sufficient tension on the tape while you wind the junction to make it the shape of the connector You can use thinner tape, if you wind the connector with a minimum overlap of 50 percent. Wind all of the wire mesh tape with a minimum of two wrappings of the silicone rubber tape.

4) If the connector is removed for any reason, discard all tape and repeat step (d) above using new tape.

LOM ALL

(e) Install the screws [2] at the corners of the standby magnetic compass [1].

SUBTASK 34-23-00-860-028

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

E. Installation Test

SUBTASK 34-23-00-750-003

(1) Make sure that the light for the standby magnetic compass [1] is on.

SUBTASK 34-23-00-820-018

(2) Do this task: Standby Magnetic Compass System (Spot Check) - Inspection, TASK 34-23-00-730-801.

NOTE: In the event the compass is removed and there are no modifications to the area or equipment, and the same equipment is installed, there is no need or requirement to spot check the compass.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY MAGNETIC COMPASS LIGHT - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Standby Magnetic Compass Light - Removal

(2) Standby Magnetic Compass Light - Installation

TASK 34-23-01-000-802

2. Standby Magnetic Compass Light - Removal

(Figure 201)

A. General

(1) The Standby Magnetic Compass Light is located on the front of the Standby Magnetic Compass, which is below the P5 forward overhead panel.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-23-01-860-006

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

LOM ALL; AIRPLANES WITH STANDBY MAGNETIC COMPASS C-5L OR PGA0116W

SUBTASK 34-23-01-000-001

> **CAUTION**
> DO NOT PULL THE SPRING WHEN YOU REMOVE THE LAMP. THE SPRING CAN BREAK. THIS WILL CAUSE PERMANENT DAMAGE TO THE COMPASS.

(2) Do these steps to remove the standby compass light:

(a) Remove the lightholder assembly and light [1].

(b) Remove the light from the lightholder assembly.

NOTE: Gently twisting the lamp can assist in its removal.

LOM ALL

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

STANDBY MAGNETIC COMPASS

B

N76552 S0006576669_V5

Standby Magnetic Compass Light
Figure 201/34-23-01-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-23-01-400-802

3. Standby Magnetic Compass Light - Installation

(Figure 201)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Standby Magnetic Compass Light Installation

SUBTASK 34-23-01-860-007

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-01-400-001

(2) Do these steps to install the standby magnetic compass light:

(a) Put the light into the lightholder assembly.

(b) Install the lightholder assembly on the compass.

SUBTASK 34-23-01-860-008

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	14	C00161	CONTROL CABIN LIGHTING STBY COMPASS

SUBTASK 34-23-01-860-010

(4) Set the standby magnetic compass light switch to the BRIGHT position.

SUBTASK 34-23-01-210-001

(5) Make sure that the standby magnetic compass internal lights are on.

SUBTASK 34-23-01-860-011

(6) Set the panel light switch on the standby magnetic compass to the OFF position.

SUBTASK 34-23-01-210-002

(7) Make sure that the standby magnetic compass internal lights are off.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY ATTITUDE REFERENCE SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Standby Attitude Reference System Deactivation.

(2) Standby Attitude Reference System Activation.

TASK 34-24-00-040-801

2. Standby Attitude Reference System - Deactivation

(Figure 201)

A. General

(1) This procedure removes electrical power from the Standby Attitude Reference System.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-24-00-860-015

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 411, 426, 432, 466-999			
D	9	C01387	STBY ATT IND

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
LOM ALL			
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR

D. Standby Attitude Reference System - Tryout

NOTE: This tryout is to make sure the Standby Attitude Reference System is in a zero energy state.

SUBTASK 34-24-00-860-016

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 411, 426, 432, 466-999			
D	9	C01387	STBY ATT IND

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
LOM ALL			
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-24-00-700-001

(2) Make sure the panel lights for the indicator are not on.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

2382224 S0000545883_V1

Standby Attitude Reference System
Figure 201/34-24-00-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-24-00-440-801

3. Standby Attitude Reference System - Activation

(Figure 201)

A. General

(1) This procedure adds electrical power to the Standby Attitude Reference System.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-24-00-860-017

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 411, 426, 432, 466-999			
D	9	C01387	STBY ATT IND

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
LOM ALL			
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY ATTITUDE REFERENCE SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has this task:

(1) A system test of the standby attitude reference system.

TASK 34-24-00-730-801

2. Standby Attitude Reference System - System Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left

LOM 411, 426, 432; AIRPLANES WITHOUT THE ALTERNATE NAVIGATION SYSTEM

C. Procedure

SUBTASK 34-24-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-00-860-003

(2) Set the mode selector switch on the standby attitude indicator to the OFF position.

SUBTASK 34-24-00-860-004

(3) Let the gyro get to full speed.

NOTE: The gyro will reach full speed approximately 3 minutes after you supply power.

SUBTASK 34-24-00-860-006

(4) Pull and release the cage knob on the standby indicator.

NOTE: Do not let the knob hit against the front of the indicator.

SUBTASK 34-24-00-750-001

(5) After five minutes, make sure that the attitude data on the Standby Attitude Indicator is the same as the captain's attitude display ± 2 degrees.

SUBTASK 34-24-00-860-007

(6) Open this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

SUBTASK 34-24-00-750-002

(7) Make sure the GYRO flag comes into view in less than one second.

SUBTASK 34-24-00-860-008

(8) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-24-00-750-004

(9) Make sure the GYRO flag goes out of view within 3 minutes.

SUBTASK 34-24-00-860-009

(10) Tune the captain's VHF NAV receiver to the frequency of 108.35 MHz.

NOTE: To set the frequency, turn the frequency selector until the selected frequency shows in the STANDBY display window. Then, push the TFR switch. The frequency will show in the ACTIVE display window. The frequency of 108.35 MHz is the test frequency for the ILS.

SUBTASK 34-24-00-860-010

(11) Set the mode selector switch on the standby attitude indicator to the APP position.

SUBTASK 34-24-00-740-001

(12) Push the TEST switch on the captain's VHF NAV control panel.

(a) Make sure that the G/S and LOC flags come into view and then go out of view in less than five seconds.

(b) Make sure the localizer deviation bar moves one mark left and the glide slope deviation bar moves one mark up.

(c) Make sure the localizer deviation bar moves one mark right and the glide slope deviation bar moves one mark down.

SUBTASK 34-24-00-860-011

(13) Set the mode selector switch on the standby attitude indicator to the B/CRS position.

SUBTASK 34-24-00-740-003

(14) Push the TEST switch on the captain's VHF NAV control panel.

(a) Make sure the LOC flag comes into view and then goes out of view in less than five seconds.

(b) Make sure the glide slope deviation bar and the G/S flag are out of view.

(c) Make sure the localizer deviation bar moves to the right side of the center and then to the left side of the center.

SUBTASK 34-24-00-860-012

(15) Set the mode selector switch on the standby attitude indicator to the OFF position.

SUBTASK 34-24-00-860-013

(16) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY ATTITUDE INDICATOR LIGHT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the standby attitude indicator light.

(2) An installation of the standby attitude indicator light.

B. The standby attitude indicator is installed on the pilots' center instrument panel (P2).

C. The lights are found on the light block assembly.

TASK 34-24-01-000-802

2. Standby Attitude Indicator Light Removal

MANUAL CONTROL - MAINTENANCE PRACTICES, PAGEBLOCK 24-22-00/201
Figure 201

A. References

Reference	Title
24-22-00 P/B 201	MANUAL CONTROL - MAINTENANCE PRACTICES

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Removal Procedure

SUBTASK 34-24-01-860-010

(1) Open this circuit breaker and attach the DO-NO-CLOSE tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

SUBTASK 34-24-01-000-003

(2) Do these steps to prepare to remove the standby attitude indicator [1]:

(a) Loosen the two larger indicator adjustment screws [2] adjacent to the indicator [1].

(b) Pull the indicator [1] a sufficient distance from the instrument panel to get access to the lighting block cover [20].

SUBTASK 34-24-01-000-004

(3) Remove the screw [25]that hold the lighting block cover [20], spring blade [30], andlighting block [35] to the top of the front face of the standby attitude INDICATOR [1].

SUBTASK 34-24-01-000-005

(4) Remove the lighting block cover [20] and spring blade [30].

SUBTASK 34-24-01-000-006

(5) Remove the lighting block [35].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

STANDBY ATTITUDE INDICATOR

D66309 S0000162672_V2

Standby Attitude Indicator Light Installation
Figure 201/34-24-01-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-24-01-400-802

3. Standby Attitude Indicator Light Installation

Figure 201

A. Location Zones

Zone	Area
211	Flight Compartment - Left

B. Installation Procedure

SUBTASK 34-24-01-860-009

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

SUBTASK 34-24-01-420-003

(2) Install the replacement lighting block [35] on the top of the front face of the standby attitude INDICATOR [1].

SUBTASK 34-24-01-430-001

(3) Put the lighting block cover [20] and spring blade [30] back in the correct position and tighten the screw [25].

SUBTASK 34-24-01-430-002

(4) Do these steps to install the standby attitude INDICATOR [1]:

(a) Move the INDICATOR [1] into the instrument panel.

(b) Tighten the INDICATOR [1] clamp screw [25].

SUBTASK 34-24-01-860-011

(5) Remove the DO-NOT-CLOSE tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

C. Installation Test

SUBTASK 34-24-01-750-002

(1) Make sure the panel lights for the standby attitude INDICATOR [1] are on.

SUBTASK 34-24-01-700-001

(2) Make sure the standby attitude INDICATOR [1] flag disappears.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

STANDBY ATTITUDE INDICATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the standby attitude indicator

(2) An installation of the standby attitude indicator.

B. The standby attitude indicator is installed on the center instrument panel, P2, in the flight compartment.

TASK 34-24-01-000-801

2. Standby Attitude Indicator Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left

LOM 411, 426, 432

B. Removal Procedure

SUBTASK 34-24-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR

SUBTASK 34-24-01-000-001

> **CAUTION** LET THE GYRO STOP AFTER YOU REMOVE THE ELECTRICAL POWER. REMOVAL OF THE STANDBY ATTITUDE INDICATOR BEFORE THE GYRO STOPS CAN CAUSE DAMAGE TO THE GYRO.

(2) After 20 minutes, when the gyro is stopped, continue.

SUBTASK 34-24-01-020-001

(3) Remove the standby attitude indicator [1]:

> **CAUTION** BE SURE TO PROPERLY PACKAGE AND HANDLE THE GYRO. IF AVAILABLE, INSTALL A DEVICE TO LOCK THE KNOB IN A CAGED POSITION. THIS CAN PREVENT DAMAGE TO THE GYRO WHEN THE INDICATOR IS MOVED.

(a) Pull the cage knob and install a device to lock it in a caged position if it has a mechanical caging lock mechanism.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 426, 432 (Continued)

(b) Loosen the two adjustment screws [2] at the top right corner and the bottom left corner of the indicator [1].

NOTE: Do not remove the adjustment screws [2]. Loosen the adjustment screws [2] until the indicator [1] can be removed. If the indicator [1] is not easy to remove, loosen the other two screws that attach the clamp to the forward panel. This will permit easier removal of the indicator [1].

(c) Pull the indicator [1] out of the instrument panel until you can get access to the electrical connector [3].

(d) Disconnect the electrical connector [3] from the indicator [1].

(e) Remove the indicator [1].

(f) Put protective covers on the electrical connector [3] and the connector on the back of the indicator [1].

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

STANDBY ATTITUDE INDICATOR

B

L65662 S0006576683_V2

Standby Attitude Indicator Installation
Figure 401/34-24-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-24-01-400-801

3. Standby Attitude Indicator Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-24-00-730-801	Standby Attitude Reference System - System Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Indicator	31-11-31-05-060	LOM 411
		31-11-31-07-055	LOM 426, 432
		34-24-01-02-020	LOM 411
		34-24-01-03-020	LOM 426, 432

C. Location Zones

Zone	Area
211	Flight Compartment - Left

LOM 411, 426, 432

D. Installation Procedure

SUBTASK 34-24-01-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR

SUBTASK 34-24-01-420-001

(2) Install the standby attitude indicator [1]:

(a) Remove the protective covers from the electrical connector [3] and the connector on the back of the indicator [1].

(b) Examine the electrical connector [3] for bent or broken pins, dirt and damage.

(c) Connect the electrical connector [3] to the indicator [1].

(d) Install the indicator [1] into the instrument panel.

(e) Tighten the two adjustment screws [2] at the top right corner and the bottom left corner of the indicator [1].

1) Torque the adjustment screws [2] to 5 in-lb (0.6 N·m) - 8 in-lb (0.9 N·m).

2) Remove the device that locks the cage knob in a caged position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 426, 432 (Continued)

SUBTASK 34-24-01-860-003

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	9	C01387	STBY ATT IND

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

E. Installation Test

SUBTASK 34-24-01-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-01-750-001

(2) Make sure the panel lights for the indicator [1] are on.

SUBTASK 34-24-01-730-001

(3) Do this task: Standby Attitude Reference System - System Test, TASK 34-24-00-730-801.

SUBTASK 34-24-01-860-005

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

INTEGRATED STANDBY FLIGHT DISPLAY - MAINTENANCE PRACTICES

1. General

A. This procedure has this task:

(1) Integrated Standby Flight Display (ISFD) Alignment.

TASK 34-24-02-820-801-091

2. Integrated Standby Flight Display Alignment

(Figure 201)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-24-02-760-001-091

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-02-820-002-091

(2) Do these steps to check the ISFD alignment:

(a) Select INIT/REF on the FMC-CDU keyboard.

(b) Select INDEX (LSK 6L).

(c) Select MAINT (LSK 6R).

(d) Select DFCS (LSK 2L).

(e) Select EXTENDED MAINTENANCE (LSK 4L).

(f) Select ISFD ALIGN (LSK 5L).

(g) Select CHANNEL A (LSK 2L) (Select LSK 3L if CHANNEL B is necessary).

1) After completion of step (g), PAGE 1 from Figure 201 will show on the ISFD.

(h) Select NEXT PAGE on the FMC-CDU keyboard to see PAGE 2 of Figure 201.

(i) Align the ISFD so that the PITCH and ROLL errors are less than 0.5 degrees.

(j) Select INIT/REF on the FMC-CDU keyboard to exit the alignment procedure.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

```
  D F C S   B I T E   T E S T
 I S FD  AL I GN      CHAN - X       1 / 2

  P I TCH  ANGLE       (DEG)  +  =  NU
   AD I RU ( I RU)  -  LCL      XX . X
   AD I RU ( I RU)  -  FGN      XX . X
   I SF D                       XX . X
 ROLL  ANGLE         ( DEG)  +  =  RWD
   AD I RU ( I RU)  -  LCL      XX . X
   AD I RU ( I RU)  -  FGN      XX . X
   I SF D                       XX . X

< EX I T                    PREV  MENU>
```

PAGE 1

```
  D F C S   B I T E   T E S T
 I S FD  AL I GN      CHAN - X       2 / 2

        P I TCH  ERROR  (DEG)
            +  =  NOSE  UP
             XX . X


 ROLL  ERROR  (DEG)
            +  =  RIGHT  WING  DOWN
             XX . X


< EX I T                    PREV  MENU>
```

PAGE 2

2394254 S0000550422_V1

Integrated Standby Flight Display Alignment
Figure 201/34-24-02-990-802-091

ECCN 9E991 BOEING PROPRIETARY - See title page for details

INTEGRATED STANDBY FLIGHT DISPLAY - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the integrated standby flight display.

(2) An installation of the integrated standby flight display.

TASK 34-24-02-000-801

2. Integrated Standby Flight Display Removal

(Figure 401)

A. References

Reference	Title
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-12596	Tool - Extracting Part #: F1402369 Supplier: F9111

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Removal Procedure

SUBTASK 34-24-02-860-001

(1) Open this circuit breaker and attach a DO-NOT-CLOSE tag:

(a) Front of the ISFD Dedicated Battery System, M2100, E4-1:

1) DBC Output breaker

SUBTASK 34-24-02-860-020

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
D	8	C00701	EMER PANEL LTG

SUBTASK 34-24-02-020-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INTEGRATED STANDBY FLIGHT DISPLAY. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE INTEGRATED STANDBY FLIGHT DISPLAY.

(3) Remove the integrated standby flight display [3]:

(a) Loosen, but do not remove, the two adjustment screws [1] adjacent to the integrated standby flight display [3] until the integrated standby flight display [3] can be removed.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) If necessary, push the two adjustment screws to release the ISFD from the mount clamp.

CAUTION DO NOT USE THE BARO KNOB TO PULL THE DISPLAY [3] FROM THE INSTRUMENT PANEL. DAMAGE TO THE DISPLAY [3] CAN OCCUR IF THE BARO KNOB IS PULLED DURING REMOVAL.

CAUTION CAREFULLY PULL THE DISPLAY [3] FROM THE INSTRUMENT PANEL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE ELECTRICAL CABLE AND THE HOSES ON THE REAR OF THE DISPLAY [3].

(b) Use the ISFD extracting tool, SPL-12596 to pull the integrated standby flight display [3] from the instrument panel until you can get access to the electrical connector [4], pitot hose [5] and static hose [6].

(c) If the integrated standby flight display [3] is not easy to remove, loosen the two mounting screws [2] to make the removal easier.

(d) If necessary, remove the adjacent coverplate for more access to disconnect the electrical and pneumatic connectors.

CAUTION MAKE SURE THAT THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE PITOT HOSE [5] AND THE STATIC HOSE [6]. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE DISPLAY [3] CAN OCCUR.

(e) Disconnect the pitot hose [5] and static hose [6] from the integrated standby flight display [3].

(f) Disconnect the electrical connector [4].

(g) Remove the integrated standby flight display [3].

(h) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

M23055 S0006576690_V2

Integrated Standby Flight Display Installation
Figure 401/34-24-02-990-801

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TASK 34-24-02-400-801

3. Integrated Standby Flight Display Installation

(Figure 401)

A. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Connector Cover Removal (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Consumable Materials

Reference	Description	Specification
A00270	Compound - Threadlocking, Low-strength - Loctite 222	
A50212	Compound - Threadlocking, Low-strength - Loctite 222MS	MIL-S-46163A, ASTM D5363

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Installation Procedure

SUBTASK 34-24-02-860-002

(1) Make sure that this circuit breaker is open:

(a) Front of the ISFD Dedicated Battery System, M2100, E4-1:

1) DBC Output Breaker

SUBTASK 34-24-02-420-001

> **CAUTION**
> DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INTEGRATED STANDBY FLIGHT-DISPLAY (ISFD) DEDICATED BATTERY-CHARGER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ISFD DEDICATED BATTERY-CHARGER.

(2) Install the integrated standby flight display [3]:

(a) Do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-40-12-000-804.

(b) Examine the electrical connector [4] for bent or broken pins.

(c) Connect the electrical connector [4] at the rear of the integrated standby flight display [3].

> **CAUTION**
> MAKE SURE THAT THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU CONNECT THE PITOT HOSE AND STATIC HOSE TO THE INTEGRADED STANBY FLIGHT DISPLAY, IF PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE DISPLAY CAN OCCUR.

(d) Connect the pitot hose [5] and static hose [6] to the integrated standby flight display [3].

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(e) Do a visual inspection to make sure the pitot-static system hose connections and quick-disconnect fittings are locked in the sealed position.

1) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pin and you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

(f) If you loosened the mounting screws, apply Loctite 222MS compound, A50212, or Loctite 222 compound, A00270, to the threads of the mounting screws [2].

(g) Install the integrated standby flight display [3] into the instrument panel.

1) Make sure that the ISFD is seated all the way into the panel opening. And pushed tight against the panel face with no gaps between the instrument bezel and the panel face.

(h) Torque the two adjustment screws [1] adjacent to the integrated standby flight display [3] to 4 in-lb (5 kg-cm) - 9 in-lb (10 kg-cm).

(i) If you loosened the mounting screws, torque the two mounting screws [2] to 4 in-lb (5 kg-cm) - 9 in-lb (10 kg-cm).

(j) Do a visual inspection to make sure that the ISFD is properly fitted in its clamp and aligned with the cockpit panel.

(k) Install the coverplate if previously removed.

SUBTASK 34-24-02-860-021

(3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
D	8	C00701	EMER PANEL LTG

SUBTASK 34-24-02-710-003

(4) Do the ISFD installation test.

E. ISFD Installation Test

SUBTASK 34-24-02-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-02-860-019

(2) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801

SUBTASK 34-24-02-700-007

CAUTION

AIRPLANES WITH ISFD S231A120-1; DO NOT MOVE THE AIRPLANE WHILE THE ISFD SHOWS THE YELLOW "ATT" AND "INIT90S" MESSAGES. IF YOU MOVE THE AIRPLANE DURING THE ISFD SYSTEM POWER-UP AND INITIALIZATION ALIGNMENT, THE ISFD CAN SHOW INCORRECT ATTITUDE DATA WITH NO ATT FLAG OR MESSAGE.

(3) Close this circuit breaker and remove the DO-NOT-CLOSE tag:

(a) Front of the ISFD Dedicated Battery System, M2100, E4-1:

1) DBC Output Breaker

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SUBTASK 34-24-02-700-001

(4) Make sure that the display shows the following flags in approximately 15 seconds after power up:

(a) SPD flag

(b) ATT flag

(c) ALT flag

(d) INIT 90S flag.

SUBTASK 34-24-02-710-001

(5) Make sure that the following flags and indications show in approximately 15 to 90 seconds after power up:

(a) ATT flag

(b) INIT 90S flag

(c) Airspeed indication with no SPD flag

(d) Altitude indication with no ALT flag.

SUBTASK 34-24-02-710-002

(6) Make sure that the following is displayed on the ISFD after approximately 90 seconds:

(a) Attitude (normal) display with the following indications with no flags:

1) Fixed aircraft symbol

2) Roll scale

3) Roll index

4) Pitch scale.

NOTE: To restart the initialization, push and release the ATT RST button on the face of the ISFD.

SUBTASK 34-24-02-820-001

(7) Make sure that the attitude data on the ISFD is the same as the captain's attitude display ± 1 degree.

(a) If the attitude on the ISFD is out of tolerance, adjust the adjustment screws [1] as necessary.

SUBTASK 34-24-02-700-003

(8) Push APP and HP/IN, on the face of the ISFD, for approximately two seconds.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY (P/N C16221XXXX)

SUBTASK 34-24-02-700-004

(9) Push the + select key next to <TESTS.

SUBTASK 34-24-02-700-005

(10) Push the select key next to <FUNCTIONAL TEST (110s).

NOTE: The TEST screen will display IN PROGRESS 110s.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999; AIRPLANES WITH THE INTEGRATED STANDBY FLIGHT DISPLAY (P/N C16786XXXX)

SUBTASK 34-24-02-700-012

(11) Use the BARO knob to select FUNCTIONAL TESTS on the maintenance page.

(a) To move the menu selection box, turn the knob in either direction.

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(b) To select, press the knob.

NOTE: The TEST screen will display IN PROGRESS 110s.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

SUBTASK 34-24-02-700-006

(12) Make sure that the TEST result displays TEST OK.

SUBTASK 34-24-02-700-008

(13) Push and release the RST (reset) button.

END OF TASK

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INTEGRATED STANDBY FLIGHT DISPLAY - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An operational test of the integrated standby flight display (ISFD).

(2) An operational test of the dedicated battery charger and battery pack for the integrated standby flight display (ISFD).

TASK 34-24-02-710-801

2. Integrated Standby Flight Display - Operational Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Operational Test

SUBTASK 34-24-02-860-017

(1) Supply power to the ISFD:

(a) To use airplane power, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

(b) To use battery power, set the battery switch S5 on the Electrical Meters, Battery, and Galley Power Module (p5-13) to “ON”.

D. Procedure

SUBTASK 34-24-02-700-009

(1) Make sure that this circuit breaker is closed:

(a) Front of the ISFD Dedicated Battery System, M2100, E4-1:

1) DBC Output Breaker

SUBTASK 34-24-02-710-006

(2) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

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SUBTASK 34-24-02-700-010

(3) Make sure that the display shows the following flags in approximately 15 seconds after power up:

(a) SPD flag

(b) ATT flag

(c) ALT flag

(d) INIT 90S flag.

SUBTASK 34-24-02-710-004

(4) Make sure the following flags and indications show in approximately 15 to 90 seconds after power up:

(a) ATT flag

(b) INIT 90S flag

(c) Airspeed indication with no SPD flag

(d) Altitude indication with no ALT flag.

SUBTASK 34-24-02-710-005

(5) Make sure the following is displayed on the ISFD after approximately 90 seconds:

(a) Attitude (normal) display with the following indications with no flags:

1) Fixed aircraft symbol

2) Roll scale

3) Roll index

4) Pitch scale.

NOTE: To restart the ATT, push and release the ATT RST button on the face of the ISFD.

E. Put the Airplane Back to its Usual Condition

SUBTASK 34-24-02-860-022

(1) Remove electrical power to the ISFD.

(a) If applicable, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

(b) If applicable, set the battery switch S5 on the Electrical Meters, Battery, and Galley Power Module (p5-13) to “OFF”.

——— END OF TASK ———

TASK 34-24-02-730-801

3. Integrated Standby Flight Display - System Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-1916	Adapter - Pitot Test (Typically included in Air Data Accessory Kit) Part #: CSA75700HT-3 Supplier: 3BSK6 Part #: P75701-4 Supplier: 38002 Part #: P75701M2-3 Supplier: 38002
COM-1921	Adapter - Static Test Part #: 33410LH-125-4 Supplier: 38002 Part #: ADA737-678 Supplier: 38002 Part #: AK737-900 Supplier: 3BSK6 Part #: CSTL19725-4 Supplier: 3BSK6
COM-1927	Coupling - Quick Disconnect, Static System Drain Fitting Part #: 1QF2-3-64C Supplier: 24984

C. Consumable Materials

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left

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(Continued)

Zone	Area
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the System Test

SUBTASK 34-24-02-730-007

(1) Do the Operational Test for the integrated standby flight display.

SUBTASK 34-24-02-860-016

> **WARNING**
> MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Make sure that the ATC transponders are in standby mode.

SUBTASK 34-24-02-860-005

(3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 34-24-02-860-006

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-02-750-002

(5) Make sure that the altitude tape, airspeed tape, heading, and attitude pitch and roll are displayed on the ISFD with no red flags.

SUBTASK 34-24-02-860-007

(6) Set the BARO scale of the ISFD to 29.92 inches of mercury (1013 millibars).

G. Installation of the Drain Coupling, 1QF2-3-64C (Recommended)

SUBTASK 34-24-02-480-001

> **WARNING**
> WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. IN ADDITION, ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT DECK AS A REMINDER THAT THE STATIC PORTS ARE COVERED. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

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(WARNING PRECEDES)

> **CAUTION** DO NOT PUSH THE TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(1) Seal the two alternate static ports with vinyl adhesive Scotch Brand No.471 tape, G02219 at these locations:

(a) The ALTERNATE static port on the right side of the fuselage.

(b) The ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-24-02-480-002

(2) Remove the cap from the No. 5 Alternate Static Drain, in the electronic equipment compartment, below the E-5 rack.

Get access to the drain in the electronic equipment compartment through this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-24-02-400-001

(3) Install the coupling, COM-1927, on the No. 5 Alternate Static Drain.

SUBTASK 34-24-02-400-002

(4) Connect the air data model test set, COM-1914 to the coupling, COM-1927.

H. Installation of the Static Port Adapter, 33410LH-125-4 (Optional to the Drain Coupling)

SUBTASK 34-24-02-400-003

> **CAUTION** INSTALL THE ADAPTER, 33410LH-124-4, SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(1) Install the static test adapter, COM-1921, on the ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-24-02-400-005

(2) Connect the air data model test set, COM-1914 to the static test adapter, COM-1921.

SUBTASK 34-24-02-480-010

> **WARNING** WHEN THE STATIC PORTS ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. IN ADDITION, ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT DECK AS A REMINDER THAT THE STATIC PORTS ARE COVERED. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT MAY CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS, WHICH MAY LEAD TO LOSS OF SAFE FLIGHT.

> **CAUTION** DO NOT PUSH TAPE INTO THE STATIC PORTS. YOU CAN CAUSE DAMAGE TO THE STATIC SYSTEM IF YOU PUSH TAPE INTO THE STATIC PORT.

(3) Seal the ALTERNATE static port on the right side of the fuselage with vinyl adhesive Scotch Brand No.471 tape, G02219.

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I. Installation of the Pitot Probe Adapter

SUBTASK 34-24-02-480-005

> **CAUTION** MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(1) Install the pitot test adapter, COM-1916 on the lower pitot probe located at STA 192, WL 213, RBL 34.

SUBTASK 34-24-02-480-006

(2) Connect the air data model test set, COM-1914 to the pitot test adapter, COM-1916.

SUBTASK 34-24-02-010-001

(3) Lower the P5 forward overhead panel.

(a) Loosen the 1/4-turn fasteners that hold the P5 forward overhead panel in position and let the panel rotate downward.

SUBTASK 34-24-02-020-003

> **CAUTION** THE CABIN ALTITUDE DIFFERENTIAL PRESSURE INDICATOR MUST BE DISCONNECTED FROM ITS STATIC PRESSURE SOURCE AND THE SOURCE CAPPED. FAILURE TO DISCONNECT THE CABIN DIFFERENTIAL PRESSURE INDICATOR MAY RESULT IN DAMAGE TO THE INDICATOR.

(4) Disconnect the alternate static hose from the cabin altitude differential pressure Indicator located behind the P5 forward overhead panel.

J. Test Procedure

SUBTASK 34-24-02-860-008

(1) Apply pressure to the alternate pitot and alternate static systems for each test point as shown in the table that follows (Table 501):

(a) When you apply pressure to the static system, make sure that the rate is less than 5,000 feet for each minute.

(b) When you apply pressure to the pitot system, make sure that the rate is less than 300 knots for each minute.

Table 501/34-24-02-993-802

TEST POINT	STATIC (In. Hg)	STATIC (mBar)	PITOT (In. Hg)	PITOT (mBar)	ALTITUDE (feet)	ALTITUDE (meters)	AIRSPEED (knots)
1	29.921	1,013	30.311	1,026	0±30	0±9.14	90±3.5
2	24.896	843	27.996	948	5,000±50	1,524±15.24	250±3.5
3	16.886	572	17.703	599	15,000±110	4,572±33.52	130±3.5
4	11.104	376	17.013	576	25,000±160	7,620±48.76	340±8
5	7.041	238	10.963	371	35,000±210	10,668±64.00	279±6
6	5.286	179	7.95	269	41,000±235	12,496±71.62	233±6

SUBTASK 34-24-02-730-005

(2) At each test value, permit the pressure to become stable for one minute.

(a) Do not hit or shake the display before you read the values.

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SUBTASK 34-24-02-780-001

(3) Make sure that the altitude and airspeed data on the ISFD is in tolerance for each test point in Table 501.

SUBTASK 34-24-02-780-002

(4) Make sure that the attitude data on the ISFD is the same as the captain's attitude display ± 1 degree.

SUBTASK 34-24-02-210-005

(5) Do a check to see if the ISFD dedicated battery System (E4-1) is operational:

(a) Make sure that the red fault light on the front of the battery charger is not on.

NOTE: The red fault light shows that the battery charger is not serviceable. The battery charger can be not serviceable because of battery temperature or because of a cell voltage problem.

SUBTASK 34-24-02-860-009

(6) Put the system back to ambient pressure.

(a) When you release the pressure from the static system, make sure that the rate is less than 5,000 feet for each minute.

(b) When you release the pressure from the pitot system, make sure that the rate is less than 300 knots for each minute.

SUBTASK 34-24-02-080-001

(7) Removal of Drain Coupling, coupling, COM-1927

CAUTION

MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(a) Disconnect the air data model test set, COM-1914 from the coupling, COM-1927.

(b) Disconnect the coupling, COM-1927, from the No. 5 Alternate Static Drain.

(c) Install the cap on the No. 5 Alternate Static Drain.

WARNING

FAILURE TO REMOVE THE VINYL ADHESIVE TAPE FROM THE STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN CAUSE AN DANGEROUS FLIGHT.

WARNING

DO NOT FILL OR CHANGE THE HOLES IN THE PORT. MAKE SURE THAT YOU REMOVE ALL OF THE PIECES OF TAPE FROM THE STATIC PORTS. THE SURFACE OF THE PORT MUST BE SMOOTH AND CLEAN. IF IT IS NOT, THE SYSTEM WILL NOT OPERATE CORRECTLY AND IT CAN CAUSE INJURY.

(d) Remove the Scotch Brand No.471 tape, G02219, from the alternate static ports at these locations:

1) The ALTERNATE static port on the right side of the fuselage.

2) The ALTERNATE static port on the left side of the fuselage.

SUBTASK 34-24-02-480-008

(8) Removal of Static Port Adapter, static test adapter, COM-1921

ECCN 9E991 BOEING PROPRIETARY - See title page for details

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(a) Disconnect the air data model test set, COM-1914 from the static test adapter, COM-1921.

> **CAUTION** REMOVE THE ADAPTER SLOWLY AND CAREFULLY. THE ADAPTER CAN CAUSE SCRATCHES ON THE STATIC PORT, WHICH CAN CAUSE FALSE ALTITUDE READINGS.

(b) Remove the static test adapter, COM-1921, from the ALTERNATE static port on the left side of the fuselage.

(c) Remove the Scotch Brand No.471 tape, G02219, from the ALTERNATE static port on the right side of the fuselage.

SUBTASK 34-24-02-080-004

(9) Removal of the Pitot Probe Adapter

> **CAUTION** MAKE SURE THE PITOT-STATIC SYSTEM IS AT AMBIENT PRESSURE BEFORE YOU DISCONNECT THE TEST SET. IF THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(a) Disconnect the air data model test set, COM-1914 from the pitot test adapter, COM-1916.

(b) Remove the pitot test adapter, COM-1916, from the pitot probe.

SUBTASK 34-24-02-410-001

(10) Connect the alternate static hose to the cabin altitude differential pressure indicator located behind the P5 forward overhead panel.

SUBTASK 34-24-02-210-007

(11) Do a visual inspection of the quick-disconnect fittings that you connected.

(a) Make sure that the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and make sure that you see the colored lock ring indicator that shows a correct connection of the quick-disconnect fitting.

SUBTASK 34-24-02-410-002

(12) Lift the P5 forward overhead panel to the closed position and turn the 1/4-turn fasteners.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 34-24-02-860-012

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	1	C00523	HEATERS CAPT PITOT
C	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-24-02-710-802

4. ISFD Dedicated Battery System - Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task gives instruction to check if the battery charger and battery pack for the Integrated Standby Flight Display (ISFD) are operational.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Operational Test

SUBTASK 34-24-02-860-014

(1) Make sure that the electrical power is on (TASK 24-22-00-860-811).

E. Operational Test of the Dedicated Battery System and Battery Pack for the Integrated Standby Flight Display

SUBTASK 34-24-02-210-006

(1) Do a check to see if the ISFD dedicated battery system (E4-1) and battery pack are serviceable:

(a) Make sure that the red FAULT light on the front of the battery charger is not on.

NOTE: The red FAULT light shows that the battery charger or the battery pack are not serviceable. The battery charger or battery pack can be not serviceable because of problems with battery charger operating temperature, battery charger voltage output, or battery pack cell voltage.

NOTE: If the red FAULT light is not on and a display shows on the integrated standby flight display, the battery charger and battery are serviceable.

(b) Open circuit breaker on the front of the ISFD dedicated battery charger.

(c) Close circuit breaker on the front of the ISFD dedicated battery charger.

(d) Make sure that the yellow “ALT”, “SPD”, “ATT”, and “INIT XXs” flags are displayed on the ISFD for approximately 10 to 15 seconds after power up.

NOTE: “XXs” refers to the time remaining (in seconds) for the ISFD to complete its initialization. Timer starts at 90s and counts down to 0s.

(e) After 15 seconds, make sure that the display still show “ATT” and “INIT XXs” on the ISFD.

(f) After 120 seconds, make sure that the display change to an attitude display.

(g) Make sure that the BAT SW is in the ON position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(h) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	8	C01551	ISFD

(i) Make sure that the ISFD display is not blank and continues to operate for 5-10 minutes.

NOTE: A fully charged ISFD battery can operate for up to 150 minutes.

(j) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	8	C01551	ISFD

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-24-02-860-023

(1) If the electrical power is not necessary, turn the power supply off (TASK 24-22-00-860-812).

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ISFD DEDICATED BATTERY CHARGER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ISFD dedicated battery charger

(2) An installation of the ISFD dedicated battery charger.

B. The battery charger [1] is on the E4 electronic equipment rack, shelf No. 1, in the main equipment center.

TASK 34-24-03-000-801

2. ISFD Dedicated Battery Charger Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Removal

WARNING

REMOVE ELECTRICAL POWER AND GROUND THE UNIT BEFORE YOU DO MAINTENANCE WORK. THE UNIT CAN CONTAIN ELECTRICITY AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

SUBTASK 34-24-03-840-002

CAUTION

DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(1) Before you touch the dedicated battery charger [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

E. ISFD Dedicated Battery Charger Removal

SUBTASK 34-24-03-860-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	8	C01551	ISFD

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-24-03-010-001

(2) To get access to the main equipment center, open this access panel:
(TASK 06-41-00-800-801)

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-24-03-860-010

(3) Open this circuit breaker and attach a DO-NOT-CLOSE tag:
   (a) Front of the battery charger, M2100, E4-1:
      1) DBC Output Breaker.

SUBTASK 34-24-03-020-001

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INTEGRATED STANDBY FLIGHT-DISPLAY (ISFD) DEDICATED BATTERY-CHARGER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ISFD DEDICATED BATTERY-CHARGER.

(4) To remove the dedicated battery charger [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

M23346 S0006576701_V6

ISFD Dedicated Battery Charger Installation
Figure 401/34-24-03-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-24-03-400-801

3. ISFD Dedicated Battery Charger Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Dedicated battery charger	34-24-51-02-005	LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Installation

WARNING REMOVE ELECTRICAL POWER AND GROUND THE UNIT BEFORE YOU DO MAINTENANCE WORK. THE UNIT CAN CONTAIN ELECTRICITY AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

SUBTASK 34-24-03-840-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(1) Before you touch the dedicated battery charger [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

F. ISFD Dedicated Battery Charger Installation

SUBTASK 34-24-03-860-006

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	8	C01551	ISFD

SUBTASK 34-24-03-860-003

(2) Make sure that this circuit breaker is open:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Front of the battery charger, M2100, E4-1:

1) DBC Output Breaker.

SUBTASK 34-24-03-420-001

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE BATTERY CHARGER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

(3) To install the dedicated battery charger [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-24-03-860-007

(4) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	8	C01551	ISFD

SUBTASK 34-24-03-860-004

(5) Remove the DO-NOT-CLOSE tag and close this circuit breaker:

(a) Front of the battery charger, M2100, E4-1:

1) DBC Output Breaker.

SUBTASK 34-24-03-710-001

(6) Make sure that the red light on the face of the battery charger is not on.

G. ISFD Dedicated Battery Charger Installation Test

SUBTASK 34-24-03-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-24-03-700-001

(2) Make sure that a display shows on the integrated standby flight display.

NOTE: The display will show flags for approximately 15 seconds. After approximately 3 minutes, the display will change to an attitude display.

SUBTASK 34-24-03-700-002

(3) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	8	C01551	ISFD

SUBTASK 34-24-03-700-003

(4) Make sure that a display shows on the integrated standby flight display.

NOTE: This step tests the dedicated battery operation. The battery is replaced every three years for normal maintenance.

NOTE: To restart the display initialization, push and release the ATT RST button on the face of the ISFD.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-24-03-700-004

(5) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	8	C01551	ISFD

SUBTASK 34-24-03-710-002

(6) Make sure that the red FAULT light on the face of the battery charger is not on.

NOTE: If the fault light is not on and a display shows on the integrated standby flight display, the battery charger is serviceable.

(a) The red FAULT light comes on when there is a fault with the battery charger or the battery, from one or more of these conditions:

1) Battery charger operating temperature is more than the maximum 180°F (82°C) or less than the minimum 5°F (-15°C).

2) Battery charger circuits do not provide the correct output voltage.

3) Voltage levels of the cells in the battery pack are not equal.

SUBTASK 34-24-03-410-002

(7) Close this access panel:

(TASK 06-41-00-800-801)

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

INSTRUMENT LANDING SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Instrument Landing System Deactivation

(2) Instrument Landing System Activation

TASK 34-31-00-040-801

2. Instrument Landing System - Deactivation

A. General

(1) This procedure removes electrical power from the Instrument Landing System.

B. Location Zones

Zone	Area
111	Radome
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-31-00-860-026

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	13	C01480	RADIO NAVIGATION MMR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

E. Instrument Landing System - Tryout

NOTE: This tryout is to make sure the Instrument Landing System is in a zero energy state.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-00-860-027

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	13	C01480	RADIO NAVIGATION MMR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-31-00-010-001

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-31-00-210-001

(3) Make sure the status light/LCD display (as applicable) is not illuminated on the mode receiver.

——— END OF TASK ———

TASK 34-31-00-440-801

3. Instrument Landing System - Activation

A. General

(1) This procedure adds electrical power to the Instrument Landing System.

B. Location Zones

Zone	Area
111	Radome
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-31-00-860-028

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	13	C01480	RADIO NAVIGATION MMR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-31-00-210-002

(2) Make sure the status light/LCD display (as applicable) is illuminated on the mode receiver.

SUBTASK 34-31-00-410-001

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An operational test of the instrument landing system.

(2) A system test of the instrument landing system.

TASK 34-31-00-710-801

2. Instrument Landing System - Operational Test

A. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Test

SUBTASK 34-31-00-710-001

(1) Do these steps to prepare for the operational test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the SOURCE switch on the instrument switching module to the AUTO position.

(c) Set the mode selector on the captain's and the first officer's Electronic Flight Instrument System (EFIS) control panel to the APP position.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

(d) Set the Approach Mode Selector switch on the standby attitude indicator to the APP position.

NOTE: The switch can also be labeled Instrument Landing System (ILS).

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999; AIRPLANES WITH INTEGRATED STANDBY FLIGHT DISPLAY (ISFD)

(e) Push the Approach Mode Selector (APP) button on the Integrated Standby Flight Display (ISFD) until APP is displayed on the ISFD screen.

LOM ALL

(f) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned and in the NAV mode. To align it, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

(g) Make sure that the ILS, GPS Landing System (GLS) and Global Positioning System (GPS) lights are not on, on the P5 aft panel.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(h) Set the captain's and the first officer's course select controls on the Mode Control Panel (MCP) to the same course as the airplane heading.

D. Power and Tuning Test

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-00-860-002

(1) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels.

(a) Turn the frequency selector until the frequency shows in the STANDBY display window.

(b) Push the TRF button.

(c) Check that the frequency shows in the ACTIVE display window.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-00-860-025

(2) Set a ILS frequency of 108.1 MHz on the captain's and the first officer's navigation control panels by:

(a) Pushing the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the Navigation Control Panel (NCP).

(b) Pushing the number “108.10” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window on the NCP.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

SUBTASK 34-31-00-860-035

(3) Make sure that the following on the CAPT (Captain) and First Officer (F/O) Primary Flight Display (PFD):

(a) ”ILS” is displayed on the upper left corner of the attitude indicator.

(b) Localizer and Glideslope deviation scales are displayed.

LOM ALL

SUBTASK 34-31-00-860-003

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-31-00-710-014

(5) After a wait of 15 seconds, push and release the Master Caution Annunciators on the left side of the P7 glareshield panel.

(a) Make sure that the MASTER CAUTION PUSH TO RESET light and the IRS light on the P7 panel are illuminated.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426, 443, 444, 451, 452, 457-460, 465-999

(b) Make sure that the GPS light on the Inertial Reference System (IRS) Mode Select Unit (MSU) located on the P5 aft overhead panel is illuminated.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

(c) Make sure that the ILS, GLS and GPS light on the IRS MSU located on the P5 aft overhead panel are illuminated.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-31-00-710-015

(6) Push and release the MASTER CAUTION PUSH TO RESET button on the P7 panel.

(a) Make sure that the MASTER CAUTION PUSH TO RESET light and the IRS light on the P7 panel are extinguished.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426, 443, 444, 451, 452, 457-460, 465-999

(b) Make sure that the GPS light on the IRS MSU located on the P5 aft overhead panel is extinguished.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

(c) Make sure that the ILS, GLS and GPS light on the IRS MSU located on the P5 aft overhead panel are extinguished.

LOM ALL

SUBTASK 34-31-00-710-002

(7) Push and release the TEST button on the captain's navigation control panel.

(a) Make sure that these indications show on the captain's display:

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 432-434, 437, 438, 440, 442-445, 451-454, 457-460, 465-999

NOTE: It takes approximately 16 seconds for the test sequence to complete.

LOM ALL

1) The LOC and G/S flags show momentarily.
2) The glideslope deviation pointer shows one dot up and the localizer deviation bar shows one dot left.
3) The glideslope deviation pointer shows one dot down and the localizer deviation bar shows one dot right.
4) The LOC and G/S flags do not show at the end of the test.

SUBTASK 34-31-00-710-032

(8) Make sure that the LOC and G/S flags are displayed on the F/O PFD.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-00-710-033

(9) Select 108.00 MHz on the F/O NAV control panel.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-00-710-034

(10) Select VOR 108.00 on the F/O NAV control panel.

(a) Push the MODE key until “VOR” is displayed in the STBY (lower) window of the NCP.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464 (Continued)

(b) Push the number 108.00 using the NCP keypad.

(c) Push the ACT/STBY transfer key until “VOR 108.00” is displayed in the ACT (upper) window of the NCP.

LOM ALL

SUBTASK 34-31-00-710-035

(11) Make sure that the LOC and G/S flags are not displayed on the F/O PFD.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-00-710-036

(12) Select 108.10 MHz on the F/O NAV control panel.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-00-710-037

(13) Select ILS 108.10 on the F/O NAV control panel.

(a) Push the MODE key until “ILS” is displayed in the STBY (lower) window of the NCP.

(b) Push the number 108.10 using the NCP keypad.

(c) Push the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window of the NCP.

LOM ALL

SUBTASK 34-31-00-860-004

(14) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-31-00-860-005

(15) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

SUBTASK 34-31-00-860-032

(16) Wait approximately 60 seconds for the receiver to energize.

SUBTASK 34-31-00-710-003

(17) Push and release the TEST button on the first officer's navigation control panel.

(a) Make sure that these indications show on the first officer's display:

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 432-434, 437, 438, 440, 442-445, 451-454, 457-460, 465-999

NOTE: It takes approximately 16 seconds for the test sequence to complete.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL

1) The LOC and G/S flags show momentarily.
2) The glideslope deviation pointer shows one dot up and the localizer deviation bar shows one dot left.
3) The glideslope deviation pointer shows one dot down and the localizer deviation bar shows one dot right.
4) The LOC and G/S flags do not show at the end of the test.

SUBTASK 34-31-00-710-038

(18) Make sure that the LOC and G/S flags are displayed on the captain's PFD.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-00-710-039

(19) Select 108.00 MHz on the captain's NAV control panel.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-00-710-040

(20) Select VOR 108.00 on the captain's NAV control Panel.

(a) Push the MODE key until “VOR” is displayed in the STBY (lower) window of the NCP.

(b) Push the number “108.00” using the NCP keypad.

(c) Push the ACT/STBY transfer key until “VOR 108.00” is displayed in the ACT (upper) window of the NCP.

LOM ALL

SUBTASK 34-31-00-710-041

(21) Make sure that the LOC and G/S flags are not displayed on the captain's PFD.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-00-710-042

(22) Select 108.10 MHz on the captain's NAV control panel.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-00-710-043

(23) Select ILS 108.10 on the captain's NAV control Panel.

(a) Push the MODE key until “ILS” is displayed in the STBY (lower) window of the NCP.

(b) Push the number “108.10” using the NCP keypad.

(c) Push the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window of the NCP.

LOM ALL

SUBTASK 34-31-00-860-006

(24) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-00-860-033

(25) Wait approximately 60 seconds for the receiver to energize.

E. Data Out, Source Select, and ILS Tuned Discrete Test

SUBTASK 34-31-00-710-004

(1) Push and release the TEST button on the captain's navigation control panel.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

(a) Make sure that these indications show on the standby attitude indicator:

LOM 411, 426, 432

NOTE: It takes approximately 16 seconds for the test sequence to complete.

1) The LOC and G/S flags appear momentarily.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

2) The glideslope deviation bar shows one dot up and the localizer deviation bar shows one dot left.

3) The glideslope deviation bar shows one dot down and the localizer deviation bar shows one dot right.

LOM 411, 426, 432

4) The LOC and G/S flags do not show at the end of the test.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999; AIRPLANES WITH INTEGRATED STANDBY FLIGHT DISPLAY (ISFD)

(b) Make sure that these indications show on the integrated standby flight display:

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 433, 434, 437, 438, 440, 442-445, 451-454, 457-460, 465-999

NOTE: It takes approximately 16 seconds for the test sequence to complete.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999; AIRPLANES WITH INTEGRATED STANDBY FLIGHT DISPLAY (ISFD)

1) The LOC and G/S scales disappear momentarily.

2) The glideslope deviation bar shows one dot up and the localizer deviation bar shows one dot left.

3) The glideslope deviation bar shows one dot down and the localizer deviation bar shows one dot right.

4) The LOC and G/S flags do not show at the end of the test.

LOM ALL

SUBTASK 34-31-00-860-022

(2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

(a) Wait for 15 seconds.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 426, 432

(b) Make sure that G/S and LOC flags are displayed on the Standby Attitude Indicator.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(c) Make sure that the G/S and LOC flags are displayed on the ISFD.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-31-00-710-016

(3) Push and release the Master Caution Annunciators on the left side of the P7 glareshield panel.

(a) Make sure that the MASTER CAUTION PUSH TO RESET LIGHT and the IRS light on the P7 panel are illuminated.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426, 443, 444, 451, 452, 457-460, 465-999

(b) Make sure that the GPS light on the IRS MSU located on the P5 aft overhead panel is illuminated.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

(c) Make sure that the ILS, GLS and GPS light on the IRS MSU located on the P5 aft overhead panel are illuminated.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-31-00-710-017

(4) Push and release the MASTER CAUTION PUSH TO RESET button on the P7 panel.

(a) Make sure that the MASTER CAUTION PUSH TO RESET light and the IRS light on the P7 panel are extinguished.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426, 443, 444, 451, 452, 457-460, 465-999

(b) Make sure that the GPS light on the IRS MSU located on the P5 aft overhead panel is extinguished.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

(c) Make sure that the ILS, GLS and GPS light on the IRS MSU located on the P5 aft overhead panel are extinguished.

LOM ALL

SUBTASK 34-31-00-860-023

(5) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

(a) Wait approximately 60 seconds for the receiver to energize.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999

(b) Make sure that G/S and LOC scales are displayed on the ISFD.

LOM 411, 426, 432

(c) Make sure that G/S and LOC flags do not appear on the Standby Altitude Indicator.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-31-00-710-018

(6) Push and release the Master Caution Annunciators on the left side of the P7 glareshield panel.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426, 443, 444, 451, 452, 457-460, 465-999

(a) Make sure that the GPS light on the IRS MSU located on the P5 aft overhead panel is not illuminated.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

(b) Make sure that the ILS, GLS and GPS lights are not illuminated.

LOM ALL

SUBTASK 34-31-00-710-005

(7) Set the VHF NAV switch on the instrument switching module to the BOTH ON 1 position.

(a) Make sure the message “EFIS MODE/NAV FREQ DISAGREE” does not show on the captain's and the first officer's displays.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

SUBTASK 34-31-00-710-019

(8) Set a GLS channel of 21000 on the captain's navigation control panel by:

(a) Pushing the MODE key (V or reverse V) until “GLS” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “21000” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “GLS 21000” is displayed in the ACT (upper) window on the NCP.

1) Make sure that the following on the CAPT and F/O PFD:

a) ”GLS” is displayed on the upper left corner of the attitude indicator.

b) Localizer and Glideslope deviation scales are displayed.

2) Make sure that the message “EFIS MODE/NAV FREQ DISAGREE” on the CAPT and F/O Approach Mode of the Nav display format DOES NOT appear.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-00-710-020

(9) Set a VHF Omnidirectional Range (VOR) frequency of 108.00 MHz on the captain's navigation control panel by:

(a) Pushing the MODE key (V or reverse V) until “VOR” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “108.00” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “VOR 108.00” is displayed in the ACT (upper) window on the NCP.

1) Make sure that the message “EFIS MODE/NAV FREQ DISAGREE” appears on the CAPT and F/O Approach Mode of the Nav display format.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-00-710-006

(10) Set a frequency of 108.0 MHz on the captain's navigation control panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999 (Continued)

(a) Make sure the message “EFIS MODE/NAV FREQ DISAGREE” shows on the captain's and the first officer's displays.

LOM ALL

SUBTASK 34-31-00-710-007

(11) Set the VHF NAV switch on the instrument switching module to the BOTH ON 2 position.

(a) Make sure the message “EFIS MODE/NAV FREQ DISAGREE” does not show on the captain's and the first officer's displays.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

SUBTASK 34-31-00-710-021

(12) Set a GLS channel of 21000 on the F/O navigation control panel by:

(a) Pushing the MODE key (V or reverse V) until “GLS” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “21000” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “GLS 21000” is displayed in the ACT (upper) window on the NCP.

1) Make sure that the following on the CAPT and F/O PFD:

a) ”GLS” is displayed on the upper left corner of the attitude indicator.

b) Localizer and Glideslope deviation scales are displayed.

2) Make sure that the message “EFIS MODE/NAV FREQ DISAGREE” on the CAPT and F/O Approach Mode of the Nav display format DOES NOT appear.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-00-710-022

(13) Set a VOR frequency of 108.00 MHz on the F/O navigation control panel by:

(a) Pushing the MODE key (V or reverse V) until “VOR” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “108.00” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “VOR 108.00” is displayed in the ACT (upper) window on the NCP.

1) Make sure that the message “EFIS MODE/NAV FREQ DISAGREE” appears on the CAPT and F/O Approach Mode of the Nav display format.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-00-710-008

(14) Set a frequency of 108.0 MHz on the first officer's navigation control panels.

(a) Make sure the message “EFIS MODE/NAV FREQ DISAGREE” shows on the captain's and the first officer's displays.

LOM ALL

SUBTASK 34-31-00-860-007

(15) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-00-860-008

(16) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-00-710-023

(17) Set a ILS frequency of 108.10 MHz on the captain's navigation control panel by:

(a) Pushing the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “108.10” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window on the NCP.

1) Make sure that 108.10 MHz appears on the CAPT Approach Mode of the NAV display format.

SUBTASK 34-31-00-710-031

(18) Set a ILS frequency of 109.75 MHz on the F/O NCP by:

(a) Pushing the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “109.75” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “ILS 109.75” is displayed in the ACT (upper) window on the NCP.

1) Make sure that 109.75 MHz appears on the F/O Approach Mode of the NAV display format.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

SUBTASK 34-31-00-710-024

(19) Set a GLS channel of 21000 on the F/O navigation control panel by:

(a) Pushing the MODE key (V or reverse V) until “GLS” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “21000” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “GLS 21000” is displayed in the ACT (upper) window on the NCP.

1) Make sure that 21000 MHz appears on the F/O Approach Mode of the NAV display format.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-00-860-009

(20) Set a frequency of 108.1 MHz on the captain's navigation control panel.

(a) Make sure 108.1 MHz shows on the captain's display.

SUBTASK 34-31-00-710-009

(21) Set a frequency of 109.75 MHz on the first officer's navigation control panel.

(a) Make sure 109.75 MHz shows on the first officer's display.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 432-434, 437, 438, 440, 442-445, 451-454, 457-460, 465-999

SUBTASK 34-31-00-710-010

(22) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

(a) Make sure 108.1 MHz shows on the captain's display.

(b) Make sure 109.75 MHz shows on the first officer's display.

LOM 427-431, 439, 441, 446, 447, 450, 455, 456, 461-464

SUBTASK 34-31-00-710-025

(23) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

(a) Make sure 108.1 MHz shows on the captain's display.

(b) Make sure GLS 21000 shows on the first officer's display.

LOM ALL

SUBTASK 34-31-00-860-010

(24) Set the SOURCE switch on the instrument switching module to the AUTO position.

END OF TASK

TASK 34-31-00-730-801

3. Instrument Landing System - System Test

A. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Prepare for the System Test

SUBTASK 34-31-00-710-011

(1) Do these steps to prepare for the system test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the SOURCE switch on the instrument switching module to the AUTO position.

(c) Set the mode selector on the Captain's and the First Officer's Electronic Flight Instrument System (EFIS) control panel to the APP position.

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

(d) Set the approach mode selector switch on the standby attitude indicator to the APP position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999; AIRPLANES WITH INTEGRATED STANDBY FLIGHT DISPLAY (ISFD)

(e) Push the approach mode selector (APP) button on the Integrated Standby Flight Display (ISFD) until APP is displayed on the ISFD screen.

LOM ALL

(f) Make sure the Air Data Inertial Reference Unit (ADIRU) is aligned and in the NAV mode. To align it, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(g) Set the Captain's and the First Officer's course select controls on the Mode Control Panel (MCP) to the same course as the airplane heading.

E. Operational Test

SUBTASK 34-31-00-710-012

(1) Do this task: Instrument Landing System - Operational Test, TASK 34-31-00-710-801.

F. Audio Out and Audio Discrete Test

SUBTASK 34-31-00-860-011

(1) Set the voice range filter switch at one of the audio control panels to the R position.

SUBTASK 34-31-00-860-012

(2) Push the receiver volume control for NAV-1 on the same audio control panel to set the volume to on.

SUBTASK 34-31-00-860-013

(3) Turn the receiver volume control clockwise for NAV-1 to make sure you can hear sound through the flight interphone system.

SUBTASK 34-31-00-710-013

(4) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the forward localizer antenna.

SUBTASK 34-31-00-730-001

(5) Use the NAV/COMM ramp test set, COM-1913, to supply an Instrument Landing System (ILS) localizer signal that follows to the tail VHF Omnidirectional Range (VOR) antenna:

Table 501/34-31-00-993-801

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Table 501/34-31-00-993-801 (Continued)

FREQUENCY	108.1 MHz
IDENT TONE	ON

(a) Make sure you can hear an ILS tone over the flight interphone system.

SUBTASK 34-31-00-730-002

(6) Set a frequency of 111.95 MHz on the Captain's navigation control panel.

(a) Make sure you cannot hear an ILS tone over the flight interphone system.

SUBTASK 34-31-00-860-014

(7) Push the receiver volume control for NAV-2 on the same audio control panel to set the volume to on.

SUBTASK 34-31-00-860-015

(8) Turn the receiver volume control clockwise for NAV-2 to make sure you can hear sound through the flight interphone system.

SUBTASK 34-31-00-730-003

(9) Set a frequency of 108.1 MHz on the First Officer's navigation control panel.

(a) Make sure you can hear an ILS tone over the flight interphone system.

G. Localizer Antenna and Antenna Switch Test

SUBTASK 34-31-00-860-016

(1) Make sure the F/D switches on the Digital Flight Control System (DFCS) MCP are in the OFF position.

SUBTASK 34-31-00-730-004

(2) Set a frequency of 108.1 MHz on the Captain's navigation control panel.

(a) Make sure the localizer deviation bars on the Captain's and the First Officer's displays show one dot right.

SUBTASK 34-31-00-860-017

(3) Slowly decrease the Radio Frequency (RF) level on the NAV/COMM ramp test set, COM-1913, until the localizer deviation bars on the Captain's and the First Officer's displays do not show.

SUBTASK 34-31-00-860-018

(4) Set the F/D switches on the DFCS MCP to the ON position.

SUBTASK 34-31-00-730-005

(5) Push the APP switch on the DFCS MCP.

(a) Make sure the localizer deviation bars on the Captain's and the First Officer's displays show one dot right.

SUBTASK 34-31-00-860-019

(6) Set the F/D switches on the DFCS MCP to the OFF position.

H. Glideslope Antenna Test

SUBTASK 34-31-00-730-006

(1) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS glideslope signal that follows to the nose antenna:

Table 502/34-31-00-993-802

OUTPUT LEVEL	-15 dBm

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Table 502/34-31-00-993-802 (Continued)

DEFLECTION	Down 1 Dot (0.0875 DDM)
FREQUENCY	334.7 MHz

(a) Make sure the glideslope deviation pointers on the Captain's and the First Officer's displays show one dot down.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ILS GLIDE SLOPE ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ILS glide slope antenna

(2) An installation of the ILS glide slope antenna.

B. The ILS glideslope antenna is in the nose radome.

TASK 34-31-21-000-801

2. ILS Glide Slope Antenna - Removal

(Figure 401)

A. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (P/B 201)
53-52-00-000-801	Nose Radome Removal (P/B 401)
53-52-31-000-801	Glide Slope Director Bar Removal (P/B 401)
53-52-31-400-801	Glide Slope Director Bar Installation (P/B 401)

B. Location Zones

Zone	Area
111	Radome
211	Flight Compartment - Left
212	Flight Compartment - Right

C. ILS Glide Slope Antenna Removal

SUBTASK 34-31-21-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-31-21-860-002

WARNING DO NOT OPERATE THE WEATHER RADAR SYSTEM WHILE YOU REMOVE THE GLIDE SLOPE ANTENNA. IF THE WEATHER RADAR OPERATES, INJURY TO PERSONS CAN OCCUR.

(2) Open the nose radome to get access to the Instrument Landing System (ILS) glide slope antenna [1] (TASK 53-52-00-000-801).

SUBTASK 34-31-21-860-003

(3) Make sure that the antenna director bar is not damaged.

NOTE: The antenna director bar is a 14-inch continuous strip of aluminum foil tape. The strip is installed horizontally across the centerline on the inner surface of the nose radome.

(a) If the antenna director bar is damaged, it must be replaced. Do these tasks:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

- Glide Slope Director Bar Removal, TASK 53-52-31-000-801
- Glide Slope Director Bar Installation, TASK 53-52-31-400-801

SUBTASK 34-31-21-100-002

(4) Remove sealant from around the base of the ILS glide slope antenna [1] (TASK 51-31-00-160-801).

SUBTASK 34-31-21-020-001

(5) Remove the ILS glide slope antenna [1] as follows:

(a) Remove the screws [2] that attach the ILS glide slope antenna [1] to the airplane structure.

(b) Pull the ILS glide slope antenna [1] assembly away from the airplane structure to get access to the electrical connectors [3].

CAUTION	MAKE SURE THAT THE ELECTRICAL CONNECTORS AND RECEPTACLES ARE CLEAN AND CLEAR OF UNWANTED MATERIALS BEFORE YOU DISCONNECT, OR CONNECT THEM. CONTAMINATION OF THE ELECTRICAL CONNECTORS AND RECEPTACLES CAN CAUSE DAMAGE TO EQUIPMENT.

CAUTION	USE TEFLON-JAWED PLIERS TO LOOSEN ELECTRICAL CONNECTORS. DO NOT USE METAL-JAWED PLIERS. DAMAGE TO THE ELECTRICAL CONNECTORS COULD OCCUR.

(c) Disconnect the electrical connectors [3] from the ILS glide slope antenna [1].

(d) Remove the ILS glide slope antenna [1].

(e) Install the protective covers on the electrical receptacle of the ILS glide slope antenna [1] and the electrical connectors [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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ILS Glide Slope Antenna Installation
Figure 401/34-31-21-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F71791 S0006576714_V2

ILS Glide Slope Antenna Installation
Figure 401/34-31-21-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-31-21-400-801

3. ILS Glide Slope Antenna - Installation

(Figure 401)

A. General

(1) The installation task has an installation test. The installation test makes sure that the Instrument Landing System (ILS) glide slope antenna operates correctly.

B. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
53-52-00-000-801	Nose Radome Removal (P/B 401)
53-52-00-400-801	Nose Radome Installation (P/B 401)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Glide slope antenna	34-31-21-01-005	LOM ALL

F. Location Zones

Zone	Area
111	Radome
211	Flight Compartment - Left
212	Flight Compartment - Right

G. Glide Slope Antenna Installation

SUBTASK 34-31-21-860-004

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-31-21-860-005

WARNING DO NOT OPERATE THE WEATHER RADAR SYSTEM WHILE YOU INSTALL THE GLIDE SLOPE ANTENNA. IF THE WEATHER RADAR OPERATES, INJURY TO PERSONS CAN OCCUR.

(2) Open the nose radome to get access to the ILS glide slope antenna [1] (TASK 53-52-00-000-801).

SUBTASK 34-31-21-100-001

(3) Clean the mating surfaces of the ILS glide slope antenna [1] and the airplane structure (TASK 20-10-34-110-802).

(a) Apply solvent, B00083 to the mating surfaces of the ILS glide slope antenna [1] and the airplane structure with a cotton wiper, G00034.

(b) Use a cotton wiper, G00034 and clean the mating surfaces again.

(c) Do these two steps until the mating surfaces are bright, clean and dry.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-21-620-001

(4) If the airplane surface has corrosion or other damage, do these steps to prepare the airplane mating surface:

(a) Apply chemical conversion coating to the airplane mating surface (TASK 51-21-41-370-802).

(b) Apply a layer of primer, C00259, to the screw holes.

(c) Allow the primer, C00259, to dry before the screws [2] are installed.

SUBTASK 34-31-21-420-001

(5) Install the ILS glide slope antenna [1] as follows:

(a) Remove the protective covers from the electrical connectors [3].

(b) Apply sealant, A00247, to the threads of the screws [2].

(c) Connect the electrical connectors [3] to the ILS glide slope antenna [1].

(d) Align the glide slope antenna [1] to the screw holes that hold the ILS glide slope antenna [1] to the airplane structure.

(e) Install the screws [2] that attach the ILS glide slope antenna [1] to the airplane structure.

SUBTASK 34-31-21-760-001

(6) Do a check of the resistance between the ILS glide slope antenna [1] and the airplane structure with an intrinsically safe approved bonding meter, COM-1550.

LOM 402, 404, 406, 407

(a) Make sure that the resistance is 0.001 ohms or less.

LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(b) Make sure that the resistance is 0.0025 ohms or less.

LOM ALL

SUBTASK 34-31-21-390-001

(7) Apply sealant BMS 5-95 (sealant, A00247), around the base of the ILS glide slope antenna [1] to make a corrosion fillet seal (TASK 51-31-00-390-804).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

(a) Apply sealant all around the edge of the ILS glide slope antenna [1].

(b) Use a sufficient quantity of sealant to permit you to make the surface smooth.

(c) Remove all unwanted sealant from the area around the ILS glide slope antenna [1].

(d) Let sealant dry for the correct cure time.

SUBTASK 34-31-21-410-001

(8) Close the nose radome (TASK 53-52-00-400-801).

SUBTASK 34-31-21-860-007

(9) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

H. Glide Slope Antenna Installation Test

SUBTASK 34-31-21-710-001

(1) Do these steps to prepare for the installation test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the SOURCE switch on the instrument switching module to the AUTO position.

(c) Set the mode selector on the captain's and the first officer's Electronic Flight Instrument System (EFIS) control panel to the APP position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

(d) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels as follows:

1) Turn the frequency selector until the frequency shows in the STANDBY window.

2) Push the TFR button.

3) Make sure that the frequency shows in the ACTIVE display.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

(e) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's Navigation Control Panels (NCP) as follows:

1) Push the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the NCP.

2) Push the number “108.10” with the NCP keypad.

3) Push the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window on the NCP.

LOM ALL

(f) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned and in NAV mode (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(g) Set the captain's and the first officer's course select controls on the Digital Flight Control System (DFCS) mode control panel to the same course as the airplane heading.

SUBTASK 34-31-21-860-008

(2) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the ILS glide slope antenna [1].

SUBTASK 34-31-21-710-002

(3) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS glide slope signal to the nose antenna (Table 401).

Table 401/34-31-21-993-801

OUTPUT LEVEL	-60 dBm
DEFLECTION	Down 1 Dot (0.0875 DDM)
FREQUENCY	334.7 MHz

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure that the glide slope deviation pointers on the captain's and the first officer's displays show one dot down.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOCALIZER ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the localizer antenna

(2) An installation of the localizer antenna.

B. The localizer antenna is in the nose radome.

TASK 34-31-31-000-801

2. Localizer Antenna Removal

(Figure 401)

A. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (P/B 201)
53-52-00-010-802	Nose Radome - Open (P/B 201)

B. Location Zones

Zone	Area
111	Radome
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Localizer Antenna Removal

SUBTASK 34-31-31-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-31-31-860-002

WARNING DO NOT OPERATE THE WEATHER RADAR SYSTEM WHILE YOU REMOVE THE LOCALIZER ANTENNA. IF THE WEATHER RADAR OPERATES, INJURY TO PERSONS CAN OCCUR.

(2) Open the nose radome to get access to the localizer antenna [1] (TASK 53-52-00-010-802).

SUBTASK 34-31-31-020-002

(3) Remove sealant from around the bases of the localizer antenna [1] (TASK 51-31-00-160-801).

SUBTASK 34-31-31-020-001

(4) Remove the localizer antenna [1] as follows:

(a) Remove the screws [2] that attach the localizer antenna [1] to the airplane structure.

(b) Pull the localizer antenna [1] away from the airplane structure to get access to the electrical connectors [3].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Disconnect the electrical connectors [3].

(d) Remove the localizer antenna [1].

(e) Put protective covers on the electrical connectors [3].

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

A

F80482 S0006576720_V3

Localizer Antenna Installation
Figure 401/34-31-31-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

B

1 DO NOT INSTALL THE SCREWS INTO THE SPECIFIED SCREW HOLES.

F80483 S0006576721_V3

Localizer Antenna Installation
Figure 401/34-31-31-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-31-31-400-801

3. Localizer Antenna Installation

(Figure 401)

A. General

(1) The installation task has an installation test that makes sure that the localizer antenna operates correctly.

B. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
53-52-00-010-802	Nose Radome - Open (P/B 201)
53-52-00-410-802	Nose Radome - Close (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Localizer antenna	34-31-31-01-005	LOM ALL

F. Location Zones

Zone	Area
111	Radome
211	Flight Compartment - Left
212	Flight Compartment - Right

G. Localizer Antenna Installation

SUBTASK 34-31-31-860-003

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-31-31-860-004

WARNING DO NOT OPERATE THE WEATHER RADAR SYSTEM WHILE YOU INSTALL THE LOCALIZER ANTENNA. IF THE WEATHER RADAR OPERATES, INJURY TO PERSONS CAN OCCUR.

(2) Open the nose radome to get access to the localizer antenna [1] (TASK 53-52-00-010-802).

SUBTASK 34-31-31-100-001

(3) Clean the mating surfaces of the localizer antenna [1] and airplane structure (TASK 20-10-34-110-802).

(a) Apply solvent, B00083, to the mating surfaces of the localizer antenna [1] and airplane structure with a cotton wiper, G00034.

(b) Use a clean cotton wiper, G00034, and clean the mating surfaces again.

(c) Do these two steps until the mating surfaces are bright, clean, and dry.

SUBTASK 34-31-31-620-001

(4) If the airplane surface has corrosion or other damage, do these steps to prepare the airplane mating surface:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Apply chemical conversion coating to the airplane mating surface (TASK 51-21-41-370-802).

(b) Apply a layer of primer, C00259, to the screw holes.

(c) Allow primer, C00259, to dry before the screws [2] are installed.

SUBTASK 34-31-31-420-001

(5) Install the localizer antenna [1] as follows:

(a) Remove the protective covers from the electrical connectors [3].

(b) Apply sealant, A00247, to the threads of the screws [2].

(c) Connect the electrical connectors [3] to the localizer antenna [1].

(d) Align the localizer antenna [1] to the screw holes that hold the localizer antenna [1] to the airplane structure.

(e) Install the screws [2] that attach the localizer antenna [1] to the airplane structure.

(f) Tighten the screws [2] to 80 ±8 in-lb (92 ±9 kg-cm).

SUBTASK 34-31-31-760-001

(6) Measure the electrical bonding resistance between the localizer antenna [1] and airplane structure with an intrinsically safe approved bonding meter, COM-1550.

(a) Make sure that the electrical bonding resistance is 0.001 ohms or less.

SUBTASK 34-31-31-420-002

(7) Apply sealant, A00247, around the bases of the localizer antenna [1] to make a corrosion fillet seal (TASK 51-31-00-390-804).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

(a) Apply sealant, A00247, all around the edge of the localizer antenna [1].

(b) Use a sufficient quantity of sealant, A00247, to make the surface smooth.

(c) Remove all the unwanted sealant, A00247, from the area around the antenna.

(d) Let sealant, A00247, dry for the correct cure time.

SUBTASK 34-31-31-410-001

(8) Close the nose radome (TASK 53-52-00-410-802).

SUBTASK 34-31-31-860-006

(9) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

H. Localizer Antenna Installation Test

SUBTASK 34-31-31-710-001

(1) Do these steps to prepare for the installation test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the SOURCE switch on the instrument switching module to the AUTO position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Set the mode selector on the captain's and the first officer's Electronic Flight Instrument System (EFIS) control panel to the APP position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

(d) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels as follows:

1) Turn the frequency selector until the frequency shows in the STANDBY window.
2) Push the TFR button.
3) Make sure that the frequency shows in the ACTIVE display.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

(e) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's Navigation Control Panels (NCP) as follows:

1) Push the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the NCP.
2) Push the number “108.10” with the NCP keypad.
3) Push the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window on the NCP.

LOM ALL

(f) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned and in NAV mode (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(g) Set the captain's and the first officer's course select controls on the Digital Flight Control System (DFCS) mode control panel to the same course as the airplane heading.

SUBTASK 34-31-31-860-007

(2) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the localizer antenna [1].

SUBTASK 34-31-31-860-008

(3) Set the F/D switches on the DFCS mode control panel to the ON position.

SUBTASK 34-31-31-860-009

(4) Push the APP switch on the DFCS mode control panel.

SUBTASK 34-31-31-710-002

(5) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS localizer signal to the localizer antenna [1] (Table 401).

Table 401/34-31-31-993-801

OUTPUT LEVEL	-60 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

(a) Make sure that the localizer deviation bars on the captain's and the first officer's displays show one dot right.

SUBTASK 34-31-31-860-010

(6) Set the F/D switches on the DFCS mode control panel to the OFF position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-31-840-001

(7) Remove the NAV/COMM ramp test set, COM-1913.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1. General

A. This procedure has these tasks:

LOM 437, 438, 445

(1) Check the part number of the software.

LOM 402, 406, 407, 412, 415, 423, 424

(2) MMR Software part number check.

LOM 402, 406, 407, 412, 415, 423, 424, 437, 438, 445

(3) Install the Software with the Portable Data Loader (PDL).

(a) A PDL is not a Boeing supplied part. Refer to the PDL supplier manual for instructions for operation. Some PDL have a disk drive for software installation from disks. If the PDL has an internal mass storage device, then disks are not necessary.

(b) Modern software loaders that meet the security requirements defined in ARINC 645-1 or newer are recommended to use. The procedures for modern software loaders will be marked as preferred for now and will be the only procedures available after removing floppy disk loaders procedures in the future. Please check with your Software Loader Supplier for current capabilities since this is still maturing across current and future software loaders.

(c) For general information for software installation times and data loaders, do this task: On-Airplane Software - Installation, TASK 20-15-11-400-801.

LOM 437, 438, 445

(4) Download the MMR Non-Volatile Memory (NVM).

TASK 34-31-42-700-801

2. Part Number Check of the Software

A. General

(1) This procedure gives instructions to check the part number (PN) of the software In MMR 1 and MMR 2 using headphones/speakers in the flight deck.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the checking of the Software PN

SUBTASK 34-31-42-860-016

(1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

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LOM 437, 438, 445 (Continued)

D. Procedure

SUBTASK 34-31-42-700-003

(1) Do these steps to check the software PN:

(a) Push, the NAV 1 knob (for MMR 1) or NAV2 knob (for MMR 2) on the captain's or first officer (FO)'s Audio Control Panel to listen to MMR 1 or MMR 2.

1) Rotate, the NAV 1 knob (for MMR 1) or NAV2 knob (for MMR 2) on the captain's or FO's Audio Control Panel as necessary to adjust the volume to a desired level.

(b) Set a ILS frequency of 108.10 MHz on the captain's or first officer's navigation control panel (NCP) by following one of these options:

NOTE: The option is dependant on the airplane configuration.

1) Option 1:

a) Push the MODE key (V or reverse V) until "ILS" is displayed in the STBY (lower) window of the NCP.

b) Push the number "108.10" using the NCP keypad.

c) Push the ACT/STBY transfer key until "ILS 108.10" is displayed in the ACT (upper) window on the NCP.

2) Option 2:

a) Rotate the outer and inner knobs to dial the ILS frequency "108.10" in the right (STANDBY) window.

b) Push the TFR key to move the frequency from the right (STANDBY) to the left (ACTIVE) window.

3) Push, the TEST button on the captain's NCP to initiate a self-test of MMR 1 or on the FO's NCP to initiate a self-test of MMR 2

4) Record, the installed software PN readout during the MMR 1 or MMR 2 self-test:

- "MMR SYSTEM PART NUMBER XXXXXXXX-XXXX" (Not Required)
- "SOFTWARE PART NUMBER XXXXX-XXXX-XXXX" (34 MMR OPS)
- "CONFIGURATION PART NUMBER XXXXX-XXXX-XXXX" (34 MMR OSS)

NOTE: Push the TEST button again, as necessary until all installed software PNs have been recorded.

(c) If the software PNs are correct, then software installation is not needed.

(d) If the software PNs are not correct, then install the software.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-31-42-700-802

3. MMR Software Part Number Verification Check

A. General

(1) This task gives instructions to check the software part number in the MMR1 and MMR2 using Portable Data Loader (PDL).

(2) A PDL is not a Boeing supplied part. Refer to the PDL supplier manual for instructions for operation. Some PDLs have a disk drive for software installation from disks. If the PDL has an internal mass storage device, then disks are not necessary.

B. Special Tools and Equipment

(1) Portable Data Loader.

(2) Ethernet cable.

(3) MMR OPS and MMR OSS software.

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Software Verification Check

SUBTASK 34-31-42-010-002

(1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-31-42-010-003

(2) Open the front cover on the MMR receiver.

F. Procedure

SUBTASK 34-31-42-480-001

(1) Make sure the PDL is fully charged or connected to a power source.

SUBTASK 34-31-42-470-002

(2) Turn on the PDL.

SUBTASK 34-31-42-480-002

(3) Connect one end of the Ethernet cable to the RJ45 connector (ENET) on the front of the MMR receiver and the other end to the RJ45 connector on the PDL.

SUBTASK 34-31-42-470-003

(4) Follow the PDL supplier instructions to see MMR software part number.

(a) Record the installed software part number.

1) If the software part numbers are correct, then software installation is not needed.

2) If the software part numbers are not correct, then install the software (TASK 34-31-42-470-801).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 412, 415, 423, 424 (Continued)

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-31-42-700-006

(1) Shut off the PDL.

SUBTASK 34-31-42-080-001

(2) Remove the Ethernet cable from the MMR.

SUBTASK 34-31-42-410-002

(3) Close the cover on the MMR.

SUBTASK 34-31-42-410-003

(4) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 402, 406, 407, 412, 415, 423, 424, 437, 438, 445

——— END OF TASK ———

TASK 34-31-42-470-801

4. Software Installation with a PDL

A. General

(1) This procedure gives instructions to install the Operational Program Software (OPS) and the operational configuration software (OSS) into the Multi-Mode Receiver (MMR) with a Portable Data Loader (PDL). Load the OPS software first, then load the OSS software.

NOTE: The PDL must be connected to the MMR receiver through the RJ45 connector on the front of the receiver. When connected directly to the MMR front connector, an Ethernet cable is required.

(2) A PDL is not a Boeing supplied part. Refer to the PDL supplier manual for instructions for operation. Some PDL have a disk drive for software installation from disks. If the PDL has an internal mass storage device, then disks are not necessary.

(3) Modern software loaders that meet the security requirements defined in ARINC 645-1 or newer are recommended to use. The procedures for modern software loaders will be marked as preferred for now and will be the only procedures available after removing floppy disk loaders procedures in the future. Please check with your Software Loader Supplier for current capabilities since this is still maturing across current and future software loaders.

(4) For general information for software installation times and data loaders, do this task: On-Airplane Software - Installation, TASK 20-15-11-400-801.

B. Special Tools and Equipment

(1) Portable Data Loader:

(2) Ethernet cable.

(3) MMR OPSand MMR OSS software.

C. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)

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(Continued)

Reference	Title
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

D. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-261	Data Loader - ARINC 615 (without ARINC 645-1 Compliant) Part #: 11615-50 Supplier: 0D4J3 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: PXS-LDS-10 Supplier: 98571 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 30100 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896 Opt Part #: 964-0400-060 Supplier: 97896 Opt Part #: 964-0400-064 Supplier: 97896 Opt Part #: 964-0400-065 Supplier: 97896 Opt Part #: P2K-615A-06 Supplier: 0BAW0
COM-1915	Data Loader - ARINC 615 (without ARINC 645-1 Compliant) Part #: 11615-50 Supplier: 0D4J3 Part #: 2231560-1-B Supplier: 98571 Part #: 465130-01-01 Supplier: 30782 Part #: 800-0631 Supplier: 1JSZ6 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: PXS-LDS-10 Supplier: 98571 Part #: YV68A110 Supplier: FAQ15 Opt Part #: 11615-02 Supplier: 0D4J3 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 18000-02 Supplier: 0D4J3 Opt Part #: 30100 Supplier: 0BAW0 Opt Part #: 80000-03-01010203 Supplier: 0BAW0 Opt Part #: 80000-04-01020301 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-024 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-044 Supplier: 97896 Opt Part #: 964-0400-045 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896 Opt Part #: P2K-615A-06 Supplier: 0BAW0
COM-4963	Loader - Data, ARINC 615/615A (Model is PMAT 2000) Part #: PXS-LDS-10 Supplier: 98571 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: P2K-615A-06 Supplier: 0BAW0

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Description
COM-21223	Data Loader - ARINC 615 (with ARINC 645-1 Compliant) Part #: 403474 Supplier: CG603 Part #: 403562 Supplier: CG603 Part #: AE-615-MPDL Supplier: CD624 Part #: PDL-615-XT Supplier: 89Q20

E. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Software Installation with a Portable Data Loader

SUBTASK 34-31-42-470-004

(1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

LOM 437, 438, 445

SUBTASK 34-31-42-700-001

(2) Do this task: Part Number Check of the Software, TASK 34-31-42-700-801.

(a) If the software part numbers are correct, then software installation is not needed.

(b) If the software part numbers are not correct, then continue.

LOM 402, 406, 407, 412, 415, 423, 424

SUBTASK 34-31-42-700-008

(3) Do this task: MMR Software Part Number Verification Check, TASK 34-31-42-700-802.

(a) If the software part numbers are correct, then software installation is not needed.

(b) If the software part numbers are not correct, then continue.

LOM 402, 406, 407, 412, 415, 423, 424, 437, 438, 445

SUBTASK 34-31-42-860-015

(4) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-42-010-004

(5) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-31-42-470-001

(6) Do these steps to load the MMR software:

(a) Open the front cover on the MMR.

(b) Use the following PDL:

1) Preferred:

a) ARINC 645-1 compliant portable data loader, COM-21223

2) Non-preferred:

a) ARINC 615 data loader, COM-261

b) ARINC 615 data loader, COM-1915

c) ARINC 615/615A data loader, COM-4963

(c) Connect one end of the Ethernet cable to the RJ45 connector (ENET) on the front of the MMR and the other end to the RJ45 connector on the PDL.

(d) Follow the PDL supplier instructions to install the software.

(e) When the load is complete the MMR will reboot automatically.

NOTE: It takes about 1 minute for power-up after the load. For general information for software installation times and data loaders, do this task: On-Airplane Software - Installation, TASK 20-15-11-400-801.

LOM 437, 438, 445

(f) Make sure the IMMR STATUS led is green.

SUBTASK 34-31-42-700-002

(7) Do this task: Part Number Check of the Software, TASK 34-31-42-700-801.

LOM 402, 406, 407, 412, 415, 423, 424

SUBTASK 34-31-42-700-007

(8) Do this task: MMR Software Part Number Verification Check, TASK 34-31-42-700-802.

LOM 402, 406, 407, 412, 415, 423, 424, 437, 438, 445

H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-31-42-420-003

(1) Do these steps to put the airplane back to its usual condition:

(a) Remove the Ethernet cable from the MMRMMR.

(b) Close the cover on the MMR.

SUBTASK 34-31-42-410-004

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 437, 438, 445

TASK 34-31-42-970-801

5. MMR NVM Download

A. General

(1) This task gives the steps to download Non Volatile Memory (NVM) data from the Multi-Mode Receiver (MMR). The downloaded data can be sent to Honeywell Aerotech Support for further analysis.

(2) A universal maintenance device, SPL-11321, with the USB Extract application will be needed for this task. Contact Aerotechsupport@honeywell.com for a copy of the USB Extract application.

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-11321	Device - Universal Maintenance (UMD) Part #: G45004-31 Supplier: 81205 Part #: G45004-37 Supplier: 81205 Opt Part #: G45003-3 Supplier: 81205 Opt Part #: G45004-3 Supplier: 81205
STD-13649	Drive - Flash, USB (2GB Capacity Minimum)

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

E. Prepare for the MMR NVM Download

SUBTASK 34-31-42-070-001

(1) Format a USB Flash Drive, STD-13649, to file system FAT32.

SUBTASK 34-31-42-820-001

(2) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-31-42-860-017

(3) Open the applicable circuit breaker and install a safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 437, 438, 445 (Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

F. MMR NVM Download

SUBTASK 34-31-42-970-001

(1) Download the MMR NVM data as follows:

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(a) Remove the maintenance port access cover from the MMR.

(b) Put the USB drive into the USB port on the MMR.

(c) Remove the safety tag and close the applicable circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

(d) Make sure that the top three lights flash yellow in a sequence from top to bottom.

NOTE: This flash pattern shows that the NVM download is in progress. The pattern will change while the download continues but the lights will stay yellow.

(e) Make sure that the top three lights flash green in the sequence that follows:

NOTE: This flash pattern shows that the NVM download completed. This flash pattern will repeat with no end. It is safe to turn off the MMR and to remove the USB drive at this time.

1) In sequence from top to bottom.
2) All three lights at the same time.
3) Repeat.

(f) Open the applicable circuit breaker and install a safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

(g) Remove the USB drive from the USB port on the MMR.

(h) Install the maintenance port access cover onto the MMR.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 437, 438, 445 (Continued)

(i) Remove the safety tag and close the applicable circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-31-42-970-002

(2) Convert the NVM data with the universal maintenance device, SPL-11321.

(a) Put the USB drive into the USB port on the laptop.

1) Do not format the USB drive if prompted.

(b) Open the USB Extract Tool application.

(c) Select the USB drive when prompted.

(d) Select Extract to... .

(e) Enter the MMR serial number and NVM download date as the file name.

(f) Select Save.

NOTE: A file with the extension ".BIN" will be made.

(g) Select OK to close the application.

SUBTASK 34-31-42-470-005

(3) Send the .BIN file to Honeywell Aerotech Support and request for an Engineering Analysis.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ILS AND MULTI-MODE RECEIVER (MMR) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Instrument Landing System (ILS) receiver.

(2) An installation of the ILS receiver.

LOM ALL; AIRPLANES WITH MULTI-MODE RECEIVERS (MMR)

B. The receiver for ILS is the MMR.

LOM ALL

C. The ILS receivers are in the main equipment center. The No. 1 receiver is on the E1 electronics equipment rack, shelf No. 2. The No. 2 receiver is on the E1 electronics equipment rack, shelf No. 4.

TASK 34-31-42-000-801

2. ILS and Multi-Mode Receiver (MMR) - Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. ILS and Multi-Mode Receiver (MMR) Removal

SUBTASK 34-31-42-860-006

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-31-42-010-001

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-42-020-001

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RECEIVER FOR ILS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RECEIVER FOR ILS.

(3) To remove the No. 1 or No. 2 receiver [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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ILS and Multi-Mode Receiver (MMR) Installation
Figure 401/34-31-42-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-31-42-400-801

3. ILS and Multi-Mode Receiver (MMR) - Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
22-11-00-700-801	Land Verify Test (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-31-42-470-801	Software Installation with a PDL (P/B 201)
34-31-42-700-801	Part Number Check of the Software (P/B 201)
34-31-42-700-802	MMR Software Part Number Verification Check (P/B 201)
34-58-00-710-802	Global Positioning System - Operational Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Receiver	34-31-42-02-005	LOM 404, 411, 422, 425, 432-434, 438, 440, 442, 453, 454
		34-31-42-02-006	LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999
		34-31-42-02-009	LOM 437, 438, 445

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. ILS and Multi-Mode Receiver (MMR) Installation

SUBTASK 34-31-42-860-007

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-31-42-420-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RECEIVER FOR ILS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RECEIVER FOR ILS.

(2) To install the receiver [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-31-42-860-008

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

I **LOM 437, 438, 445**

SUBTASK 34-31-42-700-004

(4) Do this task: Part Number Check of the Software, TASK 34-31-42-700-801.

(a) If the software part numbers do not match, then do this task: Software Installation with a PDL, TASK 34-31-42-470-801.

LOM 402, 406, 407, 412, 415, 423, 424

SUBTASK 34-31-42-700-009

(5) Do this task: MMR Software Part Number Verification Check, TASK 34-31-42-700-802.

(a) If the software part numbers do not match, then do this task: Software Installation with a PDL, TASK 34-31-42-470-801.

LOM ALL

F. ILS and Multi-Mode Receiver (MMR) Installation Test

SUBTASK 34-31-42-710-002

(1) Do these steps to prepare for the installation test:

(a) Set the VHF NAV switch, on the instrument switching module, to the NORMAL position.

(b) Set the SOURCE switch, on the instrument switching module, to the AUTO position.

(c) Set the mode selector, on the captain's and the first officer's Electronic Flight Instrument System (EFIS) control panel, to the APP position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 422-425, 427-431, 433, 434, 437-447, 450-999; AIRPLANES WITH INTEGRATED STANDBY FLIGHT DISPLAY (ISFD)

(d) Push the approach mode selector (APP) button, on the Integrated Standby Flight Display (ISFD), until APP is displayed on the screen.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 426, 432; AIRPLANES WITH THE STANDBY ATTITUDE INDICATOR

(e) Set the approach mode selector switch, on the standby attitude indicator, to the APP position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

(f) Set an ILS frequency of 108.1 MHz on the captain's and the first officer's navigation control panels as follows:

1) Turn the frequency selector until the frequency shows in the STANDBY display window.

2) Push the TFR button.

3) Make sure that the frequency shows in the ACTIVE display window.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

(g) Set a ILS frequency of 108.1 MHz on the captain's and the first officer's navigation control panels as follows:

1) Push the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the NCP.

2) Push the number “108.10” with the NCP keypad.

3) Push the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window on the NCP.

LOM ALL

(h) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned and in NAV mode (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(i) Set the captain's and the first officer's course select controls on the Digital Flight Control System (DFCS) mode control panel to the same course as the airplane heading.

SUBTASK 34-31-42-710-003

(2) Do these steps to do an installation test of the No. 1 (captain's) Instrument Landing System (ILS) receiver:

(a) Push and release the TEST button on the captain's navigation control panel.

1) Make sure that these indications show on the captain's display:

NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.

a) The LOC and G/S flags show momentarily.

b) The glideslope deviation pointer shows one dot up and the localizer deviation bar shows one dot left.

c) The glideslope deviation pointer shows one dot down and the localizer deviation bar shows one dot right.

SUBTASK 34-31-42-710-004

(3) Do these steps to do an installation test of the No. 2 (first officer's) ILS receiver:

(a) Push and release the TEST button on the first officer's navigation control panel.

1) Make sure that these indications show on the first officer's display:

NOTE: It takes approximately 16 to 44 seconds for the test sequence to complete.

a) The LOC and G/S flags show momentarily.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

b) The glideslope deviation pointer shows one dot up and the localizer deviation bar shows one dot left.

c) The glideslope deviation pointer shows one dot down and the localizer deviation bar shows one dot right.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999; AIRPLANES WITH COLLINS MULTI-MODE RECEIVERS

SUBTASK 34-31-42-860-009

(4) Push and release the TEST switch, on the front panel of the receiver, to start the BITE test.

(a) Make sure that these indications occur:

1) All the red lights come on.

2) The LRU STATUS light changes to green after 2 seconds.

3) All the lights go off after 2 seconds.

4) The green LRU STATUS light comes on and stays on for about 30 seconds.

LOM 411, 422, 425, 432-434, 440, 442, 453, 454

SUBTASK 34-31-42-860-010

(5) Push and release the TEST switch, on the front panel of the receiver, to start the BITE test.

(a) Make sure that these indications occur:

1) The LCD screen shows MMR TEST IN PROGRESS.

2) The LCD screen shows MMR TEST COMPLETE NO FAILURES.

LOM 437, 438, 445

SUBTASK 34-31-42-740-001

(6) Push and release the TEST switch, on the front panel of the receiver, to start the BITE test.

(a) Make sure that these indications occur:

1) These status lights turn amber:

- IMMR Status
- Control Fault
- Antenna Fault.

2) The IMMR Status light turns green.

3) These status lights turn off:

- Control Fault
- Antenna Fault.

LOM ALL

SUBTASK 34-31-42-860-012

(7) Do this task: Global Positioning System - Operational Test, TASK 34-58-00-710-802.

LOM 437, 438, 445

SUBTASK 34-31-42-700-005

(8) If the ILS/MMR was replaced because of a NO AUTOLAND FAULT, do these tasks:

- Land Verify Test, TASK 22-11-00-700-801.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-42-410-005

(9) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

NAVIGATION CONTROL PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the navigation control panel.

(2) An installation of the navigation control panel.

B. The captain's and first officer's navigation control panels are on the P8 aft electronics panel in the flight compartment.

TASK 34-31-52-000-801

2. Navigation Control Panel Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-31-52-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-31-52-860-002

(2) On the aft electronics panel, P8, turn the knob of the PANEL control to the OFF position.

SUBTASK 34-31-52-020-001

CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE NAVIGATION CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE NAVIGATION CONTROL PANEL.

(3) Remove the navigation control panel [1]:

(a) Loosen the four quarter-turn fasteners [2].

(b) Carefully lift the navigation control panel [1] from the aft electronics panel, P8, to get access to the electrical connectors [3].

(c) Disconnect the electrical connectors [3].

(d) Put protective covers on the electrical connectors [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Navigation Control Panel Installation
Figure 401/34-31-52-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-31-52-400-801

3. Navigation Control Panel Installation

(Figure 401)

A. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Navigation control panel	31-11-91-79-605	LOM 426
		31-11-91-81E-035	LOM 404
		31-11-91-81G-555	LOM 406, 407
		31-11-91-82Q-405	LOM 411
		31-11-91-82R-505	LOM 412, 415, 423, 424
		31-11-91-83H-455	LOM 416
		31-11-91-83M-455	LOM 420
		31-11-91-85T-455	LOM 422, 425
		34-31-52-04-005	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443-447, 451, 452, 455-464
		34-31-52-04D-025	LOM 422, 425, 433, 434, 440, 442, 450, 453, 454, 465-999

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Navigation Control Panel Installation

SUBTASK 34-31-52-860-003

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-31-52-860-010

(2) Make sure that the PANEL BRIGHT control, on the P8-50 control stand lighting control panel, is in the OFF position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-31-52-420-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE NAVIGATION CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE NAVIGATION CONTROL PANEL.

(3) Install the navigation control panel [1]:

(a) Remove the protective covers from the electrical connectors [3].

(b) Examine the electrical connectors [3] for bent or broken pins, dirt, and damage.

(c) Connect the electrical connectors [3].

(d) Put the navigation control panel [1] in its position, on the P8 aft electronics panel.

(e) Tighten the four quarter-turn fasteners [2].

SUBTASK 34-31-52-860-004

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

D. Installation Test

SUBTASK 34-31-52-860-007

(1) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-31-52-860-009

(2) Set the mode selector on the captain's and the first officer's Electronic Flight Instrument System (EFIS) control panels to the VOR position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-31-52-710-001

(3) Set a frequency of 108.00 MHz on the captain's and the first officer's navigation control panels [1].

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

(a) Make sure that the 108.00 MHz shows on the displays.

SUBTASK 34-31-52-710-006

(4) Set a frequency of 115.00 MHz on the captain's and the first officer's navigation control panels [1].

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999 (Continued)

(a) Make sure that the 115.00 MHz shows on the displays.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-31-52-710-005

(5) Set a VHF Omnidirectional Range (VOR) frequency of 108.00 MHz on the captain's and the first officer's navigation control panels [1] by:

(a) Pushing the MODE key (V or reverse V) until “VOR” is displayed in the STBY (lower) window of the navigation control panel [1].

(b) Pushing the number “108.00” using the navigation control panel [1] keypad.

(c) Pushing the ACT/STBY transfer key until “VOR 108.00” is displayed in the ACT (upper) window on the navigation control panel [1].

1) Make sure that the 108.00 MHz shows on the displays.

SUBTASK 34-31-52-710-007

(6) Set a VOR frequency of 115.00 MHz on the captain's and the first officer's navigation control panels [1] by:

(a) Pushing the MODE key (V or reverse V) until “VOR” is displayed in the STBY (lower) window of the navigation control panel [1].

(b) Pushing the number “115.00” using the navigation control panel [1] keypad.

(c) Pushing the ACT/STBY transfer key until “VOR 115.00” is displayed in the ACT (upper) window on the navigation control panel [1].

1) Make sure that the 115.00 MHz shows on the displays.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

RF POWER DIVIDER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a RF power divider.

(2) An installation of a RF power divider.

B. The No. 1 and No. 2 RF power dividers are on the E1 electronic equipment rack in the main equipment center.

TASK 34-31-62-000-801

2. RF Power Divider Removal

(Figure 401)

A. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

C. RF Power Divider Removal

SUBTASK 34-31-62-010-001

(1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-31-62-020-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RF POWER DIVIDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RF POWER DIVIDER.

(2) Remove the RF power divider [3] as follows:

(a) Disconnect the coaxial connectors [4].

(b) Remove the screws [1] and washers [2] that attach the RF power divider [3] to the electronic equipment rack.

(c) Remove the RF power divider [3] from the electronic equipment rack.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ELECTRONIC EQUIPMENT RACKS, E1 AND E5

A

G34419 S0006576740_V2

RF Power Divider Installation
Figure 401/34-31-62-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G33104 S0006576741_V2

RF Power Divider Installation
Figure 401/34-31-62-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-31-62-400-801

3. RF Power Divider Installation

(Figure 401)

A. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Divider	34-31-62-02-005	LOM ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. RF Power Divider Installation

SUBTASK 34-31-62-420-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE RF POWER DIVIDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE RF POWER DIVIDER.

(1) Install the RF power divider [3] as follows:

(a) Align the RF power divider [3] to the holes in the electronic equipment rack.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(b) Install the screws [1] and washers [2] that attach the RF power divider [3] to the electronic equipment rack.

(c) Connect the coaxial connectors [4] to the RF power divider [3].

SUBTASK 34-31-62-410-001

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

G. RF Power Divider Installation Test

SUBTASK 34-31-62-860-002

(1) Do these steps to prepare for the installation test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the SOURCE switch on the instrument switching module to the AUTO position.

(c) Set the mode selector on the captain's and first officer's Electronic Flight Instrument System (EFIS) control panels to the APP position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

(d) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels as follows:

1) Turn the frequency selector until the frequency shows in the STANDBY display window.

2) Push the TFR button.

3) Make sure that the frequency shows in the ACTIVE display window.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

(e) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's Navigation Control Panels as follows:

1) Push the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the NCP.

2) Push the number “108.10” with the NCP keypad.

3) Push the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window on the NCP.

LOM ALL

(f) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned and in NAV mode (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(g) Set the captain's and first officer's course select controls on the Digital Flight Control System (DFCS) mode control panel to the same course as the airplane heading.

SUBTASK 34-31-62-710-001

(2) Do these steps to do an installation test of the No. 1 (captain's) RF power divider [3]:

(a) Make sure that the F/D switches on the DFCS mode control panel are in the OFF position.

(b) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the forward localizer antenna.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS localizer signal to the tail (VOR) antenna (Table 401).

Table 401/34-31-62-993-801

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

1) Make sure that the localizer deviation bar on the captain's display is one dot right.

(d) Set the mode selector on the captain's EFIS control panel to the VOR position.

(e) Set a frequency of 108.0 MHz on the captain's navigation control panel.

(f) Use the NAV/COMM ramp test set, COM-1913, to supply a VOR signal to the tail (VOR) antenna (Table 402).

Table 402/34-31-62-993-802

OUTPUT LEVEL	-60 dBm
BEARING	50 degrees
TO/FROM	TO
FREQUENCY	108.0 MHz

(g) Make sure that the No. 1 bearing pointer on the Radio Magnetic Indicator (RMI) shows 50 degrees.

SUBTASK 34-31-62-710-002

(3) Do these steps to do an installation test of the No. 2 (first officer's) RF power divider [3]:

(a) Make sure that the F/D switches on the DFCS mode control panel are in the OFF position.

(b) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the forward localizer antenna.

(c) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS localizer signal to the tail (VOR) antenna (Table 403).

Table 403/34-31-62-993-803

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

1) Make sure that the localizer deviation bar on the captain's display is one dot right.

(d) Set the mode selector on the first officer's EFIS control panel to the VOR position.

(e) Set a frequency of 108.0 MHz on the first officer's navigation control panel.

(f) Use the NAV/COMM ramp test set, COM-1913, to supply a VOR signal to the tail (VOR) antenna (Table 404).

Table 404/34-31-62-993-804

OUTPUT LEVEL	-60 dBm
BEARING	50 degrees

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Table 404/34-31-62-993-804 (Continued)

TO/FROM	TO
FREQUENCY	108.0 MHz

(g) Make sure that the No. 2 bearing pointer on the RMI shows 50 degrees.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOCALIZER ANTENNA SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a localizer antenna switch.

(2) An installation of a localizer antenna switch.

B. The No. 1 and No. 2 localizer antenna switches are on the E1 electronic equipment rack in the main equipment center.

TASK 34-31-72-000-801

2. Localizer Antenna Switch Removal

(Figure 401)

A. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

C. Localizer Antenna Switch Removal

SUBTASK 34-31-72-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2

SUBTASK 34-31-72-010-001

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-31-72-020-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LOCALIZER ANTENNA SWITCH. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LOCALIZER ANTENNA SWITCH.

(3) Remove the localizer antenna switch [3] as follows:

(a) Disconnect the coaxial connectors [4].

(b) Remove the screws [1] and washers [2] that attach the localizer antenna switch [3] to the electronic equipment rack.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Remove the localizer antenna switch [3] from the electronic equipment rack.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ELECTRONIC EQUIPMENT RACKS, E1 AND E5

A

G20161 S0006576750_V2

Localizer Antenna Switch Installation
Figure 401/34-31-72-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G20164 S0006576751_V2

Localizer Antenna Switch Installation
Figure 401/34-31-72-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-31-72-400-801

3. Localizer Antenna Switch Installation

(Figure 401)

A. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Switch	34-31-72-01-005	LOM ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Localizer Antenna Switch Installation

SUBTASK 34-31-72-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2

SUBTASK 34-31-72-420-001

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LOCALIZER ANTENNA SWITCH. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LOCALIZER ANTENNA SWITCH.

(2) Install the localizer antenna switch [3] as follows:

(a) Align the localizer antenna switch [3] to the holes in the electronic equipment rack.

(b) Install the screws [1] and washers [2] that attach the localizer antenna switch [3] to the electronic equipment rack.

(c) Connect the coaxial connectors [4] to the localizer antenna switch [3].

SUBTASK 34-31-72-860-003

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2

SUBTASK 34-31-72-410-001

(4) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

G. Localizer Antenna Switch Installation Test

SUBTASK 34-31-72-860-005

(1) Do these steps to prepare for the installation test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the SOURCE switch on the instrument switching module to the AUTO position.

(c) Set the mode selector on the captain's and first officer's Electronic Flight Instrument System (EFIS) control panels to the APP position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

(d) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels as follows:

1) Turn the frequency selector until the frequency shows in the STANDBY display window.

2) Push the TFR button.

3) Make sure that the frequency shows in the ACTIVE display window.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

(e) Set a ILS frequency of 108.10 MHz on the captain's and the first officer's Navigation Control Panels (NCP) as follows:

1) Push the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the NCP.

2) Push the number “108.10” using the NCP keypad.

3) Push the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window on the NCP.

LOM ALL

(f) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned and in NAV mode (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(g) Set the captain's and first officer's course select controls on the Digital Flight Control System (DFCS) mode control panel to the same course as the airplane heading.

SUBTASK 34-31-72-710-001

(2) Do these steps to do an installation test of the No. 1 (captain's) localizer antenna switch [3]:

(a) Make sure that the F/D switches on the DFCS mode control panel are in the OFF position.

(b) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the forward localizer antenna.

(c) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS localizer signal to the tail (VOR) antenna (Table 401).

Table 401/34-31-72-993-801

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

1) Make sure that the localizer deviation bar on the captain's display is one dot right.

(d) Slowly decrease the RF level on the NAV/COMM ramp test set, COM-1913, until the localizer deviation bar on the captain's display does not show.

(e) Set the F/D switches on the DFCS mode control panel to the ON position.

(f) Push the APP switch on the DFCS mode control panel.

1) Make sure that the localizer deviation bar on the captain's display is one dot right.

(g) Set the F/D switches on the DFCS mode control panel to the OFF position.

SUBTASK 34-31-72-710-002

(3) Do these steps to do an installation test of the No. 2 (first officer's) localizer antenna switch [3]:

(a) Make sure that the F/D switches on the DFCS mode control panel are in the OFF position.

(b) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the forward localizer antenna.

(c) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS localizer signal that follows to the tail (VOR) antenna (Table 402).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Table 402/34-31-72-993-802

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

1) Make sure that the localizer deviation bar on the first officer's display is one dot right.

(d) Slowly decrease the RF level on the NAV/COMM ramp test set, COM-1913, until the localizer deviation bar on the first officer's display does not show.

(e) Set the F/D switches on the DFCS mode control panel to the ON position.

(f) Push the APP switch on the DFCS mode control panel.

1) Make sure that the localizer deviation bar on the first officer's display is one dot right.

(g) Set the F/D switches on the DFCS mode control panel to the OFF position.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

MARKER BEACON SYSTEM - MAINTENANCE PRACTICES

1. **General**

A. This procedure has these tasks:

(1) Marker Beacon System Deactivation.

(2) Marker Beacon System Activation.

TASK 34-32-00-040-801

2. **Marker Beacon System - Deactivation**

(Figure 201)

A. General

(1) This procedure removes electrical power to the Marker Beacon system.

B. Location Zones

Zone	Area
100	Lower Half of Fuselage
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-32-00-860-016

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

D. Marker Beacon System - Tryout

NOTE: This tryout is to make sure the Marker Beacon system is in a zero energy state.

SUBTASK 34-32-00-860-017

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-32-00-710-003

(2) Push and release the TEST button on the captain's navigation control panel.

(a) Make sure the marker beacon indication on the captain's and the first officer's displays are blank.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

MARKER BEACON ANTENNA

A

2365283 S0000541344_V2

Marker Beacon
Figure 201/34-32-00-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-32-00-440-801

3. Marker Beacon System - Activation

Figure 201

A. General

(1) This procedure adds electrical power to the Marker Beacon system.

B. Location Zones

Zone	Area
100	Lower Half of Fuselage
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-32-00-860-018

(1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

MARKER BEACON SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An operational test of the marker beacon system.

(2) A system test of the marker beacon system.

TASK 34-32-00-710-801

2. Marker Beacon System - Operational Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Operational Test

SUBTASK 34-32-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-32-00-860-002

(2) Do these steps to prepare for the operational test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the mode selector on the captain's and the first officer's EFIS control panel to the VOR position.

(c) Set the SOURCE switch on the instrument switching module to the AUTO position.

D. Marker Beacon Receiver Self Test

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

SUBTASK 34-32-00-860-003

(1) Set a frequency of 108.00 MHz on the captain's navigation control panel.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

SUBTASK 34-32-00-860-015

(2) Set a VOR frequency of 108.00 MHz on the captain's and the first officer's Navigation Control Panel.

(a) Push the MODE key (V or reverse V) until “VOR” shows in the STBY (lower) window of the NCP.

(b) Push the number “108.00” using the NCP keypad.

(c) Push the ACT/STBY transfer key until “VOR 108.00” shows in the ACT (upper) window on the NCP.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Make sure that 108.00 MHz shows on the displays.

LOM ALL

SUBTASK 34-32-00-710-001

(3) Push and release the TEST button on the captain's navigation control panel.

(a) Make sure that in approximately 3 seconds, the marker beacon indication on the captain's and the first officer's displays shows “FT”.

NOTE: The “FT” indication can show on either the PFD, or on the primary EFIS depending on your airplane configuration.

(b) Make sure that in approximately 5 seconds, the “FT” indication does not show.

SUBTASK 34-32-00-860-014

(4) Put the airplane back to its usual condition.

SUBTASK 34-32-00-860-004

(5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

TASK 34-32-00-730-801

3. Marker Beacon System - System Test

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606

B. Location Zones

Zone	Area
130	Subzone - Body Station 540.00 to Body Station 727.00
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the System Test

SUBTASK 34-32-00-860-006

(1) Do these steps to prepare for the system test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(b) Set the mode selector on the captain's and the first officer's EFIS control panel to the VOR position.

(c) Set the SOURCE switch on the instrument switching module to the AUTO position.

D. Operational Test

SUBTASK 34-32-00-710-002

(1) Do this task: Marker Beacon System - Operational Test, TASK 34-32-00-710-801.

E. Marker Beacon System Test

SUBTASK 34-32-00-860-007

(1) Push the receiver volume controls for marker beacon, MKR, on each audio selector panel to set the volume to off.

SUBTASK 34-32-00-480-001

(2) Put the NAV/COMM ramp test set, COM-1913 or the equivalent test set, directly below the marker beacon antenna.

(a) Put the test set on a non-metal surface.

(b) Make sure that the test set antenna is 36 ±2 in. (91 ±5 cm) below the marker beacon antenna.

(c) Make sure that the test set faces the nose landing gear.

SUBTASK 34-32-00-730-001

(3) Set the NAV/COMM ramp test set, COM-1913, to supply a marker beacon signal of 75 MHz with a 400 Hz modulation.

NOTE: If the antenna on the test set is not a marker beacon test antenna tuned at 75 MHz, it is not easy to get the test results.

SUBTASK 34-32-00-700-001

(4) Make sure that power setting indication starts at -19 dBm minimum and adjusts by 1 dBm increments to a maximum of -15 dBm.

(5) Make sure that the outer marker indication, OM, shows on the captain's and the first officer's EFIS displays.

SUBTASK 34-32-00-860-008

(6) Push the receiver volume control for marker beacon, MKR, on the captain's audio control panel to set the volume to on.

SUBTASK 34-32-00-730-002

(7) Turn the receiver volume control clockwise for marker beacon, MKR, on the captain's audio control panel.

(a) Make sure that you can hear a tone through the interphone system.

(b) Make sure that you can hear a tone at the captain's audio selector panel with a headset.

SUBTASK 34-32-00-860-009

(8) Push the receiver volume control for marker beacon, MKR, on the captain's audio selector panel to set the volume to off.

SUBTASK 34-32-00-860-010

(9) Push the receiver volume control for marker beacon, MKR, on the first officer's audio control panel to set the volume to on.

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SUBTASK 34-32-00-730-003

(10) Turn the receiver volume control clockwise for marker beacon, MKR, on the first officer's audio control panel.

(a) Make sure that you can hear a tone through the interphone system.

(b) Make sure that you can hear a tone at the first officer's audio selector panel with a headset.

SUBTASK 34-32-00-860-011

(11) Push the receiver volume control for marker beacon, MKR, on the first officer's audio selector panel to set the volume to off.

SUBTASK 34-32-00-730-004

(12) Set the NAV/COMM ramp test set, COM-1913, to supply a marker beacon signal of 75 MHz with a 1300 Hz modulation.

(a) Make sure that power setting indication starts at -19 dBm minimum and adjusts by 1 dBm increments to a maximum of -15 dBm.

(b) Make sure that the middle marker indication, MM, shows on the captain's and the first officer's EFIS displays.

SUBTASK 34-32-00-730-005

(13) Set the NAV/COMM ramp test set, COM-1913, to supply a marker beacon signal of 75 MHz with a 3000 Hz modulation.

(a) Make sure that power setting indication starts at -19 dBm minimum and adjusts by 1 dBm increments to a maximum of -15 dBm.

(b) Make sure that the inner marker indication, IM, shows on the captain's and the first officer's EFIS displays.

F. Put the Airplane back to its Usual Condition.

SUBTASK 34-32-00-080-001

(1) Remove the NAV/COMM ramp test set, COM-1913.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

MARKER BEACON ANTENNA - REMOVAL/INSTALLATION

1. **General**

A. This procedure has these tasks:

(1) A removal of the marker beacon antenna.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM (2) A removal of the marker beacon antenna with gasket.

LOM **LOM ALL**

(3) An installation of the marker beacon antenna.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM (4) An installation of the marker beacon antenna with gasket.

LOM **LOM ALL**

TASK 34-32-11-000-801

2. **Marker Beacon Antenna Removal**

(Figure 401)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

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B. Location Zones

Zone	Area
100	Lower Half of Fuselage

C. Removal Procedure

SUBTASK 34-32-11-860-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-32-11-020-001

(2) Remove the marker beacon antenna [1]:

(a) Remove the six bolts [2] from the antenna base.

> **CAUTION** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

(b) Use force around the marker beacon antenna [1] with the sealant removal tool, COM-2481 until the seal is fully broken.

> **CAUTION** LOWER THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

(c) Lower the marker beacon antenna [1] until you can get access to the coaxial connector [3].

(d) Disconnect the coaxial connector [3] from the marker beacon antenna [1].

(e) Remove the marker beacon antenna [1].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F64707 S0006576764_V2

Marker Beacon Antenna Installation
Figure 401/34-32-11-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **TASK 34-32-11-000-802**

LOM **3. Marker Beacon Antenna with Gasket - Removal**

LOM (Figure 402)

LOM **A. General**

LOM (1) This procedure is used for the removal of antennas that use Aerobond or HI-TAK gaskets per
LOM 737–SL-20–045.

LOM NOTE: Reference the Aircraft Illustrated Parts Catalog for the gasket part number.

LOM (2) As a full certification test of the gasket was not done, it is recommended to do the steps that
LOM follow:

LOM (a) Do a visual inspection of the gasket and the mating surface, each a D check.

LOM (b) Do a check of the airplane skin for corrosion on the antenna and gasket after their
LOM removal.

LOM (c) Do a check of the airplane skin for corrosion and fretting caused by the antenna gasket.

LOM 1) Remove any corrosion and fretting on the airplane skin.

LOM **B. Location Zones**

LOM

Zone	Area
100	Lower Half of Fuselage

LOM **C. Removal Procedure**

LOM SUBTASK 34-32-11-860-006

LOM (1) Open this circuit breaker and install safety tag:

LOM **CAPT Electrical System Panel, P18-1**

LOM

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

LOM SUBTASK 34-32-11-020-002

LOM (2) Remove the marker beacon antenna [1]:

LOM (a) Remove the six bolts [2] from the antenna base.

LOM
LOM
LOM

> **CAUTION**
> MOVE THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT CABLES. DAMAGE TO ANTENNA CABLES CAN OCCUR IF YOU PULL CABLES.

LOM (b) Lower the marker beacon antenna [1] until you can get access to the coaxial connector
LOM [3].

LOM (c) Disconnect the coaxial connector [3] from the marker beacon antenna [1].

LOM (d) Remove the marker beacon antenna [1].

LOM (e) Remove and discard the gasket [4].

LOM NOTE: For the Aerobond gasket, special attention must be used to remove the gel
LOM material residue to prevent silicone oil contamination on other parts of the
LOM airplane skin, which may cause paint adhesion difficulties.

LOM **END OF TASK**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

MARKER BEACON ANTENNA

A

J97003 S0000186856_V2

LOM
LOM

Marker Beacon Antenna with Gasket - Installation
Figure 402/34-32-11-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-32-11-400-801

4. Marker Beacon Antenna Installation

(Figure 401)

A. References

Reference	Title
20-30-11-910-801	Adhesives, Cements, and Sealants (P/B 201)
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
51-21-31-350-806	Removal and Control of Corrosion for Plated or Phosphated Surfaces (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding (AMM 20-30-88) - Series 88	

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(Continued)

Reference	Description	Specification
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Marker beacon antenna	34-32-01-01-010	LOM ALL

E. Location Zones

Zone	Area
100	Lower Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Marker Beacon Antenna Installation

SUBTASK 34-32-11-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-32-11-100-001

(2) Clean the airplane mating surface.

WARNING

DO NOT GET THE SOLVENT IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE IN THE FUMES FROM THE SOLVENT. PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE THE SOLVENT. KEEP THE SOLVENT AWAY FROM SPARKS, FLAME, AND HEAT. THE SOLVENT IS POISONOUS AND FLAMMABLE, WHICH CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Clean the airplane mating surface with cotton wiper, G00034, moistened with Series 88 solvent, B01008 (TASK 20-30-88-910-801).

(b) Use a clean cotton wiper, G00034, and clean the airplane mating surface again.

(c) Do these two steps above until the airplane mating surface is clean and dry.

SUBTASK 34-32-11-100-002

(3) If the airplane surface has corrosion or other damage, do these steps to prepare the airplane mating surface:

(a) Remove the corrosion from the airplane mating surface, do this task: Removal and Control of Corrosion for Plated or Phosphated Surfaces, TASK 51-21-31-350-806.

(b) To apply a layer of coating, C00064, to the airplane mating surface, do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-32-11-420-001

(4) Install the marker beacon antenna [1].

(a) Connect the coaxial connector [3] to the marker beacon antenna [1].

(b) Put the marker beacon antenna [1] in the correct position on the airplane surface.

(c) Install five of the six bolts [2] in the base of the marker beacon antenna [1].

(d) Manually tighten the bolts [2] to 25 in-lb (3 N·m).

(e) Measure the resistance between the baseplate of the marker beacon antenna [1] and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.

NOTE: Use the empty bolt hole to get access to the antenna baseplate.

1) Make sure the resistance is less than 2.5 milliohms.

(f) Install the last bolt [2].

1) Manually tighten the bolt [2] to 25 in-lb (3 N·m)

SUBTASK 34-32-11-390-001

(5) Apply aerodynamic sealant.

(a) Apply an aerodynamic fillet seal around the base of the marker beacon antenna [1] with sealant, A00247 (TASK 51-31-00-390-806 and TASK 20-30-11-910-801).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

(b) Use the hardwood or plastic fillet smoothing spatula, STD-810, to make a smooth 45-degree fillet.

(c) Apply sealant, A00247, to the heads of the bolts (TASK 51-31-00-390-806 and TASK 20-30-11-910-801).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

(d) Let the sealant dry for the correct cure time.

SUBTASK 34-32-11-860-003

(6) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

G. Marker Beacon Antenna Installation Test

SUBTASK 34-32-11-730-001

(1) Test the marker beacon antenna [1], do these steps:

(a) Make sure that the MKR controls on all the audio selector panels are off.

(b) Put the NAV/COMM ramp test set, COM-1913, or equivalent test set directly below the marker beacon antenna.

1) Put the test set on a non-metal surface.

2) Make sure that the test set antenna is 36 ±2 in. (91 ±5 cm) below the marker beacon antenna.

3) Make sure that the test set faces to the nose landing gear.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Set the NAV/COMM ramp test set, COM-1913, or equivalent test set to supply a marker beacon signal of 75 MHz with a 400 Hz modulation.

NOTE: If the antenna on the test set is not a marker beacon test antenna tuned at 75 MHz, it is not easy to get the test results.

(d) Make sure that power setting indication starts at -19 dBm minimum and increments by 1 dBm to a maximum of -15 dBm.

(e) Make sure that the OUTER (blue) Marker Beacon indication of “OM” on the Captain's and First Officer's PFD comes into view.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 34-32-11-080-001

(1) Remove the NAV/COMM ramp test set, COM-1913, or equivalent test set.

END OF TASK

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM **TASK 34-32-11-400-802**

LOM **5. Marker Beacon Antenna with Gasket - Installation**

LOM (Figure 402)

LOM **A. General**

LOM (1) This procedure is used for the installation of antennas with Aerobond or HI-TAK gaskets per 737–SL-20–045.

LOM (2) As a full certification of the gasket was not done, it is recommended to do the steps that follow:

LOM (a) Do a visual inspection of the gasket and the mating surface, each D check.

LOM (b) Do a check for deterioration and corrosion on the antenna and gasket after their removal.

LOM (c) Do a check of the airplane skin for corrosion and fretting caused by the antenna gasket.

LOM 1) Remove any corrosion and fretting on the airplane skin.

LOM **B. References**

LOM

Reference	Title
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
51-21-31-350-806	Removal and Control of Corrosion for Plated or Phosphated Surfaces (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)

LOM **C. Tools/Equipment**

LOM NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).
	Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
COM-1913	Test Set - NAV/COMM Ramp
	Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606
STD-1045	Ohmmeter - Resistance

D. Consumable Materials

Reference	Description	Specification
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding (AMM 20-30-88) - Series 88	
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Marker beacon antenna	34-32-01-01-010	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999
4	Gasket	34-32-01-01-022	LOM 402, 406, 407, 412, 415, 420, 423, 424, 426-428, 437-439, 441, 443, 444, 458-460

F. Location Zones

Zone	Area
100	Lower Half of Fuselage
211	Flight Compartment - Left

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LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

(Continued)

Zone	Area
212	Flight Compartment - Right

G. Installation Procedure

SUBTASK 34-32-11-860-007

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-32-11-100-003

(2) Clean the airplane mating surface:

> **WARNING**
> DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE. OBEY THE MATERIAL SAFETY DATA SHEETS (MSDS) FOR SOLVENTS. OBEY LOCAL REGULATIONS FOR THE CORRECT PROCEDURES TO USE OR DISCARD SOLVENTS. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Clean the airplane mating surface with a cotton wiper, G00034, moistened with Series 88 solvent, B01008 (TASK 20-30-88-910-801).

(b) Use a clean cotton wiper, G00034, and clean the airplane mating surface again.

(c) Do these two steps above until the airplane mating surface is clean and dry.

SUBTASK 34-32-11-100-004

(3) If the airplane surface has corrosion or other damage, do these steps to prepare the airplane mating surface:

(a) Do this task: Removal and Control of Corrosion for Plated or Phosphated Surfaces, TASK 51-21-31-350-806

(b) To apply a layer of coating, C00064, to the airplane mating surface, do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

SUBTASK 34-32-11-420-002

(4) Install the marker beacon antenna [1]:

(a) Remove the protective film from each side of the gasket [4].

NOTE: Reference the Aircraft Illustrated Parts Catalog for the gasket part number.

(b) Put the gasket [4] on the marker beacon antenna.

(c) Connect the coaxial connector [3] to the marker beacon antenna [1].

> **CAUTION**
> DO NOT APPLY SEALANT TO THE EDGES OF THE ANTENNA. THE GASKET RELEASES THE MOISTURE. IF YOU SEAL THE EDGES, THE MOISTURE WILL STAY. THIS CAN CAUSE CORROSION DAMAGE TO THE AIRPLANE, AND ANTENNA MATING SURFACES.

(d) Put the marker beacon antenna [1] in the correct position on the airplane surface.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

(e) Install five of the six bolts [2] in the base of the marker beacon antenna [1].

1) Manually tighten the bolts [2] to 10 in-lb (1.13 N·m).

NOTE: Since the gel material of the gasket is compressible, the bolts must be re-torqued 15 minutes after the installation to ensure tightness.

2) After 15 minutes, manually torque the bolts [2] to 16.5 ±1.5 in-lb (1.86 ±0.17 N·m).

NOTE: To help prevent cracks, each antenna fastener could be tightened to a few pound-inches at a time until all fasteners are tightened. After a few minutes, each fastener can be tightened a few more pound-inches. This is repeated until each fastener is tightened to the recommended torque value.

(f) Measure the resistance between the baseplate of the marker beacon antenna [1] and the airplane skin with an ohmmeter, STD-1045, or a intrinsically safe approved bonding meter, COM-1550

NOTE: Use the empty bolt hole to get access to the antenna baseplate.

1) Make sure that the resistance is less than 2.5 milliohms.

(g) Install the last bolt [2].

NOTE: Since the gel material of the gasket is compressible, the bolt must be re-torqued 15 minutes of the installation to ensure tightness.

SUBTASK 34-32-11-860-008

(5) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

H. Installation Test

SUBTASK 34-32-11-730-002

(1) Do this test the marker beacon antenna [1]:

(a) Make sure that the MKR controls on all the audio selector panels are off.

(b) Put the NAV/COMM ramp test set, COM-1913, or equivalent test set directly below the marker beacon antenna.

1) Put the test set on a non-metal surface.

2) Make sure that the test set antenna is 36 ±2 in. (91 ±5 cm) below the marker beacon antenna.

3) Make sure that the test set faces to the nose landing gear.

(c) Set the NAV/COMM ramp test set, COM-1913, or equivalent test set to supply a marker beacon signal of 75 MHz with a 400 Hz modulation.

NOTE: If the antenna on the test set is not a marker beacon test antenna tuned at 75 MHz, it is not easy to get the test results.

(d) Make sure that power setting indication starts at -19 dBm minimum and adjusts by 1 dBm increments to a maximum of -15 dBm.

(e) Make sure that the OUTER (blue) Marker Beacon indication of “OM” on the Captain's and First Officer's PFD comes into view.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)
LOM

LOM I. Put the Airplane Back to Its Usual Condition

LOM SUBTASK 34-32-11-080-002

LOM (1) Remove the NAV/COMM ramp test set, COM-1913, or equivalent test set.

LOM ——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOW RANGE RADIO ALTIMETER (LRRA) SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Low Range Radio Altimeter (LRRA) System Deactivation.

(2) Low Range Radio Altimeter (LRRA) System Activation.

(3) A simulation test of radio altitude.

TASK 34-33-00-040-801

2. Low Range Radio Altimeter System - Deactivation

(Figure 201)

A. General

(1) This procedure removes electrical power to the LRRA System.

NOTE: There are four LRRA antennas installed on the bottom of the airplane. The No. 1 (M1737) and No. 2 (M1738) transmit antennas are the outer antennas. The No. 1 (M1739) and the No. 2 (M1740) receive antennas are the inner antennas.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

NOTE: For airplanes with predictive wind shear weather radar systems, open the weather radar (WXR) transceiver circuit breaker to make sure that the WXR system does not come on. The radio altimeter supplies radio altitude data to the WXR transceiver. The WXR transceiver uses the radio altitude data to turn the WXR system on and off.

SUBTASK 34-33-00-860-028

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

D. Low Range Radio Altimeter System - Tryout

NOTE: This tryout is to make sure the Low Range Radio Altimeter system is in a zero energy state.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-00-860-029

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-00-710-005

(2) Set the SOURCE switch on the instrument switching module to the AUTO position.

(a) Make sure that captain's and first officer's EFIS displays are blank..

SUBTASK 34-33-00-710-006

(3) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

(a) Make sure that captain's and first officer's EFIS displays are blank.

SUBTASK 34-33-00-710-007

(4) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

(a) Make sure that captain's and first officer's EFIS displays are blank.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2364817 S0000541120_V2

Low Range Radio Altimeter
Figure 201/34-33-00-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-33-00-440-801

3. Low Range Radio Altimeter System - Activation

(Figure 201)

A. General

(1) This procedure adds electrical power to the LRRA system.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-33-00-860-030

WARNING

KEEP ALL PERSONNEL AT A SAFE DISTANCE FROM THE ANTENNA. RF ENERGY CAN CAUSE INJURIES TO PERSONNEL.

NOTE: Personnel must stay at least 5 in. (0.13 m) from the antenna, while it is operating.

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

END OF TASK

TASK 34-33-00-700-801

4. Radio Altitude Simulation Test

A. General

(1) This task uses an Atlantis DRA707 Radio Altimeter (RA) test set or the Aeroflex ALT-8000 test set to do a simulation test of radio altitude.

LOM ALL; AIRPLANES WITH PREDICTIVE WINDSHEAR

(2) You must open the Weather Radar (WXR) transceiver circuit breaker to make sure that the WXR system does not come on. The radio altimeter supplies radio altitude data to the WXR transceiver. The WXR transceiver uses the radio altitude data to turn the WXR system on and off.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-33-00-710-801	Low Range Radio Altimeter (LRRA) System - Operational Test (P/B 501)
34-33-21-000-801	Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal (P/B 401)
34-33-21-400-801	Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1922	Test Set - Radio Altimeter Part #: 110-0430-100-02 Supplier: L04V3 Part #: 110-0460-105 Supplier: L04V3 Part #: 9599-607-15902 Supplier: F0052 Opt Part #: 110-0430-100 Supplier: L04V3
COM-1929	Test Cable - Radio Altimeter Part #: 4678322A Supplier: F0052 Part #: AY969-00666-001 Supplier: L04V3 Part #: AY969-00667-001 Supplier: L04V3 Part #: AY969-00668-001 Supplier: L04V3
COM-14227	Test Set - Radio Altimeter Part #: ALT-8000 Supplier: 51190 Opt Part #: 2041595-5202 Supplier: 41364
SPL-1928	Box - Extender, Radio Altimeter Receiver Transmitter Part #: C34005-16 Supplier: 81205 Opt Part #: C34005-1 Supplier: 81205

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 411, 422, 425, 432-434, 440, 442, 453, 454, 464; AIRPLANES WITH HONEYWELL RADIO ALTIMETER TRANSCEIVER

F. Prepare for the Test (Using the Radio Altimeter Receiver Transmitter Extender Box)

SUBTASK 34-33-00-860-014

(1) Make sure that the electrical power is supplied (TASK 24-22-00-860-811).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 422, 425, 432-434, 440, 442, 453, 454, 464; AIRPLANES WITH HONEYWELL RADIO ALTIMETER TRANSCEIVER (Continued)

SUBTASK 34-33-00-800-001

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-00-010-001

(3) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-33-00-080-001

(4) Remove the applicable RA receiver/transmitter (TASK 34-33-21-000-801).

NOTE: You can do simulation test of each RA (No.1 or No.2) separately, or all together. Two radio altimeter receiver transmitter extender box, SPL-1928, are required to do a simultaneous simulation with LRRA #1 and LRRA #2.

SUBTASK 34-33-00-420-002

(5) Install the radio altimeter receiver transmitter extender box, SPL-1928.

SUBTASK 34-33-00-480-001

(6) Connect the Radio Altimeter test cable, COM-1929, to the radio altimeter test set, COM-1922.

(a) Set the POWER switch on the radio altimeter test set, COM-1922, to OFF position.

(b) Connect the Radio Altimeter test cable, COM-1929, to the radio altimeter receiver transmitter extender box, SPL-1928.

NOTE: For Honeywell Radio Altimeters, Radio Altimeter test cable, COM-1929, ATLANTIS P/N AY969-00668-001 can be used with radio altimeter receiver transmitter extender box, SPL-1928.

(c) Connect the power cable to the correct primary power source shown on the front panel of the radio altimeter test set, COM-1922.

NOTE: If the batteries in the radio altimeter test set, COM-1922, have the correct charge, the connection to a primary power source is not necessary.

SUBTASK 34-33-00-860-037

(7) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 422, 425, 432-434, 440, 442, 453, 454, 464; AIRPLANES WITH HONEYWELL RADIO ALTIMETER TRANSCEIVER (Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 437-439, 441, 443-447, 450-452, 455-463, 465-999

G. Prepare for the Test (Using Direct Connect Test Cable)

SUBTASK 34-33-00-860-019

(1) Make sure that the electrical power is supplied (TASK 24-22-00-860-811).

SUBTASK 34-33-00-800-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-00-010-002

(3) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-33-00-480-002

(4) Install the radio altimeter test set, COM-1922.

(a) Set the POWER switch on the radio altimeter test set, COM-1922, to the OFF position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 437-439, 441, 443, 444, 446, 447, 450-452, 455-463, 465-999

(b) Connect the correct test cable(s) Radio Altimeter test cable, COM-1929, between the TEST connector on the radio altimeter test set, COM-1922, and TEST connector on the transceiver(s).

NOTE: You can do a test of each radio altimeter (No. 1 or No. 2) separately, or all together, with these test cables in the radio altimeter test set, COM-1922:

Test cable ATLANTIS P/N AY969-00666-001 use with Rockwell Collins LRA-900.

Test cable ATLANTIS P/N 110–0440–101 use with Rockwell Collins LRA-700.

Test cable ATLANTIS P/N 110-0440-106 use with TRT ERT-530 digital output radio altimeters.

Test cable ATLANTIS P/N AY969-00667-001 use with ERT-550 digital output radio altimeters.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 445

(c) Connect the correct test cable(s) Radio Altimeter test cable, COM-1929, between the TEST connector on the radio altimeter test set, COM-1922, and TEST connector on the transceiver(s).

NOTE: You can do a test of each radio altimeter (No. 1 or No. 2) separately, or all together, with these test cables in the radio altimeter test set, COM-1922:

Test cable ATLANTIS P/N AY969-00667-001 use with ERT-550 digital output radio altimeters.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 437-439, 441, 443-447, 450-452, 455-463, 465-999

(d) Connect the power cable to the correct primary power source shown on the front panel of the radio altimeter test set, COM-1922.

NOTE: If the batteries in the radio altimeter test set, COM-1922, have the correct charge, the connection to a primary power source is not necessary.

SUBTASK 34-33-00-860-020

(5) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

LOM ALL

H. Prepare for the Test (Using the Aeroflex ALT-8000 Test Set) (Alternate)

SUBTASK 34-33-00-710-008

(1) Do this task: Low Range Radio Altimeter (LRRA) System - Operational Test, TASK 34-33-00-710-801.

SUBTASK 34-33-00-710-009

(2) Make sure that the captain's and first officer's Electronic Flight Instrument System (EFIS) display radio altitude show -4 ±2 ft (-1.2 ±0.6 m).

SUBTASK 34-33-00-800-004

(3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-00-010-003

(4) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-33-00-480-003

(5) Install the Aeroflex ALT-8000 test set (radio altimeter test set, COM-14227).

NOTE: Refer to the ALT-8000 Radio Altimeter Test Set operation manual for detailed information.

(a) Place the test set no more than 10 ft (3.0 m) from the radio altimeter antennas.

(b) Connect the 20 ft (6.1 m) Low Loss Radio Frequency (RF) Coax Cables to the color coded test set TX/RX Threaded Neill-Concelman (TNC) connectors.

(c) Push the power ON/OFF switch for a minimum of 1 second to power the test set.

(d) The power up screen and load progress bar are shown.

NOTE: The test set user interface is a touch screen control panel. The Launch Bar is a vertical scrolling menu shown on the left side of the touch screen that provides access to the function icons.

(e) Touch the light gray bar to open the Launch Bar.

(f) Touch Test Setup to show the Test Setup window.

NOTE: This window is used to configure the test set operational parameters.

(g) Touch the light gray bar to close the Launch Bar.

(h) Make sure that these RF Port Settings, UUT Settings, and RF Settings are correct on the General tab:

1) Connection Type - Coupler
2) UUT Detect Mode - Auto
3) Level Mode - Auto.

(i) Make sure that these RF Port Settings and RF Settings are correct on the Loss tab:

1) TX Cable Loss - See cable for value in dBs
2) RX Cable Loss - See cable for value in dBs
3) TX Coupler Loss - See TX Antenna Coupler for value in dBs
4) RX Coupler Loss - See RX Antenna Coupler for value in dBs.

(j) Touch Delay Calibration to show the Delay Calibration screen.

NOTE: This screen starts the calibration procedure for the test set RF coaxial cable delay.

1) Connect the ends of the TX and RX cables together with the supplied TNC connector.
2) Touch Start to start delay calibration.

NOTE: Delay calibration can not be aborted once started. The calibration process is automatic and the Test Setup screen is shown when calibration is completed.

3) Disconnect the TNC connector from the TX and RX cables.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-00-480-004

(6) Do these steps to install the antenna couplers:

NOTE: The Aeroflex ALT-8000 test set (radio altimeter test set, COM-14227) will not function correctly if the antenna couplers are placed over the wrong aircraft antennas. You do not see any TX power from the UUT and the test would not work.

(a) Select and assemble the sectional pole lengths to support the antenna couplers.

(b) Mount the antenna coupler to the end of each assembled pole.

(c) Push down on each pole assembly until the gas shock compresses and locks the retaining clamp.

(d) Raise the TX pole assembly and place the antenna coupler over the applicable radio altimeter transmit antenna.

1) If the pole is vertical, release the gas shock retaining clamp to apply upward pressure on the antenna coupler.

(e) Raise the RX pole assembly and place the antenna coupler over the applicable radio altimeter receive antenna.

1) When the pole is vertical, release the gas shock retaining clamp to apply upward pressure on the antenna coupler.

(f) Connect the TX and RX coax cables to the TX and RX antenna couplers TNC connector.

SUBTASK 34-33-00-860-031

(7) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

I. Radio Altitude Simulation Test (Using the Atlantis DRA707 Test Set)

SUBTASK 34-33-00-860-015

(1) Prepare the radio altimeter test set, COM-1922, for the altitude simulation, do these steps:

(a) Set the power ON/OFF switch to the ON position.

1) Make sure that the 5 VDC and HOLDING lights come on.

(b) Set the NO COMPUTED DATA switches to the NORMAL position.

LOM 437, 438, 443-445

(c) Push and release the CODE key.

(d) Push and release the 6 key.

1) Make sure that TRT MODE ACTIVE is shown on the Light Emitting Diode (LED) display.

LOM ALL

(e) Push and release the PRES ALT key.

1) Make sure that PRES ALT shows on the LEDs.

(f) Use the keypad to put in a value of +4000 feet.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(g) Push and release the ENTER key.

1) Make sure that the radio altitude value shown on the EFIS displays is blank.

SUBTASK 34-33-00-860-016

(2) Prepare the captain's and the first officer's EFIS control panels for the simulation.

(a) Push and release the RST (reset) button.

(b) Turn the DH control to show DH 450 at the captain's EFIS display.

(c) Turn the DH control to show DH 400 at the first officer's EFIS display.

SUBTASK 34-33-00-860-017

(3) Set these controls on the radio altimeter test set, COM-1922:

(a) Push and release the START ALT key.

1) Make sure that START ALT shown on the LEDs.

(b) Use the keypad to put in a value of +4000 feet.

(c) Push and release the ENTER key.

1) Make sure that the LEDs show START ALT +4000.

(d) Push and release the STOP ALT key.

1) Make sure that the LEDs show STOP ALT.

(e) Use the keypad to put in a value of -20 feet.

(f) Push and release the ENTER key.

1) Make sure that the LEDs show STOP ALT -20.

(g) Push and release the VERT SPD key.

1) Make sure that the LEDs show VERT SPD.

(h) Use the keypad to put in a value of -4000 (feet per minute).

(i) Push and release the ENTER key.

1) Make sure that the LEDs show VERT SPD -4000.

SUBTASK 34-33-00-730-009

(4) Do the altitude ramp-down test (typical).

(a) Push the RAMP/HOLD key on the radio altimeter test set, COM-1922.

1) Make sure that the RAMPING light comes on.

(b) Look for these indications on the captain's and the first officer's EFIS displays.

1) The radio altitude goes out of view for approximately 22.5 seconds while the altitude on the radio altimeter test set, COM-1922, decreases from 4000 to 2500 feet.

(c) After the time-out of 22.5 seconds (previous step), a radio altitude of 2500 feet comes into view on the EFIS displays and decreases toward zero.

NOTE: The EFIS displays show the radio altitude set on the radio altimeter test set, COM-1922, within the limit of 2500 feet to -20 feet.

(d) Look for these indications on the captain's EFIS display when the radio altitude decreases to 450 feet:

1) The DH value changes to a yellow color and flashes for 3 seconds.

2) The radio altitude continues to decrease toward zero.

(e) Look for these indications on the first officer's EFIS display when the radio altitude decreases to 400 feet:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) The DH value changes to a yellow color and flashes for 3 seconds.
2) The DH value flashes for approximately 3 seconds.
3) The radio altitude continues to decrease toward zero.

(f) Look for these indications on the EFIS displays while the radio altitude decreases to zero feet:

1) The radio altitude value changes to a white color.
2) The DH value changes to the numbers set at the captain's and the first officer's EFIS control panels.

J. Radio Altitude Simulation Test (Using Aeroflex ALT-8000 Test Set) (Alternate)

SUBTASK 34-33-00-860-032

(1) Prepare the Aeroflex ALT-8000 test set (radio altimeter test set, COM-14227), for the altitude simulation:

(a) Touch Alt. Ind. Zero to show the Altitude Indicator Zero screen.

NOTE: The test set is now simulating 0 ft (0 m) at the end of the ALT-8000 RF coax cables.

SUBTASK 34-33-00-860-033

(2) Prepare the captain's and the first officer's EFIS control panels for the simulation.

(a) Push and release the RST (reset) button.

(b) Turn the DH control to show DH 450 at the captain's EFIS display.

(c) Turn the DH control to show DH 400 at the first officer's EFIS display.

SUBTASK 34-33-00-730-012

(3) Do the altitude ramp-down test:

(a) Touch the light gray bar to open the Launch Bar.

(b) Touch Simulation window to show the Simulation window.

NOTE: The Simulation window is the main test screen and provides visual access to control parameters and test data.

(c) Touch the light gray bar to close the Launch Bar.

(d) Set these values in the Control area of the Simulation window:

NOTE: When a numeric data field is touched for editing, a data entry pop-up window is shown. A numeric keypad, data slew bar or rotary knob pop-up window can be used to enter a value.

1) Start Altitude = 3000 ft (914.4 m)
2) Stop Altitude = 0 ft (0 m)
3) Altitude Rate = 100 ft/min (0.508 m/s).

NOTE: DH trips should be completed with an altitude ramp-down and descent rate of 100 ft/min or less, to let the DH indicator and any audible warning operate correctly.

(e) Touch Run to start simulation.

NOTE: Altitude Pause is shown.

NOTE: To pause simulation at any point, touch Altitude Pause. The Current Altitude can be changed and the simulation is started again with a touch of Altitude Resume.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) The test set Current Altitude shows 3000 ft (914.4 m) and starts to decrease toward 0 ft (0 m).

(f) Make sure that the captain's and first officers EFIS display show these values:

1) No radio altitude shows until the Current Altitude reaches 2500 ft (762.0 m).

2) When the Current Altitude reaches 450 ft (137.2 m), the decision height indications on the captain's EFIS display change.

3) When the Current Altitude reaches 400 ft (121.9 m), the decision height indications on the first officers EFIS display change.

4) The Current Altitude on the test set and the radio altitude on the EFIS display continue to decrease to 0 ft (0 m).

(g) Touch Stop to end the simulation.

SUBTASK 34-33-00-710-010

(4) If it is necessary, use the test set to do altitude simulations to test other airplane systems.

LOM 411, 422, 425, 432-434, 440, 442, 453, 454, 464

K. Put the Airplane Back to Its Usual Condition (Using the Radio Altimeter Receiver Transmitter Extender Box)

SUBTASK 34-33-00-860-038

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-080-002

(2) Remove the radio altimeter test set, COM-1922.

(a) Set the POWER ON/OFF switch on the radio altimeter test set, COM-1922, to the OFF position.

(b) Disconnect the power cable for the radio altimeter test set, COM-1922, from the primary power source (if the power cable was used).

(c) Disconnect the test cable(s) from the radio altimeter test set, COM-1922.

(d) Put the test cables in the box for the radio altimeter test set, COM-1922.

SUBTASK 34-33-00-020-002

(3) Remove the radio altimeter receiver transmitter extender box, SPL-1928.

SUBTASK 34-33-00-400-001

(4) Install the applicable RA receiver/transmitter (TASK 34-33-21-400-801).

SUBTASK 34-33-00-860-018

(5) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 422, 425, 432-434, 440, 442, 453, 454, 464 (Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-00-410-001

(6) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 437-439, 441, 443-447, 450-452, 455-463, 465-999

L. Put the Airplane Back to Its Usual Condition (Using the Direct Connect Test Cable)

SUBTASK 34-33-00-860-021

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-080-003

(2) Remove the radio altimeter test set, COM-1922.

(a) Set the POWER ON/OFF switch on the radio altimeter test set, COM-1922, to the OFF position.

(b) Disconnect the power cable for the radio altimeter test set, COM-1922, from the primary power source (if the power cable was used).

(c) Disconnect the test cable(s) from the radio altimeter test set, COM-1922, and the applicable transceivers.

(d) Put the test cables in the box for the radio altimeter test set, COM-1922.

SUBTASK 34-33-00-410-002

(3) Install a TEST connector protective cover on the transceiver(s).

SUBTASK 34-33-00-860-022

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-00-410-003

(5) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM ALL

M. Put the Airplane Back to Its Usual Condition (Using the Aeroflex ALT-8000 Test Set) (Alternate)

SUBTASK 34-33-00-080-004

(1) Push the power ON/OFF switch for a minimum of 1 second to remove test set power.

SUBTASK 34-33-00-860-034

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-080-005

(3) Disconnect the 20 ft (6.1 m) Low Loss RF Coax Cables from the test set TX/RX TNC connectors and the antenna couplers.

SUBTASK 34-33-00-020-003

(4) Remove the TX and RX antenna coupler assemblies.

SUBTASK 34-33-00-860-035

(5) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-710-011

(6) Make sure that the captain's and first officer's EFIS display radio altitude show -4 ±2 ft (-1.2 ±0.6 m).

SUBTASK 34-33-00-860-036

(7) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOW RANGE RADIO ALTIMETER (LRRA) SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An operational test of the low range radio altimeter (LRRA) system.

(2) A system test of the LRRA system.

B. There are two radio altimeter systems installed on the airplane. Each radio altimeter system is made up of an LRRA receiver/transmitter (R/T) and two microstrip antennas. One of the antennas is a transmit antenna and one is a receive antenna.

C. The radio altimeter system measures the altitude of the airplane in the range of -4 feet to 2,500 feet. This altitude will show on the common display system (CDS). The CDS displays radio altitude on the captain's and first officer's primary display units, on the right side of the electronic altitude director indicator (EADI).

TASK 34-33-00-710-801

2. Low Range Radio Altimeter (LRRA) System - Operational Test

A. General

(1) The operational test includes a LRRA Interface To Display Electronic Unit test.

(2) The operational test makes sure the interface between the transceiver and the displays is ok.

(3) The operational test does not include a check of the LRRA antennas.

(4) This test will make sure the that the radio altimeter operates correctly after a suspected 5G interference.

(a) There can be 5G interference to the radio altimeter signals because of the frequency spectrum (3.4 GHz - 4.2 GHz, 4.4 GHz - 4.9 GHz), antenna type, and power levels used by the 5G technology. The radio altimeters can become inoperative or can supply erroneous data, which can affect other systems on the airplane that use radio altimeter data.

1) Follow your airline policy for reporting the specific event.

2) For more information refer to 737NG-FTD-34-21001.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-33-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-33-00-710-001

(2) Set the SOURCE switch on the instrument switching module to the AUTO position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure that -4 ±2 feet radio altitude shows on the captain's and first officer's EFIS displays.

SUBTASK 34-33-00-710-002

(3) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

(a) Make sure that -4 ±2 feet radio altitude shows on the captain's and first officer's EFIS displays.

SUBTASK 34-33-00-710-003

(4) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

(a) Make sure that -4 ±2 feet radio altitude shows on the captain's and first officer's EFIS displays.

SUBTASK 34-33-00-860-002

(5) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-33-00-860-003

(6) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——— END OF TASK ———

TASK 34-33-00-730-801

3. Low Range Radio Altimeter (LRRA) System - System Test

A. General

(1) The system test makes sure that the interface between the Air/Ground relays is ok and the transmit and receive antennas operate correctly.

(2) The system test includes these tests:

(a) The LRRA Air/Ground Discrete Input Test

(b) The LRRA Antenna Coaxial Cable Test.

1) Interface from LRRA equipment rack connector to antenna connector.

2) Interface from LRRA R/T to antenna connector.

(3) For airplanes with predictive wind shear weather radar systems, open the Weather Radar (WXR) transceiver circuit breaker to make sure that the WXR system does not come on. The radio altimeter supplies radio altitude data to the WXR transceiver. The WXR transceiver uses the radio altitude data to turn the WXR system on and off.

B. References

Reference	Title
34-33-21-000-801	Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal (P/B 401)
34-33-21-400-801	Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1047	Material - RF Absorbent, Eccosorb AN74 Emerson Cumming or Equivalent Part #: 78084099 Supplier: 30817 Opt Part #: AN74 Supplier: 30817
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
COM-9903	Cable - Adapter, Two Single Banana Plugs to BNC Male Part #: 5268-C-XX Supplier: 5D6S9 Opt Part #: 2241-C-36 Supplier: 4U744
STD-1046	Detector - Crystal, Hewlett Packard HPX421A or HPX421B or Generic 1N23 Crystal Diode
STD-4050	Detector Kit - Crystal (Generic 1N23 or p/n HPX421A, HPX421B, 1N23WE, 423B use with front end adapter p/n 8817A or equivalent).

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Air/Ground Discrete Input Test

SUBTASK 34-33-00-860-005

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-00-020-001

(2) Remove the No. 1 and the No. 2 LRRA R/Ts (TASK 34-33-21-000-801).

SUBTASK 34-33-00-730-001

(3) Use a digital/analog multimeter, COM-1793, to measure the resistance between the AIR/GROUND DISCRETE, pin F4, and the IND 2 STATUS, pin F6, in connector D3667B for the No. 1 radio altimeter system.

(a) Make sure that the digital/analog multimeter, COM-1793, shows 10 KOhms or more than 10 KOhms.

SUBTASK 34-33-00-730-002

WARNING	MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS AND THE THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) On the Proximity Switch Electronics Unit (PSEU), push the ON/OFF button to turn the BITE display to ON.

(a) Push the NO button for the “EXISTING FAULTS ?” display.

(b) Push the NO button for the “FAULT HISTORY ?” display.

(c) Push the NO button for the “GROUND TEST ?” display.

(d) Push the YES button for the “AIR/GROUND OVRD ?” display.

(e) Push the YES button for the “SET SYS 1 IN AIR ?” display

(f) Push the YES button for the “ARE YOU SURE” display.

1) Make sure that the digital/analog multimeter, COM-1793, shows 100 Ohms or less.

(g) Push the YES button for the “SET SYSTEM 1 ON GRD ?” display.

(h) Push the YES button for the “ARE YOU SURE ?” display.

(i) Use a digital/analog multimeter, COM-1793, to measure the resistance between the AIR/GROUND DISCRETE, pin F4, and the IND 2 STATUS, pin F6, in connector D3669B for the No. 2 radio altimeter system.

1) Make sure that the digital/analog multimeter, COM-1793, shows 10 KOhms or more than 10 KOhms.

SUBTASK 34-33-00-730-004

(5) Push the NO button for the “SET SYS 1 IN AIR ?” display.

(6) Push the YES button for the “SET SYS2 IN AIR ?” display.

WARNING	MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS AND THE THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Push the YES button for the “ARE YOU SURE ?” display.

(a) Make sure that the digital/analog multimeter, COM-1793, shows 100 Ohms or less.

(8) Push the YES button for the “SET SYSTEM 2 ON GND? “ display.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(9) Push the YES button for the “ARE YOU SURE ?” display.

(10) On the PSEU, push the ON/OFF button to turn the BITE display to OFF.

(11) Push the YES button for the “TURN OFF THE DISPLAY ?” display.

SUBTASK 34-33-00-420-001

(12) Install the No. 1 and the No. 2 LRRA R/Ts (TASK 34-33-21-400-801).

F. Operational Test

SUBTASK 34-33-00-860-008

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-710-004

(2) Do this task: Low Range Radio Altimeter (LRRA) System - Operational Test, TASK 34-33-00-710-801.

G. LRRA Antenna Coaxial Cable Test

SUBTASK 34-33-00-860-009

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-860-027

(2) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

SUBTASK 34-33-00-730-010

(3) Cover the LRRA 1 System receive antenna with RF absorbent material, COM-1047, or equivalent absorbent material.

(a) Make sure that the radio altitude display on the captain's EFIS display is blank.

SUBTASK 34-33-00-730-005

(4) There are two ways to do LRRA coaxial cable test for LRRA 1 System:

(a) Use the BNC Male to single banana plugs adapter, COM-9903, to do this task where necessary.

(b) For the crystal detector kit, STD-4050:

1) Connect the crystal detector to a multimeter and hold the crystal detector up to the LRRA 1 System transmit antenna.

2) Make sure that the multimeter shows a minimum of 1.5 mVDC.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) For the Hewlett Packard HPX421A or HPX421B or generic 1N23 crystal diode detector, STD-1046:

1) Hold the generic 1N23 crystal diode on the LRRA 1 System transmit antenna coaxial cable.

2) Make sure that the multimeter shows a minimum of 30 mVDC.

SUBTASK 34-33-00-860-010

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-00-860-011

(6) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

SUBTASK 34-33-00-730-011

(7) Cover the LRRA 2 System receive antenna with RF absorbent material, COM-1047, or equivalent absorbent material.

(a) Make sure that the radio altitude display on the first officer's EFIS display is blank.

SUBTASK 34-33-00-730-007

(8) There are two ways to do LRRA coaxial cable test for LRRA 2 System:

(a) Use the BNC Male to single banana plugs adapter, COM-9903, to do this task where necessary.

(b) For the crystal detector kit, STD-4050:

1) Connect the crystal detector to a multimeter and hold the crystal detector up to the LRRA 2 System transmit antenna.

2) Make sure that the multimeter shows a minimum of 1.5 mVDC.

(c) For the Hewlett Packard HPX421A or HPX421B or generic 1N23 crystal diode detector, STD-1046:

1) Hold the generic 1N23 crystal diode on the LRRA 2 System transmit antenna coaxial cable.

2) Make sure that the multimeter shows a minimum of 30 mVDC.

SUBTASK 34-33-00-860-012

(9) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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LRRA SYSTEM - Generic 1N23 diode connection
Figure 501/34-33-00-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION

1. **General**

A. This procedure has these tasks:

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395

(1) A removal of the Low Range Radio Altimeter (LRRA) antenna with an installed o-ring.

LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395

(2) A removal of the LRRA antenna with an installed gasket.

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395

LOM (3) A removal of the LRRA antenna with an installed gasket.

(4) An installation of the LRRA antenna and o-ring.

LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395

(5) An installation of the LRRA antenna and gasket.

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395

LOM (6) An installation of the LRRA antenna and gasket.

LOM **LOM ALL**

B. There are four LRRA antennas installed on the bottom of the airplane. The No. 1 (M1737) and No. 2 (M1738) transmit antennas are the outer antennas. The No. 1 (M1739) and the No. 2 (M1740) receive antennas are the inner antennas.

C. For airplanes with predictive wind shear weather radar systems, open the Weather Radar (WXR) transceiver circuit breaker to make sure that the WXR system does not come on. The radio altimeter supplies radio altitude data to the WXR transceiver. The WXR transceiver uses the radio altitude data to turn the WXR system on and off.

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395

TASK 34-33-11-000-801

2. **Low Range Radio Altimeter (LRRA) Antenna Removal (With O-Ring)**

(Figure 401)

A. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

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C. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

D. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Removal Procedure

SUBTASK 34-33-11-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395 (Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-11-080-001

(2) Remove the antenna [1]:

(a) Remove the screws [2] from the antenna [1].

> **CAUTION** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

(b) Use force around the antenna [1] with the sealant removal tool, COM-2481 until the seal is fully broken.

> **CAUTION** LOWER THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

(c) Lower the antenna [1] until you can get access to the coaxial connector [4].

LOM 402, 404, 406, 407, 420, 422, 425-431 PRE SB 737-34-2424 AND PRE SB 737-34-2395; LOM 412, 415, 423, 424 PRE SB 737-34-2395

(d) Remove the lockwire from the coaxial connector [4].

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395

(e) Disconnect the coaxial connector [4] from the antenna [1].

1) Inspect the connector on the antenna [1] for moisture and contamination. Clean it with a cotton wiper, G00034 as required.

(f) Remove the O-ring [3] from the base of the antenna [1].

(g) Remove the old sealant from the airplane skin (TASK 51-31-00-160-801).

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Low Range Radio Altimeter (LRRA) Antenna Installation
Figure 401/34-33-11-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395

TASK 34-33-11-000-803

3. Low Range Radio Altimeter (LRRA) Antenna Removal (With Gasket)

(Figure 402)

A. General

(1) This task includes the steps to remove the Low Range Radio Altimeter (LRRA) Antenna.

(2) Imprints on the fuselage skin caused by the gasket wire mesh are permitted. If such imprints are found, then no maintenance action is necessary.

B. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
51-31-00-160-801	Prepare For Sealing (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

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D. Consumable Materials

Reference	Description	Specification
A50453	Compound - Electrical Insulating Coating	BMS5-37 Type I Class A

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

E. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Prepare for the Removal

SUBTASK 34-33-11-860-015

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

G. LRRA Antenna Removal

SUBTASK 34-33-11-000-002

(1) Remove the antenna [1]:

(a) Remove the screws [2] from the antenna [1].

> **CAUTION** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

(b) Use force around the antenna with the sealant removal tool, COM-2481, until the seal is fully broken.

> **CAUTION** LOWER THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

(c) Lower the antenna [1] until you can get access to the coaxial connector [4].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 420, 422, 425-431 PRE SB 737-34-2424 AND POST SB 737-34-2395; LOM 411, 416 PRE SB 737-34-2424; LOM 412, 415, 423, 424 POST SB 737-34-2395

(d) Remove the lockwire from the coaxial connector [4] (TASK 20-10-44-000-801).

LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395

(e) Remove compound, A50453, from the coaxial connector [4] and connector on the antenna [1].

(f) Disconnect the coaxial connector [4] from the antenna [1] and remove the antenna [1].

1) Inspect the connector on the antenna [1] for moisture and contamination.

2) Clean the connector with a cotton wiper, G00034, as required.

(g) Remove the gasket [5] from the base of the antenna [1].

(h) Remove the old sealant from the airplane skin (TASK 51-31-00-160-801).

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Low Range Radio Altimeter (LRRA) Antenna Installation
Figure 402/34-33-11-990-803

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395

TASK 34-33-11-000-802

4. Low Range Radio Altimeter (LRRA) Antenna with Gasket - Removal

(Figure 403)

A. General

(1) This procedure is used for the removal of antennas that use Aerobond or HI-TAK gaskets per 737–SL-20–045.

(2) Imprints on the fuselage skin caused by the gasket wire mesh are permitted. If such imprints are found, then no maintenance action is necessary.

(3) As a full certification of the test was not done, it is recommended to do the steps that follow:

(a) Do a visual inspection of the gasket and the mating surface, each D check.

1) Remove any corrosion and fretting on the airplane skin.

B. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A50453	Compound - Electrical Insulating Coating	BMS5-37 Type I Class A
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

D. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Removal Procedure

SUBTASK 34-33-11-860-010

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-11-080-002

(2) Remove the antenna [1]:

(a) Remove the screws [2] from the antenna [1].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395 (Continued)**
LOM

LOM **CAUTION** MOVE THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CABLES. DAMAGE TO THE ANTENNA CABLES CAN OCCUR IF YOU PULL THE CABLES.

LOM (b) Lower the antenna [1] until you can get access to the coaxial connector [4].

LOM **LOM 402, 404, 406, 407, 420, 422, 425-431 PRE SB 737-34-2424 AND PRE SB 737-34-2395; LOM 412, 415, 423, 424 PRE SB 737-34-2395**

LOM (c) Remove the lockwire from the coaxial connector [4].

LOM **LOM 402, 404, 406, 407, 420, 422, 425-431 POST SB 737-34-2424 AND PRE SB 737-34-2395**

LOM (d) Remove compound, A50453 from the coaxial connector [4] and the connector on the antenna [1].

LOM **LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395**

LOM (e) Disconnect the coaxial connector [4] from the antenna [1].

LOM 1) Inspect the connector on the antenna [1] for moisture and contamination. Clean it with a cotton wiper, G00034 as required.

LOM (f) Remove the gasket [5] from the base of the antenna [1].

LOM (g) Remove the old sealant from the airplane skin (TASK 51-31-00-160-801).

LOM NOTE: For the Aerobond gasket, special attention must be used to remove the gel material residue to prevent silicone oil contamination on other parts of the airplane skin, which may cause paint adhesion difficulties.

LOM **END OF TASK**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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LOM
LOM

Low Range Radio Altimeter (LRRA) Antenna with Gasket - Installation
Figure 403/34-33-11-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-33-11-400-801

5. **Low Range Radio Altimeter (LRRA) Antenna Installation (With O-Ring)**
(Figure 401)

A. **References**

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-30-11-910-801	Adhesives, Cements, and Sealants (P/B 201)
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

B. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. **Consumable Materials**

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84) - Series 84	
D00633	Grease - Aircraft General Purpose	BMS3-33
D50180	Grease - Aircraft General Purpose (AeroShell Grease 33)	BMS3-33, MIL-PRF-23827
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

D. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Antenna	34-33-11-01-125	LOM 402, 404, 406, 407, 412, 415, 420, 422-431

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Low Range Radio Altimeter Antenna Installation

SUBTASK 34-33-11-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-11-110-001

(2) Clean the airplane mating surface.

WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR DANGEROUS TO THE ENVIRONMENT. REFER TO MATERIAL-SAFETY-DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR CORRECT HANDLING PROCEDURES.

(a) Clean the airplane mating surface with cotton wiper, G00034, that is moist with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

(b) Use cotton wiper, G00034, and clean the mating surface again.

(c) Do these steps until the mating surface is clean and dry.

SUBTASK 34-33-11-300-001

(3) If the airplane mating surface has corrosion or unwanted material, do these steps to prepare the airplane mating surface:

(a) Do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

(b) Do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

SUBTASK 34-33-11-420-001

(4) Install the antenna [1].

(a) Put the O-ring [3] on the antenna [1] base.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 420, 422, 425-431 PRE SB 737-34-2424 AND PRE SB 737-34-2395; LOM 412, 415, 423, 424 PRE SB 737-34-2395

> **CAUTION** DO NOT TIGHTEN THE CONNECTOR TOO TIGHT. TOO MUCH TORQUE ON THE CONNECTOR CAN CAUSE DAMAGE TO THE ANTENNA.

(b) Connect the coaxial cable to the antenna [1].

1) Tighten the coaxial connector [4] to 10.0 ±2.0 in-lb (1.1 ±0.3 N·m).

2) Lockwire the coaxial connector [4], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

LOM 402, 404, 406, 407, 420, 422, 425-431 POST SB 737-34-2424 AND PRE SB 737-34-2395

> **CAUTION** DO NOT TIGHTEN THE CONNECTOR TOO TIGHT. TOO MUCH TORQUE ON THE CONNECTOR CAN CAUSE DAMAGE TO THE ANTENNA.

(c) Connect the coaxial cable to the antenna [1].

1) Tighten the coaxial connector [4] to 15.0 in-lb (1.7 N·m) - 17.0 in-lb (1.9 N·m).

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395

(d) Put a thick layer of grease, D00633, or AeroShell Grease 33, D50180, around the antenna [1] base plate connector.

1) Make sure that the layer of grease, D00633, or AeroShell Grease 33, D50180, is above the screw ends on the antenna [1] base plate connector.

2) Make sure that grease, D00633, or AeroShell Grease 33, D50180, extends approximately 1 in. (25 mm) up the antenna [1] base plate connector.

(e) Put the antenna [1] in the correct position on the airplane surface.

(f) Install three of the four screws [2].

1) Torque the screws [2] to 25 in-lb (3 N·m).

SUBTASK 34-33-11-760-001

(5) Measure the resistance between the antenna [1] base plate and the airplane skin with a intrinsically safe approved bonding meter, COM-1550.

NOTE: Use the empty screw hole to get access to the antenna base plate.

(a) Make sure that the resistance is less than 0.001ohm (1 milliohm).

SUBTASK 34-33-11-420-002

(6) Install the last screw [2].

(a) Torque the screw [2] to 25 in-lb (3 N·m).

(b) Apply the weather/aerodynamic fillet sealant, A00247 (TASK 51-31-00-390-804 and TASK 20-30-11-910-801).

NOTE: Operators can defer the application of sealant, A00247 to avoid flight delay (SL 20-043).

1) Let the sealant, A00247 dry for the correct cure time.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395 (Continued)

SUBTASK 34-33-11-860-003

(7) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

G. Low Range Radio Altimeter Antenna Installation Test

SUBTASK 34-33-11-860-004

(1) Set the SOURCE switch, on the instrument switching module, to the AUTO position.

SUBTASK 34-33-11-710-001

(2) Make sure that the captain's primary Electronic Flight Instrument System (EFIS) display shows -4 ±2 ft (-1.2 ±0.6 m).

SUBTASK 34-33-11-710-002

(3) Make sure that the first officer's primary EFIS display shows -4 ±2 ft (-1.2 ±0.6 m).

——— END OF TASK ———

LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395

TASK 34-33-11-400-803

6. Low Range Radio Altimeter (LRRA) Antenna Installation (With Gasket)

(Figure 402)

A. General

(1) This task includes the steps to install the Low Range Radio Altimeter (LRRA) antenna from inside the fuselage and from outside the fuselage.

B. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-30-11-910-801	Adhesives, Cements, and Sealants (P/B 201)
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
24-31-11-000-801-001	Battery Removal (P/B 401)
24-31-11-000-802-002	Battery Removal (P/B 401)
24-31-11-400-801-001	Battery Installation (P/B 401)
24-31-11-400-802-002	Battery Installation (P/B 401)
25-52-10-000-801	Cargo Floor Panel - Removal (P/B 401)
25-52-10-400-801	Cargo Floor Panel - Installation (P/B 401)
25-52-16-000-801	Forward Cargo Compartment Forward Bulkhead Liner - Removal (P/B 401)
25-52-16-400-801	Forward Cargo Compartment Forward Bulkhead Liner - Installation (P/B 401)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Title
25-80-00-000-801	Insulation Blanket Removal (P/B 401)
25-80-00-400-801	Insulation Blanket Installation (P/B 401)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)
52-31-00-580-801	Open the Cargo Door (P/B 201)
52-31-00-580-802	Close the Cargo Door (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations
SL 34-210	Low Range Radio Altimeter (LRRA) Antenna Gel Gasket Installation
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A50143	Sealant - SelfLeveling Green (Av-DEC - HT3326-5)	
A50403	Sealant - Self-Leveling, Polyurethane Kit, Red (P/N HT5509-2-XXX)	
A50453	Compound - Electrical Insulating Coating	BMS5-37 Type I Class A
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84) - Series 84	
B50073	Alcohol - Isopropyl	ASTM D 770
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Antenna	34-33-11-01-125	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
1 (cont.)		34-33-11-02-040	LOM 432-434, 437-447, 450-999
5	Gasket	34-33-11-01-140	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-428
		34-33-11-02-045	LOM 432-434, 437-447, 450-999

F. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

G. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

H. Low Range Radio Altimeter Antenna Installation

SUBTASK 34-33-11-700-001

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-11-110-003

(2) Clean the airplane mating surface.

WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE. OBEY THE MATERIAL SAFETY DATA SHEETS (MSDS) FOR SOLVENTS. OBEY LOCAL REGULATIONS FOR THE CORRECT PROCEDURES TO USE OR DISCARD SOLVENTS. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Clean the airplane mating surface with cotton wiper, G00034, that is moist with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

(b) Use cotton wiper, G00034, and clean the mating surface again.

(c) Do these steps until the mating surface is clean and dry.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-11-300-004

(3) If the airplane mating surface has corrosion or unwanted material, do these steps to prepare the airplane mating surface:

(a) Do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

(b) Do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

I. LRRA Antenna Installation from Inside the Fuselage

SUBTASK 34-33-11-010-002

(1) If necessary, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-33-11-010-001

(2) Do these steps to get access to the antenna [1] from the forward cargo compartment:

(a) Open the forward cargo door, do this task: Open the Cargo Door, TASK 52-31-00-580-801.

(b) If it is necessary, remove the applicable floor panel, do this task: Cargo Floor Panel - Removal, TASK 25-52-10-000-801.

(c) If it is necessary, remove the applicable bulkhead liner, do this task: Forward Cargo Compartment Forward Bulkhead Liner - Removal, TASK 25-52-16-000-801.

(d) If it is necessary, remove the main battery, do this task: Battery Removal, TASK 24-31-11-000-801-001 or Battery Removal, TASK 24-31-11-000-802-002.

(e) If it is necessary, remove the applicable insulation blanket, do this task: Insulation Blanket Removal, TASK 25-80-00-000-801.

SUBTASK 34-33-11-110-004

(3) Clean the mating surface of the antenna [1] with alcohol, B50073 (SWPM 20-20-00).

SUBTASK 34-33-11-400-001

(4) Install the new gasket [5] onto the antenna [1].

(a) Discard the antenna O-ring supplied with the antenna [1].

(b) Remove the protective gasket film from the side of the gasket [5] that will be applied to the base plate of the antenna [1].

(c) Align the gasket [5] holes to the holes on the antenna [1].

NOTE: The fasteners may be used to help align the gasket with the antenna.

(d) Push the gasket [5] onto the base plate of the antenna [1].

1) Make sure that the gasket [5] touches the base plate fully.

(e) Remove the protective film from the side of the gasket [5] that will be applied to the airplane surface.

SUBTASK 34-33-11-400-004

(5) Install the antenna [1].

(a) Put the antenna [1] in the correct position on the airplane surface.

(b) Install the four screws [2].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395 (Continued)

1) Tighten the screws [2] to 25 in-lb (2.8 N·m).
2) After 15 minutes, tighten the screws [2] to 30 in-lb (3.4 N·m).

SUBTASK 34-33-11-700-002

(6) Do these steps to measure the antenna bond resistance:
   (a) Measure the resistance between the antenna [1] base plate and airplane skin with an intrinsically safe approved bonding meter, COM-1550.
   (b) Make sure that the resistance is less than 0.001 ohm (1 milliohm).

SUBTASK 34-33-11-390-005

(7) Apply self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, around the base of the antenna [1] connector.

NOTE: Operators can defer the application of self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, to avoid a flight delay (SL 34-210).

   (a) Fill the entire cavity, up to and around the antenna [1] connector.
   (b) The self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, should be level or convex.

NOTE: The self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, will be tacky within two to three minutes and fixed within ten minutes.

LOM 402, 404, 406, 407, 420, 422, 425-431 PRE SB 737-34-2424 AND POST SB 737-34-2395; LOM 411, 416 PRE SB 737-34-2424; LOM 412, 415, 423, 424 POST SB 737-34-2395

SUBTASK 34-33-11-420-007

CAUTION
DO NOT TIGHTEN THE CONNECTOR TOO TIGHT. TOO MUCH TORQUE ON THE CONNECTOR CAN CAUSE DAMAGE TO THE ANTENNA.

(8) Connect the coaxial cable to the antenna [1].
   (a) Tighten the coaxial connector [4] to 10.0 ±2.0 in-lb (1.1 ±0.3 N·m).
   (b) Lockwire the coaxial connector [4], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

LOM 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 420, 422, 425-431 POST SB 737-34-2424 AND POST SB 737-34-2395; LOM 411, 416 POST SB 737-34-2424

SUBTASK 34-33-11-420-008

CAUTION
DO NOT TIGHTEN THE CONNECTOR TOO TIGHT. TOO MUCH TORQUE ON THE CONNECTOR CAN CAUSE DAMAGE TO THE ANTENNA.

(9) Connect the coaxial cable to the antenna [1].
   (a) Tighten the coaxial connector [4] to 15.0 in-lb (1.7 N·m) - 17.0 in-lb (1.9 N·m).

LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395

SUBTASK 34-33-11-140-002

(10) Use a sealant removal tool, COM-2481, to remove any excess gel out from the antenna [1].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Place the sealant removal tool, COM-2481, perpendicular to the edge of base of the antenna [1].

(b) Push the sealant removal tool, COM-2481, flush to the airplane skin.

(c) Pull any excess gel away.

> **WARNING** ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. USE PERSONAL PROTECTION EQUIPMENT. USE IN A WELL-VENTILATED AREA.

(d) Use a cotton wiper, G00034, wet with alcohol, B50073, to help with the removal of the excess gel.

SUBTASK 34-33-11-390-008

(11) Apply an aerodynamic fillet seal around the base of the antenna [1] with sealant, A00247 (TASK 51-31-00-390-806 and TASK 20-30-11-910-801).

NOTE: Operators can defer the application of sealant, A00247, to avoid a flight delay (SL 20-043).

NOTE: If you install gasket TA71000419 or AG723000–02 with the antenna, the aerodynamic fillet seal is not necessary.

SUBTASK 34-33-11-160-002

(12) Do these steps to clean the coaxial connector [4] and the connector on the antenna [1] that will be sealed with compound, A50453:

> **WARNING** ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. USE PERSONAL PROTECTION EQUIPMENT. USE IN A WELL-VENTILATED AREA.

(a) Clean the surfaces of the coaxial connector [4] and the connector on the antenna [1] with alcohol, B50073.

NOTE: Avoid the use of excessive alcohol.

1) Clean the wire bundle from the edge of the coaxial connector [4] to approximately 0.25 in. (0.64 cm) along the wire bundle.

(b) Remove all alcohol, B50073, by wiping with a clean dry cotton wiper, G00034.

SUBTASK 34-33-11-390-006

(13) Apply compound, A50453, with a brush to the coaxial connector [4], and the antenna [1] connector to make a moisture seal. Extend the application of the compound, A50453, 0.25 in. (6.35 mm) along the wire bundle from the coaxial connector [4], and along the airplane skin from the coaxial connector [4]:

NOTE: A minimum of two coats of compound, A50453, is required to achieve a cured thickness of approximately to 0.05 in. (0.13 cm) - 0.10 in. (0.25 cm) to make sure that coverage is complete, and to build a film that is thick and strong enough to be easily removed. If the coating of compound, A50453, is too thin, then the compound, A50453, will break during removal, increasing the difficulty of removal. A wet film gauge can be used to estimate the thickness of the coating.

NOTE: Operators can defer the application of compound, A50453, to avoid a flight delay (SL 34-210).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Apply a minimum of two coats of compound, A50453, with a brush.

1) Wait approximately 5 to 10 minutes between applications.

NOTE: Bubbles caused by brushing are not a cause for rejection.

(b) Make sure that compound, A50453, provides complete coverage under the gap where the coaxial connector [4] and antenna [1] connector mate.

SUBTASK 34-33-11-410-001

(14) Do these steps to install the items that were removed to get access to the antenna [1]:

(a) If it is necessary, install the insulation blanket, do this task: Insulation Blanket Installation, TASK 25-80-00-400-801.

(b) If it is necessary, install the main battery, do this task: Battery Installation, TASK 24-31-11-400-801-001 or Battery Installation, TASK 24-31-11-400-802-002.

(c) If it is necessary, install the bulkhead liner, do this task: Forward Cargo Compartment Forward Bulkhead Liner - Installation, TASK 25-52-16-400-801.

(d) If it is necessary, install the floor panel, do this task: Cargo Floor Panel - Installation, TASK 25-52-10-400-801.

(e) Close the forward cargo door, do this task: Close the Cargo Door, TASK 52-31-00-580-802.

SUBTASK 34-33-11-410-002

(15) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

J. LRRA Antenna Installation from Outside the Fuselage

SUBTASK 34-33-11-110-005

(1) Clean the mating surface of the antenna [1] with alcohol, B50073 (SWPM 20-20-00).

SUBTASK 34-33-11-400-006

(2) Install the new gasket [5] onto the antenna [1].

(a) Discard the antenna O-ring supplied with the antenna [1].

(b) Remove the protective film from the side of the gasket [5] that will be applied to the base plate of the antenna [1].

(c) Align the gasket [5] holes to the holes on the antenna [1].

NOTE: The fasteners may be used to help align the gasket with the antenna.

(d) Push the gasket [5] onto the base plate of the antenna [1].

1) Make sure that the gasket [5] touches the base plate fully.

(e) Remove the protective film from the side of the gasket [5] that will be applied to the airplane surface.

SUBTASK 34-33-11-390-012

(3) Apply self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, around the base of the antenna [1] connector.

NOTE: Operators can defer the application of self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, to avoid a flight delay (SL 34-210).

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LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395 (Continued)

(a) Fill the entire cavity, up to and around the antenna [1] connector.

(b) The self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, should be level or convex.

NOTE: The self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, will be tacky within two to three minutes and fixed within ten minutes.

LOM 402, 404, 406, 407, 420, 422, 425-431 PRE SB 737-34-2424 AND POST SB 737-34-2395; LOM 411, 416 PRE SB 737-34-2424; LOM 412, 415, 423, 424 POST SB 737-34-2395

SUBTASK 34-33-11-420-011

CAUTION

DO NOT TIGHTEN THE CONNECTOR TOO TIGHT. TOO MUCH TORQUE ON THE CONNECTOR CAN CAUSE DAMAGE TO THE ANTENNA.

(4) Connect the coaxial cable to the antenna [1].

(a) Tighten the coaxial connector [4] to 10.0 ±2.0 in-lb (1.1 ±0.3 N·m).

(b) Lockwire the coaxial connector [4], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

LOM 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 420, 422, 425-431 POST SB 737-34-2424 AND POST SB 737-34-2395; LOM 411, 416 POST SB 737-34-2424

SUBTASK 34-33-11-420-012

CAUTION

DO NOT TIGHTEN THE CONNECTOR TOO TIGHT. TOO MUCH TORQUE ON THE CONNECTOR CAN CAUSE DAMAGE TO THE ANTENNA.

(5) Connect the coaxial cable to the antenna [1].

(a) Tighten the coaxial connector [4] to 15.0 in-lb (1.7 N·m) - 17.0 in-lb (1.9 N·m).

LOM 411, 416, 432-434, 437-447, 450-999; LOM 402, 404, 406, 407, 412, 415, 420, 422-431 POST SB 737-34-2395

SUBTASK 34-33-11-160-004

(6) Do these steps to clean the coaxial connector [4] and the connector on the antenna [1] that will be sealed with compound, A50453:

WARNING

ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. USE PERSONAL PROTECTION EQUIPMENT. USE IN A WELL-VENTILATED AREA.

(a) Clean the surfaces of the coaxial connector [4] and the antenna [1] connector with alcohol, B50073.

NOTE: Avoid the use of excessive alcohol.

1) Clean the wire bundle from the edge of the coaxial connector [4] to approximately 0.25 in. (0.64 cm) along the wire bundle.

(b) Remove all alcohol, B50073, by wiping with a clean dry cotton wiper, G00034.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-11-390-013

(7) Apply compound, A50453, with a brush to the coaxial connector [4] and the antenna [1] connector to make a moisture seal. Extend the application of the compound, A50453, 0.25 in. (6.35 mm) along the wire bundle from the coaxial connector [4]:

NOTE: A minimum of two coats of compound, A50453, is required to achieve a cured thickness of approximately to 0.05 in. (0.13 cm) - 0.10 in. (0.25 cm) to make sure that coverage is complete, and to build a film that is thick and strong enough to be easily removed. If the coating of compound, A50453, is too thin, then the compound, A50453, will break during removal, increasing the difficulty of removal. A wet film gauge can be used to estimate the thickness of the coating.

NOTE: Operators can defer the application of compound, A50453, to avoid a flight delay (SL 34-210).

(a) Apply a minimum of two coats of compound, A50453, with a brush.

1) Wait approximately 5 to 10 minutes between applications.

NOTE: Bubbles caused by brushing are not a cause for rejection.

(b) Make sure that compound, A50453, provides complete coverage under the gap where the coaxial connector [4] and antenna [1] connector mate.

SUBTASK 34-33-11-400-007

(8) Install the antenna [1].

(a) Put the antenna [1] in the correct position on the airplane skin.

(b) Install the three of the four screws [2].

1) Tighten the screws [2] to 25 in-lb (2.8 N·m).

2) After 15 minutes, tighten the screws [2] to 30 in-lb (3.4 N·m).

SUBTASK 34-33-11-700-003

(9) Do these steps to measure the antenna bond resistance:

(a) Measure the resistance between the antenna [1] base plate and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.

(b) Make sure that the resistance is less than 0.001 ohm (1 milliohm).

SUBTASK 34-33-11-400-008

(10) Install the last screw [2].

(a) Tighten the screw [2] to 30 in-lb (3.4 N·m).

SUBTASK 34-33-11-140-001

(11) Use a sealant removal tool, COM-2481, to remove any excess gel out from the antenna [1].

(a) Place the sealant removal tool, COM-2481, perpendicular to the edge of the base of the antenna [1].

(b) Push the sealant removal tool, COM-2481, flush to the airplane skin.

(c) Pull any excess gel away.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. USE PERSONAL PROTECTION EQUIPMENT. USE IN A WELL-VENTILATED AREA.

(d) Use a cotton wiper, G00034, wet with alcohol, B50073, to help with the removal of the excess gel.

SUBTASK 34-33-11-390-014

(12) Apply an aerodynamic fillet seal around the base of the antenna [1] with sealant, A00247 (TASK 51-31-00-390-806 and TASK 20-30-11-910-801).

NOTE: Operators can defer the application of sealant, A00247, to avoid a flight delay (SL 20-043).

NOTE: If you install gasket TA71000419 or AG723000–02 with the antenna, the aerodynamic fillet seal is not necessary.

K. LRRA Antenna Installation Test

SUBTASK 34-33-11-700-004

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-11-860-012

(2) Set the SOURCE switch, on the instrument switching module, to the AUTO position.

SUBTASK 34-33-11-710-005

(3) Make sure that the captain's primary Electronic Flight Instrument System (EFIS) display shows -4 ft (-1.2 m) ± 2 ft (0.6 m).

SUBTASK 34-33-11-710-006

(4) Make sure that the first officer's primary EFIS display shows -4 ft (-1.2 m) ± 2 ft (0.6 m).

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **TASK 34-33-11-400-802**

LOM **7. Low Range Radio Altimeter (LRRA) Antenna with Gasket - Installation**

LOM (Figure 403)

LOM **A. General**

LOM (1) This procedure is used for the installation of antennas with Aerobond or HI-TAK gaskets per 737-SL-20–045.

LOM (2) As a full certification test of the gasket was not done, it is recommended to do the steps that follow:

LOM (a) Do a visual inspection of the gasket and the mating surface, each D check.

LOM (b) Do a check for deterioration and corrosion on the antenna and the gasket after their removal.

LOM (c) Do a check of the airplane skin for corrosion and fretting caused by the antenna gasket.

LOM 1) Remove any corrosion and fretting on the airplane skin.

LOM **B. References**

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
SL 34-210	Low Range Radio Altimeter (LRRA) Antenna Gel Gasket Installation

LOM **C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395 (Continued)

(Continued)

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements)
	Part #: 1-6390-A Supplier: 63318
	Part #: 10810 Supplier: $0855
	Part #: 10811 Supplier: $0855
	Part #: 10812 Supplier: $0855
	Part #: 234350 Supplier: 5HCF1
	Part #: 235072 Supplier: 5HCF1
	Part #: 235073 Supplier: 5HCF1
	Part #: 235074 Supplier: 5HCF1
	Part #: 235075 Supplier: 5HCF1
	Part #: 235076 Supplier: 5HCF1
	Part #: 311/03 Supplier: F6892
	Part #: 311/14 Supplier: F6892
	Part #: 311/25 Supplier: F6892
	Part #: 311/37 Supplier: F6892
	Part #: AS1 Supplier: $1351
	Part #: AS2 Supplier: $1351
	Part #: AS3 Supplier: $1351
	Part #: DAD5013 Supplier: 7RKH2
	Part #: DFD5019 Supplier: 7RKH2
	Part #: JNT411B60 Supplier: 3DN12
	Part #: JNT411B90 Supplier: 3DN12
	Part #: PT6529-S Supplier: 81205
	Part #: SCD5019 Supplier: 7RKH2
	Part #: ST982LF-9 Supplier: 81205
	Part #: TS1275-4 Supplier: 22975

D. Consumable Materials

Reference	Description	Specification
A50143	Sealant - SelfLeveling Green (Av-DEC - HT3326-5)	
A50403	Sealant - Self-Leveling, Polyurethane Kit, Red (P/N HT5509-2-XXX)	
A50453	Compound - Electrical Insulating Coating	BMS5-37 Type I Class A
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84) - Series 84	
B50073	Alcohol - Isopropyl	ASTM D 770
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Antenna	34-33-11-01-125	LOM 402, 404, 406, 407, 412, 415, 420, 422-431
5	Gasket	34-33-11-01-140	LOM 402, 404, 406, 407, 412, 415, 420, 423, 424, 426-428

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395 (Continued)**

F. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

G. Low Range Radio Altimeter (LRRA) Antenna with Gasket Installation

SUBTASK 34-33-11-860-007

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-33-11-110-002

(2) Clean the airplane mating surface:

> **WARNING**
> DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE. OBEY THE MATERIAL SAFETY DATA SHEETS (MSDS) FOR SOLVENTS. OBEY LOCAL REGULATIONS FOR THE CORRECT PROCEDURES TO USE OR DISCARD SOLVENTS. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Clean the airplane mating surface with a cotton wiper, G00034, that is moist with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

(b) Use a cotton wiper, G00034, and clean the mating surface again.

(c) Do these steps until the mating surface is clean and dry.

SUBTASK 34-33-11-160-003

(3) Do these steps to clean the antenna [1] connector and the coaxial connector [4] that will be sealed with compound, A50453.

> **WARNING**
> ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. USE PROTECTION EQUIPMENT. USE IN A WELL−VENTILATED AREA.

(a) Clean the surfaces of the coaxial connector [4] and antenna [1] connector with alcohol, B50073.

NOTE: Avoid the use of excessive alcohol, B50073. Clean approximately 0.25 in. (6.4 mm) beyond the coaxial connector [4].

(b) Remove all alcohol, B50073, by wiping with a clean dry cotton wiper, G00034.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395 (Continued)

SUBTASK 34-33-11-300-003

(4) If the airplane mating surface has corrosion or unwanted material, do these steps to prepare the airplane mating surface:

(a) Do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

(b) Do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

SUBTASK 34-33-11-420-004

(5) Install the gasket [5] onto the antenna [1]:

(a) Discard the antenna O-ring supplied with the antenna [1].

(b) Remove the protective gasket film from the side of new gasket [5] that will be applied to the new antenna [1] base plate.

(c) Line up new gasket [5] holes to antenna [1] holes and push gasket firmly onto the antenna [1] base plate.

NOTE: The fasteners may be used to help align the gasket [5] with the antenna [1].

(d) Remove the protective film from the side of the gasket [5] that will be applied to the airplane surface.

SUBTASK 34-33-11-390-009

(6) Apply the self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143, around the base of the antenna [1] connector.

NOTE: Operators can defer the application of self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143 in the antenna installation to avoid a flight delay (SL 34-210)

(a) Fill entire cavity, up to and around the antenna [1] connector.

(b) Sealant should be level or convex.

NOTE: The self-leveling sealant, A50403, or Self-Leveling Green Sealant, A50143 will be tacky within two to three minutes and fixed within ten minutes.

SUBTASK 34-33-11-420-009

LOM 402, 404, 406, 407, 420, 422, 425-431 PRE SB 737-34-2424 AND PRE SB 737-34-2395; LOM 412, 415, 423, 424 PRE SB 737-34-2395

CAUTION

DO NOT TIGHTEN THE CONNECTOR TOO TIGHT. TOO MUCH TORQUE ON THE CONNECTOR CAN CAUSE DAMAGE TO THE ANTENNA.

(7) Connect the coaxial cable to the antenna [1]:

(a) Tighten the coaxial connector [4] to 10.0 ±2.0 in-lb (1.1 ±0.3 N·m).

NOTE: Do not over tighten the coaxial connector [4] to make a water tight seal.

NOTE: Do not turn the antenna [1] to tighten the coaxial connector [4].

(b) Lockwire the coaxial connector [4], do this task: Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 420, 422, 425-431 POST SB 737-34-2424 AND PRE SB 737-34-2395

> **CAUTION**
> DO NOT TIGHTEN THE CONNECTOR TOO TIGHT. TOO MUCH TORQUE ON THE CONNECTOR CAN CAUSE DAMAGE TO THE ANTENNA.

(8) Connect the coaxial cable to the antenna [1].

(a) Torque the coaxial connector [4] to 15.0 in-lb (1.7 N·m) - 17.0 in-lb (1.9 N·m).

SUBTASK 34-33-11-390-010

(9) Apply compound, A50453, with a brush to the coaxial connector [4], and the antenna [1] connector to make a moisture seal. Extend the application of the compound, A50453 0.25 in. (6.35 mm) along the wire bundle from the coaxial connector [4]:

NOTE: A minimum of two coats of compound, A50453 is required to achieve a cured thickness of approximately 0.05 in. (1.3 mm) to 0.1 in. (2.5 mm) to make sure coverage is complete, and to build a film that is thick and strong enough to be easily removed. If the coating of compound, A50453 is too thin, then the compound, A50453 will break during removal, increasing the difficulty of removal. A wet film gauge can be used to estimate the thickness of the coating.

NOTE: Operators can defer the application of the connector compound, A50453 in the antenna installation to avoid a flight delay (SL 34-210).

(a) Brush apply a minimum of two coats of compound, A50453. Wait approximately 5 to 10 minutes between applications.

NOTE: Bubbles caused by brushing are not a cause for rejection.

(b) Make sure that compound, A50453 provides complete coverage under the gap where the coaxial connector [4] and the antenna [1] connector mate.

LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395

SUBTASK 34-33-11-400-003

(10) Install the antenna [1]:

> **CAUTION**
> DO NOT APPLY SEALANT TO THE EDGES OF THE ANTENNA. THE GASKET RELEASES THE MOISTURE. IF YOU SEAL THE EDGES, THE MOISTURE WILL STAY. THIS CAN CAUSE CORROSION DAMAGE TO THE AIRPLANE, AND ANTENNA MATING SURFACES.

(a) Put the antenna [1] in the correct position on the airplane surface.

(b) Install three of the four screws [2].

1) Torque the screws [2] to 25 in-lb (3 N·m).

NOTE: Since the gel material of the gasket [5] is compressible, the bolts need to be re-torqued 15 minutes after the installation to ensure tightness.

2) After 15 minutes, torque the screws [2] to 30 in-lb (3 N·m) - 35 in-lb (4 N·m).

(c) Use a sealant removal tool, COM-2481, to remove any excess gel out from the antenna [1].

1) Place the sealant removal tool, COM-2481 perpendicular to the edge of base of the antenna [1].

2) Push the sealant removal tool, COM-2481 flush to the airplane skin.

3) Pull any excess gel away.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 402, 404, 406, 407, 412, 415, 420, 422-431 PRE SB 737-34-2395 (Continued)**

> **WARNING** ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. USE PROTECTION EQUIPMENT. USE IN A WELL−VENTILATED AREA.

4) Use cotton wiper, G00034, wet with alcohol, B50073, to help with the removal of the excess gel.

SUBTASK 34-33-11-760-003

(11) Measure the resistance between the antenna [1] base plate and the airplane skin with a intrinsically safe approved bonding meter, COM-1550.

NOTE: Use the empty screw hole to get access to the antenna [1] base plate.

(a) Make sure that the resistance is less than 0.001 ohm.

SUBTASK 34-33-11-420-005

(12) Install the last screw [2].

(a) Torque the last screw [2] to 25 in-lb (3 N·m)

NOTE: Since the gel material of the gasket [5] is compressible, the bolt needs to be re-torqued 15 minutes of the installation.

(b) After 15 minutes, torque the screw [2] to 30 in-lb (3 N·m) - 35 in-lb (4 N·m).

SUBTASK 34-33-11-860-008

(13) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

H. Installation Test

SUBTASK 34-33-11-860-009

(1) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-33-11-710-003

(2) Make sure that the captain's primary Electronic Flight Instrument System (EFIS) display shows -4 ft (-1.2 m) ± 2 ft (0.6 m).

SUBTASK 34-33-11-710-004

(3) Make sure that the first officer's primary EFIS display shows -4 ft (-1.2 m) ± 2 ft (0.6 m).

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOW RANGE RADIO ALTIMETER ANTENNA - INSPECTION/CHECK

1. General

A. This procedure makes an inspection for the low range radio altimeter.

TASK 34-33-11-211-802

2. Low Range Radio Altimeter (LRRA) Antenna Inspection and Check

A. References

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
34-33-11 P/B 401	LOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION

B. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-33-11-200-001

(1) Examine the outer surface of the antenna for a circular area 1/4 inch or larger which is not constant and smooth.

(a) If an area is found, replace the antenna LOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-33-11/401.

(b) If not, go to the next step.

SUBTASK 34-33-11-020-001

(2) Remove the radio altimeter antenna LOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-33-11/401.

NOTE: The antenna connector is inspected and cleaned during the connector removal per PGBLK 34-33-11-4.

SUBTASK 34-33-11-120-001

(3) Remove all unwanted material from around the connector and the backplate.

SUBTASK 34-33-11-210-001

(4) This subtask is only for the airplanes with Radio Altimeter antenna P/N DMPN19-1-1 installed:

NOTE: Ignore this Subtask if there is no Radio Altimeter antenna P/N DMPN19-1-1 installed on the airplane.

(a) Examine the four nuts on the electrical connector for corrosion. If a nut is not there or loose, or has corrosion , replace the antenna. LOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-33-11/401

NOTE: Do not replace nuts that have corrosion. This will change the correct operation of the antenna.

(b) Examine the antenna connector and the backplate for corrosion.

NOTE: If there is corrosion on the surface in the inner diameter of the O-ring seal, but the connector nuts have no corrosion, do not replace the antenna. It will operate correctly.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-11-120-002

(5) Clean the backplate and connector where there is corrosion on the surface. Use a lint-free cheesecloth and the solventHand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

SUBTASK 34-33-11-420-006

(6) Install the antennaLOW RANGE RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION, PAGEBLOCK 34-33-11/401.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LRRA RECEIVER/TRANSMITTER - REMOVAL/INSTALLATION

1. General

A. This procedure has two tasks:

(1) A removal of the low range radio altimeter (LRRA) receiver/transmitter (R/T)

(2) An installation of the LRRA R/T.

B. The two LRRA R/Ts are in the main equipment center. The No. 1 LRRA R/T, is on the E3 electronics equipment rack, shelf No. 1. The No. 2 LRRA R/T is on the E3 electronics equipment rack, shelf No. 2.

TASK 34-33-21-000-801

2. Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-33-21-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-33-21-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-21-020-001

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LRRA R/T. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LRRA R/T.

(3) To remove the LRRA R/T [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ELECTRONIC EQUIPMENT RACKS, E2, E3 AND E4

A

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Low Range Radio Altimeter (LRRA) Receiver-Transmitter Installation
Figure 401/34-33-21-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-33-21-400-801

3. Low Range Radio Altimeter (LRRA) Receiver/Transmitter (R/T) Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
22-11-00-700-801	Land Verify Test (P/B 201)
22-11-00-700-802	Reset Latches Procedure (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	LRRA R/T	34-33-21-01-005	LOM 411
		34-33-21-01A-010	LOM 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 464
		34-33-21-01B-010	LOM 420, 423, 424, 427-431, 439, 441, 450-452, 457-460, 465-999

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Installation Procedure

SUBTASK 34-33-21-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-33-21-420-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LRRA R/T. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LRRA R/T.

(2) To install the LRRA R/T [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-33-21-410-001

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-33-21-860-003

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F. Installation Test

SUBTASK 34-33-21-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-33-21-860-005

(2) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-33-21-710-001

(3) Make sure -4 ±2 feet radio altitude is displayed on the captain's and the first officer's EFIS displays.

LOM 428-431, 450, 465-999; LOM 427 PRE SB 737-22-1306

SUBTASK 34-33-21-700-001

(4) If you replaced the LRRA because of a NO AUTOLAND FAULT, do these tasks before you continue:

(a) Do this task: Land Verify Test, TASK 22-11-00-700-801.

(b) Do this task: Reset Latches Procedure, TASK 22-11-00-700-802.

LOM ALL

SUBTASK 34-33-21-860-006

(5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HEAD UP DISPLAY SYSTEM - MAINTENANCE PRACTICES

1. **General**
   A. This procedure contains scheduled maintenance task data.
   B. This procedure has this task:
      (1) Servicing of the overhead unit desiccant.

TASK 34-36-00-040-801

2. **Head-up Display System - Deactivation**
   (Figure 201)

A. General

(1) This procedure removes electrical power from the Head-up Display System.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-36-00-860-017

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

E. Head-up Display System - Tryout

NOTE: This tryout is to make sure the Head-up Display System is in a zero energy state.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-36-00-860-018

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 439, 441, 466-999

SUBTASK 34-36-00-700-101

(2) At the control stand, P8, do the following:

(a) Make sure the HUD control panel is not illuminated.

(b) Push the TEST button and make sure none of the lights come on.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-010-004

(3) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-36-00-700-102

(4) Make sure the PWR light on the front panel of the HUD computer is not illuminated.

(a) Push the TEST button on the front panel and make sure none of the fault lights come on.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Head-up Display System
Figure 201/34-36-00-990-814

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-36-00-440-801

3. **Head-up Display System - Activation**
(Figure 201)

A. General

(1) This procedure adds electrical power to the Head-up Display System.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-36-00-860-019

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-410-005

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

TASK 34-36-00-000-801

4. **Overhead Unit Desiccant Servicing**
(Figure 202)

A. Location Zones

Zone	Area
211	Flight Compartment - Left

ECCN 9E991 BOEING PROPRIETARY - See title page for details

B. Procedure

SUBTASK 34-36-00-760-088

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-020-009

(2) Remove the desiccant container [1].

(a) Loosen the quarter turn screws on the overhead shroud trim.

(b) Remove the overhead shroud.

(c) Loosen the five quarter-turn fasteners.

(d) Remove the desiccant container from the OHU.

SUBTASK 34-36-00-610-003

(3) Remove the desiccant material from the desiccant container.

(a) Remove five screws from the desiccant container.

(b) Remove the cover from the desiccant container.

(c) Pour the desiccant material into a microwave safe bowl.

WARNING BE CAREFUL WITH HOT DESICCANT. IT CAN BURN YOU.

(d) Heat the desiccant material until it returns to a dry blue color.

1) Heat the desiccant material in 30 second intervals to prevent burning.

2) Repeat if necessary.

NOTE: Let the material cool before it is put back into the desiccant container.

NOTE: Desiccant material can be replaced in the event of contamination, spillage or it can not be restored.

NOTE: Make sure there is no desiccant material or residue trapped between the metal parts. A tight seal is necessary for proper operation of the desiccant assembly.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-36-00-610-004

(4) Pour the desiccant material into the desiccant container.

(a) Place the cover on the desiccant container.

(b) Install the five screws.

1) Torque the screws to 6 +/-0.5 pound inches.

SUBTASK 34-36-00-840-007

(5) Install the desiccant container [1].

(a) Put the desiccant container into the OHU.

(b) Tighten the five quarter-turn fasteners.

(c) Install the quarter turn screws on the overhead shroud trim.

SUBTASK 34-36-00-760-089

(6) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Desiccant Servicing
Figure 202/34-36-00-990-815

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HEAD UP DISPLAY SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks for the Head-Up Display (HUD) system:

LOM 412, 415, 423, 424, 439, 441, 466-999

(1) An operational test of the HUD

LOM 432, 464

(2) An operational test of the HUD

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

(3) A system test of the HUD.

LOM 412, 415, 423, 424, 439, 441, 466-999

TASK 34-36-00-710-801

2. HUD Operational Test

A. General

(1) The operational test is a fast check of the Head-Up Display (HUD) system. It uses only the system's Built-In-Test Equipment (BITE) function. No special test or ground equipment is necessary.

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. HUD Operational Test

SUBTASK 34-36-00-860-006

(1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
C	2	C01618	HUD CONT PNL DC
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

SUBTASK 34-36-00-840-002

(2) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 466-999 (Continued)

SUBTASK 34-36-00-820-001

(3) Rotate the release handle toward the pilot and then rotate the combiner down and forward to the normal operational position.

(a) Make sure that the primary mode (PRI) appears on the HUD combiner.

NOTE: If PRI does not appear on the HUD combiner, change the mode on the CDU or HCP.

(b) Make sure that the display intensity on the combiner is adequately controlled in both MAN and AUTO modes with the BRT knob.

(c) Make sure that the Inertial Reference System is aligned and in NAV mode.

(d) Make sure that the Attitude information (Horizon) is not shown.

SUBTASK 34-36-00-740-001

(4) On the HCP: push and release the TEST key on the HUD control panel.

(a) Make sure that the LED on the TEST key comes on.

(b) Make sure that TEST shows on the MODE display line on the HUD control panel.

(c) Make sure that the HUD control panel FAULT light comes on for 3 to 4 seconds after the test starts.

(d) Make sure that the HUD control panel STBY display line does not show any fault codes.

1) If fault codes appear, do this Task: 34-36-00-1 FIM.

2) If no fault codes appear, and the FAULT annunciator goes off, go to the next step.

(e) Make sure that the HGS TEST MENU shows on the combiner after the test.

SUBTASK 34-36-00-700-076

(5) Do this test for the HUD computer 1500–2460–002 and subsequent using the HCP interface:

(a) On the HCP, use the BRT+ and DIM - keys to move the cursor (>) on the HGS Test Menu to the TOP LEVEL PART NUMBERS.

(b) Push the ENTER key.

1) Make sure that the Top Level Part Number display shows on the combiner.

2) Make sure that the H/W, OPS and OPC Top Level Part Numbers are correct for the airline's configuration.

(c) Push the CLR key on the HCP to go back to the HGS Test Menu.

(d) Use the BRT+ and DIM - keys to move the cursor (>) on the HGS Test Menu to the HC PART NUMBERS.

(e) Push the ENTER key.

1) Make sure that the HC PART NUMBERS page shows in the combiner.

2) Make sure that there is no Compatibility/Integrity faults shown.

3) Make sure that the correct aircraft type is shown.

(f) Push the HCP TEST key to exit the Operational Test.

(g) Make sure that the LED dot on the TEST key goes off.

SUBTASK 34-36-00-700-077

(6) Do this test for the HUD computer 1500–2250–00X using the HCP:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 466-999 (Continued)

(a) Use the BRT+ and DIM - keys to move the cursor (>) on the HGS Test Menu to the HC PART NUMBERS.

(b) Push the ENTER key.

1) Make sure that there is no Compatibility/Integrity faults shown.

2) Make sure that the correct aircraft type is shown.

(c) Push the HCP TEST key to exit the Operational Test.

(d) Make sure that the LED dot on the TEST key goes off.

——— END OF TASK ———

LOM 432, 464

TASK 34-36-00-710-802

3. HUD Operational Test

A. General

(1) The operational test is a fast check of the HUD system. It uses only the system's BITE function. No special test or ground equipment is necessary.

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. HUD Operational Test

SUBTASK 34-36-00-860-008

(1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	2	C01618	HUD CONT PNL DC (INOP)

SUBTASK 34-36-00-820-002

(2) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 432, 464 (Continued)

SUBTASK 34-36-00-700-081

(3) Make sure that the primary mode appears on the HUD combiner.

(a) If it is necessary, adjust the brightness.

(b) Make sure that the display intensity on the combiner is adequately controlled in both MAN and AUTO modes with the BRT knob.

(c) Make sure that the Inertial Reference System is aligned and in NAV mode.

(d) Make sure that the Attitude information (Horizon) is shown on the combiner.

SUBTASK 34-36-00-700-082

(4) On the CDU, push and release the Line Select Key (LSK) adjacent to HGS TEST on the HGS Data Page.

NOTE: If you have returned to the main menu page, select HGS TEST again to view the test results.

(a) Make sure that no existing faults show on the HGS TEST page.

SUBTASK 34-36-00-700-105

(5) Make sure that the ADF is on (TASK 34-36-00-730-801).

NOTE: It may be necessary to tune the ADF to local station to pass test.

SUBTASK 34-36-00-700-083

(6) Do this test for the HUD computer 1500–2460–002 and subsequent using the CDU interface:

(a) Make sure that the H/W, OPS and OPC Top Level Part Numbers are correct for the airline's configuration.

(b) On the CDU, push the SCROLL UP/SCROLL DOWN LSK to move the cursor (>) on the HGS Test Menu to the TOP LEVEL PART NUMBERS.

(c) Push the LSK adjacent to SELECT.

1) Make sure that the Top Level Part Number display shows on the combiner.

2) Make sure that the H/W, OPS and OPC Top Level Part Numbers are correct for the airline's configuration.

(d) Push the SCROLL UP/SCROLL DOWN LSK to move the cursor (>) on the HGS Test Menu to the HC PART NUMBERS.

(e) Push the LSK adjacent to SELECT.

1) Make sure that the HC PART NUMBERS page shows in the combiner.

2) Make sure that there is no Compatibility/Integrity faults shown.

3) Make sure that the correct aircraft type is shown.

(f) Push the LSK adjacent to EXIT to exit the Operational Test.

SUBTASK 34-36-00-700-085

(7) Push the LSK next to EXIT on the CDU HGS test page to exit the test mode.

(a) Make sure that the normal combiner and interface displays show.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-36-00-730-801

4. HUD System Test

A. General

(1) This system test is a more complete check of the HUD system. The system test first does the HUD operational test, then it checks the power and system interfaces.

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 34-36-00-840-004

(1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-36-00-710-001

(2) Do this task: HUD Operational Test, TASK 34-36-00-710-801 or HUD Operational Test, TASK 34-36-00-710-802.

LOM 412, 415, 423, 424, 439, 441, 466-999

E. Control Panel Test

SUBTASK 34-36-00-730-001

(1) Push and hold the TEST key on the HUD control panel.

NOTE: The control panel TEST mode is selected by pushing and holding the TEST key for about four seconds.

(a) Make sure that the display lines next to the MODE, STBY, RWY, and G/S lines completely come on in sequence.

(b) Push the TEST key on the HUD control panel again to cancel the TEST.

NOTE: The control panel test repeats until it is cancelled by pushing the TEST key again.

SUBTASK 34-36-00-730-002

(2) Push the RWY key.

(a) Make sure that LED on the RWY key comes on.

(b) Put a new runway length between 7500 and 13500 feet on the control panel keypad.

SUBTASK 34-36-00-730-003

(3) Push the ENTER key.

(a) Make sure that LED on the RWY key goes off.

(b) Make sure that new runway length is displayed.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 466-999 (Continued)

SUBTASK 34-36-00-730-004

(4) Push the G/S key.

(a) Make sure that LED on the G/S key goes on.

(b) Put in a new glideslope angle between 0.00 and -9.99 degrees.

SUBTASK 34-36-00-730-005

(5) Push the ENTER key.

(a) Make sure that LED on the G/S key goes off.

(b) Make sure that new glideslope angle shows.

SUBTASK 34-36-00-760-003

(6) Push the MODE key

(a) Make sure that the mode indication on the STBY line on the control panel is replaced by the current mode.

SUBTASK 34-36-00-760-004

(7) Momentarily cover the ambient light sensor above the MODE key on the control panel.

(a) Make sure that intensity on the control panel decreases.

SUBTASK 34-36-00-760-005

(8) Push the CLR key on the control panel.

(a) Make sure that LED on the control panel comes on.

(b) Make sure that the display on the combiner is clear.

SUBTASK 34-36-00-760-006

(9) Push the CLR key on the control panel.

(a) Make sure that LED on the control panel goes off.

(b) Make sure that the display on the combiner is on.

SUBTASK 34-36-00-760-082

(10) Push and release that TEST key on the control panel.

(a) Make sure that HGS Test Menu is shown after the BITE Program.

SUBTASK 34-36-00-760-083

(11) Set the HGS Test Menu to the EXISTING FAULTS.

(a) Make sure that EXISTING FAULTS menu is shown in the combiner.

SUBTASK 34-36-00-760-008

(12) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	2	C01618	HUD CONT PNL DC

(a) Make sure that the HUD Control Panel display lines and the dot annunciator go off.

(b) Make sure that fault code HCP90 shows on the EXISTING FAULTS page of the combiner.

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LOM 412, 415, 423, 424, 439, 441, 466-999 (Continued)

SUBTASK 34-36-00-760-009

(13) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	2	C01618	HUD CONT PNL DC

(a) Make sure that there is no display on the EXISTING FAULTS page.

(b) Make sure that the HGS operates correctly.

SUBTASK 34-36-00-760-084

(14) Set the master light control on the P8 panel to BRT or DIM.

(a) Make sure that the HCP lightplate intensity changes with the control.

SUBTASK 34-36-00-760-085

(15) Push and release the TEST key on the control panel to end the test.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

F. HUD Computer Test

NOTE: HGS Computer power (28 VDC) MUST be supplied from DC Bus #1 and HGS Computer ALTERNATE power (28 VDC) MUST be supplied from DC Bus #2.

SUBTASK 34-36-00-760-062

(1) Make sure that the HUD system and display are normal.

LOM 412, 415, 423, 424, 439, 441, 466-999

SUBTASK 34-36-00-760-063

(2) This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	4	C01621	HUD CMPTR DC (INOP)

(a) Make sure that the HUD system operation is not interrupted.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-760-064

(3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

(a) Make sure that there is no display.

LOM 412, 415, 423, 424, 439, 441, 466-999

(b) Make sure that the HCP FAULT annunciator is on.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

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SUBTASK 34-36-00-760-065

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	4	C01621	HUD CMPTR DC (INOP)

(a) Make sure that the HUD operates with a normal display.

LOM 412, 415, 423, 424, 439, 441, 466-999

(b) Make sure that the HCP FAULT annunciator goes off.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

G. HUD Combiner Test

SUBTASK 34-36-00-700-039

(1) Push the BRT control (MAN mode) and rotate the knob.

(a) Make sure that the CCW rotation decreases brightness and CW rotation increases brightness of the combiner display.

SUBTASK 34-36-00-700-040

(2) Pull the BRT control knob out (AUTO mode).

SUBTASK 34-36-00-700-041

(3) Set to mid-level brightness.

(a) Make sure that the display is in Mid-level brightness.

SUBTASK 34-36-00-700-042

(4) Cover the Ambient Light Sensor (ALS) (in bright ambient light conditions).

(a) Make sure that the brightness of the combiner display decreases.

SUBTASK 34-36-00-700-043

(5) Remove the cover from the ALS.

(a) Make sure that the brightness of the combiner display increases.

SUBTASK 34-36-00-700-044

(6) Simulate a light with a flashlight on the ALS (in low ambient light conditions).

(a) Make sure that the brightness of the combiner display increases.

SUBTASK 34-36-00-700-045

(7) Remove the light from the ALS.

(a) Make sure that the brightness of the combiner display decreases.

LOM 432, 464

SUBTASK 34-36-00-700-086

(8) Select VMC or IMC mode on the CDU.

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LOM 412, 415, 423, 424, 439, 441, 466-999

SUBTASK 34-36-00-700-046

(9) Select VMC or IMC mode in the HUD control panel.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-047

(10) Move the combiner glass forward or aft of the normal operating detent.

(a) Make sure that the ALIGN HUD message shows in the combiner.

SUBTASK 34-36-00-700-048

(11) Move back the combiner glass to the normal operating detent.

(a) Make sure that the ALIGN HUD message does not show in the combiner.

LOM 412, 415, 423, 424, 439, 441, 466-999

H. 3 LTS and 6 LTS HUD Annunciator Panel Test

SUBTASK 34-36-00-700-051

(1) Set the master BRT/DIM/TEST switch to BRT.

SUBTASK 34-36-00-700-052

(2) Push and release the TEST key on the HCP to start the test.

(a) Make sure that the AIII, RO, TO, NO AIII, RO CTN, TO CTN, FLARE, RO ARM, APCH WARN and TO WARN annunciations are shown bright for 2 to 5 seconds.

NOTE: On a 3 LTS Annunciator Panel, only the AIII, FLARE and APCH WARN will be annunciated.

SUBTASK 34-36-00-700-053

(3) Push and release the TEST key on the HCP to cancel the test.

(a) Make sure that there is no display in the annunciator panel.

SUBTASK 34-36-00-700-054

(4) Set the Master BRT/DIM/TEST switch on the P1-3 panel to DIM.

SUBTASK 34-36-00-700-055

(5) Push and release the TEST key on the HCP to start the test.

(a) Make sure that all the annunciations are shown dim for 2 to 5 seconds.

SUBTASK 34-36-00-700-056

(6) Push and release the TEST key on the HCP to cancel the test.

(a) Make sure that there is no display on the annunciator panel.

SUBTASK 34-36-00-700-057

(7) Set the Master BRT/DIM/TEST switch on the P1-3 panel to TEST.

(a) Make sure that all the annunciations are shown.

SUBTASK 34-36-00-700-058

(8) Set the Master BRT/DIM/TEST switch on the P1-3 panel to BRT or DIM.

(a) Make sure that there is no display on the annunciator panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

I. Sensor Test

LOM 412, 415, 423, 424, 439, 441, 466-999

SUBTASK 34-36-00-700-019

(1) Push the TEST key on the control panel to select the test mode.

SUBTASK 34-36-00-700-020

(2) Use the + and - keys on the control panel to position the select cursor on the combiner display to the SENSOR DATA selection.

LOM 432, 464

SUBTASK 34-36-00-700-091

(3) On the CDU, use the LSK adjacent to SCROLL UP and SCROLL DOWN to position the select cursor on the display to the SENSOR DATA selection.

SUBTASK 34-36-00-700-098

(4) Push the LSK adjacent to SENSOR DATA on the HGS TEST Menu.

(a) Make sure that the sensor menu is shown on the combiner.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-072

(5) Make the ADIRU-ADR selection on the sensor menu.

(a) Make sure that the ADIRU-ADR data is displayed on the combiner.

(b) Make sure that all lines of data have a status for side 1 and side 2 of anything other than INAC or HGS.

(c) Set both baro corrections to 29.92 on both EFIS control panels.

(d) Record the altitude indications on the two altimeters.

(e) Use the Captain's Baro Correction knob to set the baro correction to 32.00.

1) Make sure that the captain's altimeter indication changes.

2) Make sure that the value on side 1 of the BARO ALT data line changes.

3) Make sure that the value on side 2 of the BARO ALT data line does not change.

(f) Set the Captain’s baro correction back to 29.92.

LOM 412, 415, 423, 424, 439, 441, 466-999

(g) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(h) On the CDU, push the push the LSK adjacent to BACK to return to the Sensor Menu.

1) Make sure that the sensor menu is shown on the combiner.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-073

(6) Make the ADIRU-IR selection on the sensor menu.

(a) Make sure that the NAV is shown on the IRU MODE data line.

NOTE: The IRU MODE data line is the last line on the ADIRU-IR data page. Scroll down the display (with the DIM- pushbutton) to verify that “NAV” is displayed.

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(b) Make sure that all lines of data have a status for side 1 and side 2 of anything other than INAC or HGS.

(c) On the IRS Mode Select Unit, set the left side ADIRU 1 to the ATT mode.

1) Make sure that NOT NAV is shown on side 1 of the IRU MODE data line.

NOTE: The sensor tests are complete. The ADIRU must be re-aligned to return to NAV mode.

LOM 412, 415, 423, 424, 439, 441, 466-999

(d) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(e) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-023

(7) Make the CDS/GPWS selection on the sensor menu.

(a) Make sure that the CDS/GPWS data is displayed on the combiner.

(b) Make sure that all lines of data have a status for side 1 of anything other than INAC or HGS.

LOM 432, 464

NOTE: If A/P CALLOUT shows as INAC, make sure that the HGS has 341F-FLD-S00-36 OPS software. Under this condition, INAC nuisance fault can be ignored. If another CDS/GPWS sensor parameter shows as INAC or HGS, troubleshoot that parameter.

LOM 412, 415, 423, 424, 439, 441, 466-999

(c) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(d) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-079

(8) Make the DISCRETE selection on the sensor menu.

NOTE: If only one FMC is installed, continue with step (e).

(a) Make sure that DISCRETE data is shown on the combiner.

(b) Set the FMC source select switch to BOTH ON R.

1) Make sure that the FMC SOURCE data line shows BOTH ON 2.

(c) Set the FMC source select switch to BOTH ON L.

1) Make sure that the FMC SOURCE data line shows NORMAL.

(d) Set the FMC source select switch to NORMAL.

1) Make sure that the FMC SOURCE data line shows NORMAL.

(e) Set the IRS transfer switch to BOTH ON R.

1) Make sure that the IRS XFR data line shows BOTH ON 2.

(f) Set the IRS transfer switch to BOTH ON L.

1) Make sure that the IRS XFR data line shows NORMAL.

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(g) Set the IRS source select switch to NORMAL.

1) Make sure that the IRS XFR data line shows NORMAL.

(h) Set the VHF/NAV source select switch to BOTH ON 2.

1) Make sure that the NAV XFR data line shows BOTH ON 2.

(i) Set the VHF/NAV source select switch to BOTH ON 1.

1) Make sure that the NAV XFR data line shows NORMAL.

(j) Set the VHF/NAV source select switch to NORMAL.

1) Make sure that the NAV XFR data line shows NORMAL.

NOTE: On airplanes with a MAG/TRUE switch installed and connected to the HGS, continue with step (k). On all other airplanes, continue with step (m). The MAG/TRUE switch input to the HGS us Pin G9 on connector D3281A.

(k) Set the MAG/TRUE switch to TRUE position.

1) Make sure that the MAG/TRUE data line shows TRUE.

(l) Set the MAG/TRUE switch to MAG position.

1) Make sure that the MAG/TRUE data line shows MAG.

LOM 412, 415, 423, 424, 439, 441, 466-999

(m) Push and release the CLR key on the HCP and return to the sensor menu.

1) Make sure that the Sensor Menu shows on the combiner.

LOM 432, 464

(n) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

1) Make sure that the Sensor Menu shows on the combiner.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-078

NOTE: The P/N 1500-2460-002 HGS Computer can be configured (via the OPC software) for operation with one, two or zero ADFs. If the OPC is set to at least one ADF, “DME/ADF” is displayed on the Sensor Menu. If the OPC is set to zero ADFs, “DME” is displayed.

NOTE: The P/N 1500-2250-00X HGS Computer is configured for operation with either one or two ADFs installed. The selection is made via the OPC software factory-loaded in the HGS Computer. If the OPC software is set for two ADFs and only one ADF is installed, the status messages for the second ADF will show as “INAC” on the sensor data pages. If the OPC software is set for two ADFs but there are no ADFs installed on the aircraft, the status messages for both ADF #1 and ADF #2 will show as “INAC.” The OPC software on a P/N 1500-2250-00X computer cannot be set for zero ADFs installed. “DME/ADF” is always displayed on the Sensor Menu.

(9) Make the DME/ADF selection on the sensor menu.

(a) Make sure that the DME/ADF data shows on the combiner.

(b) Make sure that all lines of data have a status for side 1 and side 2 of anything other than INAC or HGS.

NOTE: The No. 2 ADF data will be blank if the OPC software is set for one ADF and only one ADF is installed.

NOTE: If no ADFs are installed, continue with step (e).

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(c) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

1) Make sure that the Side 1 ADF status shows INAC.

(d) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

1) Make sure that the Side 1 ADF status display is correct.

(e) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

1) Make sure that the Side 1 DME status shows INAC.

(f) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

1) Make sure that the Side 1 DME status display is correct.

LOM 412, 415, 423, 424, 439, 441, 466-999

(g) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(h) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

LOM 412, 415, 423, 424, 439, 441, 466-999

SUBTASK 34-36-00-700-026

(10) Make the FCC selection on the sensor menu.

(a) Make sure FCC data shows on the combiner.

(b) Make sure all lines of data have a status for side 1 and side 2 of anything other than INAC or HGS.

(c) Push the INIT REF key on the FMC CDU keyboard.

(d) Push the line select key (LSK) adjacent to INDEX.

(e) Push the LSK adjacent to MAINT.

(f) Push the LSK adjacent to A/T.

(g) Push the LSK adjacent to INTERACTIVE.

(h) Push the LSK adjacent to MODE ANNUNCIATION.

(i) Verify CDU prompt sequences.

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LOM 432, 464

SUBTASK 34-36-00-700-092

(11) Make the FCC/AT selection on the sensor menu.

NOTE: FCC/AT (autothrottle activated), FCC (if autothrottle not activated).

(a) Make sure that the FCC/AT data shows on the combiner.

(b) Make sure that all lines of data have a status for side 1 and side 2 of anything other than INAC or HGS on the combiner.

(c) Do a BITE test of the autothrottle current status:

1) Push the button to select A/T BITE TEST on the Maint. BITE Index page.

2) Push the button to select INTERACTIVE.

3) Push the button to select MODE ANNUNCIATION.

4) Push the button to select YES for each of the following prompts, based on airplane configuration:

a) N1 DISPLAYED ON PFD

b) FMC SPEED (SPD) DISPLAYED ON PFD

c) RETARD DISPLAYED ON PFD

d) MCP SPEED (SPD) DISPLAYED ON PFD

e) A/T LIM DISPLAYED ON ENGINE SYNOPTIC

f) ARM DISPLAYED ON PFD

g) GA DISPLAYED ON PFD

h) THR HOLD DISPLAYED ON PFD

<1> Make sure that the combiner shows YES next to A/T THR HLD.

<2> Make sure that the FMA or captain's/first officer's outboard displays show THR HOLD.

5) On the CDU, push the INIT/REF button to return to the CDU Menu Page.

SUBTASK 34-36-00-700-093

(12) Select the course 010 on the captain's EDFCS mode control panel.

(a) Make sure that Side 1 of the LCL SEL CRS data line shows 10.00 +/- 1.00 degrees.

SUBTASK 34-36-00-700-099

(13) Select the course 045 on the first officer's EDFCS mode control panel.

(a) Make sure that Side 2 of the LCL SEL CRS data line shows 45.00 +/- 1.00 degrees.

SUBTASK 34-36-00-700-100

(14) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-080

(15) Make the FMC selection on the sensor menu.

(a) Make sure that the FMC data shows on the combiner.

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(b) Make sure that all lines of data have a status for side 1 of anything other than INAC or HGS.

NOTE: If only one FMC is installed, continue with step (h). On airplanes with only one FMC, the FMC source select switch has an “INOP” placard in the “Both on R” position.

NOTE: FMC U11 software and prior does not transmit LAT and LNG FINE values. LAT FINE and LNG FINE will display INAC.

(c) On the P5 Overhead Panel, set the FMC switch to BOTH ON R.

1) Make sure that all lines of data have a status for side 2 of anything other than INAC or HGS.

NOTE: Data shown on side 1 is now from FMC side 2.

(d) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

(e) On the P5 Overhead Panel, set the FMC switch back to NORMAL.

1) Make sure that the FMC side 1 status display shows INAC.

(f) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

(g) Make sure that all lines of data have a status for side 1 of anything other than INAC or HGS.

LOM 412, 415, 423, 424, 439, 441, 466-999

(h) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(i) On the CDU, push the LSK adjacent to BACK button to return to the sensor menu.

1) Make sure that the sensor menu shows on the combiner.

SUBTASK 34-36-00-700-103

(16) Select PRI mode on the CDU.

LOM 412, 415, 423, 424, 439, 441, 466-999

SUBTASK 34-36-00-700-104

(17) Select PRI mode in the HUD control panel.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-074

(18) Make the MMR/ILS selection on the sensor menu.

(a) Make sure that the MMR/ILS data shows on the combiner.

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(b) Make sure that all lines of data have a status for side 1 and side 2 of anything other than INAC or HGS.

NOTE: If DIST TO RWY, shows as INAC, make sure that the aircraft does not have a GLS capable MMR. If a non GLS MMR is present or a GLS capable MMR is present, but GLS is not active, INAC status for DIST TO RWY is expected. If another MMR/ILS sensor parameter shows as INAC or HGS, do more troubleshooting of that parameter.

(c) Make sure that the Autopilot (AP) and the Autothrottle (AT) are disengage.

(d) Make sure that the Flight Director is OFF.

(e) Tune the ILS 1 receiver to 110.10 MHz.

1) Make sure that the ILS FREQ data line shows 110.10 on side 1.

(f) Tune the ILS 2 receiver to 110.90 MHz.

1) Make sure that the ILS FREQ data line shows 110.90 on side 2.

(g) Tune the ILS 1 receiver to 116.80 MHz.

1) Make sure that the FWD ANT SEL data line shows NO on side 1.

(h) Tune the ILS 2 receiver to 117.40 MHz.

1) Make sure that the FWD ANT SEL data line shows NO on side 2.

(i) Tune both ILS receivers to 109.50 MHz.

1) Make sure that the HGS is in Primary mode.

2) Make sure that the FWD ANT SEL data line shows YES on side 1 and on side 2.

LOM 412, 415, 423, 424, 439, 441, 466-999

(j) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(k) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-075

(19) Make the RAD ALT selection on the sensor menu.

(a) Make sure that the RAD ALT data shows on the combiner.

(b) Make sure that all lines of data have a status for side 1 and side 2 of anything other than INAC or HGS.

(c) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

1) Make sure that the status data on Side 1 shows INAC.

(d) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

1) Make sure that the status data on Side 1 are satisfactory.

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LOM 412, 415, 423, 424, 439, 441, 466-999

(e) Push and release the CLR key on the HCP to return the sensor menu.

LOM 432, 464

(f) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

1) Make sure that the sensor menu is shown on the combiner.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-034

(20) Make the SMYDC selection on the sensor menu.

(a) Make sure that the SMYDC data shows on the combiner.

(b) Make sure that all lines of data for side 1 have a status of anything other than INAC or HGS.

LOM 412, 415, 423, 424, 439, 441, 466-999

(c) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(d) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

1) Make sure that the sensor menu is shown on the combiner.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-035

(21) Make the TCAS selection on the selection menu.

(a) Make sure that the TCAS data shows on the combiner.

(b) Make sure that all lines of data have a status for side 1 of anything other than INAC or HGS.

LOM 412, 415, 423, 424, 439, 441, 466-999

(c) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(d) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

1) Make sure that the sensor menu is shown on the combiner.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-00-700-036

(22) Make the VOR/MKR selection from the sensor menu.

(a) Make sure that the VOR/MKR data shows on the combiner.

(b) Make sure that all lines of data have a status for side 1 and side 2 of anything other than INAC or HGS.

NOTE: Data for the #2 marker beacon will be blank on the No. 2 side.

(c) Tune the VOR 1 to 114.90 MHz.

1) Make sure that the VOR FREQ data line shows 114.90 on side 1.

(d) Tune the VOR 2 to 115.90 MHz.

1) Make sure that the VOR FREQ data line shows 115.90 on side 2.

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LOM 412, 415, 423, 424, 439, 441, 466-999

(e) Push and release the CLR key on the HCP to return to the sensor menu.

LOM 432, 464

(f) On the CDU, push the LSK adjacent to BACK to return to the sensor menu.

1) Make sure that the sensor menu is shown on the combiner.

(g) On the CDU, push the LSK adjacent to EXIT to exit the sensor test menu.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HGS COMPUTER - SOFTWARE INSTALLATION

1. General

A. This procedure has these task:

LOM 432

(1) Install the Software with the Airborne Data Loader (ADL).

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

(2) Install the Software with the Portable Data Loader (PDL).

LOM 464, 466-999

(3) Install the Software with the Enhanced Airborne Data Loader (eADL).

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

(4) Check the Part Number of the Software.

(5) Check the operation of the HGS to FDR Interface.

B. To check for the list of data loaders that have been successfully tested for use with the HGS 4000 Computer and the Data Load Time of the OPS software loaded into the HGS Computer, refer to Table 201.

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

Table 201/34-36-01-993-801 Table 201: Data Loaders Successfully Tested with HGS 4000 Computer

Data Loader Type	Vendor	Data Loader PN	Load Time
PDL	Demo Systems	30100	6 min. 30 sec.
PDL	Demo Systems	PMAT 2000	6 min. 30 sec.
PDL	Sundstrand	964–400–020	8 min. 30 sec.
PDL	Sundstrand	964–400–025	8 min. 30 sec.

LOM 432, 464, 466-999

Table 202/34-36-01-993-802 Table 201: Data Loaders Successfully Tested with HGS 4000 Computer

Data Loader Type	Vendor	Data Loader PN	Load Time
ADL	Sundstrand	964–401–005	8 min. 30 sec.
ADL	Sundstrand	964–401–006	8 min. 30 sec.
ADL	Sundstrand	964–401–016	8 min. 30 sec.
ADL	Sundstrand	964–401–047	6 min.
ADL	SFIM	AC68D100	7 min. 4 sec.
ADL	Teledyne	2230666	6 min. 45 sec.
eADL	Teledyne	2235300–01–1	7 min. 30 sec.
eADL	Teledyne	2235300–31	7 min. 30 sec.

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

NOTE: Equivalent substitutes may be used.

C. The OPS software can be loaded into the HGS Computer in 6 to 9 minutes.

D. The OPC software can be loaded into the HGS Computer in approximately 3 minutes.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. For general information for software installation times and data loaders, do this task: On-Airplane Software - Installation, TASK 20-15-11-400-801.

LOM 432

TASK 34-36-01-470-801

2. Software Installation with the ADL

(Figure 201)

A. General

(1) This procedure gives instructions to install the operational program software (OPS) and the operational configuration software (OPC) into the HGS computer with the ADL.

(2) The software is installed with an OPS software currently installed or without an OPS software installed in the computer.

(3) The indications and instructions are different by ADL. Refer to the supplier's Component Manual for more information on the data loader used.

B. Special Tools and Equipments

(1) Airborne Data Loader.

(2) OPS and OPC software disks from Rockwell Collins.

C. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Prepare for the Software Installation

SUBTASK 34-36-01-840-001

(1) Make sure that the HCP “FAULT” light is out.

(2) On the CDU, make sure that no faults show on the HGS Test page.

(3) If faults show, do the troubleshooting before you install the software.

SUBTASK 34-36-01-480-001

(4) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 34-36-01-865-001

(5) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-36-01-470-001

(6) Open the front cover of the ADL.

(a) Pull at the top edge of the cover.

SUBTASK 34-36-01-470-002

(7) Push the eject button on the ADL.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 432 (Continued)

(a) Remove the plastic protective disk if ejected from the disk drive.

SUBTASK 34-36-01-865-002

(8) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-36-01-470-003

(9) Wait for the ADL to run a self test and to show that the self test is successful.

SUBTASK 34-36-01-470-004

(10) Set the upper switch on the data loader control panel to SINGLE SYS, then set the SYSTEM SELECT switch on the data loader control panel (P61) to HUD.

NOTE: On some aircraft, the data loader control panel does not have an upper switch. On these aircraft, it is necessary to set only the SYSTEM SELECT switch to HUD.

SUBTASK 34-36-01-840-002

(11) Turn on the HGS computer.

SUBTASK 34-36-01-865-003

NOTE: Aircraft with six panel HGS Annunciator (PN 1500-1280-00X) do not have a circuit breaker for the Annunciator Panel.

(12) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	2	C01618	HUD CONT PNL DC (INOP)

F. Software Installation - (Preferred)

SUBTASK 34-36-01-470-056

(1) Follow the generic ADL procedure to load software part (TASK 20-15-11-400-801).

G. Install OPC or new OPS software to the HGS Computer with OPS installed - (Non-Preferred)

NOTE: If the HGS Computer has OPS software loaded, do this procedure to load OPC or new OPS software. If the HGS Computer does not have OPS software loaded, do procedure 2. G. to load OPS or OPC software. If no OPS is loaded, NO OPS is displayed on the HCP MODE display line.

SUBTASK 34-36-01-470-005

(1) Make sure that you do the steps in “Prepare for the Software Installation”.

SUBTASK 34-36-01-470-006

(2) Use the HCP or CDU to enter the HGS Test mode.

(a) Make sure the HGS Test Menu shows on the Combiner display (Figure 201).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 432 (Continued)

SUBTASK 34-36-01-470-007

(3) Use the HCP or CDU to move the cursor (>) next to PERFORM SOFTWARE LOAD on the Combiner display (Figure 201).

(a) Select the PERFORM SOFTWARE LOAD.

SUBTASK 34-36-01-470-009

(4) Make sure that the HGS Computer blanks the Combiner display and the software-loading process starts.

NOTE: The OPC or OPS disk must be inserted into the ADL and communication between the ADL and the HGS Computer must start within two minutes of selecting PERFORM SOFTWARE LOAD or the HGS will exit the software loading process and return to the Test Menu display.

SUBTASK 34-36-01-470-010

(5) Put the OPC or OPS disk into the data loader.

(a) Make sure that the data load automatically starts after the disk is inserted into the ADL.

(b) Make sure that "LOAD" shows on the HCP or CDU display.

(c) Make sure that an indication of a load in progress shows on the data loader.

(d) If the software load is not satisfactory, do these steps:

NOTE: An error indication shows on the ADL: “XFER” or “TRANSFER FAIL” or “TRANSF FAIL”.

1) Remove the disk from the ADL.

2) Open and close the circuit breakers for the HGS.

3) Start the installation again. The data load will start again.

(e) If "READ/WRITE" shows on the ADL, there is a problem for the data loader to read the disk. Do these steps:

1) Open and close the circuit breakers for the HGS.

2) Start the installation again.

3) If the problem continues, replace the disk.

(f) LOAD COMPLETE, TRANSF COMPLETE, COMP light show on the ADL after installation of the software.

(g) Wait ten seconds and eject the disk from the ADL.

SUBTASK 34-36-01-470-012

(6) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 34-36-01-410-003

(7) Close the front cover on the ADL.

SUBTASK 34-36-01-865-004

(8) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 432 (Continued)

SUBTASK 34-36-01-865-005

(9) Cycle the HGS circuit breakers to complete software load.

SUBTASK 34-36-01-470-014

(10) Do this task: Part Number Check of the Software, TASK 34-36-01-750-801.

SUBTASK 34-36-01-470-052

(11) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

H. Install OPC or OPS software to the HGS Computer without OPS installed - (Non-Preferred)

NOTE: If no OPS is loaded, NO OPS and LOAD are shown on the HCP.

SUBTASK 34-36-01-470-015

(1) Make sure that you do the steps in “Prepare for the Software Installation”.

SUBTASK 34-36-01-470-016

(2) Put the OPC or OPS disk into the data loader.

(a) Make sure that the data load automatically starts after the disk is inserted into the ADL.

(b) If the software load is not satisfactory, do these steps:

NOTE: An error indication shows on the ADL: “XFER” or “TRANSFER FAIL” or “TRANSF FAIL”.

1) Remove the disk from the ADL.

2) Open and close the circuit breakers for the HGS.

3) Start the installation again. The data load will start again.

(c) If "READ/WRITE" shows on the ADL, there is a problem for the data loader to read the disk. Do these steps:

1) Open and close the circuit breakers for the HGS.

2) Start the installation again.

3) If the problem continues, replace the disk.

(d) LOAD COMPLETE, TRANSF COMPLETE, COMP light show on the ADL after installation of the software.

(e) Wait ten seconds and eject the disk from the ADL.

SUBTASK 34-36-01-470-017

(3) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

(a) Close the front cover on the ADL.

SUBTASK 34-36-01-865-006

(4) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 432 (Continued)

SUBTASK 34-36-01-865-007

(5) Cycle the HGS circuit breakers to complete software load.

SUBTASK 34-36-01-470-018

(6) Do this task: Part Number Check of the Software, TASK 34-36-01-750-801.

SUBTASK 34-36-01-470-051

(7) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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HGS TEST MENU
A/C ID # 610

TOP LEVEL PART NUMBERS
HGS CAPABILITY
RECORDED FAULTS
SENSOR DATA
EXISTING FAULTS
HC PART NUMBERS
AIRCRAFT IDENTIFICATION
HGS TEST DISPLAY
HGS OPC CONFIGURATION
> PERFORM SOFTWARE LOAD

<EXIT> TO EXIT
```

1305319 S0000225492_V1

HGS Test Menu - Combiner Display
Figure 201/34-36-01-990-804

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

TASK 34-36-01-470-802

3. Software Installation with the PDL

(Figure 202)

A. General

(1) This procedure gives instructions to install the operational program software (OPS) and the operational configuration software (OPC) into the HGS computer with the PDL.

NOTE: The PDL may be connected to the HGS Computer through the DATA TRANSFER UNIT RECEPTACLE on the data loader control panel (P61) if HUD provisions are installed, or directly to the connector on the front of the HGS Computer. When connected directly to the HGS Computer front connector, a PDL interface cable is required (Demo Systems P/N 31535-1).

(2) The software is installed with an OPS software currently installed or without an OPS software installed in the computer.

(3) The indications and instructions are different by PDL. Refer to the supplier's Component Manual for more information on the data loader used.

B. Special Tools and Equipment

(1) Portable Data Loader

(2) PDL interface cable (used when the PDL is connected directly to the HGS Computer front connector).

(3) Standard PDL interface cable (used when the PDL is connected to the data loader control panel, P61).

(4) OPS and OPC software disks from Rockwell Collins.

C. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Prepare for the Software Installation

SUBTASK 34-36-01-840-003

LOM 412, 415, 423, 424, 439, 441, 466-999

(1) Make sure that the HCP “FAULT” light is out.

LOM 464

(2) On the CDU, make sure that no faults show on the HGS Test page.

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

(3) If faults show, do the troubleshooting before you install the software.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 464, 466-999 (Continued)

SUBTASK 34-36-01-865-008

(4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

SUBTASK 34-36-01-470-019

(5) Do these steps to connect the PDL to the HGS Computer through the data loader control panel (P61) using a standard PDL cable:

(a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(b) Turn off the power switch on the PDL.

CAUTION BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE, OPEN THE CIRCUIT BREAKERS FOR THE DATA LOADER AND THE HGS. IF THE CIRCUIT BREAKERS ARE CLOSED, DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION SET THE POWER SWITCH FOR THE PORTABLE DATA LOADER TO OFF BEFORE YOU CONNECT, OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(c) Connect the standard PDL interface cable to the DATA TRANSFER UNIT RECEPTACLE on the data loader control panel (P61).

(d) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 464, 466-999 (Continued)

(e) Set the upper switch on the data loader control panel to SINGLE SYS, then set the SYSTEM SELECT switch to HUD.

NOTE: On some aircraft, the data loader control panel does not have an upper switch. On these aircraft, it is necessary to set only the SYSTEM SELECT switch to HUD.

(f) Turn on the power switch on the PDL.

SUBTASK 34-36-01-470-020

(6) Do these steps to connect the PDL directly to the HGS Computer front connector using the PDL interface cable:

(a) Turn off the power switch on the PDL.

(b) Remove the cover from the HGS Computer front connector.

CAUTION	BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE, OPEN THE CIRCUIT BREAKERS FOR THE DATA LOADER AND THE HGS. IF THE CIRCUIT BREAKERS ARE CLOSED, DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION	SET THE POWER SWITCH FOR THE PORTABLE DATA LOADER TO OFF BEFORE YOU CONNECT, OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(c) Connect the PDL interface cable to the connector on the front of the HGS Computer.

(d) Connect the plug on the PDL interface cable to a power source (115 VAC, 400Hz).

NOTE: On most Boeing 737 aircraft, a power source is available in the electrical compartment.

(e) Turn on the power switch on the PDL.

SUBTASK 34-36-01-865-009

(7) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. Software Installation - (Preferred)

SUBTASK 34-36-01-470-057

(1) Follow the generic PDL procedure to load software part (TASK 20-15-11-400-801).

G. Install OPC or new OPS software to the HGS Computer with OPS installed - (Non-Preferred)

NOTE: If the HGS Computer has OPS software loaded, do this procedure to load OPC or new OPS software. If the HGS Computer does not have OPS software loaded, do the steps to load OPS or OPC software to the HGS computer without OPS installed. If no OPS is loaded, NO OPS is displayed on the HCP/CDU.

SUBTASK 34-36-01-470-021

(1) Make sure that you do the steps on section the “Prepare for the Software Installation”.

SUBTASK 34-36-01-470-022

(2) Use the HCP/CDU to enter the HGS Test mode.

(a) Make sure that the HGS Test Menu shows on the Combiner display (Figure 202).

SUBTASK 34-36-01-470-023

(3) Use the HCP/CDU to move the cursor (>) next to PERFORM SOFTWARE LOAD on the Combiner display.

(a) Select the PERFORM SOFTWARE LOAD.

SUBTASK 34-36-01-470-024

(4) Make sure the HGS Computer blanks the Combiner display and the software-loading process starts.

NOTE: The OPC or OPS disk must be inserted into the PDL and communication between the PDL and the HGS Computer must start within two minutes of selecting PERFORM SOFTWARE LOAD or the HGS will exit the software loading process and return to the Test Menu display.

SUBTASK 34-36-01-470-025

(5) Put the OPC or OPS disk into the data loader.

(a) Make sure that the data load automatically starts after the disk is inserted into the PDL.

(b) Make sure that "LOAD" shows on the HCP or CDU display.

(c) Make sure that an indication of a load in progress shows on the data loader.

(d) If the software load is not satisfactory, do these steps:

NOTE: An error indication shows on the PDL: “XFER” or “TRANSFER FAIL” or “TRANSF FAIL”.

1) Remove the disk from the PDL.

2) Open and close the circuit breakers for the HGS.

3) Start the installation again. The data load will start again.

(e) If "READ/WRITE" shows on the PDL, there is a problem for the data loader to read the disk. Do these steps:

1) Open and close the circuit breakers for the HGS.

2) Start the installation again.

3) If the problem continues, replace the disk.

(f) An indication will show on the PDL when installation of the software is completed.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 464, 466-999 (Continued)

(g) Wait ten seconds and eject the disk from the PDL.

SUBTASK 34-36-01-470-026

(6) Do these steps if the PDL is connected to the DATA TRANSFER UNIT RECEPTACLE on the data loader control panel (P61):

(a) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-36-01-470-027

(7) Turn off the PDL power switch.

SUBTASK 34-36-01-865-010

(8) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

SUBTASK 34-36-01-470-028

CAUTION	BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE, OPEN THE CIRCUIT BREAKERS FOR THE DATA LOADER AND THE HGS. IF THE CIRCUIT BREAKERS ARE CLOSED, DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION	SET THE POWER SWITCH FOR THE PORTABLE DATA LOADER TO OFF BEFORE YOU CONNECT, OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(9) Remove the PDL interface cable from the DATA TRANSFER UNIT RECEPTACLE, or remove the PDL interface cable from the connector on the front of the HGS Computer.

SUBTASK 34-36-01-470-029

(10) If the PDL was connected to the HGS Computer front connector, replace the connector cover.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 464, 466-999 (Continued)

SUBTASK 34-36-01-865-011

(11) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

SUBTASK 34-36-01-470-030

(12) Do this task: Part Number Check of the Software, TASK 34-36-01-750-801.

SUBTASK 34-36-01-470-053

(13) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

H. Install OPC or OPS software to the HGS Computer without OPS installed - (Non-Preferred)

LOM 412, 415, 423, 424, 439, 441, 466-999

NOTE: If no OPS is loaded, NO OPS and LOAD are displayed on the HCP.

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

SUBTASK 34-36-01-470-031

(1) Make sure that you do the steps on section the “Prepare for the Software Installation”.

SUBTASK 34-36-01-470-032

(2) Put the OPC or OPS disk into the data loader.

(a) Make sure that the data load automatically starts after the disk is inserted into the PDL.

(b) If the software load is not satisfactory, do these steps:

NOTE: An error indication shows on the PDL: “XFER” or “TRANSFER FAIL” or “TRANSF FAIL”.

1) Remove the disk from the PDL.

2) Open and close the circuit breakers for the HGS.

3) Start the installation again. The data load will start again.

(c) If "READ/WRITE" shows on the PDL, there is a problem for the data loader to read the disk. Do these steps:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 464, 466-999 (Continued)

1) Open and close the circuit breakers for the HGS.
2) Start the installation again.
3) If the problem continues, replace the disk.

(d) An indication will show on the PDL when installation of the software is completed.

(e) Wait ten seconds and eject the disk from the PDL.

SUBTASK 34-36-01-470-033

(3) Do these steps if the PDL is connected to the DATA TRANSFER UNIT RECEPTACLE on the data loader control panel (P61):

(a) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-36-01-865-012

(4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

SUBTASK 34-36-01-470-034

(5) Turn off the PDL power switch.

SUBTASK 34-36-01-470-035

CAUTION

BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE, OPEN THE CIRCUIT BREAKERS FOR THE DATA LOADER AND THE HGS. IF THE CIRCUIT BREAKERS ARE CLOSED, DAMAGE TO EQUIPMENT CAN OCCUR.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 439, 441, 464, 466-999 (Continued)

(CAUTION PRECEDES)

CAUTION	SET THE POWER SWITCH FOR THE PORTABLE DATA LOADER TO OFF BEFORE YOU CONNECT, OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(6) Remove the PDL interface cable from the DATA TRANSFER UNIT RECEPTACLE, or remove the PDL interface cable from the connector on the front of the HGS Computer.

SUBTASK 34-36-01-470-036

(7) If the PDL was connected to the HGS Computer front connector, replace the connector cover.

SUBTASK 34-36-01-865-013

(8) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 439, 441, 464, 466-999

SUBTASK 34-36-01-470-037

(9) Do this task: Part Number Check of the Software, TASK 34-36-01-750-801.

SUBTASK 34-36-01-470-054

(10) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

```
HGS TEST MENU
A/C ID # 610

TOP LEVEL PART NUMBERS
HGS CAPABILITY
RECORDED FAULTS
SENSOR DATA
EXISTING FAULTS
HC PART NUMBERS
AIRCRAFT IDENTIFICATION
HGS TEST DISPLAY
HGS OPC CONFIGURATION
> PERFORM SOFTWARE LOAD

<EXIT> TO EXIT
```

1305319 S0000225492_V1

HGS Test Menu - Combiner Display
Figure 202/34-36-01-990-805

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 464, 466-999

TASK 34-36-01-470-803

4. Software Installation with an Enhanced Airborne Data Loader

(Figure 203)

A. General

(1) This procedure gives instructions to install the operational program software (OPS) and the operational configuration software (OPC) into the HGS computer with an Enhanced Airborne Data Loader (eADL).

(2) The software is installed with an OPS software currently installed or without an OPS software installed in the computer.

(3) An enhanced airborne data loader (eADL) and a control display unit (CDU) are necessary for this procedure. A data loader control panel is also necessary. The data loader control panel is installed above the eADL on the P61 panel.

(4) The eADL software installation:

LOM 464

(a) Floppy Disk Software Installation

LOM 464, 466-999

(b) USB Flash Drive Software Installation

1) This procedure uses the USB port on the front panel of the eADL to install software from a USB flash drive to the Mass Storage Device (MSD). After the software is installed on the MSD, the software is loaded to the HGS.

2) The USB flash drive must be configured correctly. Use the USB tool specified in the eADL Operations Guide.

(5) The airplane must be on the ground with the engines shutdown before you can install software.

(6) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.

(7) The word "media" refers to a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Prepare for the Software Installation

SUBTASK 34-36-01-840-004

(1) Make sure that the HCP ‘‘FAULT’’ light is out.

(2) On the CDU, make sure that no faults show on the HGS Test page.

(3) If faults show, do the troubleshooting before you install the software.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 464, 466-999 (Continued)

SUBTASK 34-36-01-480-002

(4) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 34-36-01-860-015

(5) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-36-01-470-038

(6) Set the upper switch on the data loader control panel to SINGLE SYS, then set the SYSTEM SELECT switch on the data loader control panel (P61) to HUD.

NOTE: On some aircraft, the data loader control panel does not have an upper switch. On these aircraft, it is necessary to set only the SYSTEM SELECT switch to HUD.

SUBTASK 34-36-01-470-039

(7) Turn on the HGS computer.

SUBTASK 34-36-01-860-014

(8) Aircraft with six panel HGS Annunciator (PN 1500-1280-00X) do not have a circuit breaker for the Annunciator Panel.

(9) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 464, 466-999

E. Software Installation - (Preferred)

SUBTASK 34-36-01-470-055

(1) Do this step at the to install the software:

(a) Follow the generic ADL procedure to load software part (TASK 20-15-11-400-801).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 464

F. Floppy Disk Software Installation - (Non-Preferred)

SUBTASK 34-36-01-470-040

(1) Do these steps to install OPC or new OPS software to the HGS Computer with OPS installed from a floppy disk:

NOTE: If the HGS Computer has OPS software loaded, do this procedure to load OPC or new OPS software. If the HGS Computer does not have OPS software loaded, do the steps to load OPS or OPC software to the HGS computer without OPS installed. If no OPS is loaded, NO OPS is displayed on the HCP MODE display line.

(a) Use the HCP or CDU to enter the HGS Test mode.

1) Make sure the HGS Test Menu shows on the Combiner display (Figure 203).

(b) Use the HCP or CDU to move the cursor (>) next to PERFORM SOFTWARE LOAD on the Combiner display (Figure 203).

1) Select the PERFORM SOFTWARE LOAD.

(c) Make sure that the HGS Computer blanks the Combiner display and the software-loading process starts.

NOTE: The OPC or OPS disk must be inserted into the eADL and communication between the eADL and the HGS Computer must start within two minutes of selecting PERFORM SOFTWARE LOAD or the HGS will exit the software loading process and return to the Test Menu display.

(d) Wait until the eADL display shows the eADL Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(e) Select ‘‘Target Page.’’

1) The eADL will show the Select Target System screen.

(f) Select ‘‘Floppy Drive.’’

1) The eADL will show a Load Confirmation screen.

(g) Carefully push the first disk (label up) into the disk drive.

(h) Select ‘‘CONFIRM.’’

1) The eADL will show ‘‘LOADING’’ on the Transfer In Progress screen.

NOTE: It can take one to two minutes for the installation to start.

NOTE: If the disk set has more than one disk and the data of the first disk is completely transferred, the eADL will prompt you to insert the next diskette. Eject the first diskette, insert the next diskette and select ‘‘CONTINUE.’’

2) The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

3) The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

(i) Select ‘‘MAIN’’ to go back to the main menu.

(j) Eject the disk from the disk drive when the software installation is completed.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 464 (Continued)

(k) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(l) Cycle the HGS circuit breakers to complete software load.

(m) Do this task: Part Number Check of the Software, TASK 34-36-01-750-801.

(n) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-36-01-470-045

(2) Do these steps to install OPC or new OPS software to the HGS Computer without OPS installed from a floppy disk:

NOTE: If no OPS is loaded, NO OPS and LOAD are shown on the HCP.

(a) Make sure that you do the steps in “Prepare for the Software Installation”.

(b) Wait until the eADL display shows the eADL Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(c) Select ‘‘Target Page.’’

1) The eADL will show the Select Target System screen.

(d) Select ‘‘Floppy Drive.’’

1) The eADL will show a Load Confirmation screen.

(e) Carefully push the first disk (label up) into the disk drive.

(f) Select ‘‘CONFIRM.’’

1) The eADL will show ‘‘LOADING’’ on the Transfer In Progress screen.

NOTE: It can take one to two minutes for the installation to start.

NOTE: If the disk set has more than one disk and the data of the first disk is completely transferred, the eADL will prompt you to insert the next diskette. Eject the first diskette, insert the next diskette and select ‘‘CONTINUE.’’

2) The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

3) The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

(g) Select ‘‘MAIN’’ to go back to the main menu.

(h) Eject the disk from the disk drive when the software installation is completed.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 464 (Continued)

(i) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(j) Cycle the HGS circuit breakers to complete software load.

(k) Do this task: Part Number Check of the Software, TASK 34-36-01-750-801.

(l) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

LOM 464, 466-999

G. USB Flash Drive Software Installation - (Non-Preferred)

SUBTASK 34-36-01-470-047

(1) Do these steps to install software from a USB flash drive to the eADL MSD:

(a) Put the USB flash drive into the eADL USB port.

NOTE: The USB flash drive must be configured correctly by the USB tool as specified in the eADL Operations Guide.

(b) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(c) Select “Maintenance Page.”

1) This will show the “Maintenance Menu” screen.

(d) Select “Transfer Parts From USB.”

NOTE: If the error message “USB Is Not Mounted Or Is Not A Valid USB” is shown, select “GO BACK” and do the steps again.

NOTE: Make sure the USB flash drive is configured correctly by the USB tool as specified in the eADL Operations Guide.

1) The eADL screen will show “CONFIRM TO BEGIN TRANSFERRING.”

2) Select “CONFIRM.”

NOTE: The USB and MSD annunciators will turn yellow during the transfer procedure.

NOTE: If the software is already on the eADL MSD, this message will show: “The part name already exists.”

(e) When the software transfer is complete, the USB and MSD annunciators will turn green and this message will show:

“Part Transfer Complete”

NOTE: The annunciators will turn red if the transfer procedure is aborted or if there is a failure.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 464, 466-999 (Continued)

(f) Select “MAIN” to go back to the main menu.

SUBTASK 34-36-01-470-048

(2) Do these steps to install OPC or new OPS software from the eADL MSD to the HGS computer with OPS installed:

NOTE: If the HGS Computer has OPS software loaded, do this procedure to load OPC or new OPS software. If the HGS Computer does not have OPS software loaded, do the steps to load OPS or OPC software to the HGS computer without OPS installed. If no OPS is loaded, NO OPS is displayed on the HCP MODE display line.

(a) Use the HCP or CDU to enter the HGS Test mode.

1) Make sure the HGS Test Menu shows on the Combiner display (Figure 203).

(b) Use the HCP or CDU to move the cursor (>) next to PERFORM SOFTWARE LOAD on the Combiner display (Figure 203).

NOTE: The communication between the eADL and the HGS Computer must start within two minutes of selecting PERFORM SOFTWARE LOAD or the HGS will exit the software loading process and return to the Test Menu display.

1) Select the PERFORM SOFTWARE LOAD.

(c) Make sure that the HGS Computer blanks the Combiner display and the software-loading process starts.

(d) On the eADL, make sure that the ‘‘Main Menu’’ is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(e) Select ‘‘Target Page.’’

1) This will show the ‘‘Select Target System’’ screen.

(f) Select the LRU to receive the software.

1) This will show the ‘‘Select Software Part’’ screen.

(g) Push the ‘‘SELECT’’ button for the required software.

NOTE: The listed software will appear as it was initially configured in the USB tool. See the eADL Operations Guide.

(h) Make sure that the ‘‘Load Confirmation’’ screen shows.

(i) Select ‘‘CONFIRM.’’

1) This will show the ‘‘Transfer In Progress’’ screen.

2) The ‘‘TRANSFER’’ annunciator will change to ‘‘LOADING’’ and turn yellow during the installation procedure.

3) The ‘‘LOADING’’ annunciator will change to ‘‘COMPLETE’’ and turn green when the installation procedure is completed.

(j) Select ‘‘MAIN’’ to go back to the main menu.

(k) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

1) Close the front cover on the eADL.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 464, 466-999 (Continued)

(l) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(m) Cycle the HGS circuit breakers to complete software load.

(n) Do this task: Part Number Check of the Software, TASK 34-36-01-750-801.

(o) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-36-01-470-049

(3) Do these steps to install OPC or new OPS software from the eADL MSD to the HGS computer without OPS installed:

NOTE: If no OPS is loaded, NO OPS and LOAD are shown on the HCP.

(a) Make sure that you do the steps in “Prepare for the Software Installation”.

(b) On the eADL, make sure that the ‘‘Main Menu’’ is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(c) Select ‘‘Target Page.’’

1) This will show the ‘‘Select Target System’’ screen.

(d) Select the LRU to receive the software.

1) This will show the ‘‘Select Software Part’’ screen.

(e) Push the ‘‘SELECT’’ button for the required software.

NOTE: The listed software will appear as it was initially configured in the USB tool. See the eADL Operations Guide.

(f) Make sure that the ‘‘Load Confirmation’’ screen shows.

(g) Select ‘‘CONFIRM.’’

1) This will show the ‘‘Transfer In Progress’’ screen.

2) The ‘‘TRANSFER’’ annunciator will change to ‘‘LOADING’’ and turn yellow during the installation procedure.

3) The ‘‘LOADING’’ annunciator will change to ‘‘COMPLETE’’ and turn green when the installation procedure is completed.

(h) Select ‘‘MAIN’’ to go back to the main menu.

(i) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

1) Close the front cover on the eADL.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 464, 466-999 (Continued)

(j) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(k) Cycle the HGS circuit breakers to complete software load.

(l) Do this task: Part Number Check of the Software, TASK 34-36-01-750-801.

(m) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

```
HGS TEST MENU
A/C ID # 610

TOP LEVEL PART NUMBERS
HGS CAPABILITY
RECORDED FAULTS
SENSOR DATA
EXISTING FAULTS
HC PART NUMBERS
AIRCRAFT IDENTIFICATION
HGS TEST DISPLAY
HGS OPC CONFIGURATION
> PERFORM SOFTWARE LOAD

<EXIT> TO EXIT
```

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HGS Test Menu - Combiner Display
Figure 203/34-36-01-990-806

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-36-01-750-801

5. Part Number Check of the Software

A. General

(1) This procedure gives instructions to check the part number of the software.

B. Prepare for the checking of the Software part number

SUBTASK 34-36-01-750-001

(1) Do these steps to prepare for the software PN check:

(a) Make sure that the Primary Mode display is on the Combiner.

(b) Make sure that the HGS does not have any Existing Faults.

C. Procedure

SUBTASK 34-36-01-750-002

(1) Do these steps to check the software PN:

(a) Use the HCP or CDU to go into the HGS Test Mode.

NOTE: If BITE detects faults, go to the Fault Isolation Manual (FIM), 34-36, to repair the faults.

1) Make sure the HGS Test Menu shows on the Combiner display.

(b) Use the HCP or CDU to move the cursor (>) next to TOP LEVEL PART NUMBERS on the Combiner display.

(c) Use the HCP or CDU to select TOP LEVEL PART NUMBERS.

1) Make sure that the OPS, OPC and top-level hardware part numbers show on the Combiner display.

(d) Make sure that the OPC or OPS part number shown on the Combiner display is the same as the Software Part Number shown on the disk that was used to load the OPC or OPS software.

NOTE: The Model 4000 OPS and OPC software disk labels show only the 12- digit software part numbers that show on the TOP LEVEL PART NUMBERS display. The 11-digit software part numbers (in parenthesis on the TOP LEVEL PART NUMBERS display) are for Rockwell Collins internal use only.

(e) Make sure that the OPS and OPC are the correct versions for the aircraft and airline.

(f) Go off the Test mode.

(g) Go back to the Primary Mode display.

——— END OF TASK ———

TASK 34-36-01-730-801

6. Operational Check of the HGS to FDR Interface

A. General

(1) This procedure gives instructions to check the operation of the HGS to FDR interface.

B. References

Reference	Title
31-31-00 P/B 501	FLIGHT DATA RECORDER SYSTEM - ADJUSTMENT/TEST

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Title
31-31-00-730-801	Flight Data Recorder System - System Test (P/B 501)

C. Prepare for the checking of the operation of the HGS to FDR interface.

SUBTASK 34-36-01-730-001

(1) Do these steps to prepare for the HGS to FDR interface check:

(a) Make sure that the Combiner operates correctly.

(b) Make sure that the Primary Mode symbology shows on the Combiner display.

(c) Make sure that the HGS does not have any Existing Faults.

D. Procedure

NOTE: Refer to Boeing 737 AMM: FLIGHT DATA RECORDER SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 31-31-00/501, Flight Data Recorder System - System Test, TASK 31-31-00-730-801.

SUBTASK 34-36-01-730-002

(1) Do these steps to check the operation of the HGS to FDR interface:

(a) Make sure that the AMM-referenced tester is connected to the FDR.

(b) Set the tester to subframe 0 word 54.

(c) With the Combiner in the operating position, a “1” should show on the tester.

(d) Put the Combiner in the stowed position.

(e) Make sure that the tester shows a “0.”

(f) Disconnect the tester

(g) Return the aircraft to its normal operational condition.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HUD COMPUTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the HUD computer

(2) An installation of the HUD computer.

B. The HUD computer is located in the main equipment center on the electronic equipment rack E4.

TASK 34-36-01-000-801

2. HUD Computer Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-36-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

SUBTASK 34-36-01-010-001

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-36-01-020-001

CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE HUD COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE HUD COMPUTER.

(3) Before you touch the HUD computer [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-36-01-020-002

(4) Remove the HUD computer [1]. To remove it, do this task: E/E Box Removal, TASK 20-10-07-000-801.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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HUD Computer Installation
Figure 401/34-36-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-36-01-400-801

3. HUD Computer Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-36-00-710-801	HUD Operational Test (P/B 501)
34-36-00-710-802	HUD Operational Test (P/B 501)
34-36-01 P/B 201	HGS COMPUTER - SOFTWARE INSTALLATION

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	HUD computer	34-36-01-02-005	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Procedure

SUBTASK 34-36-01-860-002

(1) Make sure that these circuit breakers are open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

SUBTASK 34-36-01-420-001

> **CAUTION**
> DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE HUD COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE HUD COMPUTER.

(2) Before you touch the HUD Computer [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-36-01-420-002

(3) Install the HUD computer [1]. To install it, do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-36-01-860-003

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

SUBTASK 34-36-01-470-043

(5) Do this task: HGS COMPUTER - SOFTWARE INSTALLATION, PAGEBLOCK 34-36-01/201.

F. Installation Test

SUBTASK 34-36-01-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-36-01-860-005

(2) Push and release the TEST button on the front of the HUD computer.

SUBTASK 34-36-01-860-006

(3) Make sure the HUD test passes and that no failures are indicated.

SUBTASK 34-36-01-860-007

(4) Enter an aircraft identification for unit tracking:

NOTE: Aircraft Identification Codes are not mandatory.

(a) Select the AIRCRAFT IDENTIFICATION item from the TEST MENU on the combiner display.

(b) Enter up to a four digit aircraft identifier code as displayed on the combiner display.

SUBTASK 34-36-01-700-001

(5) Do this task: HUD Operational Test, TASK 34-36-00-710-801 or HUD Operational Test, TASK 34-36-00-710-802.

G. Put the Airplane Back to Its Initial Condition

SUBTASK 34-36-01-410-001

(1) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-36-01-860-008

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HUD CONTROL PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the heads up display (HUD) control panel

(2) An installation of the HUD control panel.

B. The HUD control panel is on the aft aisle stand panel, P8, in the flight compartment.

TASK 34-36-03-000-801

2. HUD Control Panel Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 34-36-03-860-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	2	C01618	HUD CONT PNL DC

SUBTASK 34-36-03-020-001

CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE HUD CONTROL PANEL [1]. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE HUD CONTROL PANEL [1].

(2) Remove the HUD control panel [1]:

(a) Turn the four quarter-turn fasteners [2] to release the HUD control panel [1] from the aisle stand.

(b) Lift the HUD control panel [1] to get access to the electrical connector [3].

(c) Disconnect the electrical connector [3].

(d) Put a protective cover on the electrical connector [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

AISLE STAND

A

H76825 S0006576825_V2

HUD Control Panel Installation
Figure 401/34-36-03-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-36-03-400-801

3. HUD Control Panel Installation

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-36-03-760-001

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	2	C01618	HUD CONT PNL DC

SUBTASK 34-36-03-420-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE HUD CONTROL PANEL [1]. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE HUD CONTROL PANEL [1].

(2) Install the HUD control panel [1]:

(a) Remove the protective cover from the electrical connector [3].

(b) Examine the electrical connector [3] for bent or broken pins, dirt, and damage.

(c) Connect the electrical connector [3].

(d) Put the HUD control panel [1] into its position in the aisle stand.

(e) Turn the quarter-turn fasteners [2] to attach the HUD control panel [1].

SUBTASK 34-36-03-760-002

(3) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	2	C01618	HUD CONT PNL DC

D. Installation Test

SUBTASK 34-36-03-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-36-03-860-003

(2) Push and release the TEST switch on the HUD control panel.

SUBTASK 34-36-03-860-004

(3) Make sure the self test passes.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-36-03-860-005

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HUD COMBINER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Head-Up Display (HUD) combiner

(2) An installation of the HUD combiner.

B. The HUD combiner is on the combiner bracket above the number 1 window in the flight compartment. The HUD combiner has a cover and a grounding strap.

TASK 34-36-04-000-801

2. HUD Combiner - Removal

(Figure 401)

A. Tools/Equipment

Reference	Description
STD-7394	Cap - Dust, Electrical Connector

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. HUD Combiner Removal

SUBTASK 34-36-04-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-04-020-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(2) Remove the Head-Up Display (HUD) combiner [1]:

(a) Remove the screws [7], combiner trim cover [8], and trim panel [9].

(b) Disconnect the electrical connector.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION

INSTALL ELECTROSTATIC-DISCHARGE-COMPLIANT DUST CAPS. IF YOU USE THE INCORRECT CAPS, DAMAGE TO THE COMPONENTS CAN OCCUR.

(c) Install dust caps, STD-7394, on the electrical connectors.

(d) Loosen the captive bolts [2] that hold the combiner [1] to the combiner mounting bracket.

(e) Remove the HUD combiner [1].

(f) Remove the screw [10] and ground strap [11] from the HUD combiner [1].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HUD System - Combiner Installation
Figure 401/34-36-04-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-36-04-400-801

3. HUD Combiner Installation

(Figure 401)

A. References

Reference	Title
34-36-00-710-801	HUD Operational Test (P/B 501)
34-36-00-710-802	HUD Operational Test (P/B 501)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-614	Bonding Meters - Non-Intrinsically Safe (For use in outside Class I, Divisions I & II non-hazardous locations. For hazardous locations, use COM-1550). Part #: 247000 Supplier: 00426 Part #: 620LK Supplier: 1CRL2 Part #: BLR-0003-XX Supplier: KC432 Part #: BT51 Supplier: 00426 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659 Opt Part #: 247001 Supplier: 00426

C. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Combiner	34-36-02-05-035	LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

E. Location Zones

Zone	Area
211	Flight Compartment - Left

F. HUD Combiner Installation

SUBTASK 34-36-04-760-001

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-04-420-004

CAUTION DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(2) Install the Head-Up Display (HUD) combiner [1].

(a) Remove the dust caps from the electrical connectors.

(b) Examine the electrical connectors for bent, broken pins, dirt, and damage.

(c) Connect the electrical connector.

(d) Remove the ambient light sensor dust cover (if installed).

(e) Install the ground strap [11] as follows:

1) Use cotton wiper, G00034, moist in alcohol, B00130, to clean the mating surfaces of the combiner [1], ground strap [11], and screw [10].

2) Attach the ground strap [11] with screw [10] on the inboard side of the combiner [1].

a) Tighten the screw [10] to 28 in-lb (3.2 N·m) - 35 in-lb (4.0 N·m).

3) Measure the electrical bonding resistance between the combiner [1] and terminal of the ground strap [11] (SWPM 20-20-00).

a) Use a non-intrinsically safe bonding meter, COM-614.

b) Make sure that the bonding resistance is 0.0025 ohm (2.5 milliohm) or less.

(f) Put the HUD combiner [1] into its position in the combiner bracket.

(g) Engage the captive bolts [2] to the combiner mounting bracket.

(h) Tighten the captive bolts [2] to 76 in-lb (8.6 N·m) - 90 in-lb (10.2 N·m).

(i) Install the combiner trim cover [8] and trim panel [9] with the applicable screws [7].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-36-04-760-002

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

G. Installation Test

SUBTASK 34-36-04-700-001

(1) Do an operational test of the HUD: HUD Operational Test, TASK 34-36-00-710-801 or HUD Operational Test, TASK 34-36-00-710-802.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HUD OVERHEAD UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the head up display (HUD) overhead unit

(2) An installation of the HUD overhead unit.

B. The HUD overhead unit is above the pilot. It is under a shroud, in front of the forward ceiling panel.

TASK 34-36-05-000-801

2. HUD Overhead Unit Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. HUD Overhead Unit Removal

SUBTASK 34-36-05-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-05-020-004

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(2) Remove the HUD overhead unit [1].

(a) Remove the screw [6], screw [7], screw [8], and spacer [9] that hold the overhead unit shroud [3].

(b) Remove the overhead unit shroud [3].

(c) Disconnect the electrical connectors.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION INSTALL ELECTROSTATIC-DISCHARGE-COMPLIANT DUST CAPS. IF YOU USE THE INCORRECT CAPS, DAMAGE TO THE COMPONENTS CAN OCCUR.

(d) Install the dust caps on the electrical connectors.

(e) Remove the nut [10], washer [13], and washer [14] that holds the ground strap [11] from the overhead unit [1].

(f) Remove the ground strap [11] from the overhead unit [1].

(g) Loosen the captive bolts [12] on the overhead unit [1] mounting bracket while supporting the overhead unit [1].

NOTE: Do not let the OHU hang unsupported by partially tightened fasteners. OHU to combiner alignment can be compromised.

(h) Remove the overhead unit [1].

(i) Make sure that the forward and aft overhead unit [1] mount bracket helical coil inserts are not loose or missing.

SUBTASK 34-36-05-960-001

(3) If it is necessary, do these steps to replace a helical coil insert.

(a) Remove the loose helical coil insert.

(b) Remove burrs and slivers which may have become dislodged.

(c) Remove locking keys (tangs) from helical coil insert before installing insert into mount bracket.

(d) Install helical coil insert using an appropriate primer and retaining compound that provides a breakaway torque between 100 in-lb (11.3 N·m) - 250 in-lb (28.2 N·m) per MIL-S-22473.

1) Coat surface of insert with primer and let air dry a minimum of five minutes.

2) Cover locking surface of insert with retaining compound.

3) Install insert and remove excess retaining compound.

4) Do not subject joined parts to handling, vibration or shock until cured.

NOTE: Locking materials do not cure sufficiently at temperatures below 40°F.
Between 40°F and 70°F the minimum curing time is 72 hours.
For temperatures above 70°F the minimum curing time is 1 hour.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

U63320 S0000210613_V3

Overhead Unit Installation
Figure 401/34-36-05-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

OVERHEAD UNIT

B

U63316 S0000210614_V3

Overhead Unit Installation
Figure 401/34-36-05-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-36-05-400-801

3. HUD Overhead Unit Installation

(Figure 401)

A. References

Reference	Title
34-36-00 P/B 501	HEAD UP DISPLAY SYSTEM - ADJUSTMENT/TEST
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-614	Bonding Meters - Non-Intrinsically Safe (For use in outside Class I, Divisions I & II non-hazardous locations. For hazardous locations, use COM-1550). Part #: 247000 Supplier: 00426 Part #: 620LK Supplier: 1CRL2 Part #: BLR-0003-XX Supplier: KC432 Part #: BT51 Supplier: 00426 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659 Opt Part #: 247001 Supplier: 00426

C. Consumable Materials

Reference	Description	Specification
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. HUD Overhead Unit Installation

SUBTASK 34-36-05-760-001

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-05-420-004

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(2) Install the HUD overhead unit [1]:

(a) Remove the dust caps from the electrical connectors.

(b) Examine the electrical connectors for bent or broken pins, dirt, and damage.

(c) Connect the electrical connectors.

(d) Install the captive bolts [12] to the overhead unit [1] mounting bracket.

(e) Tighten the captive bolts [12] to 83 in-lb (9.4 N·m) - 90 in-lb (10.2 N·m).

NOTE: Too much torque can loosen or displace the inserts and result in HUD alignment errors and display jitter.

(f) Install the washer [13], washer [14], and nut [10] to connect the ground strap [11] to the overhead unit [1].

1) Use the cotton wiper, G00034, moist in solvent, B00184, to clean the mating surfaces of the ground stud, nut [10], washer [13], washer [14], and ground strap [11].

2) Install the ground strap [11], washer [13], washer [14], and nut [10].

3) Tighten the nut [10] to 23 in-lb (2.6 N·m) - 27 in-lb (3.1 N·m).

4) Measure the electrical resistance between the ground strap [11] and airplane structure (SWPM 20-20-00).

a) Use a non-intrinsically safe bonding meter, COM-614.

b) Make sure that the electrical bonding resistance is 0.0012 ohm (1.2 milliohm) or less.

(g) Install the overhead unit shroud [3].

1) Install the screw [6], screw [7], screw [8], and spacer [9].

SUBTASK 34-36-05-760-002

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

F. HUD Overhead Unit Installation Test

SUBTASK 34-36-05-700-001

(1) Do an operational test of the HUD: HEAD UP DISPLAY SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-36-00/501.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

HUD ANNUNCIATOR PANEL (HAP) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Removal of the Head Up Display (HUD) Annunciator Panel (HAP)

(2) Installation of the HAP.

TASK 34-36-06-000-804-002

2. HUD Annunciator Panel Removal

(Figure 401)

A. Location Zones

Zone	Area
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-36-06-860-005

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-06-010-004

(2) Gain access to the rear of the P3 instrument panel.

SUBTASK 34-36-06-020-004

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(3) Remove the HAP.

(a) Remove the mounting screws that attach the HAP to the instrument panel.

(b) Pull out the HAP from the instrument panel.

(c) Disconnect the electrical connectors.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION

INSTALL ELECTROSTATIC-DISCHARGE-COMPLIANT DUST CAPS. IF YOU USE THE INCORRECT CAPS, DAMAGE TO THE COMPONENTS CAN OCCUR.

(d) Install dust caps on the electrical connectors.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(EXAMPLE)

NOTE:

1 CAN BE ON THE P3-1 OR THE P3-3 PANEL

U64306 S0000210829_V3

HUD Annunciator Panel (HAP) Installation
Figure 401/34-36-06-990-807

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-36-06-400-803-002

3. HUD Annunciator Panel Installation

(Figure 401)

A. References

Reference	Title
34-36-00 P/B 501	HEAD UP DISPLAY SYSTEM - ADJUSTMENT/TEST

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Installation Procedure

SUBTASK 34-36-06-860-006

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-06-420-004

(2) Install the HUD Annunciator Panel.

(a) Remove the dust caps from the electrical connectors.

(b) Examine the electrical connectors for bent or broken pins, dirt, and damage.

(c) Connect the electrical connectors.

(d) Put the HAP on its position on the P3 instrument panel.

(e) Install and tighten the mounting screws that attach the HAP to the instrument panel.

SUBTASK 34-36-06-860-007

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	1	C01622	HUD ANNUN DC
LOM 412, 415, 423, 424, 439, 441, 466-999			
C	2	C01618	HUD CONT PNL DC
LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999			
C	5	C01619	HUD SYS-NORMAL DC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	6	C01620	HUD SYS-ALTN DC

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 432, 464			
C	2	C01618	HUD CONT PNL DC (INOP)

LOM 412, 415, 423, 424, 432, 439, 441, 464, 466-999

SUBTASK 34-36-06-720-001

(4) Do an operational test for the HUD: HEAD UP DISPLAY SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-36-00/501.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR (WXR) SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Weather Radar (WXR) System Deactivation.

(2) Weather Radar (WXR) System Activation.

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

(3) Flight History Data Download.

LOM ALL

TASK 34-43-00-040-801

2. Weather Radar (WXR) System - Deactivation

(Figure 201)

A. General

> **CAUTION**
> WHEN YOU OPERATE THE WEATHER RADAR FOR NON-TEST MODES, POINT THE NOSE OF THE AIRPLANE WHERE IT IS FREE OF LARGE METAL OBJECTS. KEEP THE FORWARD 180-DEGREE AREA CLEAR. THIS INCLUDES HANGARS, TRUCKS, OTHER AIRPLANES. THIS 300 FEET DISTANCE MUST BE CLEAR OR DAMAGE TO THE RECEIVER CAN OCCUR.

(1) This procedure removes electrical power to the Weather Radar system.

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Location Zones

Zone	Area
111	Radome
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-43-00-410-001

> **WARNING**
> DO NOT MOVE THE THRUST LEVER. THE MOVEMENT OF THE THRUST LEVER CAN CAUSE AUTOMATIC OPERATION OF THE PREDICTIVE WINDSHEAR SYSTEM. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(1) Attach a DO NOT OPERATE tag, STD-858 to the thrust levers.

SUBTASK 34-43-00-860-264

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Weather Radar (WXR) System - Tryout

NOTE: This tryout is to make sure the Weather Radar system is in a zero energy state.

SUBTASK 34-43-00-860-265

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-266

(2) Do the following steps at the WXR control panel:

(a) Set mode select /power switch (as applicable) to the ON position.

(b) Push the TEST/TEST MODE switch on the control panel.

1) Make sure aural warnings are not heard.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2365583 S0000541438_V2

WXR Control Panel
Figure 201/34-43-00-990-808

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-00-440-801

3. Weather Radar (WXR) System - Activation

(Figure 201)

A. General

> **CAUTION**
> WHEN YOU OPERATE THE WEATHER RADAR FOR NON-TEST MODES, POINT THE NOSE OF THE AIRPLANE WHERE IT IS FREE OF LARGE METAL OBJECTS. KEEP THE FORWARD 180-DEGREE AREA CLEAR. THIS INCLUDES HANGARS, TRUCKS, OTHER AIRPLANES. THIS 300 FEET DISTANCE MUST BE CLEAR OR DAMAGE TO THE RECEIVER CAN OCCUR.

(1) This procedure adds electrical power to the Weather Radar system.

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Location Zones

Zone	Area
111	Radome
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-43-00-860-268

> **WARNING**
> DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

> **WARNING**
> DO NOT OPEN THE NOSE RADOME IF THE WIND IS MORE THAN 15 KNOTS. IF YOU OPEN THE NOSE RADOME IN A WIND, THE RADOME CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

> **WARNING**
> DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

NOTE: The hangar restriction DOES NOT apply to the weather radar test mode.

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-269

(2) Do the following steps at the WXR control panel:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Set mode select /power switch (as applicable) to the ON position.

(b) Push the TEST/TEST MODE switch on the control panel.

1) Make sure aural warnings are heard.

SUBTASK 34-43-00-010-001

(3) Remove the DO NOT OPERATE tag, STD-858 from the thrust levers.

——— END OF TASK ———

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

TASK 34-43-00-970-801

4. Flight History Data Download

A. General

(1) This procedure tells you how to download flight history data from the weather radar system (WXR) onto a portable Compact Flash card.

(2) A Honeywell programmed and formatted Compact Flash card is required to start the download sequence and record the data. The Compact Flash card (128 Mbytes minimum) must contain files:

- CFEVENT.BIN
- VALIDATE.TXT

(3) If a dual radar configuration is installed, it is possible to download fault and event history from the No.1 or No.2 processor.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

D. Procedure

SUBTASK 34-43-00-860-271

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-43-00-860-270

(2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-010-002

(3) On the weather radar processor, open the front panel access cover.

SUBTASK 34-43-00-480-001

(4) Insert the Compact Flash card into the memory card slot.

NOTE: The slot and the flash card are keyed, so the card will only fit into the slot in one direction.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-43-00-970-001

(5) Make sure the flight history download automatically starts.

(a) The LCD screen will display VALID CARD.

(b) The LCD screen will display WRITING EVENT RECORDS TO COMPACT FLASH.

SUBTASK 34-43-00-970-002

(6) When the flight history download is completed the LCD screen will display DOWNLOAD COMPLETE.

NOTE: The download process will take several minutes to complete.

SUBTASK 34-43-00-080-001

(7) Remove the Compact Flash card from the processor.

SUBTASK 34-43-00-410-002

(8) Close the panel access cover.

NOTE: The LCD screen should return to the RDR-4000 menu. If it does not, cycle power to the Weather Radar System.

SUBTASK 34-43-00-860-272

(9) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR (WXR) SYSTEM - ADJUSTMENT/TEST

1. **General**
   A. This procedure has these tasks:
      (1) An operational test of the Weather Radar (WXR) system.
      (2) A system test of the Weather Radar (WXR) system.

TASK 34-43-00-710-802-001

2. **Weather Radar (WXR) System - Operational Test**
   (Figure 501)

A. General

(1) The operational test uses the self-test circuits to make sure that the Weather Radar (WXR) system is serviceable.

(2) During the self test the WXR system operates as follows:

(a) The self-test menu executes and finds most system failures without additional test equipment.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999; AIRPLANES WITH PREDICTIVE WINDSHEAR

(b) The receiver/transmitter operates for 6 seconds.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 451, 452, 455, 456, 458-999

(c) A special test pattern with PWS icon is generated on the Captain's and First Officer's Display Unit (DU)s.

LOM 450, 457

(d) A special test pattern with PWS and hazard detection icons is generated on the Captain's and First Officer's DUs.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. WXR System Operational Test

SUBTASK 34-43-00-860-063-001

(1) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned to the NAV mode. To align it, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure that the ATT flags on the Captain's and First Officer's Primary Flight Display (PFD) are not in view.

SUBTASK 34-43-00-860-065-001

WARNING

DO NOT MOVE THE THRUST LEVER. THE MOVEMENT OF THE THRUST LEVER CAN CAUSE AUTOMATIC OPERATION OF THE PREDICTIVE WINDSHEAR SYSTEM. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-190-001

(3) Set the switches on the Captain's and the First Officer's Electronic Flight Instrument System (EFIS) control panels as follows:

(a) Set the left and right ADF/VOR control to OFF.

(b) Set the mode selector to VOR.

SUBTASK 34-43-00-860-235-001

(4) Set the SOURCE switch on the instrument switching module to the ALL ON 1 (ALL ON 2) position.

SUBTASK 34-43-00-860-291-001

(5) Make sure that the TEST switch/indicator light on the WXR control panel is off.

(a) Make sure that the TEST mode is off by the condition that follows:

NOTE: Use the condition that is applicable for your airplane configuration.

1) The TEST indicator light is off.

2) The TEST switch is not pushed in.

3) The selector knob is not turned to TEST.

SUBTASK 34-43-00-860-276-001

(6) Set the switches on the WXR control panel as follows:

(a) Set the LEFT WX mode select switch to the ON position.

(b) Set the RIGHT WX mode select switch to the ON position.

SUBTASK 34-43-00-860-278-001

WARNING

DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(WARNING PRECEDES)

> **WARNING** DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

(7) Push the WXR power switch on the Captain's and First Officer's EFIS control panels to the ON position.

NOTE: The hangar restriction DOES NOT apply to the weather radar TEST mode.

NOTE: The fuel spill warning DOES apply to the weather radar TEST mode.

SUBTASK 34-43-00-860-298-001

(8) Do these steps:

(a) Set “AUTO” switch on WXR control panel to OFF (out).

(b) Push the TEST switch on the WXR control panel.

NOTE: The conditions will take between 3 and 15 seconds to show.

1) Make sure that the aural warning “MONITOR RADAR DISPLAY” and “GO AROUND, WINDSHEAR AHEAD, WINDSHEAR AHEAD, WINDSHEAR AHEAD” are heard.

2) Make sure that WXR TEST shows on the Captain's and First Officer's DU (Figure 501).

(c) Set the SOURCE switch on the instrument switching module to the AUTO position.

1) Verify “0” (number 0) is displayed in the Weather Radar tilt field followed by a “M”.

(d) Set “AUTO” switch on WXR control panel to ON (in).

1) Verify “0” (number 0) is displayed in the Weather Radar tilt field followed by an “A”.

(e) Deselect “AUTO” switch on WXR control panel to OFF (out).

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-00-860-258

(1) Push the WXR power switch on the Captain's and the First Officer's EFIS control panels to the OFF position.

SUBTASK 34-43-00-860-289-001

(2) Set the SOURCE switch on the instrument switching module to AUTO position.

SUBTASK 34-43-00-860-259

(3) If the ADIRU is not necessary, set the ADIRU switch to the OFF position.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TEST PASS DISPLAY (EXAMPLE)

TEST FAIL DISPLAY (EXAMPLE)

1 PWS FAIL SHOWS FOR 3 SECONDS AND THEN GOES OFF

K31950 S0006576892_V4

Weather Radar Test and Fault Display
Figure 501/34-43-00-990-803-001 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TEST PASS DISPLAY (EXAMPLE)

TEST FAIL DISPLAY (EXAMPLE)

1 PWS FAIL SHOWS FOR 3 SECONDS AND THEN GOES OFF

2288929 S0000517685_V2

Weather Radar Test and Fault Display
Figure 501/34-43-00-990-803-001 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-00-730-802-001

3. Weather Radar (WXR) System - System Test

A. General

CAUTION

WHEN YOU OPERATE THE WEATHER RADAR FOR NON-TEST MODES, POINT THE NOSE OF THE AIRPLANE WHERE IT IS FREE OF LARGE METAL OBJECTS. KEEP THE FORWARD 180-DEGREE AREA CLEAR. THIS INCLUDES HANGARS, TRUCKS, OTHER AIRPLANES. THIS 300 FEET DISTANCE MUST BE CLEAR OR DAMAGE TO THE RECEIVER CAN OCCUR.

(1) The system test provides a complete test of the Weather Radar (WXR) system. For best results during radar scanning, the airplane should be pointed so the antenna sector scanned includes hills, mountains or structures of various heights in the distance.

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the System Test

SUBTASK 34-43-00-580-001-001

WARNING

DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

NOTE: The hangar restriction DOES NOT apply to the weather radar test mode.

(1) Point the airplane away from all large metal objects and to an open area.

NOTE: The antenna scan can include hills or mountains at different heights in the distance.

SUBTASK 34-43-00-860-161-001

(2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-43-00-860-162-001

(3) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned to the NAV mode. To align it, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(a) Make sure that the ATT flags on the Captains and First Officers Primary Flight Display (PFD) are not in view.

SUBTASK 34-43-00-860-163-001

(4) Set the switches on the Captain's and the First Officer's Electronic Flight Instrument System (EFIS) control panels as follows:

(a) Set the range selector to 40.

(b) Push the WXR switch to the ON position.

(c) Set the left and right ADF/VOR control to OFF.

(d) Set the mode selector to VOR.

(e) Push the CTR push-button as required.

1) Make sure that the Captain's and First Officer's Display Unit (DU) are in expanded scale.

SUBTASK 34-43-00-860-290-001

(5) Make sure that the TEST switch/indicator light on the WXR control panel is off.

(a) Make sure that the TEST mode is off by the condition that follows:

NOTE: Use the condition that is applicable for your airplane configuration.

1) The TEST indicator light is off.

2) The TEST switch is not pushed in.

3) The selector knob is not turned to TEST.

SUBTASK 34-43-00-730-143

(6) Set the switches on the WXR control panel as follows:

(a) Set “AUTO” tilt switch to OFF (out).

(b) Set the LEFT WX mode select switch to the ON position.

(c) Set the RIGHT WX mode select switch to the ON position.

(d) Set the LEFT TILT control to 0 degrees.

(e) Set the RIGHT TILT control to 0 degrees.

(f) Turn the left GAIN control to the 12 O’clock position.

(g) Turn the right GAIN control to the 12 O’clock position.

E. Mode Test

SUBTASK 34-43-00-730-144

(1) Set the switches on the WXR control panel as follows:

(a) Make sure that the mode messages are shown on the Captain's and First Officer's DU as given below:

1) Push the LEFT WX mode button.

a) Make sure that WXR shows on the Captain's DU.

2) Push the LEFT WX/T mode button.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

a) Make sure that WX-T shows on the Captain's DU.

3) Push the LEFT MAP mode button.

a) Make sure that MAP shows on the Captain's DU.

4) Repeat the above steps using the RIGHT MODE switches and the First Officer's DU.

F. Gain Test

SUBTASK 34-43-00-700-011-001

(1) Do the Gain Test.

NOTE: The full gain test will not be possible when there are no radar targets from weather, mountains or large buildings. When there are no targets, only the gain message part of this test will be done.

(a) Set the switches on the WXR control panel as follows:

1) Select the LEFT MAP mode switch.

a) Make sure that the mode message on the Captain's display shows MAP.

2) Adjust the LEFT TILT control to get good radar targets on the Captain’s DU.

3) Adjust the GAIN control as necessary to get a middle level of radar targets.

4) Adjust the LEFT GAIN control in the counterclockwise direction.

a) Make sure that the radar targets on the Captain’s display decrease in intensity.

5) Adjust the LEFT GAIN control in the clockwise direction.

a) Make sure that the radar targets on the Captain’s display increase in intensity.

6) Adjust the LEFT GAIN control to the 12 o’clock position.

a) Make sure that the gain message on the Captain’s display is blank.

7) Adjust the LEFT TILT control to 0 degrees.

8)) Repeat the above steps using the RIGHT WXR controls and the First Officer’s DU.

G. Antenna Tilt Test

SUBTASK 34-43-00-720-003-001

(1) Do the antenna tilt test.

(a) Do these steps to do the antenna tilt test:

1) Push the LEFT WX mode switch on the WXR control panel.

2) Select “AUTO” tilt switch on WXR control panel to OFF (out).

a) Verify “0” (number 0) is shown in the Weather Radar tilt field followed by the letter “M”.

3) Select “AUTO” tilt switch on WXR control panel to ON (in).

a) Verify a tilt angle is shown in the Weather Radar tilt field followed by the letter “A”. The tilt angle can be any number between -15 and +15.

4) Deselect “AUTO” tilt switch on WXR control panel to “OFF” (out).

5) Set the LEFT TILT control to 0 degrees.

a) Make sure that the tilt message on the Captain’s display shows the correct tilt angle +/- 0.5 degrees.

6) Set the range switch on the Captain’s EFIS control panel to adjust the radar returns in the center of the Captain’s DU.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

7) Adjust the LEFT GAIN control to get a mid-level intensity of radar targets.
8) Adjust the LEFT TILT control in steps from 0 to +5 degrees.
   a) Make sure that the tilt message on the Captain's DU shows the correct tilt angle +/- 1 degree.
   b) Make sure that the intensity of the close in targets on the Captain's display decrease.
9) Adjust the LEFT TILT control in steps from +5 to +15 degrees.
   a) Make sure that the tilt message on the Captain's DU shows the correct tilt angle +/- 2 degrees.
10) Return the LEFT TILT control to 0 degrees.
11) Adjust the LEFT TILT control in steps from 0 to -5 degrees.
   a) Make sure that the tilt message on the Captain's DU shows the correct tilt angle +/- 1 degree.
   b) Make sure that the intensity of the close in targets on the Captain's DU decrease.
12) Adjust the LEFT TILT control in steps from -5 to -15 degrees.
   a) Make sure that the tilt message on the Captain's DU shows the correct tilt angle +/- 2 degrees.
13) Set the LEFT TILT control to 0 degrees.
14) Set the LEFT GAIN control to 12 o'clock position.
15) Repeat the above test using the RIGHT system controls and the First Officer's DU.
16) When you have completed the above test for the RIGHT system controls and the First Officer's DU, do the steps that follow.
17) Set the display source to ALL ON 1 on the overhead P5-28 panel.
18) Push the TEST switch on the WXR control panel.
   a) Make sure that you see the following consecutive annunciations:
      <1> The amber windshear indication comes on the Navigation Display (ND) for less than 3 seconds, then goes off.
      <2> The red windshear indication comes on for approximately 9-12 seconds on the ND and PFD, then goes off.
      <3> The PWS FAIL indication comes on the ND for approximately 6-9 seconds, then goes off.
   b) Make sure that you hear the following aural annunciations:
      <1> MONITOR RADAR DISPLAY is annunciated for approximately 3 seconds.
      <2> GO AROUND, WINDSHEAR AHEAD, WINDSHEAR AHEAD, WINDSHEAR AHEAD, is annunciated for approximately 9-12 seconds.
   c) Make sure that the following is displayed on the weather radar display, for approximately 6-12 seconds:

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 451, 452, 455, 456, 458-999

<1> TEST PATTERN WITH PWS ICON.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 450, 457

<2> TEST PATTERN WITH PWS AND HAZARD ICONS.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

d) Make sure that WXR FAIL is not displayed on the Captain or First Officer DU.

19) Set the display source to ALL ON 2 on the overhead P5-28 panel.

20) Push the TEST switch on the WXR control panel.

a) Make sure that you see the following consecutive annunciations:

<1> The amber Windshear indication comes on the ND for less than 3 seconds, then goes off.

<2> The red windshear indication comes on for approximately 9-12 seconds on the ND and PFD, then goes off.

<3> The PWS FAIL comes on the ND for approximately 6-9 seconds, then goes off.

b) Make sure that you hear the following aural annunciations:

<1> MONITOR RADAR DISPLAY is annunciated for approximately 3 seconds.

<2> GO AROUND, WINDSHEAR AHEAD, WINDSHEAR AHEAD, WINDSHEAR AHEAD, is annunciated for approximately 9-12 seconds.

c) Make sure that the following is displayed on the WXR display, for approximately 6-12 seconds:

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 451, 452, 455, 456, 458-999

<1> TEST PATTERN WITH PWS ICON.

LOM 450, 457

<2> TEST PATTERN WITH PWS AND HAZARD ICONS.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

d) Make sure that both inboard DUs show WXR and TEST indications on the left side of the display.

e) Make sure that both inboard DUs show TEST in the weather radar mode field.

f) Make sure that “0” (number 0) is displayed in the WXR tilt field, followed by a “M.”

21) Select “AUTO” tilt switch on WXR control panel to ON (in).

a) Make sure that “0” (number 0) is displayed on the WXR tilt field, followed by “A.”

22) Deselect “AUTO” tilt switch on WXR control panel to “OFF” (out).

H. Ground Clutter Suppression Test

SUBTASK 34-43-00-730-137-001

(1) Do the ground clutter suppression test.

(a) Do the steps that follow:

1) Push the LEFT WX mode switch on the WXR control panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2) Adjust the LEFT TILT and LEFT GAIN controls on the WXR control panel to get good ground targets on the Captain's display.
3) On the WXR control panel, push and hold the LEFT GC switch to display ground clutter (in/on switch position).
   a) Make sure that the ground targets show on the Captain's display.
4) On the WXR control panel, release the LEFT GC switch to remove the display of ground clutter (out/off switch position).
   a) Make sure that the ground targets are removed from the Captain's display.
5) Set the LEFT TILT control to 0 degrees.
6) Set the LEFT GAIN control to the 12 o'clock position.
7) Repeat the above steps using the RIGHT WXR controls and the First Officer's display.

I. Split Function Test

SUBTASK 34-43-00-720-025

(1) Do the split function test.
   (a) Set the switches and the controls on the WXR control panel as follows:
      1) Select the LEFT WX mode switch.
      2) Adjust the LEFT TILT control to +5 degrees UP.
      3) Adjust the LEFT GAIN to 12 o'clock position.
      4) Select the RIGHT MAP mode switch.
      5) Adjust the RIGHT TILT control to 0 degrees.
      6) Adjust the RIGHT GAIN clockwise to 3 o'clock position.
   (b) Make sure that the Captain's display indications are as follows:
      1) A weather display shows.
      2) The mode message reads WXR.
      3) The tilt message reads +5 degrees.
      4) The gain message is blank.
   (c) Make sure that the First Officer's display indications are as follows:
      1) A map display shows.
      2) The mode message reads MAP.
      3) The tilt message read 0 degrees.
   (d) Push the LEFT TFR switch on the WXR control panel.
      1) Make sure that the Captain's display matches the First Officer's display:
         a) A map display shows.
         b) The mode message reads MAP.
         c) The tilt message reads 0 degrees.
   (e) Push the LEFT WX mode switch on the WXR control panel.
      1) Make sure that the Captain's returns to the LEFT preset conditions:
         a) A weather display shows.
         b) The mode message reads WXR.

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c) The tilt message reads +5 degrees.

d) The gain message is blank.

(f) Push the RIGHT TFR switch on the WXR control panel:

1) Make sure that the First Officer's display matches the Captain's display:

a) A weather display shows.

b) The mode message reads WXR.

c) The tilt message reads +5 degrees.

d) The gain message is blank.

(g) Push the RIGHT MAP mode switch on the WXR control panel.

1) Make sure that the First Officer's display returns to the RIGHT preset conditions:

a) A map display shows.

b) The mode message reads MAP.

c) The tilt message reads 0 degrees.

(h) Push the RIGHT WX mode switch on the WXR control panel.

(i) Set the LEFT TILT control to 0 degrees.

(j) Set the RIGHT GAIN control to 12 o'clock position.

J. WXR System Displays Test

SUBTASK 34-43-00-710-022-001

(1) Make sure that the WX power switches on the Captain's and First Officer's EFIS control panels are OFF.

(2) Push the LEFT WX and RIGHT WX mode switches on the WXR control panel.

SUBTASK 34-43-00-710-023-001

(3) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

SUBTASK 34-43-00-710-027-001

(4) Push the WXR power switch on the Captain's EFIS control panel to the ON position.

NOTE: Read through the indication sequence before proceeding to the next step. If necessary, you can do the test more than once to do a check of the indications.

SUBTASK 34-43-00-710-036-001

(5) Push the TEST switch on the WXR control panel.

SUBTASK 34-43-00-710-024-001

(6) Make sure that these indications occur:

NOTE: Anytime the Predictive Windshear System (PWS) automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR XCVR (Transceiver) switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

NOTE: All times are approximate.

(a) In 0-3 seconds:

1) An amber WINDSHEAR shows on the Captain's DU.

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2) The aural message MONITOR RADAR DISPLAY is heard on the flight deck warning speakers.

(b) In 3-9 seconds;

1) A PWS FAIL message shows on the Captain's DU.

(c) In 9-12 seconds;

1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers

2) The red WINDSHEAR shows on the Captains' DU.

(d) After 15 seconds:

1) Make sure that the special test pattern with PWS icon is painted on the Captain's DU is as follows (see Figure 501):

NOTE: The pattern need not begin at the origin. The size of each band and wedge of the pattern is not critical.

a) Make sure that the tilt angle on the DU reads 0.

b) Make sure that a WXR TEST message shows.

c) Make sure that the range arcs (marks) have equal space between them.

d) Make sure that the half range message shows in the center.

2) Turn the inner INBD DU BRT control knob on the Captains instrument panel (P1).

a) Make sure that there is a change in intensity of the test pattern on the Captain's Inboard (INBD) DU.

SUBTASK 34-43-00-710-025-001

(7) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

SUBTASK 34-43-00-710-034-001

(8) Push the WXR power switch on the First Officer's EFIS control panel to ON.

NOTE: Read through these indications before you do the test. If necessary, you can do the test more than once to do a check of the indications.

SUBTASK 34-43-00-710-035-001

(9) Push the TEST switch on the WXR control panel.

SUBTASK 34-43-00-710-026-001

(10) Make sure that these indications occur:

NOTE: Anytime the PWS automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR XCVR switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

NOTE: All times are approximate.

(a) In 0-3 seconds:

1) An amber WINDSHEAR shows on the First Officer's DU.

2) The aural message MONITOR RADAR DISPLAY is heard on the flight deck warning speakers.

(b) In 3-9 seconds;

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1) A PWS FAIL message shows ON the First Officer's DU.

(c) In 9-12 seconds;

1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers

2) The red WINDSHEAR shows on the First Officers' DU.

(d) After 15 seconds:

1) Make sure that the special test pattern with PWS icon is painted on the First Officer's DU is as follows (see Figure 501):

NOTE: The pattern need not begin at the origin. The size of each band and wedge of the pattern is not critical.

a) Make sure that the tilt angle on the DU reads 0.

b) Make sure that a WXR TEST message shows.

c) Make sure that the range arcs (marks) have equal space between them.

d) Make sure that the half range message shows in the center.

2) Turn the inner INBD DU BRT control knob on the First Officers instrument panel (P3).

a) Make sure that there is a change in intensity of the test pattern on the First Officer's INBD DU.

SUBTASK 34-43-00-860-230-001

(11) Set the SOURCE switch on the instrument switching module to the AUTO position.

(a) Make sure that the test pattern stays on the Captain's and First Officers DU.

SUBTASK 34-43-00-860-236-001

(12) Push the WXR switch on the Captain's EFIS control panel to the OFF position.

NOTE: These steps make sure of the correct operation of the WXR power switch on the First Officer's EFIS control panel.

(a) Make sure that the weather radar data does not show on the Captain's DU.

(b) Make sure that the test pattern stays on the First Officer's DU.

SUBTASK 34-43-00-860-237-001

(13) Push the WXR switch on the Captain's EFIS control panel to the ON position.

(a) Make sure that WXR FAIL does not show on the Captain's or First Officer's DU.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-00-860-169-001

(1) Push the WXR power switch on the Captain's and the First Officer's EFIS control panels to the off position.

SUBTASK 34-43-00-860-170-001

(2) If the ADIRU is not necessary, set the ADIRU switch to the OFF position.

END OF TASK

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WEATHER RADAR (WXR) SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An Operational Test

(2) A System Test.

TASK 34-43-00-710-803-002

2. Weather Radar (WXR) System - Operational Test

(Figure 501)

A. General

(1) The operational test uses the TEST MODE switch on the WXR control panel. In the TEST mode, the self test circuits monitor the performance of the weather radar system.

(2) During the self test the weather radar system operates as follows:

(a) It makes a test pattern which finds most system failures without test equipment.

(b) The WXR receiver/transmitter operates for 1 seconds.

(c) A special test pattern is made on the Display Units (DU).

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Weather Radar (WXR) System Operational Test

SUBTASK 34-43-00-860-145-002

(1) Make sure that the air data inertial reference unit (ADIRU) is aligned to the NAV mode. To align it, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(a) Make sure that the ATT flags on the captains and first officers Primary Flight Display (PFD) are not in view.

SUBTASK 34-43-00-860-146-002

(2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-147-002

(3) Set the switches on the captain's and first officer's EFIS control panels as follows:

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(a) Set the left and right ADF/VOR control to OFF.

(b) Set the mode selector to VOR.

SUBTASK 34-43-00-710-004-002

(4) Select TEST on the WXR control panel.

(a) Set the SOURCE switch on the instrument switching module to the ALL ON 1 (ALL ON 2) position.

WARNING	DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

WARNING	DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

(b) Push the WXR switch on the captain's (first officer's) EFIS control panel to the ON position.

NOTE: The hangar restriction DOES NOT apply to the weather radar test mode.

NOTE: The fuel spill or open fuel cell warning DOES apply to the weather radar test mode.

1) After 15 seconds:

a) Make sure that WXR TEST display on the captain's and first officer's display unit (DU) is as shown on Figure 501.

2) Set the SOURCE switch on the instrument switching module to the AUTO position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-00-860-299-002

(1) Push the WXR power switch on the Captain's and First Officer's EFIS control panels to the OFF position.

SUBTASK 34-43-00-860-300-002

(2) Set the SOURCE switch on the instrument switching module to AUTO position.

SUBTASK 34-43-00-860-301-002

(3) Set the ADIRU switch to the OFF position.

END OF TASK

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WXR DISPLAY LIMITS (EXAMPLE)

WXR DISPLAY LIMITS AND STATUS AND FAIL MESSAGES (EXAMPLE)

WXR TEST FAIL DISPLAY (EXAMPLE)

H60965 S0006576897_V2

Weather Radar Test and Fault Display
Figure 501/34-43-00-990-805-002 (Sheet 1 of 2)

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FAULT	TILT CODE
ATTITUDE - LEFT	-1
ATTITUDE - RIGHT	1
RADIO ALTITUDE - LEFT	-2
RADIO ALTITUDE - RIGHT	2
DADC - LEFT	-3
DADC - RIGHT	3
EFIS - LEFT	-4
EFIS - RIGHT	4
QUALIFIER REASONABLENESS	-5
PITCH/ROLL REASONABLENESS	-6
AIR/GROUND REASONABLENESS	-7
W/S INHIBIT INPUT	-8

WEATHER RADAR EXTERNAL FAULT
TILT CODES DURING WXR TEST

1340799 S0000237939_V1

Weather Radar Test and Fault Display
Figure 501/34-43-00-990-805-002 (Sheet 2 of 2)

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TASK 34-43-00-730-803-002

3. Weather Radar (WXR) System - System Test

A. General

(1) The system test provides an in-depth test of the weather radar system. For best test results during radar scanning, have the airplane pointed so the antenna sector scanned includes hills, mountains or structures of various heights in the distance.

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the System Test

SUBTASK 34-43-00-580-002-002

(1) Point the airplane away from all large metal objects and to an open area.

NOTE: The antenna scan should include hills or mountains at different heights in the distance.

SUBTASK 34-43-00-860-150-002

(2) Make sure the air data inertial reference unit (ADIRU) is aligned to the NAV mode. To align it, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(a) Make sure the ATT flags on the captains and first officers Primary Flight Display (PFD) are not in view.

SUBTASK 34-43-00-860-263

(3) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-151-002

(4) Set the switches on the captain's and the first officer's EFIS control panels as follows:

(a) Set the range selector to 40.

WARNING

DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(WARNING PRECEDES)

> **WARNING** DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

(b) Push the WXR switch to the ON position.

NOTE: The hangar restriction DOES NOT apply to the weather radar test mode.

NOTE: The fuel spill or open fuel cell warning DOES apply to the weather radar test mode.

(c) Set the left and right ADF/VOR control to OFF.

(d) Set the mode selector to VOR.

(e) Push the CTR push-button as required.

1) Make sure the Captain and First Officer display unit (DU)s are in expanded scale.

SUBTASK 34-43-00-860-228-002

(5) Set the switches on the WXR control panel as follows:

(a) Set the TILT control to 0 degrees.

(b) Set the GAIN control to AUTO.

E. Mode Test

SUBTASK 34-43-00-730-136-002

(1) Set the controls on the WXR control panel as follows:

(a) Set the switches on the WXR control panel as follows:

1) Turn the MODE switch to the WX position.

a) Make sure that WX shows on the Captain's (First Officer's) display (DU).

2) Turn the Mode switch to the WX/TURB position.

a) Make sure that WX+T shows on the Captain's (First Officer's) display unit (DU).

3) Turn the Mode switch to the MAP position.

a) Make sure that MAP shows on the Captain's (First Officer's) display unit (DU).

F. Gain Test

SUBTASK 34-43-00-700-018-002

(1) Do the Gain Test.

NOTE: The full gain test will not be possible when there are no radar targets from weather, mountains or large buildings. When there are no targets, only the gain message part of this test will be done.

(a) Set the switches on the WXR control panel as follows:

1) Select MAP mode switch on the WXR control panel.

2) Turn the TILT control to get good radar targets on Captain's (First Officer's) each display unit (DU).

3) Turn the GAIN control as necessary to get a middle level of radar targets.

a) Make sure the Captain's (First Officer's) mode message reads VAR/MAP.

4) Turn the GAIN control counterclockwise.

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a) Make sure the radar targets on the Captain's (First Officer's) display unit (DU) decrease in intensity.

5) Turn the GAIN control clockwise.

a) Make sure the radar returns increase in intensity on the Captain's (First Officer's) display unit (DU).

6) Turn the GAIN control knob to the AUTO position.

a) Make sure VAR is OFF on the Captain's (First Officer's) display unit (DU).

7) Turn the TILT control to 0 degrees.

G. Antenna Tilt Test

SUBTASK 34-43-00-720-017-002

(1) Do the antenna tilt test.

(a) Do the following:

1) Turn the MODE switch to WX on the WXR control panel.

2) Set the range switch on the EFIS control panel to adjust the radar returns in the center of the Captain's (First Officer's) display unit (DU).

3) Turn the TILT control to get good radar targets on the captain's (first officer's) display unit (DU).

a) Make sure the tilt messages on the Captain's (First Officer's) display unit (DU) shows the correct tilt angle ±0.5 degrees.

4) Turn the TILT control in steps from 0 to +4.75 degrees.

a) Make sure the tilt messages on the captain's (first officer's) display unit (DU) show the correct tilt angle ±1 degree.

b) Make sure the intensity of the close-in targets on the captain's (first officer's) display unit (DU)s decrease.

5) Turn the antenna TILT control in steps from +5 to 15.00 degrees.

a) Make sure the tilt messages on the captain's (first officer's) display show the correct tilt angle ±2 degree.

6) Turn the TILT control to 0 degrees.

7) Turn the TILT control in steps from 0 to -4.75 degrees.

a) Make sure the tilt messages on the captain's (first officer's) display unit (DU) show the correct tilt angle ±1 degree.

b) Make sure the intensity of the close-in targets on the captain's (first officer's) display unit (DU)s increase.

8) Turn the antenna TILT control in steps from -5 to -15.00 degrees.

a) Make sure the tilt messages on the captain's (first officer's) display unit (DU) show the correct tilt angle ±2 degrees.

9) Turn the TILT control to 0 degree.

H. WXR System Displays Test

SUBTASK 34-43-00-710-018-002

(1) Select TEST on the WXR control panel.

SUBTASK 34-43-00-710-019-002

(2) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

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SUBTASK 34-43-00-710-005-002

(3) Push the WXR power switch on the Captain's EFIS control panel to the ON position.

LOM 411, 432; AIRPLANES WITH PREDICTIVE WINDSHEAR

(a) Make sure these indications occur:

NOTE: Read through these indications before you do the test. If necessary, you can do the test more than once to do a check of the indications.

NOTE: Anytime the PWS automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR Transceiver (XCVR) switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

NOTE: All times are approximate.

LOM 411, 432

(b) Make sure these indications occur in 0-3 seconds:

1) PWS FAIL shows on the Captain's display.

(c) Make sure these indications occur in 6-9 seconds;

1) Amber WINDSHEAR shows on the Captain's display unit (DU).

2) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers.

(d) Make sure these indications occur in 9-12 seconds;

1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers

2) Red WINDSHEAR shows on the Captain display unit (DU).

(e) After 15 seconds:

1) Make sure the weather radar test display on the Captain's display unit (DU) has a green-yellow-red-magenta is displayed.

NOTE: A magenta wedge will appear in the middle of the test pattern. The pattern needs not begin at the origin. The size of each band and wedge of the pattern is not critical.

2) Make sure the tilt code on the DUs display 0 plus or minus one degree in the weather radar tilt field

3) Turn the inner INBD DU BRT control knob on the captains instrument panel (P1/P3).

a) Make sure there is a change in intensity of the test pattern on the captains INBD DU.

SUBTASK 34-43-00-710-020-002

(4) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

SUBTASK 34-43-00-710-021-002

(5) Push the WXR power switch on the First Officers's EFIS control panel to the ON position.

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LOM 411, 432; AIRPLANES WITH PREDICTIVE WINDSHEAR

(a) Make sure these indications occur:

NOTE: Read through these indications before you do the test. If necessary, you can do the test more than once to do a check of the indications.

NOTE: Anytime the PWS automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR Transceiver (XCVR) switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

NOTE: All times are approximate.

LOM 411, 432

(b) Make sure these indications occur in 0-3 seconds:

1) PWS FAIL shows on the First Officers display unit (DU).

(c) Make sure these indications occur in 6-9 seconds;

1) Amber WINDSHEAR shows on the First Officer's display unit (DU).

2) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers.

(d) Make sure these indications occur in 9-12 seconds;

1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers

2) Red WINDSHEAR shows on the First Officer display unit (DU)

(e) After 15 seconds:

1) Make sure the weather radar test display on the First Officer's display unit (DU) has a green-yellow-red-magenta is displayed.

NOTE: A magenta wedge will appear in the middle of the test pattern. The pattern needs not begin at the origin. The size of each band and wedge of the pattern is not critical.

2) Make sure the tilt code on the DUs display 0 plus or minus one degree in the weather radar tilt field

3) Turn the inner INBD DU BRT control knob on the first officers instrument panel (P1/P3).

a) Make sure there is a change in intensity of the test pattern on the first officers INBD DU.

SUBTASK 34-43-00-860-154-002

(6) Set the SOURCE switch on the instrument switching module to the AUTO position.

(a) Make sure the test pattern stays on the Captain's and First Officers display units (DUs).

I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-00-860-156-002

(1) Push the WXR switch on the captain's and the first officer's EFIS control panels to the off position.

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SUBTASK 34-43-00-860-157-002

(2) If the air data inertial reference unit (ADIRU) is not necessary, set the ADIRU switch to the OFF position.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR (WRX) SYSTEM - ADJUSTMENT/TEST

1. **General**

A. This procedure has these tasks:

(1) An Operational Test

(2) A System Test.

TASK 34-43-00-710-804-003

2. **Weather Radar (WXR) System - Operational Test**

Figure 501

A. General

(1) The operational test uses the TEST MODE switch on the WXR control panel. In the TEST mode, the self test circuits monitor the performance of the weather radar system.

(2) During the self test the weather radar system operates as follows:

(a) It makes a test pattern which finds most system failures without test equipment.

(b) The WXR receiver/transmitter operates for 1 second.

(c) A special test pattern is made on the Display Units (DU).

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Weather Radar (WXR) System Operational Test

SUBTASK 34-43-00-860-245-003

(1) Make sure that the air data inertial reference unit (ADIRU) is aligned to the NAV mode.

(a) If necessary, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(b) Make sure that the ATT flags on the captains and first officers Primary Flight Display (PFD) are not in view.

SUBTASK 34-43-00-860-257

(2) Set the DISPLAY SOURCE switch, on the instrument switching module P5-28, to ALL ON 1 (ALL ON 2) position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-43-00-860-246-003

(3) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-247-003

(4) Set the switches on the captain's and the first officer's EFIS control panels as follows:

(a) Set the left and right ADF/VOR control to OFF.

(b) Set the mode selector to VOR.

WARNING DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

WARNING DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

(c) Push the WXR switch to the ON position.

NOTE: The hangar restriction DOES NOT apply to the weather radar test mode.

NOTE: The fuel spill or open fuel cell warning DOES apply to the weather radar test mode.

SUBTASK 34-43-00-710-030

(5) Select TEST on the WXR control panel.

NOTE: Read through these indications before you do the test. All times are approximate and if necessary, do this test again to check all indications.

NOTE: Anytime the predictive windshear (PWS) automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR Radar Processor switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

(6) Make sure that these indications occur:

(a) Make sure that these indications occur in 0-3 seconds:

1) PWS FAIL shows on the Captain's and First Officer's display units (DUs)

2) The TEST pattern shows on the Captain's and First Officer's DUs.

(b) Make sure that these indications occur in 3-9 seconds:

1) PWS FAIL annunciation not shown on the Captain's and First Officer's DUs

NOTE: If a fault is detected, the FAIL annunciation will stay on.

2) Amber WINDSHEAR shows on the Captain's and First Officer's DUs

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3) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers

4) The TEST pattern continues to show on the Captain's and First Officer's DUs.

(c) Make sure that these indications occur in 9-12 seconds:

1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers

2) Red WINDSHEAR shows on the Captain's and First Officer's DUs

3) The TEST pattern continues to show on the Captain's and First Officer's DUs.

(d) Make sure that the WXR TEST is displayed on the Captain’s and First Officer’s display unit (DU) as shown in Figure 501.

NOTE: This test will complete in approximately 50 seconds.

NOTE: “TEST COMPLETE” label will show on the display units at the completion of this test.

(e) If WXR FAIL shows on the DUs, do a check for Current Faults on the radar processor (RP) LCD.

SUBTASK 34-43-00-860-302-003

(7) Push the WXR power switch on the Captain's and First Officer's EFIS control panels to the OFF position.

SUBTASK 34-43-00-840-003

(8) If the air data inertial reference unit (ADIRU) is not necessary, set the ADIRU switch to the OFF position.

SUBTASK 34-43-00-860-303-003

(9) Set the DISPLAY SOURCE switch, on the instrumental switching module P5-28, to the AUTO position.

END OF TASK

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ND WXR DISPLAY LIMITS

ND WXR DISPLAY LIMITS AND STATUS AND FAIL MESSAGES

ND WXR TEST FAIL DISPLAY (EXAMPLE)

2124279 S0000458147_V2

Weather Radar Test and Fault Display
Figure 501/34-43-00-990-807

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TASK 34-43-00-730-804-003

3. Weather Radar (WXR) System - System Test

A. General

(1) The system test provides a complete test of the weather radar (WXR) system. For best results during radar scanning, airplane should point towards hills, mountains or structures of various heights in distance.

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the System Test

SUBTASK 34-43-00-580-003

(1) Point the airplane away from all large metal objects and to an open area.

NOTE: The antenna scan should include hills or mountains at different heights in distance.

SUBTASK 34-43-00-860-251-003

(2) Make sure the air data inertial reference unit (ADIRU) is aligned to the NAV mode. To align it, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(a) Make sure the ATT flags on the Captain's and First Officer's Primary Flight Display (PFD) are not in view.

SUBTASK 34-43-00-860-262

(3) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-00-860-252-003

(4) Set the switches on the Captain's and the First Officer's EFIS control panels as follows:

(a) Set the range selector to 40.

WARNING

DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

> **WARNING** DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

(b) Push the WXR switch to the ON position.

NOTE: The hangar restriction DOES NOT apply to the weather radar test mode.

NOTE: The fuel spill or open fuel cell warning DOES apply to the weather radar test mode.

(c) Set the left and right ADF/VOR control to OFF.

(d) Set the mode selector to VOR.

(e) Push the CTR push-button as required.

1) Make sure that the Captain's and First Officer's display units (DUs) are in expanded scale.

SUBTASK 34-43-00-860-253

(5) Set the switches on the WXR control panel as follows:

(a) Set System Control knob to NORM.

(b) Set the two MODE knobs to MAN (manual).

(c) Set the two GAIN knobs to CAL.

E. Mode Test

SUBTASK 34-43-00-720-027

(1) Select these positions with the Weather Radar Control Panel Mode knob.

(a) Make sure that the mode messages are shown on the display units (DUs) as given below:

1) Rotate the MODE knobs to the MAN position.

a) Make sure that WX-M appears on the Captain's and First Officer's DUs.

2) Rotate the MODE knobs to the AUTO position.

a) Make sure that WX-A appears on the Captain's and First Officer's DUs.

3) Rotate the MODE knobs to the MAP position.

a) Make sure that MAP appears on the Captain's and First Officer's DUs.

F. Gain Test

SUBTASK 34-43-00-720-028

(1) Do the following steps for Gain Test:

NOTE: The full gain test will not be possible when there are no radar targets from weather, mountains or large buildings. When there are no targets, only the gain message part of this test will be done.

(a) Set the System Control knob to NORM.

(b) Set the two MODE knobs to the MAP position.

(c) Turn the two GAIN knobs out of the CAL position toward MIN to get a middle level of radar targets.

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1) Make sure that the Captain's and First Officer's display units (DUs) mode message reads VAR.

2) Make sure the radar targets intensity decreases on each DU.

(d) Turn the two GAIN knobs to the MAX position.

1) Make sure the radar targets intensity increases on each DU.

(e) Set the two GAIN knobs to the CAL position.

1) Make sure that the mode message VAR is OFF on the DUs.

G. Antenna Altitude Test

SUBTASK 34-43-00-720-029

(1) Do the following steps for antenna altitude test:

(a) Set both MODE knobs to the MAN position.

(b) Set the range switch on the EFIS control panel to adjust the radar returns in the center of each display unit (DU).

(c) Set the System Control knob to NORM.

(d) Make sure that WX-M is displayed on the DUs.

(e) Turn the ALT knobs in 1000 feet increments from 0 to 60o.

1) Make sure that the altitude annunciation on the Captain's and First Officer's DUs show the correct altitude.

2) Make sure that secondary returns (returns with black 45 degree lines through them) are not displayed.

H. WXR System Displays Test

SUBTASK 34-43-00-860-254

(1) Set the DISPLAY SOURCE switch on the instrument switching module (P5-28) to the ALL ON 1 position.

SUBTASK 34-43-00-720-030

(2) Do the following on the WXR control panel.

(a) Rotate the System Control knob to the NORM position and then back to the TEST position to start the test.

NOTE: Read through these indications before you do the test. All times are approximate and if necessary, do this test again to check all indications

NOTE: Anytime the predictive windshear (PWS) automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR Radar Processor switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

(3) Make sure that these indications occur:

(a) Make sure that these indications occur in 0-3 seconds:

1) PWS FAIL shows on the Captain's display unit (DU).

2) The TEST pattern shows on the Captain's DU.

(b) Make sure that these indications occur in 3-9 seconds;

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1) PWS FAIL annunciation not shown on the Captain's DU.

NOTE: If a fault is detected, the FAIL annunciation will stay on.

2) Amber WINDSHEAR shows on the Captain's DU.

3) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers.

4) The TEST pattern continues to show on the Captain's DU.

(c) Make sure that these indications occur in 9-12 seconds;

1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers

2) Red WINDSHEAR shows on the Captain's DU.

3) The TEST pattern continues to show on the Captain's DU.

(d) After approximately 50 seconds:

1) Make sure the green-yellow-red-magenta color test results is displayed on the Captain's DU.

NOTE: “TEST COMPLETE” label will show on the display units at the completion of this test.

2) Make sure that WXR and TEST show on the left side of the Captain's DU.

3) Make sure that TEST shows in the weather radar mode field.

4) Make sure that 00o is shown in the weather radar altitude field.

5) Turn the inner INBD DU BRT control knob on the Captain's instrument panel (P1).

a) Make sure that there is a change in intensity of the test pattern on the Captain's INBD DU.

6) If WXR FAIL shows on the Captain's DU, do a check for Current Faults on the radar processor (RP) LCD.

SUBTASK 34-43-00-860-261

(4) Set the DISPLAY SOURCE switch on the instrument switching module (P5-28) to the ALL ON 2 position.

SUBTASK 34-43-00-720-032

(5) Do the following on the WXR control panel.

(a) Rotate the System Control knob to the NORM position and then back to the TEST position to start the test.

NOTE: Read through these indications before you do the test. All times are approximate and if necessary, do this test again to check all indications

NOTE: Anytime the predictive windshear (PWS) automatic activation criteria are active or the airplane is in the air, no flight deck effects of the PWS will show when you do the WXR test. If the WXR is in the test mode and an actual PWS alert occurs, the WXR Radar Processor switches to the WXR mode and shows a WXR return and PWS icon data on the map display with the WXR mode annunciation. As a result, no valid PWS icons will show with the WXR TEST pattern. If the mode switch on the WXR control panel is still in the TEST position, the WXR will go back to the test pattern on the map display when the PWS alert stops.

(6) Make sure that these indications occur:

(a) Make sure that these indications occur in 0-3 seconds:

1) PWS FAIL shows on the First Officer's display unit (DU).

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2) The TEST pattern shows on the First Officer'sDU.

(b) Make sure that these indications occur in 3-9 seconds;

1) PWS FAIL annunciation not shown on the First Officer's DU.

NOTE: If a fault is detected, the FAIL annunciation will stay on.

2) Amber WINDSHEAR shows on the First Officer's DU.

3) MONITOR RADAR DISPLAY is heard on the flight deck aural warning speakers.

4) The TEST pattern continues to show on the First Officer's DU.

(c) Make sure that these indications occur in 9-12 seconds;

1) GO AROUND, WINDSHEAR AHEAD, (pause) WINDSHEAR AHEAD, WINDSHEAR AHEAD is heard on the flight deck aural warning speakers

2) Red WINDSHEAR shows on the First Officer's DU.

3) The TEST pattern continues to show on the First Officer's DU.

(d) After Approximately 50 seconds:

1) Make sure the green-yellow-red-magenta color test results is displayed on the First Officer's DU.

NOTE: “TEST COMPLETE” label will show on the display units at the completion of this test.

2) Make sure that WXR and TEST show on the left side of the First Officer's DU.

3) Make sure that TEST shows in the weather radar mode field.

4) Make sure that 00o is shown in the weather radar altitude field.

5) Turn the inner INBD DU BRT control knob on the First Officer's instrument panel (P3).

a) Make sure that there is a change in intensity of the test pattern on the First Officer's INBD DU.

6) If WXR FAIL shows on the First Officer's DU, do a check for Current Faults on the radar processor (RP) LCD.

SUBTASK 34-43-00-700-026

(7) Set the DISPLAY SOURCE switch on the instrument switching module (P5-28) to the AUTO position.

(a) Make sure that the test pattern stays on the Captain's and First Officer's DUs.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-00-840-001

(1) Push the WXR switch on the Captain's and the First Officer's EFIS control panels to the off position.

SUBTASK 34-43-00-840-002

(2) If the air data inertial reference unit (ADIRU) is not necessary, set the ADIRU switch to the OFF position.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR RECEIVER/TRANSMITTER MOUNT FILTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the receiver/transmitter (R/T) mount filter

(2) An installation of the R/T mount filter.

B. The filters are part of the R/T mount attached to the rear of the mount.

TASK 34-43-09-000-801

2. Weather Radar Receiver/Transmitter Mount Filter Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112A	Forward Access Door

C. Weather Radar Receiver/Transmitter Mount Filter Removal

SUBTASK 34-43-09-010-004

(1) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-09-000-001

(2) Do these steps to remove the receiver/transmitter mount filter [1]:

(a) Loosen the two knobs [2] on the receiver/transmitter mount filter [1].

(b) Remove the receiver/transmitter mount filter [1] from the filter bracket.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

H51596 S0006576902_V3

Weather Radar Receiver/Transmitter Mount Filter Installation
Figure 401/34-43-09-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-09-400-801

3. Weather Radar Receiver/Transmitter Mount Filter Installation

(Figure 401)

A. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Receiver/transmitter mount filter	34-43-31-01-060	LOM 411, 432

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Weather Radar Receiver/Transmitter Mount Filter Installation

SUBTASK 34-43-09-020-001

(1) Do these steps to install the receiver/transmitter mount filter [1]:

(a) Put the receiver/transmitter mount filter [1] in the filter bracket.

(b) Tighten the two knobs [2] on the receiver/transmitter mount filter [1].

SUBTASK 34-43-09-410-003

(2) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR RECEIVER/TRANSMITTER MOUNT FILTER - CLEANING/PAINTING

1. General

A. This procedure has one task:

(1) The cleaning of the weather radar receiver/transmitter (R/T) mount filter.

B. The R/T mount filer is located on the rear of the R/T mount.

TASK 34-43-09-100-801

2. Weather Radar R/T Mount Filter Cleaning

A. References

Reference	Title
34-43-09-000-801	Weather Radar Receiver/Transmitter Mount Filter Removal (P/B 401)
34-43-09-400-801	Weather Radar Receiver/Transmitter Mount Filter Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Procedure

SUBTASK 34-43-09-010-001

(1) Do this task: Weather Radar Receiver/Transmitter Mount Filter Removal, TASK 34-43-09-000-801.

SUBTASK 34-43-09-100-001

(2) Clean the weather radar R/T mount filter.

(a) Clean the filter in a container with general purpose household detergent cleaner, B00541 mixed with water.

(b) Dry the filter by blowing out all moisture with clean, dry air supply.

SUBTASK 34-43-09-010-002

(3) Do this task: Weather Radar Receiver/Transmitter Mount Filter Installation, TASK 34-43-09-400-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR PROCESSOR MOUNT FAN FILTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the radar processor (RP) mount fan filter

(2) An installation of the RP mount fan filter.

B. The filter is part of the RP mount fan assembly attached to the mount tray.

TASK 34-43-10-000-801

2. Weather Radar Processor Mount Fan Filter Removal

Figure 401

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

B. Access Panels

Number	Name/Location
112A	Forward Access Door

C. Removal Procedure

SUBTASK 34-43-10-860-004

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-10-010-001

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-10-000-001

(3) Do these steps to remove the RP mount fan air filter [1]:

(a) Loosen the clamp [3] at the bottom of the air filter [1].

(b) Carefully pull the air filter up from the air tube [2].

——— END OF TASK ———

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Weather Radar Processor Mount Fan Filter Installation
Figure 401/34-43-10-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-10-400-801

3. Weather Radar Processor Mount Fan Filter Installation

Figure 401

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

B. Access Panels

Number	Name/Location
112A	Forward Access Door

C. Installation Procedure

SUBTASK 34-43-10-860-001

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-10-400-001

(2) Do these steps to install the RP mount fan air filter [1]:

(a) Put the air filter [1] on the air tube [2].

(b) Tighten the clamp [3] at the bottom of the air filter [1].

D. Installation Test

SUBTASK 34-43-10-860-002

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-10-700-001

(2) Make sure that the mount fan operates

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-10-410-001

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR PROCESSOR MOUNT FAN FILTER - CLEANING

1. General

A. This procedure has one task:

(1) The cleaning of the weather radar processor (RP) mount fan filter.

B. The RP mount fan filter is on the mount fan assembly located on the RP mount.

TASK 34-43-10-100-801

2. Weather Radar Processor Mount Fan Filter Cleaning

A. References

Reference	Title
34-43-10-000-801	Weather Radar Processor Mount Fan Filter Removal (P/B 401)
34-43-10-400-801	Weather Radar Processor Mount Fan Filter Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-77	Air Source, Regulated - Dry Filtered, 0-50 psig

C. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Weather Radar Processor Mount Fan Filter Cleaning

SUBTASK 34-43-10-020-001

(1) Do this task: Weather Radar Processor Mount Fan Filter Removal, TASK 34-43-10-000-801.

SUBTASK 34-43-10-100-001

(2) Clean the weather radar RP mount fan filter.

(a) Clean the filter in a container with general purpose household detergent cleaner, B00541 mixed with hot water.

(b) Dry the filter with regulated air source, STD-77.

NOTE: The air pressure must be between 25 and 28 psi (172-193 kPa).

SUBTASK 34-43-10-420-001

(3) Do this task: Weather Radar Processor Mount Fan Filter Installation, TASK 34-43-10-400-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the Weather Radar Antenna Flat Plate

(2) A removal of the Weather Radar Antenna Drive Unit

(3) An installation of the Weather Radar Antenna Flat Plate

(4) An installation of the Weather Radar Antenna Drive Unit

(5) An installation test of the Weather Radar Antenna.

B. The Weather Radar Antenna is located in the radome. Antenna Flat Plate is part of the Weather Radar Antenna.

TASK 34-43-11-000-801

2. Weather Radar Antenna Flat Plate Removal

(Figure 401)

A. References

Reference	Title
53-52-00-010-802	Nose Radome - Open (P/B 201)

B. Location Zones

Zone	Area
111	Radome

C. Access Panels

Number	Name/Location
111	Radome

D. Weather Radar Antenna Flat Plate Removal

SUBTASK 34-43-11-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-020-001

(2) Open this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Open, TASK 53-52-00-010-802.

LOM 411, 432

SUBTASK 34-43-11-020-002

(3) Do these steps to remove the weather radar antenna flat plate [4]:

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LOM 411, 432 (Continued)

> **CAUTION** DURING THE ANTENNA FLAT PLATE REMOVAL, MAKE SURE THAT THE ANTENNA DRIVE UNIT DOES NOT MOVE. REMOVE THE ANTENNA FLAT PLATE CAREFULLY TO PREVENT DAMAGE TO THE EQUIPMENT.

(a) Remove the screws [9] and washers [10] from the waveguide flange [12].

(b) Remove the screws [7] and washers [8] from the flat plate ring mount [13].

> **WARNING** USE TWO PERSONS AND A WORKSTAND DURING REMOVAL AND INSTALLATION OF THE ANTENNA FLAT PLATE. THE ANTENNA FLAT PLATE WEIGHS APPROXIMATELY 7 POUNDS (3.2 KG). REMOVE AND INSTALL THE ANTENNA FLAT PLATE CAREFULLY TO PREVENT INJURY TO PERSON OR DAMAGE TO THE EQUIPMENT.

(c) Remove the antenna flat plate [4].

(d) Install the dust caps on end of the waveguide flange [12].

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-11-020-008

(4) Remove the antenna flat plate [4].

(a) Remove the lockwire from the clamp jaw bolts [22] on the antenna drive unit [5].

> **CAUTION** DO NOT MOVE THE RING CLAMP ON THE ELEVATION ZERO MONITOR. THIS CAN CAUSE THE WXR ANTENNA TO OPERATE INCORRECTLY.

(b) Turn the clamp jaw bolts [22] counterclockwise to open the clamp jaws [23].

> **WARNING** USE TWO PERSONS AND A SAFELY INSTALLED WORKSTAND. THIS WILL PREVENT INJURY TO YOU OR DAMAGE TO THE WXR ANTENNA.

(c) Carefully lift the antenna flat plate [4] away from the antenna drive unit [5].

1) Make sure that the ring clamp on the elevation zero monitor does not block or touch the antenna flat plate.

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-11-020-010

(5) Do these steps to remove the weather radar antenna flat plate [4]:

(a) Loosen the four captive screws [7] that attach the antenna flat plate [4] to the antenna drive unit [5].

> **WARNING** USE TWO PERSONS AND A SAFELY INSTALLED WORKSTAND. THIS WILL PREVENT INJURY TO YOU OR DAMAGE TO THE WXR ANTENNA.

(b) Remove the antenna flat plate [4].

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(c) Install the dust caps on end of the waveguide.

LOM ALL

SUBTASK 34-43-11-020-009

(6) If it is necessary to remove the antenna drive unit [5] after the antenna flat plate [4] is removed, do this task: Weather Radar Antenna Drive Unit Removal, TASK 34-43-11-000-802.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Weather Radar Antenna Installation
Figure 401/34-43-11-990-801 (Sheet 1 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1302839 S0000225122_V3

Weather Radar Antenna Installation
Figure 401/34-43-11-990-801 (Sheet 2 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1566862 S0000290005_V2

Weather Radar Antenna Installation
Figure 401/34-43-11-990-801 (Sheet 3 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1566764 S0000290003_V2

Weather Radar Antenna Installation
Figure 401/34-43-11-990-801 (Sheet 4 of 4)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-11-400-801

3. Weather Radar Antenna Flat Plate Installation

(Figure 401)

A. References

Reference	Title
34-43-00-710-802-001	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-00-710-804-003	Weather Radar (WXR) System - Operational Test (P/B 501)
53-52-00-010-802	Nose Radome - Open (P/B 201)
53-52-00-410-802	Nose Radome - Close (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Antenna flat plate	34-43-11-03-020	LOM 411, 432
		34-43-11-03-042	LOM 411, 432
		34-43-11-06-025	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 451, 452, 455, 456, 458-999
		34-43-11-08-020	LOM 450, 457
		34-43-11-09-030	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

C. Location Zones

Zone	Area
111	Radome

D. Access Panels

Number	Name/Location
111	Radome

E. Weather Radar Antenna Flat Plate Installation

SUBTASK 34-43-11-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-420-001

(2) If closed, open this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Open, TASK 53-52-00-010-802.

LOM 411, 432

SUBTASK 34-43-11-420-002

(3) Do these steps to install the weather radar antenna flat plate [4]:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 432 (Continued)

(a) Remove dust cap from the waveguide flange.

> **WARNING** USE TWO PERSONS AND A WORKSTAND DURING REMOVAL AND INSTALLATION OF THE ANTENNA FLAT PLATE. THE ANTENNA FLAT PLATE WEIGHS APPROXIMATELY 7 POUNDS (3.2 KG). REMOVE AND INSTALL THE ANTENNA FLAT PLATE CAREFULLY TO PREVENT INJURY TO PERSON OR DAMAGE TO THE EQUIPMENT.

(b) Install the antenna flat plate [4] to the flat plate ring mount.

(c) Install the screws [7] and washers [8] on the flat plate ring mount [13].

(d) Tighten the screws [7] to 20 in-lb (2.3 N·m) - 23 in-lb (2.6 N·m).

(e) Align the waveguide flange [12] to flat plate waveguide flange [11].

(f) Install the screws [9] and washers [10].

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-11-420-005

(4) Install the antenna flat plate [4].

> **CAUTION** DO NOT MOVE THE RING CLAMP ON THE ELEVATION ZERO MONITOR. THIS CAN CAUSE THE WXR ANTENNA TO OPERATE INCORRECTLY.

(a) Turn the clamp jaw bolts [22] on the antenna drive unit [5] counterclockwise to open the clamp jaws [23].

> **WARNING** USE TWO PERSONS AND A SAFELY INSTALLED WORKSTAND. THIS WILL PREVENT INJURY TO YOU OR DAMAGE TO THE WXR ANTENNA.

(b) Put the antenna flat plate [4] in the correct position, the flat plate mounting flange [20] on the drive unit mounting flange [21].

1) Make sure that the guide pins on the drive unit mounting flange engage the holes on the flat plate mounting flange.

2) Make sure that the ring clamp on the elevation zero monitor does not block or touch the antenna flat plate [4].

(c) Tighten each clamp jaw bolt [22] to approximately 20 in-lb (2.3 N·m).

(d) Install lockwire between the heads of the clamp jaw bolts [22].

(e) If installed, make sure that the elevation zero monitor dial window shows zero degrees.

NOTE: Not all antenna drive units have an elevation zero monitor dial window installed. It is not necessary to do a check of the elevation angle as the alignment process is automatic.

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-11-420-006

(5) Do these steps to install the weather radar antenna flat plate [4].

(a) Remove dust cap from the drive unit waveguide [15].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING

USE TWO PERSONS AND A SAFELY INSTALLED WORKSTAND. THIS WILL PREVENT INJURY TO YOU OR DAMAGE TO THE WXR ANTENNA.

(b) Put the antenna flat plate [4] in the correct position on the antenna drive unit [5] mount.

1) Make sure that the guide pins [16] on the drive unit mount engage the holes in the flat plate mount.

2) Make sure that the drive unit waveguide [15] engages into the flat plate waveguide [14].

(c) Tighten the four captive screws [7] to 30 in-lb (3.4 N·m) - 35 in-lb (4.0 N·m).

LOM ALL

SUBTASK 34-43-11-410-001

(6) Close this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Close, TASK 53-52-00-410-802.

SUBTASK 34-43-11-865-001

(7) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-020-003

(8) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-802-001 or Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002 or Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-804-003.

END OF TASK

TASK 34-43-11-000-802

4. Weather Radar Antenna Drive Unit Removal

(Figure 402)

A. General

(1) This task has the steps to remove the weather radar antenna drive unit.

B. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
34-43-41-000-801	Weather Radar Receiver/Transmitter Removal (P/B 401)
53-52-00-010-802	Nose Radome - Open (P/B 201)

C. Location Zones

Zone	Area
111	Radome

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Access Panels

Number	Name/Location
111	Radome

E. Weather Radar Antenna Drive Unit Removal

SUBTASK 34-43-11-860-004

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-020-004

(2) Open this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Open, TASK 53-52-00-010-802.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-11-020-005

(3) Do these steps to remove the weather radar antenna drive unit [5]:

(a) Release the waveguide connector [2] to disconnect the waveguide assembly [1].

1) Remove and discard the gasket [7] from waveguide connector [2].

(b) Disconnect the electrical connector [6] from J1.

1) If damage is found, replace the wire bundle.

(c) If applicable, disconnect the electrical connector [24] from J2.

1) If damage is found, replace the wire bundle.

(d) If the bolts [3] have a drilled hole, remove the twisted lockwires (TASK 20-10-44-000-801).

(e) Remove the two bottom bolts [3] and washers [28] on the antenna drive unit [5].

1) If necessary, remove the shims.

(f) Loosen the top two bolts [3] on the antenna drive unit [5].

WARNING

USE TWO PERSONS AND A WORKSTAND DURING THE REMOVAL AND INSTALLATION OF THE ANTENNA DRIVE UNIT. THE ANTENNA DRIVE UNIT WEIGHS APPROXIMATELY 18 POUNDS (8.2 KG). REMOVE AND INSTALL THE ANTENNA DRIVE UNIT CAREFULLY TO PREVENT INJURY TO PERSON OR DAMAGE TO EQUIPMENT.

(g) Lift the antenna drive unit [5] up and forward to remove the antenna drive unit [5] from the two top bolts [3] and washers [28].

(h) Install the dust caps to the ends of the waveguide assembly [1].

(i) If you do not replace the antenna drive unit [5] immediately, install the dust cap to the electrical connector [6].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-11-020-011

(4) Do this task: Weather Radar Receiver/Transmitter Removal, TASK 34-43-41-000-801.

SUBTASK 34-43-11-020-012

(5) Do these steps to remove the weather radar antenna drive unit [5]:

(a) If the bolts [3] have a drilled hole, remove the twisted lockwires (TASK 20-10-44-000-801).

(b) Remove the two bottom bolts [3] and washers [28] on the antenna drive unit [5].

1) If necessary, remove the shims.

(c) Loosen the top two bolts [3] on the antenna drive unit [5].

WARNING

USE TWO PERSONS AND A SAFELY INSTALLED WORKSTAND. THIS WILL PREVENT INJURY TO YOU OR DAMAGE TO THE WXR ANTENNA.

(d) Lift the antenna drive unit [5] up and forward to remove the antenna drive unit [5] from the top two bolts [3] and washers [28].

(e) If you do not replace the antenna drive unit [5] immediately, install the dust cap to the receiver/transmitter [17].

LOM ALL

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Weather Radar Antenna Drive Unit Installation
Figure 402/34-43-11-990-803 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 IF APPLICABLE

2927915 S0000707402_V3

Weather Radar Antenna Drive Unit Installation
Figure 402/34-43-11-990-803 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-11-400-802

5. Weather Radar Antenna Drive Unit Installation

(Figure 402)

A. General

(1) This task has the steps to install the weather radar antenna drive unit.

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

(2) An auto alignment process will take place and will require up to 30 minutes to complete depending on the flight profile.

NOTE: No matter which procedure is done to more quickly auto align the system, the weather radar system will continue to do its function correctly. But, initially (until auto-alignment process completes on its own) there could be decreased long range weather detection (if antenna aims too high) or unwanted ground clutter shown (if antenna aims too low).

(a) Recommended flight profile for auto-alignment:

1) Achieve cruise altitude at minimum 17000 feet above prevailing terrain in radar field of view.

2) System is in the Auto mode.

NOTE: Switching to the manual mode will interrupt WXR auto-alignment.

3) Un-accelerated straight level flight, no maneuvering.

4) Not over mountainous terrain or large variations of terrain.

NOTE: The automatic alignment feature will work in mountainous terrain. But, it could take longer to complete.

5) Not in visible weather, no significant weather within the radar field of view between 80 nmi (148 km) and 140 nmi (259 km).

6) Not over water.

NOTE: Flying over water could give weak returns.

LOM ALL

B. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
34-43-00-710-802-001	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-00-710-804-003	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-41-400-801	Weather Radar Receiver/Transmitter Installation (P/B 401)
53-52-00-010-802	Nose Radome - Open (P/B 201)
53-52-00-410-802	Nose Radome - Close (P/B 201)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Antenna drive unit	34-43-11-03-170	LOM 411, 432
		34-43-11-06-040	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 451, 452, 455, 456, 458-999
		34-43-11-08-025	LOM 450, 457
		34-43-11-09-020	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
7	Gasket	34-43-11-03-015	LOM 411, 432
		34-43-11-06-020	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 451, 452, 455, 456, 458-999
		34-43-11-06-140	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 451, 452, 455, 456, 458-999
		34-43-11-08-015	LOM 450, 457
		34-43-11-08-120	LOM 450, 457

E. Location Zones

Zone	Area
111	Radome

F. Access Panels

Number	Name/Location
111	Radome

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G. Weather Radar Antenna Drive Unit Installation

SUBTASK 34-43-11-860-005

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-420-003

(2) If closed, open this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Open, TASK 53-52-00-010-802.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-11-420-004

WARNING

DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

NOTE: The hangar restriction does not apply to the weather radar test mode.

(3) Do these steps to install the weather radar antenna drive unit [5]:

(a) Remove the dust caps from the waveguide assembly [1] and electrical connector [6].

(b) Examine the waveguide assembly [1] for damage, dirt, and moisture.

NOTE: The clear plastic window in the antenna waveguide is to keep dirt, moisture, or other contaminants from entering the waveguide. It is not mandatory to replace the clear plastic window if it has been removed, however it is recommended.

(c) Install the base of the weather radar antenna drive unit [5] to the two top bolts [3] and washers [28].

(d) Install the two bottom bolts [3] and washers [28].

1) If necessary, install the shims.

(e) Tighten bolts [3] to 220 in-lb (25 N·m) - 240 in-lb (27.1 N·m).

(f) If the bolts [3] have a drilled hole, install a double twisted lockwires (TASK 20-10-44-400-801).

(g) Install the electrical connector [6] to J1.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

> **CAUTION** MAKE SURE THAT THE WIRING DOES NOT TOUCH THE AIRPLANE STRUCTURE. IF THE WIRING TOUCHES THE AIRPLANE STRUCTURE, DAMAGE TO EQUIPMENT CAN OCCUR.

(h) If applicable, install the electrical connector [24] to J2.

1) Make sure that the backshell is pointing to the right.

2) Make sure that routing of the wire bundle does not interfere with the antenna flat plate [4].

(i) Connect the waveguide assembly [1] to the antenna at the waveguide connector [2].

1) Install the new gasket [7] to the waveguide connector [2].

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-11-420-007

(4) Do these steps to install the weather radar antenna drive unit [5]:

(a) If it is necessary, remove the dust cap from the receiver/transmitter [17].

(b) Install the base of the weather radar antenna drive unit [5] on the two top bolts [3] and washers [28].

(c) Install the two bottom bolts [3] and washers [28].

1) If necessary, install the shims.

(d) Tighten all four bolts [3] to 220 in-lb (25 N·m) - 240 in-lb (27.1 N·m).

(e) If the bolts [3] have a drilled hole, install a double twisted lockwires (TASK 20-10-44-400-801).

SUBTASK 34-43-11-420-008

(5) Do this task: Weather Radar Receiver/Transmitter Installation, TASK 34-43-41-400-801.

LOM ALL

SUBTASK 34-43-11-420-009

(6) If removed, install the antenna flat plate [4] (TASK 34-43-11-400-801).

SUBTASK 34-43-11-020-006

(7) Measure the electrical bonding resistance between the airplane structure and antenna drive unit bolt attachment point (SWPM 20-20-00).

(a) Use an intrinsically safe approved bonding meter, COM-1550.

(b) Make sure that the resistance is 0.001 ohms or less.

SUBTASK 34-43-11-410-004

(8) Close this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Close, TASK 53-52-00-410-802.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-43-11-865-002

(9) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-020-007

(10) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-802-001 or Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002 or Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-804-003.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR ANTENNA - INSPECTION/CHECK

1. **General**
   A. This procedure has this task:
      (1) Weather Radar Antenna Flat Plate Inspection.

TASK 34-43-11-200-801

2. **Weather Radar Antenna Flat Plate Inspection**

   A. General
      (1) The purpose of this task is to examine the antenna flat plate for wear to make sure that it is in a serviceable condition. Types of wear include:
         (a) Corrosion
         (b) Dents
         (c) Holes, gouges and tears
         (d) Warping
         (e) Foreign objects
         (f) Lightning strikes.

LOM 402, 404, 406, 407, 412, 415, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

      (2) The antenna flat plate is divided into three zones. This is to help easily identify wear:
         (a) Zone 1 is the area outside of the weld zone of the flat plate and extends around the circumference.
         (b) Zone 2 is the area bounded by zone 1. It is approximately 1 in. (25.40 mm) in width towards the center of the flat plate.
         (c) Zone 3 is the center area of the flat plate bounded by zone 2.

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

      (3) The antenna flat plate is divided into three zones. This is to help easily identify wear:
         (a) Zone 2 is the area outside a 10.5 in. (266.7 mm) radius from the center.
         (b) Zone 3 is the area inside a 10.5 in. (266.7 mm) radius from the center.
         (c) Zone 4 is the feed waveguide.
      (4) A single radiating waveguide is defined as one of the channels that run parallel between the two surfaces of the antenna flat plate.

LOM 411, 432

      (5) The antenna flat plate is divided into four zones. This is to help easily identify wear:
         (a) Zone 1 is the outer edges outside the waveguide terminal zone or waveguide end plates.
         (b) Zone 2 is the area outside a 10.5 in. (266.7 mm) radius from the center.
         (c) Zone 3 is the area inside a 10.5 in. (266.7 mm) radius from the center.
         (d) Zone 4 is the feed waveguide.
      (6) A single radiating waveguide is defined as one of the channels that run parallel between the two surfaces of the antenna flat plate.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(7) If it is necessary to replace the antenna flat plate, refer to Weather Radar Antenna Flat Plate Removal, TASK 34-43-11-000-801 and Weather Radar Antenna Flat Plate Installation, TASK 34-43-11-400-801.

B. References

Reference	Title
34-43-11-000-801	Weather Radar Antenna Flat Plate Removal (P/B 401)
34-43-11-400-801	Weather Radar Antenna Flat Plate Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-189	Compressor - Clean Air
STD-6449	Cloth - Emery
STD-6852	Air Supply - Clean Dry, 150 lbs/hr air flow, 10 psig max, 320 F max

D. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
B50082	Primer - Zinc chromate	TT-P-1757B
B50095	Solvent	BAC5750
C50395	Coating - Chemical Conversion	MIL-DTL-5541

E. Location Zones

Zone	Area
111	Radome

F. Access Panels

Number	Name/Location
111	Radome

G. Prepare for the Inspection

SUBTASK 34-43-11-860-016

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-11-010-001

(2) Do these steps to open this access panel:

Number	Name/Location
111	Radome

(a) Remove the screws, which attach the fuselage bulkhead, from the access panel.

NOTE: The Radome must not be opened in rain. If water remains on the flat plate, wipe it off completely before the Radome is closed.

WARNING DO NOT OPEN THE NOSE RADOME IF THE WIND IS MORE THAN 15 KNOTS. IF YOU OPEN THE NOSE RADOME IN A WIND, THE RADOME CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Open the access panel and lock in the open position with support rods on each side.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

H. Weather Radar Antenna Flat Plate Inspection

(Figure 601)

SUBTASK 34-43-11-210-001

(1) Examine the antenna flat plate for signs of corrosion.

(a) If the corrosion is contained, inspected regularly and does not progress with time, the antenna flat plate is serviceable.

(b) If the corrosion is severe and becomes worse with time, the antenna flat plate must be repaired.

(c) The different types of corrosion are:

1) Oxidation caused by corrosive atmosphere.

2) Corrosive material contamination (for example, ethylene glycol).

3) Corrosion due to trapped brazing salts (part of manufacturing process).

SUBTASK 34-43-11-210-002

(2) Examine the antenna flat plate for dents in zone 2 (front and rear).

NOTE: Small dents that meet the wear limits as follows are considered serviceable without repair. If the damage exceeds this or if there is slot deformation, the unit must be replaced.

(a) Wear limits for small dents of quantity 3 or less:

1) Must measure 0.312 in. (7.925 mm) or less in diameter.

2) Must measure 0.05 in. (1.27 mm) or less in depth.

(b) Wear limits for small dents of quantity 15 or less:

1) Must measure 0.5 in. (12.7 mm) or less in diameter.

2) Must measure 0.020 in. (0.508 mm) or less in depth.

SUBTASK 34-43-11-210-003

(3) Examine the antenna flat plate for dents in zone 3 (front and rear).

NOTE: Small dents that meet the wear limits as follows are considered serviceable without repair. If the damage exceeds this or if there is slot deformation, the unit must be replaced.

(a) Wear limits for small dents of quantity 3 or less:

1) Must measure 0.25 in. (6.35 mm) or less in diameter.

2) Must measure 0.05 in. (1.27 mm) or less in depth.

(b) Wear limits for small dents of quantity 5 or less:

1) Must measure 0.5 in. (12.7 mm) or less in diameter.

2) Must measure 0.010 in. (0.254 mm) or less in depth.

SUBTASK 34-43-11-210-004

(4) Examine the antenna flat plate for dents on the rear waveguide.

NOTE: Rear waveguide dents are permitted only if found at the extreme ends and they meet the wear limits that follow. If the damage exceeds this, the unit must be replaced.

(a) Dents must measure 0.030 in. (0.762 mm) or less in depth.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999 (Continued)

SUBTASK 34-43-11-210-005

(5) Examine the antenna flat plate for damage to the rails. Damaged rails are considered to make the antenna flat plate unserviceable.

SUBTASK 34-43-11-210-006

(6) Examine the antenna flat plate for holes, gouges and tears:

(a) Holes, gouges or tears in zone 1 must not be dangerous in a way that can cause injury to persons. This includes sharp edges that can cut when brushed against.

(b) If holes, gouges or tears are found in zones 2 or 3, the antenna flat plate is unserviceable.

SUBTASK 34-43-11-210-007

(7) Examine the antenna flat plate for warping.

(a) Warping of more than 0.125 in. (3.175 mm) in diameter, compared to a flat surface, is considered unserviceable.

SUBTASK 34-43-11-210-008

(8) Examine the antenna flat plate for foreign objects.

(a) Foreign objects found in a waveguide must be removed before the antenna flat plate is returned to service.

SUBTASK 34-43-11-210-009

(9) Examine the antenna flat plate for lightning strike damage.

(a) All lightning strike damage is unserviceable. The antenna flat plate must be replaced.

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

I. Weather Radar Antenna Flat Plate Inspection

(Figure 603)

NOTE: Dents are defined as damage that could have occurred because of the surface being hit by a blow or crushed by a point load.

NOTE: The manufacturing procedure can cause an antenna flat plate that shows a small quantity of generalized warping or slow changes in the flat of the surface. The general warping/change must not be regarded as a dent if it occurs on an area of 2.5 ±0.5 in. (63.5 ±12.7 mm).

SUBTASK 34-43-11-210-010

WARNING YOU MUST WEAR GOGGLES OR A FACE SHIELD WHEN YOU USE THE EXTERNAL ABRASIVE BLASTING EQUIPMENT. IF YOU DO NOT USE THE PROTECTIVE EQUIPMENT, INJURIES CAN OCCUR.

(1) Examine the antenna flat plate, the flat plate slots, waveguide and interior for corrosion:

(a) If corrosion is found in the slots, then the antenna flat plate must be replaced.

(b) If corrosion is found, remove as follows:

1) Blow off loose material from the two sides of the antenna flat plate with an air supply, STD-6852.

2) Remove loose material on the two sides of the antenna flat plate with an emery cloth, STD-6449.

3) Clean the front and rear of the antenna flat plate with alcohol, B00130.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

4) Apply coating, C50395 to exposed or bare metal areas on the front or rear surfaces.

SUBTASK 34-43-11-210-026

(2) Examine the antenna flat plate for etching, nicks, pits or scratches (front and rear):

(a) An antenna flat plate is unservicable if the etching, nicks, pits, or scratches on the front surface:

1) Are not caused by the manufacturing process (i.e., brazing, cleaning, honing, tool no larger than 0.030 in. (0.8 mm), etc.) or not the reasonable consequence of valid handling procedures and are not collectively limited to less than 25% of the surface area.

SUBTASK 34-43-11-210-011

(3) Examine the antenna flat plate for dents in zone 2 (front and rear):

(a) Dents must be 0.05 in. (1.27 mm) or less in depth.

(b) A maximum of two dents on a single radiating waveguide.

(c) A maximum of seven dents in zone 2 in total.

SUBTASK 34-43-11-210-012

(4) Examine the antenna flat plate for dents in zone 3 (front and rear):

(a) Dents must be 0.03 in. (0.76 mm) or less in depth.

(b) A maximum of one dent on a single radiating waveguide.

(c) A maximum of three dents in zone 3 in total.

SUBTASK 34-43-11-210-014

(5) Examine the antenna flat plate for dents in zone 4 (front and rear):

(a) No dents are permitted in the feed waveguide (zone 4).

SUBTASK 34-43-11-210-015

(6) Examine the antenna flat plate (front and rear):

(a) No damage is permitted to the partitions or end plates related to a single radiating waveguide in which a surface dent has also occurred.

(b) If the front or rear surfaces show through the surface holes (other than slots), or have breaks or cracks, the unit must be replaced.

SUBTASK 34-43-11-210-017

(7) Examine the slots on the front and rear of the antenna flat plate:

(a) Dents that cause damage to the surface slots will make the antenna flat plate unserviceable.

(b) The surface slot must not show localized dents or signs of mechanical rework, such as file marks or rough edges.

SUBTASK 34-43-11-210-018

(8) Examine the antenna flat plate outer edge (the outer 1 in. (25 mm), front and rear) for small dents, bending, marks and handling damage:

(a) These are permitted if they agree with the following criteria:

NOTE: If the anomalies do not agree with the criteria below then the antenna flat plate is unserviceable.

1) Does not structurally impair the antenna.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454 (Continued)

2) Does not exceed more than 25% of the circumference of either the front or rear surface.

3) Does not occur in large numbers on a new production antenna such that the antenna appears not to be new.

LOM 411, 432

J. Weather Radar Antenna Flat Plate Inspection

(Figure 602)

WARNING	YOU MUST WEAR GOGGLES OR A FACE SHIELD WHEN YOU USE THE EXTERNAL ABRASIVE BLASTING EQUIPMENT. IF YOU DO NOT USE THE PROTECTIVE EQUIPMENT, INJURIES CAN OCCUR.

SUBTASK 34-43-11-210-019

(1) Examine the antenna flat plate for corrosion:

(a) Examine the slots and internal waveguide for corrosion.

1) Corrosion is not permitted on the slots or internal waveguide. If corrosion is found on these surfaces, the antenna flat plate is unserviceable.

(b) If corrosion is found on the front or rear of the flat plate, remove as follows:

1) Remove loose or flaking material with an emery cloth, STD-6449.

NOTE: Deep pit marks can be filled with epoxy.

2) Use air compressor, STD-189 to blow off loose debris and clean with solvent, B50095.

3) Coat with primer, B50082 and air dry.

NOTE: Prevent paint getting in the slots.

SUBTASK 34-43-11-210-020

(2) Examine the antenna flat plate for dents in zone 2 (front and rear):

(a) Dents must be 0.05 in. (1.27 mm) or less in depth.

(b) A maximum of two dents on a single radiating waveguide.

(c) A maximum of seven dents in zone 2 in total.

SUBTASK 34-43-11-210-021

(3) Examine the antenna flat plate for dents in zone 3 (front and rear):

(a) Dents must be 0.03 in. (0.76 mm) or less in depth in a single radiating waveguide.

(b) A maximum of three dents in zone 3 in total.

SUBTASK 34-43-11-210-022

(4) Examine the antenna flat plate for dents in zone 4 (front and rear):

(a) No dents are permitted in the feed waveguide (zone 4).

SUBTASK 34-43-11-210-024

(5) Examine the antenna flat plate (front and rear).

(a) No damage is permitted to the partitions or end plates related to a single radiating waveguide in which a surface dent has also occurred.

(b) Holes, breaks or cracks in the front or back plates are not permitted.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 432 (Continued)

SUBTASK 34-43-11-210-025

(6) Dents in zone 1 can be straightened with the use of smooth flat jaw pliers.

LOM ALL

K. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-11-410-003

(1) Close this access panel:

Number	Name/Location
111	Radome

SUBTASK 34-43-11-860-017

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ANTENNA FLAT PLATE (REAR VIEW)

A

2395320 S0000552791_V2

Weather Radar Antenna Flat Plate Inspection
Figure 601/34-43-11-990-804 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ANTENNA FLAT PLATE
(ZONE VIEW)

B

2395331 S0000552792_V1

Weather Radar Antenna Flat Plate Inspection
Figure 601/34-43-11-990-804 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2983104 S0000760798_V1

Weather Radar Antenna Flat Plate Inspection
Figure 602/34-43-11-990-805

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ANTENNA FLAT PLATE
(REAR VIEW)

A

2983106 S0000760800_V1

Weather Radar Antenna Flat Plate Inspection
Figure 603/34-43-11-990-806

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR WAVEGUIDE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the weather radar (WXR) waveguide

(2) An installation of the WXR waveguide.

B. The WXR waveguide is in the nose radome and in the lower nose compartment.

TASK 34-43-21-000-801

2. WXR Waveguide Removal

(Figure 401)

A. General

(1) You must do the Prepare for Removal section before any of the waveguide assemblies are removed. You can remove one or all parts of the waveguide when necessary.

B. References

Reference	Title
34-43-41-000-801	Weather Radar Receiver/Transmitter Removal (P/B 401)

C. Location Zones

Zone	Area
111	Radome
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
111	Radome
112A	Forward Access Door

E. Prepare for Removal

SUBTASK 34-43-21-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-21-010-001

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-21-020-001

(3) For easier access to the waveguide, do this task: Weather Radar Receiver/Transmitter Removal, TASK 34-43-41-000-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. Waveguide Assembly [1] Removal

SUBTASK 34-43-21-010-002

> **CAUTION** MAKE SURE THAT YOU CLOSE THE NOSE RADOME WHEN IT RAINS. IF YOU DO NOT DO THIS, DAMAGE TO EQUIPMENT CAN OCCUR.

> **CAUTION** DO NOT OPEN THE NOSE RADOME IF THE WIND IS MORE THAN 15 KNOTS. IF YOU OPEN THE NOSE RADOME IN A WIND, THE RADOME CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Open this access panel:

Number	Name/Location
111	Radome

(a) Remove the screws that attach the nose radome to the fuselage bulkhead.

(b) Open the nose radome and hold it in the open position by the installation of the support rods on each side.

SUBTASK 34-43-21-020-002

> **CAUTION** DO NOT LET THE WORKSTANDS HIT OR TOUCH THE WEATHER RADAR ANTENNA OR OTHER RADOME EQUIPMENT. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Remove waveguide assembly [1]:

(a) Remove the screws [12] and washers [13] that attach waveguide assembly [1] to waveguide assembly [11] (in lower nose compartment).

(b) Release the quick-disconnect [2] that holds waveguide assembly [1] to the antenna drive unit.

1) Remove and discard gasket [20] between the quick-disconnect [2] and waveguide assembly [1].

(c) Do these steps at the pressure seal flange [9]:

1) Remove the screws [7] and screw [8].

NOTE: The screw [8] is longer than the other screws.

a) Make a note of the location of screw [8].

(d) Remove screw [4], washer [5], nut [6], and waveguide clamp [3].

(e) Carefully remove waveguide assembly [1], with the gasket [10].

(f) Remove gasket [14] from one end of waveguide assembly [1].

(g) Put dust caps on the ends of the waveguides.

G. Waveguide Assembly [11] Removal

SUBTASK 34-43-21-020-003

(1) Remove waveguide assembly [11]:

(a) Remove the screws [12] and washers [13] that attach waveguide assembly [11] to the mount waveguide.

(b) If waveguide assembly [1] is installed (because you did not remove it), then do this step:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Remove the screws [12] and washers [13] that attach waveguide assembly [11] to waveguide assembly [1].

(c) Remove waveguide assembly [11].

(d) Make sure the gasket [14] at each end of waveguide assembly [11] is removed.

(e) Put dust caps on the ends of the waveguides.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Weather Radar Waveguide Installation
Figure 401/34-43-21-990-801 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Weather Radar Waveguide Installation
Figure 401/34-43-21-990-801 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WAVEGUIDE ASSEMBLY (RIGID)

F

F86675 S0006576920_V5

Weather Radar Waveguide Installation
Figure 401/34-43-21-990-801 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-21-400-801

3. WXR Waveguide Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-43-00-710-802-001	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-41-400-801	Weather Radar Receiver/Transmitter Installation (P/B 401)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Waveguide assembly	34-43-21-01-050	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
10	Gasket	34-43-21-01-045	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
11	Waveguide assembly	34-43-21-02-025	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
14	Gasket	34-43-21-02-020	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999
20	Gasket	34-43-11-03-015	LOM 411, 432
		34-43-11-06-020	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 451, 452, 455, 456, 458-999
		34-43-11-08-015	LOM 450, 457

C. Location Zones

Zone	Area
111	Radome
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
111	Radome

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Number	Name/Location
112A	Forward Access Door

E. Procedure

SUBTASK 34-43-21-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F. Waveguide Assembly [1] Installation

SUBTASK 34-43-21-860-003

> **CAUTION** MAKE SURE THAT YOU CLOSE THE NOSE RADOME WHEN IT RAINS. IF YOU DO NOT DO THIS, DAMAGE TO EQUIPMENT CAN OCCUR.

> **CAUTION** DO NOT OPEN THE NOSE RADOME IF THE WIND IS MORE THAN 15 KNOTS. IF YOU OPEN THE NOSE RADOME IN A WIND, THE RADOME CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure the nose radome is open.

SUBTASK 34-43-21-420-001

> **CAUTION** DO NOT LET THE WORKSTANDS HIT OR TOUCH THE WEATHER RADAR ANTENNA OR OTHER RADOME EQUIPMENT. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Install waveguide assembly [1]:

(a) Remove the dust caps from the ends of the waveguides.

(b) Examine the waveguide assembly [1] for damage, dirt, and moisture.

NOTE: The clear plastic window in the antenna waveguide is to keep dirt, moisture, or other contaminants from entering the waveguide. It is not mandatory to replace the clear plastic window if it has been removed, however it is recommended.

(c) Install a new gasket [10] on the pressure seal flange [9].

(d) Install a new gasket [14] at one end of waveguide assembly [1].

(e) Move waveguide assembly [1] through the hole in the forward bulkhead and put in the correct position.

1) Make sure that gasket [10] and gasket [14] are correctly installed.

(f) Install screws [7] and screw [8] to hold the pressure seal flange [9] to the bulkhead.

1) Make sure that longer screw [8] is installed in the correct location.

(g) Install the quick-disconnect [2] that holds waveguide assembly [1] to the antenna drive unit with new gasket [20] between.

(h) Install the waveguide clamp [3], screw [4], washer [5], and nut [6].

1) Adjust the clamp to make sure it does not bend waveguide assembly [1].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(i) If you did not remove waveguide assembly [11], then do this step:

1) Install the screws [12] and washers [13] that attach waveguide assembly [1] to waveguide assembly [11].

G. Waveguide Assembly [11] Installation

SUBTASK 34-43-21-420-002

(1) Install waveguide assembly [11]:

(a) Remove the dust caps from the ends of the waveguides.

(b) Examine the waveguide assembly [11] for damage, dirt and moisture.

NOTE: The clear plastic window in the antenna waveguide is to keep dirt, moisture, or other contaminants from entering the waveguide. It is not mandatory to replace the clear plastic window if it has been removed, however it is recommended.

(c) Make sure that a new gasket [14] is installed at each end of waveguide assembly [11].

(d) Install the screws [12] and washers [13] that attach waveguide assembly [11] to the mount waveguide.

(e) Install the screws [12] and washers [13] that attach waveguide assembly [11] to waveguide assembly [1].

SUBTASK 34-43-21-410-005

(2) Close this access panel:

Number	Name/Location
111	Radome

(a) Install the screws that attach the nose radome to the fuselage bulkhead

SUBTASK 34-43-21-420-003

(3) If you removed the WXR receiver/transmitter, then, do this task: Weather Radar Receiver/Transmitter Installation, TASK 34-43-41-400-801.

SUBTASK 34-43-21-860-004

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-21-410-001

(5) Close this access panel:

Number	Name/Location
112A	Forward Access Door

H. Installation Test

SUBTASK 34-43-21-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-43-21-710-001

(2) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-802-001 or Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR RECEIVER/TRANSMITTER MOUNT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the weather radar receiver/transmitter (R/T) mount

(2) An installation of the R/T mount.

B. The R/T mount is in the lower nose compartment.

TASK 34-43-31-000-801

2. Weather Radar Receiver/Transmitter Mount Removal

(Figure 401)

A. References

Reference	Title
34-43-41-000-801	Weather Radar Receiver/Transmitter Removal (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Weather Radar Receiver/Transmitter Mount Removal

SUBTASK 34-43-31-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-31-010-001

(2) To get access to the weather radar R/T mount [1], open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-31-010-002

(3) Do this task: Weather Radar Receiver/Transmitter Removal, TASK 34-43-41-000-801.

SUBTASK 34-43-31-020-001

(4) Remove the weather radar R/T mount [1]:

(a) Disconnect the electrical connector [8].

(b) Remove the screws [3] and washers [4] that attach the waveguide assembly [6] to the waveguide [7].

(c) Remove the screws [2] that attach the connector assembly [9] to the rear of the weather radar R/T mount [1].

(d) Remove the screws [10] from the bottom of the weather radar R/T mount [1].

(e) Make sure that you support the connector assembly [9] and waveguide assembly [6], while you carefully remove the weather radar R/T mount [1].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(f) Remove and discard the gasket [5].

(g) Put protective covers on the electrical connector [8], connector assembly [9], waveguide assembly [6], and waveguide [7].

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G14864 S0006576925_V3

Weather Radar Receiver/Transmitter Mount Installation
Figure 401/34-43-31-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

RECEIVER/TRANSMITTER (R/T) MOUNT (EXAMPLE)

B

G14867 S0006576926_V3

Weather Radar Receiver/Transmitter Mount Installation
Figure 401/34-43-31-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-31-400-801

3. Weather Radar Receiver/Transmitter Mount Installation

(Figure 401)

A. References

Reference	Title
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-41-400-801	Weather Radar Receiver/Transmitter Installation (P/B 401)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Mount	34-43-31-01-025	LOM 411, 432
		34-43-31-01-140	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999
5	Gasket	34-43-21-02-020	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. Weather Radar Receiver/Transmitter Mount Installation

SUBTASK 34-43-31-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-31-420-001

(2) Install the weather radar R/T mount [1]:

(a) Remove the protective covers from the electrical connector [8], connector assembly [9], waveguide [7], and waveguide assembly [6].

(b) Examine the electrical connector [8] and connector assembly [9] for bent or broken pins, dirt and damage.

(c) Examine the waveguide [7] and waveguide assembly [6] for damage, dirt, and moisture.

NOTE: The clear plastic window in the antenna waveguide is to keep dirt, moisture, or other contaminants from entering the waveguide. It is not mandatory to replace the clear plastic window if it has been removed, however it is recommended.

(d) Carefully move the weather radar R/T mount [1] into position with the connector assembly [9] aligned correctly.

(e) Install a new gasket [5] between the waveguide assembly [6] and waveguide [7].

(f) Install the screws [10] that attach the weather radar R/T mount [1] to the support structure.

(g) Install the screws [2] that attach the connector assembly [9] to the weather radar R/T mount [1].

(h) Install the screws [3] and washers [4] to attach the waveguide assembly [6] to the waveguide [7].

(i) Install the electrical connector [8].

SUBTASK 34-43-31-760-001

(3) Measure the electrical bonding resistance between the R/T mount [1] and support structure (SWPM 20-20-00).

(a) Use an intrinsically safe approved bonding meter, COM-1550.

(b) Make sure that the maximum resistance is 0.001 ohm (1.0 milliohm) or less.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-31-860-003

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-31-700-001

(5) Push and hold the PUSH TO TEST BLOWER switch on the weather radar R/T mount [1].

(a) Make sure that the volume of sound from the blower assembly increases.

(b) Make sure that you do not hear clicks from the blower assembly.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999 (Continued)

SUBTASK 34-43-31-860-004

(6) Release the PUSH TO TEST BLOWER switch.

SUBTASK 34-43-31-865-002

(7) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-31-410-001

(8) Do this task: Weather Radar Receiver/Transmitter Installation, TASK 34-43-41-400-801.

LOM 411, 432

SUBTASK 34-43-31-710-001

(9) Do the following steps to test the WXR R/T mount blower assembly:

(a) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002.

1) Make sure that the R/T mount blower assembly operates.

NOTE: WXR R/T mount blower assembly noise can not be heard from the flight deck. A mechanic has to go down to the WXR R/T mount location to make sure the R/T mount blower assembly operates.

2) Make sure that you do not hear clicks from the blower assembly.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-31-410-003

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR PROCESSOR MOUNT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the weather radar processor mount

(2) An installation of the weather radar processor mount.

B. The processor mount is in the lower nose compartment.

TASK 34-43-33-000-801

2. Weather Radar Processor Mount Removal

(Figure 401)

A. References

Reference	Title
34-43-42-000-801	Weather Radar Processor Removal (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Removal Procedure

SUBTASK 34-43-33-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-33-010-001

(2) To get access to the weather radar processor mount, open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-33-020-001

(3) Do this task: Weather Radar Processor Removal, TASK 34-43-42-000-801

SUBTASK 34-43-33-020-002

(4) Remove the weather radar processor (RP) mount [4]:

(a) Disconnect the electrical connector [6].

(b) Remove the screws [3] that attach the connector assembly [2] to the rear of the RP mount [4].

(c) Remove the screws [5] from the bottom of the RP mount [4].

(d) Make sure you support the connector assembly [2] while you carefully remove the RP mount [4].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(e) Put protective covers on the electrical connector [6] and connector assembly [2].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Weather Radar Processor Mount Installation
Figure 401/34-43-33-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

B

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Weather Radar Processor Mount Installation
Figure 401/34-43-33-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-33-400-801

3. Weather Radar Processor Mount Installation

(Figure 401)

A. References

Reference	Title
34-43-42-400-801	Weather Radar Processor Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Installation Procedure

SUBTASK 34-43-33-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-33-420-001

(2) Install the weather radar processor (RP) mount [4].

(a) Remove the protective covers from the electrical connector [6] and connector assembly [2].

(b) Examine the electrical connector [6] and connector assembly [2] for bent or broken pins, dirt and damage.

(c) Carefully move the RP mount [4] into position with the connector assembly [2] aligned correctly.

(d) Install the screws [5] that attach the RP mount [4] to the support structure.

(e) Install the screws [3] that attach the connector assembly [2] to the RP mount [4].

(f) Install the electrical connector [6].

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SUBTASK 34-43-33-765-001

(3) Use a intrinsically safe approved bonding meter, COM-1550 to measure the resistance between the RP mount [4] and the support structure.

(a) Make sure the maximum resistance is 0.001 ohms.

SUBTASK 34-43-33-420-002

(4) Do this task: Weather Radar Processor Installation, TASK 34-43-42-400-801.

SUBTASK 34-43-33-410-001

(5) Close this access panel:

Number	Name/Location
112A	Forward Access Door

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR RECEIVER/TRANSMITTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the weather radar receiver/transmitter.

(2) An installation of the weather radar receiver/transmitter.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

B. The weather radar receiver/transmitter is in the lower nose compartment.

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

C. The weather radar receiver/transmitter is in the nose radome.

LOM ALL

TASK 34-43-41-000-801

2. Weather Radar Receiver/Transmitter Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)
53-52-00-010-802	Nose Radome - Open (P/B 201)

B. Location Zones

Zone	Area
LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454	
111	Radome
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999	
112	Area Forward of Nose Landing Gear Wheel Well
LOM ALL	
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
111	Radome
112A	Forward Access Door

D. Removal Procedure

SUBTASK 34-43-41-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-41-010-002

(2) Open this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Open, TASK 53-52-00-010-802.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-41-010-001

(3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-41-030-001

(4) If necessary for clearance, disconnect the pneumatic connector on the left Pitot ADM and install a blanking cap with a REMOVE BEFORE FLIGHT flag attached.

SUBTASK 34-43-41-020-001

CAUTION

DO NOT PUT THE WXR RECEIVER/TRANSMITTER ON THE FRONT CORNER OF THE MOUNTING TRAY. DAMAGE TO THE MOUNTING TRAY OR THE CASE OF THE WXR RECEIVER/TRANSMITTER CAN OCCUR.

(5) To remove the RECEIVER/TRANSMITTER [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-41-020-002

CAUTION

DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(6) To remove the RECEIVER/TRANSMITTER [1], do these tasks:

(a) Disconnect the electrical connectors [3].

(b) Loosen the two captive screws [4] that secure the RECEIVER/TRANSMITTER [1] to the Antenna Drive Unit [2].

NOTE: After the captive screws are loosened, the unit will drop slightly to where it is secured by retainer springs. The springs will hold the receiver/transmitter in its position for removal. An area of one-half inch painted red will be exposed to indicate that the screws are loosened and the retainer springs are securing the receiver/transmitter.

(c) Remove the RECEIVER/TRANSMITTER [1] from the Antenna Drive Unit [2].

NOTE: A force of approximately 10 pounds is necessary to overcome the retainer springs. The handle on the front of the receiver/transmitter is used to pull the unit down to overcome the retainer springs.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-43-41-860-007

(7) Put protective covers on the electrical connectors.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Weather Radar Receiver/Transmitter Installation
Figure 401/34-43-41-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Weather Radar Receiver/Transmitter Installation
Figure 401/34-43-41-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-41-400-801

3. Weather Radar Receiver/Transmitter Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-60-06-100-801	Electronic LRU Cleaning (P/B 201)
34-43-00-710-802-001	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-00-710-803-002	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-00-710-804-003	Weather Radar (WXR) System - Operational Test (P/B 501)
53-52-00-010-802	Nose Radome - Open (P/B 201)
53-52-00-410-802	Nose Radome - Close (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	RECEIVER/TRANSMITTER	34-43-11-09-025	LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454
		34-43-41-03-595	LOM 402, 404, 406, 407, 412, 416, 426
		34-43-41-05-510	LOM 411, 432
		34-43-41-06-005	LOM 415, 420, 423, 424, 427-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

C. Location Zones

Zone	Area
LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454	
111	Radome
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999	
112	Area Forward of Nose Landing Gear Wheel Well
LOM ALL	
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
111	Radome
112A	Forward Access Door

E. Installation Procedure

SUBTASK 34-43-41-200-001

(1) Do a visual inspection of the weather radar receiver/transmitter mount tray and blower assembly for dust accumulation.

(2) If necessary, do this task to clean the area around the WXR mounting tray: Electronic LRU Cleaning, TASK 20-60-06-100-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-41-860-011

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-41-700-001

(4) Push and hold the PUSH TO TEST BLOWER switch on the weather radar mount.

(a) Make sure the volume of sound from the blower assembly increases.

(b) Make sure you do not hear clicks from the blower assembly.

SUBTASK 34-43-41-860-010

(5) Release the PUSH TO TEST BLOWER switch.

LOM ALL

SUBTASK 34-43-41-860-002

(6) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-41-860-008

(7) Remove the protective covers from the electrical connectors.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-41-420-001

CAUTION

DO NOT PUT THE WXR RECEIVER/TRANSMITTER ON THE FRONT CORNER OF THE MOUNTING TRAY. DAMAGE TO THE MOUNTING TRAY OR THE CASE OF THE WXR RECEIVER/TRANSMITTER CAN OCCUR.

(8) To install the RECEIVER/TRANSMITTER [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-43-41-410-002

WARNING

MAKE SURE THAT YOU CONNECT THE PITOT CONNECTOR AFTER YOU INSTALL THE PROCESSOR. IF YOU DO NOT CONNECT THE PITOT CONNECTOR BEFORE FLIGHT, YOU WILL CAUSE INCORRECT OR MISSING AIR DATA. INCORRECT OR MISSING AIR DATA CAN MAKE FLIGHT DANGEROUS.

(9) If the pneumatic connector was disconnected, remove the blanking cap with the REMOVE BEFORE FLIGHT flag and connect the pneumatic connector to the left Pitot ADM.

(10) Do a visual inspection of the quick-disconnect fitting for the left Pitot ADM.

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(a) Make sure the actuation ring of the quick-disconnect fitting is fully engaged on the lock pins, and that you can see the colored lock ring indicator that shows correct connection of the quick-disconnect fitting.

SUBTASK 34-43-41-410-005

(11) Put the airplane back to its usual condition, do this task:

Close this access panel:

Number	Name/Location
112A	Forward Access Door

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-41-010-003

(12) If closed, open this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Open, TASK 53-52-00-010-802.

SUBTASK 34-43-41-420-002

CAUTION DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(13) To install the RECEIVER/TRANSMITTER [1], do these tasks:

(a) Install the RECEIVER/TRANSMITTER [1] into the Antenna Drive Unit [2].

(b) Tighten the captive screws [4] to 30-35 pound-inches (3.4-4.0 newton-meters).

(c) Connect the electrical connectors [3].

SUBTASK 34-43-41-410-004

(14) Put the airplane back to its usual condition, close this access panel:

Number	Name/Location
111	Radome

(a) Do this task: Nose Radome - Close, TASK 53-52-00-410-802.

LOM ALL

F. Installation Test

SUBTASK 34-43-41-860-009

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-41-470-001

(2) If the software on the WXR processor does not match the software already resident on the new installed receiver/transmitter, wait 10 minutes for the WXR processor to complete a data load with the WXR receiver/transmitter (10 minutes per side for a dual WXR installation if both processors are replaced).

NOTE: Only application software should match between WXR processor and receiver/transmitter after software loading.

LOM ALL

SUBTASK 34-43-41-710-001

(3) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-802-001 or Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-803-002 or Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-804-003.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR PROCESSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the weather radar processor.

(2) An installation of the weather radar processor.

B. The weather radar processor is in the lower nose compartment.

TASK 34-43-42-000-801

2. Weather Radar Processor Removal

Figure 401

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Removal Procedure

SUBTASK 34-43-42-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-42-010-001

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-42-020-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(3) To remove the Weather Radar Processor [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

SUBTASK 34-43-42-020-002

(4) Put protective covers on the electrical connectors.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Weather Radar Processor Installation
Figure 401/34-43-42-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-42-400-801

3. Weather Radar Processor Installation

Figure 401

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
34-43-00-710-804-003	Weather Radar (WXR) System - Operational Test (P/B 501)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Installation Procedure

SUBTASK 34-43-42-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-42-420-001

(2) Remove the protective covers from the electrical connectors.

SUBTASK 34-43-42-420-002

CAUTION

DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

(3) To install the Weather Radar Processor [1] , do this task: E/E Box Installation, TASK 20-10-07-400-801.

(4) Make sure the Weather Radar Processor [1] is fully mated by using a reference point or inspection of rear connector gap.

NOTE: The WXR processor may require additional force to fully mate the connector.

NOTE: Approximate gap value for rear connector to seat processor in tray is 1 cm, but varies per aircraft.

E. Installation Test

SUBTASK 34-43-42-860-003

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-42-700-001

(2) Make sure that the weather radar processor mount fan operates.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-43-42-410-001

(3) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-42-470-001

(4) Wait 10 minutes for the WXR processor to complete a data load with the WXR receiver/transmitter (10 minutes per side for a dual WXR installation if both processors are replaced).

SUBTASK 34-43-42-710-001

(5) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-804-003.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR RECEIVER/TRANSMITTER MOUNT BLOWER ASSEMBLY - REMOVAL/ INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the blower assembly on weather radar receiver/transmitter (R/T) mount.

(2) An installation of the blower assembly on the weather radar (R/T) mount.

B. The blower assembly on the R/T mount is found in the lower nose compartment.

TASK 34-43-51-000-801

2. Weather Radar R/T Mount Blower Assembly Removal

(Figure 401)

A. References

Reference	Title
34-43-41-000-801	Weather Radar Receiver/Transmitter Removal (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Removal Procedure

SUBTASK 34-43-51-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-51-010-001

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-51-860-002

(3) Do this task: Weather Radar Receiver/Transmitter Removal, TASK 34-43-41-000-801.

SUBTASK 34-43-51-020-001

(4) Remove the blower assembly from the Mount [1].

(a) Disconnect the electrical connector from the blower assembly.

(b) Remove the four screws that attach the blower assembly to the Mount [1].

(c) Carefully remove the blower assembly from the Mount [1].

(d) Put dust caps on the two electrical connectors.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Weather Radar Receiver/Transmitter Mount Blower Assembly Installation
Figure 401/34-43-51-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-51-400-801

3. Weather Radar R/T Mount Blower Assembly Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-43-00-710-802-001	Weather Radar (WXR) System - Operational Test (P/B 501)
34-43-41-400-801	Weather Radar Receiver/Transmitter Installation (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Installation Procedure

SUBTASK 34-43-51-860-003

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-51-400-001

(2) Install the blower assembly on the Mount [1]:

(a) Remove the dust caps from the electrical connectors.

(b) Put the blower assembly on the Mount [1].

(c) Attach the blower assembly to the Mount [1] with the four screws.

(d) Connect the electrical connector to the blower assembly.

SUBTASK 34-43-51-865-001

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-51-710-002

(4) Do a test of the blower assembly on the Mount [1].

(a) Push the test switch on the Mount [1].

1) Make sure the blower comes on.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-43-51-865-002

(5) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-51-720-001

(6) Do this task: Weather Radar Receiver/Transmitter Installation, TASK 34-43-41-400-801.

SUBTASK 34-43-51-410-001

(7) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-51-860-004

(8) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

E. Installation Test

SUBTASK 34-43-51-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-43-51-710-001

(2) Do this task: Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-802-001.

SUBTASK 34-43-51-860-006

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR RECEIVER/TRANSMITTER MOUNT BLOWER ASSEMBLY

1. General

A. This procedure has these tasks:

(1) A removal of the blower assembly on the weather radar receiver/transmitter (R/T) mount.

(2) An installation of the blower assembly on the weather radar receiver/transmitter (R/T) mount.

B. The R/T mount blower assembly is located in the lower nose compartment.

TASK 34-43-51-000-802

2. Mount Blower Assembly Removal

A. References

Reference	Title
34-43-31-000-801	Weather Radar Receiver/Transmitter Mount Removal (P/B 401)
34-43-41-000-801	Weather Radar Receiver/Transmitter Removal (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Removal Procedure

SUBTASK 34-43-51-940-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-51-010-002

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-51-020-002

(3) Do this task: Weather Radar Receiver/Transmitter Removal, TASK 34-43-41-000-801.

SUBTASK 34-43-51-020-006-002

(4) Disconnect the Electronic Connector [1].

SUBTASK 34-43-51-020-003

(5) Remove the Weather Radar (WXR) Mount Filter Assembly.

(a) Remove the knobs [2] and washer [3] that attach the Filter Assembly [4] to the Blower Assembly [7].

(b) Carefully lift the Filter Assembly [4] straight up.

SUBTASK 34-43-51-020-004

(6) Remove the Blower Assembly [7].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Remove the screws [5].

1) If necessary, remove the R/T Mount for access to the screws [5] (TASK 34-43-31-000-801).

(b) Remove the screws [6].

(c) Carefully lift the Blower Assembly [7] up out of the R/T Mount.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Weather Radar Receiver/Transmitter Mount Blower Assembly Installation
Figure 401/34-43-51-990-802 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR RECEIVER/TRANSMITTER MOUNT BLOWER ASSEMBLY INSTALLATION (EXAMPLE)

B

3076684 S0000834441_V1

Weather Radar Receiver/Transmitter Mount Blower Assembly Installation
Figure 401/34-43-51-990-802 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

**WEATHER RADAR RECEIVER/TRANSMITTER
MOUNT BLOWER ASSEMBLY INSTALLATION
(TYPICAL)**

C

3076693 S0000834445_V1

**Weather Radar Receiver/Transmitter Mount Blower Assembly Installation
Figure 401/34-43-51-990-802 (Sheet 3 of 3)**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-51-400-802

3. Mount Blower Assembly Installation

A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-43-31-400-801	Weather Radar Receiver/Transmitter Mount Installation (P/B 401)
34-43-41-400-801	Weather Radar Receiver/Transmitter Installation (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Installation Procedure

SUBTASK 34-43-51-940-002

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-51-010-003

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-51-420-001

(3) Install the Blower Assembly [7].

(a) Carefully put the Blower Assembly [7] into the R/T Mount.

(b) Install the screws [6].

(c) Install the screws [5].

(d) If necessary, install the R/T Mount removed for access to the screws [5] (Weather Radar Receiver/Transmitter Mount Installation, TASK 34-43-31-400-801).

SUBTASK 34-43-51-420-002

(4) Install the Weather Radar (WXR) Mount Filter Assembly [4].

(a) Carefully put the Filter Assembly [4] on top of the Blower Assembly [7].

(b) Install the knobs [2] and washers [3] that attach the Filter Assembly [4] to the Blower Assembly [7].

SUBTASK 34-43-51-420-005-002

(5) Connect the Electronic Connector [1].

SUBTASK 34-43-51-420-003

(6) Do this task: Weather Radar Receiver/Transmitter Installation, TASK 34-43-41-400-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-51-410-002

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-51-020-005

(2) Remove electrical power, if it is not necessary (Remove Electrical Power, TASK 24-22-00-860-812)

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR PROCESSOR MOUNT FAN ASSEMBLY - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the fan assembly on weather radar processor (RP) mount.

(2) An installation of the fan assembly on the RP mount.

B. The fan assembly on the RP mount is found in the lower nose compartment.

TASK 34-43-52-000-801

2. Weather Radar Processor Mount Fan Assembly Removal

Figure 401

A. References

Reference	Title
34-43-10-000-801	Weather Radar Processor Mount Fan Filter Removal (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Removal Procedure

SUBTASK 34-43-52-860-003

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-52-010-001

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-43-52-020-001

(3) Remove the fan [2] assembly from the RP mount

(a) Do this task: Weather Radar Processor Mount Fan Filter Removal, TASK 34-43-10-000-801

(b) Remove the three screws [5] that attach the air tube [4] and fan [2] assembly to the RP mount assembly.

(c) Disconnect the leads from the terminal block on the fan ring terminals T4 and T1.

(d) Identify the leads during the removal procedure to make sure that they are installed correctly.

(e) Carefully remove the fan [2] assembly from the mount.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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WEATHER RADAR PROCESSOR MOUNT FAN ASSEMBLY INSTALLATION
Figure 401/34-43-52-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-52-400-801

3. Weather Radar Processor Mount Fan Assembly Installation

Figure 401

A. References

Reference	Title
34-43-10-400-801	Weather Radar Processor Mount Fan Filter Installation (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Installation Procedure

SUBTASK 34-43-52-860-001

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-52-420-001

(2) Install the fan [2] assembly on the mount:

(a) Connect the leads to terminals T4 and T1 of the fan terminal block.

(b) Place the fan [2] assembly on the mount

1) Make sure that the air flow direction as shown on the fan label is correct.

(c) Put the air tube [4] on the fan [2] assembly.

(d) Attach the fan [2] assembly and the air tube [4] to the mount with the three screws [5].

SUBTASK 34-43-52-420-002

(3) Do this task:Weather Radar Processor Mount Fan Filter Installation, TASK 34-43-10-400-801

SUBTASK 34-43-52-860-002

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-52-700-001

(5) Make sure that the fan [2] operates correctly.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-52-410-001

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WEATHER RADAR CONTROL PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the weather radar control panel [1].

(2) An installation of the weather radar control panel [1].

B. The weather radar control panel [1] is located in the flight compartment on the aft electronics panel, P8.

TASK 34-43-91-000-801

2. Weather Radar Control Panel Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-43-91-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-91-020-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE WEATHER RADAR CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE WEATHER RADAR CONTROL PANEL.

(2) Do these steps to remove the weather radar control weather radar control panel [1]:

(a) Loosen the four quarter-turn fasteners [2].

(b) Carefully lift the weather radar control weather radar control panel [1] from the aft electronics panel, P8, to get access to the electrical connector [3].

(c) Disconnect the electrical connector [3].

(d) Put a protective cover on the electrical connector [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Weather Radar Control Panel Installation
Figure 401/34-43-91-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-43-91-400-801

3. Weather Radar Control Panel Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Weather radar control panel	31-11-91-79-405	LOM 426
		31-11-91-81E-405	LOM 404
		31-11-91-81G-405	LOM 402, 406, 407
		31-11-91-82Q-455	LOM 411
		31-11-91-82R-605	LOM 412, 415, 423, 424
		34-43-91-06-050	LOM 402, 404, 406, 407, 416, 420, 422, 425, 426, 429-434, 440, 442-445, 450-454, 458-460, 465-999
		34-43-91-06A-010	LOM 411, 412, 415, 423, 424, 427, 428, 437-439, 441, 446, 447, 455-457, 461-463
		34-43-91-06D-010	LOM 464

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Weather Radar Control Panel Installation

SUBTASK 34-43-91-860-003

(1) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-43-91-420-001

> **CAUTION**
> DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE WEATHER-RADAR CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE WEATHER-RADAR CONTROL PANEL.

(2) Do these steps to install the weather radar control panel [1]:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Remove the protective cover from the electrical connector [3].

(b) Examine the electrical connector for bent or broken pins, dirt, and damage.

(c) Connect the electrical connector [3].

(d) Put the weather radar control panel [1] in its position on the aft electronics control panel, P8.

(e) Tighten the four quarter-turn fasteners [2].

SUBTASK 34-43-91-860-004

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

E. Weather Radar Control Panel Installation Test

SUBTASK 34-43-91-860-005

(1) Make sure that the electrical system is supplied (TASK 24-22-00-860-811).

SUBTASK 34-43-91-860-052

(2) Make sure that the TEST switch/indicator light on the weather radar control panel [1] is off.

(a) Make sure that the TEST mode is off by the condition that follows:

NOTE: Use the condition that is applicable for your airplane configuration.

1) The TEST indicator light is off.

2) The TEST switch is not pushed in.

3) The selector knob is not turned to TEST.

LOM 411, 432

SUBTASK 34-43-91-860-006

(3) Set the TILT control knob on the weather radar control panel [1] to 0 degrees.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-91-860-013

(4) Set the left and right TILT control knobs on the weather radar control panel [1] to 0 degrees.

SUBTASK 34-43-91-860-021

(5) Select “AUTO” tilt switch on weather radar control panel [1] to “OFF” (out).

LOM 411, 432

SUBTASK 34-43-91-860-020

(6) Set the GAIN control knob on the weather radar control panel [1] to the AUTO position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-91-860-022

(7) Set the left and right GAIN control to 12 o'clock position

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LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-91-860-037

(8) Set the two GAIN control knobs on the weather radar control panel [1] to the CAL position.

LOM ALL

SUBTASK 34-43-91-860-011

(9) Set the RANGE on the captain's and first officer's Electronic Flight Instrument System (EFIS) control panel to 40.

SUBTASK 34-43-91-860-012

(10) Make sure that the captain's and first officer's EFIS displays are on.

SUBTASK 34-43-91-860-007

(11) Make sure that the Air Data Inertial Reference System (ADIRS) is aligned, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-43-91-860-008

WARNING

DO NOT OPERATE THE WEATHER RADAR WITHIN 3.3 FEET (1 METER) OF REFUELING OR DE-FUELING OPERATIONS, A FUEL SPILL OR OPEN FUEL CELLS. OPERATION OF THE WEATHER RADAR WITHIN THE 3.3 FEET (1 METER) LIMIT CAN CAUSE A FIRE OR EXPLOSION. A FIRE OR EXPLOSION CAN CAUSE INJURY OR DEATH TO PERSONNEL AND DAMAGE TO EQUIPMENT.

WARNING

DO NOT OPERATE THE WEATHER RADAR WHEN PERSONNEL ARE IN THE AREA USUALLY ENCLOSED BY THE AIRCRAFT NOSE RADOME OR IN A HANGAR. THESE CONDITIONS CAN CAUSE INJURY TO PERSONNEL.

(12) Push the WXR switch on the Captain's and First Officer's EFIS control panel to turn on the weather radar system.

NOTE: The hangar restriction DOES NOT apply to the weather radar test mode.

LOM 411, 432

SUBTASK 34-43-91-860-009

(13) Turn the TILT control knob on the weather radar control panel [1], P8, to +15 and then to -15 degrees.

(a) Make sure the tilt position that shows in the weather radar tilt field on the Display Unit (DU) agree with the tilt position on the weather radar control panel [1].

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454

SUBTASK 34-43-91-700-001

(14) Set the System Control knob on the weather radar control panel [1] to NORM.

SUBTASK 34-43-91-860-045

(15) Set the two Mode Select knobs on the weather radar control panel [1] to MAN.

(a) Make sure that 00o shows in the Weather Radar Altitude field of the Captain's and First Officer's DU.

NOTE: In the MAN mode, the altitude field on the display unit will show the airplane Mean Sea Level (MSL) altitude. For altitudes below 500 feet, the altitude field on the display unit will show 00o.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 422, 425, 433, 434, 437, 438, 440, 442, 445, 453, 454 (Continued)

(b) Make sure that WX-M shows in the WXR Mode field of the Captain's and First Officer's DU.

SUBTASK 34-43-91-860-046

(16) Set the two Mode Select knobs on the weather radar control panel [1] to AUTO.

(a) Make sure that WX-A shows in the WXR Mode field of the Captain's and First Officer's DU.

SUBTASK 34-43-91-860-047

(17) Set the two Mode Select knobs on the weather radar control panel [1] back to MAN.

SUBTASK 34-43-91-860-048

(18) Turn the two ALT knobs on the weather radar control panel [1].

(a) Make sure that the altitude in the WXR Altitude field changes from 00o to 60o in 1000 foot increments.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 443, 444, 446, 447, 450-452, 455-999

SUBTASK 34-43-91-860-051

(19) Select WX on the weather radar control panel [1].

SUBTASK 34-43-91-860-015

(20) Turn the left TILT control slowly up 15, then down 15 and then 0 on the weather radar control panel [1].

(a) Make sure the tilt position that shows in the captain's weather radar tilt field on the DU agrees with the tilt position on the weather radar control panel [1].

SUBTASK 34-43-91-860-023

(21) Select “AUTO” tilt switch on weather radar control panel [1] to OFF (out).

(a) Verify “0” (number 0) is shown on Weather Radar tilt field followed by the letter “M”.

SUBTASK 34-43-91-860-049

(22) Select “AUTO” tilt switch on weather radar control panel [1] to ON (in).

(a) Verify a tilt angle is shown on Weather Radar tilt field followed by the letter “A”. The tilt angle can be any number between -15 and +15.

SUBTASK 34-43-91-860-050

(23) Deselect “AUTO” tilt switch on weather radar control panel [1] to OFF (out).

SUBTASK 34-43-91-860-016

(24) Turn the right tilt control slowly up 15, then down 15, then 0 on the weather radar control panel [1].

(a) Make sure the tilt position that shows in the first officer's weather radar tilt field on the DU agrees with the tilt position on the weather radar control panel [1].

LOM ALL

SUBTASK 34-43-91-860-017

(25) Select TEST on the weather radar control panel [1].

SUBTASK 34-43-91-210-002

(26) Make sure that a green, yellow, red, magenta test pattern shows on the captains (first officers) DU.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-43-91-860-053

(1) Set the ADIRU switch to the OFF position.

SUBTASK 34-43-91-860-054

(2) Push the WXR switch on the captain's and first officer's EFIS control panel to turn off the weather radar system.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460

(1) Flight history data download from the TCAS.

LOM ALL

(2) Traffic Alert and Collision Avoidance System Deactivation (TCAS).

(3) Traffic Alert and Collision Avoidance System Activation (TCAS).

LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460

TASK 34-45-00-970-801

2. Flight History Data Download

A. General

(1) This procedure allows a complete listing of stored fault history information, and TA/RA events to be downloaded from the TPA-100 TCAS processor onto a portable PCMCIA flash card.

(2) A blank PC ATA card with memory capability up to 512 megabytes, or a compact flash (CF) using an adapter may be used for the download procedures.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

C. Procedure

SUBTASK 34-45-00-869-001

(1) Make sure power to the TCAS Processor is turned off.

(a) Open this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-00-869-002

(2) On the TCAS Processor, open the front panel access cover.

SUBTASK 34-45-00-869-003

(3) Insert a blank PC ATA card into the PCMCIA slot.

SUBTASK 34-45-00-869-004

(4) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-00-869-005

(5) Verify that there is a blinking red light in the PCMCIA slot.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460 (Continued)

SUBTASK 34-45-00-869-006

(6) Verify that the following message displays on the LCD display on the front of the TCAS Processor.

(a) CARD INSERTED

(b) DUMP REQUEST

(c) > GO BACK

NOTE: This message will stay on the screen for approximately five minutes.

SUBTASK 34-45-00-869-007

(7) Verify that the following message displays on the LCD display on the front of the TCAS Processor when the data dump is complete.

(a) CARD INSERTED

(b) DUMP COMPLETE

(c) > GO BACK

SUBTASK 34-45-00-869-008

(8) Remove the PC ATA card from the TCAS Processor.

SUBTASK 34-45-00-869-009

(9) Close the access cover.

SUBTASK 34-45-00-869-010

(10) Restore the airplane to the usual condition

LOM ALL

——— END OF TASK ———

TASK 34-45-00-040-801

3. Traffic Alert and Collision Avoidance System - Deactivation

(Figure 201)

A. General

(1) This procedure removes electrical power to the TCAS system.

B. Location Zones

Zone	Area
100	Lower Half of Fuselage
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-45-00-860-043

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Traffic Alert and Collision Avoidance System - Tryout

NOTE: This tryout is to make sure the TCAS system is in a zero energy state.

SUBTASK 34-45-00-860-044

(1)

Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

SUBTASK 34-45-00-740-003

(2) On the ATC control panel, turn and release the mode select switch in the TEST position for one second.

(a) Make sure that you hear no sound from the flight compartment speakers.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

SUBTASK 34-45-00-740-004

(3) On the ATC control panel, push and release the test switch.

(a) Make sure that you hear no sound from the flight compartment speakers.

LOM ALL

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TCAS Antenna
Figure 201/34-45-00-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-45-00-440-801

4. Traffic Alert and Collision Avoidance System - Activation

(Figure 201)

A. General

(1) This procedure adds electrical power to the TCAS system.

B. Location Zones

Zone	Area
100	Lower Half of Fuselage
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-45-00-860-045

WARNING

KEEP ALL PERSONNEL AT A SAFE DISTANCE FROM THE ANTENNA. RF ENERGY CAN CAUSE INJURIES TO PERSONNEL.

(1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) PREVENTIVE MEASURES - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) System Antenna Checks - Check I

(2) Traffic Alert and Collision Avoidance System (TCAS) System Coaxial Cable Checks - Check II

(3) Suppression Bus Coaxial Cable Checks – Check III

NOTE: Use TASK 20-10-72-200-801 to check integrity of coaxial cables and antennas.

B. This check provides instructions to detect common degradation that leads to intermittent failure (e.g. poor cables, antennas, and loose or wet connections).

C. Historically, resistance and continuity checks alone have failed to detect intermittent inflight failures. The following checks provide methods proven to uncover intermittent failures and when performed for chronically intermittent issues, and are also used to prevent inflight failures when used as proactively.

D. This predictive maintenance and enhanced troubleshooting procedure is optional and the results are for evaluation purposes only. No action is required as a result of this inspection if a flight deck effect or other observed fault does not exist. The recommendations are made to show Boeing's best practices to make sure that maximum aircraft reliability is reached. If a flight deck effect or other observed fault exists, it must be corrected with accepted procedures.

TASK 34-45-00-200-801-001

2. System Antenna Checks - Check I

A. General

(1) This task is to detects anomalies in the antenna and antenna to structure bond.

B. References

Reference	Title
20-10-72-200-801	Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer (P/B 201)
34-45-01-000-801	TCAS Computer Removal (P/B 401)
34-45-01-400-801	TCAS Computer Installation (P/B 401)
34-53-02-020-801	ATC Transponder Removal (P/B 401)
34-53-02-400-801	ATC Transponder Installation (P/B 401)
34-55-21-000-801	DME Interrogator Removal (P/B 401)
34-55-21-400-801	DME Interrogator Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-15185	Reflectometer - Frequency Domain (FDR) Part #: FH-AV-KIT Supplier: 70998 Part #: W4101 Supplier: FB3T5 Opt Part #: 7003A001-4 Supplier: 21844

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

E. Prepare for the Check

SUBTASK 34-45-00-020-001-001

(1) Remove the Traffic Alert and Collision Avoidance System (TCAS) Computer, do this task: TCAS Computer Removal, TASK 34-45-01-000-801.

SUBTASK 34-45-00-020-002-001

(2) Remove the Air Traffic Control (ATC) 1 and ATC 2 Transponder, do this task: ATC Transponder Removal, TASK 34-53-02-020-801.

SUBTASK 34-45-00-020-003-001

(3) Remove the Distance Measuring Equipment (DME) 1 and DME 2, do this task: DME Interrogator Removal, TASK 34-55-21-000-801.

F. System Antenna Checks - Check I

SUBTASK 34-45-00-200-001-001

(1) Do the Coaxial Cable and Antenna Check System Test with the Antenna Connected, with a frequency domain reflectometer, COM-15185, as follows:

NOTE: Whenever the SiteHawk or FlightHawk Frequency Domain Reflectometer (FDR) has been calibrated, a COR ON indicator is shown in the lower right corner of the display. Anytime the frequency is changed, the calibration is turned off and the COR ON disappears, requiring the unit to be recalibrated.

NOTE: TCAS only uses two distinct frequencies: 1030 to transmit and 1090 to receive. Therefore, sweep from 1000 to 1100MHz and place markers at 1030 and 1090 MHz. The markers will display its SWR value at these frequencies. Ensure Standing Wave Ratio (SWR) is less or equal to 2.0 for both. Recommend turning off the OFF flag to prevent confusion.

(a) Make sure that the unit is displaying COR ON prior to testing cables and/or antenna.

(b) Do a system test with the antenna connected for the ATC Antenna (TASK 20-10-72-200-801).

(c) Do a system test with the antenna connected for the DME Antenna (TASK 20-10-72-200-801).

(d) Do a system test with the antenna connected for the TCAS Antenna (TASK 20-10-72-200-801).

1) Select FailFlag (On/Off).

a) Push to toggle the fail flag off.

2) Set Frequency Range to 1000 and 1100 MHz.

3) Place markers at 1030 and 1090 MHz.

4) Make sure that the SWR is less or equal to 2.0 for both markers while ignoring all other frequencies.

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SUBTASK 34-45-00-200-002-001

(2) Do a FDR microwave inspection of the TCAS, ATC, and DME System with the antenna connected:

NOTE: This task ensures antennas block high frequency interference (e.g. 5G, IFE and PEDs).

(a) Do a test of the ATC Antenna (TASK 20-10-72-200-801).

1) Make sure that the antenna blocks, more then 2.0 SWR, at 3000 MHz to 6000 MHz band.

(b) Do a test of the DME Antenna (TASK 20-10-72-200-801).

1) Make sure that the antenna blocks, more then 2.0 SWR, at 3000 MHz to 6000 MHz band.

(c) Do a test of the TCAS Antenna (TASK 20-10-72-200-801).

1) Make sure that the antenna blocks, more then 2.0 SWR, at 3000 MHz to 6000 MHz band.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-420-001-001

(1) Install the TCAS Computer, do this task: TCAS Computer Installation, TASK 34-45-01-400-801.

SUBTASK 34-45-00-420-002-001

(2) Install the ATC 1 and ATC 2 Transponder, do this task: ATC Transponder Installation, TASK 34-53-02-400-801.

SUBTASK 34-45-00-420-003-001

(3) Install the DME 1 and DME 2, do this task: DME Interrogator Installation, TASK 34-55-21-400-801.

END OF TASK

TASK 34-45-00-200-802-001

3. TCAS System Coaxial Cable Tests – Check II

(Figure 201)

A. General

(1) This task detects anomalies in coaxial cable and connections where multimeter (DC resistance or continuity) or low frequency, less then 4MHz, have failed to detect loose or degraded cables and connections.

(2) This task contains three methods to perform high resolution testing of the LRU to Antenna cabling. You may use either Method 1 or 2 or 3 based on your equipment availability and preference.

(a) Method 1 uses the High-Resolution TDR and does not require removal of the antennas.

(b) Method 2 uses a Frequency Domain Reflectometer (FDR) that does not require removal of the antenna, but does not have the best resolution for distance to fault. Recommend using high-resolution Methods 1 or 3 for to isolate precise location or for chronically intermittent airplanes.

(c) Method 3 uses a FDR at microwave frequency. While it does not harm the antenna, it results in distortion inhibiting ability to inspect cables when antenna is connected. Therefore, this check requires removal of the antenna to enable attachment of the 50 ohm RF dummy load.

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B. References

Reference	Title
20-10-72-200-801	Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer (P/B 201)
34-45-01-000-801	TCAS Computer Removal (P/B 401)
34-45-01-400-801	TCAS Computer Installation (P/B 401)
34-53-02-020-801	ATC Transponder Removal (P/B 401)
34-53-02-400-801	ATC Transponder Installation (P/B 401)
34-55-21-000-801	DME Interrogator Removal (P/B 401)
34-55-21-400-801	DME Interrogator Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-15185	Reflectometer - Frequency Domain (FDR) Part #: FH-AV-KIT Supplier: 70998 Part #: W4101 Supplier: FB3T5 Opt Part #: 7003A001-4 Supplier: 21844
COM-17510	Adapter Kit - Radio Frequency Part #: 4240-401 Supplier: 70998
COM-23670	Cable Analyzer - TDR (CT100B) Part #: CT100B Supplier: $1360
COM-23934	Test Kit - Radio Frequency (ARINC 600 Connectors) Part #: CT100-AK-TCAS Supplier: $1360

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

E. Prepare for the Check

SUBTASK 34-45-00-020-004-001

(1) Remove the Traffic Alert and Collision Avoidance System (TCAS) Computer, do this task: TCAS Computer Removal, TASK 34-45-01-000-801.

SUBTASK 34-45-00-020-005-001

(2) Remove the Air Traffic Control (ATC) 1 and ATC 2 Transponder, do this task: ATC Transponder Removal, TASK 34-53-02-020-801.

SUBTASK 34-45-00-020-006-001

(3) Remove the Distance Measuring Equipment (DME) 1 and DME 2, do this task: DME Interrogator Removal, TASK 34-55-21-000-801.

F. TCAS System Coaxial Cable Tests Check II Method 1

NOTE: Performs High Resolution Time Domain Reflection (HRTDR) inspection of the TCAS, ATC, and DME cables without need to remove the antennas.

SUBTASK 34-45-00-200-003-001

(1) Follow the TDR, COM-23670, operator's manual to setup for testing and power on.

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SUBTASK 34-45-00-200-004-001

(2) Use CT100-AK-TCAS RF ARINC 600 Connectors and Load Test Kit's T5 adapter, radio frequency test kit, COM-23934, to connect HRTDR to the EE Rack Connector.

SUBTASK 34-45-00-200-021-001

(3) Do a test of the ATC System Cables.

SUBTASK 34-45-00-200-022-001

(4) Do a test of the DME System Cables.

SUBTASK 34-45-00-200-023-001

(5) Do a test of the TCAS System Cables (8 each).

SUBTASK 34-45-00-200-005-001

(6) Evaluate health of cables and connections (Figure 201):

NOTE: See generic cable and connector figures below to help with evaluation.

(a) Move Time Domain Reflectometry (TDR) cursor along the run, evaluating for consistent impedance, free of spikes, and meets the following:

1) Make sure that all connections are less than 57 ohms and do not result in continued impedance change.

a) If a connection is suspect, use Envelope Plot to record deviations while shaking the connection.

2) Make sure that the cable from the LRUs to the Antennas are free from impedance deviations and measure is 46 - 54 ohms.

G. TCAS System Coaxial Cable Tests Check II Method 2

NOTE: Performs FDR inspection of the TCAS, ATC, and DME cables with the antenna connected. This test does not have the best resolution for distance to fault. Recommend using high-resolution inspection Methods 1 or 3 for to isolate precise location or for chronically intermittent airplanes.

SUBTASK 34-45-00-200-037-001

(1) Do a Coaxial Cables and Connectors Check with the Antenna Disconnected with radio frequency adapter kit, COM-17510, and frequency domain reflectometer, COM-15185 (TASK 20-10-72-200-801).

(a) Do not disconnect antennas for this check.

SUBTASK 34-45-00-200-024-001

(2) Remove applicable LRU.

SUBTASK 34-45-00-200-025-001

(3) Use the Flight Hawk's T5 adapter radio frequency adapter kit, COM-17510, to connect FDR to the EE Rack Connector.

SUBTASK 34-45-00-200-026-001

(4) Do a test of the ATC System Cables.

SUBTASK 34-45-00-200-027-001

(5) Do a test of the DME System Cables.

SUBTASK 34-45-00-200-028-001

(6) Do a test of the TCAS System Cables (8 each).

SUBTASK 34-45-00-200-029-001

(7) Evaluate health of cables and connections (Figure 201):

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(a) Make sure that all connections are less than 1.2 Standing Wave Ratio (SWR) or less then 20.83 dB at their respective operating frequency.

NOTE: See Table 201 for 737 RF SYSTEM FREQUENCY RANGE CHART.

1) If a connection is suspect, use Envelope Plot to record deviations while shaking the connection.

NOTE: For example, 1.1 SWR or -26 dB is a good measurement, while 1.3 SWR or -17.7 dB is a poor measurement.

H. TCAS System Coaxial Cable Tests Check II Method 3

NOTE: Performs FDR microwave inspection of the TCAS, ATC, and DME cables with the antenna disconnected to allow connection of the PN FH-AV-KIT's 50-ohm RF Load to the antenna connector.

SUBTASK 34-45-00-200-006-001

(1) Do a Fault Isolation of Coaxial Cable and Antenna System at Microwave Frequency with radio frequency adapter kit, COM-17510, and frequency domain reflectometer, COM-15185 (TASK 20-10-72-200-801).

SUBTASK 34-45-00-200-030-001

(2) Remove applicable LRU.

SUBTASK 34-45-00-200-031-001

(3) Use the Flight Hawk's T5 adapter radio frequency adapter kit, COM-17510, to connect FDR to the EE Rack Connector.

SUBTASK 34-45-00-200-032-001

(4) Do a test of the ATC System Cables.

SUBTASK 34-45-00-200-033-001

(5) Do a test of the DME System Cables.

SUBTASK 34-45-00-200-034-001

(6) Do a test of the TCAS System Cables (8 each).

SUBTASK 34-45-00-200-035-001

(7) Evaluate health of cables and connections (Figure 201):

(a) Use a microwave frequency with a RF Load in place of the antenna to make sure that all connections are less than 1.2 SWR or less then 20.83 dB.

1) If a connection is suspect, use Envelope Plot to record deviations while shaking the connection.

NOTE: For example, 1.1 SWR or -26 dB is a good measurement, while 1.3 SWR or -17.7 dB is a poor measurement.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-420-004-001

(1) Install the TCAS Computer, do this task: TCAS Computer Installation, TASK 34-45-01-400-801.

SUBTASK 34-45-00-420-005-001

(2) Install the ATC 1 and ATC 2 Transponder, do this task: ATC Transponder Installation, TASK 34-53-02-400-801.

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SUBTASK 34-45-00-420-006-001

(3) Install the DME 1 and DME 2, do this task: DME Interrogator Installation, TASK 34-55-21-400-801.

——— END OF TASK ———

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LOOSE COAX CONNECTOR BEFORE THE TIGHTENING (EXAMPLE)

LOOSE COAX CONNECTOR AFTER THE TIGHTENING (EXAMPLE)

3046693 S0000812594_V1

Cable and Connector Health Evaluation
Figure 201/34-45-00-990-804-001 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOOSE CONNECTOR - CONFIRMATION USING ENVELOPE PLOT (EXAMPLE)

3046947 S0000813373_V1

Cable and Connector Health Evaluation
Figure 201/34-45-00-990-804-001 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SIGNIFICANT IMPEDANCE CHANGES DUE TO BENDS, CRIMPS, KINKS IN COAX CABLE (EXAMPLE)

NO IMPEDANCE DEVIATIONS IN CABLE RUN

3046696 S0000812595_V1

Cable and Connector Health Evaluation
Figure 201/34-45-00-990-804-001 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-45-00-200-803-001

4. Suppression Bus Coaxial Cable Checks – Check III

(Figure 201)

A. General

(1) This task performs HRTDR or Frequency Domain Reflectometer (FDR) microwave inspection of the suppression cables and cable tees.

(2) This task detects anomalies in coaxial cable and connections where multimeter (DC resistance or continuity) or low frequency, <4MHz, have failed to detect loose or degraded cables and connections.

(3) This task contains two methods to perform high resolution testing of the Suppression Bus coax cabling and connectors. You may use either Method 1 or 2 based on your equipment availability and preference.

(a) Method 1 uses the High-Resolution Time Domain Reflectometry (TDR) with four 50-ohm RF loads to enable quick testing without need to disconnect any coax cables.

(b) Method 1A uses the High-Resolution TDR with two 50-ohm RF loads to prevents the need to remove the E1-2 and E1-5 shelves to access the M1346 and M1347 Coax Tees.

(c) Method 2 uses a FDR that requires isolation of each coax cable to enable FDR connection on one end, and connection of the 50-ohm RF dummy load on the opposite end.

B. References

Reference	Title
20-10-72-200-801	Coaxial Cable and Antenna System Inspection with a Frequency Domain Reflectometer (P/B 201)
34-45-01-000-801	TCAS Computer Removal (P/B 401)
34-45-01-400-801	TCAS Computer Installation (P/B 401)
34-53-02-020-801	ATC Transponder Removal (P/B 401)
34-53-02-400-801	ATC Transponder Installation (P/B 401)
34-55-21-000-801	DME Interrogator Removal (P/B 401)
34-55-21-400-801	DME Interrogator Installation (P/B 401)
WDM 34-53-31	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-15185	Reflectometer - Frequency Domain (FDR) Part #: FH-AV-KIT Supplier: 70998 Part #: W4101 Supplier: FB3T5 Opt Part #: 7003A001-4 Supplier: 21844
COM-17510	Adapter Kit - Radio Frequency Part #: 4240-401 Supplier: 70998
COM-23670	Cable Analyzer - TDR (CT100B) Part #: CT100B Supplier: $1360
COM-23934	Test Kit - Radio Frequency (ARINC 600 Connectors) Part #: CT100-AK-TCAS Supplier: $1360

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D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

E. Prepare for the Check

SUBTASK 34-45-00-020-007-001

(1) Remove the Traffic Alert and Collision Avoidance System (TCAS) Computer, do this task: TCAS Computer Removal, TASK 34-45-01-000-801.

SUBTASK 34-45-00-020-008-001

(2) Remove the Air Traffic Control (ATC) 1 and ATC 2 Transponder, do this task: ATC Transponder Removal, TASK 34-53-02-020-801.

SUBTASK 34-45-00-020-009-001

(3) Remove the Distance Measuring Equipment (DME) 1 and DME 2, do this task: DME Interrogator Removal, TASK 34-55-21-000-801.

F. Suppression Bus Coaxial Cable Checks Check III Method 1

NOTE: Performs HRTDR inspection with four 50-ohm dummy loads and no requirement to disconnect connectors.

SUBTASK 34-45-00-200-007-001

(1) Follow the TDR, COM-23670, operator's manual to setup for testing and power on.

SUBTASK 34-45-00-020-010-001

(2) Connect HRTDR cable by inserting T5 adapter into each TCAS adapter into each TCAS suppression connector pin C-12 using radio frequency test kit, COM-23934.

SUBTASK 34-45-00-200-008-001

(3) Insert radio frequency test kit, COM-23934, adapters with 50-ohm dummy load into each ATC and DME suppression connector.

(a) DME 1 connector pin C-12.

(b) DME 2 connector pin C-12.

(c) ATC 1 connector pin C-12.

(d) ATC 2 connector pin C-12.

SUBTASK 34-45-00-200-009-001

(4) Evaluate health of cables and connections (Figure 201):

(a) Move TDR cursor along the run, evaluating for consistent impedance, free of spikes, and meets the following (WDM 34-53-31):

1) Make sure that connections "spikes" are less than +/- 3 ohms impedance change from the coaxial cable impedance and do not result in continued impedance change.

NOTE: For example, a 54 ohm cable should not spike greater than 57 ohms total, and should return back to a stable coaxial cable measurement with coaxial impedance limits below.

2) Make sure that the cable from TCAS Computer to M1908 measures to 46-54 ohms.

3) Make sure that the cable from M1908 to M1346/M1347 measures to 23-31 ohms.

4) Make sure that the cable from M1346/M1347 to ATC 1/ATC 2 measures to 9-17 ohms.

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G. Suppression Bus Coaxial Cable Checks Check III Method 1(Alternate)

NOTE: Used to perform HRTDR inspection with only two 50-Ohm Dummy Loads.

SUBTASK 34-45-00-200-010-001

(1) Follow the TDR, COM-23670, operator's manual to setup for testing and power on.

SUBTASK 34-45-00-200-011-001

(2) Use CT100-AK-TCAS RF ARINC 600 Connectors and Load Test Kit radio frequency test kit, COM-23934, to connect TDR, COM-23670 cable by inserting T5 adapter into each TCAS adapter into each TCAS suppression connector pin C-12.

SUBTASK 34-45-00-200-012-001

(3) Disconnect coaxial connectors D10163 and D10159 from Coax Tee M1908.

SUBTASK 34-45-00-200-013-001

(4) Evaluate health of cable and connections between TCAS Computer D2743C and M1908 Cable Tee (WDM 34-53-31).

(a) Move TDR cursor along the run, evaluating for consistent impedance, free of spikes, and meets the following (Figure 201):

1) Make sure that connections "spikes" are less than +/- 3 ohms impedance change from the coaxial cable impedance and do not result in continued impedance change .

NOTE: For example, a 54 ohm cable should not spike greater than 57 ohms total, and should return back to a stable coaxial cable measurement with coaxial impedance limits.

2) Make sure that the cable from TCAS Computer to M1908 measures to 46-54 ohms .

SUBTASK 34-45-00-200-014-001

(5) Use CT100-AK-TCAS Kit's T1 adapters radio frequency test kit, COM-23934, with 50-ohm dummy load into each ATC 1 and DME 1 suppression connector.

(a) DME 1 connector pin C-12.

(b) ATC 1 connector pin C-12.

SUBTASK 34-45-00-200-015-001

(6) Insert TDR connection into TCAS suppression connector pin C-12.

SUBTASK 34-45-00-200-016-001

(7) Evaluate health of cable and connections (WDM 34-53-31):

(a) Move TDR cursor along the run, evaluating for consistent impedance, free of spikes, and meets the following (Figure 201):

1) Make sure that connections "spikes" are less than +/- 3 ohms impedance change from the coaxial cable impedance and do not result in continued impedance change.

NOTE: For example, a 54 ohm cable should not spike greater than 57 ohms total, and should return back to a stable coaxial cable measurement with coaxial impedance limits below.

2) Make sure that the cable from TCAS Computer to M1908 measures to 46-54 ohms.

3) Make sure that the cable from M1908 to M1346/M1347 measures to 23-31 ohms.

4) Make sure that the cable from M1346/M1347 to ATC 1/ATC 2 measures to 9-17 ohms.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

H. Suppression Bus Coaxial Cable Checks – Check III Method 2

NOTE: Performs FDR microwave inspection of the Suppression Bus cables and connector's requires isolation of each coax cable to enable FDR connection on one end, and connection of the FH-AV-KIT's 50-ohm RF Load to the opposite end.

SUBTASK 34-45-00-200-017-001

(1) Do a Fault Isolation of Coaxial Cable and Antenna System at Microwave Frequency with frequency domain reflectometer, COM-15185, and radio frequency adapter kit, COM-17510 (TASK 20-10-72-200-801).

NOTE: Since the FDR is testing for any deviation from 50-ohms, testing through any coax tee will cause great deviation. Therefore, the user will need to disconnect coax cables from the coax tees, and then test the cables individually.

SUBTASK 34-45-00-200-018-001

(2) Remove all connectors from Coax Tees.

SUBTASK 34-45-00-200-019-001

(3) Connect the frequency domain reflectometer, COM-15185, to one end of the cable, and the RF Load to the other (WDM 34-53-31):

(a) Do a test of the cable from TCAS computer to M1908.

(b) Do a test of the cable from M1908 to M1347.

(c) Do a test of the cable from M1908 to M1348.

(d) Do a test of the cable from M1346 to ATC 1.

(e) Do a test of the cable from M1346 to DME 1.

(f) Do a test of the cable from M1347 to ATC 2.

(g) Do a test of the cable from M1347 to DME 2.

SUBTASK 34-45-00-200-036-001

(4) Evaluate health of cables and connections (Figure 201):

(a) Make sure that all connections are less than 1.2 Standing Wave Ratio (SWR) or less then 20.83 dB using a microwave frequency with a RF Load in place of the antenna .

1) If a connection is suspect, use Envelope Plot to record deviations while shaking the connection .

NOTE: For example, 1.1 SWR or -26 dB is a good measurement, while 1.3 SWR or -17.7 dB is a poor measurement.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-420-007-001

(1) Install the TCAS Computer, do this task: TCAS Computer Installation, TASK 34-45-01-400-801.

SUBTASK 34-45-00-420-008-001

(2) Install the ATC 1 and ATC 2 Transponder, do this task: ATC Transponder Installation, TASK 34-53-02-400-801.

SUBTASK 34-45-00-420-009-001

(3) Install the DME 1 and DME 2, do this task: DME Interrogator Installation, TASK 34-55-21-400-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) TCAS operational test

(2) TCAS system test (With the IFR TCAS-201 Test Set)

(3) TCAS system test (With the TIC TR-220 Test Set)

(4) TCAS System Test (With the TIC T-49 Test Set).

(5) TCAS System Test (With the IFR-6000 Test Set).

TASK 34-45-00-710-801

2. TCAS - Operational Test

A. General

(1) This test makes sure the TCAS operates correctly. It uses only the system's Built In Test Equipment (BITE) functions. Special test or ground equipment is not necessary.

B. References

Reference	Title
23-51-00-710-801	Flight Interphone System - Operational Test (P/B 501)
31-62-00-710-801	Common Display System - Operational Test (P/B 501)
34-21-00 P/B 501	AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST
34-21-00-710-801	Air Data Inertial Reference System - Operational Test (P/B 501)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-33-00-710-801	Low Range Radio Altimeter (LRRA) System - Operational Test (P/B 501)
34-53-00-710-801	Air Traffic Control System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Operational Test

SUBTASK 34-45-00-860-002

(1) Make sure these systems are serviceable:

(a) Air Data System (TASK 34-21-00-710-801).

(b) Air Traffic Control System (TASK 34-53-00-710-801).

(c) Common Display System (TASK 31-62-00-710-801).

(d) Flight Interphone System (TASK 23-51-00-710-801).

(e) Low Range Radio Altimeter System (TASK 34-33-00-710-801).

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SUBTASK 34-45-00-860-003

(2) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-45-00-860-034

(3) Wait until the align light on the MSU goes off.

SUBTASK 34-45-00-860-004

(4) Put the display mode switch on the EFIS control panel to the MAP position.

SUBTASK 34-45-00-860-035

(5) Put the range knob on the EFIS control panel to 10.

SUBTASK 34-45-00-860-005

(6) Put the mode select switch on the ATC control panel to the TA/RA position.

LOM 427, 428, 437, 438

SUBTASK 34-45-00-860-079

(7) Set the mode reply switch, on the ATC control panel, to the ON position.

LOM ALL

SUBTASK 34-45-00-860-006

(8) Push the TFC switch on the EFIS control panel.

(a) Make sure the inboard display shows TFC.

SUBTASK 34-45-00-860-007

(9) Put the transponder select switch on the ATC control panel to the 1 position.

(a) Make sure the FAIL lamp on the ATC control panel is off.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

SUBTASK 34-45-00-860-008

(10) Put the mode select switch on the ATC control panel to the STBY position.

(a) Make sure the inboard displays show the TCAS OFF indication.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

SUBTASK 34-45-00-860-051

(11) Put the mode reply switch on the ATC control panel to STBY position.

(a) Make sure the inboard displays show the TCAS OFF indication.

(b) Put the mode reply switch on the ATC control panel to the ON position.

LOM ALL

SUBTASK 34-45-00-860-009

(12) Put the mode select switch on the ATC control panel to the TA position.

(a) Make sure the inboard displays show the TA ONLY indication.

SUBTASK 34-45-00-860-010

(13) Put the mode select switch on the ATC control panel to the TA/RA position.

(a) Make sure TA ONLY continues to show on the inboard displays.

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SUBTASK 34-45-00-860-078

WARNING	MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(14) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Put the mode select switch on the ATC control panel to the STBY position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Put the mode reply switch on the ATC control panel to the STBY position.

LOM ALL

E. Procedure

SUBTASK 34-45-00-740-001

(1) Do the operational test as follows:

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(a) Turn and release the mode select switch on the ATC control panel to the TEST position and hold it for one second.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(b) Press and release the TEST switch on the mode select switch located on the ATC control panel.

LOM ALL

(c) Make sure these results occur:

1) The inboard displays show a test pattern as described below (Figure 501):

a) TCAS TEST shows on the left side of the inboard displays

b) The word TRAFFIC shows on the right side of the inboard displays

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

c) An R/A (red square) shows at 3 o'clock and flying level (no arrow).

LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460

d) An R/A (red square) shows at 3 o'clock and flying level (no arrow).

LOM ALL

e) A Traffic Advisory (yellow circle) shows at 9 o'clock and climbing (up arrow).

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

f) Proximity Traffic (solid white diamond) shows at 1 o'clock and descending (down arrow).

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LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460

g) Proximity Traffic (solid white diamond) shows at 1 o'clock and descending (down arrow).

LOM ALL

h) Non-Threat Traffic (open white diamond) shows at 11 o'clock and flying level (no arrow).

2) Make sure the outboard displays show the DO NOT CLIMB and DO NOT DESCEND resolution advisory.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

3) A TCAS SYSTEM TEST OK synthesized voice announcement comes on at the end of the test if the test passes.

LOM 446, 447, 455, 456

4) A TCAS TEST PASS synthesized voice announcement comes on at the end of the test if the test passes.

NOTE: For aircraft with the TCAS MOP 7.1 change, if aural message “TCAS LRU PASS, TCAS SYSTEM FAIL” is heard, realign the IRU's (AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-21-00/501) and repeat the test. After alignment of the IRU's aural message "TCAS TEST PASS" should be heard.

LOM ALL

SUBTASK 34-45-00-740-002

(2) Do the operational test again with the transponder select switch on the ATC control panel set to the 2 position.

SUBTASK 34-45-00-840-005

WARNING

MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Put the mode select switch on the ATC control panel to the STBY position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Put the mode reply switch on the ATC control panel to the STBY position.

LOM ALL

END OF TASK

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EFIS INBOARD DISPLAYS (EXAMPLE)

EFIS OUTBOARD DISPLAYS (EXAMPLE)

G38327 S0006576948_V3

TCAS Test Pattern
Figure 501/34-45-00-990-801 (Sheet 1 of 2)

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EFIS INBOARD DISPLAYS (EXAMPLE)

EFIS OUTBOARD DISPLAYS (EXAMPLE)

N52759 S0006576950_V3

TCAS Test Pattern
Figure 501/34-45-00-990-801 (Sheet 2 of 2)

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TASK 34-45-00-730-801

3. TCAS - System Test (With the IFR TCAS-201 Test Set)

A. General

(1) This test is a complete system test of the Traffic Alert and Collision Avoidance System (TCAS). The system test first runs the Operational Test, and then does a test of the TCAS with ground test equipment.

B. References

Reference	Title
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34-11-00-790-802	Static and Total Air Pressure System - Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197

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(Continued)

Reference	Description
COM-1922	Test Set - Radio Altimeter Part #: 110-0430-100-02 Supplier: L04V3 Part #: 110-0460-105 Supplier: L04V3 Part #: 9599-607-15902 Supplier: F0052 Opt Part #: 110-0430-100 Supplier: L04V3
COM-4112	Test Set - Ramp, TCAS-201 Opt Part #: TCAS-201 Supplier: 51190 Opt Part #: TCAS-201-2 Supplier: 51190

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the System Test

SUBTASK 34-45-00-860-070

(1) To stop the GPS input to the transponder, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

NOTE: While the MMR circuit breakers are open, the ATC FAIL lamp will come on in the ATC/TCAS control panel and the UNABLE REQD NAV PERF-RNP message will show. These indications have no effect on the performance of the TCAS during the test.

SUBTASK 34-45-00-840-001

CAUTION DO NOT OPERATE THE TEST SET WHEN THE TEST SET ANTENNA IS WITHIN 15 INCHES (38 CM) OF AIRPLANE ANTENNA. IF YOU OPERATE THE TEST SET WITHIN THIS DISTANCE, DAMAGE TO THE TEST SET CAN OCCUR.

(2) Do the following steps to setup the TCAS-201 test set, COM-4112, with the ground test method:

(a) Put the TCAS-201 test set, COM-4112, antenna approximately 50 ft (15 m) from the top TCAS antenna at an angle of 45 degrees off of the airplane center line.

NOTE: Use the antenna stand to prevent unnecessary movements to the test set antenna. Unnecessary movements can cause the TCAS to loose tracking.

1) Make sure that there is no obstruction between the TCAS antennas.

NOTE: If ground equipment, walkways or other objects that could cause a signal obstruction or a multipath problem are in the area, choose a more suitable location for the test set and change the setup in the test set accordingly.

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(b) Point the TCAS-201 test set, COM-4112, antenna in the direction of the applicable TCAS antenna.

NOTE: This allows the correct TCAS antenna to receive the strongest signal.

(c) Push the POWER switch to supply power to the TCAS-201 test set, COM-4112.

(d) Push the SET/CONT key on the TCAS-201 test set, COM-4112.

(e) Enter the distance (± 5 ft) between the TCAS-201 test set, COM-4112, antenna and the top TCAS antenna in the HORIZ field.

(f) Enter 17 ft in the VERT field.

(g) Enter the gain of the TCAS-201 test set, COM-4112, antenna in the GAIN field.

NOTE: The antenna gain should be listed on the test set antenna.

(h) Enter the loss of the cable in the LOSS field.

NOTE: The cable loss values should be listed on the cable.

F. Test the TCAS system

SUBTASK 34-45-00-710-001

(1) Do this task: TCAS - Operational Test, TASK 34-45-00-710-801.

(a) Make sure that the Operational Test passes.

SUBTASK 34-45-00-730-001

(2) Do the TCAS Bearing Accuracy Test as follows:

(a) Put the transponder select switch on the ATC/TCAS control panel to the 1 position.

(b) Put the mode select switch on the ATC/TCAS control panel to the TA position.

(c) Shield the bottom TCAS antenna.

NOTE: This is to test the top TCAS antenna. You may have to get up high to be able to interrogate the top TCAS antenna from the rear of the airplane.

(d) Push the SCEN key on the TCAS-201 test set, COM-4112, to show the scenario menu.

(e) Set the scenario as follows:

1) INTRUDER TYPE: ATCRBS

2) ALT = OFF

3) RANGE: 8.0 nmi

4) RATE: 0 knots

(f) Push the RUN/STOP key to start the test.

(g) Use the TCAS-201 test set, COM-4112, to interrogate the four quadrants of the TCAS antenna at bearings of 0, 45, 90, 180, 225, 270 degrees.

1) Make sure that the inboard displays show the intruder's correct bearing ± 15 degrees.

(h) Shield the top TCAS antenna or move the TCAS-201 test set, COM-4112, antenna close to the bottom TCAS antenna (out of the line of sight from the top TCAS antenna).

NOTE: This is to test the bottom antenna. If you move the TCAS-201 test set, COM-4112, you have to change the values in the setup screen accordingly.

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WARNING MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR [BEFORE YOU MOVE THE CONTROL LEVER]. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(i) Make sure that the downlock pins are installed on the nose and main landing gear.

1) If the downlock pins are not installed, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

(j) Put the landing gear lever in the OFF position.

(k) Do the steps in the Bearing Accuracy Test again for the bottom TCAS antenna.

SUBTASK 34-45-00-860-012

(3) Do the Self-Test inhibit test:

(a) Put the airplane in the air mode with the BITE in the Proximity Switch Electronic Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(b) Turn and release the mode select switch on the ATC/TCAS control panel to the TEST position for one second.

1) Make sure that a TCAS self-test does not occur.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(c) Push and release the TEST switch on the ATC/TCAS control panel.

1) Make sure that a TCAS self-test does not occur.

LOM ALL

SUBTASK 34-45-00-860-013

(4) Prepare to do the TCAS intruder Climb Resolution Advisory Test:

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Put the mode select switch on the ATC/TCAS control panel to the STBY position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Put the STBY/AUTO switch on the ATC/TCAS control panel to the STBY position.

LOM ALL

(c) Use the pitot/static air data model test set, COM-1914, to apply an altitude of 40,000 ft (12 km) (Static and Total Air Pressure System - Pressurization, TASK 34-11-00-790-802).

NOTE: The 40,000 ft (12 km) barometric altitude is chosen to minimize false TCAS alerts to TCAS equipped airplanes nearby.

(d) Put the mode select switch on the ATC/TCAS control panel to the TA/RA position.

(e) Connect the radio altimeter test set, COM-1922, to the airplane.

(f) Use the radio altimeter test set, COM-1922, to set the radio altitude to 2400 ft (732 m).

NOTE: Increase the radio altitude by 600 feet per minute (fpm) or less. TCAS RA are inhibited below 1100 ft (335 m) during climb, so TA ONLY shows below 1100 ft (335 m).

1) Make sure that the inboard displays do not show the TA ONLY indication when the radio altitude is greater than 1100 ft (335 m).

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(g) Put the EFIS control panel to the MAP mode and a range of 20 on the inboard displays.

(h) Push the SCEN key to show the scenario menu.

(i) Set the scenario as follows:

1) INTRUDER TYPE: ATCRBS

2) ALT = ON

3) RANGE: 8.0 nmi

4) RATE: +500 knots

5) ALTITUDE: 39,900 ft

a) Make sure that the intruder's altitude is 100 ft (30 m) below your airplane's barometric altitude.

NOTE: You can change the airplane's altitude or intruder setup on the test set to do this.

6) RATE: 0 fpm.

SUBTASK 34-45-00-860-014

(5) Do the TCAS intruder Climb Resolution Advisory Test:

(a) Push the RUN/STOP key to start the scenario, and look for this sequence on the EFIS display and flight compartment speaker:

1) The intruder moves down the 45 degree bearing mark toward the airplane symbol.

2) The intruder has the correct relative altitude.

3) The intruder begins as Non-threat Traffic (open white diamond).

4) The intruder changes to Proximate Traffic (solid white diamond).

5) The intruder changes to a Traffic Advisory (solid yellow circle).

6) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.

7) The intruder changes to a Resolution Advisory (solid red square), and gives a "climb, climb" or "climb, climb, climb" voice announcement on the flight compartment speaker.

8) The outboard displays show an RA resolution to pull up.

9) Shortly before the intruder reaches the closest point of approach, the TCAS gives an "increase climb" voice announcement on the flight compartment speaker.

10) Shortly after the intruder reaches the airplane symbol on the inboard displays, the TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: The "Clear of Conflict" voice announcement sometimes may not be given.

(b) Push the RUN/STOP key on the TCAS-201 test set, COM-4112.

SUBTASK 34-45-00-860-015

(6) Prepare to do the TCAS intruder Descend Resolutionary Advisory Test:

(a) Put the transponder select switch on the ATC/TCAS control panel to the 2 position.

(b) On the TCAS-201 test set, COM-4112, push the SCEN key to display the scenario menu.

(c) Set the scenario as follows:

1) INTRUDER TYPE: Mode S

2) RANGE: 8.0 nmi

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3) RATE: +500 knots

4) ALTITUDE: 40,100 ft

a) Make sure that the intruder's altitude is 100 ft (30 m) above your airplane's barometric altitude.

NOTE: You can change the airplane's altitude or intruder setup on the test set to do this.

5) RATE: 0 fpm.

SUBTASK 34-45-00-730-002

(7) Do the TCAS intruder Descend Resolutionary Advisory Test:

(a) Push the RUN/STOP key to start the scenario, and look for this sequence on the EFIS display and flight compartment speaker:

1) The intruder moves down the 45 degree bearing mark toward the airplane symbol.

2) The intruder has the correct relative altitude.

3) The intruder begins as Non-threat Traffic (open white diamond).

4) The intruder changes to Proximate Traffic (solid white diamond).

5) The intruder changes to a Traffic Advisory (solid yellow circle).

6) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.

7) The intruder changes to a Resolution Advisory (solid red square), and gives a "descend, descend" or "descend, descend, descend" voice announcement on the flight compartment speaker.

8) The outboard displays show an RA resolution to push down.

9) Shortly before the intruder reaches the closest point of approach, the TCAS gives an "increase descent" voice announcement on the flight compartment speaker.

10) Shortly after the intruder reaches the airplane symbol on the inboard displays, the TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: The "Clear of Conflict" voice announcement sometimes may not be given.

(b) Push the RUN/STOP key to stop the scenario.

SUBTASK 34-45-00-860-016

(8) Prepare to do the High Altitude Climb Inhibit Test:

(a) Use the pitot/static air data model test set, COM-1914, to make a simulated altitude of 48,500 ft (15 km).

NOTE: Let the VSI return to zero after the simulated altitude is reached.

(b) Push the SCEN key on the TCAS-201 test set, COM-4112, to show the scenario menu.

(c) Set the scenario as follows:

1) RANGE: 4.2 nmi

2) RATE: +500 knots

3) ALTITUDE: 48,300 ft

4) RATE: 0 fpm

SUBTASK 34-45-00-860-017

(9) Do the High Altitude Climb Inhibit Test:

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(a) Push the RUN/STOP key to start the scenario.

(b) Make sure that the relative altitude of the intruder is -02.

NOTE: If the relative altitude of the intruder is not -02, increase or decrease your airplane's altitude accordingly.

(c) Make sure that the TCAS gives the "TRAFFIC, TRAFFIC" annunciation.

(d) Make sure that the TCAS gives the "Monitor Vertical Speed" annunciation.

NOTE: A crossing descend resolution advisory may be given instead of the Monitor Vertical Speed resolution advisory. Decrease the intruder's altitude or increase the airplane's altitude to correct this.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-840-006

(1) Make sure that you return the mode select switch on the ATC/TCAS control panel to the STBY position.

SUBTASK 34-45-00-860-018

(2) Return the airplane back to field level altitude.

SUBTASK 34-45-00-840-033

(3) Put the mode select switch on the ATC/TCAS control panel to the TA/RA position.

SUBTASK 34-45-00-860-019

(4) Use the radio altimeter test set, COM-1922, to bring down the radio altitude to 0 ft (0 m).

NOTE: Decrease the radio altitude by 600 feet per minute (fpm) or less. TCAS RA are inhibited below 900 ft (274 m) during descent, so TA ONLY will show at low altitude.

(a) Make sure that the inboard displays show the TA ONLY indication when radio altitude is less than 900 ft (274 m).

SUBTASK 34-45-00-840-010

(5) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802

SUBTASK 34-45-00-840-011

(6) Put the landing gear lever in the DN position.

SUBTASK 34-45-00-080-006

(7) Remove the installed test sets:

(a) TCAS-201 test set, COM-4112,

(b) radio altimeter test set, COM-1922,

(c) air data model test set, COM-1914.

SUBTASK 34-45-00-080-007

(8) Remove the TCAS antenna shield, if installed.

SUBTASK 34-45-00-860-075

(9) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

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F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-45-00-080-008

(10) If not necessary, remove the downlock pins installed in the nose and main landing gear. Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

END OF TASK

TASK 34-45-00-730-804

4. TCAS - System Test (With the TIC TR-220 Test Set)

(Figure 502)

A. General

(1) This task gives the instructions on how to do the system test of the Traffic Alert and Collision Avoidance System (TCAS) with the TR 220 test set.

(2) The TR 220 lets the mechanic manually select a scenario already pre-programmed in the test set. The test set simulates an intruder aircraft converging on the position of the airplane under test. The mechanic can then observe the TCAS display to make sure that the correct TA (Traffic Advisory) and RA (Resolution Advisory) are presented on the display.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
34-11-00 P/B 201	STATIC AND TOTAL AIR PRESSURE SYSTEM - MAINTENANCE PRACTICES

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197
COM-10728	Test Set - Ramp, TR-220 Part #: TR-220 Supplier: 92606

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the System Test

SUBTASK 34-45-00-860-076

(1) To stop the GPS input to the transponder, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

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NOTE: While the MMR circuit breakers are open, the ATC FAIL lamp will come on in the ATC/TCAS control panel and the UNABLE REQD NAV PERF-RNP message will show. These indications will have no effect on the performance of the TCAS during the test.

SUBTASK 34-45-00-860-046

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-45-00-010-001

(3) Open the TR-220 ramp test set, COM-10728, cover.

SUBTASK 34-45-00-010-002

(4) Release the two push button holders and remove the test set cover.

SUBTASK 34-45-00-480-002

(5) Install the directional antenna for the TR-220 ramp test set, COM-10728, as follows:

NOTE: The directional antenna is the only antenna that can be used for the TCAS test.

(a) If you install the antenna on the test set case, slide the mounting tabs into the slots on the test set.

NOTE: The slots are located on the front of the test set case.

(b) If you hold the antenna by hand, attach the supplied handle to the bottom of the antenna and hand tighten only.

NOTE: You can also attach the antenna to a tripod. This will increase its stability in high wind conditions.

SUBTASK 34-45-00-710-004

(6) Do this task: TCAS - Operational Test, TASK 34-45-00-710-801.

(a) Make sure that the Operational Test passes.

SUBTASK 34-45-00-940-001

(7) Prepare the TR-220 ramp test set, COM-10728, for the test as follows:

(a) Set the UUT FUNCTION switch to the SETUP position.

(b) Move the TEST SET switch to the ON position.

1) Make sure that the GREEN LED is on.

(c) Toggle the AUTO/MANUAL switch to locate the ANT GAIN menu on the test set display.

(d) Use the UP/FWD, DOWN/REV switch to enter the 1030 MHz and 1090 MHz gain values for the antenna.

(e) Move the TEST SET switch to the OFF position.

NOTE: The values remain in the test set memory. You must enter the values again only if you repair or replace the antenna.

(f) Connect the antenna connectors to the ANTENNA SUM and DIFF ports on the test set front panel.

1) If you hand hold or install the antenna on a tripod, connect the extender cable that is supplied with the test set.

2) Make sure that you match the color coded cables correctly.

NOTE: If the connections are reverse, the test set display will show a fault. This tells the mechanic to examine the connections.

SUBTASK 34-45-00-480-003

(8) Put the test set directional antenna 10 ft (3 m) to 170 ft (52 m) from the airplane as follows:

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(a) Make sure that there is no obstruction between the antenna and the airplane.

(b) Point the directional antenna towards the TCAS antenna on the airplane.

SUBTASK 34-45-00-480-004

(9) Move the TEST SET switch to the ON position.

(a) Make sure that the GREEN LED is on.

SUBTASK 34-45-00-480-005

(10) Toggle the AUTO/MANUAL switch to locate the T/S Distance menu on the test set display.

SUBTASK 34-45-00-480-006

(11) Use the UP/FWD, DOWN/REV switch to enter the approximate distance between the test set and the airplane TCAS antenna.

SUBTASK 34-45-00-480-007

(12) If it is necessary, turn the antenna to gain a strong RF signal as follows:

NOTE: A steady LED indicates a strong signal. Adjustment to the antenna orientation is not necessary.

(a) If you see a blinking LED on the antenna optical sight, turn the antenna to gain a strong RF signal.

NOTE: A TURN indicator may also appear on the display. By slowly turning the antenna, the TURN indicator will spin slower until a lock is obtained and the test set will show the appropriate display.

NOTE: When the test is inside a hangar, signal reflections can cause erroneous TURN indications. If this happens, remove the antenna cable connection from the DIFF port. This will not affect the test results.

SUBTASK 34-45-00-480-008

(13) Connect the air data model test set, COM-1914, to the airplane (STATIC AND TOTAL AIR PRESSURE SYSTEM - MAINTENANCE PRACTICES, PAGEBLOCK 34-11-00/201).

SUBTASK 34-45-00-860-060

(14) Put the airplane in the air mode with the BITE in the Proximity Switch Electronic Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-45-00-860-061

(15) Put the landing gear handle in the OFF position.

F. TCAS System Test (With the TIC TR-220)

SUBTASK 34-45-00-730-007

(1) Move the UUT FUNCTION switch to the TCAS position.

NOTE: The test set will first measure transmit power and frequency. The measurements are approximate values and used for reference purposes only.

SUBTASK 34-45-00-210-001

(2) Push the AUTO/TEST/MANUAL switch and look for the Mode S address in the test set display.

SUBTASK 34-45-00-730-008

(3) Push the AUTO/TEST/MANUAL switch to access the TCAS scenario selection screen.

NOTE: Random scenario samples that will result in proper intruder convergence in an RA and/or TA on the display are listed in the table that follows.

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Test Set TCAS Scenarios

Scenario # *[1]	Airplane Altitude (ft) (Pumped Up)	Intruder Starting Altitude (ft) *[2]	Intruder Speed (knots)	TCAS Distance (nmi)	Intruder Vertical Speed (fpm)
1	-1000	2000	180	10	-900
2	-500	1000	300	15	-500
3	0	0	600	20	0
4	500	1000	300	25	-100
5	1000	3500	180	25	-300
6	5000	4000	300	25	200
7	7500	9500	600	40	-500
8	10000	15000	180	50	-300
9	12500	7500	300	25	1000
10	15000	30000	600	30	-5000
11	17500	34000	180	15	-3300
12	20000	10000	300	50	1000
13	25000	41500	600	30	5500
14	33000	50000	180	30	-1700
15	42000	15000	300	25	5400
16	49000	31000	600	45	4000
17	3000	5000	300	25	-400
18	3500	2000	180	45	-100
19	4500	2500	300	50	200
20	7500	3000	600	45	1000
21	8500	10000	180	15	-300
22	9000	15000	300	30	1000

*[1] If these scenarios are not in the test set memory or a scenario with different parameters is necessary, refer to the test set operational manual to program the parameters into the test set memory.

*[2] Starting altitudes above or below the airplane altitude simulates an intruder converging from above or below the airplane.

SUBTASK 34-45-00-730-009

(4) Use the UP/FWD, DOWN/REV switch to select the intruder scenario.

SUBTASK 34-45-00-730-010

(5) Use the air data model test set, COM-1914, to apply an altitude of 10,000 ft (3 km).

SUBTASK 34-45-00-730-011

(6) If it is necessary, toggle the INCREASE-DECREASE VELOCITY switch to select the intruder speed.

SUBTASK 34-45-00-730-012

(7) Do the test for each intruder type with the ATCRBS/AIR - MODE S/GND switch as follows:

(a) For TCAS I type intruder, move the switch to the ATCRBS position.

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(b) For TCAS II type intruder, move the switch to the Mode S position.

SUBTASK 34-45-00-860-047

(8) Put the mode select switch on the ATC/TCAS control panel to the TA/RA position.

(a) Make sure that you see the TCAS test pattern on the EFIS inboard and outboard displays (Figure 501).

SUBTASK 34-45-00-730-013

(9) Push the AUTO/TEST/MANUAL switch to AUTO and do these steps:

NOTE: The test set simulates the intruder aircraft from the selected scenario. The STP on the test set display indicates that the intruder aircraft is stopped at the initial position.

(a) If the airplane equipment is an ATCRBS transponder, make sure that the display shows ACQ.

(b) If the airplane equipment is a Mode S transponder, make sure that the display initially shows ACQ then changes to TRK.

SUBTASK 34-45-00-730-014

(10) Toggle the TO/START - FROM/STOP switch to the TO position to start the intruder aircraft convergence simulation.

NOTE: The test set display will show the altitude, range, speed and climb rate of the intruder simulation.

SUBTASK 34-45-00-210-002

(11) Make sure that the correct indications for traffic and resolution advisories show in the TCAS display.

NOTE: When the intruder simulation range reaches 0 nmi, the test set will reverse the heading. The intruder aircraft will then return to the start point. This will continue back and forth until the operator stops the simulation.

SUBTASK 34-45-00-730-015

(12) Toggle the TO/START - FROM/STOP switch to the STOP position.

NOTE: During the simulation, you may stop and hold the intruder aircraft at any range.

SUBTASK 34-45-00-550-001

(13) Move the TR-220 ramp test set, COM-10728, to a different location around the airplane.

(a) Put the directional antenna 10 ft (3 m) to 170 ft (52 m) from the airplane.

(b) If it is necessary, turn the antenna to gain a strong RF signal.

SUBTASK 34-45-00-210-003

(14) Make sure that the correct azimuth information is on the TCAS display.

SUBTASK 34-45-00-730-016

(15) Toggle the TO/START - FROM/STOP switch to the START position to start the intruder simulation at the different location.

SUBTASK 34-45-00-940-002

(16) If it is necessary, you can adjust the scenario parameters without changing the stored parameters as follows:

(a) Make sure that the TCAS scenario is on the test set display.

(b) Push the TO/START-FROM/STOP switch up twice.

(c) Make sure that the scenario window shows STP.

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(d) Move the CHN/ALT - DIST-VERT SPEED switch to the relative position of the parameter you want to change.

(e) Move the UP-DOWN switch to change the intruder altitude or distance or vertical speed.

(f) Move the INCREASE - DECREASE VELOCITY as necessary to change the intruder speed.

(g) Push the TO/START - FROM/STOP switch up and verify that the simulation is on again.

SUBTASK 34-45-00-730-017

(17) Move the TEST SET switch to the OFF position after you finish the test.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-860-048

(1) Make sure that you return the mode select switch on the ATC/TCAS control panel to the STBY position.

SUBTASK 34-45-00-800-001

(2) Remove the directional antenna from the TR-220 ramp test set, COM-10728.

SUBTASK 34-45-00-860-062

(3) If not necessary, remove the downlock pins installed in the nose and main landing gear. Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

SUBTASK 34-45-00-410-001

(4) Install and close the TR-220 ramp test set, COM-10728, cover.

SUBTASK 34-45-00-800-002

(5) Disconnect the air data model test set, COM-1914, from the airplane (STATIC AND TOTAL AIR PRESSURE SYSTEM - MAINTENANCE PRACTICES, PAGEBLOCK 34-11-00/201).

SUBTASK 34-45-00-860-049

(6) If electrical power is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 34-45-00-860-077

(7) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

END OF TASK

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2404990 S0000556253_V1

TR-220 Multifunction Test Set
Figure 502/34-45-00-990-803 (Sheet 1 of 2)

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TR-220 CONTROL PANEL

A

2404792 S0000556264_V1

TR-220 Multifunction Test Set
Figure 502/34-45-00-990-803 (Sheet 2 of 2)

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TASK 34-45-00-730-802

5. TCAS - System Test (With the TIC T-49 Test Set)

A. General

(1) This test is a complete system test of the Traffic Alert and Collision Avoidance System (TCAS). The system test first runs the TCAS Operational Test, and then does a test of the TCAS with ground test equipment.

B. References

Reference	Title
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34-11-00-790-802	Static and Total Air Pressure System - Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) Part #: ADSE 650 Supplier: 3BSK6 Part #: ADTS2000 Supplier: 52892 Part #: ADTS3350ER Supplier: 52892 Part #: ADTS405MKII Supplier: U0427 Part #: ADTS530 Supplier: U0427 Part #: ADTS552F Supplier: U0427 Part #: ADTS553F Supplier: U0427 Part #: ADTS554F Supplier: U0427 Part #: D60340MK Supplier: K1474 Part #: DPS1000 Supplier: 21844 Part #: MODEL 6300 Supplier: 0RDZ5 Part #: MPS34C Supplier: 48RQ2 Part #: MPS43B Supplier: A0197 Part #: MPS45 Supplier: 48RQ2 Part #: MPS49 Supplier: 48RQ2 Part #: TES9463 Supplier: 88277 Opt Part #: 01-0987-00 Supplier: 41364 Opt Part #: 18910480000 Supplier: 89944 Opt Part #: 18910920000 Supplier: 89944 Opt Part #: ADTS405F Supplier: U0427 Opt Part #: ADTS505 Supplier: U0427 Opt Part #: D60302 Supplier: K1474 Opt Part #: D60340 Supplier: K1474 Opt Part #: D60383 Supplier: K1474 Opt Part #: DPS350 Supplier: 21844 Opt Part #: DPS450 Supplier: 21844 Opt Part #: DPS500 Supplier: 21844 Opt Part #: MPS31C Supplier: 48RQ2 Opt Part #: MPS43 Supplier: A0197

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(Continued)

Reference	Description
COM-1922	Test Set - Radio Altimeter Part #: 110-0430-100-02 Supplier: L04V3 Part #: 110-0460-105 Supplier: L04V3 Part #: 9599-607-15902 Supplier: F0052 Opt Part #: 110-0430-100 Supplier: L04V3
COM-13601	Test Set - Ramp, T-49C Opt Part #: T-49C Supplier: 92606

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the System Test

SUBTASK 34-45-00-860-071

(1) To stop the GPS input to the transponder, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

NOTE: While the MMR circuit breakers are open, the ATC FAIL lamp will come on in the ATC/TCAS control panel and the UNABLE REQD NAV PERF-RNP message will show. These indications have no effect on the performance of the TCAS during the test.

SUBTASK 34-45-00-860-022

(2) Do the following steps to setup the T-49C ramp test set, COM-13601:

(a) Put the T-49C ramp test set, COM-13601, antenna about 50 ft (15 m) in front of the airplane on the center line.

1) Make sure that there is no obstruction between the TCAS antennas.

NOTE: If ground equipment, people, walkways or other objects that could cause a signal obstruction or a multipath problem are in the area, move the test set within 15 ft (4.6 m) to 30 ft (9.1 m) of the airplane.

(b) Point the T-49C ramp test set, COM-13601, antenna in the direction of the applicable TCAS antenna.

SUBTASK 34-45-00-860-023

(3) Connect the cable of the T-49C ramp test set, COM-13601, antenna to the T-49C ramp test set, COM-13601, antenna connector.

SUBTASK 34-45-00-860-024

(4) Put the transponder select switch on the ATC/TCAS control panel to the 1 position.

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F. Test the TCAS system

SUBTASK 34-45-00-710-002

(1) Do this task: TCAS - Operational Test, TASK 34-45-00-710-801.

(a) Make sure that the Operational Test passes.

SUBTASK 34-45-00-860-025

(2) Do the Self-Test Inhibit Test:

(a) Put the airplane in the air mode with the BITE in the Proximity Switch Electronic Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(b) Turn and release the mode select switch on the ATC/TCAS control panel to the TEST position.

1) Make sure that a TCAS self-test does not occur.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(c) Push and release the TEST switch on the ATC/TCAS control panel.

1) Make sure that a TCAS self-test does not occur.

LOM ALL

SUBTASK 34-45-00-860-026

(3) Prepare to do the TCAS Bearing Accuracy Test:

(a) Connect the radio altimeter test set, COM-1922, to the airplane.

(b) Use the radio altimeter test set, COM-1922, to set the radio altitude to 2400 ft (732 m).

NOTE: Increase the radio altitude by 600 feet per minute (fpm) or less. TCAS RA are inhibited below 1100 ft (335 m) during climb, so TA ONLY will show below 1100 ft (335 m).

1) Make sure that the inboard displays do not show the TA ONLY indication when the radio altitude is greater than 1100 ft (335 m).

(c) Connect a pitot/static air data model test set, COM-1914, to the airplane (TASK 34-11-00-790-802).

(d) Use the pitot/static air data model test set, COM-1914, to make a barometric altitude of 40,000 ft (12 km).

NOTE: The 40,000 ft (12 km) barometric altitude is chosen to minimize false TCAS alerts to TCAS equipped airplanes nearby.

1) Make sure that the altitude reporting function of the ATC is off or on standby during this procedure.

(e) Put the EFIS control panel to MAP mode and a range of 20 on the inboard displays.

(f) Put the mode select switch on the ATC/TCAS control panel to the TA position.

(g) Supply power to the T-49C ramp test set, COM-13601.

SUBTASK 34-45-00-860-027

(4) Do the TCAS Bearing Accuracy Test as follows:

(a) Put the intruder type switch on the T-49C ramp test set, COM-13601, to the ATCRBS position.

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(b) Put the scenario switch on the T-49C ramp test set, COM-13601, to the fixed intruder scenario position (+1000).

(c) Shield the bottom TCAS antenna.

NOTE: This is to test the top TCAS antenna. You may have to get up high to be able to interrogate the top TCAS antenna from the rear of the airplane.

(d) Push the interrogate switch on the T-49C ramp test set, COM-13601.

1) Make sure that the T-49C ramp test set, COM-13601, display shows the type of intruder selected.

(e) Use the T-49C ramp test set, COM-13601, to interrogate the four quadrants of the TCAS antenna at bearings of 0, 45, 90, 180, 225, and 270 degrees.

1) Make sure that the inboard displays show the intruders bearing within ± 15 degrees.

(f) Put the scenario switch on the T-49C ramp test set, COM-13601, to the fixed intruder scenario position (-1000).

(g) Put the power setting to low (LO) on the T-49C ramp test set, COM-13601.

NOTE: A HI power setting can increase the likelihood of a multipath problem.

(h) Shield the top TCAS antenna or move the test set antenna to the bottom TCAS antenna (out of the line of sight from the top TCAS antenna).

NOTE: This is to test the bottom TCAS antenna. You may have to get up high to be able to interrogate the top TCAS antenna from the rear of the airplane.

WARNING

MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR [BEFORE YOU MOVE THE CONTROL LEVER]. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(i) Make sure that the downlock pins are installed on the nose and main landing gear.

1) To install the downlock pins, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

(j) Put the landing gear lever in the OFF position.

(k) Use the test set to interrogate the four quadrants of the TCAS antenna at bearings of 0, 45, 90, 180, 225, and 270 degrees.

1) Make sure that the inboard displays show the intruders bearing within ± 15 degrees.

SUBTASK 34-45-00-860-028

(5) Do the TCAS Intruder Test:

(a) Put the mode select switch on the ATC/TCAS control panel to the TA/RA position.

(b) Put the T-49C ramp test set, COM-13601, directional antenna 45 degrees to the right of the center line of the airplane with a 50 ft (15 m) separation from the airplane.

NOTE: The directional antenna will send signals to the TCAS antenna.

(c) Put the scenario switch on the T-49C ramp test set, COM-13601, to the straight approach 14 nmi position.

(d) Put the intruder type switch on the T-49C ramp test set, COM-13601, to the MODE S position.

(e) Push the interrogate switch.

1) Make sure that the T-49C ramp test set, COM-13601, display shows the correct intruder type.

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(f) Push the interrogate switch to start the scenario.

1) Make sure that the T-49C ramp test set, COM-13601, display shows the airplane's altitude ± 100 ft (30 m) and the correct scenario (Range 14 nmi, Co-Altitude, Closure rate 720 knots).

(g) Increase the airplane's altitude by 200 ft (61 m).

(h) Make sure that the following sequence shows on the EFIS secondary display and the voice announcements are heard on the flight compartment speakers:

1) The intruder ascends to the airplane symbol from the 45 degree bearing mark.

2) The intruder begins as Non-threat Traffic (open white diamond).

3) The intruder changes to Proximate Traffic (solid white diamond).

4) The intruder changes to a Traffic Advisory (solid yellow circle).

5) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.

6) The intruder changes to a Resolution Advisory (solid red square), and gives a "climb, climb" or "climb, climb, climb" voice announcement on the flight compartment speaker.

7) The outboard displays show a vertical resolution to pull up.

8) Before the intruder gets to the closest point of approach, the TCAS gives an "increase climb" voice announcement on the flight compartment speaker.

NOTE: The “increase climb” voice announcement sometimes may not be given.

9) Shortly after the intruder reaches the airplane symbol on the inboard displays, the TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: Some T-49C ramp test set, COM-13601, software will not allow the "Clear of Conflict" voice announcement to occur.

(i) Put the intruder type switch on the T-49C ramp test set, COM-13601, to the TCAS position.

(j) Push the interrogate switch.

1) Make sure that the T-49C ramp test set, COM-13601, display shows the correct intruder type.

(k) Push the interrogate switch to start the scenario.

1) Make sure that the T-49C ramp test set, COM-13601, display shows the airplane's altitude ± 100 ft (30 m) and the correct scenario (Range 14 nmi, Co-Altitude, Closure rate 720 knots).

(l) Decrease the airplane's altitude by 200 ft (61 m).

(m) Make sure that the following sequence shows on the inboard displays display:

1) The intruder descends to the airplane symbol from the 45 degree bearing mark.

2) The intruder begins as Non-threat Traffic (open white diamond).

3) The intruder changes to Proximate Traffic (solid white diamond).

4) The intruder changes to a Traffic Advisory (solid yellow circle).

5) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.

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6) The intruder changes to a Resolution Advisory (solid red square), and gives a "descend, descend" or "descend, descend, descend" voice announcement on the flight compartment speaker.

7) The outboard displays show a vertical resolution to push down.

8) Before the intruder gets to the closest point of approach, the TCAS gives an "increase descent" voice announcement on the flight compartment speaker.

NOTE: The “increase descent” voice announcement sometimes may not be given.

9) Shortly after the intruder reaches the airplane symbol on the inboard displays, the TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: Some T-49C ramp test set, COM-13601, software will not allow the "Clear of Conflict" voice announcement to occur.

SUBTASK 34-45-00-860-029

(6) Do the High Altitude Climb Inhibit Test:

(a) Put the transponder select switch on the ATC/TCAS control panel to the 2 position.

(b) Use the pitot/static air data model test set, COM-1914, to make a simulated altitude of 49,000 ft (14,935 m).

(c) Do the previous TCAS intruder scenario test again.

1) Make sure that the TCAS does not give a CLIMB corrective action.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-840-007

(1) Make sure that you return the mode select switch on the ATC/TCAS control panel to the STBY position.

SUBTASK 34-45-00-860-030

(2) Return the airplane back to field level altitude.

SUBTASK 34-45-00-840-027

(3) Put the mode select switch on the ATC/TCAS control panel to the TA/RA position.

SUBTASK 34-45-00-860-031

(4) Use the radio altimeter test set, COM-1922, to bring down the radio altitude to 0 ft (0 m).

NOTE: Decrease the radio altitude by 600 feet per minute (fpm) or less. RA are inhibited below 900 ft (274 m) during descent, so TA ONLY will show at low altitude.

(a) Make sure that the inboard displays show the TA ONLY indication when radio altitude is less than 900 ft (274 m).

SUBTASK 34-45-00-840-008

(5) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 34-45-00-840-009

(6) Put the landing gear lever in the DN position.

SUBTASK 34-45-00-080-003

(7) Remove the installed test sets:

(a) T-49C ramp test set, COM-13601,

(b) radio altimeter test set, COM-1922,

(c) air data model test set, COM-1914.

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SUBTASK 34-45-00-080-005

(8) Remove the TCAS antenna shield, if installed.

SUBTASK 34-45-00-860-072

(9) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-45-00-080-004

(10) If not necessary, remove the downlock pins installed in the nose and main landing gear. Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

——— END OF TASK ———

TASK 34-45-00-730-803

6. TCAS - System Test (With the IFR-6000 Test Set)

A. General

(1) This test is a complete system test of the Traffic Alert and Collision Avoidance System (TCAS). The system test first runs the TCAS Operational Test, and then does a test of the TCAS with ground test equipment.

(2) The IFR-6000 ramp test set, COM-10727, is used to examine the TCAS system.

B. References

Reference	Title
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34-11-00-790-802	Static and Total Air Pressure System - Pressurization (P/B 201)
34-33-00-700-801	Radio Altitude Simulation Test (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance)
	Part #: ADSE 650 Supplier: 3BSK6
	Part #: ADTS2000 Supplier: 52892
	Part #: ADTS3350ER Supplier: 52892
	Part #: ADTS405MKII Supplier: U0427
	Part #: ADTS530 Supplier: U0427
	Part #: ADTS552F Supplier: U0427
	Part #: ADTS553F Supplier: U0427
	Part #: ADTS554F Supplier: U0427
	Part #: D60340MK Supplier: K1474
	Part #: DPS1000 Supplier: 21844
	Part #: MODEL 6300 Supplier: 0RDZ5
	Part #: MPS34C Supplier: 48RQ2
	Part #: MPS43B Supplier: A0197
	Part #: MPS45 Supplier: 48RQ2
	Part #: MPS49 Supplier: 48RQ2
	Part #: TES9463 Supplier: 88277
	Opt Part #: 01-0987-00 Supplier: 41364
	Opt Part #: 18910480000 Supplier: 89944
	Opt Part #: 18910920000 Supplier: 89944
	Opt Part #: ADTS405F Supplier: U0427
	Opt Part #: ADTS505 Supplier: U0427
	Opt Part #: D60302 Supplier: K1474
	Opt Part #: D60340 Supplier: K1474
	Opt Part #: D60383 Supplier: K1474
	Opt Part #: DPS350 Supplier: 21844
	Opt Part #: DPS450 Supplier: 21844
	Opt Part #: DPS500 Supplier: 21844
	Opt Part #: MPS31C Supplier: 48RQ2
	Opt Part #: MPS43 Supplier: A0197
COM-1922	Test Set - Radio Altimeter
	Part #: 110-0430-100-02 Supplier: L04V3
	Part #: 110-0460-105 Supplier: L04V3
	Part #: 9599-607-15902 Supplier: F0052
	Opt Part #: 110-0430-100 Supplier: L04V3
COM-10727	Test Set - Ramp, IFR-6000
	Opt Part #: IFR 6000 Supplier: 51190

D. Prepare for the System Test

SUBTASK 34-45-00-860-073

(1) To stop the GPS input to the transponder, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

NOTE: While the MMR circuit breakers are open, the ATC FAIL lamp will come on in the ATC/TCAS control panel and the UNABLE REQD NAV PERF-RNP message will show. These indications have no effect on the performance of the TCAS during the test.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-45-00-710-003

(2) Do this task: TCAS - Operational Test, TASK 34-45-00-710-801.

(a) Make sure that the Operational Test passes.

SUBTASK 34-45-00-860-036

(3) Set the captain's and first officer's altimeter to 29.92 inches of mercury.

SUBTASK 34-45-00-700-001

(4) Do the Self-Test inhibit test:

> **WARNING**
> PREPARE THE SAFETY-SENSITIVE SYSTEMS FOR THE AIR MODE BEFORE YOU OPEN THE AIR/GROUND CIRCUIT BREAKERS. IN THE AIR MODE, MANY OF THE AIRPLANE SYSTEMS CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(a) Put the airplane in the air mode with the BITE in the Proximity Switch Electronic Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(b) Turn and release the mode select switch on the ATC/TCAS control panel to the TEST position for one second.

1) Make sure that a TCAS self-test does not occur.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(c) Push and release the TEST switch on the ATC/TCAS control panel.

1) Make sure that a TCAS self-test does not occur.

LOM ALL

SUBTASK 34-45-00-480-001

(5) Do the following steps to setup the IFR-6000 ramp test set, COM-10727:

NOTE: Refer to the IFR-6000 Operation Manual for more detailed information on the setup.

> **CAUTION**
> DO NOT OPERATE THE TEST SET WHEN ITS ANTENNA IS LESS THAN 15 IN. (381 MM) FROM THE AIRPLANE ANTENNA. DAMAGE TO THE TEST SET CAN OCCUR.

(a) Mount the Directional Antenna on the test set friction hinge and connect the Directional Antenna ANT Connector to the Test Set ANT Connector via the 12 in. (30.5 cm) coaxial cable.

(b) Set the tester at a location forward of the airplane (50 ft (15 m) or less) and 45 degrees from the center line of the airplane.

(c) Face the test set antenna in the direction of the top TCAS antenna.

(d) Make sure that there is no obstruction between the TCAS antenna and test set antenna.

NOTE: If ground equipment, walkways or other objects that could cause a signal obstruction or a multipath problem, choose a more suitable location for the test set and change the setup in the test set accordingly.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(e) Push the POWER Key to energize the Test Set On.

NOTE: The IFR-6000 is equipped with a self-test for quick performance evaluation. An abbreviated self-test is run at Power-Up. The full self-test is initiated manually. Refer to the IFR-6000 Operation Manual for the full self-test procedure.

(f) Push the SETUP Control Key to show the setup screens. Continue pushing the SETUP Control Key to cycle to the SETUP-TCAS Screen. Use the NEXT PARAM and PREV PARAM Soft Keys to select each parameter. Use the DATA keys to set the value of each parameter.

1) Select RF PORT: Set to ANTENNA.

2) Select ANT RANGE: Set to setup range from IFR-6000 antenna to the top TCAS Antenna.

3) Select ANT HEIGHT: Set to setup height from IFR-6000 antenna to the top TCAS Antenna.

4) Select UUT ADDRESS: Set to AUTO.

NOTE: When the UUT ADDRESS is set to AUTO, the Mode S address is obtained from the airplane's ATC Transponder. When set to MANUAL, you must enter the airplane's Mode S address in the MANUAL AA field.

5) Select ANT CABLE LOSS: Set to the cable loss found on the cable.

6) Select ANT GAIN (dBi), 1.03 GHz and 1.09 GHz: Set antenna gain to the figures marked on the supplied Directional Antenna.

7) Select SQUITTERS: Set to ON.

8) Select ALT REPORTING: Set to ON.

9) Select DISPLAYED ALT: Set to ABSOLUTE.

10) Select TEST SET AA: Set to A92493.

NOTE: TEST SET AA is a simulated Mode S address and must be different than the UUT ADDRESS.

E. Test the TCAS system

SUBTASK 34-45-00-730-003

(1) Do the TCAS Bearing Accuracy Test as follows:

(a) Put the transponder select switch on the ATC/TCAS control panel to the 1 position.

(b) Put the mode select switch on the ATC/TCAS control panel to the TA position.

(c) On the test set, push the TCAS Mode Key to show the TCAS screen. Use the NEXT PARAM and PREV PARAM Soft Keys to select each parameter. Use the DATA keys to set the value of each parameter.

(d) Setup the scenario as follows:

1) Select SCENARIO: Set to 0 CUSTOM.

2) Select TCAS TYPE: Set to TCAS II.

3) Select % REPLY: Set to 100.

4) Select INTRUDER TYPE: Set to Mode S.

5) Select RANGE START: Set to 8 nmi.

6) Select RANGE RATE: Set to 0 knots.

7) Select ALT START: Set to -100 ft.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

8) Select ALT STOP: Set to -100 ft.

9) Select UUT ALT: Enter altitude shown on Captain's altimeter.

10) Select ALT DETECT: Set to OFF.

(e) Shield the bottom TCAS antenna with an antenna shield.

(f) Make sure that you face the test set antenna towards the top TCAS antenna.

(g) Push the RUN Soft Key to start the test.

1) Make sure that the inboard displays shows the intruder's bearing ± 15 degrees.

(h) Push the STOP Soft Key to stop the test.

(i) Use the test set to interrogate the four quadrants of the TCAS antenna at the approximate bearings of 0, 90, 180, 270 degrees.

NOTE: The bearing accuracy test at some aircraft bearings may not be possible. Aircraft landing gear, fuselage, wing or engine nacelles may block the signal between the TCAS antenna and the test set.

NOTE: If you moved the test set, you must change the test set setup accordingly.

(j) Remove the antenna shield from the bottom TCAS antenna.

(k) Shield the top TCAS antenna or move the test set close to the bottom TCAS antenna (out of the line of sight from the top TCAS antenna).

(l) Change the IFR-6000 ramp test set, COM-10727, setup parameters to test the bottom antenna.

1) Enter the vertical and horizontal distances to the bottom TCAS antenna.

WARNING MAKE SURE THAT THE GROUND LOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE GROUND LOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(m) Make sure that the downlock pins are installed on the nose and main landing gear.

1) To install the downlock pins, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

(n) Put the landing gear lever in the OFF position.

(o) Do the steps in the Bearing Accuracy Test again for the bottom antenna.

SUBTASK 34-45-00-860-037

(2) Prepare to do the TCAS intruder Climb Resolution Advisory Test:

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Put the mode select switch on the ATC/TCAS control panel to the STBY position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Put the STBY/AUTO switch on the ATC/TCAS control panel to the STBY position.

LOM ALL

(c) Use the pitot/static air data model test set, COM-1914, to apply an altitude of 40,000 ft (12 km) (Static and Total Air Pressure System - Pressurization, TASK 34-11-00-790-802).

NOTE: The 40,000 ft (12 km) barometric altitude is chosen to minimize false TCAS alerts to TCAS equipped airplanes nearby.

(d) Put the mode select switch on the ATC/TCAS control panel to the TA/RA position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(e) Connect the radio altimeter test set, COM-1922, to the airplane (Radio Altitude Simulation Test, TASK 34-33-00-700-801).

(f) Use the radio altimeter test set, COM-1922, and set the radio altitude between 500 ft (152 m) and 2400 ft (732 m).

NOTE: Increase the radio altitude by 600 feet per minute (fpm) or less. TCAS RA are inhibited below 1100 ft (335 m) during climb, so TA ONLY shows below 1100 ft (335 m).

1) Make sure that the inboard displays do not show the TA ONLY indication when radio altitude is greater than 1100 ft (335 m).

(g) Put the EFIS control panel to the MAP mode and a range of 20 on the inboard displays.

(h) Set the test set at a location forward of the airplane (50 ft (15 m) or less) and 45 degrees from the center line of the airplane.

(i) Push the TCAS Mode Select Key to show the TCAS Test Screen. Use the NEXT PARAM and PREV PARAM Soft Keys to select each parameter. Use the DATA keys to set the value of each parameter.

(j) Setup the scenario as follows:

1) Select SCENARIO: Set to 0 CUSTOM.

2) Select TCAS TYPE: Set to TCAS II.

3) Select % REPLY: Set to 100.

4) Select INTRUDER TYPE: Set to Mode S.

5) Select RANGE START: Set to 8 nmi.

6) Select RANGE STOP: Set to 0.35 nmi.

7) Select RANGE RATE: Set to 600 knots.

8) Select ALT START: Set to +100 ft.

9) Select ALT STOP: Set to -100 ft.

a) Make sure that the intruder’s altitude is 100 ft (30.5 m) below your airplane's barometric altitude.

NOTE: In all IFR-6000 TCAS scenarios, altitude START and STOP parameters are Relative to UUT altitude.

10) Select ALT RATE: Set to 0 fpm.

11) Select CONVERGE: Set to ON.

12) Select ALT DETECT: Set to ON.

NOTE: When the ALT DETECT field is set to ON, the UUT ALT is automatically obtained from the airplane's ATC transponder.

SUBTASK 34-45-00-730-004

(3) Do the TCAS Intruder Climb Resolution Advisory Test:

(a) Push the RUN TEST soft key on the test set to start the test.

(b) Make sure that the following sequence occurs on the EFIS display and flight compartment speaker:

1) The intruder moves down the 45 degree bearing mark toward the airplane symbol.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2) The intruder has the correct relative altitude.

NOTE: The relative altitude shown can be -00 or -01 depending on your actual vertical separation. This is because the TCAS can only display relative altitude by 100 foot increments.

3) The intruder begins as Non-threat Traffic (open white diamond).

4) The intruder changes to Proximate Traffic (solid white diamond).

5) The intruder changes to a Traffic Advisory (solid yellow circle).

6) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.

7) The intruder changes to a Resolution Advisory (solid red square), and gives a "climb, climb" or "climb, climb, climb" voice announcement on the flight compartment speaker.

8) The outboard displays show a RA resolution to pull up.

9) Shortly before the intruder reaches the closest point of approach, the TCAS gives an "increase climb" voice announcement on the flight compartment speaker.

10) Shortly after the intruder reaches the airplane symbol on the inboard displays, the TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: The "Clear of Conflict" voice announcement sometimes may not be given.

(c) Push the STOP TEST soft key to stop the test.

SUBTASK 34-45-00-860-038

(4) Prepare to do the TCAS Intruder Descend Resolution Advisory Test:

(a) Put the transponder select switch on the ATC/TCAS control panel to the 2 position.

(b) Push the TCAS Mode Select Key on the IFR-6000 ramp test set, COM-10727, to show the TCAS Test Screen.

(c) Change the scenario setup as follows:

1) Select INTRUDER TYPE: Set to Mode S.

2) Select ALT START: Set to -200 ft.

3) Select ALT STOP: Set to +100 ft.

a) Make sure that the intruder’s altitude is 100 ft (30.5 m) above your airplane's barometric altitude.

NOTE: In all IFR-6000 TCAS scenarios, altitude START and STOP parameters are Relative to UUT altitude.

SUBTASK 34-45-00-730-005

(5) Do the TCAS Intruder Descend Resolution Advisory Test:

(a) Push the RUN TEST soft key on the IFR-6000 ramp test set, COM-10727, to start the test.

(b) Make sure that the following sequence occurs on the EFIS displays and flight compartment speaker:

1) The intruder moves down the 45 degree bearing mark toward the airplane symbol.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2) The intruder has the correct relative altitude.

NOTE: The relative altitude shown can be +00 or +01 depending on your actual vertical separation. This is because TCAS can only display relative altitude by 100 foot increments.

3) The intruder begins as Non-threat Traffic (open white diamond).

4) The intruder changes to Proximate Traffic (solid white diamond).

5) The intruder changes to a Traffic Advisory (solid yellow circle).

6) The TCAS gives a "TRAFFIC, TRAFFIC" voice announcement on the flight compartment speaker.

7) The intruder changes to a Resolution Advisory (solid red square), and gives a "descend, descend" or "descend, descend, descend" voice announcement on the flight compartment speaker.

8) The outboard displays show a RA resolution to push down.

9) Shortly before the intruder reaches the closest point of approach, the TCAS gives an "increase descent" voice announcement on the flight compartment speaker.

10) Shortly after the intruder reaches the airplane symbol on the inboard displays, the TCAS gives a "Clear of Conflict" voice announcement on the flight compartment speaker.

NOTE: The "Clear of Conflict" voice announcement sometimes may not be given.

(c) Push the STOP TEST soft key to stop the test.

SUBTASK 34-45-00-860-039

(6) Prepare to do the High Altitude Climb Inhibit Test:

(a) Use the air data model test set, COM-1914, to make a simulated altitude of 48,500 ft (14.8 km).

(b) Push the TCAS Mode Select Key on the test set to show the TCAS Test Screen.

(c) Change the scenario setup as follows:

1) Select INTRUDER TYPE: Set to ATCRBS.

2) Select ALT START: Set to -200 ft.

3) Select ALT STOP: Set to -200 ft.

NOTE: In all IFR-6000 TCAS scenarios, altitude START and STOP parameters are Relative to UUT altitude.

SUBTASK 34-45-00-730-006

(7) Do the High Altitude Climb Inhibit Test:

(a) Push the RUN TEST soft key on the test set to start the test.

(b) Make sure that the following sequence occurs on the EFIS displays and flight compartment speaker:

1) The relative altitude of the intruder is -02.

NOTE: If the relative altitude of the intruder is not -02, change the intruder setup altitude accordingly.

2) The TCAS gives the “TRAFFIC, TRAFFIC” voice annunciation.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

3) The TCAS gives the “Monitor Vertical Speed” voice annunciation.

NOTE: A crossing descend resolution advisory may be given instead of the Monitor Vertical Speed resolution advisory. Decrease the intruder's altitude or increase the airplane's altitude appropriately to correct this.

(c) Push the STOP TEST soft key to stop the test.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-45-00-840-012

(1) Make sure that you return the mode select switch on the ATC/TCAS panel to the STBY position.

SUBTASK 34-45-00-860-041

(2) Return the airplane back to field level altitude.

SUBTASK 34-45-00-840-030

(3) Put the mode select switch on the ATC/TCAS control panel to the TA/RA position.

SUBTASK 34-45-00-860-042

(4) Use the radio altimeter test set, COM-1922, to bring down the radio altitude to 0 ft (0 m).

NOTE: Decrease the radio altitude by 600 feet per minute (fpm) or less. TCAS RA are inhibited below 900 ft (274 m) during descent, so TA ONLY will show at low altitude.

(a) Make sure that the inboard displays shows the TA ONLY indication when the radio altitude is less than 900 ft (274 m).

SUBTASK 34-45-00-840-002

(5) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802

SUBTASK 34-45-00-840-003

(6) Put the landing gear lever in the DN position.

SUBTASK 34-45-00-080-001

(7) Remove the installed test sets:

(a) IFR-6000 ramp test set, COM-10727,

(b) air data model test set, COM-1914,

(c) radio altimeter test set, COM-1922.

SUBTASK 34-45-00-080-002

(8) Remove the TCAS antenna shield, if installed.

SUBTASK 34-45-00-860-074

(9) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-45-00-840-004

(10) If not necessary, remove the downlock pins installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) COMPUTER - REMOVAL/ INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the TCAS computer

(2) An installation of the TCAS computer.

B. The TCAS computer, M1485, is installed on the E1 rack in the electronic compartment.

TASK 34-45-01-000-801

2. TCAS Computer Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Computer	34-45-01-05-005	LOM 446, 447, 455, 456
		34-45-01-06-005	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431
		34-45-01-07-005	LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460
		34-45-01-08-005	LOM 439, 441, 450-452, 457, 461-999

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Procedure

SUBTASK 34-45-01-860-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-01-020-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE TCAS COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE TCAS COMPUTER.

(2) To remove the TCAS computer [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-45-01-020-002

(3) Install dust caps on the electrical connectors.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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TCAS Computer Installation
Figure 401/34-45-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-45-01-400-801

3. TCAS Computer Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Computer	34-45-01-05-005	LOM 446, 447, 455, 456
		34-45-01-06-005	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431
		34-45-01-07-005	LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460
		34-45-01-08-005	LOM 439, 441, 450-452, 457, 461-999

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Procedure

SUBTASK 34-45-01-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-01-420-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE TCAS COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE TCAS COMPUTER.

(2) Remove the dust caps from the electrical connectors.

SUBTASK 34-45-01-420-002

(3) To install the TCAS computer [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Installation Test

SUBTASK 34-45-01-860-004

(1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-01-860-005

(2) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-45-01-860-006

(3) Wait until the align light on the MSU goes off.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

SUBTASK 34-45-01-740-001

(4) On the ATC control panel, turn and release the mode select switch in the TEST position for one second.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

SUBTASK 34-45-01-740-007

(5) On the ATC control panel, push and release the test switch.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

SUBTASK 34-45-01-740-002

(6) Make sure you hear "TCAS system test okay" on the flight compartment speakers.

LOM 446, 447, 455, 456

SUBTASK 34-45-01-740-003

(7) Make sure you hear "TCAS test pass" on the flight compartment speakers.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS) ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks.

(1) A removal of the TCAS directional antenna.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM (2) A removal of the TCAS directional antenna with gasket.

LOM **LOM ALL**

(3) An installation of the TCAS directional antenna.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM (4) An installation of the TCAS directional antenna with gasket.

LOM **LOM ALL**

B. There are two TCAS antennas installed on the airplane. One is installed on the top of the airplane, at station 385. The other is installed on the bottom of the airplane, at station 305.

TASK 34-45-02-000-801

2. TCAS Antenna Removal

(Figure 401)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

I

B. Consumable Materials

Reference	Description	Specification
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7

C. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left

D. TCAS Antenna Removal

SUBTASK 34-45-02-860-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-02-020-001

(2) Do these steps to remove the antenna [3]:

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

(a) Remove the sealant from around the edge of the antenna [3] and top of the bolts [4].

LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460

(b) Remove the cotton balls [5] from the bolt-holes.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 450-452, 457, 461-999

(c) Remove the foam plugs [5] from the bolt-holes.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

(d) Remove the bolts [4] from the antenna [3].

LOM 446, 447, 455, 456

(e) Remove the sealant from around the edge of the antenna [3] and top of the bolts [5].

(f) Remove the cotton balls [6] from the bolt-holes.

(g) Remove the bolts [5] and washers [4] from the antenna [3].

LOM ALL

CAUTION BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

(h) Use force around the antenna [3] with the sealant removal tool, COM-2481, until the seal is fully broken.

CAUTION MOVE THE ANTENNA THE SMALLEST DISTANCE NECESSARY TO DISCONNECT THE ANTENNA CONNECTORS. IF YOU PULL THE CABLES, DAMAGE TO THE ANTENNA CABLES CAN OCCUR.

(i) Move the antenna [3] until you can get access to the coaxial connectors [1].

(j) Disconnect the coaxial connectors [1].

NOTE: Do not let the coaxial connectors retract into the airplane.

(k) Install dust caps on the coaxial connectors [1] at the end of the antenna cables.

(l) Remove the antenna [3].

(m) Remove and discard the O-ring [2].

SUBTASK 34-45-02-140-001

(3) Remove the sealant from the airplane skin around the antenna area.

SUBTASK 34-45-02-110-001

(4) Use a clean rag and some solvent, B00184, to clean the airplane surface around the antenna area.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TCAS Directional Antenna Installation
Figure 401/34-45-02-990-801 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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TCAS Directional Antenna Installation
Figure 401/34-45-02-990-801 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TCAS Directional Antenna Installation
Figure 401/34-45-02-990-801 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM **TASK 34-45-02-000-802**

LOM **3. TCAS Antenna with Gasket - Removal**

LOM Figure 402

LOM **A. General**

LOM (1) This procedure is used for the removal of antennas that use Aerobond or HI-TAK gaskets per
LOM 737–SL-20–045.

LOM (2) As a full certification test of the gasket was not done, it is recommended to do the steps that
LOM follow:

LOM (a) Do a visual inspection of the gasket and the mating surface, each D check.

LOM (b) Do a check for deterioration and corrosion on the antenna and gasket after their removal.

LOM (c) Do a check of the airplane skin for corrosion and fretting caused by the antenna gasket.

LOM 1) Remove any corrosion and fretting on the airplane skin.

LOM **B. References**

Reference	Title
20-30-31-910-801	Cleaners and Polishes (P/B 201)

LOM **C. Consumable Materials**

Reference	Description	Specification
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7

LOM **D. Location Zones**

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left

LOM **E. Procedure**

LOM **SUBTASK 34-45-02-860-004**

LOM (1) Open this circuit breaker and install safety tag:

LOM **CAPT Electrical System Panel, P18-1**

LOM

Row	Col	Number	Name
B	6	C01195	TCAS

LOM **SUBTASK 34-45-02-020-002**

LOM (2) Do these steps to remove the TCAS antenna:

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-445, 450-454, 457-999**

LOM (a) If needed, remove the sealant and the cotton balls [5] or foam plugs from the top of the
LOM bolts [4] (TASK 20-30-31-910-801).

LOM **LOM 446, 447, 455, 456**

LOM (b) If needed, remove the sealant and the cotton balls [6] from the top of the bolts [5]
LOM (TASK 20-30-31-910-801).

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-445, 450-454, 457-999**

LOM (c) Remove the bolts [4] from the antenna [3] base.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 446, 447, 455, 456**

LOM (d) Remove the bolts [5] and washers [4] from the antenna [3] base.

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999**

LOM
LOM
LOM

> **CAUTION**
> MOVE THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CABLES. DAMAGE TO THE ANTENNA CABLES CAN OCCUR IF YOU PULL THE CABLES.

LOM (e) Move the antenna [3] until you can get access to the antenna cable connectors.

LOM (f) Disconnect the coaxial connectors [1].

LOM NOTE: Do not let the antenna cables retract into the airplane.

LOM (g) Install dust caps on the connector at the end of the antenna cables.

LOM (h) Remove the TCAS antenna [3].

LOM (i) Remove and discard the gasket [7].

LOM **SUBTASK 34-45-02-110-003**

LOM
LOM (3) Use a clean rag and some solvent, B00184, to clean the airplane surface around the antenna area (TASK 20-30-31-910-801).

LOM **END OF TASK**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

U62869 S0000210413_V2

LOM
LOM

TCAS Directional Antenna Installation
Figure 402/34-45-02-990-802 (Sheet 1 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-445, 450-454, 457-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

U63014 S0000210414_V2

LOM
LOM

TCAS Directional Antenna Installation
Figure 402/34-45-02-990-802 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-45-02-400-801

4. TCAS Antenna Installation

(Figure 401)

A. References

Reference	Title
20-30-11-910-801	Adhesives, Cements, and Sealants (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
51-21-95-300-801	Chemical Conversion Coating Application (P/B 701)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A50231	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class B
A50296	Sealant - Pressure And Environmental - Chromate Type	BMS5-95 Class C
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
D00633	Grease - Aircraft General Purpose	BMS3-33

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	O-ring	34-45-02-01-015	LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460
		34-45-02-01-030	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 450-452, 457, 461-999
		34-45-02-01-065	LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460
		34-45-02-01-080	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 450-452, 457, 461-999
		34-45-02-02-017	LOM 446, 447, 455, 456
		34-45-02-04-025	LOM 446, 447, 455, 456
3	Antenna	34-45-02-01-005	LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460
		34-45-02-01-020	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 450-452, 457, 461-999
		34-45-02-01-055	LOM 411, 422, 425, 432-434, 437, 438, 440, 442-445, 453, 454, 458-460
		34-45-02-01-070	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 450-452, 457, 461-999
		34-45-02-02-005	LOM 446, 447, 455, 456
		34-45-02-04-005	LOM 446, 447, 455, 456

E. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. TCAS Antenna Installation

SUBTASK 34-45-02-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-02-210-001

(2) Visually examine the contact surfaces of the antenna [3] and airplane for corrosion and unwanted substances.

NOTE: If the surfaces are not clean, the electrical ground between the antenna and surface will not be sufficient, and incorrect system operation will occur.

SUBTASK 34-45-02-110-002

(3) Clean the contact surfaces with some solvent, B00083.

SUBTASK 34-45-02-620-001

(4) Apply coating, C00064, to the contact surfaces of the antenna [3] and airplane (TASK 51-21-95-300-801).

SUBTASK 34-45-02-620-002

(5) Apply a layer of grease, D00633, on the new O-ring [2] and O-ring groove.

SUBTASK 34-45-02-420-001

(6) Install the antenna [3].

(a) Make sure that the O-ring [2] is installed on the antenna [3].

(b) Remove the dust caps on the antenna cables.

(c) Examine the coaxial connectors [1] for bent or broken pins, dirt, and damage.

(d) Connect the coaxial connectors [1] to the antenna [3] as follows:

Table 401/34-45-02-993-801

CABLE SLEEVE COLOR	TCAS ANTENNA CONNECTOR
Yellow	J1
Black	J2
Blue	J3
Red	J4

(e) Tighten the coaxial connectors [1] to 4 in-lb (0.45 N·m) - 6 in-lb (0.68 N·m) (hand tight plus 1/8 turn).

(f) Put the antenna [3] into position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

(g) Apply a layer of sealant, A50231, or sealant, A50296, to the shank and threads of the bolts [4].

LOM 446, 447, 455, 456

(h) Apply a layer of sealant, A50231, or sealant, A50296, to the shank and threads of the bolts [5].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

(i) Install the bolts [4].

LOM 446, 447, 455, 456

(j) Install the washers [4] and bolts [5].

NOTE: The electrical bonding check can be performed through the antenna bolt-holes from outside the airplane if one bolt is not installed or it can be performed from the inside.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

(k) Torque the bolts [4] to 35 in-lb (3.95 N·m).

LOM 446, 447, 455, 456

(l) Torque the bolts [5] to 35 in-lb (3.95 N·m).

LOM ALL

SUBTASK 34-45-02-700-001

(7) For electrical bonding check access to the top Traffic Alert and Collision Avoidance System (TCAS) antenna, remove the applicable ceiling panel(s) for access to the antenna [3].

NOTE: The top TCAS antenna is located at approximately STA 385.00.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

NOTE: The electrical bonding check must be performed from the inside of the airplane.

LOM 446, 447, 455, 456

NOTE: The electrical bonding check can be performed through the antenna bolt-holes from outside the airplane if one bolt is not installed or it can be performed from the inside.

LOM ALL

(a) If it is necessary, remove the insulation blankets to access the top TCAS antenna.

SUBTASK 34-45-02-700-002

(8) For electrical bonding check access to the bottom TCAS antenna, use the electrical equipment bay access door.

NOTE: The bottom TCAS antenna is located at approximately STA 305.00.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

NOTE: The electrical bonding check must be performed from the inside of the airplane.

LOM 446, 447, 455, 456

NOTE: The electrical bonding check can be performed through the antenna bolt-holes from outside the airplane if one bolt is not installed or it can be performed from the inside.

LOM ALL

(a) If it is necessary, remove the insulation blankets to access the bottom TCAS antenna base.

SUBTASK 34-45-02-760-001

(9) Use an intrinsically safe approved bonding meter, COM-1550, to make sure that the resistance from the applicable antenna base to the inside airplane skin is not greater than 0.001 ohm (1 milliohm) (SWPM 20-20-00).

(a) Install the applicable insulation blankets, if you had removed them for the electrical bonding check.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 446, 447, 455, 456

SUBTASK 34-45-02-420-005

(10) Install the last washer [4] and bolt [5] in the antenna [3], if it was not installed for the electrical bonding check.

(a) Apply a layer of sealant, A50231, or sealant, A50296, to the shank and threads of last bolts [5].

(b) Install last bolt [5] and washer [4].

(c) Torque last bolt [5] to 35 in-lb (3.95 N·m).

LOM ALL

SUBTASK 34-45-02-400-003

(11) For the top TCAS antenna, install the applicable ceiling panel(s) if removed for the electrical bond check.

SUBTASK 34-45-02-390-001

(12) Apply sealant, A00247, to the antenna [3].

(a) Apply sealant, A00247, to the outer edge of the antenna [3] (TASK 20-30-11-910-801).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

1) Let the sealant dry for the correct cure time.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

(b) Fill the bolt-holes with cotton balls [5] or foam plugs [5] until a gap of less than ⅛ in. (3 mm) is left.

NOTE: If foam plugs are supplied with the antenna, install the foam plugs instead of cotton in the bolt-holes.

LOM 446, 447, 455, 456

(c) Fill the installation bolt-holes with cotton balls [6] until a gap of less than ⅛ in. (3 mm) is left.

NOTE: If foam plugs are supplied with the antenna, install the foam plugs instead of cotton in the installation bolt-holes.

LOM ALL

(d) Apply sealant, A00247, to fill in the bolt-holes (TASK 20-30-11-910-801).

NOTE: Do not apply more than ⅛ in. (3 mm) of sealant into the bolt-holes.

LOM 446, 447, 455, 456

NOTE: Sealant should also be applied to the non-installation bolt-holes.

LOM ALL

1) Let the sealant dry for the correct cure time.

SUBTASK 34-45-02-140-002

(13) Remove the unwanted sealant from around the antenna base (TASK 20-30-11-910-801).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-45-02-860-003

(14) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

G. TCAS Antenna Test

SUBTASK 34-45-02-730-002

(1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801

SUBTASK 34-45-02-740-001

(2) Do a TCAS operational test.

(a) On the Air Traffic Control (ATC) control panel, put the mode switch to the TEST position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

1) Make sure that you hear "TCAS system test okay" on the flight compartment speakers.

LOM 446, 447, 455, 456

2) Make sure that you hear "TCAS test pass" on the flight compartment speakers.

END OF TASK

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM **TASK 34-45-02-400-802**

LOM **5. TCAS Antenna with Gasket - Installation**

LOM (Figure 402)

LOM **A. General**

LOM (1) This procedure is used for the installation of antennas with Aerobond or HI-TAK gaskets per
LOM 737–SL-20–045.

LOM (2) As a full certification test of the gasket was not done, it is recommended to do the steps that
LOM follow:

LOM (a) Do a visual inspection of the gasket and the mating surface, each D check.

LOM (b) Do a check for deterioration and corrosion on the antenna and gasket after their removal.

LOM (c) Do a check of the airplane skin for corrosion and fretting caused by the antenna gasket.

LOM 1) Remove any corrosion and fretting on the airplane skin.

LOM **B. References**

Reference	Title
20-30-11-910-801	Adhesives, Cements, and Sealants (P/B 201)
20-30-31-910-801	Cleaners and Polishes (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Antenna	34-45-02-01-005	LOM 411, 422, 425, 433, 434, 437, 438, 440, 442-445, 453, 454, 458-460
		34-45-02-01-020	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 450-452, 457, 461-999
		34-45-02-01-055	LOM 411, 422, 425, 433, 434, 437, 438, 440, 442-445, 453, 454, 458-460
		34-45-02-01-070	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 450-452, 457, 461-999
		34-45-02-02-005	LOM 446, 447, 455, 456
		34-45-02-04-005	LOM 446, 447, 455, 456
7	Gasket	34-45-02-01-035	LOM 402, 406, 407, 412, 415, 423, 424, 426-428, 437-439, 441, 458-460, 464

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
7 (cont.)		34-45-02-01-085	LOM 402, 406, 407, 426-428, 437, 438, 458-460, 464

F. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left

G. TCAS Antenna with Gasket - Installation

SUBTASK 34-45-02-860-005

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	6	C01195	TCAS

SUBTASK 34-45-02-210-002

(2) Visually examine the contact surfaces of the antenna [3] and the airplane for corrosion and unwanted substances.

NOTE: If the surfaces are not clean, the electrical ground between the antenna and the surface will not be sufficient, and incorrect system operation will occur.

SUBTASK 34-45-02-110-004

(3) Clean the contact surfaces with some solvent, B00083 (TASK 20-30-31-910-801).

SUBTASK 34-45-02-420-003

(4) Install the Traffic Alert and Collision Avoidance System (TCAS) antenna:

(a) Remove and discard the O-ring (if installed) from the antenna [3].

(b) Remove the protective film from each side of the gasket [7].

NOTE: Reference the Aircraft Illustrated Parts Catalog for the gasket part number.

(c) Install new gasket [7] on the antenna [3].

(d) Remove the dust caps on the antenna cables.

(e) Examine the coaxial connectors [1] for bent or broken pins, dirt, and damage.

(f) Connect the antenna cable coaxial connectors [1] to the antenna [3] as follows:

Table 402/34-45-02-993-802

CABLE SLEEVE COLOR	TCAS ANTENNA CONNECTOR
Yellow	J1
Black	J2
Blue	J3
Red	J4

(g) Tighten the TCAS Antenna connectors to 4 in-lb (0.45 N·m) - 6 in-lb (0.68 N·m) (hand tight plus 1/8 turn).

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LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)**

> **CAUTION** DO NOT APPLY SEALANT TO THE EDGES OF THE ANTENNA. THE GASKET RELEASES THE MOISTURE. IF YOU SEAL THE EDGES, THE MOISTURE WILL STAY. THIS CAN CAUSE CORROSION DAMAGE TO THE AIRPLANE, AND ANTENNA MATING SURFACES.

(h) Put the antenna [3] into position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-445, 450-454, 457-999

(i) Install the bolts [4].

LOM 446, 447, 455, 456

(j) Install the washers [4] and bolts [5].

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-445, 450-454, 457-999

(k) Torque the bolts [4] to 35 in-lb (3.95 N·m).

NOTE: Since the gel material of the gasket is compressible, the bolts must be re-torqued 15 minutes after installation to ensure tightness.

LOM 446, 447, 455, 456

(l) Torque the bolts [5] to 35 in-lb (3.95 N·m).

NOTE: Since the gel material of the gasket is compressible, the bolts must be re-torqued 15 minutes after installation to ensure tightness.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

SUBTASK 34-45-02-010-001

(5) For electrical bonding check access to the upper TCAS antenna, remove the applicable ceiling panel(s) for access to the antenna. The upper TCAS antenna is located at approximately STA 385.00.

NOTE: The electrical bonding check must be performed from the inside of the airplane.

(a) Remove the insulation blankets, if necessary, to access the upper TCAS antenna.

SUBTASK 34-45-02-010-002

(6) For electrical bonding check access to the lower TCAS antenna, use the electrical equipment bay access door. The lower TCAS antenna is located at approximately STA 305.00.

NOTE: The electrical bonding check must be performed from the inside of the airplane.

(a) Remove the insulation blankets, if necessary, to access the lower TCAS antenna base.

SUBTASK 34-45-02-760-004

(7) Use a intrinsically safe approved bonding meter, COM-1550, to make sure that the resistance from the applicable antenna base to the inside airplane skin is not greater than 0.001 ohm (SWPM 20-20-00).

(a) Install the applicable insulation blankets, if you had removed them for the electrical bonding check.

SUBTASK 34-45-02-010-003

(8) For the upper TCAS antenna, install the applicable ceiling panel(s) you had removed for the electrical bond check.

SUBTASK 34-45-02-390-002

(9) Fill the bolt-holes as follows:

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LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-445, 450-454, 457-999**

LOM (a) Fill the bolt-holes with cotton balls [5] or foam plugs until a gap of less than ⅛ in. (3 mm) is left.

LOM NOTE: If foam plugs are supplied with the antenna, install the foam plugs instead of cotton in the bolt-holes.

LOM **LOM 446, 447, 455, 456**

LOM (b) Fill the installation bolt-holes with cotton balls [6] until a gap of less than ⅛ in. (3 mm) is left.

LOM NOTE: If foam plugs are supplied with the antenna, install the foam plugs instead of cotton in the bolt-holes.

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999**

LOM (c) Apply sealant, A00247, to fill in the bolt-holes (TASK 20-30-11-910-801).

LOM NOTE: Do not apply more than ⅛ in. (3 mm) of sealant into the bolt-holes.

LOM **LOM 446, 447, 455, 456**

LOM NOTE: Sealant should also be applied to the non-installation bolt-holes.

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999**

LOM **SUBTASK 34-45-02-860-006**

LOM (10) Remove the safety tag and close this circuit breaker:

LOM **CAPT Electrical System Panel, P18-1**

LOM

Row	Col	Number	Name
B	6	C01195	TCAS

LOM **H. TCAS Antenna Test**

LOM **SUBTASK 34-45-02-730-001**

LOM (1) Do this task : Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801

LOM .

LOM **SUBTASK 34-45-02-740-002**

LOM (2) Do a TCAS operational test:

LOM (a) On the Air Traffic Control (ATC) control panel, put the mode switch to the test position:

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-445, 450-454, 457-999**

LOM 1) Make sure that you hear "TCAS system test okay" on the flight compartment speakers.

LOM **LOM 446, 447, 455, 456**

LOM 2) Make sure that you hear "TCAS test pass" on the flight compartment speakers.

LOM **——— END OF TASK ———**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GROUND PROXIMITY WARNING SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Ground Proximity Warning System Deactivation.

(2) Ground Proximity Warning System Activation.

LOM 440, 442-447, 450-460, 464-999

(3) Load the Operational Program Configuration (OPC) software with an Enhanced Airborne Data Loader (eADL).

LOM 439-447, 450-999

(4) Verify the OPC part number.

LOM 440, 442-447, 450-460, 464-999

(5) Verify the OPC part number with an Enhanced Airborne Data Loader (eADL).

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

(6) Load the Terrain Database with Personal Computer Memory Card Interface Adapter (PCMCIA) Flash Card.

(7) Verify the Terrain Database Part Number for PCMCIA Flash Card Load.

LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

(8) Load the Terrain Database with USB Drive Load.

(9) Load the terrain database with ARINC 615A Dataloader.

LOM ALL

(10) Verify the terrain database part number.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

(11) Flight history data download from the Ground Proximity Warning Computer (GPWC).

LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

(12) Flight history data download from the GPWC.

LOM ALL

B. For general information for software installation times and data loaders, do this task: On-Airplane Software - Installation, TASK 20-15-11-400-801.

TASK 34-46-00-040-801

2. Ground Proximity Warning System - Deactivation

A. General

(1) This procedure removes electrical power from the GPWS.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-46-00-860-321

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

E. Ground Proximity Warning System - Tryout

NOTE: This tryout is to make sure the GPWS system is in a zero energy state.

SUBTASK 34-46-00-860-322

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 34-46-00-010-005

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-46-00-700-021

(3) Make sure the green STATUS/OK light (as applicable) on the front panel of the GPWC is not on.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-46-00-440-801

3. Ground Proximity Warning System - Activation

A. General

(1) This procedure adds electrical power to the GPWS.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-46-00-860-323

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 34-46-00-410-005

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

LOM 439-447, 450-999

TASK 34-46-00-470-804

4. Load the Operational Program (OPC) software with ARINC 615-3 Data Loader
(Figure 201)

A. General

(1) This task tells you how to install OPC software into the ground proximity warning computer (GPWC) with a portable data loader and the 20x3 data loader selector switches. Select the ARINC 615-3 option when you load OPC software through this procedure.

NOTE: The OPC can also be loaded with a PMAT 2000 portable data loader connected to the GPWC data load (RJ45) port inside the units front panel. Select the ARINC 615A option when you load OPC software through RJ45 data load port.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(2) A portable data loader (PDL) is not a Boeing supplied part. Refer to the PDL supplier manual for instructions for operation. Some PDLs have a disk drive for software installation from disks. If the PDL has an internal mass storage device, then disks are not necessary.

(3) Modern software loaders that meet the security requirements defined in ARINC 645-1 or newer are recommended to use. The procedures for modern software loaders will be marked as preferred for now and will be the only procedures available after removing floppy disk loaders procedures in the future. Please check with your Software Loader Supplier for current capabilities since this is still maturing across current and future software loaders.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1915	Data Loader - ARINC 615 (without ARINC 645-1 Compliant) Part #: 11615-50 Supplier: 0D4J3 Part #: 2231560-1-B Supplier: 98571 Part #: 465130-01-01 Supplier: 30782 Part #: 800-0631 Supplier: 1JSZ6 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: PXS-LDS-10 Supplier: 98571 Part #: YV68A110 Supplier: FAQ15 Opt Part #: 11615-02 Supplier: 0D4J3 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 18000-02 Supplier: 0D4J3 Opt Part #: 30100 Supplier: 0BAW0 Opt Part #: 80000-03-01010203 Supplier: 0BAW0 Opt Part #: 80000-04-01020301 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-024 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-044 Supplier: 97896 Opt Part #: 964-0400-045 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896 Opt Part #: P2K-615A-06 Supplier: 0BAW0
COM-21223	Data Loader - ARINC 615 (with ARINC 645-1 Compliant) Part #: 403474 Supplier: CG603 Part #: 403562 Supplier: CG603 Part #: AE-615-MPDL Supplier: CD624 Part #: PDL-615-XT Supplier: 89Q20

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Software Installation

SUBTASK 34-46-00-840-001

(1) Use a portable ARINC 615 data loader, COM-1915, or ARINC 645-1 compliant portable data loader, COM-21223, to install software in the GPWC.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 439-447, 450-999 (Continued)

SUBTASK 34-46-00-840-002

(2) Do these steps to load software into the GPWC:

(a) Make sure the data loader control panel (P61) 3-position switch is set to C SINGLE SYS and the system selector switch is set to NORMAL.

> **CAUTION** MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE FOR THE PORTABLE DATA LOADER. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

> **CAUTION** MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(c) Set the power switch on the PDL to the OFF position.

(d) Connect the interface cable from the PDL to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

(e) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(f) Do these steps to set the data loader control panel switches:

1) Put the 3-position switch to L CAPT UPR.
2) Put the system selector switch to EGPWS.

(g) Set the power switch on the portable data loader to the ON position.

NOTE: Refer to the data loader supplier instructions to load software from disks or the units mass storage device.

(h) Follow the PDL supplier instructions to install the software.

(i) When the OPC dataload is complete the GPWC will reboot automatically.

(j) Do these steps at the GPWC front panel:

1) Make sure the COMPUTER STATUS light is GREEN.
2) Make sure the EXTERNAL FAULT light is off.

(k) Set the power switch on the PDL to the OFF position.

(l) Do these steps to set the data loader control panel switches:

1) Put the 3-position switch to C SINGLE SYS.
2) Put the system selector switch to NORMAL.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 439-447, 450-999 (Continued)

SUBTASK 34-46-00-470-006

(3) Do this task: Verify the Operational Program Configuration (OPC) Part Number, TASK 34-46-00-700-803

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-46-00-840-003

(1) Do these steps to put the airplane back to its usual condition:

> **CAUTION** MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE FOR THE PORTABLE DATA LOADER. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(b) Remove the interface cable from the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

(c) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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EGPWS Software Installation
Figure 201/34-46-00-990-804

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-46-00-470-808

5. **Load the Operational Program Configuration (OPC) software with an Enhanced Airborne Data Loader (eADL)**

A. **General**

(1) This task tells you how to install OPC software into the enhanced ground proximity warning computer (EGPWC) with an enhanced airborne data loader (eADL).

(2) The indications and instructions are different by eADL. Refer to the supplier's component manual for more information on the data loader used.

B. **References**

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. **Location Zones**

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. **Prepare for the Software Installation**

SUBTASK 34-46-00-760-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

NOTE: Make sure that power is not removed while you install software. A power interruption will cause a failure of the software installation.

SUBTASK 34-46-00-860-336

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-46-00-860-337

(3) Set the upper switch on the data loader control panel to L CAPT UPR, then set the SYSTEM SELECT switch on the data loader control panel (P61) to EGPWS.

NOTE: On some aircraft, the data loader control panel does not have an upper switch. On these aircraft, it is necessary to set only the SYSTEM SELECT switch to EGPWS.

SUBTASK 34-46-00-010-007

(4) Open the eADL front cover by releasing the two screws and lifting up on the cover.

E. **Software Installation - (Preferred)**

SUBTASK 34-46-00-470-029

(1) Follow the generic ADL procedure to load software part (TASK 20-15-11-400-801).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 440, 442-447, 450-460, 464-999 (Continued)

F. Software Installation Procedure - (Non-Preferred)

LOM 440, 442-447, 450-460, 464, 465

SUBTASK 34-46-00-470-025

(1) Do these steps to install software from a floppy disk:

(a) Wait until the display shows the eADL Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

1) If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(b) Select “Target Page.”

1) The eADL will show the Select Target System screen.

(c) Select “Floppy Drive.”

1) The eADL will show a Load Confirmation screen.

(d) Carefully push the first disk (label up) into the disk drive.

(e) Select “CONFIRM.”

1) The eADL will show “LOADING” on the Transfer In Progress screen.

NOTE: It may take one to two minutes for the installation to start.

NOTE: If the disk set has more than one disk and the data of the current disk is completely transferred, the eADL will prompt you to insert the next diskette. Eject the current diskette, insert the next diskette and select “CONTINUE.”

2) The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

3) The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

(f) Select “MAIN” or “GO BACK” to go back to the main menu.

(g) Eject the disk from the disk drive when the software installation is completed.

LOM 440, 442-447, 450-460, 464-999

SUBTASK 34-46-00-470-026

(2) Do these steps to install the software from the eADL MSD to the LRU:

(a) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

1) If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(b) Select “Target Page.”

NOTE: This will show the “Select Target System” screen.

(c) Select the software received by the LRU.

NOTE: This will show the “Select Software Part” screen.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(d) Push the “SELECT” button for the desired software.

NOTE: The listed software will appear as it was originally configured in the USB tool. See the supplier eADL Operations Guide.

(e) Make sure that the “Load Confirmation” screen shows.

(f) Select “CONFIRM”.

NOTE: This will show the “Transfer In Progress” screen.

NOTE: The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

NOTE: The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

(g) Select “MAIN” or “GO BACK” to go back to the main menu.

SUBTASK 34-46-00-470-027

(3) Do these steps to install software from a USB flash drive to the eADL MSD:

(a) Put the USB flash drive into the eADL USB port.

NOTE: The USB flash drive must be configured correctly as specified in the eADL Operations Guide.

(b) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

1) If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(c) Select “Maintenance Page.”

1) This will show the “Maintenance Menu” screen.

(d) Select “Transfer Parts From USB.”

1) If the error message “USB Is Not Mounted Or Is Not A Valid USB” is shown, select “GO BACK” and do the steps again.

2) Make sure that the USB flash drive is configured correctly by the USB tool as specified in the eADL Operations Guide.

3) The eADL screen will show “CONFIRM TO BEGIN TRANSFERRING.”

4) Select “CONFIRM.”

NOTE: The USB and MSD annunciators will turn yellow during the transfer procedure.

NOTE: If the software is already on the eADL MSD, this message will show: “This part name already exists.”

(e) Make sure that USB and MSB annunciators turn green and the message shows "Part Transfer Complete".

NOTE: This means that software transfer is complete.

NOTE: The annunciators will turn red if the transfer procedure is aborted or if there is a failure.

(f) Select “MAIN” or “GO BACK” to go back to the main menu.

(g) Remove the USB flash drive from the eADL USB port.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(h) Following the successful load of the software perform these steps to remove previous versions from the MSD:

NOTE: This procedure allows the operator to remove an LSP from the MSD. This will also delete any downloaded files associated with the LSP that may have been added to the LSP. This action cannot be undone.

NOTE: It is recommended to remove the older LSP on the MSD, but it is not required.

1) On the eADL use the Up and Down keys and select the following:
   a) Select the Maintenance page.
   b) Select delete Software part option.

      NOTE: The listed LSP may or may not appear as a part number. It will appear as it was originally saved using eADL Part Builder.
   c) Select the desired LSP.
   d) The eADL screen will display, Part Selected for Deletion is <Desired LSP>.
   e) Press the CONFIRM softkey to initiate the deletion process.

      NOTE: If you want to cancel the operation, use the Go Back key.
2) The MSD annunciator will turn yellow while the delete operation is taking place.
3) The MSD annunciator will turn back to green and scree will display:
   a) Part Deleted.
4) Press the GO BACK key to return to the Main Menu.

SUBTASK 34-46-00-700-024

(4) Do this task: Verify the Operational Program Configuration (OPC) Part Number, TASK 34-46-00-700-803

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-46-00-410-006

(1) Close the eADL cover and tighten screws.

SUBTASK 34-46-00-860-338

(2) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 34-46-00-860-339

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-46-00-700-803

6. Verify the Operational Program Configuration (OPC) Part Number

A. General

(1) This task provides instructions to verify the operational program configuration (OPC) part number. The GPWC self-test can be activated from the flight compartment.

NOTE: You can verify the OPC part number in the flight compartment or electrical and electronics compartment. If you do the test from the electrical and electronics compartment, you must use the headphones and the SELF TEST switch on the front panel of the ground proximity warning computer. The GPWC level 3 self-test provides aural annunciations of the current configuration which includes the OPC part number.

(2) The GPWC self-test can only be activated when the airplane is on the ground.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-46-00-700-015

(1) Make sure the green COMPUTER STATUS light on the front panel of the GPWC is on.

SUBTASK 34-46-00-700-016

(2) Make sure the EXTERNAL FAULT light on the front panel of the GPWC is off.

SUBTASK 34-46-00-860-320

(3) Make sure the TERR switches on the EFIS control panels, P7, are on.

SUBTASK 34-46-00-860-354

(4) Make sure that the EFIS range is more than 2 nautical miles.

SUBTASK 34-46-00-700-017

(5) Push the SYS TEST switch on Ground Proximity Module (P3-7).

(a) Make sure the terrain display test pattern is shown on the navigation display (ND).

SUBTASK 34-46-00-700-018

(6) Record the operational program configuration (OPC) part number.

NOTE: The test pattern shows magenta text for the operational program configuration part number, ie OSSBCGXXXXXXXXXX.

SUBTASK 34-46-00-700-019

(7) If the OPC part number is not correct, then do this task: Load the Operational Program (OPC) software with ARINC 615-3 Data Loader, TASK 34-46-00-470-804 or Load the Operational Program Configuration (OPC) software with an Enhanced Airborne Data Loader (eADL), TASK 34-46-00-470-808.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-46-00-700-804

7. **Verify the Operational Program Configuration (OPC) Part Number with an Enhanced Airborne Data Loader (eADL)**

A. **General**

(1) This task provides instructions to verify the operational program configuration (OPC) part number with an Enhanced Airborne Data Loader (eADL).

B. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Procedure**

SUBTASK 34-46-00-010-008

(1) Open the eADL front cover by releasing the two screws and lifting up on the cover.

SUBTASK 34-46-00-860-340

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-46-00-700-025

(3) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

SUBTASK 34-46-00-700-026

(4) Select “Maintenance Page.”

NOTE: If accessing the Maintenance Page right after the eADL SW has been loaded, the “Flash Update” screen appears for a while, then the Maintenance screen will show.

(a) This will show the “Maintenance Menu” screen.

SUBTASK 34-46-00-700-027

(5) Select “Display System Status”.

(a) This will show the “System Status Menu” page.

SUBTASK 34-46-00-700-028

(6) Make sure that the OPC software part number under “S/W Build” matches the software part number listed in the Installation Plan (IP)'s BOM.

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LOM 440, 442-447, 450-460, 464-999 (Continued)

SUBTASK 34-46-00-700-029

(7) If the OPC part number is correct, the software installation is not required.

(a) Select “MAIN” or “GO BACK” to go back to the main menu.

SUBTASK 34-46-00-700-030

(8) If the OPC part number is not correct, then do this task: Load the Operational Program Configuration (OPC) software with an Enhanced Airborne Data Loader (eADL), TASK 34-46-00-470-808.

SUBTASK 34-46-00-410-007

(9) Close the eADL cover and tighten screws.

——— END OF TASK ———

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

TASK 34-46-00-470-802

8. Load the Terrain Database with PCMCIA Flash Card

(Figure 202)

A. General

(1) This task provides instructions to load the terrain database into the Ground Proximity Warning Computer (GPWC).

(2) The terrain database load is inhibited when the airplane is in the air. The database will automatically load into the GPWC after you install the database flash card into the card slot on the front panel of the GPWC.

(3) You can ignore caution notes (shown on the Personal Computer Memory Card Interface Adapter (PCMCIA) card) about damage if you put in or remove the card when the power is on. The GPWC automatically applies or removes PCMCIA card power.

NOTE: This does not apply when a FMJ PCMCIA card is installed to the GPWC.

B. References

Reference	Title
34-46-01-000-801	Ground Proximity Warning Computer Removal (P/B 401)
34-46-01-400-801	Ground Proximity Warning Computer Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1391	Card - Flash, PCMCIA, Loaded with the Terrain Database

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

E. Load the Terrain Database with PCMCIA Flash Card - Main Method

SUBTASK 34-46-00-860-309

(1) Make sure that the COMPUTER OK light on the front panel of the GPWC is on.

SUBTASK 34-46-00-860-310

(2) Make sure that the COMPUTER FAIL lights on the front panel of the GPWC is off.

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SUBTASK 34-46-00-860-311

(3) Open the door on the front panel of the GPWC.

SUBTASK 34-46-00-480-002

(4) Make sure that the IN PROG, CARD CHNG, XFER COMP, and XFER FAIL lights on the GPWC are off.

SUBTASK 34-46-00-470-002

(5) Do these steps to load the terrain database:

NOTE: If you install a version of the terrain database that is not compatible with the hardware memory, then the GPWC will not operate. Replacement of the GPWC will be necessary. More information about version compatibility can be found in the applicable Honeywell Service Bulletin.

NOTE: A power interruption during data transfer may cause the PCMCIA card to become corrupted.

(a) Insert the PCMCIA, Flash Card, STD-1391 for the terrain database into the card slot on the GPWC.

NOTE: After the card is installed, the terrain database will automatically load into the GPWC. Depending on the terrain database version, it takes between 5 and 45 minutes to load the terrain database.

(b) Make sure that the IN PROG light on the GPWC comes on.

(c) If the CARD CHNG light on the GPWC comes on, do these steps to change the card:

NOTE: When the CARD CHNG light comes on, it indicates that more than one card is necessary to load the terrain database.

1) Push the eject button on the GPWC and remove the card.
2) Insert the next card for the terrain database into the card slot on the GPWC.
3) Make sure that the IN PROG light on the GPWC comes on.

(d) If the XFER FAIL light on the GPWC comes on, it indicates that the terrain database load has failed. Do these steps to correct the fault:

1) Remove and apply power to the GPWC prior to the second attempt to reload the terrain database.

NOTE: Reapplying power may be beneficial in recovering the computer.

Open and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

2) Attempt to load the GPWC with a second PCMCIA terrain database card, if available, to eliminate a corrupt PCMCIA card as a cause of the transfer failure.
3) If the terrain database load fails, replace the GPWC, M652. Do these tasks: Ground Proximity Warning Computer Removal, TASK 34-46-01-000-801Ground Proximity Warning Computer Installation, TASK 34-46-01-400-801.
4) Load the terrain database into the new GPWC.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(e) After the load of the terrain database is complete, make sure the IN PROG light on the GPWC goes off and the XFER COMP light comes on.

(f) Push the eject button on the GPWC and remove the card.

(g) Make sure that the COMPUTER OK light on the GPWC is on and all the other lights are off.

SUBTASK 34-46-00-700-004

(6) Do this task: Verify the Terrain Database Part Number for PCMCIA Flash Card Load, TASK 34-46-00-700-801.

F. Load the Terrain Database with PCMCIA Flash Card - Alternate Method

NOTE: Use this procedure for PCMCIA cards from FMJ to prevent loading errors if present.

SUBTASK 34-46-00-710-013

(1) Make sure that the power to the Ground Proximity Warning System (GPWS) is off:

(a) No lights should be active on the GPWS front panel (View B, Figure 202).

SUBTASK 34-46-00-710-014

(2) Open the door on the GPWS front panel.

SUBTASK 34-46-00-710-015

(3) Put the PCMCIA card into the PCMCIA card slot.

SUBTASK 34-46-00-730-005

(4) Do these steps to load the terrain database:

(a) Apply power to the GPWS and allow it to load.

NOTE: Depending on the terrain database version, it takes between 5 and 45 minutes to load the terrain database.

1) Make sure that IN PROG light comes on and the COMPUTER OK LED comes off.

(b) Make sure that the XFER COMP LED comes on after the load of the terrain database is complete.

1) Remove the PCMCIA card from Enhanced Ground Proximity Warning System (EGPWS).

2) Make sure that the COMPUTER OK LED comes on after approximately 15 seconds.

SUBTASK 34-46-00-700-037

(5) Close the door on the GPWS front panel.

SUBTASK 34-46-00-700-038

(6) Do this task: Verify the Terrain Database Part Number for PCMCIA Flash Card Load, TASK 34-46-00-700-801.

END OF TASK

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Ground Proximity Warning Computer
Figure 202/34-46-00-990-802

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TASK 34-46-00-700-801

9. **Verify the Terrain Database Part Number for PCMCIA Flash Card Load**
(Figure 202)

A. **General**

(1) This task provides instructions to verify the terrain database part number. The GPWC level 3 self-test provides aural annunciations of the current configuration that include the terrain database part number.

NOTE: You can verify the terrain database part number in the electrical and electronics compartment or in the flight compartment. If you do the test from the flight compartment, you do not need headphones and you use the GPWS SYS TEST switch on the ground proximity warning module. If you do the test from the electrical and electronics compartment, you use the headphones and the SELF TEST switch on the front panel of the ground proximity warning computer.

(2) The GPWC level 3 self-test can only be activated when the airplane is on the ground.

B. **Tools/Equipment**

Reference	Description
STD-1390	Headphone - 600 Ohm, with 1/4 Inch Mono Audio Plug

C. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

D. **Procedure**

SUBTASK 34-46-00-860-265

(1) Make sure the ground proximity warning system (GPWS) is operational.

SUBTASK 34-46-00-860-266

(2) Make sure the COMPUTER OK light on the front panel of the GPWC is on and the other lights are off.

SUBTASK 34-46-00-860-267

(3) Make sure the TERR switches on the EFIS control panels, P7, are on.

SUBTASK 34-46-00-860-268

(4) Open the door on the front panel of the GPWC.

SUBTASK 34-46-00-480-001

(5) Plug the headphone, STD-1390 into the headphone jack of the GPWC.

SUBTASK 34-46-00-860-269

(6) Make sure there is no card in the card slot of the GPWC.

SUBTASK 34-46-00-700-001

(7) Do these steps to do the level 3 self-test of the GPWC:

NOTE: The GPWC self-test has six levels that operate in sequence. The level 3 self-test will occur after the level 2 self-test.

(a) Push the self-test switch on the GPWC for one second.

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(b) After the level 1 self-test starts, push the self-test switch for one second to go to the level 2 self-test.

(c) After the level 2 self-test starts, wait until the PRESS TO CONTINUE annunciation occurs, then push the self-test switch for one second to go to the level 3 self-test.

(d) You will hear a sequence of the configuration annunciations for the GPWS over the headphone.

1) Make sure you hear the terrain database part number after the TERRAIN DATABASE VERSION annunciation.

NOTE: There are several configuration annunciations in the level 3 self-test. To advance to the terrain database part number annunciation, you need to push the self-test switch after each annunciation.

(e) Record the terrain database part number.

(f) After you hear the terrain database part number, continue to push the self-test switch until you hear the PRESS TO CONTINUE annunciation.

NOTE: After the PRESS TO CONTINUE annunciates, the level 3 self-test is complete. If you do not push the self-test switch again, the self-test sequence will stop.

(g) If your airline maintains a terrain database version requirement, make sure the terrain database version is correct.

1) If the terrain database version is not correct, then, do this task: Load the Terrain Database with PCMCIA Flash Card, TASK 34-46-00-470-802

SUBTASK 34-46-00-860-270

(8) Remove the headphone, STD-1390 from the headphone jack on the GPWC.

SUBTASK 34-46-00-860-271

(9) Close the door on the front panel of the GPWC.

END OF TASK

LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

TASK 34-46-00-470-803

10. Load the Terrain Database with USB Drive Load

(Figure 203)

A. General

(1) This task provides instructions to load the terrain database into the Ground Proximity Warning Computer (GPWC).

(2) The terrain database load is inhibited when the airplane is in the air. The database will automatically load into the GPWC after you install the database USB 2.0 or 3.0 mass storage device into the USB port on the front panel. The GPWC is not compatible with USB hubs or encrypted drives.

B. References

Reference	Title
27-32-00-710-801	Stall Warning System - Operational Test (P/B 501)
31-62-00-440-801	Common Display System - Activation (P/B 201)

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(Continued)

Reference	Title
34-21-00-440-801	Air Data Inertial Reference System - Activation (P/B 201)
34-31-00-440-801	Instrument Landing System - Activation (P/B 201)
34-33-00-440-801	Low Range Radio Altimeter System - Activation (P/B 201)
34-43-00-440-801	Weather Radar (WXR) System - Activation (P/B 201)
34-46-01-000-801	Ground Proximity Warning Computer Removal (P/B 401)
34-46-01-400-801	Ground Proximity Warning Computer Installation (P/B 401)
34-58-00-440-801	Global Positioning System - Activation (P/B 201)
34-61-00-440-801	FMC Activation (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

D. Prepare for the Loading

SUBTASK 34-46-00-860-356

(1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

SUBTASK 34-46-00-860-357

(2) Make sure that these systems are on:

(a) Common Display System - Activation, TASK 31-62-00-440-801.

(b) Low Range Radio Altimeter System - Activation, TASK 34-33-00-440-801.

(c) Air Data Inertial Reference System - Activation, TASK 34-21-00-440-801.

(d) Weather Radar (WXR) System - Activation, TASK 34-43-00-440-801.

(e) Stall Warning System (TASK 27-32-00-710-801).

(f) Instrument Landing System - Activation, TASK 34-31-00-440-801.

(g) Global Positioning System - Activation, TASK 34-58-00-440-801.

(h) FMC Activation, TASK 34-61-00-440-801.

E. Load the Terrain Database with USB Drive Load

SUBTASK 34-46-00-010-002

(1) Open the door on the front panel of the GPWC.

NOTE: A placard inside the door contains instructions for data loading.

SUBTASK 34-46-00-700-008

(2) Make sure that the DATALOAD STATUS light is off.

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LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617 (Continued)

SUBTASK 34-46-00-470-005

(3) Do these steps to load the terrain database:

NOTE: If you install a version of the terrain database that is not compatible with the hardware memory, then the GPWC will not operate. Replacement of the GPWC will be necessary.

(a) Insert the USB drive which contains the terrain database into the USB port on the GPWC.

NOTE: After the USB drive is inserted, the terrain database automatically starts to load into the GPWC.

(b) Make sure that the DATALOAD STATUS light changes to yellow.

(c) When the terrain database transfer is complete, the DATALOAD STATUS light changes to green.

(d) If the DATALOAD STATUS light changes to red, the terrain database load transfer failed, do these steps to correct the fault:

1) Remove and apply power to the GPWC prior to the second attempt to load the terrain database.

NOTE: Reapplying power may be beneficial in recovering the computer.

Open and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

2) Attempt to load the GPWC with a second USB terrain database drive, if available, to eliminate a corrupt USB drive as a cause of the transfer failure.

3) If the terrain database load fails, replace the GPWC, M652, do these tasks:

- Ground Proximity Warning Computer Removal, TASK 34-46-01-000-801,
- Ground Proximity Warning Computer Installation, TASK 34-46-01-400-801.

4) Load the terrain database into the new GPWC.

(e) Remove the USB drive.

NOTE: The GPWC will reboot automatically.

(f) Make sure that the DATALOAD STATUS light is off.

(g) Make sure that the COMPUTER STATUS light is GREEN.

SUBTASK 34-46-00-700-009

(4) Do this task:Verify the Terrain Database Part Number, TASK 34-46-00-700-802.

END OF TASK

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Ground Proximity Warning Computer
Figure 203/34-46-00-990-803

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-46-00-470-805

11. Load the Terrain Database with ARINC 615A Dataloader

(Figure 204)

A. General

(1) This task provides instructions to load the terrain database into the Ground Proximity Warning Computer (GPWC).

(2) The terrain database load is inhibited when the airplane is in the air.

B. References

Reference	Title
34-46-00-710-804-002	Ground Proximity Warning System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

D. Procedure

SUBTASK 34-46-00-710-009

(1) Make sure the ground proximity warning system (GPWS) is operational. (Ground Proximity Warning System - Operational Test, TASK 34-46-00-710-804-002)

SUBTASK 34-46-00-860-328

(2) Make sure the COMPUTER STATUS light on the front panel of the GPWC shows GREEN in color.

SUBTASK 34-46-00-860-329

(3) Make sure the EXTERNAL FAULT light on the front panel of the GPWC is off.

NOTE: The EXTERNAL FAULT light could be yellow if a required external signal is missing.

SUBTASK 34-46-00-010-004

(4) Open the door on the front panel of the GPWC.

NOTE: A placard inside the door contains instructions for data loading.

SUBTASK 34-46-00-860-330

(5) Make sure the DATALOAD STATUS light is off.

SUBTASK 34-46-00-470-008

(6) Do these steps to load the terrain database:

NOTE: If you install a version of the terrain database that is not compatible with the hardware memory, then the GPWC will not operate. Replacement of the GPWC will be necessary.

(a) Connect a Cat 5 Ethernet cable to the DLS and connect the other end of the Ethernet cable into the DATA LOAD Ethernet port at the front panel of the GPWC.

NOTE: You can follow the manufacturer's instructions to energize and boot-up the DLS.

(b) Navigate to the folder where the GPWC terrain database, files are located on the DLS, to start the download.

(c) Make sure the DATALOAD STATUS light shows YELLOW in color.

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(d) If the DATALOAD STATUS light shows BLUE, the inserted device is unserviceable.

(e) When the terrain database data transfer is completed, the DATALOAD STATUS light shows GREEN.

Open and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

1) If the DATALOAD STATUS light shows RED, the terrain database data transfer failed.

NOTE: After the terrain database is finished loading, the GPWC will reboot.

(f) Make sure the COMPUTER STATUS light shows GREEN, after 25 seconds maximum.

(g) Disconnect the Ethernet cable from the DATA LOAD Ethernet port on the GPWC.

SUBTASK 34-46-00-410-004

(7) Close the front panel door on the GPWC.

SUBTASK 34-46-00-710-010

(8) Make sure the GPWC is serviceable.

(a) Make sure the COMPUTER STATUS light is GREEN.

(b) Make sure the EXTERNAL FAULT light is off.

NOTE: The EXTERNAL FAULT light could be yellow if a required external signal is missing.

SUBTASK 34-46-00-700-020

(9) Do this task: Verify the Terrain Database Part Number, TASK 34-46-00-700-802.

END OF TASK

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2305945 S0000523690_V3

Ground Proximity Warning Computer
Figure 204/34-46-00-990-805

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-46-00-700-802

12. Verify the Terrain Database Part Number

A. General

(1) This task gives instructions to make sure the terrain database (TDB) part number is correct. You can use this task after all the different TDB installation dataload procedures and for all the different media types. The GPWC self-test can be activated from the flight compartment.

NOTE: You can verify the terrain database part number in the flight compartment on the navigation display (ND) or electrical and electronics compartment. If you do the test from the electrical and electronics compartment, you must use the headphones and the SELF TEST switch on the front panel of the ground proximity warning computer. The GPWC level 3 self-test provides aural annunciations of the current configuration which includes the terrain database part number.

(2) The GPWC self-test can only be activated when the airplane is on the ground.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-46-00-700-010

(1) Make sure that the airplane is in a location where it can receive GPS signals.

SUBTASK 34-46-00-700-034

(2) Set the left and right ADIRS mode select switches to the NAV position.

SUBTASK 34-46-00-700-035

(3) Make sure the green COMPUTER STATUS light or the COMPUTER OK light on the front panel of the GPWC is on.

SUBTASK 34-46-00-700-011

(4) Make sure the EXTERNAL FAULT light on the front panel of the GPWC is off.

SUBTASK 34-46-00-860-319

(5) Make sure the TERR switches on the EFIS control panels, P7, are on.

SUBTASK 34-46-00-860-353

(6) Make sure that the EFIS range is more than 2 nautical miles.

SUBTASK 34-46-00-700-012

(7) Push the SYS TEST switch on Ground Proximity Module (P3-7).

(a) Make sure the terrain display test pattern is shown on the navigation display (ND).

SUBTASK 34-46-00-700-013

(8) Record the terrain database part number.

NOTE: The test pattern shows magenta text for the terrain database part number, ie TDBXXXX.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-00-700-014

(9) If your airline maintains a terrain database version requirement, make sure the terrain database version is correct.

(a) If the terrain database version is not correct, then do this task: Load the Terrain Database with USB Drive Load, TASK 34-46-00-470-803 or Load the Terrain Database with PCMCIA Flash Card, TASK 34-46-00-470-802 or Load the Terrain Database with ARINC 615A Dataloader, TASK 34-46-00-470-805.

SUBTASK 34-46-00-700-036

(10) Set the left and right ADIRS mode select switches to the OFF position.

END OF TASK

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

TASK 34-46-00-970-801

13. Flight History Data Download

A. General

(1) This procedure tells you how to download flight history data from the ground proximity warning computer (GPWC) through the PCMCIA interface.

(2) A Honeywell programmed and formatted PCMCIA Card is required to start the download sequence and record the data. The part number for the PCMCIA Card is P/N 718-1592-001. Flight history download cards can only be used once.

(3) You cannot use a database update card to download flight history data.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

C. Procedure

SUBTASK 34-46-00-865-001

(1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

SUBTASK 34-46-00-869-001

(2) Make sure the COMPUTER OK light on the front panel of the GPWC is on.

SUBTASK 34-46-00-869-002

(3) Make sure the EXTERNAL FAULT and COMPUTER FAIL lights on the front panel of the GPWC are off.

NOTE: If the COMPUTER FAILED light is on, you cannot be sure of the integrity of the downloaded data.

If the EXTERNAL FAULT light is on, there is no effect on the download process.

SUBTASK 34-46-00-010-001

(4) Open the front panel door on the GPWC.

SUBTASK 34-46-00-869-003

(5) Make sure these status indicator lights are off.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) IN PROG

(b) CARD CHNG

(c) XFER COMP

(d) XFER FAIL

SUBTASK 34-46-00-800-001

(6) Make sure the PCMCIA Card has its write protect function selector in the off (in-board) position.

SUBTASK 34-46-00-800-002

(7) Insert the PCMCIA Card into the memory card slot.

NOTE: The notch on the bottom of the PCMCIA Card should be in the down position. Carefully push the card in until the PUSH TO EJECT button on the front panel is fully extended.

SUBTASK 34-46-00-800-003

(8) Make sure the flight history download automatically starts.

(a) IN PROG light comes on.

(b) COMPUTER OK light goes off.

SUBTASK 34-46-00-800-004

(9) When the flight history download is completed:

NOTE: The maximum time required to complete the download is 10 minutes.

(a) IN PROG light goes off.

(b) XFER COMP light comes on.

NOTE: If the XFER FAIL light comes on, a new PCMCIA Card is required.

SUBTASK 34-46-00-800-005

(10) Push the EJECT button to remove the PCMCIA Card.

SUBTASK 34-46-00-410-002

(11) Close the front panel door on the GPWC.

SUBTASK 34-46-00-710-005

(12) The GPWC should automatically return to normal operation.

(a) Make sure the COMPUTER OK light comes on. It may take three minutes for the light to come on.

SUBTASK 34-46-00-510-001

(13) Send the PCMCIA Card with the flight history data to the vendor.

END OF TASK

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LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

TASK 34-46-00-970-802

14. Flight History Data Download

A. General

(1) This procedure gives the steps to download flight history data from the Ground Proximity Warning Computer (GPWC) using the Universal Serial Bus (USB) 2.0 Flash memory drive.

(2) The flash memory drive must be formatted before you can do the download.

B. Tools/Equipment

Reference	Description
STD-13649	Drive - Flash, USB (2GB Capacity Minimum)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

D. Memory Stick Preparation

SUBTASK 34-46-00-550-001

(1) Get the USB Flash Drive, STD-13649.

SUBTASK 34-46-00-550-002

(2) Create a text file by copying the four lines below and save it to a file named “FH.lst”.

HONEYWELL-EGPWS-MKVA-DOWN: Comments

{

DLNVM,fh.dat

}

(a) Make sure that there are no spaces before curly brackets and line “DLNVM,fh.dat”.

NOTE: The spaces before the curly brackets and line “DLNVM,fh.dat” can cause an error to download the data.

SUBTASK 34-46-00-550-003

(3) You can create a text file by download from the Honeywell website at:

http://www51.honeywell.com/aero/common/documents/FH.zip

(a) When the “File Download” dialog box appears, click on the “save” button to save the file to your PC.

(b) A file named FH.lst will be created when using WinZip to unzip the file.

SUBTASK 34-46-00-860-327

(4) Make sure that the memory stick is formatted to a standard Windows/DOS FAT32 format, and does not have other files on it.

SUBTASK 34-46-00-970-001

(5) Copy the FH.lst file onto the memory stick.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Flight History Data Downloading

SUBTASK 34-46-00-860-324

(1) Make sure that the COMPUTER STATUS light on the front panel of the GPWC shows GREEN color.

SUBTASK 34-46-00-860-325

(2) Make sure that the EXTERNAL FAULT light on the front panel of the GPWC is off.

SUBTASK 34-46-00-010-003

(3) Open the front panel door on the GPWC.

NOTE: A placard inside the door contains instructions for data loading.

SUBTASK 34-46-00-860-326

(4) Make sure that the DATALOAD STATUS light is off.

SUBTASK 34-46-00-470-007

(5) Do these steps to download the flight history data:

(a) Insert the USB drive, which contains the FH.1st file, into the USB port on the GPWC.

(b) Make sure that the DATALOAD STATUS light shows YELLOW color.

(c) If the DATALOAD STATUS light shows BLUE color, the inserted device is unserviceable.

(d) When the flight history data transfer is completed, the DATALOAD STATUS light shows GREEN color.

1) If the DATALOAD STATUS light shows RED color, the flight history data transfer failed.

(e) Remove the USB drive.

SUBTASK 34-46-00-410-003

(6) Close the front panel door on the GPWC.

SUBTASK 34-46-00-710-008

(7) Make sure that the GPWC is serviceable.

(a) Make sure that the COMPUTER STATUS light is GREEN color.

(b) Make sure that the EXTERNAL FAULT light is off.

SUBTASK 34-46-00-510-002

(8) Send the USB memory stick with the flight history data to the airline engineering.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GROUND PROXIMITY WARNING SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An operational test of the ground proximity warning system (GPWS)

(2) A system test of the GPWS.

TASK 34-46-00-710-804-002

2. Ground Proximity Warning System - Operational Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-32-00-710-801	Stall Warning System - Operational Test (P/B 501)
31-62-00-440-801	Common Display System - Activation (P/B 201)
34-21-00-440-801	Air Data Inertial Reference System - Activation (P/B 201)
34-31-00-440-801	Instrument Landing System - Activation (P/B 201)
34-33-00-440-801	Low Range Radio Altimeter System - Activation (P/B 201)
34-43-00-440-801	Weather Radar (WXR) System - Activation (P/B 201)
34-58-00-440-801	Global Positioning System - Activation (P/B 201)
34-61-00-440-801	FMC Activation (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Operational Test

SUBTASK 34-46-00-860-185-002

(1) Make sure that the electrical power is supplied (TASK 24-22-00-860-811).

SUBTASK 34-46-00-860-186-002

(2) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

SUBTASK 34-46-00-860-187-002

(3) Make sure that these systems are on:

(a) Common Display System - Activation, TASK 31-62-00-440-801.

(b) Low Range Radio Altimeter System - Activation, TASK 34-33-00-440-801.

(c) Air Data Inertial Reference System - Activation, TASK 34-21-00-440-801.

(d) Weather Radar (WXR) System - Activation, TASK 34-43-00-440-801.

(e) Stall Warning System (TASK 27-32-00-710-801).

(f) Instrument Landing System - Activation, TASK 34-31-00-440-801.

(g) Global Positioning System - Activation, TASK 34-58-00-440-801.

(h) FMC Activation, TASK 34-61-00-440-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Ground Proximity Warning System Operational Test

SUBTASK 34-46-00-860-188-002

(1) Set the DISPLAYS - SOURCE switch, on the P5-28 instrument switching module, to the ALL ON 1 position.

SUBTASK 34-46-00-860-293-002

(2) Set the mode switch, on the WXR control panel, to the TEST position.

SUBTASK 34-46-00-860-294-002

(3) Do these steps on the two EFIS control panels:

(a) Set the mode switch to the MAP position.

(b) Set the range switch to 40 nautical miles.

(c) Set the WXR switch to the on position.

SUBTASK 34-46-00-750-135-002

(4) Make sure that the weather radar data shows on the displays.

SUBTASK 34-46-00-750-136-002

(5) Set the TERR switch, on the two EFIS control panels, to the ON position.

SUBTASK 34-46-00-750-131-002

(6) Make sure that the terrain data and blue TERR messages show on the displays.

NOTE: Horizontal position data must be available to obtain the blue TERR message. The amber TERR POS message shows when there is not enough accuracy in the horizontal position data, or if the horizontal position data is not available.

NOTE: GPS data can be confirmed by selecting the FMC-CDU to the POS REF page.

SUBTASK 34-46-00-750-097-002

(7) Push and momentarily hold the INOP light, on the P3-7 ground proximity warning module, to do a test of the light.

(a) Make sure that the INOP light comes on while you push the INOP light.

SUBTASK 34-46-00-740-055-002

(8) Push and hold for approximately 6 seconds (or until the self-test voice starts) the GPWS SYS TEST switch, on the P3-7 ground proximity warning module.

(a) Make sure that the INOP light comes on within six seconds.

SUBTASK 34-46-00-750-099-002

(9) Make sure that the aural and visual indications occur as follows:

Table 501/34-46-00-993-802-002

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	**LIGHT/MESSAGE (OFF)**	**AURAL SOUND FROM SPEAKERS**
Amber GPWS INOP light; cyan TERR TEST on the displays		
	Amber GPWS INOP	
The two amber BELOW G/S lights		GLIDESLOPE
	The two amber BELOW G/S lights	

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Table 501/34-46-00-993-802-002 (Continued)

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	**LIGHT/MESSAGE (OFF)**	**AURAL SOUND FROM SPEAKERS**
Red PULL UP message on Capt's and F/O's displays; TERR FAIL on the displays	Cyan TERR TEST on the displays	PULL UP
	Red PULL UP message on Capt's and F/O's displays	
Red WINDSHEAR message on Capt's and F/O's displays		Two tone siren WINDSHEAR, WINDSHEAR, WINDSHEAR
	Red WINDSHEAR message on Capt's and F/O's displays; TERR FAIL on the displays	
Red PULL UP message on Capt's and F/O's displays; red TERRAIN message and test pattern on the displays		TERRAIN, TERRAIN- PULL UP
	Red PULL UP message on Capt's and F/O's displays; red TERRAIN message and test pattern on the displays	
LOM 412, 415, 422-434, 437-447, 450-999		
Amber TERRAIN message on Capt's and F/O's displays; red PULL UP message on Capt's and F/O's displays; amber TERRAIN changes to red OBSTACLE; red OBSTACLE changes to amber *[1]		OBSTACLE, OBSTACLE- PULL UP
	Amber OBSTACLE on Captain's and F/O PFD (or EFIS) displays *[1]	
LOM ALL		
GPWS INOP light		
LOM 450, 465		
		RUNWAY AWARENESS OK, FEET (METERS)
LOM 402, 406, 411, 412, 415, 416, 422-434, 437-447, 450-999; LOM 404, 407, 420 POST SB 737-34A2292		
		AIR SPEED LOW
LOM ALL		
		SINK RATE
		PULL UP
		TERRAIN
		PULL UP
		DON'T SINK, DON'T SINK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Table 501/34-46-00-993-802-002 (Continued)

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	LIGHT/MESSAGE (OFF)	AURAL SOUND FROM SPEAKERS
		TOO LOW TERRAIN
		TOO LOW GEAR
		TOO LOW FLAPS
		TOO LOW TERRAIN
		GLIDESLOPE
LOM 402, 404, 406, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999		
		BANK ANGLE BANK ANGLE
LOM 404		
		MINIMUMS
		ONE HUNDRED
		FIFTY
		TWENTY
		TEN
LOM 402, 406, 407, 420; LOM 445 PRE SB 737-34-4000 AND PRE SB 737-34-4176		
		MINIMUMS
		ONE THOUSAND
		FIVE HUNDRED
		FOUR HUNDRED
		THREE HUNDRED
		TWO HUNDRED
		ONE HUNDRED
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 432		
		MINIMUMS
		FIVE HUNDRED
		ONE HUNDRED
		FIFTY
		FORTY

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LOM 432 (Continued)

Table 501/34-46-00-993-802-002 (Continued)

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	**LIGHT/MESSAGE (OFF)**	**AURAL SOUND FROM SPEAKERS**
		THIRTY
		TWENTY
		TEN
LOM 437, 438		
		PLUS HUNDRED
		MINIMUMS
		TWENTY FIVE HUNDRED
		ONE THOUSAND
		FIVE HUNDRED
		ONE HUNDRED
		FIFTY
		THIRTY
		TWENTY
		TEN
		FIVE
LOM 443, 444		
		APPROACHING MINIMUMS
		MINIMUMS
		TWENTY-FIVE HUNDRED
		ONE THOUSAND
		FIVE HUNDRED
		ONE HUNDRED
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 411, 465-999		
		PLUS HUNDRED
		MINIMUM
		FIFTY

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LOM 411, 465-999 (Continued)

Table 501/34-46-00-993-802-002 (Continued)

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	**LIGHT/MESSAGE (OFF)**	**AURAL SOUND FROM SPEAKERS**
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 416, 427; LOM 457 PRE SB 737-34-4250		
		APPROACHING DECISION HEIGHT
		MINIMUMS
		TWENTY-FIVE HUNDRED
		ONE THOUSAND
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 461-463; LOM 457 POST SB 737-34-4250		
		ONE HUNDRED
		FIFTY
		THIRTY
		TWENTY
		TEN
LOM 450; LOM 426 PRE SB 737-34-2324		
		APPROACHING MINIMUMS
		MINIMUMS
		ONE THOUSAND
		FIVE HUNDRED
		ONE HUNDRED
		FIFTY
		THIRTY
		TWENTY
		TEN

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LOM 450; LOM 426 PRE SB 737-34-2324 (Continued)

Table 501/34-46-00-993-802-002 (Continued)

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	**LIGHT/MESSAGE (OFF)**	**AURAL SOUND FROM SPEAKERS**
LOM 412, 415, 423, 424, 439, 441, 464		
		MINIMUMS
		ONE HUNDRED
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 422, 425, 433, 434, 440, 442, 446, 447, 453-456		
		APPROACHING MINIMUMS
		MINIMUMS
		TWENTY-FIVE HUNDRED
		ONE THOUSAND
		FIVE HUNDRED
		FOUR HUNDRED
		THREE HUNDRED
		TWO HUNDRED
		ONE HUNDRED
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 458-460		
		APPROACHING MINIMUMS
		MINIMUMS
		ONE THOUSAND
		FIVE HUNDRED
		THREE HUNDRED
		TWO HUNDRED
		FIFTY

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 458-460 (Continued)

Table 501/34-46-00-993-802-002 (Continued)

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	**LIGHT/MESSAGE (OFF)**	**AURAL SOUND FROM SPEAKERS**
		FORTY
		THIRTY
		TWENTY
		TEN
		FIVE
LOM 429-431, 451, 452; LOM 426 POST SB 737-34-2324		
		PLUS HUNDRED
		MINIMUMS
		TWENTY-FIVE HUNDRED
		ONE THOUSAND
		FIVE HUNDRED
		ONE HUNDRED
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 445 POST SB 737-34-4176		
		APPROACHING MINIMUMS
		MINIMUMS
		TWENTY-FIVE HUNDRED
		ONE THOUSAND
		FIVE HUNDRED
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 428; LOM 445 POST SB 737-34-4000 AND PRE SB 737-34-4176		
		APPROACHING MINIMUMS
		MINIMUMS

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 428; LOM 445 POST SB 737-34-4000 AND PRE SB 737-34-4176 (Continued)

Table 501/34-46-00-993-802-002 (Continued)

GPWS INDICATIONS		
LIGHT/MESSAGE (ON)	**LIGHT/MESSAGE (OFF)**	**AURAL SOUND FROM SPEAKERS**
		ONE THOUSAND
		FIVE HUNDRED
		FOUR HUNDRED
		THREE HUNDRED
		TWO HUNDRED
		ONE HUNDRED
		FIFTY
		FORTY
		THIRTY
		TWENTY
		TEN
LOM 404, 411, 412, 415, 416, 423, 424, 427, 439, 441, 450, 457, 461-464		
		FIVE HUNDRED
LOM ALL		
		Two tone siren WINDSHEAR, WINDSHEAR, WINDSHEAR
		TOO LOW TERRAIN
		CAUTION TERRAIN CAUTION TERRAIN
		TERRAIN, TERRAIN-PULL UP
LOM 412, 415, 422-434, 437-447, 450-999		
		CAUTION OBSTACLE CAUTION OBSTACLE
		OBSTACLE, OBSTACLE- PULL UP
LOM ALL		
	GPWS INOP light and test pattern on the displays. Cyan TERR TEST on the displays.	

*[1] Only applicable to airplanes equipped with EGPWS P/N 69000940-104 and P/N 69000940-106. Airplanes equipped with P/N 69000940-101 or P/N 69000940-102 will not see amber TERRAIN and amber OBSTACLE displayed.

SUBTASK 34-46-00-860-191-002

(10) Set the DISPLAYS - SOURCE switch, on the instrument switching module, to the ALL ON 2 position.

SUBTASK 34-46-00-750-137-002

(11) Make sure that the terrain data and TERR messages show on the displays.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-00-740-056-002

(12) Push and hold the GPWS SYS TEST switch, on the P3-7 ground proximity warning module.

NOTE: Do not hold the GPWS SYS TEST switch longer than 2 seconds.

(a) Make sure that the red PULL UP message shows on the captain's and first officer's displays.

NOTE: All other aural and visual annunciations may be ignored.

SUBTASK 34-46-00-860-192-002

(13) Set the DISPLAYS SOURCE SELECT switch, on the instrument switching module, to the AUTO position.

SUBTASK 34-46-00-700-039-002

(14) Allow approximately 30 seconds for the EGPWC to discontinue the self test process.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-46-00-860-355-002

(1) Set the WXR switch to the OFF position.

END OF TASK

TASK 34-46-00-730-804-002

3. Ground Proximity Warning System - System Test

A. General

(1) The system test does an internal GPWC check and a check of system interfaces.

(2) This test uses GPS data. The airplane must be moved to a position where the GPS antennas have a clear view of the GPS satellites.

(3) Various systems interface with the GPWC. Some systems send data. Some systems send a single discrete signal.

(4) The systems that send data have verbal error messages. In this procedure, you do a check of these signals when you turn a system off and hear an aural message annunciated.

(a) Some systems supply two sources and are redundant. You turn one system off and hear an aural message. The GPWC will still function with data from the redundant system. Then, you turn the second system off and look for the INOP light on the ground proximity warning module to come on.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal On Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-31-00-730-802	System Test - Landing Gear Control System (P/B 501)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the System Test

SUBTASK 34-46-00-860-194-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-46-00-860-315-002

(2) Make sure that the airplane is in a location where it can receive GPS signals.

SUBTASK 34-46-00-860-196-002

(3) Set the left and right ADIRS mode select switches to the NAV position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

SUBTASK 34-46-00-750-134-002

(4) Make sure the green COMPUTER OK light on the GPWC front panel is on.

(a) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

(b) Make sure the red COMPUTER FAIL light on the GPWC front panel is not on.

LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

SUBTASK 34-46-00-750-142

(5) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

SUBTASK 34-46-00-750-143

(6) Make sure the green COMPUTER STATUS light on the GPWC front panel is on.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

SUBTASK 34-46-00-860-197-002

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

(7) Set the FMC transfer switch to the NORMAL position.

(a) Make sure the green COMPUTER OK light on the GPWC front panel is on.

(b) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

(c) Make sure the red COMPUTER FAIL light on the GPWC front panel is not on.

LOM 428, 439-447, 450-999; LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

(8) Set the FMC transfer switch to the NORMAL position.

(a) Make sure the green COMPUTER STATUS light on the GPWC front panel is on.

(b) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

SUBTASK 34-46-00-860-295-002

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

(9) Set the FMC transfer switch to the BOTH ON R position.

(a) Make sure the green COMPUTER OK light on the GPWC front panel is on.

(b) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

(c) Make sure the red COMPUTER FAIL light on the GPWC front panel is not on.

LOM 428, 439-447, 450-999; LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

(10) Set the FMC transfer switch to the BOTH ON R position.

(a) Make sure the green COMPUTER STATUS light on the GPWC front panel is on.

(b) Make sure the yellow EXTERNAL FAULT light on the GPWC front panel is not on.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

SUBTASK 34-46-00-860-296-002

(11) Set the FMC transfer switch to the NORMAL position.

LOM ALL

SUBTASK 34-46-00-750-100-002

(12) Make sure the captain's and first officer's BELOW G/S switch-lights on the P1-1 and P3-1 panels are not on.

SUBTASK 34-46-00-750-101-002

(13) Make sure these messages do not show on the captain's and first officer's displays:

(a) PULL UP

(b) WINDSHEAR

SUBTASK 34-46-00-750-102-002

(14) Make sure the INOP light on the ground proximity warning module is not on.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-460, 464-999

SUBTASK 34-46-00-860-200-002

(15) Make sure the FLAP INHIBIT, GEAR INHIBIT, and TERR INHIBIT switches on the ground proximity warning module are in the NORMAL position.

LOM 461-463

SUBTASK 34-46-00-860-201-002

(16) Make sure the FLAP INHIBIT and TERR INHIBIT switches on the ground proximity warning module are in the NORMAL position.

LOM ALL

SUBTASK 34-46-00-860-202-002

(17) Make sure the landing gear lever is in the DOWN position.

SUBTASK 34-46-00-860-203-002

(18) Make sure the LIGHTS switch on the P1-3 panel is in the BRIGHT position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. Program Pin Test

SUBTASK 34-46-00-740-057-002

NOTE: You can do this test in the electrical and electronics compartment or in the flight compartment. If you do the test from the flight compartment, you do not need headphones and you use the GPWS SYS TEST switch on the ground proximity warning module. If you do the test from the electrical and electronics compartment, you use the headphones and the SELF TEST switch on the front panel of the ground proximity warning computer.

(1) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-740-058-002

(2) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

SUBTASK 34-46-00-740-059-002

(3) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.

NOTE: The level 3 self-test starts with the voice annunciation "SYSTEM CONFIGURATION".

(a) Make sure you hear these aural messages in the sequence that follows:

1) PART NUMBER XXX-XXXX-XXX-XXX-XXX

2) MOD STATUS X

3) SERIAL NUMBER XXX

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

4) SOFTWARE VERSION XXX-XXX-XX

LOM ALL

5) TERRAIN DATABASE VERSION XXX

6) ENVELOPE MOD DATABASE VERSION XXX

LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

7) OSS CONFIGURATION FILE XXXX

LOM ALL

8) BOOT CODE VERSION XXXX

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 432, 437-439, 441, 443-447, 455, 456, 458-463

9) AIRCRAFT TYPE ONE NINE SEVEN

LOM 411, 422, 425, 427, 429-431, 433, 434 PRE SB 737-34-2617

10) AIRCRAFT TYPE TWO ONE TWO

LOM 428, 440, 442, 450-454, 457, 464-999; LOM 411, 422, 425, 427, 429-431, 433, 434 POST SB 737-34-2617

11) AIRCRAFT TYPE SEVEN ONE TWO

LOM ALL

12) AUDIO MENU ZERO

LOM 404

13) ALTITUDE CALLOUT MENU EIGHT

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LOM 402, 406, 407, 420; LOM 445 PRE SB 737-34-4000 AND PRE SB 737-34-4176

14) ALTITUDE CALLOUT MENU ONE FIVE

LOM 432

15) ALTITUDE CALLOUT MENU ONE EIGHT

LOM 437, 438

16) ALTITUDE CALLOUT MENU THREE THREE

LOM 443, 444

17) ALTITUDE CALLOUT MENU THREE EIGHT

LOM 411, 465-999

18) ALTITUDE CALLOUT MENU FOUR TWO

LOM 416, 427; LOM 457 PRE SB 737-34-4250

19) ALTITUDE CALLOUT MENU FOUR FIVE

LOM 461-463; LOM 457 POST SB 737-34-4250

20) ALTITUDE CALLOUT MENU FOUR SIX

LOM 450; LOM 426 PRE SB 737-34-2324

21) ALTITUDE CALLOUT MENU FOUR EIGHT

LOM 412, 415, 423, 424, 439, 441, 464

22) ALTITUDE CALLOUT MENU FOUR NINE

LOM 422, 425, 433, 434, 440, 442, 446, 447, 453-456

23) ALTITUDE CALLOUT MENU FIVE ONE

LOM 428; LOM 445 POST SB 737-34-4000 AND PRE SB 737-34-4176

24) ALTITUDE CALLOUT MENU FIVE SEVEN

LOM 458-460

25) ALTITUDE CALLOUT MENU NINE ZERO

LOM 429-431, 451, 452; LOM 426 POST SB 737-34-2324

26) ALTITUDE CALLOUT MENU NINE SIX

LOM 445 POST SB 737-34-4176

27) ALTITUDE CALLOUT MENU ONE ELEVEN

LOM 404, 411, 412, 415, 416, 423, 424, 427, 439, 441, 450, 457, 461-464

28) SMART CALLOUT SELECTED

LOM ALL

29) OPTIONAL INPUTS SELECTED
30) DUAL GPS SELECTED
31) DUAL ILS SELECTED
32) DUAL RADIO ALTIMETER SELECTED
33) WINDSHEAR CAUTION DISABLED

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34) PWS OPTION 1 SELECTED

LOM 402, 404, 406, 412, 415, 416, 420, 423, 424, 426, 429-432, 437-439, 441, 443-447, 451, 452, 455, 456, 458-464; LOM 457 POST SB 737-34-4250

35) BANK ANGLE OPTION 1 SELECTED

LOM 411, 422, 425, 427, 428, 433, 434, 440, 442, 450, 453, 454, 465-999; LOM 457 PRE SB 737-34-4250

36) BANK ANGLE OPTION 2 SELECTED

LOM 412, 415, 422-434, 437-447, 450-999

37) PEAKS ENABLED

LOM 451, 452, 461-463, 465-999

38) MODE 6 LOW VOLUME SELECTED

LOM 412, 415, 422-434, 437-447, 450-999

39) OBSTACLE AWARENESS ENABLED

LOM ALL

SUBTASK 34-46-00-740-086-002

(4) When you hear the "PRESS TO CONTINUE", wait approximately 30 seconds for the GPWC to stop the self-test mode.

G. System Interface Test

SUBTASK 34-46-00-860-204-002

(1) Make sure the VHF NAV switch is in the NORMAL position.

SUBTASK 34-46-00-860-205-002

(2) Set a frequency of 109.00 MHz on the captain's and first officer's VHF NAV control panels.

SUBTASK 34-46-00-860-206-002

(3) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

SUBTASK 34-46-00-750-103-002

(4) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-740-060-002

(5) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-207-002

(6) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural message "RADIO ALTIMETER BUS 1 INACTIVE" is annunciated.

SUBTASK 34-46-00-860-208-002

(7) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-00-750-104-002

(8) Make sure the INOP light on the ground proximity warning module shows in 20 seconds or less.

SUBTASK 34-46-00-860-209-002

(9) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

SUBTASK 34-46-00-750-105-002

(10) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-860-210-002

(11) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

SUBTASK 34-46-00-750-106-002

(12) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-860-211-002

(13) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

SUBTASK 34-46-00-750-107-002

(14) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-740-061-002

(15) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-212-002

(16) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural messages "IRS BUS 1 INACTIVE" and "AIR DATA BUS 1 INACTIVE" are annunciated.

SUBTASK 34-46-00-860-213-002

(17) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-46-00-750-108-002

(18) Make sure the INOP light on the ground proximity warning module shows in 20 seconds or less.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-00-860-214-002

(19) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

SUBTASK 34-46-00-750-109-002

(20) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-740-062-002

(21) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-215-002

(22) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural messages "IRS BUS 2 INACTIVE" and "AIR DATA BUS 2 INACTIVE" are annunciated.

SUBTASK 34-46-00-860-216-002

(23) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	14	C01008	ADIRU RIGHT AC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 34-46-00-750-110-002

(24) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-710-004-002

(25) Enter the IRS present position in the Inertial System Display Unit (ISDU).

(a) Set the SYS DSPL switch on the ISDU to the PPOS position.

(b) Enter the latitude on the ISDU.

(c) Push the ENT key on the ISDU to send the latitude data.

(d) Enter the longitude on the ISDU.

(e) Push the ENT key on the ISDU to send the longitude data.

SUBTASK 34-46-00-860-217-002

(26) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

SUBTASK 34-46-00-740-063-002

(27) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-218-002

(28) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure the aural messages "ILS BUS 1 INACTIVE" and "GPS BUS 1 INACTIVE" are annunciated.

NOTE: Ignore the INOP light on the ground proximity warning module if it shows, and ignore all other aural messages that you hear.

SUBTASK 34-46-00-860-219-002

(29) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-46-00-860-220-002

(30) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

SUBTASK 34-46-00-740-064-002

(31) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-221-002

(32) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural message ”ILS BUS 2 INACTIVE” and “GPS BUS 2 INACTIVE" is annunciated.

NOTE: Ignore the INOP light on the ground proximity warning module if it shows, and ignore all other aural messages that you hear.

SUBTASK 34-46-00-860-222-002

(33) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-46-00-750-111-002

(34) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-860-223-002

(35) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

SUBTASK 34-46-00-750-112-002

(36) Make sure the INOP light on the ground proximity warning module shows in 6 seconds or less.

SUBTASK 34-46-00-860-224-002

(37) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-00-750-113-002

(38) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-860-225-002

(39) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC

SUBTASK 34-46-00-750-132-002

(40) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-740-065-002

(41) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-226-002

(42) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural message "SMYD BUS 1 INACTIVE" is annunciated.

SUBTASK 34-46-00-860-227-002

(43) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	5	C01206	SMYD-2 CMPTR DC

SUBTASK 34-46-00-750-114-002

(44) Make sure the INOP light on the ground proximity warning module shows in 20 seconds or less.

SUBTASK 34-46-00-860-228-002

(45) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC

SUBTASK 34-46-00-750-115-002

(46) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-860-229-002

(47) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	5	C01206	SMYD-2 CMPTR DC

SUBTASK 34-46-00-750-116-002

(48) Make sure the INOP light on the ground proximity warning module does not show.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-00-860-230-002

(49) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	5	C01359	DISPLAY DEU 1 PRI

SUBTASK 34-46-00-740-066-002

(50) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-231-002

(51) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural message "EFIS BUS 1 INACTIVE" is annunciated.

SUBTASK 34-46-00-860-232-002

(52) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	11	C01360	DISPLAY DEU 2 PRI

SUBTASK 34-46-00-740-067-002

(53) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-233-002

(54) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural messages "EFIS BUS 1 INACTIVE" and "EFIS BUS 2 INACTIVE" are annunciated.

NOTE: Ignore the INOP light on the ground proximity warning module if it shows, and ignore all other aural messages that you hear.

SUBTASK 34-46-00-860-234-002

(55) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	11	C01360	DISPLAY DEU 2 PRI

NOTE: The DEU may take several minutes to become operational.

SUBTASK 34-46-00-750-118-002

(56) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-860-235-002

(57) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

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SUBTASK 34-46-00-750-119-002

(58) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-740-068-002

(59) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

SUBTASK 34-46-00-860-236-002

(60) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(a) Make sure the aural message "WEATHER RADAR HAZARD BUS 1 INACTIVE" is annunciated.

SUBTASK 34-46-00-860-237-002

(61) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 34-46-00-750-120-002

(62) Make sure the INOP light on the ground proximity warning module does not show.

SUBTASK 34-46-00-860-238-002

(63) If terrain data does not show on the displays, push the TERR switch on the EFIS control panel to the on position.

SUBTASK 34-46-00-750-141-002

(64) Make sure the terrain data and the blue TERR messages show on the displays.

NOTE: Horizontal position data must be available to obtain the blue TERR message. The amber TERR POS message shows when there is not enough accuracy in the horizontal position data, or if the horizontal position data is not available.

NOTE: GPS data can be confirmed by selecting the FMC-CDU to the POS REF page.

SUBTASK 34-46-00-860-239-002

(65) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY

SUBTASK 34-46-00-730-003-002

(66) Make sure the TERR FAIL message shows on the displays.

SUBTASK 34-46-00-860-241-002

(67) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY

SUBTASK 34-46-00-730-004-002

(68) Make sure the terrain data shows on the displays.

H. Air/Ground Discrete Test

SUBTASK 34-46-00-740-069-002

(1) Do these steps to do a level 6 self-test:

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(a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

(b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.

(d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.

(e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 5 self-test.

(f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 6 self-test.

SUBTASK 34-46-00-860-243-002

WARNING DO THE DEACTIVATION PROCEDURE FOR THE SPOILERS OR MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SPOILERS. THE SPOILERS CAN RETRACT QUICKLY AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Deactivate the spoilers or move all persons and equipment away from the control surfaces. To deactivate the spoilers, do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

SUBTASK 34-46-00-740-087-002

(3) Use the PSEU BITE to put the airplane in the air mode. To do this, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-46-00-740-088-002

(4) Make sure the display shows SYS 1 IS IN AIR for approximately 2 seconds and then shows SET SYS 1 ON GND?.

SUBTASK 34-46-00-740-089-002

(5) Make sure the aural message "NOT ON GROUND" is annunciated.

SUBTASK 34-46-00-860-244-002

(6) Do these steps to put the PSEU in ground mode:

(a) Push and release the YES switch on the PSEU BITE panel.

1) Make sure the display shows ARE YOU SURE?.

(b) Push and release the YES switch on the PSEU BITE panel.

1) Make sure the display shows SYS 1 IS ON GND for approximately 2 seconds and then shows SET SYS 1 IN AIR?.

2) Make sure the aural message "ON GROUND" is annunciated.

(c) Push and release the ON/OFF switch on the PSEU BITE panel.

1) Make sure the display shows TURN OFF DISPLAY?.

(d) Push and release the YES switch on the PSEU BITE panel.

NOTE: The display should be blank after this step.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-00-860-316-002

(7) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-46-00-860-300-002

(8) Put the airplane systems back to their usual on-ground condition. To do this, do this task: Return the Airplane Systems Back to Their Normal On Ground Condition, TASK 32-09-00-840-802.

SUBTASK 34-46-00-860-245-002

(9) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

NOTE: This step will end the level 6 self-test.

I. Flap Discrete Test

SUBTASK 34-46-00-740-071-002

(1) Do these steps to do a level 6 self-test:

(a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

(b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.

(d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.

(e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 5 self-test.

(f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 6 self-test.

SUBTASK 34-46-00-750-121-002

(2) Set the FLAP INHIBIT switch on the ground proximity warning module to the INHIBIT position.

(a) Make sure the aural message "LANDING FLAPS" is annunciated.

SUBTASK 34-46-00-860-246-002

(3) Set the FLAP INHIBIT switch on the ground proximity warning module to the NORMAL position.

(a) Make sure the aural message "NOT LANDING FLAPS" is annunciated.

SUBTASK 34-46-00-860-247-002

(4) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

NOTE: This step will end the level 6 self-test.

J. Landing Gear Handle Discrete Test

SUBTASK 34-46-00-740-072-002

(1) Do these steps to do a level 6 self-test:

(a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

(b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

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(c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.

(d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.

(e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 5 self-test.

(f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 6 self-test.

SUBTASK 34-46-00-750-122-002

WARNING	MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR [BEFORE YOU MOVE THE CONTROL LEVER]. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Set the landing gear lever to the OFF position (TASK 32-31-00-730-802).

(a) Make sure the aural message "LANDING GEAR UP" is annunciated.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-460, 464-999

SUBTASK 34-46-00-860-248-002

(3) Set the GEAR INHIBIT switch on the ground proximity warning module to the INHIBIT position.

(a) Make sure the aural message "LANDING GEAR DOWN" is annunciated.

SUBTASK 34-46-00-860-249-002

(4) Set the GEAR INHIBIT switch on the ground proximity warning module to the NORMAL position.

(a) Make sure the aural message "LANDING GEAR UP" is annunciated.

LOM ALL

SUBTASK 34-46-00-860-250-002

(5) Set the landing gear lever to the DOWN position.

(a) Make sure the aural message "LANDING GEAR DOWN" is annunciated.

SUBTASK 34-46-00-860-251-002

(6) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

NOTE: This step will end the level 6 self-test.

K. Terrain Inhibit Discrete Test

SUBTASK 34-46-00-740-073-002

(1) Do these steps to do a level 6 self-test:

(a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

(b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.

(d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 5 self-test.

(f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 6 self-test.

SUBTASK 34-46-00-860-252-002

(2) Set the TERR INHIBIT switch on the ground proximity warning module to the INHIBIT position.

(a) Make sure the aural message "TERRAIN OFF" is annunciated.

SUBTASK 34-46-00-860-253-002

(3) Set the TERR INHIBIT switch on the ground proximity warning module to the NORMAL position.

(a) Make sure the aural message "TERRAIN ON" is annunciated.

SUBTASK 34-46-00-860-254-002

(4) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

NOTE: This step will end the level 6 self-test.

L. Glideslope Cancel Test

SUBTASK 34-46-00-740-074-002

(1) Do these steps to do a level 6 self-test:

(a) Push the GPWS SYS TEST switch on the ground proximity warning module for one second.

(b) After the level 1 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 2 self-test.

(c) After the level 2 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 3 self-test.

(d) After the level 3 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 4 self-test.

(e) After the level 4 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 5 self-test.

(f) After the level 5 self-test starts, push the GPWS SYS TEST switch on the ground proximity warning module for one second to go to the level 6 self-test.

SUBTASK 34-46-00-750-123-002

(2) Push and hold the captain's BELOW G/S switch-light on the P1-1 panel.

(a) Make sure the aural message "GLIDESLOPE CANCELED" is annunciated.

SUBTASK 34-46-00-750-124-002

(3) Release the captain's BELOW G/S switch-light on the P1-1 panel.

(a) Make sure the aural message "GLIDESLOPE ENABLED" is annunciated.

SUBTASK 34-46-00-750-125-002

(4) Push and hold the first officer's BELOW G/S switch-light on the P3-1 panel.

(a) Make sure the aural message "GLIDESLOPE CANCELED" is annunciated.

SUBTASK 34-46-00-750-126-002

(5) Release the first officer's BELOW G/S switch-light on the P3-1 panel.

(a) Make sure the aural message "GLIDESLOPE ENABLED" is annunciated.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-00-860-255-002

(6) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

NOTE: This step will end the level 6 self-test.

M. Master Dim and Test

SUBTASK 34-46-00-740-075-002

(1) Push and release the GPWS SYS TEST switch the ground proximity warning module.

(a) Make sure the captain's and first officer's BELOW G/S switch-lights come on bright.

NOTE: Ignore the other self-test aural warnings and indications. Wait 30 seconds for the GPWC to stop the self-test.

SUBTASK 34-46-00-860-256-002

(2) Set the LIGHTS switch on the P1-3 panel to the DIM position.

SUBTASK 34-46-00-740-076-002

(3) Push and release the GPWS SYS TEST switch on the ground proximity warning module.

(a) Make sure the captain's and first officer's BELOW G/S switch-lights come on dim.

NOTE: Ignore the other self-test aurals and indications.

SUBTASK 34-46-00-860-257-002

(4) Set the LIGHTS switch on the P1-3 panel to the BRIGHT position.

N. Put the Airplane Back to Its Usual Condition

SUBTASK 34-46-00-860-258-002

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GROUND PROXIMITY WARNING COMPUTER - REMOVAL/INSTALLATION

1. General

A. This subject has these tasks:

(1) A removal of the ground proximity warning computer (GPWC)

(2) An installation of the GPWC.

B. The GPWC is on the E1 electronic equipment rack, shelf No. 1, in the main equipment center.

TASK 34-46-01-000-801

2. Ground Proximity Warning Computer Removal

(Figure 401)

A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-46-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

SUBTASK 34-46-01-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(TASK 06-41-00-800-801).

SUBTASK 34-46-01-020-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE GPWC. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE GPWC.

(3) Remove the GPWC [1] (TASK 20-10-07-000-801).

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F83533 S0006576994_V2

Ground Proximity Warning Computer Installation
Figure 401/34-46-01-990-802 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GROUND PROXIMITY WARNING COMPUTER

B

H80595 S0006576996_V2

Ground Proximity Warning Computer Installation
Figure 401/34-46-01-990-802 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GROUND PROXIMITY WARNING COMPUTER

B

2306502 S0000523893_V2

Ground Proximity Warning Computer Installation
Figure 401/34-46-01-990-802 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-46-01-400-801

3. Ground Proximity Warning Computer Installation

(Figure 401)

A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
20-10-07-400-801	E/E Box Installation (P/B 201)
34-46-00-470-803	Load the Terrain Database with USB Drive Load (P/B 201)
34-46-00-470-804	Load the Operational Program (OPC) software with ARINC 615-3 Data Loader (P/B 201)
34-46-00-470-805	Load the Terrain Database with ARINC 615A Dataloader (P/B 201)
34-46-00-470-808	Load the Operational Program Configuration (OPC) software with an Enhanced Airborne Data Loader (eADL) (P/B 201)
34-46-00-700-801	Verify the Terrain Database Part Number for PCMCIA Flash Card Load (P/B 201)
34-46-00-700-802	Verify the Terrain Database Part Number (P/B 201)
34-46-00-710-804-002	Ground Proximity Warning System - Operational Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	GPWC	34-46-01-02-025	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438
		34-46-01-02-200	LOM 439-447, 450-999

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Installation Procedure

SUBTASK 34-46-01-860-005

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-46-01-420-001

> **CAUTION** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE GPWC. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE GPWC.

(2) Install the GPWC [1] (TASK 20-10-07-400-801).

SUBTASK 34-46-01-860-002

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	7	C01519	TERRAIN DISPLAY
B	7	C00629	GND PROX WARN

F. Installation Test

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

SUBTASK 34-46-01-740-003

(1) Make sure that the green COMPUTER OK light on the front panel of the GPWC [1] is on.

LOM 428, 439-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

SUBTASK 34-46-01-700-001

(2) Make sure that the green COMPUTER STATUS light on the front panel of the GPWC [1] is on.

NOTE: If the External Fault LED be Amber and the Computer Status LED be Red, the Operational Program Configuration (OPC) should be loaded to the Enhanced Ground Proximity Warning System (EGPWS) to relieve the Ground Proximity Warning Computer (GPWC) of faults.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 PRE SB 737-34-2617

SUBTASK 34-46-01-750-002

(3) If your airline maintains a terrain database version requirement, then, do this task: Verify the Terrain Database Part Number for PCMCIA Flash Card Load, TASK 34-46-00-700-801.

LOM 428; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-427, 429-434, 437, 438 POST SB 737-34-2617

SUBTASK 34-46-01-700-003

(4) Do this task: Verify the Terrain Database Part Number, TASK 34-46-00-700-802.

LOM 439-447, 450-999

SUBTASK 34-46-01-700-002

(5) Do these steps to make sure that the correct GPWC [1] operational program configuration (OPC) and terrain database software is installed:

(a) Make sure that the TERR switches on the EFIS control panels, P7, are on.

(b) Push the SYS TEST switch on Ground Proximity Module (P3-7).

1) Make sure that the terrain display test pattern is shown on the navigation display (ND).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Record the operational program configuration (OPC) part number and the terrain database part number.

NOTE: The test pattern shows magenta text for the operational program configuration part number, ie OSSBCGXXXXXXXXXX.

NOTE: The test pattern shows magenta text for the terrain database part number, ie TDBXXXX.

(d) If the OPC part number is not correct, then do this task: Load the Operational Program (OPC) software with ARINC 615-3 Data Loader, TASK 34-46-00-470-804 or Load the Operational Program Configuration (OPC) software with an Enhanced Airborne Data Loader (eADL), TASK 34-46-00-470-808.

(e) If the terrain database version is not correct, then do this task: Load the Terrain Database with USB Drive Load, TASK 34-46-00-470-803 or Load the Terrain Database with ARINC 615A Dataloader, TASK 34-46-00-470-805.

LOM ALL

SUBTASK 34-46-01-860-006

(6) Do this task: Ground Proximity Warning System - Operational Test, TASK 34-46-00-710-804-002.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-46-01-410-002

(1) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(Finding an Access Door or Panel on the Lower Half of the Fuselage, TASK 06-41-00-800-801).

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GROUND PROXIMITY WARNING MODULE - REMOVAL/INSTALLATION

1. General

A. This subject has these tasks:

(1) A removal of the ground proximity warning module

(2) An installation of the ground proximity warning module.

B. The ground proximity warning module is on the first officer's instrument panel, P3.

TASK 34-46-02-000-801

2. Ground Proximity Warning Module Removal

(Figure 401 or Figure 402 or Figure 403)

A. Location Zones

Zone	Area
212	Flight Compartment - Right

B. Ground Proximity Warning Module Removal

SUBTASK 34-46-02-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 34-46-02-020-001

(2) Remove the ground proximity warning module [1]:

(a) Loosen the quarter turn fasteners [2] on the module [1].

(b) Pull the module [1] from the instrument panel until you can get to the electrical connector [3].

(c) Disconnect the electrical connector [3] from the module [1].

(d) Remove the ground proximity warning module [1].

(e) Put a protective cover on the electrical connector [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

F99483 S0006577003_V3

Ground Proximity Warning Module Installation
Figure 401/34-46-02-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

Ground Proximity Warning Module Installation
Figure 402/34-46-02-990-803

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT COMPARTMENT

2102013 S0000447319_V2

Ground Proximity Warning Module Installation
Figure 403/34-46-02-990-805

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-46-02-400-801

3. Ground Proximity Warning Module - Installation

(Figure 401 or Figure 402 or Figure 403)

A. References

Reference	Title
34-46-00-710-804-002	Ground Proximity Warning System - Operational Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module	31-11-51-07-355	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 451-460, 464, 466-999
		31-11-51-07-390	LOM 461-463
		31-11-51-07-425	LOM 450, 465
		33-11-00-13-830	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 451-460, 464, 466-999
		33-11-00-13-835	LOM 461-463
		33-11-00-13-865	LOM 450, 465
		34-46-02-02-005	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 451-460, 464, 466-999
		34-46-02-02-065	LOM 461-463
		34-46-02-02-110	LOM 450, 465

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Ground Proximity Warning Module - Installation

SUBTASK 34-46-02-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

SUBTASK 34-46-02-420-001

(2) Install the ground proximity warning module [1]:

(a) Remove the protective cover from the electrical connector [3].

(b) Connect the electrical connector [3] to the module [1].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Lightly push the module [1] into the instrument panel.

(d) Tighten the quarter turn fasteners [2] that attach the module [1] to the instrument panel.

SUBTASK 34-46-02-860-003

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	7	C00629	GND PROX WARN

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	10	C00335	PANEL & INSTR 28V PRI F/O
F	12	C00318	INDICATOR MASTER DIM SECT 6

E. Installation Test

SUBTASK 34-46-02-760-002

(1) Make sure that the lights on the P3-7 module [1] are on.

SUBTASK 34-46-02-710-001

(2) Do this task: Ground Proximity Warning System - Operational Test, TASK 34-46-00-710-804-002.

I **LOM 450, 465**

SUBTASK 34-46-02-710-002

(3) Do the Runway Inhibit Discrete Test as follows:

(a) Press and Release, as necessary, the GPWS SYS TEST button located on the P3–7 module [1] to place the GPWC in the level 6 self test.

NOTE: Pressing the Self Test switch for less than 2 seconds, while in any level of the self test will transition the test to the next step. Pressing the Self Test switch for longer than 2 seconds will either cancel the self test or "PRESS TO CONTINUE" is enunciated to allow continuation through the self test levels.

(b) Position the RUNWAY INHIBIT switch on the P3-7 module [1] to INHIBIT.

(c) Make sure that the following message is annunciated: “RUNWAY AWARENESS INHIBIT".

(d) Position the RUNWAY INHIBIT switch on the P3-7 module [1] to NORMAL.

(e) Make sure that the following message is annunciated: "RUNWAY AWARENESS OK".

SUBTASK 34-46-02-760-001

(4) Do the RUNWAY INOP light test as follows:

(a) Open this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

(b) Make sure that the RUNWAY INOP light is not illuminated.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 450, 465 (Continued)

(c) Open this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

(d) Make sure that the RUNWAY INOP light is illuminated

NOTE: The GPWS INOP light may also be illuminated.

(e) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

(f) Make sure that the RUNWAY INOP light is off.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1. General

A. This procedure has these tasks:

(1) VOR Deactivation

(2) VOR Activation

TASK 34-51-00-040-801

2. VOR - Deactivation

(Figure 201)

A. General

(1) This procedure removes electrical power to the VOR system.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right
326	Vertical Fin - Fin Tip

C. Procedure

SUBTASK 34-51-00-860-074

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

D. VOR - Tryout

NOTE: This tryout is to make sure the VOR system is in a zero energy state.

SUBTASK 34-51-00-860-075

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-00-710-011

(2) Tune the captain's and first officer's navigation control panels to a local VOR station.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) On the P5 panel Instrument switch module, set the VHF NAV switch to “NORMAL” position.

(b) Turn receiver volume control clockwise for NAV1 and/or NAV 2 on the Audio Control Panel.

1) Make sure you can not hear the station identification code over the flight interphone system.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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VOR Antenna
Figure 201/34-51-00-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-51-00-440-801

3. VOR - Activation

(Figure 201)

A. General

(1) This procedure adds electrical power to the VOR system.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right
326	Vertical Fin - Fin Tip

C. Procedure

SUBTASK 34-51-00-860-076

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1. General

A. This procedure has these tasks:

(1) An operational test of the VOR system.

(2) A system test of the VOR system.

TASK 34-51-00-710-801

2. VOR System - Operational Test

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Prepare for the Operational Test

SUBTASK 34-51-00-710-001

(1) Do these steps to prepare for the operational test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the IRS transfer switch on the instrument switching module to the NORMAL position.

(c) Set the mode selector on the captain's and the first officer's (F/O's) EFIS control panel to the VOR position.

(d) Set the captain's and F/O's EFIS control panel ADF/VOR 1 and ADF/VOR 2 switches to VOR 1 and VOR 2 position.

LOM 404 PRE SB 737-31-1650

(e) Push the CTR button on the EFIS control panel to set display to full display.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(f) Push the CTR button on the captain's and F/O's EFIS control panels until full VOR display is present on the captain's and F/O's navigation display (ND).

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(g) Set the narrow and wide pointer source select switch "rabbit-ear" on the standby RMI to the VOR position.

LOM ALL

(h) Set the SOURCE switch on the instrument switching module to the AUTO position.

(i) Set the IRS mode select switches, on the Mode Select Unit (MSU), to the ATT position.

(j) Push H and put 000 (heading 0°) on the IRS inertial system display unit (ISDU).

(k) Push the ENT key on the IRS ISDU.

NOTE: A wait of 30 seconds can be necessary for a valid heading.

(l) Turn the course select controls on the DFCS mode control panel until the course windows show 000 degrees.

LOM 404 PRE SB 737-31-1650

1) Make sure the heading flag on the two EHSIs does not show.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

2) Make sure the heading flag on the captain's and first officer's ND does not show.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

3) Make sure the heading flag on the standby RMI is not view.

LOM ALL

C. VOR Receiver Self Test

LOM ALL; AIRCRAFTS WITH KNOB-STYLE NAVIGATION CONTROL PANEL

SUBTASK 34-51-00-860-002

(1) Set a frequency of 108.00 MHz on the captain's navigation control panel.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

LOM ALL; AIRCRAFTS WITH KEYPAD-STYLE NAVIGATION CONTROL PANEL

SUBTASK 34-51-00-860-073

(2) Set a VOR frequency of 108.00 MHz on the captain's navigation control panels by:

(a) Pushing the MODE key (V or reverse V) until “VOR” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “108.00” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “VOR 108.00” is displayed in the ACT (upper) window on the NCP.

LOM ALL

SUBTASK 34-51-00-710-002

(3) Push and release the TEST button on the captain's navigation control panel.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(a) Make sure that these indications agree with the data in (Table 501):

LOM 404 PRE SB 737-31-1650

1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's EHSI

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464; LOM 404 POST SB 737-31-1650

2) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's NDs

3) The No. 1 VOR narrow bearing pointers on the captain's and the first officer's NDs

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

4) The No. 1 bearing pointer and VOR flag on the standby RMI.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464 (Continued)

Table 501/34-51-00-993-806

TIME (Approx.)	RMI VOR BEARING POINTER	RMI VOR FLAG IN VIEW	DISPLAY VOR FLAG IN VIEW	DISPLAY FROM INDICATOR IN VIEW	DISPLAY DEVIATION BAR IN VIEW
3 ±1 second	N/A	YES	YES	NO	NO
After 3 seconds	180° ± 3°	NO	NO	YES	Centered
After 23 seconds	N/A	YES	NO	NO	NO

LOM 443, 444, 450, 465-999

(b) Make sure that these indications agree with the data in (Table 502):

Table 502/34-51-00-993-810

TIME (Approx.)	DISPLAY VOR FLAG IN VIEW	DISPLAY FROM INDICATOR IN VIEW	DISPLAY DEVIATION BAR IN VIEW
3 ±1 second	YES	NO	NO
After 3 seconds	NO	YES	Centered
After 23 seconds	NO	NO	NO

LOM 443, 444, 450; LOM 465-999 POST SB 737-31-1650

1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's NDs

2) The No. 1 VOR narrow bearing pointers on the captain's and the first officer's NDs

LOM ALL

SUBTASK 34-51-00-860-003

(4) Set the VHF NAV switch on the instrument switching module to the BOTH ON 1 position.

SUBTASK 34-51-00-710-003

(5) Push and release the TEST button on the captain's navigation control panel.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(a) Make sure that these indications agree with the data in (Table 501):

LOM 404 PRE SB 737-31-1650

1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's and the first officer's EHSIs

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464; LOM 404 POST SB 737-31-1650

2) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's and first officer's NDs

3) The No. 1 VOR narrow bearing pointers on the captain's and first officer's NDs

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

4) The No. 1 bearing pointer and VOR flag on the standby RMI.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 443, 444, 450, 465-999

(b) Make sure that these indications agree with the data in (Table 502):

LOM 443, 444, 450; LOM 465-999 POST SB 737-31-1650

1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's and first officer's NDs

2) The No. 1 VOR narrow bearing pointers on the captain's and first officer's NDs

LOM ALL

SUBTASK 34-51-00-860-004

(6) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-51-00-860-005

(7) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-710-004

(8) Push and release the TEST button on the first officer's navigation control panel.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(a) Make sure that these indications agree with the data in (Table 501):

LOM 404 PRE SB 737-31-1650

1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the first officer's EHSI

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464; LOM 404 POST SB 737-31-1650

2) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the first officer's ND

3) The No. 2 VOR wide bearing pointers on the captain's and the first officer's NDs

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

4) The No. 2 bearing pointer and VOR flag on the standby RMI.

LOM 443, 444, 450, 465-999

(b) Make sure that these indications agree with the data in (Table 502):

LOM 443, 444, 450; LOM 465-999 POST SB 737-31-1650

1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the first officer's ND

2) The No. 2 VOR wide bearing pointers on the captain's and the first officer's NDs

LOM ALL

SUBTASK 34-51-00-860-006

(9) Set the VHF NAV switch on the instrument switching module to the BOTH ON 2 position.

SUBTASK 34-51-00-710-005

(10) Push and release the TEST button on the first officer's navigation control panel.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(a) Make sure that these indications agree with the data in (Table 501):

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 PRE SB 737-31-1650

1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's and the first officer's EHSI

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464; LOM 404 POST SB 737-31-1650

2) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's and first officer's ND

3) The No. 2 VOR wide bearing pointers on the captain's and the first officer's NDs

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

4) The No. 2 bearing pointer and VOR flag on the standby RMI.

LOM 443, 444, 450, 465-999

(b) Make sure that these indications agree with the data in (Table 502):

LOM 443, 444, 450; LOM 465-999 POST SB 737-31-1650

1) The deviation bar is in view, the TO/FROM indication, and the VOR flag on the captain's and first officer's ND

2) The No. 2 VOR wide bearing pointers on the captain's and the first officer's NDs

LOM ALL

SUBTASK 34-51-00-860-007

(11) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

D. Display Source Annunciator Test

SUBTASK 34-51-00-710-006

(1) Set the VHF NAV switch and the navigation control panel (NCP) to each position that shows in (Table 503).

NOTE: APP must be selected on both the Captain's and F/O's EFIS control panels for the 108.10 MHz ILS annunciations.

Table 503/34-51-00-993-808

CAPT & F/O NCP FREQUENCY	VHF NAV SWITCH	CAPT DISPLAY ANNUNCIATOR	F/O DISPLAY ANNUNCIATOR	EFIS CTRL PANEL MODE SELECTOR
108.00 MHz	NORMAL	VOR 1	VOR 2	VOR
108.00 MHz	BOTH ON 1	VOR 1	VOR 1	VOR
108.00 MHz	BOTH ON 2	VOR 2	VOR 2	VOR
108.10 MHz	NORMAL	ILS 1	ILS 2	APP
108.10 MHz	BOTH ON 1	ILS 1	ILS 1	APP
108.10 MHz	BOTH ON 2	ILS 2	ILS 2	APP

LOM 404 PRE SB 737-31-1650

(a) Make sure the EHSI source annunciators agree with the data in (Table 503).

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the ND source annunciators agree with the data in (Table 503).

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-51-00-860-008

(2) Set a frequency of 108.00 MHz on the captain's navigation control panel.

SUBTASK 34-51-00-860-009

(3) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-860-054

(4) Set the mode selector on the captain's and first officer's EFIS control panels to the VOR position.

SUBTASK 34-51-00-860-010

(5) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-51-00-860-011

(6) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-51-00-710-007

(7) Make sure the indications that follow occur:

LOM 404 PRE SB 737-31-1650

(a) The No. 1 bearing flag is in view on the captain's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) The No. 1 bearing flag is in view on the captain's ND

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(c) The No. 1 bearing flag is in view on the standby RMI

LOM ALL

SUBTASK 34-51-00-860-012

(8) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-00-710-008

(9) Make sure the indications that follow occur:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 PRE SB 737-31-1650

(a) The No. 2 bearing flag is in view on the first officer's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) The No. 2 bearing flag is in view on the first officer's ND

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(c) The No. 2 bearing flag is in view on the standby RMI.

LOM ALL

SUBTASK 34-51-00-860-013

(10) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-51-00-860-077

(1) Set the IRS mode select switches, on the MSU, to the OFF position.

——— END OF TASK ———

TASK 34-51-00-730-801

3. VOR System - System Test

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the System Test

SUBTASK 34-51-00-710-009

(1) Do these steps to prepare for the system test:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the IRS switch on the instrument switching module to the NORMAL position.

(c) Set the mode selector on the captain's and the first officer's EFIS control panel to the VOR position.

(d) Set the captain's and first officer's EFIS control panel ADF/VOR 1 and ADF/VOR 2 switches to VOR 1 and VOR 2 position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(e) Set the VOR/ADF selectors on the standby RMI to the VOR position.

LOM ALL

(f) Set the SOURCE switch on the instrument switching module to the AUTO position.

(g) Set the IRS mode select switches, on the Mode Select Unit (MSU), to the ATT position.

(h) Push H on the inertial system display unit (ISDU).

(i) Push 000 on the ISDU for a heading of 0°.

(j) Push the ENT key on the ISDU.

NOTE: A wait of 30 seconds can be necessary for a valid heading.

(k) Turn the course select controls on the DFCS mode control panel until the course windows show 000 degrees.

LOM 404 PRE SB 737-31-1650

1) Make sure the heading flag on the two EHSIs does not show.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

2) Make sure the heading flag on the two NDs does not show.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

3) Make sure the heading flag is not in view on the standby RMI.

LOM ALL

D. VOR System Test

SUBTASK 34-51-00-710-010

(1) Do this task: VOR System - Operational Test, TASK 34-51-00-710-801.

LOM ALL; AIRCRAFTS WITH KNOB-STYLE NAVIGATION CONTROL PANEL

SUBTASK 34-51-00-860-016

(2) Set a frequency of 108.00 MHz on the captain's navigation control panel.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY display window. Then push the TFR button. The frequency will show in the ACTIVE display window.

LOM ALL; AIRCRAFTS WITH KEYPAD-STYLE NAVIGATION CONTROL PANEL

SUBTASK 34-51-00-860-057

(3) Set a VOR frequency of 108.00 MHz on the captain's navigation control panels by:

(a) Pushing the MODE key (V or reverse V) until “VOR” is displayed in the STBY (lower) window of the NCP.

(b) Pushing the number “108.00” using the NCP keypad.

(c) Pushing the ACT/STBY transfer key until “VOR 108.00” is displayed in the ACT (upper) window on the NCP.

LOM ALL

SUBTASK 34-51-00-730-001

(4) Set up the NAV/COMM ramp test set, COM-1913, to supply a 180° bearing at a frequency of 108.00 MHz.

NOTE: Bearing is a signal that is along a line in the magnetic direction (to the station) shown by the number of the radial. For example, 180° bearing is north of the station.

LOM 404 PRE SB 737-31-1650

(a) Make sure the deviation bar shows on the captain's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the deviation bar shows on the captain's ND.

LOM 404 PRE SB 737-31-1650

(c) Make sure the VOR flag does not show on the captain's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(d) Make sure the VOR flag does not show on the captain's ND.

LOM 404 PRE SB 737-31-1650

(e) Make sure the No. 1 bearing pointers on the captain's and the first officer's RDMI show 180 ±4°.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(f) Make sure the No. 1 bearing pointers on the captain's and the first officer's ND show 180 ±4°.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(g) Make sure the No. 1 bearing pointers on the standby RMI show 180 ±4°.

LOM ALL

SUBTASK 34-51-00-730-002

(5) Turn the captain's course select control on the DFCS mode control panel until the deviation bar is in the center.

(a) Make sure the course window on the DFCS mode control panel shows 000 ±002°.

NOTE: The deviation bar can also be in the center when the course counter shows 180°. Do not use this course.

LOM 404 PRE SB 737-31-1650

(b) Make sure a FROM indication shows on the captain's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(c) Make sure a FROM indication shows on the captain's ND.

LOM 404 PRE SB 737-31-1650

SUBTASK 34-51-00-730-003

(6) Turn the captain's course select control on the DFCS mode control panel until the deviation bar on the captain's EHSI is on the second left dot.

(a) Make sure the course window on the DFCS mode control panel shows 350 ±004°.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

SUBTASK 34-51-00-730-019

(7) Turn the captain's course select control on the DFCS mode control panel until the deviation bar on the captain's ND is on the second left dot.

(a) Make sure the course window on the DFCS mode control panel shows 350 ±004°.

LOM 404 PRE SB 737-31-1650

SUBTASK 34-51-00-730-004

(8) Turn the captain's course select control on the DFCS mode control panel until the deviation bar on the captain's EHSI is on the second right dot.

(a) Make sure the course window on the DFCS mode control panel shows 010 ±004°.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

SUBTASK 34-51-00-730-020

(9) Turn the captain's course select control on the DFCS mode control panel until the deviation bar on the captain's ND is on the second right dot.

(a) Make sure the course window on the DFCS mode control panel shows 010 ±004°.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-51-00-860-017

(10) Turn the captain's course select control on the DFCS mode control panel until the course window shows 000.

SUBTASK 34-51-00-730-005

(11) Set the VOR bearing selector on the NAV/COMM ramp test set, COM-1913, to the bearings shown in (Table 504).

(a) Make sure that these indications agree with the data in (Table 504):

Table 504/34-51-00-993-809

BEARING SELECTOR SETTING	BEARING POINTER INDICATION	TO - FROM FLAG INDICATION	DEVIATION BAR INDICATION
180°	180 ± 4°	FROM	Centered
135°	135 ± 4°	FROM	Moved full scale to the right
90°	90 ± 4°	----	Moved full scale to the right
45°	45 ± 4°	TO	Moved full scale to the right
000°	000 ± 4°	TO	Centered
315°	315 ± 4°	TO	Moved full scale to the left
270°	270 ± 4°	----	Moved full scale to the left
225°	225 ± 4°	FROM	Moved full scale to the left
180°	180 ± 4°	FROM	Centered
225°	225 ± 4°	FROM	Moved full scale to the left
270°	270 ± 4°	----	Moved full scale to the left
315°	315 ± 4°	TO	Moved full scale to the left
000°	000 ± 4°	TO	Centered
45°	45 ± 4°	TO	Moved full scale to the right
90°	90 ± 4°	----	Moved full scale to the right
135°	135 ± 4°	FROM	Moved full scale to the right
180°	180 ± 4°	FROM	Centered

LOM 404 PRE SB 737-31-1650

1) The No. 1 bearing pointers on the captain's and the first officer's RDMI

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

2) The No. 1 bearing pointers on the captain's and the first officer's ND

LOM 404 PRE SB 737-31-1650

3) The TO-FROM indication and the deviation bar in the captain's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

4) The TO-FROM indication and the deviation bar in the captain's ND.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

5) The No. 1 bearing pointer on the standby RMI

LOM ALL

SUBTASK 34-51-00-730-006

(12) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

(a) Make sure the No. 2 bearing pointers show 180 ±4°.

LOM 404 PRE SB 737-31-1650

(b) Make sure the No. 2 bearing pointers on the captain's and the first officer's RDMI show 180 ±4°.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(c) Make sure the No. 2 bearing pointers on the captain's and the first officer's ND show 180 ±4°.

LOM 404 PRE SB 737-31-1650

SUBTASK 34-51-00-730-007

(13) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's EHSI is in the center.

(a) Make sure the course window on the DFCS mode control panel shows 000 ±002°.

NOTE: The deviation bar can also be in the center when the course counter shows 180°. Do not use this course.

(b) Make sure a FROM indication shows on the first officer's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

SUBTASK 34-51-00-730-021

(14) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's ND is in the center.

(a) Make sure the course window on the DFCS mode control panel shows 000 ±002°.

NOTE: The deviation bar can also be in the center when the course counter shows 180°. Do not use this course.

(b) Make sure a FROM indication shows on the first officer's ND.

LOM 404 PRE SB 737-31-1650

SUBTASK 34-51-00-730-008

(15) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's EHSI is on the second left dot.

(a) Make sure the course window on the DFCS mode control panel shows 350 ±004°.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

SUBTASK 34-51-00-730-022

(16) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's ND is on the second left dot.

(a) Make sure the course window on the DFCS mode control panel shows 350 ±004°.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 PRE SB 737-31-1650

SUBTASK 34-51-00-730-009

(17) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's EHSI is on the second right dot.

(a) Make sure the course window on the DFCS mode control panel shows 010 ±004°.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

SUBTASK 34-51-00-730-023

(18) Turn the first officer's course select control on the DFCS mode control panel until the deviation bar on the first officer's ND is on the second right dot.

(a) Make sure the course window on the DFCS mode control panel shows 010 ±004°.

LOM ALL

SUBTASK 34-51-00-860-018

(19) Turn the first officer's course select control on the DFCS mode control panel until the course window shows 000.

SUBTASK 34-51-00-730-010

(20) Set the VOR bearing selector on the NAV/COMM ramp test set, COM-1913, to the bearings shown in (Table 504).

(a) Make sure that these indications agree with the data in (Table 504):

LOM 404 PRE SB 737-31-1650

1) The No. 2 bearing pointers on the captain's and the first officer's RDMI

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

2) The No. 2 bearing pointers on the captain's and the first officer's ND

LOM 404 PRE SB 737-31-1650

3) The TO-FROM indication and the deviation bar in the first officer's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

4) The TO-FROM indication and the deviation bar in the first officer's ND.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

5) The No. 2 bearing pointer on the standby RMI

LOM ALL

SUBTASK 34-51-00-860-019

(21) Set the VHF NAV switch on the instrument switching module to the BOTH ON 1 position.

SUBTASK 34-51-00-860-020

(22) Set a frequency of 108.10 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-860-021

(23) Turn the captain's course selector control on the DFCS mode control panel until the course window shows 000.

SUBTASK 34-51-00-730-011

(24) Set the VOR bearing selector on the NAV/COMM ramp test set, COM-1913, to a 315°bearing.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 PRE SB 737-31-1650

(a) Make sure the No. 1 bearing pointers on the captain's and the first officer's RDMI show 315 ±4°.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the No. 1 bearing pointers on the captain's and the first officer's ND show 315 ±4°.

LOM 404 PRE SB 737-31-1650

(c) Make sure the deviation bars on the two EHSIs are full scale in the left direction.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(d) Make sure the deviation bars on the two NDs are full scale in the left direction.

LOM 404 PRE SB 737-31-1650

(e) Make sure a TO indication shows on the two EHSIs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(f) Make sure a TO indication shows on the two NDs.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(g) Make sure the No. 1 bearing pointers on the standby RMI show 315 ±4°.

LOM ALL

SUBTASK 34-51-00-860-022

(25) Set the VHF NAV switch on the instrument switching module to the BOTH ON 2 position.

SUBTASK 34-51-00-860-023

(26) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-860-024

(27) Set a frequency of 108.10 MHz on the captain's navigation control panel.

SUBTASK 34-51-00-860-025

(28) Turn the first officer's course selector control on the DFCS mode control panel until the course window shows 000.

SUBTASK 34-51-00-730-012

(29) Set the VOR bearing selector on the NAV/COMM ramp test set, COM-1913, to a 135° bearing.

LOM 404 PRE SB 737-31-1650

(a) Make sure the No. 2 bearing pointers on the captain's and the first officer's RDMI show 135 ±4°.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the No. 2 bearing pointers on the captain's and the first officer's ND show 135 ±4°.

LOM 404 PRE SB 737-31-1650

(c) Make sure the deviation bars on the two EHSIs are full scale in the right direction.

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LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(d) Make sure the deviation bars on the two NDs are full scale in the right direction.

LOM 404 PRE SB 737-31-1650

(e) Make sure a FROM indication shows on the two EHSIs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(f) Make sure a FROM indication shows on the two NDs.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(g) Make sure the No. 2 bearing pointers on the standby RMI shows 135 ±4°.

LOM ALL

SUBTASK 34-51-00-860-026

(30) Set a frequency of 108.00 MHz on the captain's navigation control panel.

E. System Frequency Control and Aural Outputs Test

NOTE: No adjustment of the receiver gain squelch is necessary. The tone should be detected regardless of the noise level.

SUBTASK 34-51-00-860-027

(1) Set a frequency of 108.10 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-860-028

(2) Use the switches on the NAV/COMM ramp test set, COM-1913, to supply a signal of 1020 Hz.

SUBTASK 34-51-00-860-029

(3) Push the receiver volume controls for NAV-2 on each audio selector panel to set the volume to off.

SUBTASK 34-51-00-860-030

(4) Push the receiver volume controls for NAV-1 on each audio selector panel to set the volume to on.

SUBTASK 34-51-00-730-013

(5) Turn the receiver volume controls clockwise for NAV-1 on each audio selector panel.

(a) Make sure you can hear a tone through the inter-phone system.

(b) Make sure you can hear a tone at each audio selector panel with a headset.

(c) Make sure you cannot hear the tone when you change the frequency on the NAV/COMM ramp test set, COM-1913, to a different frequency.

SUBTASK 34-51-00-860-031

(6) Push the receiver volume controls for NAV-1 on each audio selector panel to set the volume to off.

SUBTASK 34-51-00-860-032

(7) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-51-00-860-033

(8) Set a frequency of 108.10 MHz on the captain's navigation control panel.

SUBTASK 34-51-00-860-034

(9) Push the receiver volume controls for NAV-2 on each audio selector panel to set the volume to on.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-51-00-730-014

(10) Turn the receiver volume controls clockwise for NAV-2 on each audio selector panel.

(a) Make sure you can hear a tone through the interphone system.

(b) Make sure you can hear a tone at each audio selector panels with a headset.

(c) Make sure you cannot hear the tone when you change the frequency on the NAV/COMM ramp test set, COM-1913, to a different frequency.

SUBTASK 34-51-00-860-035

(11) Push the receiver volume controls for NAV-2 on each audio selector panel to set the volume to off.

SUBTASK 34-51-00-860-036

(12) Set a frequency of 108.00 MHz on the captain's navigation control panel.

F. Heading Input Test

SUBTASK 34-51-00-860-037

(1) Make sure the captain's navigation control panel is set to a frequency of 108.00 MHz.

SUBTASK 34-51-00-860-038

(2) Make sure the first officer's navigation control panel is set to a frequency of 108.00 MHz.

SUBTASK 34-51-00-860-039

(3) Use the NAV/COMM ramp test set, COM-1913, to supply a 135° bearing at a frequency of 108.00 MHz.

LOM 404 PRE SB 737-31-1650

(a) Make sure the deviation bar shows on the captain's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the deviation bar shows on the captain's ND.

LOM 404 PRE SB 737-31-1650

(c) Make sure the VOR flag does not show on the captain's EHSI.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(d) Make sure the VOR flag does not show on the captain's ND.

LOM ALL

SUBTASK 34-51-00-860-040

(4) Make sure the VHF NAV switch on the instrument switching module is in the NORMAL position.

SUBTASK 34-51-00-860-041

(5) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-00-750-001

(6) Set the right IRS mode select switch, on the MSU, to the OFF position and wait at least 30 seconds.

SUBTASK 34-51-00-730-015

(7) Put headings of 45°, 120°, 240°, and 000° into the ISDU for the air data inertial reference system (ADIRS).

LOM 404 PRE SB 737-31-1650

(a) Make sure the compass card and the No. 1 bearing pointer in the captain's RDMI move counterclockwise at the same time.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the compass card and the No. 1 bearing pointer in the captain's ND move counterclockwise at the same time.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(c) Make sure the standby RMI No. 1 bearing pointer follows the compass card's movement at a slower speed to the Captain's ND.

(d) Make sure the heading flag shows on the First Officer's ND.

LOM 404 PRE SB 737-31-1650

(e) Make sure the compass card and the No. 1 bearing pointer are flagged on the first officer's RDMI.

LOM ALL

SUBTASK 34-51-00-860-042

(8) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-00-860-043

(9) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-51-00-750-002

(10) Set the right IRS mode select switch, on the MSU, to the ATT position.

SUBTASK 34-51-00-750-003

(11) Set the left IRS mode select switch, on the MSU, to the OFF position and wait at least 30 seconds.

SUBTASK 34-51-00-730-016

(12) Put headings of 45°, 120°, 240°, and 000° into the ISDU for the air data inertial reference system (ADIRS).

LOM 404 PRE SB 737-31-1650

(a) Make sure the compass card and the No. 2 bearing pointer in the first officer's RDMI move counterclockwise at the same time.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the compass card and the No. 2 bearing pointer in the first officer's ND move counterclockwise at the same time.

LOM 404 PRE SB 737-31-1650

(c) Make sure the compass card and the No. 2 bearing pointer are flagged on the captain's RDMI.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(d) With IRS Transfer switch selected to “Both on R”, make sure the RMI No. 2 bearing pointer follows the compass card's movement at a slower speed to the First Officer's ND.

(e) With IRS switch selected to “NORMAL” , Make sure the heading flag shows on the Captain's ND.

LOM ALL

SUBTASK 34-51-00-860-044

(13) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-51-00-860-045

(14) Set the IRS switch on the instrument switching module to the BOTH ON Left position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-51-00-860-046

(15) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-51-00-750-004

(16) Set the right IRS mode select switch, on the MSU, to the OFF position.

SUBTASK 34-51-00-750-005

(17) Set the left IRS mode select switch, on the MSU to the ATT position and wait at least 30 seconds.

SUBTASK 34-51-00-730-017

(18) Put headings of 45°, 120°, 240°, and 000° into the ISDU for the air data inertial reference system (ADIRS).

LOM 404 PRE SB 737-31-1650

(a) Make sure the compass card and the No. 2 bearing pointer in the RDMIs move counterclockwise at the same time.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the compass card and the No. 2 bearing pointer on both NDs move counterclockwise at the same time.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(c) Make sure the standby RMI No. 2 bearing pointer follows the compass card's movement of the ND's at a slower speed.

LOM ALL

SUBTASK 34-51-00-860-047

(19) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

SUBTASK 34-51-00-860-048

(20) Set the IRS switch on the instrument switching module to the BOTH ON RIGHT position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-51-00-860-049

(21) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-00-750-006

(22) Select the left IRS mode select switch, on the MSU, to the OFF position.

SUBTASK 34-51-00-750-007

(23) Set the right IRS mode select switch, on the MSU, to the ATT position and wait at least 30 seconds.

SUBTASK 34-51-00-730-018

(24) Put headings of 45°, 120°, 240°, and 000° into the ISDU for the air data inertial reference system (ADIRS).

LOM 404 PRE SB 737-31-1650

(a) Make sure the compass card and the No. 1 bearing pointer in the RDMIs move counterclockwise at the same time.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464; LOM 404, 465-999 POST SB 737-31-1650

(b) Make sure the compass card and the No. 1 bearing pointer in both NDs move counterclockwise at the same time.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-442, 445-447, 451-464

(c) Make sure the standby RMI No.1 bearing pointer follows the compass card's movement of the ND's at slower speed.

LOM ALL

SUBTASK 34-51-00-860-050

(25) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-00-860-051

(26) Set the IRS switch on the instrument switching module to the NORMAL position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-51-00-860-078

(1) Set the IRS mode select switches, on the MSU, to the OFF position.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

VOR/MKR RECEIVER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the VOR/MKR receiver.

(2) An installation of the VOR/MKR receiver.

B. The two VOR/MKR receivers are in the main equipment center. The No. 1 VOR/MKR receiver is on the E1 electronics equipment rack, shelf No. 2. The No. 2 VOR/MKR receiver is on E1 electronics equipment rack, shelf No. 4.

TASK 34-51-01-000-801

2. VOR/MKR Receiver Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-51-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-01-010-001

(2) To get access to the VOR/MKR receiver, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-51-01-020-001

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE VOR/MKR RECEIVER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE VOR/MKR RECEIVER.

(3) To remove the No. 1 or No. 2 VOR/MKR receiver [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

VOR/MKR Receiver Installation
Figure 401/34-51-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-51-01-400-801

3. VOR/MKR Receiver Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
34-32-00-710-801	Marker Beacon System - Operational Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Receiver	34-51-01-02-005	LOM ALL

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Installation Procedure

SUBTASK 34-51-01-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-01-420-001

CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE VOR/MKR RECEIVER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE VOR/MKR RECEIVER.

(2) To install the VOR/MKR receiver [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-51-01-860-003

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-01-410-001

(4) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. Installation Test

SUBTASK 34-51-01-710-001

(1) Tune the captain's and first officer's navigation control panels to a local VOR station.

(2) On the P5 panel Instrument switch module, set the VHF NAV switch to “NORMAL” position.

(3) Push the receiver volume control clockwise for NAV1 and/or NAV 2 on the Audio Control Panel.

(a) Make sure you can hear the station identification code over the flight interphone system.

SUBTASK 34-51-01-710-002

(4) For the No. 1 VOR/MKR receiver, do this task: Marker Beacon System - Operational Test, TASK 34-32-00-710-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

VOR/LOC ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the VOR/LOC antenna

(2) An installation of the VOR/LOC antenna.

B. The VOR/LOC antenna (M41) is installed at the top of the vertical stabilizer (fin).

TASK 34-51-02-000-801

2. VOR/LOC Antenna Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
326	Vertical Fin - Fin Tip

B. Removal Procedure

SUBTASK 34-51-02-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-02-020-001

(2) Remove the VOR/LOC antenna [2]:

(a) Remove the screws [6] that attach the leading edge [1] to the VOR/LOC antenna [2] and the vertical stabilizer.

(b) Remove the leading edge [1] of the fin tip from the VOR/LOC antenna [2].

(c) Disconnect the electrical connectors [7].

(d) Put protective covers on the electrical connectors [7].

(e) Remove the screws [5] that attach the VOR/LOC antenna [2] to the vertical stabilizer.

NOTE: Do not remove the screws that attach the trailing edge to the VOR/LOC antenna [2]. The trailing edge can be removed with the VOR/LOC antenna [2].

(f) Remove the VOR/LOC antenna [2] and the attached trailing edge from the vertical stabilizer.

SUBTASK 34-51-02-020-002

(3) Remove the static discharger [3].

(a) Remove the screws [4] from the static discharger [3].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(b) Remove the static discharger [3] from the trailing edge.

NOTE: Keep the static discharger [3] for installation on new VOR/LOC antenna [2] assembly.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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VOR/LOC Antenna Installation
Figure 401/34-51-02-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-51-02-400-801

3. VOR/LOC Antenna Installation

(Figure 401)

A. General

(1) The installation task has an installation test.

(2) The installation test makes sure that the VHF Omnidirectional Range/ILS Localizer (VOR/LOC) antenna operates correctly.

B. References

Reference	Title
23-61-00-400-801	Static Discharger Installation (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-31-00-710-801	Instrument Landing System - Operational Test (P/B 501)
34-51-00-710-801	VOR System - Operational Test (P/B 501)
51-21-00-160-801	Surface Preparation Of Aluminum Bonding Surfaces For Antenna Installations (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-21-72-370-801	BMS10-79 Primer - Application (P/B 701)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
COM-1913	Test Set - NAV/COMM Ramp Part #: 90000136 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: IFR 4000 Supplier: 51190 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606 Opt Part #: T-30D Supplier: 92606 Opt Part #: T-36C Supplier: 92606

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Consumable Materials

Reference	Description	Specification
C00175	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type III
C50475	Coating - Chemical Conversion - Bonderite M-CR 600 Aero	BAC5719 Type II Class D
G50136	Compound - Corrosion Inhibiting, Non-drying Paste	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	VOR/LOC antenna	34-51-02-01-005	LOM ALL

F. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
326	Vertical Fin - Fin Tip

G. VOR/LOC Antenna Installation

SUBTASK 34-51-02-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	1	C01374	RADIO NAVIGATION VOR/MKR BCN 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	12	C01375	RADIO NAVIGATION VOR 2

SUBTASK 34-51-02-100-003

(2) Clean the mating surfaces of the leading edge [1], VOR/LOC antenna [2] and vertical stabilizer structure as follows (TASK 51-21-00-160-801):

(a) Abrasive clean the surface of the leading edge [1] that mates with the VOR/LOC antenna [2].

(b) Solvent clean the surface of the VOR/LOC antenna [2] that mates with the leading edge [1].

(c) Abrasive clean the surface of the vertical stabilizer structure that mates with the leading edge [1].

(d) Solvent clean the surface of the leading edge [1] that mates with the vertical stabilizer structure.

SUBTASK 34-51-02-100-001

(3) Apply Bonderite M-CR 600 Aero coating, C50475, to the surfaces cleaned with abrasives (TASK 51-21-41-370-802).

SUBTASK 34-51-02-370-001

(4) Apply primer, C00175 to the holes that attach the leading edge [1] to the vertical stabilizer and the VOR/LOC antenna [2] (TASK 51-21-72-370-801).

(a) Make sure that the primer, C00175 is dry before you install a fastener in the hole.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-51-02-420-001

(5) If the trailing edge is not installed, attach the trailing edge to the VOR/LOC antenna [2].

SUBTASK 34-51-02-420-002

(6) Install the static discharger [3] (TASK 23-61-00-400-801).

SUBTASK 34-51-02-420-003

(7) Install the VOR/LOC antenna [2] as follows:

(a) Align the VOR/LOC antenna [2] to the screw holes that hold it to the vertical stabilizer.

(b) Remove the protective covers from the electrical connectors [7].

(c) Examine the electrical connectors [7] for bent or broken pins, dirt, and damage.

(d) Connect the electrical connectors [7].

(e) Align the leading edge [1] with the screw holes on the top of the vertical stabilizer.

(f) Install the screws [6] that attach the leading edge [1] to the VOR/LOC antenna [2] and the vertical stabilizer.

1) Apply corrosion inhibiting material, G50136 to the holes in the aluminium structure of the vertical stabilizer.

2) Immediately install the screws [6].

(g) Install the screws [5] that attach the VOR/LOC antenna [2] to the vertical stabilizer.

1) Apply corrosion inhibiting material, G50136 to the holes in the aluminium structure of the vertical stabilizer.

2) Immediately install the screws [5].

SUBTASK 34-51-02-760-001

(8) Do a check of the resistance between the VOR/LOC antenna [2] and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.

NOTE: Refer to Figure 401 for resistance test point locations.

(a) Make sure that the resistance is 0.001 ohms or less.

H. VOR/LOC Antenna Installation Test

SUBTASK 34-51-02-710-001

(1) Do this task: Instrument Landing System - Operational Test, TASK 34-31-00-710-801.

SUBTASK 34-51-02-710-002

(2) Do this task: VOR System - Operational Test, TASK 34-51-00-710-801.

(3) Do these steps to test the localizer function:

(a) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

(b) Set the SOURCE switch on the instrument switching module to the AUTO position.

(c) Set the mode selector on the captain's and the first officer's Electronic Flight Instrument System (EFIS) control panels to the APP position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999

(d) Set a frequency of 108.1 MHz on the captain's and the first officer's navigation control panels as follows:

1) Turn the frequency selector until the frequency shows in the STANDBY display window.

2) Push the TFR button.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 432, 443-445, 451, 452, 458-460, 465-999 (Continued)

3) Make sure that the frequency shows in the ACTIVE display.

LOM 422, 425, 427-431, 433, 434, 437-442, 446, 447, 450, 453-457, 461-464

(e) Set a Instrument Landing System (ILS) frequency of 108.10 MHz on the captain's and the first officer's Navigation Control Panel (NCP)s as follows:

1) Push the MODE key (V or reverse V) until “ILS” is displayed in the STBY (lower) window of the NCP.

2) Push the number “108.10” with the NCP keypad.

3) Push the ACT/STBY transfer key until “ILS 108.10” is displayed in the ACT (upper) window on the NCP.

LOM ALL

(f) Make sure that the Air Data Inertial Reference Unit (ADIRU) is aligned and in NAV mode (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(g) Set the captain's and the first officer's course select controls on the Digital Flight Control System (DFCS) mode control panel to the same course as the airplane heading.

SUBTASK 34-51-02-710-003

(4) Do these steps to test the No. 1 (captain's) localizer antenna switch:

(a) Make sure that the F/D switches on the DFCS mode control panel are in the OFF position.

(b) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the forward localizer antenna.

(c) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS localizer signal to the tail (VHF Omnidirectional Range (VOR)) antenna (Table 401).

Table 401/34-51-02-993-803

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

1) Make sure that the localizer deviation bar on the captain's display is one dot right.

(d) Slowly decrease the Radio Frequency (RF) level on the NAV/COMM ramp test set, COM-1913, until the localizer deviation bar on the captain's display does not show.

(e) Set the F/D switches on the DFCS mode control panel to the ON position.

(f) Push the APP switch on the DFCS mode control panel.

1) Make sure that the localizer deviation bar on the captain's display is one dot right.

(g) Set the F/D switches on the DFCS mode control panel to the OFF position.

SUBTASK 34-51-02-710-004

(5) Do these steps to test the No. 2 (first officer's) localizer antenna switch:

(a) Make sure that the F/D switches on the DFCS mode control panel are in the OFF position.

(b) Put the NAV/COMM ramp test set, COM-1913, near the front of the airplane and a minimum of 6 ft (2 m) from the forward localizer antenna.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Use the NAV/COMM ramp test set, COM-1913, to supply an ILS localizer signal to the tail (VOR) antenna (Table 402).

Table 402/34-51-02-993-804

OUTPUT LEVEL	-15 dBm
DEFLECTION	Right 1 Dot (0.0775 DDM)
FREQUENCY	108.1 MHz

1) Make sure that the localizer deviation bar on the first officer's display is one dot right.

(d) Slowly decrease the RF level on the NAV/COMM ramp test set, COM-1913, until the localizer deviation bar on the first officer's display does not show.

(e) Set the F/D switches on the DFCS mode control panel to the ON position.

(f) Push the APP switch on the DFCS mode control panel.

1) Make sure that the localizer deviation bar on the first officer's display is one do right.

(g) Set the F/D switches on the DFCS mode control panel to the OFF position.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR TRAFFIC CONTROL (ATC) SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Air Traffic Control (ATC) System Deactivation.

(2) Air Traffic Control (ATC) System Activation.

TASK 34-53-00-040-801

2. Air Traffic Control System - Deactivation

(Figure 201)

A. General

(1) This procedure removes power to the ATC system.

B. Location Zones

Zone	Area
100	Lower Half of Fuselage
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Air Traffic Control System Deactivation

SUBTASK 34-53-00-860-066

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

E. Air Traffic Control System - Tryout

NOTE: This tryout is to make sure the ATC system is in a zero energy state.

SUBTASK 34-53-00-860-067

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-00-010-002

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-53-00-860-069

(3) Make sure that the lights on the front panel of both ATC transponders are not illuminated.

SUBTASK 34-53-00-860-070

(4) Push and release the TEST switch on the front panel of both ATC Transponders.

(a) Make sure that none of the lights come on.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

BOTTOM ATC ANTENNA
(TOP ATC ANTENNA IS EQUIVALENT)

A

2365264 S0000541297_V2

ATC Location
Figure 201/34-53-00-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-53-00-440-801

3. **Air Traffic Control System - Activation**

(Figure 201)

A. **General**

(1) This Procedure adds electrical to the ATC System.

B. **Location Zones**

Zone	Area
100	Lower Half of Fuselage
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

D. **Procedure**

SUBTASK 34-53-00-860-068

WARNING

KEEP ALL PERSONNEL AT A SAFE DISTANCE FROM THE ANTENNA. RF ENERGY CAN CAUSE INJURIES TO PERSONNEL.

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-00-410-002

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR TRAFFIC CONTROL (ATC) SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks for the ATC system:

(1) Air Traffic Control System - Operational Test

LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

(2) Air Traffic Control System - System Test (With the IFR ATC-601 Series Test Set)

LOM 404, 411, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 428 PRE SB 737-34-3246; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

(3) Air Traffic Control System - System Test (With the TIC 48 or T-49 Series Test Set)

LOM ALL

(4) Air Traffic Control System - System Test (With the TR-220 Test Set)

(5) Air Traffic Control System - System Test (With the IFR-6000 Test Set)

B. The operational test is a fast check of the ATC system that uses the ATC system BITE function. No test equipment is needed.

C. The system test is a complete test of the ATC system. It does an operational test first then it uses test equipment to examine the ATC code reception, altitude reporting, transponder sensitivity, side lobe suppression, transmitter frequency and diversity.

D. Because the ATC transponder responds to signals from the antenna with the strongest signal strength, it is necessary to put the test set antenna close to the airplanes antenna.

E. Depending on the tool being used, only one Task Card needs to be completed for each schedule per the airplane.

TASK 34-53-00-710-801

2. Air Traffic Control System - Operational Test

A. General

(1) The operational test is a fast check of the Air Traffic Control (ATC) system. It uses only the system's Built-In-Test Equipment (BITE) function. No special test or ground equipment is necessary. Use the ATC control panel to set the transponder for the test.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

NOTE: To examine the fail light indicator on the ATC control panel, the airplane location must let the Global Positioning System (GPS) antennas have a clear view of the GPS satellites.

LOM ALL

(2) The ATC transponder BITE circuitry does a self-test on all internal circuitry. This includes the injection of Mode S signals into the receiver unit to examine if the signals are processed properly. If the Mode S function fails, the red fail LED indicator comes on.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

B. References

Reference	Title
FIM 34-53 TASK 802	Left Air Traffic Control (ATC) Transponder Internal Fault - Fault Isolation
FIM 34-53 TASK 803	Right Air Traffic Control (ATC) Transponder Internal Fault - Fault Isolation

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. ATC System Operational Test

SUBTASK 34-53-00-860-081

WARNING

MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Make sure that the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the ATC mode select switch to the STBY position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the ATC mode reply switch to the STBY position.

LOM ALL

SUBTASK 34-53-00-860-076

(2) On the P8 ATC control panel, do these steps:

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(a) Put the XPNDR select switch to the No. 1 position.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(b) Put the ATC transponder select switch to the No. 1 position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 439-447, 450-999

(c) Put the ALT SOURCE select switch to the No. 1 position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 429-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(d) Put the ATC mode select switch to the XPNDR position.

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LOM 427, 428, 437, 438

(e) Put the ATC mode select switch to the OFF position.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(f) Put the ATC mode select switch to the ALT ON position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(g) Put the ATC reply mode select switch to the AUTO position.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

SUBTASK 34-53-00-860-002

(3) To examine the fail indicator on the ATC control panel do these steps:

LOM 402, 406, 407, 412, 415, 423, 424, 439, 441, 457, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(a) Make sure that the XPNDR FAIL light is not illuminated.

LOM 437, 438; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246

(b) Make sure that the XPNDR FAULT light is not illuminated.

LOM 445, 458-460; LOM 440, 442, 453, 454 POST SB 737-34-3389

(c) Make sure that the ATC FAIL light is not illuminated.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(d) Open this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

LOM 402, 406, 407, 412, 415, 423, 424, 439, 441, 457, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(e) Make sure that the XPNDR FAIL light is illuminated.

LOM 437, 438; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246

(f) Make sure that the XPNDR FAULT light is illuminated.

LOM 445, 458-460; LOM 440, 442, 453, 454 POST SB 737-34-3389

(g) Make sure that the ATC FAIL light is illuminated.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 457, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(h) Put the XPNDR select switch to the No. 2 position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 445, 458-460; LOM 440, 442, 453, 454 POST SB 737-34-3389

(i) Put the ATC transponder select switch to the No. 2 position.

LOM 402, 406, 407, 412, 415, 423, 424, 439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(j) Put the ALT SOURCE select switch to the No. 2 position.

LOM 402, 406, 407, 412, 415, 423, 424, 439, 441, 457, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(k) Make sure that the XPNDR FAIL light is no longer illuminated.

LOM 437, 438; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246

(l) Make sure that the XPNDR FAULT light is no longer illuminated.

LOM 445, 458-460; LOM 440, 442, 453, 454 POST SB 737-34-3389

(m) Make sure that the ATC FAIL light is no longer illuminated.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(n) Open this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

LOM 402, 406, 407, 412, 415, 423, 424, 439, 441, 457, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(o) Make sure that the XPNDR FAIL light is illuminated again.

LOM 437, 438; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246

(p) Make sure that the XPNDR FAULT light is illuminated again.

LOM 445, 458-460; LOM 440, 442, 453, 454 POST SB 737-34-3389

(q) Make sure that the ATC FAIL light is illuminated again.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(r) Close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

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LOM 402, 406, 407, 412, 415, 423, 424, 439, 441, 457, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(s) Make sure that the XPNDR FAIL light is no longer illuminated.

NOTE: It may take up to 2 minutes for the XPNDR FAIL light to extinguish after resetting the MMR C/B's.

LOM 437, 438; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246

(t) Make sure that the XPNDR FAULT light is no longer illuminated.

NOTE: It may take up to 2 minutes for the XPNDR FAULT light to extinguish after resetting the MMR C/B's.

LOM 445, 458-460; LOM 440, 442, 453, 454 POST SB 737-34-3389

(u) Make sure that the ATC FAIL light is no longer illuminated.

NOTE: It may take up to 2 minutes for the ATC FAIL light to extinguish after resetting the MMR C/B's.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 457, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(v) Put the XPNDR select switch to the No. 1 position.

LOM 445, 458-460; LOM 440, 442, 453, 454 POST SB 737-34-3389

(w) Put the ATC transponder select switch to the No. 1 position.

LOM 402, 406, 407, 412, 415, 423, 424, 439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(x) Put the ALT SOURCE select switch to the No. 1 position.

LOM ALL

SUBTASK 34-53-00-010-001

(4) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

SUBTASK 34-53-00-860-003

(5) Do the left ATC transponder (No. 1) BITE test:

LOM 411, 432; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 443, 444 PRE SB 737-34-3596

(a) Momentarily push and hold the TEST switch on the front panel of the right ATC transponder (No. 1) at the E1-2 shelf.

1) Make sure that this sequence occurs:

a) All the LEDs come on for approximately three seconds

b) All the LEDs go off

c) After approximately two seconds, the green TPR LED comes on again.

NOTE: The red LEDs will stay off.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 432; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 443, 444 PRE SB 737-34-3596 (Continued)

(b) Release the TEST switch.

LOM 445, 458-460; LOM 422, 425, 433, 434, 440, 442, 453, 454 POST SB 737-34-3389

(c) Push and hold the TEST switch on the front panel of the left ATC transponder (No. 1) at the E1-2 shelf.

NOTE: Keep the TEST switch depressed for minimum of 15 seconds.

1) Make sure that this sequence occurs:

a) Within 1 second from push-button is activated, the XPNDR LED goes red and external interfaces LEDs turn on for 3 seconds.

b) The XPNDR and external interface LEDs go off.

c) After approximately two seconds, the green XPNDR LED comes on again.

NOTE: The red LEDs will stay off.

(d) Release the TEST switch.

1) Make sure that the green XPNDR LED stays on.

2) If the green XPNDR LED does not stay on, do this task: FIM 34-53 TASK 802.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

SUBTASK 34-53-00-860-021

(6) Do the left ATC transponder (No. 1) BITE test:

(a) Momentarily push and hold the TEST switch on the front panel of the right ATC transponder (No. 1) at the E1-2 shelf.

NOTE: Do not hold the TEST switch for more than five seconds. If the TEST switch is pushed for more than five seconds, the non volatile memory fault data for the last four flights is read and the applicable fault light LED comes on.

1) Make sure that this sequence occurs:

a) All LED indicators turn red for 2 seconds.

b) The LRU STATUS LED turns green.

NOTE: The other LED indicators stay red for 2 seconds.

c) All LED indicators go off for 2 seconds.

d) The test results show for 30 seconds at the end of the test.

NOTE: If the self-test passes, the green LRU STATUS LED comes on and all other LED indicators go off. If the self-test fails, the red LRU STATUS LED comes on and the applicable LED indicator turns red.

e) All the LED indicators go off.

I **LOM 437, 438; LOM 443, 444 POST SB 737-34-3596**

SUBTASK 34-53-00-860-023

(7) Do the left ATC transponder (No. 1) BITE test:

(a) Momentarily push and release the TEST switch on the front panel of the right ATC transponder (No. 1) at the E1-2 shelf.

NOTE: The TEST switch must be depressed for 1.5 seconds.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596 (Continued)

1) Make sure that this sequence occurs:
   a) All the LEDs come on for approximately one second and then go off
   b) The pass lamp annunciates PASS.
   c) All the LEDs go off.

LOM ALL

SUBTASK 34-53-00-860-004

(8) On the P8 ATC control panel, do these steps:

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(a) Put the XPNDR select switch to the No. 2 position.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(b) Put the ATC transponder select switch to the No. 2 position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 439-447, 450-999

(c) Put the ALT SOURCE select switch to the No. 2 position.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

SUBTASK 34-53-00-860-005

(9) Do the right ATC transponder (No. 2) BITE test:

LOM 411, 432; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 443, 444 PRE SB 737-34-3596

(a) Momentarily push and hold the TEST switch on the front panel of the left ATC transponder (No. 2) at the E1-5 shelf.
   1) Make sure that this sequence occurs:
      a) All the LEDs come on for about three seconds
      b) All the LEDs go off
      c) After approximately two seconds, the green TPR LED comes on again.

         NOTE: The red LEDs will stay off.

(b) Release the TEST switch.

LOM 445, 458-460; LOM 422, 425, 433, 434, 440, 442, 453, 454 POST SB 737-34-3389

(c) Push and hold the TEST switch on the front panel of the right ATC transponder (No. 2) at the E1-5 shelf.

   NOTE: Keep the TEST switch depressed for minimum of 15 seconds.

   1) Make sure that this sequence occurs:
      a) Within 1 second from push-button is activated, the XPNDR LED goes red and external interfaces LEDs turn on for 3 seconds.
      b) The XPNDR and external interface LEDs go off.
      c) After approximately two seconds, the green XPNDR LED comes on again.

         NOTE: The red LEDs will stay off.

(d) Release the TEST switch.

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1) Make sure that the green XPNDR LED stays on.
2) If the green XPNDR LED does not stay on, do this task: FIM 34-53 TASK 803.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

SUBTASK 34-53-00-860-022

(10) Do the right ATC transponder (No. 2) BITE test:

(a) Momentarily push and the TEST switch on the front panel of the left ATC transponder (No. 2) at the E1-5 shelf.

NOTE: Do not hold the TEST switch for more than five seconds. If the TEST switch is pushed for more than five seconds, the non volatile memory fault data for the last four flights is read and the applicable fault light LED comes on.

1) Make sure that this sequence occurs:

a) All LED indicators turn red for 2 seconds.

b) The LRU STATUS LED turns green.

NOTE: The other LED indicators stay red for 2 seconds.

c) All LED indicators go off for 2 seconds.

d) The test results show for 30 seconds at the end of the test.

NOTE: If the self-test passes, the green LRU STATUS LED comes on and all other LED indicators go off. If the self-test fails, the red LRU STATUS LED comes on and the applicable LED indicator turns red.

e) All the LED indicators go off.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

SUBTASK 34-53-00-860-024

(11) Do the right ATC transponder (No. 2) BITE test:

(a) Momentarily push and release the TEST switch on the front panel of the left ATC transponder (No. 2) at the E1-5 shelf.

NOTE: The TEST switch must be depressed for 1.5 seconds.

1) Make sure that this sequence occurs:

a) All the LEDs come on for approximately one second and then go off

b) The pass lamp annunciates PASS.

c) All the LEDs go off.

LOM ALL

SUBTASK 34-53-00-410-001

(12) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-53-00-860-061

> **WARNING**
> MAKE SURE THAT THE ATC TRANSPONDERS ARE IN THE STANDBY MODE WHEN YOU SIMULATE ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(13) Put the ATC transponders are in standby mode.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the ATC mode select switch to the STBY position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the ATC mode reply switch to the STBY position.

END OF TASK

LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

TASK 34-53-00-730-803

3. ATC System Test (With the ATC-601 Test Set)

NOTE: This procedure is a scheduled maintenance task.

A. General

> **WARNING**
> USE AN ANTENNA COUPLER WITH THE RAMP TESTER TO SIMULATE AN AIR MODE. IF YOU DO NOT OBEY, THE AIRPLANE WILL TRANSMIT ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRCRAFT IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(1) This system test is a more complete check of the Air Traffic Control (ATC) system. The system test first does the ATC - Operational Test, then it uses ground test equipment to examine the left and right ATC systems.

(2) The ATC system can be tested with the ATC-601 Series ramp test set, COM-4113 by one of these two methods: Flat Antenna or Direct Connect.

(3) The ATC-601 can test Air Traffic Control Radar Beacon System (ATCRBS) Mode A, Mode C and Mode S transponders. ATC-601 test sets with software version 3.0 or higher can also test Mode S Transponders with Enhanced Surveillance (ELS, EHS, ES and Automatic Dependent Surveillance - Broadcast (ADS-B)) capabilities for DO-260 compliant transponders.

(4) The ATC-601 can test the ADS-B functions to the EASA AMC 20-24 requirements for DO-260 compliant transponders. But it can not do tests of DO-260A or DO-260B compliant transponders to the EASA AMC 20-24 requirements.

(5) The ATC-601 Series ramp test set, COM-4113 uses thirty-nine (39) different tests to check the functionality of the ATC transponder. All thirty-nine (39) tests can be run automatically in the AUTO mode, or individually in the single test mode.

NOTE: The AUTO Test is the preferred test.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(6) In the AUTO mode, the test set will determine the correct set of tests, either Mode A/C or Mode S upon receiving the transponder Radio Frequency (RF) signal, and will automatically run the tests.

NOTE: A passed AUTO test on the ATC-601-series test set meets the requirements in Federal Aviation Regulation (FAR) Part 43, Appendix F for all classes of ATCRBS transponders and for classes 1B, 2B, and 3B Mode S transponders. The ATC-601-series test set only verifies a reply frequency range of 1090 +/- 3 MHz.

(7) The details of individual tests conducted during the AUTO TEST are stored in memory and may be reviewed by using the SELECT keys. The PASSED/FAILED indication is shown on top of the page.

(8) If a test section fails or more data is necessary, use the Single Test Sequence. This lets the user do each test individually or see the individual test results.

(9) To do a single test, use the SELECT keys to get to the desired test and push the RUN/STOP key. The test will continue until the RUN/STOP key is pushed again.

(10) Results from the last test done, Auto Test or Single Test, show on the display.

(11) Depending on the tool being used, only one Task Card needs to be completed for each schedule per the airplane.

B. References

Reference	Title
22-11-00	DIGITAL FLIGHT CONTROL SYSTEM
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34-21-00	AIR DATA INERTIAL REFERENCE SYSTEM
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-31-00	INSTRUMENT LANDING SYSTEM
34-58-00	GLOBAL POSITIONING SYSTEM
34-58-00-710-802	Global Positioning System - Operational Test (P/B 501)
34-61-00	FLIGHT MANAGEMENT COMPUTER SYSTEM
WDM 34-53-11	Wiring Diagram Manual
WDM 34-53-21	Wiring Diagram Manual
WDM 34-53-31	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-4113	Test Set - Ramp, ATC-601 Series Opt Part #: ATC-601 Supplier: 51190 Opt Part #: ATC-601-2 Supplier: 51190
COM-18775	Antenna Coupler - Universal Transponder, UC-584 Part #: 112350 Supplier: 51190

D. Location Zones

Zone	Area
100	Lower Half of Fuselage
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the System Test

SUBTASK 34-53-00-580-001

(1) If the ADS-B tests will be run as part of the ATC System test the airplane location must let the Global Positioning System (GPS) antennas have a clear view of the GPS satellites.

SUBTASK 34-53-00-710-008

(2) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

SUBTASK 34-53-00-480-001

(3) For the Direct Connect method, do these steps to connect the test set antenna cable to the ATC antenna switch:

(a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

(b) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(c) For ATC antenna (coax) switch S942, disconnect connector D2703 (ATC Top Antenna) (WDM 34-53-31).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(d) For ATC antenna (coax) switch S943, disconnect connector D2707 (ATC Bottom Antenna) (WDM 34-53-31).

(e) Connect the ATC-601 Series ramp test set, COM-4113 antenna cable to ATC antenna (coax) switch S942 or ATC antenna (coax) switch S943.

(f) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-00-860-056

(4) Make sure that these systems are operational:

(a) DIGITAL FLIGHT CONTROL SYSTEM, SUBJECT 22-11-00

(b) AIR DATA INERTIAL REFERENCE SYSTEM, SUBJECT 34-21-00

(c) INSTRUMENT LANDING SYSTEM, SUBJECT 34-31-00

(d) GLOBAL POSITIONING SYSTEM, SUBJECT 34-58-00

(e) FLIGHT MANAGEMENT COMPUTER SYSTEM, SUBJECT 34-61-00

SUBTASK 34-53-00-860-059

(5) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 34-53-00-860-027

(6) Set the captain's and first officer's altimeter to 29.92 inches of mercury.

SUBTASK 34-53-00-860-053

(7) Set a selected altitude.

(a) Set a desired altitude in the Digital Flight Control System (DFCS) Mode Control Panel (MCP) Selected Altitude window.

SUBTASK 34-53-00-860-054

(8) Select a Flight ID.

(a) Select the RTE mode key on the Flight Management Computer System (FMCS) Control Display Unit (CDU).

(b) Make sure page 1 is shown.

NOTE: If needed, push the next page function key on the CDU until page 1 is shown.

(c) Enter the first 8 characters of the company name in the FLT NO field. This should be the name of the company that conducts the test.

(d) Select LSK 2R on the CDU.

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LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089 (Continued)

SUBTASK 34-53-00-860-028

(9) Do these steps at the ATC control panel:

(a) Set the code switches to a desired ATC ID code.

NOTE: Use the ATC ID code 7776 or the Mode A code specified by the local ATC authority.

Do not use codes 7500, 7600-7677, 7700-7775 and 7777. These are emergency codes.

(b) Set the transponder select switch to the No. 1 position.

LOM 411, 422, 425, 433, 434; LOM 440, 442, 453, 454 PRE SB 737-34-3389

(c) Set the Mode Select switch to the STBY position.

LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

(d) Set the ALT source switch to the No. 1 (or No. 2) air data source position.

LOM 404, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

(e) Set the Mode Select switch to the STBY position.

LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246

(f) Set the Mode Select switch to the STBY position.

LOM 426, 429-431

(g) Set the MODE Reply Switch to the STBY position.

LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

SUBTASK 34-53-00-840-007

(10) For the Direct Connect method, do these steps to prepare the ATC-601 Series ramp test set, COM-4113 to test the ATC transponder:

NOTE: The ramp test set operating instructions provides charts, distance limitations and required airplane antenna configurations for satisfactory ramp test set results. It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set and be familiar with its operation when determining the acceptability of transponder results.

NOTE: Refer to the ATC-601 Operating Manual for detailed information on setup, test screens, and interpreting results of the tests.

NOTE: It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set and be familiar with its operation when determining the acceptability of transponder results.

(a) Connect the test set antenna cable to the ATC-601 Series ramp test set, COM-4113 RF I/O connector.

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LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089 (Continued)

(b) Make sure the antenna connector cover is installed.

NOTE: The connector cover provides the 50 ohm load required when connecting the test set antenna cable to the RF I/O connector.

(c) Push the POWER button on the ATC-601 Series ramp test set, COM-4113.

NOTE: This is a source of interference for radio and L-band radar equipment operating on the airplane and located near the test set. Turn the test set off as soon as the test is completed or when you must perform other radio checks on the airplane.

1) The Start-Up screen will show.

2) Make sure the software version shown on the screen is 3.0 or higher if you are to do Enhanced Surveillance Tests.

(d) Push the SELF TEST key on the test set.

(e) Push the RUN/STOP key to start the self-test.

1) Make sure the test set display shows PASSED.

(f) Push the SETUP key to enter the data in the SETUP #1 MENU. If the SETUP #1 MENU does not show, continue to push the SETUP key until the SETUP #1 MENU shows.

NOTE: The ATC-601 has four Setup Menus. Refer to the ATC-601 Operation Manual for detailed information on the Setup Menus.

1) Use the SLEW key to change the values.

2) Use the SELECT keys to change the items.

3) Use the SELECT keys to select the antenna under test.

(g) In the RANGE field for the TOP and BOTTOM antennas, enter 0 feet.

(h) In the HEIGHT field for the TOP antenna, enter 17 feet.

(i) In the HEIGHT field for the BOTTOM antenna, enter 3 feet.

(j) Set the SELECTED field, enter the UUT antenna, TOP or BOTTOM.

NOTE: To meet FAR requirements both the left and right systems must be tested on both upper and lower antennas.

(k) Enter the cable loss listed on the cable in the LOSS field.

NOTE: The cable loss can be found on the direct connect cable for the test set.

(l) Press any key to exit SETUP #1 MENU.

(m) Enter the required setup data for the ADS-B tests into the Setup #3 MENU.

NOTE: Refer to the ATC-601 Operation Manual for detailed Setup information.

1) Push the SETUP key until the SETUP #3 MENU shows.

2) Select POS: Set to LOCAL.

3) Select LLAT: Set the local latitude position.

NOTE: Position data is on the Flight Management Computer (FMC) CDU POS REF page. Use GPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802), if not, use the Inertial Reference System (IRS) position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

4) Select LLONG: Set the local longitude position.

NOTE: Position data is on the FMC CDU POS REF page. Use GPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802), if not, use the IRS position.

5) Select SPEC SERV: Set to DF17.

SUBTASK 34-53-00-840-013

(11) For the Flat Antenna method, do these steps to prepare the ATC-601 Series ramp test set, COM-4113 to test the ATC transponder:

NOTE: The ramp test set operating instructions provides charts, distance limitations and required airplane antenna configurations for satisfactory ramp test set results. It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set and be familiar with its operation when determining the acceptability of transponder results.

NOTE: Refer to the ATC-601 Operating Manual for detailed information on setup, test screens, and interpreting results of the tests.

NOTE: It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set and be familiar with its operation when determining the acceptability of transponder results.

CAUTION	KEEP THE REMOTE TEST SET ANTENNA MORE THAN 15 INCHES (0.40 METERS) FROM THE AIRCRAFT ANTENNA WITH THE TEST SET ON. IF THE REMOTE TEST SET ANTENNA IS TOO NEAR THE AIRCRAFT ANTENNA, YOU CAN CAUSE DAMAGE TO THE TEST SET.

(a) Put the test set flat antenna approximately 30 feet from and in the line of sight of the ATC antenna.

NOTE: The flat antenna must be in the line of sight of the ATC antenna and positioned towards the antenna.

NOTE: For the DIVERSITY test, the test set must be at a distance of less than 50 feet (15.2 meters) from the airplane ATC antenna.

WARNING	USE AN ANTENNA COUPLER WITH THE RAMP TESTER TO SIMULATE AN AIR MODE. IF YOU DO NOT OBEY, THE AIRPLANE WILL TRANSMIT ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRCRAFT IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(b) Install the UC-584 universal transponder antenna coupler, COM-18775, over the antenna under test.

NOTE: Refer to the IFR-6000 Operation Manual for the antenna coupler mounting procedure.

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(c) Insert the Antenna Shield over the ATC antenna not under test.

NOTE: Refer to the ATC-601 Operation Manual for the Antenna Shield mounting procedure.

NOTE: When testing the bottom antenna and shielding the top antenna is not possible or practical, move the Test Set so that it is not in the line of sight of the top ATC antenna.

(d) Connect the test set antenna cable to the ATC-601 Series ramp test set, COM-4113 ANTENNA connector.

(e) Push the POWER button on the ATC-601 Series ramp test set, COM-4113.

NOTE: This is a source of interference for radio and L-band radar equipment operating on the airplane and located near the test set. Turn the test set off as soon as the test is completed or when you must perform other radio checks on the airplane.

1) The Start-Up screen will show.

2) Make sure the software version shown on the screen is 3.0 or higher if you are to do Enhanced Surveillance Tests.

(f) Push the SELF TEST key on the test set.

(g) Push the RUN/STOP key to start the self test.

1) Make sure the test set display shows PASSED.

(h) Push the SETUP key to enter the data in the SETUP #1 MENU. If the SETUP #1 MENU does not show, continue to push the SETUP key until the SETUP #1 MENU shows.

NOTE: The ATC-601 has four Setup Menus. Refer to the ATC-601 Operation Manual for detailed information on the Setup Menus.

1) Use the SLEW keys to change the values.

2) Use the SELECT keys to change the items.

3) Use the SLEW keys to select the necessary antenna.

(i) In the RANGE field for the TOP and BOTTOM antennas, enter the distance between the tester antenna and the ATC antennas.

(j) In the HEIGHT field for the TOP antenna, enter 17 feet.

(k) In the HEIGHT field for the BOTTOM antenna, enter 3 feet.

(l) In the SELECTED field, enter the UUT antenna, TOP or BOTTOM.

NOTE: To meet FAR requirements both the left and right systems must be tested on both upper and lower antennas.

(m) Enter the gain listed on the ATC-601 Series ramp test set, COM-4113, antenna into the GAIN_1030 and GAIN_1090 field.

(n) Enter the cable loss listed on the cable in the LOSS field.

(o) Press any key to exit SETUP #1 MENU.

(p) Enter the required setup data for the ADS-B tests into the Setup #3 MENU.

NOTE: Refer to the ATC-601 Operation Manual for detailed Setup information.

1) Push the SETUP key until the SETUP #3 MENU shows.

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LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089 (Continued)

2) Select POS: Set to LOCAL.

3) Select LLAT: Set the local latitude position.

NOTE: Position data is on the FMC CDU POS REF page. Use GPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802), if not, use the IRS position.

4) Select LLONG: Set the local longitude position.

NOTE: Position data is on the FMC CDU POS REF page. Use GPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802), if not, use the IRS position.

5) Select SPEC SERV: Set to DF17.

SUBTASK 34-53-00-862-001

(12) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-860-029

WARNING

OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(13) Put the airplane in the air mode with the Built-In-Test Equipment (BITE) in the Proximity Switch Electronic Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

LOM 411, 422, 425, 433, 434; LOM 440, 442, 453, 454 PRE SB 737-34-3389

SUBTASK 34-53-00-860-062

(14) Set the Mode Select switch to the ALT ON position.

LOM 404, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

SUBTASK 34-53-00-860-071

(15) Set the Mode Select switch to the XPNDR position.

LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246

SUBTASK 34-53-00-860-072

(16) Set the Mode Select switch to the ON position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 426, 429-431

SUBTASK 34-53-00-860-073

(17) Set the MODE Reply Switch to the AUTO position.

LOM 404, 411, 422, 425, 426, 429-434, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3239 OR PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 427 PRE SB 737-34-3247; LOM 428 PRE SB 737-34-3246; LOM 440, 442, 453, 454 PRE SB 737-34-3389; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

G. ATC System Test - Mode A/C and Mode S Transponders

SUBTASK 34-53-00-730-031

(1) You can select to do the transponder tests in either the Auto Test or Single Test sequence.

NOTE: The AUTO TEST sequence is the preferred method.

SUBTASK 34-53-00-730-032

(2) Do these steps to do the Auto Test sequence:

NOTE: The ATC-601 Series ramp test set, COM-4113 will automatically determine the capabilities of the transponder and select the tests to run. The results of tests done during the AUTO TEST are stored in memory. The SELECT keys are used to show the test results.

NOTE: Refer to the ATC-601 Operation Manual for detailed information.

(a) Push the AUTO TEST key on the ATC-601 Series ramp test set, COM-4113.

(b) Use the RUN/STOP key to start the Auto Test.

NOTE: During the Auto Test, TEST RUNNING, will show at the bottom of the display.

1) The Auto Test will run until it is finished. The results are stored in the tester memory for review.

2) Make sure that an AUTO TEST - PASSED indication shows at the top of the display after the Auto Test.

NOTE: For ATC transponders with enhanced surveillance capabilities, the ATC-601 ramp test set includes the Tests for Enhanced Surveillance in the AUTO TEST sequence. If the Flight ID is not directly entered into the ATC transponder or supplied by the FMC, a failure will occur.

NOTE: The Frequency, Power measurements and Diversity Isolation are also shown on the Auto Test screen.

NOTE: No reply to the UF16, UF20 or UF21 test is not a failure of the ATC system.

NOTE: ”NOT AVAIL” is not a failure of the ATC system. Currently, Boeing aircraft are not using Uplink Extended Length Message (UELM) or Downlink Extended Length Message (DELM) and do not require Airborne Data Link Process (ADLP). An ADLP is necessary for the UELM or DELM function and results in a NOT AVAIL test result when not present.

3) Do a check of the FREQUENCY TEST (for ATCRBS transponders and 1B, 2B and 3B Mode S transponders).

a) Do a visual check of the ATC-601 Series ramp test set, COM-4113 display to make sure that the reply frequency of the transponder is 1090 ± 3 MHz.

4) Do a check of the FREQUENCY TEST (for 1A, 2A and 3A and 4 Mode S transponders).

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a) Do a visual check of the ATC-601 Series ramp test set, COM-4113 display to make sure that the reply frequency of the transponder is 1090 ± 1 MHz.

NOTE: Due to limitation of the ATC-601-series test set, the auto test function can cause a false PASS indication. The ATC-601-series test set only verifies a reply frequency range of 1090 ± 3 MHz.

NOTE: This check also applies to classes 1B, 2B and 3B Mode S transponders which incorporate the optional reply frequency of 1090 ± 1 MHz.

5) Make sure the AA (aircraft address) field shows the correct Mode S Address. Refer to WDM 34-53-11 or WDM 34-53-21 for the Mode S Address code.

6) If a test section fails or more data is necessary, do the Single Test procedure to view or to do individual tests.

SUBTASK 34-53-00-730-030

(3) If necessary, do these steps to do the Single Test sequence:

(a) Use the SELECT key to select each test on the ATC-601 Series ramp test set, COM-4113.

(b) Use the RUN/STOP key to start or stop the individual tests.

NOTE: Each Single Test continues until stopped. Use the RUN/STOP key to stop the test.

(c) Make sure that the display shows PASSED for each test.

(d) Review the test results.

NOTE: Refer to the ATC-601 Operation Manual for detailed information on test screens and interpreting results of the tests.

H. ATC System Test - Tests for Enhanced Surveillance

SUBTASK 34-53-00-730-033

(1) For airplanes with Enhanced Surveillance capabilities, the ATC-601 Series ramp test set, COM-4113 will include the Enhanced Surveillance tests in the AUTO TEST sequence. Use the SELECT keys to see the test results after the AUTO TEST is completed.

NOTE: ATC-601 test sets with software version 3.0 or higher must be used to do the Enhanced Surveillance tests.

(2) The SINGLE TEST sequence can also be used to do the Enhanced Surveillance tests. Use the SELECT keys to select the test to do and view the test results.

Make sure that the display shows PASSED for each test.

NOTE: Results from the last test run, Auto Test or Single Test, are shown on the display.

NOTE: Refer to the ATC-601 Operation Manual for detailed setup and test information.

(3) The tests that follow are for Elementary Surveillance:

- Flight ID BDS 2,0
- Data Link Capability Report BDS 1,0 Part 1
- Data Link Capability Report BDS 1,0 Part 2
- Common Usage GICB Cap Report BDS 1,7

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- ACAS Resolution Advisory BDS 3,0.

(4) The tests that follow are for Enhanced Surveillance:

- Selected Vert Intent Report BDS 4,0 Part 1
- Selected Vert Intent Report BDS 4,0 Part 2
- Track & Turn Report BDS 5,0
- Heading & Speed Report BDS 6,0.

I. ATC System Test - Tests for ADS-B

SUBTASK 34-53-00-730-034

(1) For airplanes with ADS-B capabilities, the ATC-601 Series ramp test set, COM-4113 will include the ADS-B tests in the AUTO TEST sequence. Use the SELECT keys to see the test results after the AUTO TEST is completed.

NOTE: Refer to the ATC-601 Operation Manual for detailed setup and test information.

(2) The SINGLE TEST sequence can also be used to do the ADS-B tests. Use the SELECT keys to select the test to do and view the test results.

NOTE: Results from the last test run, Auto Test or Single Test, are shown on the DISPLAY.

(3) The tests that follow are for ADS-B:

- Ext Squitter Airborne Position BDS 0,5
- Ext Squitter Ident & Category BDS 0,8.

(4) Do a check of the ADS-B test results.

NOTE: The test results that follow satisfy the EASA AMC 20-24 requirements for ADS-B.

(a) Do a check of the Airborne Position.

1) Use the SELECT keys to select the Ext Squitter Airborne Position test.
2) Make sure that the LAT and LONG fields show the present position of the airplane.

(b) Do a check of the Pressure Altitude.

1) Use the SELECT keys to select the Ext Squitter Airborne Position test.
2) Make sure that the BARO PR ALT field shows the airplane Barometric Pressure Altitude +/-125 ft.

(c) Do a check of the Surveillance Status.

1) Notify local ATC facilities that transponder testing of the Surveillance Status will be performed.
2) Use the SELECT keys to select the Ext Squitter Airborne Position test.
3) On the ATC control panel, change the code switches to a different ATC ID code.
4) Make sure that the SURVL STAT field changes to TEMP ALERT.

NOTE: Current Boeing aircraft do not have an Airborne Data Link Processor (ADLP) installed and the transponders do not have an embedded ADLP. The SURVL STAT should show NO INFO.

5) Set code switches on the ATC control panel back to the original code.
6) Push the IDENT switch on the ATC Control Panel.

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7) Make sure that the SURVL STAT field shows SPI.

NOTE: Current Boeing aircraft do not have an Airborne Data Link Processor (ADLP) installed and the transponders do not have an embedded ADLP. The SURVL STAT should show NO INFO.

(d) Do a check of the Position Quality Indicator.

1) Use the SELECT keys to select the Ext Squitter Airborne Position test.

2) Make sure that the TYPE field does not show 0 or 18.

NOTE: If TYPE shows 0 the transponder does not receive position data from the IRS or MMR. A TYPE of 18 indicates the transponder receives position data but not from the MMR.

(e) Do a check of the Aircraft Identity.

1) Use the SELECT keys to select the Ext Squitter Ident & Category test.

2) Make sure that the correct data is shown in the following fields:

a) The AA (aircraft address) field shows the Mode S Address. Refer to (WDM 34-53-11 and WDM 34-53-21) for the Mode S Address code.

b) The FLIGHT ID field shows the same Flight ID entered into the FMC.

J. Repeat ATC System Tests

SUBTASK 34-53-00-730-025

(1) Repeat the System Test for the other antenna.

(a) For the Direct Connect method.

1) Change the ATC-601 Series ramp test set, COM-4113 antenna cable to connect to the other ATC antenna switch.

2) Change the ATC-601 Series ramp test set, COM-4113 SELECTED field in the SETUP #1 MENU to test the other antenna.

(b) For the Flat Antenna method.

1) Change the ATC-601 Series ramp test set, COM-4113 SELECTED field in the SETUP #1 MENU to test the other antenna.

(2) Do the ATC System Tests again for the right or No. 2 system.

NOTE: To meet FAR requirements both the left and right systems must be tested on both upper and lower antennas.

(a) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) To test the right or No. 2 system, put the ATC select switch to the No. 2 position and use the No. 2 (or No. 1) air data source.

K. Put the Airplane Back to Its Usual Condition

SUBTASK 34-53-00-860-063

(1) Set the mode selector on the ATC control panel to the STBY position.

SUBTASK 34-53-00-080-006

(2) For the Flat Antenna method, remove the antenna shield cover and coupler, if installed.

SUBTASK 34-53-00-080-007

(3) For the Direct Connect method, do these steps to disconnect the antenna cable from the ATC antenna switch:

(a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

(b) Disconnect and remove the ATC-601 Series ramp test set, COM-4113 antenna cable.

(c) For ATC antenna (coax) switch S942, connect connector D2703 (ATC Top Antenna) (WDM 34-53-31).

(d) For ATC antenna (coax) switch S943, connect connector D2707 (ATC Bottom Antenna) (WDM 34-53-31).

(e) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-00-840-008

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-902-001

(5) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-53-00-700-002

(6) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

SUBTASK 34-53-00-860-060

(7) Set the Air Data Inertial Reference Unit (ADIRU) switches to the OFF position, if the ADIRUs are not necessary.

SUBTASK 34-53-00-840-014

(8) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2106556 S0000449842_V3

ATC Antenna Switch Location
Figure 501/34-53-00-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404, 411, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 428 PRE SB 737-34-3246; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

TASK 34-53-00-730-802

4. System Test - ATC System (With the TIC T-48 or T-49 Series Test Set)

NOTE: This procedure is a scheduled maintenance task.

A. General

WARNING	DO NOT SIMULATE ALTITUDE WITH AN AIR DATA TESTER (COM-1914) OR EQUIVALENT UNLESS YOU USE APPLICABLE COUPLERS AND RF BLANKETS. IF YOU DO NOT OBEY, YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRPLANES IN THE AREA WILL CHANGE DIRECTION QUICKLY TO MOVE AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(1) This system test is a full check of the Air Traffic Control (ATC) system. The system test first does the ATC - Operational Test and then uses the T-48/-49 ramp test set, COM-10730, to examine the left and right ATC systems.

(2) The test set can do all of the tests automatically except the DIVERSITY CHECK, the MAX TRUE AIRSPEED TEST and the IDENT BUTTON CHECK. You must do these tests manually with the TEST button on the test set. If a test has failed, the automatic test sequence will stop and a failed message will show. At the end of the automatic test all data will show.

(3) You can manually do each test individually. Push the TEST button to do each test individually. The test results will show after each test is done.

(4) The test set accessory, the antenna coupler, TAP-115, TAP 118, TAP 119, TAP 125 or TAP 135 used with the applicable test set, is necessary to do a check of the output power, receiver, sensitivity and radio frequency. For the diversity check, the TAP 125 or TAP 135 is necessary.

(5) Depending on the tool being used, only one Task Card needs to be completed for each schedule per the airplane.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
WDM 34-53-11	Wiring Diagram Manual
WDM 34-53-21	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1617	Meter - RF Power Part #: MODEL 43 Supplier: 70998 Part #: MODEL 43P Supplier: 70998
COM-1920	Element - RF Power, 500 Watt, 950-1100 Mhz Part #: 500J-950 Supplier: 70998

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(Continued)

Reference	Description
COM-10730	Test Set - Ramp, T-48/-49 Opt Part #: T-48D Supplier: 92606 Opt Part #: T-49C Supplier: 92606

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
143	Area Below Aft Cargo Compartment - Left
144	Area Below Aft Cargo Compartment - Right
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the System Test

SUBTASK 34-53-00-710-003

(1) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

SUBTASK 34-53-00-940-001

WARNING

DO NOT SIMULATE ALTITUDE WITH AN AIR DATA TESTER (COM-1914) OR EQUIVALENT UNLESS YOU USE APPLICABLE COUPLERS AND RF BLANKETS. IF YOU DO NOT OBEY, YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRPLANES IN THE AREA WILL CHANGE DIRECTION QUICKLY TO MOVE AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(2) Prepare the T-48/-49 ramp test set, COM-10730 and the antenna coupler for the ATC system test:

NOTE: Refer to the applicable test set operational manual for detailed setup information when using the antenna couplers.

NOTE: The test set accessory, the antenna coupler, TAP-115, TAP 118, TAP 119, TAP 125 or TAP 135 used with the applicable test set, is necessary to do a check of the output power, receiver, sensitivity and radio frequency. For the diversity check, the TAP 125 or TAP 135 is necessary.

(a) Pull the pull-ring on the antenna coupler to separate the spring loaded clamp.

(b) Insert the antenna coupler over the necessary ATC antenna.

NOTE: Make sure the antenna coupler is centered.

(c) Push and hold antenna coupler so the EMI gasket compresses to the airplane skin.

(d) Release the pull-ring to keep the coupler in its correct position.

(e) Connect the antenna coupler coax connector to the test set ANTENNA connector.

NOTE: If you use the T-48/-49 ramp test set, COM-10730 accessory, the TAP 125 or TAP 135, the unused coupler cable does not need to be connected to the test set. You test only one antenna at a time.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404, 411, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 428 PRE SB 737-34-3246; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089 (Continued)

(f) Push the INTERROGATE button.

NOTE: To read the display push and hold the INTERROGATE switch.

1) The test set will momentarily display:

Table 501/34-53-00-993-801

TEL Instrument

T-4X Rev.XX

2) After the test set has determined the type of transponder under test (Mode S, Mode A, Mode C, etc) the display will change to: No Reply from XPNDR.

SUBTASK 34-53-00-860-026

(3) Put the airplane in the air mode with the Built-In-Test Equipment (BITE) in the Proximity Switch Electronic Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-53-00-860-015

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-860-016

(5) Set the captain's and first officer's altimeter to 29.92 inches of mercury.

F. ATC System Test

SUBTASK 34-53-00-860-017

(1) On the ATC control panel do these steps:

(a) Set the code switches to a desired ATC ID code.

NOTE: Use the ATC ID code 7776 or the Mode A code specified by the local ATC authority.

Do not use codes 7500, 7600-7677, 7700-7775 and 7777. These are emergency codes.

(b) Set the transponder select switch to the No. 1 system.

LOM 411; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389

(c) Set the mode select switch to the ALT ON position.

LOM 404, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

(d) Set the Mode Select switch to the XPNDR position.

LOM 428 PRE SB 737-34-3246

(e) Set the Mode Select switch to the ON position.

LOM 404, 411, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 428 PRE SB 737-34-3246; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-53-00-730-001

(2) Push the INTERROGATE switch.

(a) Make sure the test set shows the correct transponder type.

NOTE: If the test set shows "no reply from xpdr", do a check on the test antenna connections. Also, make sure the ATC system is operational.

SUBTASK 34-53-00-730-002

(3) Push the INTERROGATE switch on the test set.

(a) The test set will determine the transponder type.

SUBTASK 34-53-00-860-018

(4) Push the INTERROGATE button again and the test set will initiate a sequence of tests on the transponder.

(a) These tests must be done to complete the ATC system test:

1) ATCRBS/A & SLS
2) ATCRBS/C
3) ATCRBS/A Mode S All
4) ATCRBS/C Mode S All
5) ATCRBS/A only
6) ATCRBS/C only
7) Mode S Surv Identity
8) Mode S Surv Altitude
9) Mode S Surv Short
10) Undesired Replies
11) Squitter
12) Diversity

NOTE: This test is only available for test sets with the TAP 125 or TAP 135 accessory and must be done manually.

13) MAX TRUE AIRSPEED

NOTE: This test must be done manually.

SUBTASK 34-53-00-210-001

(5) Make sure the display is as follows when the test is complete:

Table 502/34-53-00-993-802

CCCC	XXXXXX	YYYYY'
ZZZ W	mmm dbm	nnn MHZ

(a) CCCC is code selected.

(b) XXXXXX is airplane registry number

NOTE: This may appear as the mode S address in hexadecimal. The code may be translated from hexadecimal to tail number on (WDM 34-53-11 or WDM 34-53-21).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) YYYYY is airplane altitude in feet (must be ±125' of the Capt's and F/O's altimeter).

(d) ZZZ is the transmitter power output (must be > 125 and < 500 Watts).

(e) mmm is the receiver sensitivity (must be between -77 to -71 dbm).

(f) nnn is the frequency deviation (±1 MHz maximum allowed).

SUBTASK 34-53-00-730-003

(6) Do the DIVERSITY CHECK that follows for the test sets with the TAP 125 or TAP 135 couplers:

NOTE: This test can only be done with the TAP 125 or TAP 135 coupler. If you do not have the TAP 125 or TAP 135 coupler, do the test that uses the Bird RF through-line wattmeter.

(a) Push the TEST button on the test set until you get to the DIVERSITY CHECK.

1) Make sure to pause between each push of the TEST button to allow the test set to do that test step.

(b) The test set will show DIVERSITY and then either PASS of FAIL.

NOTE: If the test shows "Diversity Fail", repeat the test since this may be the result of an interrogation from a near-by radar or other interference, or placement of the coupler on the ATC blade antenna.

SUBTASK 34-53-00-730-004

(7) Do the Diversity Check that follows for the test set without the TAP 125 or TAP 135 coupler:

(a) Disconnect the antenna cable at the top antenna switch connector, D2703, and connect the Radio Frequency (RF) through-line watt RF power element, COM-1920, in its place.

(b) Make a note of the maximum power output and the minimum power output measured by the RF through-line watt meter, COM-1617, during the mode S squitter transmission period.

1) Make sure the minimum power output is 100 times or 20 db lower than the maximum power output.

(c) Disconnect the RF through-line watt RF power element, COM-1920.

(d) Connect the antenna cable at the top antenna switch connector, D2703.

SUBTASK 34-53-00-760-001

(8) Do these steps that follow for the MAX TRUE AIRSPEED TEST:

(a) Push the TEST button on the test set until you get to the MAX TRUE AIRSPEED TEST.

1) Make sure to pause between each push of the TEST button to allow the test set to do that test step.

(b) The test set will show the max true airspeed that has been pin programmed at each transponder.

1) The test set display must be:

Table 503/34-53-00-993-803

MAX TRUE AIRSPEED
GT 300 & LE 600 kts

SUBTASK 34-53-00-730-005

(9) Do the steps that follow for the IDENT BUTTON CHECK:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404, 411, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 428 PRE SB 737-34-3246; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089 (Continued)

(a) On the ATC control panel do the steps that follow:

1) Set the code switches to a desired ATC ID code.

NOTE: Use the ATC ID code 7776 or the Mode A code specified by the local ATC authority.

Do not use codes 7500, 7600-7677, 7700-7775 and 7777. These are emergency codes.

2) Put the ATC select switch to the No. 1 position.

LOM 411; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389

3) Put the mode select switch to the ALT ON position.

LOM 404, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

4) Set the Mode Select switch to the XPNDR position.

LOM 428 PRE SB 737-34-3246

5) Set the Mode Select switch to the ON position.

LOM 404, 411, 426, 429-432, 446, 447, 451, 452, 455, 456, 465; LOM 416 PRE SB 737-34-3514; LOM 420, 443, 444 PRE SB 737-34-3596; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 428 PRE SB 737-34-3246; LOM 450 PRE SB 737-34-3086; LOM 461-463 PRE SB 737-34-3089

(b) Make sure the test set displays the desired ATC ID code.

(c) Turn the test set off.

(d) Wait a moment, then push the INTERROGATE button.

1) Allow the test set to determine the type of transponder under test.

(e) At the same time push the control panel IDENT button and the test set TEST button.

(f) Make sure the message IDENT is displayed on the test set.

SUBTASK 34-53-00-730-006

(10) Do the test again as necessary, for the right system.

(a) To test the right system, put the ATC select switch to the No. 2 position.

G. Put the airplane back to its Usual Condition.

SUBTASK 34-53-00-860-019

(1) Put the mode select switch to the STBY position.

SUBTASK 34-53-00-840-006

(2) Disconnect and remove the antenna coupler.

SUBTASK 34-53-00-840-002

(3) Disconnect and remove the ATC test set.

SUBTASK 34-53-00-840-005

(4) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

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SUBTASK 34-53-00-860-020

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-840-003

(6) If the electrical power is no longer necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

LOM ALL

END OF TASK

TASK 34-53-00-730-805

5. ATC System - System Test (With the IFR-6000 Test Set)

NOTE: This procedure is a scheduled maintenance task.

A. General

WARNING

USE AN ANTENNA COUPLER WITH THE RAMP TESTER TO SIMULATE AN AIR MODE. IF YOU DO NOT OBEY, THE AIRPLANE WILL TRANSMIT ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRCRAFT IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(1) This system test is a full check of the Air Traffic Control (ATC) system. The system test first does the ATC-Operational Test and then uses the IFR-6000 ramp test set, COM-10727 to examine the left and right ATC systems.

(2) The XPDR Mode of the IFR-6000 provides flight line test capability for Air Traffic Control Radar Beacon System (ATCRBS) and Mode S transponders using an Auto Test. The auto test satisfies the 24 month ATC transponder maintenance check requirements.

(3) The IFR-6000 can also test airplanes with Automatic Dependent Surveillance - Broadcast (ADS-B) functions for DO-260, DO-260A, and DO-260B compliant transponders. The ADS-B tests are not included with the AUTO TEST. These tests satisfy the ADS-B Out 24 month ATC transponder maintenance check requirements.

(4) Details of individual tests conducted during the AUTO TEST are stored in memory in the Test Sets TEST LIST. Tests in the TEST LIST can be reviewed or run individually by use of DATA and SELECT keys.

(5) Different classes of transponders are tested to built-in test limits by selection of configuration files. If the class of transponder is unknown, generic configuration files are provided for ATCRBS and Mode S transponders that apply the widest system limits.

(6) Mode S Transponder level is automatically determined when running a test.

(7) The test is applicable to the left and the right ATC system. Set the transponder select switch on the ATC control panel to the applicable position to do a test of that system.

(8) Depending on the tool being used, only one Task Card needs to be completed for each schedule per the airplane.

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B. References

Reference	Title
22-11-00 P/B 501	DIGITAL FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34-21-00 P/B 501	AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST
34-31-00 P/B 501	INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST
34-58-00-710-802	Global Positioning System - Operational Test (P/B 501)
34-61-00 P/B 501	FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST
WDM 34-53-11	Wiring Diagram Manual
WDM 34-53-11, 34-53-21	Wiring Diagram Manual
WDM 34-53-21	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-10727	Test Set - Ramp, IFR-6000 Opt Part #: IFR 6000 Supplier: 51190
COM-18775	Antenna Coupler - Universal Transponder, UC-584 Part #: 112350 Supplier: 51190

D. Location Zones

Zone	Area
100	Lower Half of Fuselage
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the System Test

SUBTASK 34-53-00-580-002

(1) If the ADS-B tests will be run as part of the ATC System test the airplane location must let the Global Positioning System (GPS) antennas have a clear view of the GPS satellites.

SUBTASK 34-53-00-860-042

(2) Make sure that these systems are operational:

(a) Digital Flight Control System (DFCS) - DIGITAL FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 22-11-00/501.

(b) Air Data Inertial Reference System (ADIRS) - AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-21-00/501.

(c) MMR - INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-31-00/501.

(d) ATC - AIR TRAFFIC CONTROL (ATC) SYSTEM - ADJUSTMENT/TEST, 34-53-00/501.

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(e) Flight Management Computer System (FMCS) - FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-61-00/501.

SUBTASK 34-53-00-710-006

(3) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

SUBTASK 34-53-00-860-034

(4) Set the CAPT (Captain)'s and First Officer (F/O)'s altimeter to 29.92 in/Hg (101.32 kPa).

SUBTASK 34-53-00-860-074

(5) Set a desired heading on the DFCS Mode Control Panel (MCP) HEADING window.

SUBTASK 34-53-00-860-057

(6) Set a selected altitude.

(a) Set a desired altitude in the DFCS MCP Selected Altitude window.

SUBTASK 34-53-00-860-058

(7) Select a Flight ID.

(a) Select the RTE function key on the Flight Management Computer (FMC) Control Display Unit (CDU).

(b) Make sure that page 1 is shown.

NOTE: If needed push the next page function key on the CDU until page 1 is shown.

(c) Enter a Flight ID on the CDU scratchpad (i.e. BOE1234).

(d) Select Line Select Key (LSK) 2R on the CDU.

SUBTASK 34-53-00-860-035

(8) On the ATC control panel do these steps:

(a) Set the code switches to a desired ATC ID code.

NOTE: Use the ATC ID code 7776 or the Mode A code specified by the local ATC authority.

Do not use codes 7500, 7600-7677, 7700-7775 and 7777. These are emergency codes.

(b) Set the transponder select switch to the No. 1 position.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

WARNING

YOU MUST NOT SIMULATE ALTITUDE WITH AN AIR DATA TESTER (COM-1914) OR EQUIVALENT. IF YOU DO NOT OBEY, YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(c) Set the Mode Select switch to the ALT ON position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 439-447, 450-999

(d) Set the ALT source switch to the No. 1 (or No. 2) air data source position.

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LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 429-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

> **WARNING** YOU MUST NOT SIMULATE ALTITUDE WITH AN AIR DATA TESTER (COM-1914) OR EQUIVALENT. IF YOU DO NOT OBEY, YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(e) Set the Mode Select switch to the XPNDR position.

LOM 427, 428, 437, 438

> **WARNING** YOU MUST NOT SIMULATE ALTITUDE WITH AN AIR DATA TESTER (COM-1914) OR EQUIVALENT. IF YOU DO NOT OBEY, YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(f) Set the Mode Select switch to the ON position.

LOM 412, 415, 423, 424, 426, 429-431, 439, 441, 464

> **WARNING** YOU MUST NOT SIMULATE ALTITUDE WITH AN AIR DATA TESTER (COM-1914) OR EQUIVALENT. IF YOU DO NOT OBEY, YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(g) Set the MODE Reply Switch to the AUTO position.

LOM ALL

SUBTASK 34-53-00-865-003

(9) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-860-037

(10) Put the airplane in the air mode with the Built-In-Test Equipment (BITE) in the Proximity Switch Electronic Unit (PSEU).

(a) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

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SUBTASK 34-53-00-840-011

(11) Prepare the IFR-6000 ramp test set, COM-10727, for the ATC system test.

NOTE: The IFR-6000 ramp test set, COM-10727 has an ‘‘auto test’’ function which checks more parameters of the transponder under test, than are required by Federal Aviation Regulation (FAR) 43, Appendix F. Ramp test set operating instructions provides charts, distance limitations and required airplane antenna configurations for satisfactory ramp test set results. It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set and be familiar with its operation when determining the acceptability of transponder results and compliance with FAR 43, Appendix F.

NOTE: The software version for the IFR-6000 ramp test set, COM-10727 should be version 1.03.02 or higher for the ATC system test.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

NOTE: For DO-260B compliant ATC, IFR-6000 software version 02.09.00 or higher is needed to check the ADS-B out.

LOM ALL

(a) For the flat antenna connection, mount the Directional Antenna on the Test Sets friction hinge and connect the Directional Antenna ANT Connector to the Test Set ANT Connector via the 12 in. (30 cm) coaxial cable.

NOTE: You can use direct cable connection procedure to perform this test. If you do the direct cable connection, follow the instructions in the ramp test set operations manual.

WARNING

USE AN ANTENNA COUPLER WITH THE RAMP TESTER TO SIMULATE AN AIR MODE. IF YOU DO NOT OBEY, THE AIRPLANE WILL TRANSMIT ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRCRAFT IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(b) For the antenna coupler method connection, install the UC-584 universal transponder antenna coupler, COM-18775, over the antenna under test.

1) Connect a long Radio Frequency (RF) coaxial cable between the antenna coupler and Test Set RF I/O Connector.

NOTE: Refer to the IFR-6000 Operation Manual for the antenna shield and antenna coupler mounting procedure.

(c) Push the POWER Key to energize the Test Set On.

NOTE: The IFR-6000 ramp test set, COM-10727 is equipped with a Self Test for quick performance evaluation. An abbreviated Self Test is run at Power-Up. The full Self Test is initiated manually. Refer to the IFR-6000 Operation Manual for the full Self Test procedure.

(d) Push the SETUP Control Key to show the setup screens. Continue pushing the SETUP Control Key to cycle to the SETUP-GENERAL Screen. Use the NEXT PARAM and PREV PARAM Soft Keys to set each parameter.

NOTE: Refer to the IFR-6000 Operation Manual for detailed information on setup.

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(e) Push the SETUP Control Key to show the setup screens. Continue pushing the SETUP Control Key to cycle to the SETUP-XPDR Screen. Use the NEXT PARAM and PREV PARAM Soft Keys to set each parameter.

NOTE: Setup XPDR Screen contains parameters which determine operational characteristics of the XPDR Functional Mode. Unless otherwise stated, last used values are retained on Power-up.

1) For the flat antenna connection, do these steps:

a) Select ANTENNA: Set to TOP or BOTTOM depending on which aircraft antenna is under test.

b) Select RF PORT: Set to ANTENNA.

c) Select ANT RANGE: Set to setup range from IFR-6000 antenna to the Unit Under Test (UUT) Antenna.

d) Select ANT HEIGHT: Set to setup height from IFR-6000 antenna to the UUT Antenna.

NOTE: The lower antenna is approximately 4 ft (1.2 m) above ground level. The upper antenna is approximately 18 ft (5.5 m) above ground level.

e) Select ANT CABLE LOSS: Set to cable loss found on cable.

f) Select ANT GAIN (dBi): set 1.03 GHz and 1.09 GHz antenna gain to figures marked on supplied Directional Antenna.

2) For the antenna coupler connection, do these steps:

a) Select RF PORT: Select DIR W/COUPLER.

b) Select CPL CABLE LOSS: Set to loss found on cable.

c) Select COUPLER LOSS: Set to loss found on coupler.

3) Select UUT ADDRESS: Set to AUTO (defaults to AUTO on power-up). AUTO selection Mode S address is obtained via ATCRBS/Mode S All Call (FAR Part 43, Appendix F approved method).

NOTE: Refer to the IFR-6000 Operation Manual for more detailed information on UUT Address selection.

4) Select DIVERSITY: Set to ON.

NOTE: If Diversity Isolation Test is enabled, make sure that the Antenna Shield is installed to the top or bottom UUT antenna prior to running the test. Refer to IFR-6000 Operation Manual for the Antenna Shield mounting procedure.

NOTE: For the DIVERSITY test, the test set must be at a distance of less than 50 ft (15.2 m) from the airplane antenna.

5) Select CHECK CAP: Set to YES.

6) Select PWR LIM: Set to FAR 43.

CAUTION

DO NOT OPERATE THE TEST SET WHEN ITS ANTENNA IS LESS THAN 15 IN. (381 MM) FROM THE AIRPLANE ANTENNA. DAMAGE TO THE TEST SET CAN OCCUR.

(f) For the flat antenna connection, position the Test Set ≤50 feet from and in line of sight with the UUT antenna.

(g) For the flat antenna connection, insert the Antenna Shield over the ATC antenna not under test.

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1) If testing the bottom antenna and shielding the top antenna is not possible or practical, move the Test Set so that it is not in the line of sight of the top ATC antenna.

(h) For the antenna coupler connection, put an antenna shield or a second UC-584 universal transponder antenna coupler, COM-18775, over the ATC antenna not under test.

(i) Add a 50-ohm load on the RF connector of the coupler if you use the antenna coupler as an alternative to the ATC antenna not in test.

F. ATC System Test

SUBTASK 34-53-00-730-012

(1) Do the ATC System Test:

NOTE: When first powered-up, the Test Set displays blank data fields. The last test results are displayed while Test Set remains powered on.

(a) Push the XPDR Mode Key on the IFR-6000 ramp test set, COM-10727, to return to XPDR Auto Test Screen.

(b) Push the CONFIG Soft Key to show the XPDR CONFIG Screen. Use the Data Keys to select the desired configuration file. Push the RETURN Soft Key to confirm the selection.

NOTE: Eight predefined Configurations are provided to determine the PASS/FAIL limits applied to ERP, Frequency and MTL measurements. Configurations are named by class and option. Refer to the IFR-6000 Operation Manual for predefined Configuration details.

NOTE: If the transponder class is not known, select the GENERIC ATCRBS or GENERIC MODE S configuration file.

(c) To do the Auto Test, push the RUN TEST Soft Key. When the Auto Test completes, a PASS or FAIL indication is shown at the top of the Auto Test screen.

NOTE: The Auto Test Screen is the primary test screen and displays most UUT parameters requiring user verification.

NOTE: A passed Auto Test complies with the FAR Part 43 Appendix F test requirements.

NOTE: Refer to the IFR-6000 Operation Manual for detailed information on test screens and interpreting results of the tests.

(d) Make sure that the Aircraft Address (AA) field shows the correct Mode S Address. Refer to WDM 34-53-11 or WDM 34-53-21 for the Mode S Address code.

(e) Push the TEST LIST Soft Key to show the complete Auto Test List. Tests may be reviewed or run individually by use of the DATA and SELECT keys.

NOTE: When a Mode S configuration is selected the test list is displayed over two screens. When an ATCRBS configuration is selected the test list is displayed on one screen.

(f) To do the tests individually in the Test List, do these steps:

1) Use the DATA Keys to select desired test. Push the SELECT TEST Soft Key to show the selected test.

2) Push the RETURN Soft Key to show the XPDR Auto Test Screen.

3) Push the RUN TEST Soft Key to the start test.

NOTE: The test runs until stopped. Each pass through the test sequence updates the PASS/FAIL indication.

4) Push the STOP TEST Soft Key to the stop test.

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5) Push the NEXT TEST Soft Key to show the next test.

6) Push the PREV TEST Soft Key to show the previous test.

7) Push the RETURN Soft Key to show the test list and select desired test.

SUBTASK 34-53-00-730-027

(2) To do the tests for ADS-B, do the following:

(a) Do the ADS-B test setup.

NOTE: Refer to the IFR-6000 Operation Manual for detailed information on ADS-B test setup.

1) Push the SETUP Key until the SETUP-XPDR Screen is shown.

2) Push the ADS-B SETUP Soft Key.

3) Set the parameters by pushing the NEXT PARAM soft key. Push the PREV PARAM to select the field. Use DATA Keys to slew the data.

a) Select POS DECODE: Set to LOCAL.

b) Select LAT: Set the local latitude position.

NOTE: Position data is on the FMC CDU POS REF page. Use GPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802), if not, use the Inertial Reference System (IRS) position.

c) Select LONG: Set the local longitude position.

NOTE: Position data is on the FMC CDU POS REF page. Use GPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802), if not, use the IRS position.

d) Select ADS-B MON: Set to DF17.

e) Select GICB: Set to DF20.

(b) Do the ADS-B tests.

NOTE: Refer to the IFR-6000 Operation Manual for detailed information on test screens and interpreting results of the tests.

1) Push the XPDR mode key twice to show the ADS-B/GICB Main Menu.

2) Push the ADS-B MON Soft Key to show the ADS-B MON list screen.

a) The ADS-B MON list screen will show the following extended squitter BDSs:

NOTE: Extended BDS squitters displayed for older IFR-6000 software version may be different than what is listed below. The extended squitter BDS listed below is for software version 02.09.00 or higher.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

NOTE: The AIRBORNE VEL must have SDA value as 2 for ADS-B DO-260B compliant airplanes.

LOM ALL

- 0,5 AIRBORNE POS
- 0,6 SURFACE POS

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- 0,8 IDENT & CAT
- 0,9 AIRBORNE VEL

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

- 6,1 A /C STATUS ST1
- 6,2 TSS SUBTYPE 0
- 6,2 TSS SUBTYPE 1
- 6,5 A /C OP STATUS AIR
- 6,5 A /C OP STATUS SUR

LOM ALL

- 0,A TEST MSG.

3) Push the RUN TEST soft key to start the test. When a specific extended squitter BDS is captured, AVAIL will be shown to the right of the BDS name.

   NOTE: Indications are AVAIL (squitter has been captured), NO SQTR (Squitter available but not captured), NOT CAP (transponder has identified squitter is not supported by transponder/subsystem).

   NOTE: The test will continue to run until the STOP TEST soft key is pushed.

   NOTE: Airplane must be in the Ground Mode to capture the 0,6 SURFACE POS BDS. Only the top ATC antenna will transmit the 0,6 SURFACE POS BDS.

4) You can use the Data Keys to select a specific BDS and push the BDS DATA soft key to show the selected BDS screen.

   NOTE: To show the next or previous BDS screen, push the NEXT TEST or PREV TEST soft keys.

5) Push the RETURN soft key to return to the ADS-B MON list screen.

(c) Do a check of the ADS-B test results.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

NOTE: The test results that follow satisfy the requirements for DO-260B compliant ATC transponders for ADS-B (also satisfies European Aviation Safety Agency (EASA) AMC 20-24 requirements).

LOM ALL

1) Do a check of the Airborne Position.
   a) Select the 0,5 BDS with the BDS Data soft key.
   b) Make sure that the LAT and LONG fields show the position data entered in the ADS-B setup screen.
2) Do a check of the Pressure Altitude.
   a) Select the 0,5 BDS with the BDS Data soft key.
   b) Make sure that the BARO PRESS ALT field shows the airplane Barometric Pressure Altitude +/-125 ft (38 m).

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c) Make sure that the International Civil Aviation Organization (ICAO) ID matches the code that is assigned to the airplane.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

d) Make sure that the NIC (Navigation Integrity Category) field shows ≥7.

e) Select the 6,2 ST1 BDS with the BDS Data soft key.

f) Make sure that the displayed altitude agrees with the airplane selected altitude on the MCP+/-125 ft (38 m).

g) Make sure that the barometric pressure setting (minus 800 Hectopascal (HPA)) agrees with the airplane barometric pressure setting.

LOM ALL

3) Do a check of the Surveillance Status.

a) Notify local ATC facilities that transponder testing of the Surveillance Status will be performed.

b) Select the 0,5 BDS with the BDS Data soft key.

c) On the ATC control panel, change the code switches to a different ATC ID code.

d) Make sure that the SURVEILLANCE STATUS field changes to TEMP ALERT.

e) Set code switches on the ATC control panel back to the original code.

f) Push the IDENT switch on the ATC Control Panel.

g) Make sure that the SURVEILLANCE STATUS field shows SPI.

4) Do a check of the Position Quality Indicator.

NOTE: This check is a requirement for EASA AMC 20-24.

a) Select the 0,5 BDS with the BDS Data soft key.

b) Make sure that the TYPE field does not show 0.

NOTE: If TYPE shows 0 the transponder does not receive position data from the IRS or Multimode Receiver (MMR).

If TYPE shows 18, this indicates the transponder receives position data but not from the MMR. TYPE 18 will also show if the ATC is not connected to the MMR.

5) Do a check of the Aircraft Identity.

a) Select the 0,8 BDS with the BDS Data soft key.

b) Make sure that the correct data is shown in the following fields:

<1> The AA field shows the Mode S Address. Refer to (WDM 34-53-11, 34-53-21) for the Mode S Address code.

<2> The FLIGHT ID field shows the same Flight ID entered into the FMC.

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LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

<3> Make sure that the EMIT CAT (Emitter Category) field shows LARGE.

NOTE: This step is only applicable for the DO-260B ATC transponder.

LOM ALL

6) Do a check for velocity over ground.

a) Select the 0,9 BDS with the BDS Data soft key.

<1> Make sure that the displayed east/west and north/south airborne velocity over ground is displayed.

NOTE: Zero is an acceptable value in simulated air mode.

<2> Make sure that the vertical rate indicated is the same with the airplane set vertical rate.

NOTE: Zero is an acceptable value in simulated air mode.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

SUBTASK 34-53-00-730-038

(3) Select the 0,9 BDS with the BDS Data soft key.

(a) Make sure that the NACV (Navigation Velocity Category - Velocity) field shows 1 or 2.

(b) Make sure that the HDG (Heading) parameter is N/A the vast majority of testing.

SUBTASK 34-53-00-730-039

(4) Select the 6,1 ST1 BDS with the BDS Data soft key.

(a) Make sure that the EMERGENCY/PRIOR CODE field shows 0-NO EMERGENCY.

(b) Make sure that the A CODE field matches the code set on the ATC Control panel.

LOM ALL

SUBTASK 34-53-00-860-075

(5) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

SUBTASK 34-53-00-730-040

(6) Select 6,5 SUR with the BDS Data soft key.

NOTE: This step is not applicable for bottom antennas.

(a) Make sure that the VERSION field shows 2 for DO-260B.

(b) Make sure that the SDA (System Design Assurance) field shows 2.

(c) Make sure that the ANT OFF (Antenna Offset) field shows RT 0 M, 10 M.

(d) Make sure that the SIL (Surveillance Integrity Level) field shows 3.

(e) Make sure that the NACP (Navigation Accuracy Category for Position) field shows ≥ 8.

(f) Make sure that the airplane LN/WD field shows the applicable data:

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Table 504/34-53-00-993-804

AIRPLANE MODEL	DISPLAYED AIRPLANE DATA
737-600	5 - <35M, <38M
737-700	5 - <35M, <38M
737-800	6 - <45M, <39.5M
737-900	6 - <45M, <39.5M
737-900ER	6 - <45M, <39.5M

LOM ALL

G. Repeat System Tests

SUBTASK 34-53-00-730-013

(1) Repeat the System Test for the other antenna.

SUBTASK 34-53-00-730-014

(2) Repeat the System Test for the No. 2 or right system on the upper and lower antennas.

NOTE: To meet FAR requirements both the left and right systems must be tested on both upper and lower antennas.

H. Put the Airplane Back to its Usual Condition

SUBTASK 34-53-00-080-003

(1) Set the mode selector on the ATC control panel to the STBY position.

SUBTASK 34-53-00-080-008

(2) Do the following steps to remove the IFR-6000 ramp test set, COM-10727, using the ground test method.

(a) If you simulated altitude and used the UC-584 universal transponder antenna coupler, COM-18775, do these steps:

1) Disconnect the UC-584 universal transponder antenna coupler, COM-18775, from the RF I/O connector on the IFR-6000 ramp test set, COM-10727.

2) Remove the UC-584 universal transponder antenna coupler, COM-18775, from the ATC antenna.

(b) Remove the IFR-6000 ramp test set, COM-10727.

SUBTASK 34-53-00-080-009

(3) Remove the antenna shield and coupler, if installed.

SUBTASK 34-53-00-865-002

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-53-00-730-806

6. ATC System Test (With the TR-220 Test Set)

NOTE: This procedure is a scheduled maintenance task.

A. General

WARNING	USE AN ANTENNA COUPLER WITH THE RAMP TESTER TO SIMULATE AN AIR MODE. IF YOU DO NOT OBEY, THE AIRPLANE WILL TRANSMIT ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRCRAFT IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(1) This system test is a full check of the Air Traffic Control (ATC) system. The system test first does the ATC - Operational Test and then uses the test set to examine the left and right ATC systems.

(2) The TR-220 ramp test set, COM-10728, is capable of testing Air Traffic Control Radar Beacon System (ATCRBS) Mode A, Mode C and Mode S transponders. The operator can select between an Automatic series of tests and a Manual series of tests. The Test Set will determine the correct set of tests, either Mode A/C or Mode S upon receiving the transponder Radio Frequency (RF) signal. The TR-220 ramp test set, COM-10728 can also test Mode S Transponders with EHS (Enhanced Surveillance) capabilities.

(a) The test set can do all of the tests automatically except the IDENT BUTTON CHECK. You must do this test manually with the test set.

(b) If a test has failed, the automatic test sequence will stop and a failed message will show. At the end of the automatic test all data will show.

(c) Completion of these tests satisfy the 24 month ATC transponder maintenance check requirements.

(3) The TR-220 ramp test set, COM-10728, with software version 5.30 or higher can also test the Automatic Dependent Surveillance - Broadcast (ADS-B) functions for DO-260, DO-260A, and DO-260B compliant transponders. These tests satisfy the ADS-B Out 24 month ATC transponder maintenance check requirements.

(4) To do the test manually, set the AUTO/TEST/MANUAL switch to the MANUAL position to do each test individually. The test results will show after each test is done. After each test is completed, you must toggle the MANUAL switch to advance to the next test in the series.

(5) Operation with the UC-584 universal transponder antenna coupler, COM-18775, (preferred) or coupler TAP-200 used with the test set, reduces RF emissions from the transponder being tested.

(6) If it is necessary to simulate the aircraft at altitude, notify the local ATC that the transponder testing is in progress.

(7) Depending on the tool being used, only one Task Card needs to be completed for each schedule per the airplane.

B. References

Reference	Title
22	AUTOFLIGHT
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34	NAVIGATION

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(Continued)

Reference	Title
34-58-00-710-802	Global Positioning System - Operational Test (P/B 501)
WDM 34-53-11	Wiring Diagram Manual
WDM 34-53-11, 34-53-21	Wiring Diagram Manual
WDM 34-53-21	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-10728	Test Set - Ramp, TR-220 Part #: TR-220 Supplier: 92606
COM-18775	Antenna Coupler - Universal Transponder, UC-584 Part #: 112350 Supplier: 51190

D. Location Zones

Zone	Area
100	Lower Half of Fuselage
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the System Test

SUBTASK 34-53-00-580-003

(1) If the ADS-B tests will be run as part of the ATC System test the airplane location must let the Global Positioning System (GPS) antennas have a clear view of the GPS satellites.

SUBTASK 34-53-00-860-043

(2) Make sure that these systems are operational:

(a) Digital Flight Control System (AUTOFLIGHT, CHAPTER 22).

(b) Air Data Inertial Reference System (NAVIGATION, CHAPTER 34).

(c) Instrument Landing System (NAVIGATION, CHAPTER 34).

(d) Air Traffic Control System (NAVIGATION, CHAPTER 34).

(e) Flight Management Computer System (NAVIGATION, CHAPTER 34).

SUBTASK 34-53-00-710-007

(3) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

SUBTASK 34-53-00-860-044

(4) On the ATC control panel do these steps:

(a) Set the code switches to a desired ATC ID code.

NOTE: Use the ATC ID code 7776 or the Mode A code specified by the local ATC authority.

Do not use codes 7500, 7600-7677, 7700-7775 and 7777. These are emergency codes.

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(b) Set the transponder select switch to the No. 1 system.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(c) Set the mode select switch to the ALT ON position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 439-447, 450-999

(d) Set the ALT source switch to the primary (1) or secondary (2) air data source position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 429-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(e) Set the Mode Select switch to the XPNDR position.

LOM 427, 428, 437, 438

(f) Set the Mode Select switch to the ON position.

LOM 412, 415, 423, 424, 426, 429-431, 439, 441, 464

(g) Set the MODE Reply Switch to the AUTO position.

LOM ALL

SUBTASK 34-53-00-860-045

(5) Set the captain's and first officer's altimeter to 29.92 in/Hg (101.32 kPa).

SUBTASK 34-53-00-860-046

(6) Set a selected altitude.

(a) Set a desired altitude in the Digital Flight Control System (DFCS) Mode Control Panel (MCP) Selected Altitude window.

SUBTASK 34-53-00-860-047

(7) Select a Flight ID.

(a) Select the RTE function key on the Flight Management Computer (FMC) Control Display Unit (CDU).

(b) Make sure that page 1 is shown.

NOTE: If needed push the next page function key on the CDU until page 1 is shown.

(c) Enter a Flight ID on the CDU scratchpad (i.e. BOE1234).

(d) Select LSK 2R on the CDU.

SUBTASK 34-53-00-860-048

WARNING

OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(8) Put the airplane in the air mode with the Built-In-Test Equipment (BITE) in the Proximity Switch Electronic Unit (PSEU), do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-53-00-860-049

(9) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-53-00-860-050

WARNING	USE AN ANTENNA COUPLER WITH THE RAMP TESTER TO SIMULATE AN AIR MODE. IF YOU DO NOT OBEY, THE AIRPLANE WILL TRANSMIT ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRCRAFT IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(10) Prepare the TR-220 ramp test set, COM-10728 and the antenna coupler for the ATC system test:

NOTE: The TR-220 ramp test set, COM-10728 has an ‘‘auto test’’ function which checks more parameters of the transponder under test, than are required by Federal Aviation Regulation (FAR) 43, Appendix F. Ramp test set operating instructions provides charts, distance limitations and required airplane antenna configurations for satisfactory ramp test set results. It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set and be familiar with its operation when determining the acceptability of transponder results and compliance with FAR 43, Appendix F.

NOTE: Refer to the TR-220 Operating Manual for detailed information on setup, test screens, and interpreting results of the tests.

NOTE: Refer to the IFR-6000 Operation Manual for information on the UC-584 universal transponder antenna coupler, COM-18775.

(a) Connect the test set antenna, or antenna coupler, coax connector to the test set ANTENNA connector.

NOTE: You can use the direct cable connection procedure to perform this test. If you do the direct cable connection, follow the instructions in the ramp test set Operating Manual.

(b) Put the TEST SET switch in the ON position.

1) The test set will display a startup screen, then do a self test.

a) Make sure that the display indicates SELF TEST PASS.

(c) Turn the UUT FUNCTION switch on the test set to the XPDR position.

1) The test set will determine the transponder type and display the correct Start Page.

a) Make sure that the test set shows the correct transponder type.

NOTE: If the test set shows "no reply from xpdr", do a check on the test antenna connections. Also, make sure the ATC system is serviceable.

(11) Put the antenna shield on top of the ATC antenna not under test.

F. ATC System Test - Mode A/C and Mode S Transponders

SUBTASK 34-53-00-730-016

(1) You can select to do these Mode A/C or Mode S tests in either an Automatic or Manual Test sequence.

NOTE: You can consult FAR 91.413 and PART 43 Appendix F for test requirements and acceptable results.

NOTE: The TR-220 Operating Manual also contains information about the tests.

(a) Mode A/C test sequence.

- Mode A Test

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- Mode C Test
- Mode A SLS Test
- Sensitivity Test
- Power and Frequency Test.

(b) Mode S test sequence.

- Mode A Test
- Mode C Test
- Mode A SLS Test
- Mode A All Call Test
- Mode C All Call Test
- Mode A Only Test
- Mode C Only Test
- Mode S Surveillance Identity Test
- Mode S Surveillance Altitude Test
- Mode S Short Air to Air Surveillance Test
- Mode S Communication Identity Test
- Mode S Communication Altitude Test
- Undesired Replies Test
- Squitter Test
- Max True Airspeed Test
- Diversity Test
- Sensitivity Test
- Power and Frequency Test.

NOTE: For airplanes with EHS functions, the TR-220 ramp test set, COM-10728 includes the Flight ID test in the MODE S test sequence.

SUBTASK 34-53-00-730-017

(2) Do these steps to run the Automatic Test sequence.

(a) Toggle the AUTO/TEST/MANUAL switch to the AUTO position. The test set starts an automatic sequence of tests on the transponder.

(b) When the Automatic Test sequence completes with no failures, the display window shows two alternating sets of data.

(c) Make sure that the Aircraft Address (AA) field shows the correct Mode S Address. Refer to WDM 34-53-11 or WDM 34-53-21 for the Mode S Address code.

(d) If a test fails during the Automatic Test sequence, the test set stops at that test. The display window shows FAIL along with the framing pulses, pulse width and separation in microseconds.

1) You can override and skip to the next test in the sequence by toggling the AUTO/TEST/MANUAL switch to the AUTO position.

NOTE: It is recommended that the cause of the failure be determined before you do the next test.

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2) To repeat a failed test, toggle the AUTO/TEST/MANUAL switch to the MANUAL position.

SUBTASK 34-53-00-730-018

(3) Do these steps to run the Manual Test sequence.

(a) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position to begin the first test of the transponder. The display window shows the name of the test and the word Testing.

(b) When the test is complete the display window shows the test name and the test results.

(c) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position to begin the next test in the sequence.

SUBTASK 34-53-00-730-019

(4) Do these steps to do the IDENT TEST.

NOTE: The IDENT function can only be tested in the Manual Test sequence for either the Mode A/C or Mode S transponder.

(a) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position to begin the first test of the transponder. The display window shows the name of the test and the word Testing.

(b) Wait until the display window shows the test results.

(c) Push the IDENT switch on the ATC control panel.

1) IDENT should show on the TR-220 ramp test set, COM-10728 display window for 20 seconds to make sure that the SPI pulse is received from the transponder.

SUBTASK 34-53-00-730-023

(5) Do these steps to do the Mode S Surveillance Altitude Test.

(a) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position until M S SURV ALT is shown.

(b) Make sure that the altitude value shown on the TR-220 ramp test set, COM-10728 display agrees with the altitude on the captain's and first officer's altimeter within ± 125 ft (38.1 m).

G. ATC System Test - Additional Tests for Enhanced Surveillance

SUBTASK 34-53-00-730-020

(1) You can use the manual test sequence to do any additional tests required for EHS.

NOTE: The TR-220 Operating Manual contains information about the tests.

(a) Mode S EHS Test Sequence

- BDS5 Roll Angle
- BDS5 True Track Angle and Track Angle Rate
- BDS5 True Airspeed and Ground Speed
- BDS6 Indicated Airspeed, Heading and Mach Number
- BDS6 Barometric Altitude Rate and Inertial Vertical Velocity
- BDS 10 Datalink
- BDS1 Subnet Network Number
- BDS1 Mode S Specific Services Capability
- BDS1 Aircraft Identification Capability
- BDS1 Uplink UELM/Downlink DELM Capability
- BDS 1,7

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- BDS 1,8
- BDS 1,9
- BDS3 Resolution Advisory
- BDS4 Selected Altitude
- BDS4 Barometric Pressure and Target Altitude
- BDS4 VNAV, ALT Hold, and Approach Modes.

SUBTASK 34-53-00-730-035

(2) To check the Flight ID function, do the steps that follow:

NOTE: The TR-220 ramp test set, COM-10728 includes the Flight ID test in the MODE S test sequence.

(a) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position until the M S Comm ID test shows.

(b) Make sure that the Flight ID field shows the same Flight ID entered into the FMC.

NOTE: The Flight ID also shows on one of the two alternating displays at the end of the MODE S automatic test sequence.

SUBTASK 34-53-00-730-021

(3) To do the remaining EHS tests, do these steps at the test set TR-220 ramp test set, COM-10728:

(a) Push the TO/START - FROM/STOP switch to the TO position to show the EHS menu.

1) Make sure that the display window shows the Mode S Enhanced Surveillance menu.

(b) Push the UP/FWD - DOWN/REV switch to the UP position to select the applicable uplink/downlink format, UF5/DF21 or UF0/DF16. The recommended selection is UF0/DF16.

(c) Toggle the AUTO/TEST/MANUAL switch to MANUAL to start the first test.

NOTE: Test sequence starts at test previously run.

1) When the test is complete, the results are shown on the display window.

2) Make sure that the data field shown is not blank.

(d) Toggle the AUTO/TEST/MANUAL switch to the MANUAL position to begin the next test in the sequence.

(e) Continue until the required tests are completed.

1) Make sure that the data fields shown are not blank.

H. ATC System Test - Additional Tests for ADS-B

NOTE: The TR-220 ramp test set, COM-10728 requires Software Version 5.30 or higher to perform the following ADS-B tests. The test results satisfy the European Aviation Safety Agency (EASA) AMC 20-24 ADS-B requirements.

SUBTASK 34-53-00-730-028

(1) You can use the manual test sequence to do any additional tests required for ADS-B.

(a) The ADS-B Test Sequence is as follows:

NOTE: Airplane must be in the Ground Mode to display the BDS 0,6 Surface Position Report. Only the top ATC antenna will transmit the 0,6 SURFACE POS BDS.

NOTE: The Airborne Velocity Report must have SDA value as 2.

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- Airborne Position Report
- Surface Position Report
- Aircraft Identification and Type Report
- Airborne Velocity Report
- Velocity Hex
- Mode S Address
- Latitude & Longitude
- Airborne Surveillance Status
- Position Hex
- Type 28 Decoded
- Type 28 Hex
- Type 29 Decoded
- Type 29 Hex
- Type 31 Hex
- Horizontal Position Integrity.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

- Position Accuracy (DO-260B)
- Airborne Velocity and System Design Accuracy (DO-260B)
- ADS-B In Capability (DO-260B)
- Length and Width (DO-260B)
- GPS Antenna Offset (DO-260B)

LOM ALL

SUBTASK 34-53-00-730-029

(2) Do the ADS-B test setup.

NOTE: Refer to the TR-220 Operating Manual for detailed information on the ADS-B test setup.

(a) Set the test set UUT FUNCTION switch to the SETUP position.

(b) Toggle the AUTO/TEST/MANUAL switch to MANUAL to select the LAT/LON screen.

(c) Set the local latitude and longitude positions.

1) Use the TO/START-FROM/STOP switch to select to the field that needs to be set.

2) Use the UP/FWD-DOWN/REV switch to change the values.

NOTE: Position data is on the FMC CDU POS REF page. Use GPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802), if not, use the Inertial Reference System (IRS) position.

SUBTASK 34-53-00-730-036

(3) Do the ADS-B tests.

NOTE: The test results that follow satisfy the EASA AMC 20-24 requirements for ADS-B.

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(a) Set the UUT FUNCTION switch to ADS-B TX position.

NOTE: When the UUT FUNCTION switch is set to ADS-B TX, the display will first show the Position screen.

(b) Do a check of the Airborne Position.

1) On the Airborne Position screen, make sure that the Latitude/Longitude field shows the present position.

(c) Do a check of the Pressure Altitude.

1) On the Airborne Position screen, make sure that the Altitude field shows the airplane barometric pressure altitude +/- 125 ft (38 m).

(d) Do a check of the Aircraft Identity.

1) Set the AUTO/TEST/MANUAL switch to the MANUAL position to show the Identification screen.

2) Make sure that Flight ID field shows the same Flight ID entered into the FMC.

(e) Do a check of the Mode S Address.

1) Set the AUTO/TEST/MANUAL switch to the MANUAL position until Mode S Address screen shows.

2) Make sure that the Mode S Address field shows the correct Mode S Address. Refer to (WDM 34-53-11, 34-53-21) for the Mode S Address code.

(f) Do a check of the Airborne Surveillance Status.

1) Notify local ATC facilities that transponder testing of the Surveillance Status will be performed.

2) Set the AUTO/TEST/MANUAL switch to the MANUAL position until the Airborne Surveillance Status screen shows.

3) On the ATC control panel, change the code switches to a different ATC ID code.

4) Make sure that the SURV STAT field changes to TEMP ALERT.

5) Set code switches on the ATC control panel back to the original code.

6) Push the IDENT switch on the ATC Control Panel.

7) Make sure that the SURV STAT field shows SPI.

(g) Do a check of the Airborne Position Quality Indicator.

1) Set the AUTO/TEST/MANUAL switch to the MANUAL position until the Position Hex screen shows.

2) Make sure that the TYP field does not show 0 or 18.

NOTE: If TYPE shows 0 the transponder does not receive position data from the IRS or Multimode Receiver (MMR). A TYPE of 18 indicates the transponder receives position data but not from the MMR.

LOM 402, 406, 407, 412, 415, 423, 424, 437-439, 441, 445, 457-460, 464, 466-999; LOM 416 POST SB 737-34-3239 AND POST SB 737-34-3514; LOM 420, 443, 444 POST SB 737-34-3596; LOM 427 POST SB 737-34-3247; LOM 428 POST SB 737-34-3246; LOM 440, 442, 453, 454 POST SB 737-34-3389; LOM 450 POST SB 737-34-3086; LOM 461-463 POST SB 737-34-3089

(h) Do a check of the Type 28 Decoded.

1) Set the AUTO/TEST/MANUAL switch to the MANUAL position until the Type 28 Decoded screen shows.

2) Make sure that NO EMERGENCY is displayed.

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(i) Do a check of the Horizontal Position Integrity.

1) Set the AUTO/TEST/MANUAL switch to the MANUAL position until the Horizontal Position Integrity screen shows.

2) Make sure that the DO260B shows in the HZ POS field.

3) Make sure that the display shows SIL = 3.

4) Make sure that the display shows NACp = 8 or a value more than 8.

5) Make sure that the display shows NIC = 7 or a value more than 7.

(j) Do a check of the Airborne Velocity Accuracy and System Design Accuracy.

1) Set the AUTO/TEST/MANUAL switch to the MANUAL position until the Air Vel Acc and the Sys Des Acc screen shows.

2) Make sure that the display shows NACv = 1 or NACv = 2.

3) Make sure that the display shows SDA = 2.

(k) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802

(l) Do a check of the Airplane Length/Width.

1) Set the AUTO/TEST/MANUAL switch to the MANUAL position until the Length/Width screen shows.

2) Make sure that the Len and Width shows the applicable data:

AIRPLANE MODEL	DISPLAYED AIRPLANE DATA
737-700	<35M, <38M
737-800	<45M, <39.5M
737-900ER	<45M, <39.5M

(m) Do a check of the GPS Antenna Offset.

1) Set the AUTO/TEST/MANUAL switch to the MANUAL position until the GPS Antenna Offset screen shows.

2) Make sure that the Lat Axis shows Right 0 m.

3) Make that the Long Axis shows 10 m.

LOM ALL

I. Repeat ATC System Tests

SUBTASK 34-53-00-730-022

(1) Repeat the System Test for the other antenna.

(2) Do the ATC System Tests again for the right or No. 2 system on the upper and lower antennas.

NOTE: To meet FAR requirements both the left and right systems must be tested on both upper and lower antennas.

(a) To test the right system, put the ATC select switch to the No. 2 position.

J. Put the Airplane Back to Its Usual Condition.

SUBTASK 34-53-00-840-012

(1) Put the mode select switch to the STBY position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-53-00-080-004

(2) Disconnect and remove the antenna coupler, if installed.

SUBTASK 34-53-00-080-005

(3) Disconnect and remove the ATC test set.

SUBTASK 34-53-00-860-051

(4) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 34-53-00-860-052

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

END OF TASK

TASK 34-53-00-730-807

7. ATC System - System Test (With the AVX-10K Test Set)

NOTE: This procedure is a scheduled maintenance task.

A. General

WARNING	USE AN ANTENNA COUPLER WITH THE RAMP TESTER TO SIMULATE AN AIR MODE. IF YOU DO NOT OBEY, THE AIRPLANE WILL TRANSMIT ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRCRAFT IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(1) This system test is a full check of the Air Traffic Control (ATC) system. The system test first does the ATC - Operational Test and then uses the AVX-10K ramp test set, COM-23186, to examine the left and right ATC systems.

(2) The XPDR Mode of the AVX-10K ramp test set, COM-23186 provides flight line test capability for the Air Traffic Control Radar Beacon System (ATCRBS), Mode S transponders. The auto test satisfies the 24 month ATC transponder maintenance check requirements.

(3) The AVX-10K ramp test set, COM-23186 can also test airplanes with Automatic Dependent Surveillance - Broadcast (ADS-B) function for DO 260, DO 260A, and DO 260B compliant transponders. The ADS-B tests are not included with the AUTO TEST. These tests satisfy the ADS-B Out 24 month ATC transponder maintenance check requirements.

(4) Details of individual tests conducted during the AUTO TEST can be stored as files on the AVX-10K ramp test set, COM-23186. Tests can be run individually by opening the associated ribbon prior to running the test.

(5) Different classes of transponders are tested to built-in test limits by selection of configuration files. If the class of transponder is unknown, generic configuration files are provided for ATCRBS and Mode S transponders that apply the widest system limits.

(6) Mode S Transponder level is automatically determined when running a test.

(7) The test is applicable to the left and the right ATC system. Set the transponder select switch on the ATC control panel to the applicable position to do a test of that system.

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(8) This Predictive Maintenance & Enhanced Troubleshooting (PMET) procedure is optional and the results are for evaluation purposes only. No action is required as a result of this procedure if a flight deck effect or other observed fault does not exist. The recommendations are made to show Boeing's best practices to make sure that maximum aircraft reliability is reached. If a flight deck effect or other observed fault exists, it must be corrected with accepted procedures.

B. References

Reference	Title
22-11-00 P/B 501	DIGITAL FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
34-21-00 P/B 501	AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST
34-31-00 P/B 501	INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST
34-58-00-710-802	Global Positioning System - Operational Test (P/B 501)
34-61-00 P/B 501	FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST
WDM 34-53-11	Wiring Diagram Manual
WDM 34-53-21	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-18775	Antenna Coupler - Universal Transponder, UC-584 Part #: 112350 Supplier: 51190
COM-23186	Test Set - Ramp, AVX-10K Part #: AVX-10K Supplier: 51190

D. Location Zones

Zone	Area
100	Lower Half of Fuselage
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the System Test

SUBTASK 34-53-00-580-004

(1) If the ADS-B tests will be run as part of the ATC System test the airplane location must let the Global Positioning System (GPS) antennas have a clear view of the GPS satellites.

SUBTASK 34-53-00-860-083

(2) Make sure that these systems are operational:

(a) DFCS - DIGITAL FLIGHT CONTROL SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 22-11-00/501

(b) ADIRS - AIR DATA INERTIAL REFERENCE SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-21-00/501

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(c) MMR - INSTRUMENT LANDING SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-31-00/501

(d) ATC - AIR TRAFFIC CONTROL (ATC) SYSTEM - ADJUSTMENT/TEST, 34-53-00/501

(e) FMCS - FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 34-61-00/501

SUBTASK 34-53-00-710-009

(3) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801

SUBTASK 34-53-00-860-084

(4) Set the Captain and First Officer (F/O) altimeter to 29.92 in/Hg (101.32 kPa)

SUBTASK 34-53-00-860-085

(5) Set a desired heading on the Digital Flight Control System (DFCS) Mode Control Panel (MCP) HEADING window.

SUBTASK 34-53-00-860-086

(6) Set a desired altitude in the DFCS MCP Selected Altitude window.

NOTE: This test can be accomplished with any altitude.

SUBTASK 34-53-00-860-087

(7) Select a Flight ID.

(a) Select the RTE function key on the Flight Management Computer (FMC) Control Display Unit (CDU).

(b) Make sure that page 1 is shown.

1) If it is necessary, push the next page function key on the CDU until page 1 is shown.

(c) Enter a Flight ID on the CDU scratchpad (i.e. BOE1234).

(d) Select LSK 2R on the CDU.

SUBTASK 34-53-00-860-088

(8) On the ATC control panel do these steps:

(a) Set the code switches to a desired ATC ID code.

NOTE: Use the ATC ID code 7776 or the Mode A code specified by the local ATC authority.

Do not use codes 7500, 7600-7677, 7700-7775 and 7777. These are emergency codes.

(b) Set the ATC transponder select switch to the No. 1 position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 439-447, 450-999

(c) Set the ALT source switch to the No. 1 (or No. 2) air data source position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

WARNING

YOU MUST NOT SIMULATE ALTITUDE WITH AN AIR DATA TESTER (COM-1914) OR EQUIVALENT. IF YOU DO NOT OBEY, YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIR TRAFFIC IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(d) Set the Mode Select switch to the XPNDR position.

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LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(e) Set the Mode Reply Switch to the AUTO position.

LOM ALL

SUBTASK 34-53-00-760-002

(9) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 34-53-00-860-089

(10) Put the airplane in the air mode with the Built-In-Test Equipment (BITE) in the Proximity Switch Electronic Unit (PSEU) (Put the Airplane in the Air Mode, TASK 32-09-00-860-801).

SUBTASK 34-53-00-840-015

(11) Prepare the AVX-10K ramp test set, COM-23186, for the ATC system test.

NOTE: The AVX-10K ramp test set, COM-23186 has an "auto test" function which includes a configuration for testing in accordance with FAR 43, Appendix F. Ramp test set operating instructions provides charts, distance limitations and required airplane antenna configurations for satisfactory ramp test set results. It is recommended that the ramp test set operator have the most current operating instructions for the ramp test set and be familiar with its operation when determining the acceptability of transponder results and compliance with FAR 43, Appendix F.

NOTE: The software version for the AVX-10K ramp test set, COM-23186 should be version 3.1.10 or higher for the ATC system test. To view the current version, select system settings, and then select hardware software revision.

(a) For the flat antenna connection, mount the Directional Antenna on the Test Sets quick disconnect inserts at the top of the AVX-10K ramp test set, COM-23186 and connect the Directional Antenna ANT Connector to the Test Set ANT Connector via the 12 in. (30 cm) coaxial cable.

NOTE: You can use the direct cable connection procedure to perform this test. If you do the direct cable connection, follow the instructions in the ramp test set operations manual.

WARNING

USE AN ANTENNA COUPLER WITH THE RAMP TESTER TO SIMULATE AN AIR MODE. IF YOU DO NOT OBEY, THE AIRPLANE WILL TRANSMIT ALTITUDE. YOU CAN ACCIDENTALLY CAUSE TCAS TARGETS. AIRCRAFT IN THE AREA WILL CHANGE DIRECTION QUICKLY TO GO AWAY FROM THESE TARGETS. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO AIRCRAFT.

(b) For the antenna coupler method connection, install the UC-584 universal transponder antenna coupler, COM-18775 over the antenna under test.

NOTE: Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for the antenna coupler mounting procedure.

(c) Push the POWER Key to energize the Test Set On. Open the Transponder ribbon and click XPDR - Auto icon to start the test application.

NOTE: Self Test on the AVX-10K is initiated manually. Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for the full Self Test procedure.

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(d) Click on the SETUP tab to show the setup parameters.

NOTE: Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for detailed information on setup.

NOTE: Setup XPDR Screen contains parameters which determine operational characteristics of the XPDR Functional Mode. Unless otherwise stated, last used values are retained on Power-up.

1) For the flat antenna connection, do these steps:

a) Select RF PORT: Set to ANTENNA.

b) Select DiversityTest: Set to On. Top and Bottom tabs will be displayed. Select TOP or BOTTOM tab depending on which aircraft antenna is under test.

c) Select Antenna Settings and Top or Bottom ANT RANGE: Set to setup range from AVX-10K ramp test set, COM-23186 antenna to the Unit Under Test (UUT) Antenna.

NOTE: The TOP tab is only available when Diversity Test is set to ON.

d) Select Top or Bottom ANT HEIGHT: Set to setup height from AVX-10K antenna to the UUT Antenna.

NOTE: The lower antenna is approximately 4 ft (1 m) above ground level. The upper antenna is approximately 18 ft (5 m) above ground level.

e) Select ANT GAIN (dBi): set 1.03 GHz and 1.09 GHz antenna gain to figures marked on supplied Directional Antenna.

f) Select Cable Settings and Top or Bottom Antenna Cable Length: Set to length of cables being used.

g) Select Cable Settings and Top or Bottom Antenna Cable Loss: Set to cable loss found on cable.

2) For the antenna coupler connection, do these steps:

a) Select RF PORT: Select DIRECT W/COUPLER.

b) Select Cable Settings then Top or Bottom CABLE LOSS: Set to loss found on cable.

c) Select Coupler Setting then Top or Bottom COUPLER LOSS: Set to loss found on coupler.

3) Select UUT ADDRESS: Set to AUTO (defaults to AUTO on power-up). AUTO selection Mode S address is obtained via ATCRBS/Mode S All Call (FAR Part 43, Appendix F approved method).

NOTE: Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for more detailed information on UUT Address selection.

4) Select DIVERSITY: Set to ON.

NOTE: If Diversity Isolation Test is enabled, make sure that the Antenna Coupler with 50-ohm load is installed to the top or bottom UUT antenna prior to running the test. Refer to AVX-10K ramp test set, COM-23186 Operation Manual for mounting procedure.

NOTE: For the DIVERSITY test, the test set must be at a distance of less than 50 ft (15 m) from the airplane antenna.

5) Select Advanced Settings then Check All UUT Capability: Set to YES.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(e) For the flat antenna connection, position the Test set ≤50 feet from and in line of sight with the UUT antenna.

(f) For the flat antenna connection, put the UC-584 universal transponder antenna coupler, COM-18775, over the ATC antenna not under test.

1) If it is necessary, move the Test Set so that it is not in the line of sight of the top ATC antenna.

NOTE: This step is optional if testing the bottom antenna and using the coupler on the top antenna is not possible or practical.

(g) For the antenna coupler connection, put a second UC-584 universal transponder antenna coupler, COM-18775, over the ATC antenna not under test.

1) Add a 50-ohm load on the Radio Frequency (RF) connector of the coupler.

F. ATC System Test

SUBTASK 34-53-00-730-041

(1) Do the ATC System Test:

NOTE: When first powered-up, the Test Set displays blank data fields. The last test results are displayed while Test Set remains powered on.

(a) Click the Top or Bottom tabs on the AVX-10K ramp test set, COM-23186 to return to XPDR Auto Test Screen.

(b) Push the Test Configuration field to show the XPDR CONFIG parameters and select the desired configuration file.

NOTE: Multiple predefined Configurations are provided to determine the PASS/FAIL limits applied to ERP, Frequency and MTL measurements. Configurations are named by class and option. Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for predefined Configuration details.

NOTE: If the transponder class is not known, select the GENERIC ATCRBS or GENERIC MODE S configuration file.

(c) To do the Auto Test, push the RUN Soft Key. When the Auto Test completes, a PASS or FAIL indication is shown at the top of the Auto Test screen.

NOTE: The Auto Test Ribbon is the primary test screen and displays most UUT parameters requiring user verification.

NOTE: A passed Auto Test complies with the Federal Aviation Regulation (FAR) Part 43 Appendix F test requirements.

(d) Make sure that the Aircraft Address (AA) field shows the correct Mode S Address. Refer to WDM 34-53-11or WDM 34-53-21 for the Mode S Address code.

(e) Scroll down to show the complete Auto Test List. Tests may be reviewed or run individually by opening the desired ribbon prior to pressing the RUN key.

(f) To do the tests individually in the Test List, do these steps:

1) Open only the ribbons for the tests that you want to run.

2) Push the RUN Soft Key.

3) A popup screen will display an option to run the whole test or the ones expanded. The tests that will run are displayed below the RUN button. Select LOOP EXPANDED TESTS and click RUN.

NOTE: The test runs until stopped. Each pass through the test sequence updates the PASS/FAIL indication.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

4) Push the STOP Soft Key to the stop test.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

SUBTASK 34-53-00-730-042

(2) To do the tests for ADS-B, do the following:

(a) Press the Home button and open the ADS-B Monitor application. Perform the ADS-B test setup.

NOTE: Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for detailed information on ADS-B test setup.

1) Click on the SETUP tab.

2) Set the parameters as follows:

a) Repeat the setup procedures from step 11.d) for RF Port, Antenna Settings, Cable Settings and Coupler Loss.

b) Select Advanced Settings and Position Decode: Set to LOCAL.

c) Select ADS-B Monitor DF Setting: Set to DF17 and return to main setup screen by pressing the back arrow button or icon.

d) Select Position Entry Method and set to User Entry.

e) Select Position Setting and Latitude: Set the local latitude position.

NOTE: Position data is on the FMC CDUPOS REF page. Use the GPS position if GPS antennas have a clear view of the GPS satellites (TASK 34-58-00-710-801). If not, use the Inertial Reference System (IRS) position.

f) Select Longitude: Set the local longitude position.

NOTE: Position data is on the FMC CDU POS REF page. Use the GPS position if GPS antennas have a clear view of the GPS satellites (TASK 34-58-00-710-801). If not, use the IRS position.

(b) Do the ADS-B tests.

NOTE: Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for detailed information on test screens and interpreting results of the tests.

1) Click either AIR or SURFACE tab to show the ADS-B MON list screen.

a) The ADS-B MON list screen will show the following extended squitter BDSs:

- 0,5 AIRBORNE POS (on AIR tab)
- 0,6 SURFACE POS (on SURFACE tab)
- 0,8 IDENT & CAT
- 0,9 AIRBORNE VEL
- 6,1 A /C STATUS
- 6,2 TGT STATE & STATUS
- 6,5 A /C OP STATUS AIR

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2) Push the RUN TEST soft key to start the test. When a specific extended squitter BDS is captured, the squitter period will be shown to the right of the BDS name.

NOTE: Indications are Squitter Period (squitter has been captured), NO SQUITTER (Squitter available but not captured), NOT CAP (transponder has identified squitter is not supported by transponder/subsystem).

NOTE: The test will continue to run until the STOP soft key is pushed.

NOTE: Airplane must be in the Ground Mode to capture the 0,6 SURFACE POS BDS. Only the top ATC antenna will transmit the 0,6 SURFACE POS BDS.

3) You can view BDS detail by expanding the desired ribbons.

(c) Do a check of the ADS-B test results.

NOTE: The test results that follow satisfy the European Aviation Safety Agency (EASA) AMC 20-24 requirements for ADS-B.

1) Do a check of the Airborne Position.

a) Expand the 0,5 AIRBORNE POS ribbon.

b) Make sure that the LAT and LONG fields show the position data entered in the ADS-B setup screen.

2) Do a check of the Pressure Altitude.

a) Expand the 0,5 AIRBORNE POS ribbon.

b) Make sure that the BARO PRES ALT field shows the airplane Barometric Pressure Altitude ±125 ft (38 m).

c) Make sure that the AA International Civil Aviation Organization (ICAO) ID matches the code matches that is assigned to the airplane.

d) Expand the 6,2 TGT STATE & STATUS ribbon.

e) Make sure that the displayed altitude agrees with the airplane selected altitude on the MCP ± 125 ft (38 m).

f) Make sure that the barometric pressure setting (- 24 in/Hg (80 kPa)) agrees with the airplane barometric pressure setting.

3) Do a check of the Surveillance Status.

a) Notify local ATC facilities that transponder testing of the Surveillance Status will be performed.

b) Expand the 0,5 AIRBORNE POS ribbon.

c) On the P8 ATC control panel, change the code switches to a different ATC ID code.

d) Make sure that the SURVEILLANCE STATUS field changes to TEMP ALERT.

e) Set code switches, on the P8 ATC control panel, back to the original code.

f) Push the IDENT switch on the P8 ATC control panel.

g) Make sure that the SURVEILLANCE STATUS field shows SPI.

4) Do a check of the Position Quality Indicator.

a) Expand the 0,5 AIRBORNE POS ribbon.

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b) Make sure that the TYPE field does not show 0 or 18.

NOTE: If TYPE shows 0 the transponder does not receive position data from the IRS or Multi-Mode Receiver (MMR). A TYPE of 18 indicates the transponder receives position data but not from the MMR.

5) Do a check of the Aircraft Identity.

a) Expand the 0,8 IDENT & CAT ribbon.

b) Make sure that the correct data is shown in the following fields:

<1> The AA field shows the Mode S Address. Refer to WDM 34-53-11, WDM 34-53-21 for the Mode S Address code.

<2> The FLIGHT ID field shows the same Flight ID entered into the FMC.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

SUBTASK 34-53-00-730-043

(3) To do the tests for ADS-B, do the following:

(a) Open the ADS-B Monitor application and perform the ADS-B test setup.

NOTE: Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for detailed information on ADS-B test setup.

1) Click on the SETUP tab.

2) Set the parameters as follows:

a) Repeat the setup procedures from step 11.d) for RF Port, Antenna Settings, Cable Settings and Coupler Loss.

b) Select Advanced Settings and Position Decode: Set to LOCAL.

c) Select ADS-B Monitor DF Setting: Set to DF17 and return to main setup screen using back arrow key or icon.

d) Select Position Settings and Position Entry Method and set to USER ENTRY.

e) Select Latitude: Set the local latitude position.

NOTE: Position data is on the FMC CDU POS REF page. Use the GPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802). If not, use the IRS position.

f) Select Longitude: Set the local longitude position.

NOTE: Position data is on the FMC CDU POS REF page. Use theGPS position if GPS antennas have a clear view of the GPS satellites (Global Positioning System - Operational Test, TASK 34-58-00-710-802). If not, use theIRS position.

(b) Do the ADS-B tests.

NOTE: Refer to the AVX-10K ramp test set, COM-23186 Operation Manual for detailed information on test screens and interpreting results of the tests.

1) Click either AIR or SURFACE tab to show the ADS-B MON list screen.

a) The ADS-B MON list screen will show the following extended squitter BDSs:

- 0,5 AIRBORNE POS (on the AIR tab)

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LOM 437, 438; LOM 443, 444 POST SB 737-34-3596 (Continued)

- 0,6 SURFACE POS (on the SURFACE tab)
- 0,8 IDENT & CAT
- 0,9 AIRBORNE VEL
- 6,1 A /C STATUS
- 6,2 TARG STATE
- 6,5 A /C OP STATUS

2) Push the RUN soft key to start the test. When a specific extended squitter BDS is captured, the squitter period will be shown to the right of the BDS name.

NOTE: The test will continue to run until the STOP soft key is pushed.

NOTE: Airplane must be in the Ground Mode to capture the 0,6 SURFACE POS BDS. Only the top ATC antenna will transmit the 0,6 SURFACE POS BDS.

3) You can view BDS detail by expanding the desired ribbons.

(c) Do a check of the ADS-B test results

NOTE: The test results that follow satisfy the EASA AMC 20-24 requirements for ADS-B.

1) Do a check of the Airborne Position.
   a) Expand the 0,5 AIRBORNE POS ribbon.
   b) Make sure that the LAT and LONG fields show the position data entered in the ADS-B setup screen.
2) Do a check of the Pressure Altitude.
   a) Expand the 0,5 AIRBORNE POS ribbon.
   b) Make sure that the BARO PRES ALT field shows the airplane Barometric Pressure Altitude ±125 ft (38 m).
   c) Make sure that the AA ICAO ID matches the code matches that assigned to the airplane.
   d) Expand the 6,2 TGT STATE & STATUS ribbon.
   e) Make sure that the displayed altitude agrees with the airplane selected altitude on the MCP +/- 125 in. (3 m).
   f) Make sure that the barometric pressure setting (- 24 in/Hg (80 kPa)) agrees with the airplane barometric pressure setting.
3) Do a check of the Surveillance Status.
   a) Notify local ATC facilities that transponder testing of the Surveillance Status will be performed.
   b) Expand the 0,5 AIRBORNE POS ribbon.
   c) On the ATC control panel, change the code switches to a different ATC ID code.
   d) Make sure that the SURVEILLANCE STATUS field changes to TEMP ALERT.
   e) Set code switches, on the P8 ATC control panel, back to the original code.
   f) Push the IDENT switch, on the P8 ATC control panel.
   g) Make sure that the SURVEILLANCE STATUS field shows SPI.
4) Do a check of the Position Quality Indicator.

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a) Expand the 0,5 AIRBORNE POS ribbon.

b) Make sure that the TYPE field does not show 0 or 18.

NOTE: If TYPE shows 0 the transponder does not receive position data from the IRS or MMR. A TYPE of 18 indicates the transponder receives position data but not from the MMR.

5) Do a check of the Aircraft Identity.

a) Expand the 0,8 IDENT & CAT ribbon.

b) Make sure that the correct data is shown in the following fields:

<1> The AA field shows the Mode S Address. Refer to WDM 34-53-21, WDM 34-53-11 for the Mode S Address code.

<2> The FLIGHT ID field shows the same Flight ID entered into the FMC.

LOM ALL

G. Repeat System Tests

SUBTASK 34-53-00-730-045

(1) Repeat the System Test for the other antenna.

SUBTASK 34-53-00-730-046

(2) Repeat the System Test for the No. 2 or right system on the upper and lower antennas.

NOTE: To meet Federal Aviation Regulation (FAR) requirements both the left and right systems must be tested on both upper and lower antennas.

H. Put the Airplane Back to its Usual Condition

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

SUBTASK 34-53-00-080-010

(1) Set the Mode Select switch to the STBY position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

SUBTASK 34-53-00-080-011

(2) Set the Mode Reply switch to the STBY position.

LOM ALL

SUBTASK 34-53-00-080-012

(3) Do the following steps to remove the AVX-10K ramp test set, COM-23186 set using the ground test method.

(a) If you simulated altitude and used the UC-584 universal transponder antenna coupler, COM-18775, do these steps:

1) Disconnect the UC-584 universal transponder antenna coupler, COM-18775, from the RF I/O connector on the AVX-10K ramp test set, COM-23186.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR TRAFFIC CONTROL (ATC) ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ATC antenna.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM (2) A removal of the ATC antenna with gasket.

LOM **LOM ALL**

(3) An installation of the ATC antenna.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM (4) An installation of the ATC antenna with gasket.

LOM **LOM ALL**

B. The bottom ATC antenna is installed at STA 355, and the top antenna at STA 430.

TASK 34-53-01-000-801

2. ATC Antenna Removal

(Figure 401)

A. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-53-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-01-020-001

(2) Remove the ATC antenna [3]:

(a) Remove the bolts [4] that attach the ATC antenna [3] to the airplane structure.

> **CAUTION** MOVE THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CABLES. DAMAGE TO THE ANTENNA CABLES CAN OCCUR IF YOU PULL THE CABLES.

(b) Move the ATC antenna [3] away from the airplane structure to get access to the coaxial connector [1].

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(c) Disconnect the coaxial connector [1] from the ATC antenna [3].

NOTE: Do not let the coaxial connector retract into the fuselage.

(d) Remove the ATC antenna [3] and O-ring [2].

1) Discard the O-ring [2].

(e) Put a protective cover over the electrical connector on the ATC antenna [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ATC ANTENNA
(REMOVED)

A

G35395 S0006577095_V2

ATC Antenna Installation
Figure 401/34-53-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **TASK 34-53-01-000-802**

LOM **3. ATC Antenna with Gasket - Removal**

LOM (Figure 402)

LOM **A. General**

LOM (1) This procedure is used for the removal of antennas that use Aerobond or HI-TAK gaskets per 737-SL-20-045.

LOM (a) As a full certification test of the gasket was not done, it is recommended to do the steps that follow:

LOM (b) Do a visual inspection of the gasket and the mating surface, each D check.

LOM (c) Do a check for deterioration and corrosion on the antenna and gasket after their removal.

LOM (d) Do a check of the airplane skin for corrosion and fretting caused by the antenna gasket.

LOM 1) Remove any corrosion and fretting on the airplane skin.

LOM **B. Location Zones**

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

LOM **C. Removal Procedure**

LOM SUBTASK 34-53-01-860-007

LOM (1) Open these circuit breakers and install safety tags:

LOM **CAPT Electrical System Panel, P18-1**

Row	Col	Number	Name
B	5	C00186	ATC 1

LOM **F/O Electrical System Panel, P6-1**

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

LOM SUBTASK 34-53-01-020-002

LOM (2) Remove the ATC antenna [3]:

LOM (a) Remove the bolts [4] that attach the ATC antenna [3] to the airplane structure.

LOM **CAUTION**
LOM MOVE THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CABLES. DAMAGE TO THE ANTENNA CABLES CAN OCCUR IF YOU PULL THE CABLES.

LOM (b) Move the ATC antenna [3] away from the airplane structure to get access to the coaxial cable [1].

LOM (c) Disconnect the coaxial cable [1] from the ATC antenna [3].

LOM NOTE: Do not let the coaxial cable [1] retract into the fuselage.

LOM (d) Remove the ATC antenna [3].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)**
LOM

LOM (e) Remove and discard the ATC gasket [5]

LOM NOTE: For the Aerobond gasket, special attention must be used to remove the gel
LOM material residue to prevent silicone oil contamination on other parts of the
LOM airplane skin, which may cause paint adhesion difficulties.

LOM (f) Put a protective cover over the electrical connector on the ATC antenna [3].

LOM **END OF TASK**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ATC ANTENNA (REMOVED)

A

U30139 S0000189984_V2

LOM
LOM

ATC Antenna Installation
Figure 402/34-53-01-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM ALL**

TASK 34-53-01-400-801

4. ATC Antenna Installation

(Figure 401)

A. References

Reference	Title
20-30-11-910-801	Adhesives, Cements, and Sealants (P/B 201)
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)
FIM 34-53 TASK 801	Air Traffic Control (ATC) Transponder BITE Procedure
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84) - Series 84	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	O-ring	34-53-01-03-012	LOM 427, 428
		34-53-01-03-112	LOM 427, 428

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
2 (cont.)		34-53-01-04-015	LOM 404, 411, 416, 420, 422, 425, 429-434, 437, 438, 440, 442-447, 450-463, 465-999
		34-53-01-04-115	LOM 404, 406, 411, 416, 420, 422, 425, 429-434, 437, 438, 440, 442-447, 450-463, 465-999
3	Antenna	34-53-01-03-005	LOM 427, 428
		34-53-01-03-105	LOM 427, 428
		34-53-01-04-005	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 437-447, 450-999
		34-53-01-04-105	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 437-447, 450-999

E. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. ATC Antenna Installation

SUBTASK 34-53-01-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-01-110-001

WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THESE MATERIALS. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME, AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Clean the airplane mating surface with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make cotton wiper, G00034, moist (not soaked) with solvent.

(b) Rub the airplane mating surface with cotton wiper, G00034, until the surface is clean.

SUBTASK 34-53-01-300-001

(3) If the airplane mating surface has corrosion or unwanted material, do these steps to prepare the airplane mating surface:

(a) Remove the corrosion or unwanted material from the airplane mating surface, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

(b) Apply a layer of chemical conversion coating to the airplane mating surface, do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

SUBTASK 34-53-01-420-001

(4) Install the ATC antenna [3].

(a) Remove the protective cover from the antenna coaxial connector [1].

(b) Install the new O-ring [2] on the ATC antenna [3].

(c) Apply sealant, A00247, to the threads of the bolts [4].

(d) Examine the coaxial connector [1] for bent or broken pins, dirt, and damage.

(e) Connect the coaxial connector [1] to the ATC antenna [3].

(f) Put the ATC antenna [3] in the correct position on the airplane surface.

(g) Install three of the four bolts [4].

1) Tighten the bolts [4] to 35 in-lb (3.95 N·m).

SUBTASK 34-53-01-760-001

(5) Measure the resistance between the ATC antenna baseplate and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.

(a) Use the empty bolt hole to get access to the antenna baseplate.

(b) Make sure that the resistance is less than 0.001 ohm (1 milliohm).

SUBTASK 34-53-01-420-002

(6) Install the last bolt [4].

(a) Tighten the bolt [4] to 35 in-lb (3.95 N·m).

SUBTASK 34-53-01-390-002

(7) Apply aerodynamic sealant.

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

(a) Apply an aerodynamic fillet seal around the base of the antenna [3] with sealant, A00247 (TASK 51-31-00-390-806, TASK 20-30-11-910-801).

(b) Let the sealant dry for the correct cure time.

SUBTASK 34-53-01-860-003

(8) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

G. ATC Antenna Test

SUBTASK 34-53-01-420-003

(1) Do these steps to do a test of the ATC antennas:

(a) Set the transponder select switch, on the ATC control panel, to the left (No. 1) position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 429-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(b) Put the switch for the ATC mode selector to the XPNDR position on the ATC Control Panel.

LOM 427, 428, 437, 438

(c) Put the switch for the ATC mode selector to the OFF position on the ATC Control Panel.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(d) Put the ATC mode reply switch to the ON position on the ATC Control Panel.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(e) Put the switch for the ATC mode selector to the ALT ON position on the ATC Control Panel.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389

(f) Push and hold the TEST button on the front panel of the left (No. 1) ATC transponder.

1) If the green TPR light comes on, the BITE test passed.

LOM 445, 458-460; LOM 422, 425, 433, 434, 440, 442, 453, 454 POST SB 737-34-3389

(g) Push and hold the TEST button on the front panel of the left (No. 1) ATC transponder.

NOTE: The test indicators (eight red) go on for approximately 3 seconds, then go off.

1) If the green XPNDR light goes on, then the BITE test passed.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(h) Release the TEST button.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

(i) Push and release the TEST button on the front panel of the left (No. 1) ATC transponder.

NOTE: The PUSH TO TEST button must be pushed for 1.5 seconds.

1) If XPDR PASS light comes on, the BITE test passed.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS TRANSPONDER

(j) Push and release the TEST button on the front panel of the left (No. 1) ATC transponder.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

1) If the green LRU STATUS light comes on, the BITE test passed.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS TRANSPONDER

2) If a different light comes on, do this task: FIM 34-53 TASK 801.

LOM ALL

(k) Set the transponder select switch, on the ATC control panel, to the right (No. 2) position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389

(l) Push and hold the TEST button on the front panel of the right (No. 2) ATC transponder.

1) If the green TPR light comes on, the BITE test passed.

LOM 445, 458-460; LOM 422, 425, 433, 434, 440, 442, 453, 454 POST SB 737-34-3389

(m) Push and hold the TEST button on the front panel of the left (No. 2) ATC transponder.

NOTE: The test indicators (eight red) go on for approximately 3 seconds, then go off.

1) If the green XPNDR light goes on, then the BITE test passed.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(n) Release the TEST button.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

(o) Push and release the TEST button on the front panel of the right (No. 2) ATC transponder.

NOTE: The PUSH TO TEST button must be pressed for 1.5 seconds.

1) If XPNR PASS light comes on, the BITE test passed.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS TRANSPONDER

(p) Push and release the TEST button on the front panel of the right (No. 2) ATC transponder.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

1) If the green LRU STATUS light comes on, the test passed.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS TRANSPONDER

2) If a different light comes on, do this task: FIM 34-53 TASK 801.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(q) Put the switch for the ATC mode selector to the STBY position on the ATC Control Panel.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(r) Put the ATC mode reply switch to the STBY position on the ATC Control Panel.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-53-01-400-802

5. ATC Antenna with Gasket - Installation

(Figure 402)

A. This procedure is used for the installation of antennas with Aerobond or HI-TAK gaskets per 737-SL-20-045.

(1) As a full certification test of the gasket was not done, it is recommended to do the steps that follow:

(a) Do a visual inspection of the gasket and the mating surface, each D check.

(b) Do a check for deterioration and corrosion on the antenna and gasket after their removal.

(c) Do a check of the airplane skin for corrosion and fretting caused by the antenna gasket.

1) Remove any corrosion and fretting on the airplane skin.

B. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
FIM 34-53 TASK 801	Air Traffic Control (ATC) Transponder BITE Procedure

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

D. Consumable Materials

Reference	Description	Specification
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84) - Series 84	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Antenna	34-53-01-03-005	LOM 427, 428
		34-53-01-03-105	LOM 427, 428
		34-53-01-04-005	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-431, 433, 434, 437-447, 450-999
		34-53-01-04-105	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-431, 433, 434, 437-447, 450-999
5	Gasket	34-53-01-03-015	LOM 427, 428
		34-53-01-03-115	LOM 427, 428
		34-53-01-04-020	LOM 402, 406, 407, 412, 415, 423, 424, 426, 437-439, 441, 458-460, 464
		34-53-01-04-120	LOM 402, 406, 407, 412, 415, 423, 424, 426, 437-439, 441, 458-460, 464
		34-55-11-03-020	LOM 402, 406, 407, 412, 415, 423, 424, 426, 437-439, 441, 458-460, 464
		34-55-11-03-120	LOM 402, 406, 407, 412, 415, 423, 424, 426, 437-439, 441, 458-460, 464

F. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

G. ATC Antenna Installation

SUBTASK 34-53-01-860-008

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-01-110-002

> **WARNING** DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. PUT ON A RESPIRATOR, PROTECTIVE SPLASH GOGGLES, AND GLOVES WHEN YOU USE SOLVENTS. KEEP THE SOLVENTS AWAY FROM SPARKS, FLAME, AND HEAT. SOLVENTS ARE POISONOUS AND FLAMMABLE. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(2) Clean the airplane mating surface with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

(a) Make a cotton wiper, G00034, moist (not soaked) with solvent.

(b) Rub the airplane mating surface with the cotton wiper, G00034, until the surface is clean.

SUBTASK 34-53-01-300-002

(3) If the airplane mating surface has corrosion or unwanted material, do these steps to prepare the airplane mating surface:

(a) Remove the corrosion or unwanted material from the airplane mating surface. To remove the corrosion or unwanted material, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

(b) Apply a layer of chemical conversion coating to the airplane mating surface. To apply the coating, do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

SUBTASK 34-53-01-420-004

(4) Install the Air Traffic Control (ATC) antenna.

(a) Remove the protective cover from the antenna electrical connector.

(b) Remove and discard the O-ring (if installed) from ATC antenna [3].

(c) Remove the protective film from each side of the gasket [5].

NOTE: Reference the Aircraft Illustrated Parts Catalog for the gasket part number.

(d) Put the gasket [5] on the ATC antenna [3].

(e) Examine the coaxial connector [1] for bent or broken pins, dirt, and damage.

(f) Connect the coaxial connector [1] to the ATC antenna [3].

> **CAUTION** DO NOT APPLY SEALANT TO THE EDGES OF THE ANTENNA. THE GASKET RELEASES THE MOISTURE. IF YOU SEAL THE EDGES, THE MOISTURE WILL STAY. THIS CAN CAUSE CORROSION DAMAGE TO THE AIRPLANE, AND ANTENNA MATING SURFACES.

(g) Put the ATC antenna [3] in the correct position on the airplane surface.

(h) Install three of the four bolts [4].

1) Tighten the bolts [4] to 35 in-lb (4.0 N·m).

NOTE: Since the gel material of the gasket is compressible, the bolts need to be re-torqued 15 minutes of the installation.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

SUBTASK 34-53-01-760-002

(5) Measure the resistance between the ATC antenna baseplate and the airplane skin with an intrinsically safe approved bonding meter, COM-1550.

NOTE: Use the empty bolt hole to get access to the antenna baseplate.

(a) Make sure that the resistance is less than 0.001 ohm.

SUBTASK 34-53-01-420-005

(6) Install the last bolt [4].

(a) Tighten the bolt [4] to 35 in-lb (4.0 N·m).

NOTE: Since the gel material of the gasket is compressible, the bolt must be re-torqued 15 minutes of the installation.

SUBTASK 34-53-01-860-009

(7) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

H. ATC Antenna Test

SUBTASK 34-53-01-860-010

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-53-01-420-006

(2) Do these steps to do a test of the ATC antennas:

(a) Set the transponder select switch on the ATC control panel to the left (No. 1) position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 429-431, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(b) Put the switch for the ATC mode selector to the XPNDR position on the ATC Control Panel.

LOM 427, 428, 437, 438

(c) Put the switch for the ATC mode selector to the OFF position on the ATC Control Panel.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(d) Put the ATC reply mode select switch to the ON position on the ATC Control Panel.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(e) Put the switch for the ATC mode selector to the ALT ON position on the ATC Control Panel.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-431, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389

(f) Push and hold the TEST button on the front panel of the left (No. 1) ATC transponder.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-431, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389 (Continued)**

1) If the green TPR light comes on, then the BITE test passed.

LOM 445, 458-460; LOM 422, 425, 433, 434, 440, 442, 453, 454 POST SB 737-34-3389

(g) Push and hold the TEST button on the front panel of the left (No. 1) ATC transponder.

NOTE: The test indicators (eight red) go on for approximately 3 seconds, then go off.

1) If the green XPNDR light goes on, then the BITE test passed.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(h) Release the TEST button.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS TRANSPONDER

(i) Push and release the TEST button on the front panel of the left (No. 1) ATC transponder.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

1) If the green LRU STATUS light comes on, then the BITE test passed.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS TRANSPONDER

2) If a different light comes on, then, do this task: FIM 34-53 TASK 801.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

(j) Set the transponder select switch on the ATC control panel to the right (No. 2) position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426-431, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389

(k) Push and hold the TEST button on the front panel of the right (No. 2) ATC transponder.

1) If the green TPR light comes on, then the BITE test passed.

LOM 445, 458-460; LOM 422, 425, 433, 434, 440, 442, 453, 454 POST SB 737-34-3389

(l) Push and hold the TEST button on the front panel of the left (No. 2) ATC transponder.

NOTE: The test indicators (eight red) go on for approximately 3 seconds, then go off.

1) If the green XPNDR light goes on, then the BITE test passed.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(m) Release the TEST button.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS TRANSPONDER

(n) Push and release the TEST button on the front panel of the right (No. 2) ATC transponder.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

1) If the green LRU STATUS light comes on, then the test passed.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999; AIRPLANES WITH COLLINS TRANSPONDER

2) If a different light comes on, then, do this task: FIM 34-53 TASK 801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 433, 434, 440, 442-447, 450-463, 465-999**

LOM (o) Put the switch for the ATC mode selector to the STBY position on the ATC Control Panel.

LOM **LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464**

LOM (p) Put the ATC mode reply switch to the STBY position on the ATC Control Panel.

LOM **END OF TASK**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR TRAFFIC CONTROL (ATC) TRANSPONDER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ATC transponder

(2) An installation of the ATC transponder.

B. The two ATC transponders are installed in the main equipment center on the E1 rack. The left ATC transponder (No. 1), M163, is installed on shelf No. 2 and the right ATC transponder (No. 2), M381, is installed on shelf No. 5.

TASK 34-53-02-020-801

2. ATC Transponder Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. ATC Transponder Removal

SUBTASK 34-53-02-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

SUBTASK 34-53-02-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-53-02-020-001

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ATC TRANSPONDERS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ATC TRANSPONDERS.

(3) To remove the ATC transponder [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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ATC Transponder Installation
Figure 401/34-53-02-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-53-02-400-801

3. ATC Transponder Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
34-53-00-710-801	Air Traffic Control System - Operational Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Transponder	34-53-02-07-050	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999
		34-53-02-07A-020	LOM 411, 422, 425, 432-434, 438, 440, 442-445, 453, 454, 458-460
		34-53-02-07A-100	LOM 437, 438, 443, 444

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. ATC Transponder Installation

SUBTASK 34-53-02-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

SUBTASK 34-53-02-420-001

CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ATC TRANSPONDERS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ATC TRANSPONDERS.

(2) To install the Air Traffic Control (ATC) transponder [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-53-02-860-003

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

F. ATC Transponder Installation Test

SUBTASK 34-53-02-740-001

(1) Do the installation test as follows:

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 429-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(a) Put the switch for the ATC mode selector to the XPNDR position on the ATC Control Panel.

LOM 427, 428, 437, 438

(b) Put the switch for the ATC mode selector to the OFF position on the ATC Control Panel.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(c) Put the ATC mode reply switch to the ON position on the ATC Control Panel.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(d) Put the switch for the ATC mode selector to the ALT ON position on the ATC Control Panel.

LOM ALL

(e) Set the transponder select switch on the ATC control panel to the 1 position.

LOM 445, 458-460; LOM 422, 425, 433, 434, 440, 442, 453, 454 POST SB 737-34-3389

(f) Push and hold the TEST pushbutton on the left ATC transponder [1].

1) Make sure that the eight red Light Emitting Diode (LED)s go on for 3 seconds, then go off.

2) Make sure that the green XPNDR LED goes on and that the eight red LEDs stay off.

(g) Release the TEST pushbutton on the left ATC transponder [1].

1) Make sure that the green XPNDR LED stays on.

LOM 411, 432; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 443, 444 PRE SB 737-34-3596

(h) Push and hold the TEST pushbutton on the left ATC transponder [1].

1) Make sure that the green LED and the nine red LEDs go on for 3 seconds, then go off.

2) Make sure that the green TPR LED goes on after 2 seconds and that the nine red LEDs stay off.

(i) Release the TEST pushbutton on the left ATC transponder [1].

1) Make sure that the green TPR LED goes off.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

(j) Push and release the PUSH TO TEST switch on the left ATC transponder [1].

NOTE: The PUSH TO TEST switch needs to be held for 1.5 seconds.

1) Make sure that the self-test passes and no faults are detected.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

(k) Push momentarily and hold the TEST switch on the front panel of the left ATC transponder [1].

NOTE: Do not hold the TEST switch for more than five seconds. If you hold the TEST switch for more than five seconds, the non volatile memory fault data for the last four flights is read and the applicable fault light LED comes on.

1) Make sure that the sequence that follows occurs:

a) All the LEDs come on red for approximately two seconds.

b) The LRU STATUS LED comes on green and the other LEDs remain red for approximately two seconds.

c) All the LEDs go off for approximately two seconds.

d) The test results are displayed for 30 seconds:

- LRU STATUS LED is green - Line Replaceable Unit (LRU) with no fails
- LRU STATUS LED is red - LRU failure
- All the other LEDs are off - LRU with no fails
- All the other LEDs are red - LRU failure.

LOM ALL

(l) Set the transponder select switch on the ATC control panel to the 2 position.

LOM 445, 458-460; LOM 422, 425, 433, 434, 440, 442, 453, 454 POST SB 737-34-3389

(m) Push and hold the test switch on the right ATC transponder [1].

1) Make sure that the eight red LEDs go on for 3 seconds, then go off.

2) Make sure that the green XPNDR LED goes on and that the eight red LEDs stay off.

(n) Release the test switch on the right ATC transponder [1].

1) Make sure that the green XPNDR LED stays on.

LOM 411, 432; LOM 422, 425, 433, 434, 440, 442, 453, 454 PRE SB 737-34-3389; LOM 443, 444 PRE SB 737-34-3596

(o) Push and hold the TEST pushbutton on the right ATC transponder [1].

1) Make sure that the green LED and the nine red LEDs go on for 3 seconds, then go off.

2) Make sure that the green TPR LED goes on after 2 seconds and that the nine red LEDs stay off.

(p) Release the TEST pushbutton on the right ATC transponder [1].

1) Make sure that the green TPR LED goes off.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

(q) Push and release the PUSH TO TEST switch on the right ATC transponder [1].

NOTE: The PUSH TO TEST switch needs to be held for 1.5 seconds.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596 (Continued)

1) Make sure that the self-test passes and no faults are detected.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

(r) Push momentarily and hold the TEST switch on the front panel of the right ATC transponder [1].

NOTE: Do not hold the TEST switch for more than five seconds. If you hold the TEST switch for more than five seconds, the non volatile memory fault data for the last four flights is read and the applicable fault light LED comes on.

1) Make sure that the sequence that follows occurs:

a) All the LEDs come on red for approximately two seconds.

b) The LRU STATUS LED comes on green and the other LEDs remain red for approximately two seconds.

c) All the LEDs go off for approximately two seconds.

d) The test results are displayed for 30 seconds:

- LRU STATUS LED is green - LRU with no fails
- LRU STATUS LED is red - LRU failure
- All the other LEDs are off - LRU with no fails
- All the other LEDs are red - LRU failure.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(s) Put the switch for the ATC mode selector to the STBY position on the ATC Control Panel.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(t) Put the ATC mode reply switch to the STBY position on the ATC Control Panel.

LOM ALL

SUBTASK 34-53-02-710-001

(2) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

G. Put the Airplane Back to its Usual Condition

SUBTASK 34-53-02-410-003

(1) Make sure that this access panel is closed:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-53-02-860-006

(2) Make sure that the ATC transponders are in standby mode as follows:

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(a) Set the ATC mode select switch to the STBY position.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(b) Set the ATC mode reply switch to the STBY position.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ATC CONTROL PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the air traffic control (ATC) control panel

(2) An installation of the ATC control panel.

B. The ATC control panel is on the aft aisle stand panel, P8, in the flight compartment.

TASK 34-53-03-000-801

2. ATC Control Panel Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 34-53-03-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

SUBTASK 34-53-03-020-001

CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ATC CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ATC CONTROL PANEL.

(2) Remove the ATC CONTROL PANEL [1]:

(a) Turn the four quarter-turn fasteners [2] to release the ATC CONTROL PANEL [1] from the aisle stand.

(b) Lift the ATC CONTROL PANEL [1] to get access to the electrical connectors [3].

(c) Disconnect the electrical connectors [3].

(d) Put protective covers on the electrical connectors [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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ATC/TCAS Control Panel Installation
Figure 401/34-53-03-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-53-03-400-801

3. ATC Control Panel Installation

A. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-53-00-710-801	Air Traffic Control System - Operational Test (P/B 501)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Installation Procedure

SUBTASK 34-53-03-760-001

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

SUBTASK 34-53-03-420-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ATC CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ATC CONTROL PANEL.

(2) Install the ATC CONTROL PANEL [1]:

(a) Remove the protective covers from the electrical connectors [3].

(b) Examine the electrical connectors [3] for bent or broken pins, dirt, and damage.

(c) Connect the electrical connectors [3].

(d) Put the ATC CONTROL PANEL [1] into its position in the aisle stand.

(e) Turn the quarter-turn fasteners [2] that attach the ATC CONTROL PANEL [1].

SUBTASK 34-53-03-760-002

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2

D. Installation Test

SUBTASK 34-53-03-860-003

(1) For ATC, do the following installation test:

(a) Set the transponder select switch on the ATC control panel to the 1 position.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(b) Push and hold the TEST switch on the left ATC transponder.

1) Make sure the self-test passes and no faults are detected.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 429-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(c) Put the switch for the ATC mode selector to the XPNDR position on the ATC Control Panel.

LOM 427, 428, 437, 438

(d) Put the switch for the ATC mode selector to the OFF position on the ATC Control Panel.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(e) Put the ATC reply mode select switch to the ON position on the ATC Control Panel.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(f) Put the switch for the ATC mode selector to the ALT ON position on the ATC Control Panel.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

(g) Push and release the TEST switch on the left ATC transponder.

1) Make sure the self-test passes and no faults are detected.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

(h) Push and release the PUSH TO TEST switch on the left ATC transponder.

NOTE: The PUSH TO TEST switch needs to be held for 1.5 seconds

1) Make sure the self-test passes and no faults are detected.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(i) Release the TEST switch on the left ATC transponder.

LOM ALL

(j) Set the transponder select switch on the ATC control panel to the 2 position.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(k) Push and hold the TEST switch on the right ATC transponder.

1) Make sure the self-test passes and no faults are detected.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

(l) Push and release the TEST switch on the right ATC transponder.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999 (Continued)

1) Make sure the self-test passes and no faults are detected.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

(m) Push and release the PUSH TO TEST switch on the right ATC transponder.

NOTE: The PUSH TO TEST switch needs to be held for 1.5 seconds.

1) Make sure the self-test passes and no faults are detected.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(n) Release the TEST switch on the right ATC transponder.

LOM ALL

SUBTASK 34-53-03-860-005

(2) For TCAS, do the following installation test:

(a) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(b) Wait until the align light on the MSU goes off.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(c) On the ATC control panel, turn and release the mode select switch in the TEST position for one second.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-432, 437-439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(d) On the ATC control panel, push and release the test switch.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-445, 450-454, 457-999

(e) Make sure you hear "TCAS system test okay" on the flight compartment speakers.

LOM 446, 447, 455, 456

(f) Make sure you hear "TCAS test pass" on the flight compartment speakers.

LOM ALL

E. ATC System Operational Test

SUBTASK 34-53-03-710-001

(1) Do this task: Air Traffic Control System - Operational Test, TASK 34-53-00-710-801.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(2) Put the switch for the ATC mode selector to the STBY position on the ATC control panel.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(3) Put the ATC mode reply switch to the STBY position on the ATC Control Panel.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIR TRAFFIC CONTROL (ATC) ANTENNA SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has two tasks. One is the removal of the ATC antenna switch, the other is the installation of the ATC antenna switch.

B. The top and bottom ATC antenna switch, S00942 and S00943, installations are the same. The ATC antenna switches are installed left of the E1-5 shelf on the E1 rack.

TASK 34-53-04-000-801

2. ATC Antenna Switch Removal

(Figure 401)

A. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

B. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

C. Prepare for the Removal

SUBTASK 34-53-04-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

SUBTASK 34-53-04-010-001

(2) To get to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-53-04-020-001

(1) Remove the ATC antenna switch [1]:

(a) Disconnect the electrical connectors [4] from the ATC antenna switch [1].

(b) Put protective covers on the electrical connectors [4].

(c) Remove the screws [2] and washers [3] that hold the ATC antenna switch [1] to the bracket.

(d) Remove the ATC antenna switch [1] from the bracket.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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ATC Antenna Switch Installation
Figure 401/34-53-04-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ATC ANTENNA SWITCH

B

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ATC Antenna Switch Installation
Figure 401/34-53-04-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-53-04-400-801

3. ATC Antenna Switch Installation

(Figure 401)

A. References

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
20-40-11-760-801	Electrical Bonding (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Switch	34-53-04-10A-005	LOM ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Installation

SUBTASK 34-53-04-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

G. Procedure

SUBTASK 34-53-04-420-001

(1) Install the ATC antenna switch [1]:

(a) Remove the protective covers from the electrical connectors [4].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(b) Examine the electrical connectors [4] for bent or broken pins, dirt and damage.

(c) Make sure the bracket for the ATC antenna switch [1] has no corrosion.

1) If there is corrosion, clean the mating surfaces. To do this, do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

(d) Use the electrical bond fastener to install the ATC antenna switch [1] on the bracket. To do it, do this task: Electrical Bonding, TASK 20-40-11-760-801.

(e) Put the switch [1] into position on the bracket.

(f) Install the screws [2] and washers [3] that hold the ATC antenna switch [1] to the bracket.

(g) Remove the protective covers from the electrical connectors [4].

(h) Connect the electrical connectors [4] to the ATC antenna switch [1].

SUBTASK 34-53-04-760-001

(2) Use the intrinsically safe approved bonding meter, COM-1550, and make sure the resistance from the ATC antenna switch [1] to the E2 rack is less than 0.001 ohm.

SUBTASK 34-53-04-410-001

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-53-04-860-003

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	5	C00186	ATC 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	14	C00188	ATC 2
E	14	C01194	ATC ANT SWITCH

H. Installation Test

SUBTASK 34-53-04-860-005

(1) Do the installation test:

(a) Set the transponder select switch on the ATC control panel to the 1 position.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(b) Push and hold the TEST switch on the left ATC transponder.

1) Make sure the self-test passes and no faults are detected.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 429-432, 439, 441, 443, 444, 446, 447, 450-452, 455-457, 461-999

(c) Put the switch for the ATC mode selector to the XPNDR position on the ATC Control Panel.

LOM 427, 428, 437, 438

(d) Put the switch for the ATC mode selector to the OFF position on the ATC Control Panel.

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LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(e) Put the ATC reply mode select switch to the ON position on the ATC Control Panel.

LOM 411, 422, 425, 433, 434, 440, 442, 445, 453, 454, 458-460

(f) Put the switch for the ATC mode selector to the ALT ON position on the ATC Control Panel.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

(g) Push and release the TEST switch on the left ATC transponder.

1) Make sure the self-test passes and no faults are detected.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

(h) Push and release the PUSH TO TEST switch on the left ATC transponder.

NOTE: The PUSH TO TEST switch needs to be held for 1.5 seconds.

1) Make sure the self-test passes and no faults are detected.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(i) Release the TEST switch on the left ATC transponder.

LOM ALL

(j) Set the transponder select switch on the ATC control panel to the 2 position.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(k) Push and hold the TEST switch on the right ATC transponder.

1) Make sure the self-test passes and no faults are detected.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-431, 439, 441, 446, 447, 450-452, 455-457, 461-999

(l) Push and release the TEST switch on the right ATC transponder.

1) Make sure the self-test passes and no faults are detected.

LOM 437, 438; LOM 443, 444 POST SB 737-34-3596

(m) Push and release the PUSH TO TEST switch on the right ATC transponder.

NOTE: The PUSH TO TEST switch needs to be held for 1.5 seconds.

1) Make sure the self-test passes and no faults are detected.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 432-434, 440, 442-447, 450-463, 465-999

(n) Put the switch for the ATC mode selector to the STBY position on the ATC control panel.

LOM 412, 415, 423, 424, 426-431, 437-439, 441, 464

(o) Put the ATC mode reply switch to the STBY position on the ATC Control Panel.

LOM 411, 422, 425, 432-434, 440, 442, 445, 453, 454, 458-460; LOM 443, 444 PRE SB 737-34-3596

(p) Release the TEST switch on the right ATC transponder.

END OF TASK

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1. General

A. This procedure has these tasks:

(1) DME System Deactivation

(2) DME System Activation

TASK 34-55-00-040-801

2. DME System - Deactivation

A. General

(1) This procedure removes electrical power to the DME System.

NOTE: There are two DME antennas which are installed on the bottom centerline of the airplane fuselage.

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-55-00-860-091

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

D. DME System - Tryout

NOTE: This tryout is to make sure the DME system is in zero energy state.

SUBTASK 34-55-00-860-092

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-55-00-860-094

(2) Make sure that display screens on DME-1 and DME-2 are not ON.

END OF TASK

TASK 34-55-00-440-801

3. DME System - Activation

A. General

(1) This procedure adds electrical power to the DME system.

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

WARNING

KEEP ALL PERSONNEL AT A SAFE DISTANCE FROM THE ANTENNA. RF ENERGY CAN CAUSE INJURIES TO PERSONNEL.

SUBTASK 34-55-00-860-093

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

DME SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An operational test of the distance measuring equipment (DME) system.

(2) A system test of the DME system.

TASK 34-55-00-710-801

2. DME System - Operational Test

A. References

Reference	Title
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Prepare for the Operational Test

SUBTASK 34-55-00-860-002

(1) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-55-00-860-074

(2) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-55-00-860-003

(3) Set the display select switch on the captain's and first officer's EFIS control panels to the VOR position.

E. DME Self Test

SUBTASK 34-55-00-860-075

(1) Make sure that the DME 1 and DME 2 are not tuned to a local station's frequency.

SUBTASK 34-55-00-740-002

(2) Push and hold the TEST button on the captain's navigation control panel to start the DME 1 self test.

(a) Make sure that the DME 2 shows dashes on the displays during the DME 1 self test.

(b) Make sure that the DME 1 has a flag on the displays for approximately two seconds.

(c) Make sure that the DME 1 shows dashes on the displays until the end of the test.

SUBTASK 34-55-00-860-005

(3) Release the TEST button on the captain's navigation control panel.

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SUBTASK 34-55-00-860-046

(4) To get access to the proximity switch electronics unit, open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-55-00-860-006

> **WARNING** MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES AND LANDING GEAR DOOR AREAS. THE CONTROL SURFACES, THE LANDING GEAR, AND THE LANDING GEAR DOORS CAN MOVE WHEN YOU DO THE AIR MODE SIMULATION. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Put SYS No. 1 in the Air Mode. Do this task:Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-55-00-730-002

(6) Push and hold the TEST button on the captain's navigation control panel to start the DME 1 self test.

(a) Make sure that the self test sequence for DME 1 did not start.

SUBTASK 34-55-00-860-007

(7) Release the TEST button on the captain's navigation control panel.

SUBTASK 34-55-00-860-008

(8) Put SYS No. 1 in the Ground Mode. Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 34-55-00-730-003

(9) Set the SOURCE switch on the instrument switching module to the ALL ON 2 position.

SUBTASK 34-55-00-730-004

(10) Push and hold the TEST button on the first officer's navigation control panel to start the DME 2 self test.

(a) Make sure that the DME 1 shows dashes on the displays during the DME 2 self test.

(b) Make sure that the DME 2 has a flag on the displays for approximately two seconds.

(c) Make sure that the DME 2 shows dashes on the displays until the end of the test.

SUBTASK 34-55-00-860-009

(11) Release the TEST button on the first officer's navigation control panel.

SUBTASK 34-55-00-860-010

> **WARNING** MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES AND LANDING GEAR DOOR AREAS. THE CONTROL SURFACES, THE LANDING GEAR, AND THE LANDING GEAR DOORS CAN MOVE WHEN YOU DO THE AIR MODE SIMULATION. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(12) Put SYS No. 2 in the Air Mode. Do this task:Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 34-55-00-730-005

(13) Push and hold the TEST button on the first officer's navigation control panel to start the DME 2 self test.

(a) Make sure that the self test sequence for DME 2 did not start.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-55-00-860-011

(14) Release the TEST button on the first officer's navigation control panel.

SUBTASK 34-55-00-860-012

(15) Put SYS No. 2 in the Ground Mode. Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 34-55-00-860-047

(16) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 34-55-00-730-032

(17) Set the SOURCE switch on the instrument switching module to the AUTO position.

——— END OF TASK ———

TASK 34-55-00-730-801

3. DME System - System Test

A. General

(1) This task gives procedures for more than one DME test set. It is necessary to use only one of the DME test sets to do a test of the DME system.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-909	Test Set - DME Part #: 90000147 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Part #: IFR 6015 Supplier: 41364 Part #: TR-210 Supplier: 92606 Part #: TR-220 Supplier: 92606 Opt Part #: 600A-110 Supplier: 51190 Opt Part #: ATC-600A-2 Supplier: 51190 Opt Part #: IFR 6000 Supplier: 51190 Opt Part #: T-24B Supplier: 92606 Opt Part #: T-48D Supplier: 92606 Opt Part #: TR-211 Supplier: 92606
COM-13614	Test Set - DME, T-24B Opt Part #: T-24B Supplier: 92606

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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D. Prepare for the System Test

SUBTASK 34-55-00-860-015

(1) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-55-00-860-016

(2) Set the SOURCE switch on the instrument switching module to the ALL ON 1 position.

E. Operational Test

SUBTASK 34-55-00-710-001

(1) Do this task: DME System - Operational Test, TASK 34-55-00-710-801.

F. No. 1 DME System Test (with the use of the test set, IFR 6000, TR-210, or TR-220)

SUBTASK 34-55-00-860-023

(1) Do these steps to prepare for the No. 1 DME system test:

> **CAUTION** DO NOT PUT THE TEST SET LESS THAN 15 INCHES (38 CM) FROM THE DME ANTENNA WITH THE TEST SET ON. DAMAGE TO THE TEST SET CAN OCCUR.

(a) Put the DME test set, COM-909, approximately 21 inches (53 cm) from the DME antenna.

NOTE: The test antenna should be approximately the same height as the airplane antenna.

(b) Set the controls on the DME test set, COM-909, as follows:

Table 501/34-55-00-993-801

SWITCH NAME	SWITCH POSITION
PWR Switch	AC or BAT as appropriate
Mode Switch	DME
Velocity Select Switch	Range
Velocity HI/LO Switch	HI
Squitter Switch	SQTR
X/Y Switch	X

SUBTASK 34-55-00-860-024

(2) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-55-00-860-076

(3) Set an active VOR frequency of 109.00 MHz on the captain's and the first officer's navigation control panel.

(a) Make sure the DME 1 shows dashes on the displays.

(b) Make sure the DME 2 shows dashes on the displays.

SUBTASK 34-55-00-730-016

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Make sure the DME 2 has a flag on the displays.

SUBTASK 34-55-00-860-025

(5) Set a frequency of 108.00 MHz on the captain's navigation control panel.

SUBTASK 34-55-00-860-089

(6) Set the X/Y switch on the DME test set, COM-909, to Y.

NOTE: The two AT-600A-2 and IFR 6000 have X/Y installed channels in the test sets with 17X, channel set at 108.00 MHz, 17Y, channel set at 108.05 MHz, and 18X, Channel set at 108.10. If operate IFR 6000 push DATA Key to select X or Y channel. If operate TR-220, the channels are not preset. To select the applicable frequency, put the CHN/ALT-DIST-VERT SPEED switch in the CHN/ALT position. Us the UP/FWD-DOWN/REV switch, select the necessary DME channel. You can select frequency from 108.00 to 117.95 MHz in 50 KHz steps.

SUBTASK 34-55-00-730-017

(7) Use the SLEW switch to set a distance of 6 miles on the DME test set, COM-909.

(a) Make sure the DME 1 shows dashes on the displays.

SUBTASK 34-55-00-730-030

(8) Set the X/Y switch on the DME test set, COM-909, to X.

(a) Make sure the DME 1 shows 6 ±0.5 nmi on the displays

SUBTASK 34-55-00-860-027

(9) Set the voice/range filter switch on one of the audio control panels to the B position.

SUBTASK 34-55-00-860-028

(10) At the same audio control panel, push the receiver volume control for NAV-1 to set the volume to on.

SUBTASK 34-55-00-860-029

(11) At the same audio control panel, turn the receiver volume control clockwise for NAV-1 to adjust the volume level.

SUBTASK 34-55-00-860-030

(12) At all other audio control panels, push the receiver volume control for NAV-1 to set the volume to off.

SUBTASK 34-55-00-860-031

(13) Push the receiver volume control for NAV-2 on all the audio control panels to set the volume to off.

SUBTASK 34-55-00-730-019

(14) Use the switches on the DME test set, COM-909, to supply an identification tone.

(a) Make sure you can hear a tone through the flight interphone system.

SUBTASK 34-55-00-860-032

(15) Push the receiver volume control for NAV-1 on the audio control panels to set the volume to off.

SUBTASK 34-55-00-860-033

(16) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G. No. 2 DME System Test (with the use of the test set, IFR 6000, TR-210, or TR-220)

SUBTASK 34-55-00-860-034

(1) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-55-00-860-077

(2) Set an active VOR frequency of 109.00 MHz on the captain's and the first officer's navigation control panel.

(a) Make sure the DME 1 shows dashes on the displays.

(b) Make sure the DME 2 shows dashes on the displays.

SUBTASK 34-55-00-860-078

(3) Set a frequency of 109.00 MHz on the captain's navigation control panel.

SUBTASK 34-55-00-730-020

(4) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

(a) Make sure the DME 1 has a flag on the displays.

SUBTASK 34-55-00-860-036

(5) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-55-00-860-090

(6) Set the X/Y switch on the DME test set, COM-909, to Y.

NOTE: The two AT-600A-2 and IFR 6000 have X/Y installed channels in the test sets with 17X, channel set at 108.00 MHz, 17Y, channel set at 108.05 MHz, and 18X, channel set at 108.10. If operate IFR 6000 push DATA Key to select X or Y channel. If operate TR-220, the channels are not preset. To select the applicable frequency, put the CHN/ALT-DIST-VERT SPEED switch in the CHN/ALT position. Us the UP/FWD-DOWN/REV switch, select the necessary DME channel. You can select frequency from 108.00 to 117.95 MHz in 50 KHz steps.

SUBTASK 34-55-00-730-021

(7) Use the SLEW switch to set a distance of 6 miles on the DME test set, COM-909.

(a) Make sure the DME 2 shows dashes on the displays.

SUBTASK 34-55-00-730-031

(8) Set the X/Y switch on the DME test set, COM-909, to X.

(a) Make sure the DME 2 shows 6 ±0.5 nmi on the displays.

SUBTASK 34-55-00-860-038

(9) Set the voice/range filter switch on one of the audio control panels to the B position.

SUBTASK 34-55-00-860-039

(10) At the same audio control panel, push the receiver volume control for NAV-2 to set the volume to on.

SUBTASK 34-55-00-860-040

(11) At the same audio control panel, turn the receiver volume control clockwise for NAV-2 to adjust the volume level.

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SUBTASK 34-55-00-860-041

(12) At all other audio control panels, push the receiver volume control for NAV-2 to set the volume to off.

SUBTASK 34-55-00-860-042

(13) Push the receiver volume control for NAV-1 on all the audio control panels to set the volume to off.

SUBTASK 34-55-00-730-023

(14) Use the switches on the DME test set, COM-909, to supply an identification tone.

(a) Make sure you can hear a tone through the flight interphone system.

SUBTASK 34-55-00-860-043

(15) Push the receiver volume control for NAV-2 on the audio control panels to set the volume to off.

SUBTASK 34-55-00-860-044

(16) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

H. No. 1 DME System Test (with the use of the test set, T-24B)

SUBTASK 34-55-00-860-053

(1) Do these steps to prepare for the No. 1 DME system test:

CAUTION DO NOT PUT THE TEST SET LESS THAN 15 INCHES (38 CM) FROM THE DME ANTENNA WITH THE TEST SET ON. DAMAGE TO THE TEST SET CAN OCCUR.

(a) Put the T-24B DME test set, COM-13614, approximately 21 inches (53 cm) from the DME antenna.

NOTE: The test antenna should be approximately the same height as the airplane antenna.

(b) Set the controls on the T-24B DME test set, COM-13614, as follows:

Table 502/34-55-00-993-802

SWITCH NAME	SWITCH POSITION
POWER	ON
IDENT	OFF
DIST/VEL	DIST
Squitter Switch	ON

SUBTASK 34-55-00-860-054

(2) Set the SOURCE switch on the instrument switching module to the AUTO position.

SUBTASK 34-55-00-860-079

(3) Set an active VOR frequency of 109.00 MHz on the captain's and the first officer's navigation control panel.

(a) Make sure the DME 1 shows dashes on the displays.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(b) Make sure the DME 2 shows dashes on the displays.

SUBTASK 34-55-00-730-024

(4) Open this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

(a) Make sure the DME 2 has a flag on the displays.

SUBTASK 34-55-00-860-055

(5) Set a frequency of 108.00 MHz on the captain's navigation control panel.

SUBTASK 34-55-00-730-025

(6) Use the DISTANCE switch to set distance of 6 miles on the T-24B DME test set, COM-13614.

(a) Make sure the DME 1 shows 6 ±0.5 nmi on the displays.

SUBTASK 34-55-00-860-056

(7) Set the voice/range filter switch on one of the audio control panels to the B position.

SUBTASK 34-55-00-860-057

(8) At the same audio control panel, push the receiver volume control for NAV-1 to set the volume to on.

SUBTASK 34-55-00-860-058

(9) At the same audio control panel, turn the receiver volume control clockwise for NAV-1 to adjust the volume level.

SUBTASK 34-55-00-860-059

(10) At all other audio control panels, push the receiver volume control for NAV-1 to set the volume to off.

SUBTASK 34-55-00-860-060

(11) Push the receiver volume control for NAV-2 on all the audio control panels to set the volume to off.

SUBTASK 34-55-00-730-026

(12) Push the IDENT switch on the T-24B DME test set, COM-13614, to supply an identification tone.

(a) Make sure you can hear a tone through the flight interphone system.

SUBTASK 34-55-00-860-061

(13) Push the receiver volume control for NAV-1 on the audio control panels to set the volume to off.

SUBTASK 34-55-00-860-062

(14) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

I. No. 2 DME System Test (with the use of the test set, T-24B)

SUBTASK 34-55-00-860-063

(1) Set the SOURCE switch on the instrument switching module to the AUTO position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-55-00-860-080

(2) Set an active VOR frequency of 109.00 MHz on the captain's and the first officer's navigation control panel.

(a) Make sure the DME 1 shows dashes on the displays.

(b) Make sure the DME 2 shows dashes on the displays.

SUBTASK 34-55-00-730-027

(3) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

(a) Make sure the DME 1 has a flag on the displays.

SUBTASK 34-55-00-860-065

(4) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

SUBTASK 34-55-00-730-028

(5) Use the DISTANCE switch to set a distance of 6 miles on the T-24B DME test set, COM-13614.

(a) Make sure the DME 2 shows 6 ±0.5 nmi on the displays.

SUBTASK 34-55-00-860-066

(6) Set the voice/range filter switch on one of the audio control panels to the B position.

SUBTASK 34-55-00-860-067

(7) At the same audio control panel, push the receiver volume control for NAV-2 to set the volume to on.

SUBTASK 34-55-00-860-068

(8) At the same audio control panel, turn the receiver volume control clockwise for NAV-2 to adjust the volume level.

SUBTASK 34-55-00-860-069

(9) At all other audio control panels, push the receiver volume control for NAV-2 to set the volume to off.

SUBTASK 34-55-00-860-070

(10) Push the receiver volume control for NAV-1 on all the audio control panels to set the volume to off.

SUBTASK 34-55-00-730-029

(11) Push the IDENT switch on the T-24B DME test set, COM-13614, to supply an identification tone.

(a) Make sure you can hear a tone through the flight interphone system.

SUBTASK 34-55-00-860-071

(12) Push the receiver volume control for NAV-2 on the audio control panels to set the volume to off.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-55-00-860-072

(13) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

DME ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the DME antenna

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM (2) A removal of the DME antenna with gasket

LOM **LOM ALL**

(3) An installation of the DME antenna

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM (4) An installation of the DME antenna with gasket.

LOM **LOM ALL**

B. The two DME antennas are installed on the bottom centerline of the airplane fuselage.

TASK 34-55-11-000-801

2. DME Antenna Removal

(Figure 401)

A. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. DME Antenna Removal

SUBTASK 34-55-11-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

SUBTASK 34-55-11-020-001

(2) Remove the DME antenna [3]:

(a) Remove the bolts [4] from the DME antenna base.

> **CAUTION** LOWER THE ANTENNA ONLY AS FAR AS REQUIRED TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

(b) Lower the DME antenna [3], until access to the coaxial connector [1] can be gotten.

(c) Disconnect the coaxial connector [1] from the DME antenna [3].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(d) Remove the DME antenna [3].

(e) Remove and discard the O-ring [2] from the DME antenna [3].

(f) Put a protective cover on the coaxial connector [1].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

DME ANTENNA (REMOVED)

A

F70667 S0006577139_V2

DME Antenna Installation
Figure 401/34-55-11-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **TASK 34-55-11-000-802**

LOM **3. DME Antenna with Gasket Removal**

LOM (Figure 402)

LOM **A. General**

LOM (1) This task is used for the removal of DME antennas that use Aerobond or HI-TAK gaskets per 737-SL-20-045.

LOM (2) As a full certification test of the gasket was not done, it is recommended to do thee steps:

LOM (a) Do a visual inspection of the gasket and the mating surface, each D check.

LOM (b) Do a check for deterioration and corrosion on the DME antenna and gasket after their removal.

LOM (c) Do a check of the airplane skin for corrosion and fretting caused by the DME antenna gasket.

LOM 1) Remove any corrosion and fretting on the airplane skin.

LOM **B. Location Zones**

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

LOM **C. DME Antenna with Gasket Removal**

LOM SUBTASK 34-55-11-860-007

LOM (1) Open these circuit breakers and install safety tags:

LOM **CAPT Electrical System Panel, P18-1**

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

LOM **F/O Electrical System Panel, P6-1**

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

LOM SUBTASK 34-55-11-020-002

LOM (2) Remove the DME antenna [3]:

LOM (a) Remove the bolts [4] from the DME antenna [3] base.

LOM **CAUTION**: MOVE THE ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CABLES. DAMAGE TO THE ANTENNA CABLES CAN OCCUR IF YOU PULL THE CABLES.

LOM (b) Lower the DME antenna [3] until access to the coaxial connector [1] can be gotten.

LOM (c) Disconnect the coaxial connector [1] from the DME antenna [3].

LOM NOTE: Do not let the coaxial cable retract into the fuselage.

LOM (d) Remove the DME antenna [3].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)**
LOM

LOM (e) Remove and discard the DME gasket [5].

LOM NOTE: For the Aerobond gasket, special attention must be used to remove the gel
LOM material residue to prevent silicone oil contamination on other parts of the
LOM airplane skin, that may cause paint adhesion difficulties.

LOM (f) Put a protective cover on the coaxial connector [1].

LOM **END OF TASK**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

DME ANTENNA (REMOVED)

A

1 IF INSTALLED

U30156 S0000189900_V5

LOM
LOM

DME Antenna Installation
Figure 402/34-55-11-990-802

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM ALL**

TASK 34-55-11-400-801

4. DME Antenna Installation

(Figure 401)

A. References

Reference	Title
20-30-11-910-801	Adhesives, Cements, and Sealants (P/B 201)
51-21-00-160-801	Surface Preparation Of Aluminum Bonding Surfaces For Antenna Installations (P/B 701)
51-21-00-160-802	Surface Preparation Of Flame Sprayed Skin Panel Bonding Surfaces For Antenna Installations (P/B 701)
51-21-00-160-803	Surface Preparation Of Skin Panel With BMS 8–336 Expanded Aluminum Foil Bonding Surfaces For Antenna Installations (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-909	Test Set - DME Part #: 90000147 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Part #: IFR 6015 Supplier: 41364 Part #: TR-210 Supplier: 92606 Part #: TR-220 Supplier: 92606 Opt Part #: 600A-110 Supplier: 51190 Opt Part #: ATC-600A-2 Supplier: 51190 Opt Part #: IFR 6000 Supplier: 51190 Opt Part #: T-24B Supplier: 92606 Opt Part #: T-48D Supplier: 92606 Opt Part #: TR-211 Supplier: 92606
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
COM-4114	Test Set - ATC-600A-2 ATC Transponder (Modes A & C) Opt Part #: ATC-600A-2 Supplier: 51190

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	O-ring	34-55-11-02-012	LOM 427, 428
		34-55-11-02-112	LOM 427, 428
		34-55-11-03-015	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 437-447, 450-999
		34-55-11-03-115	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 437-447, 450-999
3	DME antenna	34-55-11-02-005	LOM 427, 428
		34-55-11-02-105	LOM 427, 428
		34-55-11-03-005	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 437-447, 450-999
		34-55-11-03-105	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426, 429-434, 437-447, 450-999

E. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. DME Antenna Installation

SUBTASK 34-55-11-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

SUBTASK 34-55-11-110-001

(2) Prepare the DME antenna surface with abrasive cleaning, do this task: Surface Preparation Of Aluminum Bonding Surfaces For Antenna Installations, TASK 51-21-00-160-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-55-11-110-008

(3) Apply a layer of chemical conversion coating on DME antenna base, do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

SUBTASK 34-55-11-110-005

WARNING	DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR CAUSE DAMAGE TO THE ENVIRONMENT. REFER TO THE MATERIAL SAFETY DATA SHEETS (MSDS) AND THE LOCAL SAFETY PRECAUTIONS.

(4) For the airplane skin panel surface with the application of flame spay:

(a) Prepare the flame sprayed skin panel surface per solvent cleaning, do this task: Surface Preparation Of Flame Sprayed Skin Panel Bonding Surfaces For Antenna Installations, TASK 51-21-00-160-802.

SUBTASK 34-55-11-110-006

(5) For the airplane skin panel surface with the application of Expanded Aluminum Foil (EAF):

CAUTION	DO NOT ABRADE THE EXPANDED ALUMINUM FOIL (EAF) PANEL. IF YOU CAUSE DAMAGE TO THE EAF, THE ANTENNA WILL NOT ELECTRICALLY BOND WITH THE AIRPLANE SKIN.

(a) Prepare the EAF skin panel surface per abrasive cleaning, do this task: Surface Preparation Of Skin Panel With BMS 8–336 Expanded Aluminum Foil Bonding Surfaces For Antenna Installations, TASK 51-21-00-160-803.

SUBTASK 34-55-11-420-001

(6) Install the DME antenna [3].

(a) Remove the protective cover from the coaxial connector [1].

(b) Install the new O-ring [2] on the DME antenna [3].

(c) Apply sealant, A00247, to the threads of the bolts [4].

(d) Examine the coaxial connector [1] for bent or broken pins, dirt, and damage.

(e) Connect the coaxial connector [1] to the DME antenna [3].

(f) Put the DME antenna [3] in the correct position on the airplane surface.

(g) Install three of the four bolts [4].

1) Manually tighten the bolts [4] to 30 in-lb (3.39 N·m).

SUBTASK 34-55-11-760-001

(7) Measure resistance between the interior countersunk hole of the DME antenna baseplate and airplane skin panel surface just outside of the DME antenna base (SWPM 20-20-00).

NOTE: Use the empty hole to get access to the DME antenna baseplate.

NOTE: Use caution to assure that probe is as close as possible to DME antenna base of panel without touching DME antenna. Resistance is to be measured immediately following surface preparation and the DME antenna installation.

(a) Use a intrinsically safe approved bonding meter, COM-1550.

(b) Make sure that the resistance is 0.0025 ohm (2.5 milliohm) or less.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-55-11-420-002

(8) Install the last bolt [4].

(a) Tighten the last bolt [4] to 30 in-lb (3.39 N·m).

SUBTASK 34-55-11-390-001

(9) Apply aerodynamic sealant.

NOTE: Operators can defer the application of the aero-sealant in the DME antenna installation to avoid a flight delay (SL 20-043).

(a) Apply an aerodynamic fillet seal around the base of the DME antenna [3] with sealant, A00247 (TASK 51-31-00-390-806, TASK 20-30-11-910-801).

(b) Let the sealant dry for the correct cure time.

SUBTASK 34-55-11-860-006

(10) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

G. Installation Test

SUBTASK 34-55-11-860-005

(1) Do these steps to prepare for the installation test:

CAUTION DO NOT PUT THE TEST SET LESS THAN 15 INCHES (38 CM) FROM THE DME ANTENNA WITH THE TEST SET ON. DAMAGE TO THE TEST SET CAN OCCUR.

(a) Put the DME test set approximately 21 in. (53 cm) from the DME antenna [3].

NOTE: The test DME antenna should be approximately the same height as the airplane DME antenna.

(b) For the DME test DME test set, COM-909, put the switches in these positions:

NOTE: Use Original Equipment Manufacturer (OEM) test set user manual for detailed setup/operating instructions for the applicable switches.

Table 401/34-55-11-993-801

SWITCH NAME	SWITCH POSITION
POWER	ON
IDENT	OFF
DIST/VEL	DIST
Squitter Switch	ON

(c) For the DME test ATC transponder test set, COM-4114, put the switches in these positions:

NOTE: Use OEM test set user manual for detailed setup/operating instructions for the applicable switches.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Table 402/34-55-11-993-802

SWITCH NAME	SWITCH POSITION
PWR Switch	AC or BAT as appropriate
Mode Switch	DME
Velocity Select Switch	Range
Velocity HI/LO Switch	HI
Squitter Switch	SQTR
X/Y Switch	X

(d) Set the NAV switch on the instrument switching module to the NORMAL position.

(e) Set the SOURCE switch on the instrument switching module to the AUTO position.

(f) Set the display select switch on the captain's and the first officer's EFIS control panels to the VOR position.

SUBTASK 34-55-11-710-001

(2) If the ATC transponder test set, COM-4114, is used, do these steps:

(a) For No. 1 (captain's) DME antenna [3]:

1) Set a frequency of 108.00 MHz on the captain's navigation control panel.

2) Set a frequency of 109.00 MHz on the first officer's navigation control panel.

3) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to Y.

4) Use the SLEW switch to set the tester range (or distance) to 6 nautical miles (or 10 nautical miles, depending on your test set configuration) on the DME test ATC transponder test set, COM-4114.

a) Make sure that the DME 1 shows dashes on the displays.

5) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to X.

a) Make sure that the DME 1 shows 6 ±0.5 nmi (or 10±0.5 nmi, depending on your tester settings) on the displays.

(b) For No. 2 (first officer's) DME antenna [3]:

1) Set a frequency of 109.00 MHz on the captain's navigation control panel.

2) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

3) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to Y.

4) Use the SLEW switch to set the tester range (or distance) to 6 nautical miles (or 10 nautical miles, depending on your test set configuration) on the DME test ATC transponder test set, COM-4114.

a) Make sure that the DME 2 shows dashes on the displays.

5) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to X.

a) Make sure that the DME 2 shows 6 ±0.5 nmi (or 10±0.5 nmi, depending on your tester settings) on the displays.

SUBTASK 34-55-11-710-003

(3) If the DME test set, COM-909, is used, do these steps:

(a) For No. 1 (captain's) DME antenna [3]:

1) Set a frequency of 108.00 MHz on the captain's navigation control panel.

2) Set a frequency of 109.00 MHz on the first officer's navigation control panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

3) Use the DISTANCE switch to set the tester range (or distance) to 6 nautical miles (or 10 nautical miles, depending on your test set configuration) on the DME test set, COM-909.

a) Make sure that the DME 1 shows 6 ±0.5 nmi (or 10±0.5 nmi, depending on your tester settings) on the displays.

(b) For No. 2 (first officer's) DME antenna [3]:

1) Set a frequency of 109.00 MHz on the captain's navigation control panel.

2) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

3) Use the DISTANCE switch to set the tester range (or distance) to 6 nautical miles (or 10 nautical miles, depending on your test set configuration) on the DME test set, COM-909.

a) Make sure that the DME 2 shows 6 ±0.5 nmi (or 10±0.5 nmi, depending on your tester settings) on the displays.

——— END OF TASK ———

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999

LOM **TASK 34-55-11-400-802**

LOM **5. DME Antenna with Gasket Installation**

LOM (Figure 402)

LOM **A. General**

LOM (1) This task is used for the installation of DME antennas with Aerobond or HI-TAK gaskets per 737-SL-20-045.

LOM (2) As a full certification test of the gasket was not done, it is recommended to do these steps:

LOM (a) Do a visual inspection of the gasket and the mating surface, each D check.

LOM (b) Do a check for deterioration and corrosion on the DME antenna and gasket after their removal.

LOM (c) Do a check of the airplane skin for corrosion and fretting caused by the DME antenna gasket.

LOM 1) Remove any corrosion and fretting on the airplane skin.

LOM **B. References**

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
51-21-00-160-801	Surface Preparation Of Aluminum Bonding Surfaces For Antenna Installations (P/B 701)
51-21-00-160-802	Surface Preparation Of Flame Sprayed Skin Panel Bonding Surfaces For Antenna Installations (P/B 701)
51-21-00-160-803	Surface Preparation Of Skin Panel With BMS 8–336 Expanded Aluminum Foil Bonding Surfaces For Antenna Installations (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-909	Test Set - DME
	Part #: 90000147 Supplier: 92606 Part #: ARTS-7000 Supplier: 0RDZ5 Part #: AVX-10K Supplier: 51190 Part #: IFR 6015 Supplier: 41364 Part #: TR-210 Supplier: 92606 Part #: TR-220 Supplier: 92606 Opt Part #: 600A-110 Supplier: 51190 Opt Part #: ATC-600A-2 Supplier: 51190 Opt Part #: IFR 6000 Supplier: 51190 Opt Part #: T-24B Supplier: 92606 Opt Part #: T-48D Supplier: 92606 Opt Part #: TR-211 Supplier: 92606
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).
	Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
COM-4114	Test Set - ATC-600A-2 ATC Transponder (Modes A & C)
	Opt Part #: ATC-600A-2 Supplier: 51190

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Gasket	34-55-11-02-015	LOM 427, 428
		34-55-11-02-115	LOM 427, 428
		34-55-11-03-020	LOM 402, 406, 407, 412, 415, 423, 424, 426, 437-439, 441, 458-460, 464
		34-55-11-03-120	LOM 402, 406, 407, 412, 415, 423, 424, 426, 437-439, 441, 458-460, 464

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

F. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
124	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

G. DME Antenna with Gasket Installation

SUBTASK 34-55-11-860-008

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

SUBTASK 34-55-11-110-002

(2) Clean the bond surface of the DME antenna base (TASK 51-21-00-160-801).

SUBTASK 34-55-11-110-009

(3) Apply a chemical conversion coating to the DME antenna base (TASK 51-21-41-370-802).

SUBTASK 34-55-11-110-007

WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR CAUSE DAMAGE TO THE ENVIRONMENT. REFER TO THE MATERIAL SAFETY DATA SHEETS (MSDS) AND THE LOCAL SAFETY PRECAUTIONS.

(4) For an airplane skin-panel with Flame Spray (FS):

(a) Clean the FS skin-panel bond-surface (TASK 51-21-00-160-802).

SUBTASK 34-55-11-110-004

(5) For an airplane skin-panel with Expanded Aluminum Foil (EAF):

CAUTION

DO NOT ABRADE THE EXPANDED ALUMINUM FOIL (EAF) PANEL. IF YOU CAUSE DAMAGE TO THE EAF, THE ANTENNA WILL NOT ELECTRICALLY BOND WITH THE AIRPLANE SKIN.

(a) Clean the EAF skin-panel bond-surface (TASK 51-21-00-160-803).

SUBTASK 34-55-11-420-003

(6) Install the DME antenna [3]:

(a) Remove the protective cover from the coaxial connector [1].

(b) Remove and discard the O-ring [2] (if installed) from the DME antenna [3].

(c) Examine the coaxial connector [1] for bent or broken pins, dirt, and damage.

1) Repair if it is necessary.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

(d) Apply sealant, A00247, to the threads of the bolts [4].

(e) Remove the protective film from each side of the gasket [5].

NOTE: Reference the Aircraft Illustrated Parts Catalog for the gasket part number.

(f) Put the gasket [5] on the DME antenna base.

(g) Connect the coaxial connector [1] to the DME antenna [3].

> **CAUTION** DO NOT APPLY SEALANT TO THE EDGES OF THE ANTENNA. THE GASKET RELEASES THE MOISTURE. IF YOU SEAL THE EDGES, THE MOISTURE WILL STAY. THIS CAN CAUSE CORROSION DAMAGE TO THE AIRPLANE, AND ANTENNA MATING SURFACES.

(h) Put the DME antenna [3] in the correct position on the airplane surface.

(i) Install three of the four bolts [4].

1) Manually tighten the bolts [4] to 30 in-lb (3.39 N·m).

a) Tighten the bolts [4] again 15 minutes after installation.

SUBTASK 34-55-11-760-002

(7) Measure resistance between the interior countersunk hole of the DME antenna baseplate and airplane skin surface of panel just outside of the DME antenna base (SWPM 20-20-00).

NOTE: Use the empty hole to get access to the DME antenna baseplate.

NOTE: Use caution to assure that probe is as close as possible to DME antenna base of panel without touching DME antenna. Resistance is to be measured immediately following surface preparation and DME antenna installation.

(a) Use a intrinsically safe approved bonding meter, COM-1550.

(b) Make sure that the resistance is 2.5 milliohms or less.

SUBTASK 34-55-11-420-004

(8) Install the last bolt [4].

(a) Tighten the last bolt [4] to 30 in-lb (3.39 N·m).

1) Tighten the last bolt [4] again 15 minutes after installation.

SUBTASK 34-55-11-860-009

(9) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

H. Installation Test

SUBTASK 34-55-11-860-010

(1) Make sure that the electrical power is on (TASK 24-22-00-860-811).

SUBTASK 34-55-11-860-011

(2) Do these steps to prepare for the installation test:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)

> **CAUTION** DO NOT OPERATE THE TEST SET WHEN ITS ANTENNA IS LESS THAN 15 IN. (381 MM) FROM THE AIRPLANE ANTENNA. DAMAGE TO THE TEST SET CAN OCCUR.

(a) Put the DME test set approximately 21 in. (53 cm) from the DME antenna [3].

NOTE: The test DME antenna should be approximately the same height as the airplane DME antenna.

(b) For the DME test set, COM-909, put the switches in these positions:

NOTE: Use Original Equipment Manufacturer (OEM) test set user manual for detailed setup/operating instructions for the applicable switches.

Table 403/34-55-11-993-803

SWITCH NAME	SWITCH POSITION
POWER	ON
IDENT	OFF
DIST/VEL	DIST
Squitter Switch	ON

(c) For the DME test ATC transponder test set, COM-4114, put the switches in these positions:

NOTE: Use OEM test set user manual for detailed setup/operating instructions for the applicable switches.

Table 404/34-55-11-993-804

SWITCH NAME	SWITCH POSITION
PWR Switch	AC or BAT as appropriate
Mode Switch	DME
Velocity Select Switch	Range
Velocity HI/LO Switch	HI
Squitter Switch	SQTR
X/Y Switch	X

(d) Set the NAV switch on the instrument switching module to the NORMAL position.

(e) Set the SOURCE switch on the instrument switching module to the AUTO position.

(f) Set the display select switch on the captain's and the first officer's EFIS control panels to the VOR position.

SUBTASK 34-55-11-710-005

(3) If the ATC transponder test set, COM-4114, is used, do these steps:

(a) For No.1 (captain's) DME antenna [3]:

1) Set a frequency of 108.00 MHz on the captain's navigation control panel.

2) Set a frequency of 109.00 MHz on the first officer's navigation control panel.

3) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to Y.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM **LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-431, 433, 434, 437-447, 450-999 (Continued)**

4) Use the SLEW switch to set the tester range (or distance) to 6 nautical miles (or 10 nautical miles, depending on your test set configuration) on the DME test ATC transponder test set, COM-4114.

a) Make sure that the DME 1 shows dashes on the displays.

5) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to X.

a) Make sure that the DME 1 shows 6 ±0.5 nmi (or 10±0.5 nmi, depending on your tester settings) on the displays.

(b) For No.2 (first officer's) DME antenna [3]:

1) Set a frequency of 109.00 MHz on the captain's navigation control panel.

2) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

3) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to Y.

4) Use the SLEW switch to set the tester range (or distance) to 6 nautical miles (or 10 nautical miles, depending on your test set configuration) on the DME test ATC transponder test set, COM-4114.

a) Make sure that the DME 2 shows dashes on the displays.

5) Set the X/Y switch on the DME test ATC transponder test set, COM-4114, to X.

a) Make sure that the DME 2 shows 6 ±0.5 nmi (or 10±0.5 nmi, depending on your tester settings) on the displays.

SUBTASK 34-55-11-710-006

(4) If the DME test set, COM-909, is used, do these steps:

(a) For No.1 (captain's) DME antenna [3]:

1) Set a frequency of 108.00 MHz on the captain's navigation control panel.

2) Set a frequency of 109.00 MHz on the first officer's navigation control panel.

3) Use the DISTANCE switch to set the tester range (or distance) to 6 nautical miles (or nautical 10 miles, depending on your test set configuration) on the DME test set, COM-909.

a) Make sure that the DME 1 shows 6 ±0.5 nmi (or 10±0.5 nmi, depending on your tester settings) on the displays.

(b) For No.2 (first officer's) DME antenna [3]:

1) Set a frequency of 109.00 MHz on the captain's navigation control panel.

2) Set a frequency of 108.00 MHz on the first officer's navigation control panel.

3) Use the DISTANCE switch to set the tester range (or distance) to 6 nautical miles (or 10 nautical miles, depending on your test set configuration) on the DME test set, COM-909.

a) Make sure that the DME 2 shows 6 ±0.5 nmi (or 10±0.5 nmi, depending on your tester settings) on the displays.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

DME INTERROGATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the distance measuring equipment (DME) interrogator.

(2) An installation of the DME interrogator.

B. The two DME interrogators are in the main equipment center. The No. 1 DME interrogator is on the E1 electronic equipment rack, shelf No. 2. The No. 2 DME interrogator is on the E1 electronic equipment rack, shelf No. 5. The removal and installation procedures the same for both interrogators.

TASK 34-55-21-000-801

2. DME Interrogator Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 34-55-21-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

SUBTASK 34-55-21-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-55-21-020-001

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DME INTERROGATOR. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DME INTERROGATOR.

(3) To remove the DME INTERROGATOR [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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DME Interrogator Installation
Figure 401/34-55-21-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-55-21-400-801

3. DME Interrogator Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	INTERROGATOR	34-55-21-02-005	LOM ALL

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Installation Procedure

SUBTASK 34-55-21-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

SUBTASK 34-55-21-420-001

> **CAUTION**
> DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DME INTERROGATOR. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DME INTERROGATOR.

(2) To install the DME INTERROGATOR [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-55-21-410-001

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-55-21-860-003

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
B	3	C00190	RADIO NAVIGATION DME 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	14	C00192	RADIO NAVIGATION DME 2

F. Installation Test

SUBTASK 34-55-21-860-005

(1) Set the VHF NAV switch on the instrument switching module to the NORMAL position.

SUBTASK 34-55-21-860-007

(2) Make sure DME 1 and DME 2 are not tuned to a local station's frequency.

SUBTASK 34-55-21-710-001

(3) Do these steps to do a test of the No. 1 DME interrogator:

(a) Set the SOURCE switch on the instrument switching module to the AUTO position.

(b) Push the TEST button on the captain's navigation control panel to start the DME 1 self test.

(c) Make sure this sequence occurs on the captain's and the first officer's displays:

NOTE: The DME 2 shows dashes on the displays during the DME 1 self test.

1) The DME 1 has a flag on the displays for approximately two seconds.

2) The DME 1 is dashes on the displays until the end of the test.

SUBTASK 34-55-21-710-002

(4) Do these steps to do a test of the No. 2 DME interrogator:

(a) Set the SOURCE switch on the instrument switching module to the AUTO position.

(b) Push the TEST button on the first officer's navigation control panel to start the DME 2 self test.

(c) Make sure this sequence occurs on the captain's and the first officer's displays:

NOTE: The DME 1 shows dashes on the displays during the DME 2 self test.

1) The DME 2 has a flag on the displays for approximately two seconds.

2) The DME 2 is dashes on the displays until the end of the test.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AUTOMATIC DIRECTION FINDER SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Automatic Direction Finder (ADF) System Deactivation

(2) Automatic Direction Finder (ADF) System Activation

TASK 34-57-00-040-801

2. Automatic Direction Finder System - Deactivation

A. General

(1) This procedure removes electrical power to the ADF system.

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 34-57-00-860-078

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457			
A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999

E. Automatic Direction Finder System - Tryout

NOTE: This tryout is to make sure the ADF system is in a zero energy state.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-57-00-860-079

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999			

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457			
A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999

SUBTASK 34-57-00-010-001

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-57-00-860-081

(3) Make sure the lights on the front panel of the ADF receiver(s) are not illuminated.

SUBTASK 34-57-00-750-035

(4) Push and release the applicable TEST switch on the ADF receiver(s) and make sure none of the lights on the front panel come on.

——— END OF TASK ———

TASK 34-57-00-440-801

3. Automatic Direction Finder System - Activation

A. General

(1) This procedure adds electrical power to the ADF system.

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Procedure

SUBTASK 34-57-00-860-080

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999			

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457			
A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999

SUBTASK 34-57-00-410-001

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AUTOMATIC DIRECTION FINDER SYSTEM - ADJUSTMENT/TEST

1. General

A. The system test is a full functional check of the ADF system and its interfaces.

TASK 34-57-00-730-802

2. Automatic Direction Finder System - System Test

A. General

(1) Some of the tests need radio reception from local Amplitude Modulation (AM) commercial broadcast stations or Automatic Direction Finder (ADF) beacon transmitting stations.

NOTE: ADF bearing checks on the ground, in hangars, or near other airplanes, metal buildings and equipment, etc. may show inaccurate bearings or weak signals.

B. References

Reference	Title
23-51-00-710-801	Flight Interphone System - Operational Test (P/B 501)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF RECEIVER

SUBTASK 34-57-00-840-004

(1) Do these steps to prepare for the test:

(a) Make sure that the Flight Interphone System is on (TASK 23-51-00-710-801).

(b) Make sure that the Air Data Inertial Reference System is on (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442, 445-447, 451-457

(c) Set the left VOR/ADF switches on the Radio Magnetic Indicator (RMI) to the ADF position.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF RECEIVER

(d) Set the DISPLAYS SOURCE selector, on the P5 panel, to the AUTO position.

(e) On the captain's and first officer's Electronic Flight Instrument System (EFIS) control panels, set the VOR1/OFF/ADF1 switches to the ADF 1 position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

SUBTASK 34-57-00-840-005

(2) Do these steps to prepare for the test:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS (Continued)

(a) Make sure that the Flight Interphone System is on (TASK 23-51-00-710-801).

(b) Make sure that the Air Data Inertial Reference System is on (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

(c) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 458-460, 464

(d) Set the left and right VOR/ADF switches on the RMI to the ADF position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

(e) Set the DISPLAYS SOURCE selector, on the P5 panel, to the AUTO position.

(f) On the captain's and first officer's EFIS control panels, set the VOR1/OFF/ADF1 switches to the ADF 1 position.

(g) On the captain's and first officer's EFIS control panels, set the VOR2/OFF/ADF2 switches to the ADF 2 position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999

SUBTASK 34-57-00-860-055

(3) For the audio select panels, do these steps:

(a) Set the ADF 1 audio selector to the ON position.

1) Make sure that the volume for the ADF 1 system is set to a comfortable level.

(b) Set the volume controls for all other audio selects to the OFF position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH THE V/B/R SWITCH

(c) Set the VOICE/RANGE switch to the BOTH position.

LOM 422, 425, 427, 428, 433, 434, 440, 442-444, 446, 447, 451-456; AIRPLANES WITH G7402-04 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER, AND WITH TONE SWITCH)

SUBTASK 34-57-00-860-056

(4) On the ADF control panel, set the switches as follows:

(a) The mode switch to the ADF position.

(b) The TONE switch to the OFF position.

LOM 445, 457; AIRPLANES WITH G7402-05 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER)

SUBTASK 34-57-00-860-057

(5) On the ADF control panels, set the switches as follows:

(a) The mode switches to the ADF position.

(b) The TONE switches to the OFF position.

(c) The TFR switches to the left position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 432, 437-439, 441, 450, 458-460, 464-999

SUBTASK 34-57-00-860-058

(6) On the ADF control panel, set the switches as follows:

(a) The ADF 1 mode switch to the ADF position.

(b) The ADF 2 mode switch to the ADF position.

(c) The TONE switch to the OFF position.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF SYSTEM

E. ADF BITE Test

LOM 432, 437, 438; AIRPLANES WITH G7403-02 OR G7403-03 CONTROL PANEL (1 PANEL CONTROLS 1 OR 2 RECEIVERS)

SUBTASK 34-57-00-740-015

(1) Do these steps to do a test of the ADF Built-In-Test Equipment (BITE):

(a) On the ADF control panel, push and release the TEST switch on the left mode switch.

LOM 432, 437, 438

(b) Make sure that the narrow pointer on the RMI slews to 135° relative to the Heading Lubber Line.

LOM 422, 425, 427, 428, 433, 434, 440, 442-447, 451-457; AIRPLANES WITH G7402-02 OR G7402-04 OR G7402-05 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER

SUBTASK 34-57-00-740-016

(2) Do these steps to do a test of the ADF BITE:

(a) Push and release the TEST switch on the ADF receiver.

(b) Make sure that the narrow pointer on the RMI slews to 135° relative to the Heading Lubber Line.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999

F. ADF BITE Test

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 439, 441, 450, 458-460, 464-999

SUBTASK 34-57-00-740-017

(1) Do these steps to do a test of the ADF BITE:

(a) On the ADF control panel, push and release the TEST switch on the ADF 1 mode switch.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 439, 441, 458-460, 464

1) Make sure that the narrow pointer on the RMI slews to 135° relative to the Heading Lubber Line.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 439, 441, 450, 458-460, 464-999

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 439, 441, 450, 458-460, 464-999 (Continued)

(c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

(d) On the ADF control panel, push and release the TEST switch on the ADF 2 mode switch.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 439, 441, 458-460, 464

1) Make sure that the wide pointer on the RMI slews to 135° relative to the Heading Lubber Line.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 439, 441, 450, 458-460, 464-999

(e) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

(f) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

LOM 411, 426; AIRPLANES WITH G7402-02 OR G7402-04 OR G7402-05 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER)

SUBTASK 34-57-00-740-018

(2) Do these steps to do a test of the ADF BITE:

(a) Push and release the TEST switch on the ADF-1 receiver.

1) Make sure that the wide pointer on the RMI slews to 135° relative to the Heading Lubber Line.

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

(c) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

(d) Push and release the TEST switch on the ADF-2 receiver.

1) Make sure that the wide pointer on the RMI slews to 135° relative to the Heading Lubber Line.

(e) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 411, 426; AIRPLANES WITH G7402-02 OR G7402-04 OR G7402-05 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER) (Continued)

(f) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464; LOM 404, 465-999 POST SB 737-31-1650

G. ADF SYSTEM SELF -TEST

SUBTASK 34-57-00-740-019

(1) To see the ADF test sequence, select VOR or APP on the EFIS control panel mode selector.

LOM 411, 422, 425-428, 433, 434, 440, 442-447, 451-457

(a) A maintenance person must be in the Electronic Equipment (EE) compartment to start the test from the front of the ADF receiver.

LOM 402, 406, 407, 412, 415, 420, 423, 424, 439, 441, 450, 458-460, 464; LOM 404, 465-999 POST SB 737-31-1650

(b) To start the test, push one of the front panel switches below the frequency display window on the ADF control panel.

LOM 402, 406, 407, 412, 415, 416, 420, 423, 424, 432, 437-439, 441, 450, 458-460, 464; LOM 404, 465-999 POST SB 737-31-1650

(c) To start the test, push the test switch on the ADF control panel mode selector knob.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464; LOM 404, 465-999 POST SB 737-31-1650

(d) During the first two seconds of the test, the receiver output goes to a fail condition. The pointer goes out of view and the amber ADF flag shows momentarily.

(e) For the next two seconds, the receiver output goes to an No Computed Data (NCD) condition. During this time, the amber ADF flag goes out of view and the pointer stays out of view.

(f) Next, the test display shows and the pointer goes to a test position of 135 degrees from the heading lubber line until the end of test.

NOTE: For a dual system, the test is the same for each ADF receiver.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF SYSTEM

H. ADF System Test

LOM 445, 457; AIRPLANES WITH G7402-02 OR G7402-05 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER)

SUBTASK 34-57-00-860-059

(1) Set the left frequency control on the ADF control panel to a local AM broadcast or NDB station, and push the transfer switch to move this frequency to the ACTIVE display.

LOM 422, 425, 427, 428, 433, 434, 440, 442-444, 446, 447, 451-456; AIRPLANES WITH G7402-04 CONTROL PANEL (1 PANEL CONTROLS 1 RECEIVER, AND WITH TONE SWITCH)

SUBTASK 34-57-00-860-060

(2) Set the frequency control on the ADF control panel to a local AM broadcast or NDB station.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 432, 437, 438; AIRPLANES WITH G7403-02 OR G7403-03 CONTROL PANEL (1 PANEL CONTROLS 1 OR 2 RECEIVERS)

SUBTASK 34-57-00-860-061

(3) Set the left frequency control on the ADF control panel to a local AM broadcast or NDB station.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF SYSTEM

SUBTASK 34-57-00-750-032

(4) Do these steps to do a check of the ADF system:

(a) Make sure that you hear a loud and clear ADF audio signal at all audio select locations.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442, 445-447, 451-457

(b) Make sure that the narrow needle on the RMI points to the selected bearing.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457

(c) Make sure that the ADF pointers on the captain's and first officer's Navigation Display (ND)'s point to the selected bearing.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF SYSTEM

(d) Make sure that the ADF bearing accuracy is as follows:

1) +/- 3 degrees at the quadrantal areas (45 degree, 135 degree, 225 degree and 315 degree)

2) +/- 2 degrees at the areas different than quadrantal areas.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457

(e) Make sure that the ADF frequencies which show on the bottom left corner of the captain's and first officer's ND's are the same as the frequency from the ADF control panel.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF SYSTEM

SUBTASK 34-57-00-860-062

(5) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442, 445-447, 451-457

(a) Make sure that the narrow needle flag shows on the RMI.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457

(b) Make sure that the yellow ADF flags show on the captain's and first officer's ND's.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF SYSTEM

SUBTASK 34-57-00-860-063

(6) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

I. ADF-1 and ADF-2 System Test

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 439, 441, 450, 458-460, 464-999

SUBTASK 34-57-00-860-064

(1) Set the ADF 1 frequency control on the ADF control panel to a local AM broadcast or NDB station.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

SUBTASK 34-57-00-750-033

(2) Do these steps to do a check of the ADF-1 system test:

(a) Make sure that you hear a loud and clear ADF audio signal at all audio select locations.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 458-460, 464

(b) Make sure that the narrow needle on the RMI points to the selected bearing.

LOM 404 PRE SB 737-31-1650

(c) Make sure that the narrow needles on the captain's and first officer's Radio Distance Magnetic Indicator (RDMI)'s point to the selected bearing.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464; LOM 404, 465-999 POST SB 737-31-1650; AIRPLANES WITH THE PFD/ND DISPLAY FORMAT

(d) Make sure that the ADF-1 pointers on the captain's and first officer's ND's show the same bearing.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

(e) Make sure that the ADF bearing accuracy is as follows:

1) +/- 3 degrees at the quadrantal areas (45 degree, 135 degree, 225 degree and 315 degree)

2) +/- 2 degrees at the areas different than quadrantal areas.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464; LOM 404, 465-999 POST SB 737-31-1650; AIRPLANES WITH THE PFD/ND DISPLAY FORMAT

(f) Make sure that the ADF L frequencies which show on the bottom left corner of the captain's and first officer's ND's are the same as the frequency from the ADF control panel.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

SUBTASK 34-57-00-860-066

(3) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 458-460, 464

(a) Make sure that the narrow needle flag shows on the RMI.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 PRE SB 737-31-1650

(b) Make sure that the narrow needle flags show on the captain's and first officer's RDMI's.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464; LOM 404, 465-999 POST SB 737-31-1650; AIRPLANES WITH THE PFD/ND DISPLAY FORMAT

(c) Make sure that the yellow ADF flags show on the captain's and first officer's ND's.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

SUBTASK 34-57-00-860-069

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

SUBTASK 34-57-00-860-070

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999

(5) For the audio select panels, do these steps:

(a) Set the ADF 2 audio selector to the ON position.

1) Make sure that the volume for the ADF 2 system is set to a comfortable level.

(b) Set the volume controls for all other audio selects to the OFF position.

(c) Set the VOICE/RANGE switch to the BOTH position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 439, 441, 450, 458-460, 464-999

SUBTASK 34-57-00-860-071

(6) Set the ADF 2 frequency control on the ADF control panel to a local AM broadcast or NDB station.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

SUBTASK 34-57-00-750-034

(7) Do these steps to do a check of the ADF-2 system:

(a) Make sure that you hear a loud and clear ADF audio signal at all audio select locations.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 458-460, 464

(b) Make sure that the wide needle on the RMI points to the selected bearing.

LOM 404 PRE SB 737-31-1650

(c) Make sure that the wide needles on the captain's and first officer's RDMI's point to the selected bearing.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464; LOM 404, 465-999 POST SB 737-31-1650; AIRPLANES WITH THE PFD/ND DISPLAY FORMAT

(d) Make sure that the ADF-2 pointers on the captain's and first officer's ND's show the same bearing.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

(e) Make sure that the ADF bearing accuracy is as follows:

1) +/- 3 degrees at the quadrantal areas (45 degree, 135 degree, 225 degree and 315 degree)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS (Continued)

2) +/- 2 degrees at the areas different than quadrantal areas.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464; LOM 404, 465-999 POST SB 737-31-1650; AIRPLANES WITH THE PFD/ND DISPLAY FORMAT

(f) Make sure that the ADF R frequencies which show on the bottom right corner of the captain's and first officer's ND's are the same as the frequency from the ADF control panel.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

SUBTASK 34-57-00-860-073

(8) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 458-460, 464

(a) Make sure that the wide needle flag shows on the RMI.

LOM 404 PRE SB 737-31-1650

(b) Make sure that the wide needle flags show on the captain's and first officer's RDMI's.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464; LOM 404, 465-999 POST SB 737-31-1650; AIRPLANES WITH THE PFD/ND DISPLAY FORMAT

(c) Make sure that the yellow ADF flags show on the captain's and first officer's ND's.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF RECEIVERS

SUBTASK 34-57-00-860-074

(9) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2

SUBTASK 34-57-00-860-075

(10) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999

J. Put the Airplane Back to Its Usual Condition

SUBTASK 34-57-00-840-006

(1) If the Air Data Inertial Reference Unit (ADIRU) is not necessary, set the ADIRU switch to the OFF position.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADF ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure contains the following tasks:

(1) A removal of the ADF antenna

(2) An installation of the ADF antenna.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999; AIRPLANES WITH DUAL ADF ANTENNAS

B. The left and right ADF antennas are installed on the top of the fuselage. The left ADF antenna is installed at station 694.00. The right ADF antenna is installed at station 727A+9.00.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457; AIRPLANES WITH SINGLE ADF ANTENNA

C. The ADF antenna is installed on the top of the fuselage at station 694.00.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA

TASK 34-57-01-000-801

2. ADF Antenna - Removal

(Figure 401)

A. References

Reference	Title
51-31-00-390-806	Aerodynamic Smoother Application (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

I

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. ADF Antenna Removal

SUBTASK 34-57-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999 (Continued)

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name

LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457

A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA

SUBTASK 34-57-01-140-007

(2) Remove the aerodynamic smoother from around the edge of the ADF antenna [1] (TASK 51-31-00-390-806).

SUBTASK 34-57-01-020-001

(3) Remove the ADF antenna [1]:

(a) Loosen the mounting bolts [4] and until they disengage from the airplane nutplates.

> **CAUTION**
> BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, THE ANTENNA CABLE OR THE ADF ANTENNA.

(b) Use force around the ADF antenna [1] with the sealant removal tool, COM-2481, until the seal is fully broken.

> **CAUTION**
> LIFT THE ADF ANTENNA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CABLE. DAMAGE TO THE ANTENNA CABLE CAN OCCUR IF YOU PULL THE CABLE.

(c) Lift the ADF antenna [1] until you can get access to the electrical connecctor [3].

(d) Disconnect the electrical connecctor [3] from the ADF antenna [1].

NOTE: Do not let the electrical connecctor [3] fall into the fuselage.

(e) Remove the ADF antenna [1] and the o-ring [2].

(f) Put a protective cover on the electrical connecctor [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADF ANTENNA

A

1 CAPTIVE MOUNTING BOLTS ARE USED ON THE ANTENNA BASEPLATE

H01817 S0006577155_V3

ADF Antenna Installation
Figure 401/34-57-01-990-801 (Sheet 1 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 CAPTIVE MOUNTING BOLTS ARE USED ON THE ANTENNA BASEPLATE

G23029 S0006577156_V3

ADF Antenna Installation
Figure 401/34-57-01-990-801 (Sheet 2 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AERODYNAMIC/WEATHERPROOFING SEALANT (TOP VIEW)

A-A

ALTERNATE RESISTANCE MEASUREMENT (SIDE VIEW)

B

RESISTANCE MEASUREMENT (BOTTOM VIEW)

C

G15009 S0006577158_V2

ADF Antenna Installation
Figure 401/34-57-01-990-801 (Sheet 3 of 3)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-57-01-400-801

3. ADF Antenna - Installation

(Figure 401)

A. References

Reference	Title
51-21-00-100-801	Airplane Surface Preparation for Application of Finish (P/B 701)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

C. Consumable Materials

Reference	Description	Specification
A00230	Compound - Electrical Insulating Coating	BMS5-37
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
D00633	Grease - Aircraft General Purpose	BMS3-33
G02497	Agent - Non-Peelable Parting (Henkel Loctite - Frekote 700-NC Mold Release)	BAC5000
G50313	Agent - Non-Peelable Parting (Henkel Loctite - Frekote 710-NC Mold Release)	BAC5000

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Antenna	34-57-01-01-315	LOM 411, 422, 425, 432-434, 437, 438, 440, 442, 445, 453, 454, 464
		34-57-01-01-325	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-428, 439, 441, 443, 444, 446, 447, 450-452, 455-460, 465-999
		34-57-01-03-015	LOM 402, 404, 406, 407, 412, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 465-999
		34-57-01-03-020	LOM 411, 464
2	O-ring	34-57-01-01-320	LOM 411, 422, 425, 432-434, 437, 438, 440, 442, 445, 453, 454, 464
		34-57-01-01-330	LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-428, 439, 441, 443, 444, 446, 447, 450-452, 455-460, 465-999
		34-57-01-03-017	LOM 402, 404, 406, 407, 412, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 465-999
		34-57-01-03-025	LOM 411, 464

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

F. Prepare for the Installation

SUBTASK 34-57-01-860-023

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F/O Electrical System Panel, P6-1

Row	Col	Number	Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999

A	17	C01383	RADIO NAVIGATION ADF 2

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name

LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457

A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA

SUBTASK 34-57-01-110-001

(2) Clean the airplane skin (TASK 51-21-00-100-801).

(a) Remove the old sealant from the airplane skin in the Automatic Direction Finder (ADF) antenna [1] area.

(b) Clean the mating surface with solvent, B00083.

SUBTASK 34-57-01-620-001

(3) If the airplane skin has corrosion or other damage, do these steps:

(a) To remove the corrosion, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

(b) Apply a layer of coating, C00064, on the airplane skin in the area where the ADF antenna [1] touches the skin.

G. ADF Antenna Installation

SUBTASK 34-57-01-420-001

(1) Install the ADF antenna [1].

(a) Apply a thin layer of compound, A00230, to the antenna base.

(b) Apply the Frekote 700-NC non-peelable parting agent, G02497, or Frekote 710-NC non-peelable parting agent, G50313, to the ADF antenna base.

(c) Apply a layer of grease, D00633, on the new o-ring [2] and o-ring groove.

(d) Install the new o-ring [2] on the ADF antenna [1].

(e) Remove the protective cover from the electrical connecctor [3].

(f) Connect the electrical connecctor [3] to the ADF antenna [1].

(g) Put the ADF antenna [1] into position on the airplane surface.

(h) Lightly tighten the bolts [4] in a diagonal pattern to hold the ADF antenna [1] in the correct position.

NOTE: Refer to the IPC for the bolt part number.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CAUTION TIGHTEN THE BOLTS MANUALLY TO THE CORRECT TORQUE VALUE. OPERATION OF POWER OR AIR TOOLS TO TIGHTEN THE BOLTS CAN CAUSE DAMAGE TO THE ADF ANTENNA SURFACE.

(i) Manually tighten the bolts [4] to 20 in-lb (2 N·m) - 25 in-lb (3 N·m).

(j) Remove the unwanted compound, A00230, from around the edge of the ADF antenna [1].

H. Resistance Measurement (Preferred)

SUBTASK 34-57-01-760-001

(1) Do a check of the electrical continuity between the ADF antenna [1] baseplate and the airplane skin.

(a) Loosen one bolt [4] from the ADF antenna [1].

(b) Connect the intrinsically safe approved bonding meter, COM-1550, between the bolt counterbore and the airplane skin.

1) Make sure that the measurement of continuity is 0.001 ohm (1 milliohm) or less.

(c) If the resistance measurement caused damage, apply the sealant, A02315, or sealant, A00247, to the damaged area of the airplane skin.

(d) Manually tighten the bolt [4] to 20 in-lb (2 N·m) - 25 in-lb (3 N·m).

I. Resistance Measurement (Alternate)

SUBTASK 34-57-01-760-002

(1) Do a check of the electrical continuity from the inside of the airplane between the ADF antenna [1] baseplate and the airplane skin.

(a) Connect the intrinsically safe approved bonding meter, COM-1550, between the ADF antenna [1] baseplate and the airplane skin.

1) Make sure that the measurement of continuity is 0.001 ohm (1 milliohm) or less.

(b) If the resistance measurement caused damage, apply the sealant, A02315, or sealant, A00247, to the damaged area of the airplane skin.

J. Aerodynamic Fillet Seal Installation

SUBTASK 34-57-01-390-001

(1) Fill the bolts [4] counterbores with approximately 0.3 in. (7.6 mm) of cotton plug.

SUBTASK 34-57-01-390-002

(2) Seal all the bolts [4] with sealant, A02315, or sealant, A00247, until flush with the ADF antenna [1] surface (TASK 51-31-00-390-805).

SUBTASK 34-57-01-390-003

(3) Apply a fillet seal with sealant, A02315, or sealant, A00247, around the base of the ADF antenna [1] (TASK 51-31-00-390-804).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation until next “A” check or overnight maintenance stop to prevent a flight delay. The deferral of the application of sealant must not exceed a maximum of eight weeks (SL 20-043).

SUBTASK 34-57-01-390-004

(4) Use the hardwood or plastic fillet smoothing spatula, STD-810, to make a smooth 45-degree bead.

SUBTASK 34-57-01-140-002

(5) Remove unwanted sealant from the area around the ADF antenna [1] base.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-57-01-390-005

(6) Let the sealant dry for the correct cure time.

K. ADF Antenna Installation Test

SUBTASK 34-57-01-860-021

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA			

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457			
A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF ANTENNA

SUBTASK 34-57-01-860-005

(2) On the ADF control panel, set the controls to these positions:

(a) The mode switch to the ADF position

(b) The frequency controls to a broadcast station between 190 and 1750 kHz.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-442, 445-447, 451-460, 464

SUBTASK 34-57-01-750-001

(3) Set the bearing source switches on the RMIs to the ADF position.

(a) Make sure that the RMIs show the correct bearing.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464; LOM 404, 465-999 POST SB 737-31-1650

SUBTASK 34-57-01-860-022

(4) Make sure that the NDs show the correct bearing.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADF CONTROL PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the automatic direction finder (ADF) control panel

(2) An installation of the ADF control panel.

B. The ADF control panel is installed on the aisle control stand, P8.

TASK 34-57-02-000-801

2. ADF Control Panel - Removal

(Figure 401)

A. References

Reference	Title
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. ADF Control Panel Removal

SUBTASK 34-57-02-860-004

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL			

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457			
A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL

SUBTASK 34-57-02-860-017

(2) Turn the PANEL BRIGHT control on the P8-50 Control Stand Lighting Control Panel to the OFF position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-57-02-020-001

(3) Loosen the quarter-turn fasteners [2] on the Automatic Direction Finder (ADF) control panel [1].

SUBTASK 34-57-02-020-002

(4) Move the control panel out to get access to the electrical connector [3].

SUBTASK 34-57-02-020-003

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADF CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADF CONTROL PANEL.

(5) Disconnect the electrical connector [3].

(a) Install dust caps on the electrical connectors, do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

SUBTASK 34-57-02-020-004

(6) Remove the ADF control panel [1].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 THE LOCATION ON THE AISLE STAND CAN BE DIFFERENT FOR SOME AIRPLANES

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ADF Control Panel Installation
Figure 401/34-57-02-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADF Control Panel Installation
Figure 401/34-57-02-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-57-02-400-801

3. ADF Control Panel - Installation

(Figure 401)

A. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Connector Cover Removal (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-57-00-730-802	Automatic Direction Finder System - System Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Panel	31-11-91-79-505	LOM 426
		31-11-91-81E-505	LOM 404
		31-11-91-81G-505	LOM 402, 406, 407
		31-11-91-82Q-555	LOM 411
		31-11-91-82R-705	LOM 412, 415, 423, 424
		31-11-91-83H-605	LOM 416
		31-11-91-83M-605	LOM 420
		31-11-91-87H-555	LOM 439, 441
		31-11-91-87N-505	LOM 458-460
		31-11-91-87T-555	LOM 437, 438
		31-11-91-88C-505	LOM 464
		31-11-91-88G-505	LOM 443, 444
		31-11-91-88L-505	LOM 465
		31-11-91-89M-555	LOM 432
		34-57-02-03A-015	LOM 446, 447, 455-457
		34-57-02-03B-025	LOM 402, 406, 407, 420, 458-460
		34-57-02-03L-025	LOM 404, 416
		34-57-02-03M-025	LOM 465-999
		34-57-02-03N-025	LOM 432
		34-57-02-03P-025	LOM 450
		34-57-02-03R-025	LOM 422, 425, 427, 428, 433, 434, 440, 442, 451-454
		34-57-02-03S-025	LOM 411, 426
		34-57-02-03T-025	LOM 443, 444
		34-57-02-03X-025	LOM 412, 415, 423, 424, 437-439, 441
		34-57-02-04H-025	LOM 464

C. Location Zones

Zone	Area
211	Flight Compartment - Left

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Zone	Area
212	Flight Compartment - Right

D. ADF Control Panel Installation

SUBTASK 34-57-02-860-005

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL			

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457			
A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL

SUBTASK 34-57-02-860-018

(2) Make sure that the PANEL BRIGHT control on the P8-50 Control Stand Lighting Control Panel is in the OFF position.

SUBTASK 34-57-02-420-001

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADF CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADF CONTROL PANEL.

(3) Connect the electrical connector [3] to the Automatic Direction Finder (ADF) control panel [1].

(a) Remove the dust caps from the electrical connectors, do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-40-12-000-804.

SUBTASK 34-57-02-420-002

(4) Install the ADF control panel [1].

SUBTASK 34-57-02-420-003

(5) Tighten the quarter-turn fasteners [2] on the ADF control panel [1].

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-57-02-860-006

(6) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457			
A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF CONTROL PANEL

E. Installation Test

SUBTASK 34-57-02-750-001

(1) Make sure the panel lights are on.

SUBTASK 34-57-02-730-001

(2) Do this task: Automatic Direction Finder System - System Test, TASK 34-57-00-730-802.

SUBTASK 34-57-02-860-016

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ADF RECEIVER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the automatic direction finder (ADF) receiver

(2) An installation of the ADF receiver.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999

B. The ADF receivers are installed on the E3-1 rack in the main equipment center.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457

C. The ADF receiver is installed on the E3-1 rack in the main equipment center.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER

TASK 34-57-03-000-801

2. ADF Receiver Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. ADF Receiver Removal

SUBTASK 34-57-03-860-005

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER			

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457			

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457 (Continued)

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER

SUBTASK 34-57-03-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-57-03-020-002

CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADF RECEIVER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADF RECEIVER.

(3) To remove the applicable ADF RECEIVER [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ELECTRONIC EQUIPMENT RACK, E2, E3 AND E4

A

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ADF Receiver Installation
Figure 401/34-57-03-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ELECTRONIC EQUIPMENT RACKS, E2, E3 AND E4

A

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ADF Receiver Installation
Figure 401/34-57-03-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-57-03-400-801

3. ADF Receiver Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	RECEIVER	34-57-03-02-005	LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442-447, 451-457
		34-57-03-02-010	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 464-999
		34-57-03-02-015	LOM 422, 425, 432-434, 437, 438, 440, 442, 445, 453, 454
		34-57-03-02-025	LOM 411, 464
		34-57-03-02-050	LOM 422, 425, 432-434, 437, 438, 440, 442, 445, 453, 454
		34-57-03-02-070	LOM 411, 464

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. ADF Receiver Installation

SUBTASK 34-57-03-860-006

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999			
A	17	C01383	RADIO NAVIGATION ADF 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999 (Continued)

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name

LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457

A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER

SUBTASK 34-57-03-420-004

CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ADF RECEIVER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ADF RECEIVER.

(2) To install the Automatic Direction Finder (ADF) RECEIVER [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 34-57-03-860-007

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	4	C01382	RADIO NAVIGATION ADF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 437-439, 441, 450, 454, 458-460, 464-999

A	17	C01383	RADIO NAVIGATION ADF 2

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name

LOM 422, 425, 427, 428, 432-434, 440, 442-447, 451-453, 455-457

A	17	C01383	RADIO NAVIGATION ADF 2 (INOP)

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F. ADF Receiver Installation Test

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-442, 445-447, 451-460, 464

SUBTASK 34-57-03-860-022

(1) Set the ADF/VOR switch on the RMI to the ADF position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 432, 437-439, 441, 450, 458-460, 464-999

SUBTASK 34-57-03-860-027

(2) Set both ADF switches, on the ADF control panel, to the ADF position.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426, 439, 441, 450, 458-460, 465-999; AIRPLANES WITH COLLINS SERIES DUAL ADF RECEIVERS

SUBTASK 34-57-03-860-010

(3) Push and release the applicable TEST switch on the ADF Receiver.

LOM 427, 428, 443, 444, 446, 447, 451, 452, 455-457; AIRPLANES WITH ONE COLLINS SERIES ADF RECEIVER

SUBTASK 34-57-03-860-011

(4) Push and release the TEST switch on the ADF Receiver.

LOM 402, 404, 406, 407, 412, 415, 416, 420, 423, 424, 426-428, 439, 441, 443, 444, 446, 447, 450-452, 455-460, 465-999

SUBTASK 34-57-03-750-003

(5) Make sure that this sequence occurs on the ADF Receiver:

(a) For seconds 0-2: The LRU status and Control Fail Light Emitting Diode (LED)s come on RED.

(b) For seconds 2-4: The LRU Status LED changes to GREEN and Control Fail LED remains RED.

(c) For seconds 4-12: The LRU status and Control Fail LEDs go off.

(d) For seconds 12-42: The test results show on the LED status indicators.

1) If there are no LRU faults, the LRU status LED comes on GREEN.

2) If there are LRU faults, the LRU status LED comes on RED.

3) If the ADF Control panel input signal is valid, the Control Fail LED stays off.

4) If there is no input from the ADF Control panel or the input signal is invalid, the Control Fail LED comes on RED.

LOM 411, 422, 425, 432-434, 437, 438, 440, 442, 445, 453, 454, 464

SUBTASK 34-57-03-740-003

(6) Push and release the TEST switch on the applicable ADF Receiver.

LOM 411, 422, 425, 432-434, 437, 438, 440, 442, 445, 453, 454, 464; AIRPLANES WITH ALLIED SIGNAL ADF RECEIVER

SUBTASK 34-57-03-750-001

(7) Make sure that this sequence occurs on the ADF Receiver:

(a) For seconds 0-1, TEST IN PROGRESS shows on the front panel LCD.

(b) For seconds 1-5, TEST IN PROGRESS shows with a moving thermometer along the bottom of the LCD.

(c) After 5 seconds, TEST COMPLETE, NO FAILURES shows on the LCD.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-442, 445-447, 451-460, 464

SUBTASK 34-57-03-750-002

(8) Make sure that these indications occur on the RMI:

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 458-460, 464; AIRPLANES WITH A DUAL ADF SYSTEM

(a) The left and right ADF/VOR warning flags come into view.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442, 445-447, 451-457; AIRPLANES WITH SINGLE ADF SYSTEM

(b) The left ADF/VOR warning flag comes into view.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 423, 424, 426, 439, 441, 458-460, 464; AIRPLANES WITH A DUAL ADF SYSTEM

(c) The left and right bearing pointers go to 135 degrees.

LOM 422, 425, 427, 428, 432-434, 437, 438, 440, 442, 445-447, 451-457; AIRPLANES WITH SINGLE ADF SYSTEM

(d) The left bearing pointer goes to 135 degrees.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-428, 432-434, 437-447, 450-460, 464-999; AIRPLANES WITH ADF RECEIVER

SUBTASK 34-57-03-410-002

(9) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GLOBAL POSITIONING SYSTEM - MAINTENANCE PRACTICES

1. **General**

A. This procedure has these tasks:

(1) Global Positioning System Deactivation

(2) Global Positioning System Activation

TASK 34-58-00-040-801

2. **Global Positioning System - Deactivation**

(Figure 201)

A. General

(1) This procedure removes electrical power to the Global Positioning System.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

C. Procedure

SUBTASK 34-58-00-860-009

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	13	C01480	RADIO NAVIGATION MMR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

D. Global Positioning System - Tryout

NOTE: This tryout is to make sure the GPS is in a zero energy state.

SUBTASK 34-58-00-860-010

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

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F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	13	C01480	RADIO NAVIGATION MMR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

SUBTASK 34-58-00-710-005

(2) Do these steps at the CDU:

(a) Push the INIT REF key on the CDU.

(b) Push the line select key (LSK) that is adjacent to <INDEX.

(c) Push the LSK that is adjacent to <POS.

(d) Push the NEXT PAGE key on the CDU.

(e) Make sure the GPS position does not show on the screen.

NOTE: Wait at least 5 minutes to make sure the position does not show on the CDU.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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GPS Antenna
Figure 201/34-58-00-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-58-00-440-801

3. Global Positioning System - Activation

(Figure 201)

A. General

(1) This procedure adds electrical power to the Global Positioning System.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

C. Procedure

SUBTASK 34-58-00-860-011

> **WARNING**
> KEEP ALL PERSONNEL AT A SAFE DISTANCE FROM THE ANTENNA. RF ENERGY CAN CAUSE INJURIES TO PERSONNEL.

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1
A	3	C01378	RADIO NAVIGATION NAV CONT PNL 1
B	1	C01376	RADIO NAVIGATION NAV SNSR DC-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	10	C01377	RADIO NAVIGATION NAV SNSR DC-2
A	13	C01480	RADIO NAVIGATION MMR 2
A	15	C01379	RADIO NAVIGATION NAV CONT PNL 2

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GLOBAL POSITIONING SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An operational test of the global positioning system (GPS).

(2) A system test of the global positioning system.

NOTE: The airplane must be moved to a position where the GPS antennas have a clear view of the GPS satellites.

TASK 34-58-00-710-802

2. Global Positioning System - Operational Test

A. General

(1) This task does a GPS position check.

B. References

Reference	Title
09-11-00-580-801	Maintenance Towing (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-58-00-860-008

(1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-58-00-580-001

(2) Move the airplane to a position where the GPS antennas have a clear view of the GPS satellites. To move the airplane, do this task: Maintenance Towing, TASK 09-11-00-580-801.

SUBTASK 34-58-00-710-001

(3) Do these steps to see the GPS position on the CDU:

(a) Push the INIT REF key on the CDU.

(b) Push the line select key (LSK) that is adjacent to <INDEX.

(c) Push the LSK that is adjacent to <POS.

(d) Push the NEXT PAGE key on the CDU.

(e) Make sure the steps that follow occur:

1) The GPS L position on the CDU agrees with the known airplane position.

NOTE: As much as 5 minutes of time can be necessary for the positions to show on the CDU.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2) The GPS R position on the CDU agrees with the known airplane position.

NOTE: As much as 5 minutes of time can be necessary for the positions to show on the CDU.

——— END OF TASK ———

TASK 34-58-00-730-802

3. Global Positioning System - System Test

A. General

(1) This procedure does a GPS interface check.

(2) The airplane must be moved to a position where the GPS antennas have a clear view of the GPS satellites.

B. References

Reference	Title
09-11-00-580-801	Maintenance Towing (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Global Positioning System System Test

SUBTASK 34-58-00-580-002

(1) Move the airplane to a position where the GPS antennas have a clear view of the GPS satellites, do this task: Maintenance Towing, TASK 09-11-00-580-801.

SUBTASK 34-58-00-860-004

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-58-00-710-004

(3) Do these steps to see the GPS position on the CDU:

(a) Push the INIT REF key on the CDU.

(b) Make sure that the steps that follow occur:

1) The time on the CDU agrees with the known time.

2) The date on the CDU agrees with the known date.

(c) Push the line select key (LSK) that is adjacent to <INDEX.

(d) Push the LSK that is adjacent to <POS.

(e) Push the NEXT PAGE key on the CDU.

(f) Make sure that the steps that follow occur:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) The GPS L position on the CDU agrees with the known airplane position.

NOTE: As much as 5 minutes of time can be necessary for the positions to show on the CDU.

2) The GPS R position on the CDU agrees with the known airplane position.

NOTE: As much as 5 minutes of time can be necessary for the positions to show on the CDU.

SUBTASK 34-58-00-710-003

(4) Do these steps to do a check of the GPS annunciator on the IRS MSU (P5 panel):

(a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

1) Make sure that the GPS L position goes out of view on the CDU.
2) Make sure that the GPS R position stays in view on the CDU.
3) Make sure that the GPS annunciator on the IRS MSU (P5) stays off.

(b) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

1) Make sure that the GPS R position goes out of view on the CDU.
2) Make sure that the GPS L position stays out of view on the CDU.
3) Make sure that the GPS annunciator on the IRS MSU (P5) comes on after approximately 10 seconds.

(c) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

(d) Make sure that the GPS annunciator on the IRS MSU goes off.

(e) Stop for approximately 5 minutes until the GPS L and GPS R positions are shown again.

SUBTASK 34-58-00-710-006

(5) Do a check of GPS time and date:

(a) Push the INIT REF key on the CDU.

(b) Make sure that the steps that follow occur:

1) The time on the CDU agrees with the known time.
2) The date on the CDU agrees with the known date.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

GPS ANTENNA - REMOVAL/INSTALLATION

1. General

A. This procedure contains the following tasks:

(1) A removal of the Global Positioning System (GPS) antenna

(2) An installation of the GPS antenna.

B. There are two GPS antennas on the airplane: GPS Antenna 1, M2103, and GPS Antenna 2, M2102. The two antennas are installed near station 500A. GPS Antenna 2 is forward and to the right of GPS Antenna 1.

C. The tasks are the same for the two antennas.

TASK 34-58-02-000-802

2. GPS Antenna - Removal

(Figure 401)

A. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (Meets BSS7384 Requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: $0855 Part #: 10811 Supplier: $0855 Part #: 10812 Supplier: $0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: $1351 Part #: AS2 Supplier: $1351 Part #: AS3 Supplier: $1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: PT6529-S Supplier: 81205 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

D. Removal Procedure

SUBTASK 34-58-02-860-011

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-58-02-020-003

(2) To remove the sealant from around the edge of the GPS antenna [1], do this task: Prepare For Sealing, TASK 51-31-00-160-801.

SUBTASK 34-58-02-020-004

(3) Remove the GPS antenna [1].

(a) Remove the seals that are above the screw holes on the antenna.

(b) Remove the screws [2] from the GPS antenna [1].

> **CAUTION** BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN, AND OTHER COMPONENTS.

(c) Use the sealant removal tool, COM-2481, to break the seal all around the GPS antenna [1].

> **CAUTION** MOVE THE ANTENNA THE MINIMUM DISTANCE NECESSARY TO LET YOU TO DISCONNECT THE COAXIAL CONNECTOR. DAMAGE TO THE COAXIAL CABLE CAN OCCUR IF YOU PULL THE CABLE WITH TOO MUCH FORCE.

(d) Carefully pull the GPS antenna [1] until you can get access to the coaxial connector [3].

(e) Disconnect the coaxial connector [3].

NOTE: Make sure that the coaxial cable and connector do not fall into the airplane fuselage.

(f) Remove the GPS antenna [1] and the O-ring [4].

(g) Put protective covers on the coaxial connector [3].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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GPS Antenna Installation
Figure 401/34-58-02-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-58-02-400-802

3. GPS Antenna - Installation

(Figure 401)

A. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-614	Bonding Meters - Non-Intrinsically Safe (For use in outside Class I, Divisions I & II non-hazardous locations. For hazardous locations, use COM-1550). Part #: 247000 Supplier: 00426 Part #: 620LK Supplier: 1CRL2 Part #: BLR-0003-XX Supplier: KC432 Part #: BT51 Supplier: 00426 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659 Opt Part #: 247001 Supplier: 00426
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84) - Series 84	
D00254	Compound - Silicone	SAE AS8660 (NATO S-736) (Supersedes MIL-S-8660)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	GPS antenna	34-58-02-04-015	LOM 404, 411, 416, 420, 422, 425, 426

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
1 (cont.)		34-58-02-04-030	LOM 402, 406, 407, 412, 415, 423, 424, 427-434, 437-447, 450-999
4	O-ring	34-58-02-04-025	LOM 404, 411, 416, 420, 422, 425, 426
		34-58-02-04-040	LOM 402, 406, 407, 412, 415, 423, 424, 427-434, 437-447, 450-999

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

F. Prepare for the Installation

SUBTASK 34-58-02-860-014

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-58-02-110-003

(2) Clean the airplane skin as follows:

(a) To remove the remaining sealant from the airplane skin in the antenna area, do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.

WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THESE MATERIALS. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME, AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Clean the airplane skin in the antenna area with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

SUBTASK 34-58-02-840-003

(3) If there is corrosion on the airplane skin below the antenna, prepare the airplane skin as follows:

(a) To remove the corrosion, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

> **WARNING**
> DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THESE MATERIALS. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME, AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Clean the airplane skin in the area of the corrosion with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

(c) To apply chemical conversion coating to the airplane skin in the area where the GPS antenna [1] touches the skin, do this task: Bonderite M-CR 600 Aero, Bonderite M-CR Alcrm 1200 Aero or Bonderite M-CR 1200S Aero Application Process, TASK 51-21-41-370-802.

G. GPS Antenna Installation

SUBTASK 34-58-02-390-006

(1) Prepare the GPS antenna [1] as follows:

(a) Apply a layer of grease, D00633, on the new O-ring [4] and the O-ring groove.

(b) Install the O-ring [4] on the GPS antenna [1].

1) Make sure that the O-ring [4] is not damaged and is installed correctly in the o-ring groove.

(c) Apply a layer of sealant, A00247, in the holes in the airplane skin for the screws and the coaxial cable.

(d) Apply a layer of sealant, A00247, on the threads and shank of the screws [2].

SUBTASK 34-58-02-420-004

(2) Install the GPS antenna [1].

(a) Remove the protective covers from the coaxial connector [3].

(b) Examine the coaxial connector [3] for dirt and damage.

(c) Connect the coaxial connector [3].

(d) Tighten the coaxial connector [3] to 8 in-lb (1 N·m) - 12 in-lb (1 N·m).

(e) Apply a large quantity of silicone compound, D00254, to the outside coaxial connector and at the exterior connector/antenna interface.

(f) Put the GPS antenna [1] into its position on the airplane.

(g) Install the three screws [2] that hold the GPS antenna [1].

> **WARNING**
> DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THESE MATERIALS. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME, AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(h) Remove the unwanted sealant, A00247, from around the antenna with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-58-02-760-002

(3) Measure the electrical bonding resistance between the GPS antenna [1] and airplane skin.

(a) Use an non-intrinsically safe bonding meter, COM-614, between the base of the antenna and airplane skin.

NOTE: You can get access to the base of the antenna through the hole for the last screw.

1) Make sure that the electrical bonding resistance is 0.001 ohm (1 milliohm) or less.

SUBTASK 34-58-02-420-005

(4) Install the last screw [2] that holds the GPS antenna [1].

SUBTASK 34-58-02-420-006

WARNING	DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THESE MATERIALS. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME, AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Remove the unwanted sealant, A00247, from around the head of each screw [2] with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

H. Aerodynamic Fillet Seal Installation

SUBTASK 34-58-02-390-007

(1) Apply a fillet seal with sealant, A02315, or sealant, A00247, around the base of the GPS antenna [1] (TASK 51-31-00-390-804).

NOTE: Operators can defer the application of the aero-sealant in the antenna installation until next “A” check or overnight maintenance stop to prevent a flight delay. The deferral of the application of sealant must not exceed a maximum of eight weeks (SL 20-043).

(a) Apply the sealant all around the edge of the GPS antenna [1].

1) Make sure that no air bubbles are in the sealant.

(b) Use a sufficient quantity of the sealant to permit you to make the surface smooth.

SUBTASK 34-58-02-390-008

(2) Make the bead into an aerodynamic fillet seal approximately 0.7 in. (17.8 mm) wide with the hardwood or plastic fillet smoothing spatula, STD-810 (TASK 51-31-00-390-804).

SUBTASK 34-58-02-140-002

(3) Remove all the unwanted sealant from the area around the antenna.

SUBTASK 34-58-02-390-009

(4) Fill the screw holes with sealant, A02315, or sealant, A00247,

(a) Make the sealant smooth in relation to the antenna surface.

SUBTASK 34-58-02-390-011

(5) Let the sealant dry for the correct cure time.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

I. GPS Antenna Installation Test

SUBTASK 34-58-02-860-013

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
A	13	C01480	RADIO NAVIGATION MMR 2

SUBTASK 34-58-02-710-002

(2) Do these steps to see the Global Positioning System (GPS) position on the Control Display Unit (CDU):

(a) Push the INIT REF key on the CDU.

(b) Push the Line Select Key (LSK) that is adjacent to <INDEX.

(c) Push the LSK that is adjacent to <POS.

(d) Push the NEXT PAGE key on the CDU.

(e) Make sure the steps that follow occur:

1) The GPS L position on the CDU agrees with the known airplane position.

NOTE: As much as 5 minutes of time can be necessary for the GPS positions to show on the CDU.

2) The GPS R position on the CDU agrees with the known airplane position.

NOTE: As much as 5 minutes of time can be necessary for the GPS positions to show on the CDU.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT MANAGEMENT COMPUTER SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure contains these tasks:

(1) FMC Deactivation

(2) FMC Activation

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

(3) An installation of the FMC software with an airborne data loader (ADL).

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

(4) An installation of the FMC software with a portable data loader (PDL).

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(5) A crossload of the FMC software.

LOM ALL

(6) An FMC software configuration check.

LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; LOM 404 PRE SB 737-23-1484

(7) An installation of the CDU software with an airborne data loader (ADL).

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

(8) An installation of the CDU software with a portable data loader (PDL).

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 PRE SB 737-23-1484

(9) A CDU software configuration check.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

(10) An installation of software when the airborne data loader is inoperative.

LOM ALL

(11) An FMC diagnostic data transfer.

(12) The Procedure to enter Zero Fuel Weight.

B. For general information for software installation times and data loaders, do this task: On-Airplane Software - Installation, TASK 20-15-11-400-801.

C. The airplane must be on the ground before you can do these tasks.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

D. Some airlines keep the circuit breaker for the airborne data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.

LOM ALL

TASK 34-61-00-040-801

2. FMC Deactivation

A. General

(1) This task includes the steps to remove electrical power from the Flight Management Computer System (FMCS).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

C. FMC Deactivation

SUBTASK 34-61-00-860-047

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2
LOM ALL			
D	16	C01262	FMCS CMPTR 2

D. FMC Tryout

NOTE: This tryout is to make sure that the FMCS is in a zero energy state.

SUBTASK 34-61-00-860-048

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 426; LOM 404 PRE SB 737-23-1484 (Continued)

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2
LOM ALL			
D	16	C01262	FMCS CMPTR 2

SUBTASK 34-61-00-860-050

(2) Make sure that the screen on the both Control Display Units (CDUs) is blank.

——— END OF TASK ———

TASK 34-61-00-440-801

3. FMC Activation

A. General

(1) This task includes the steps to supply electrical power to the Flight Management Computer System (FMCS).

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

C. FMC Activation

SUBTASK 34-61-00-860-049

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484 (Continued)

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM ALL			
D	16	C01262	FMCS CMPTR 2

END OF TASK

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438

TASK 34-61-00-470-804

4. FMC Software Installation with an Airborne Data Loader

A. General

(1) This procedure tells you how to install software in the Flight Management Computer (FMC) with the airborne data loader.

(a) The FMC usually contains these pieces of software:

1) Operational Program Software (OPS)
2) Navigation Database (NDB)
3) Software Options Database (OPC)
4) Model/Engine Database (MEDB).

(b) The FMC can contain these pieces of optional software:

1) Performance Defaults Database (Perf Defaults)
2) ACARS Datalink Configuration Database (Adaptable Datalink Database (ADDB))
3) Flight Plan Database
4) Loadable Default Data Base (LDDB).

NOTE: When you install a complete set of the FMC software, you should install the OPS first. Loading the OPS will clear any loaded OPC, NDB, LDDB, and ADDB therefore, these programs need to be reloaded.

(2) If you install a full set of the FMC Software, you must install the OPS first. The OPS installation erases all other software installed in the FMC. Also, performance factors that are changed by manual entry from the Control Display Unit (CDU) go back to their default values.

(a) You must install the NDB and MEDB databases again after the installation of the OPS. If you do not install the customized OPC, the OPS will use default values.

(b) You must install the optional databases, Perf Defaults, Datalink, flight plan, or LDDB, again if your airline uses them. If you do not install a customized Perf Defaults or Datalink database the OPS will use default values.

(3) The MEDB installation erases the initially installed LDDB. Also, the manually selected performance factors go back to their default values.

(a) You must install the customized LDDB, given directly from the FMC supplier, again if your airline uses them.

(4) The installation of the OPC, ADDB, LDDB or NDB does not erase other initially installed software.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438 (Continued)

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Prepare for the Installation

SUBTASK 34-61-00-760-005

(1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-00-470-005

(2) Use the ADL to install the FMC software.

NOTE: Modern software loaders that meet the security requirements defined in ARINC 645-1 or newer are recommended to use. The procedures for modern software loaders will be marked as preferred for now and will be the only procedures available after removing floppy disk loaders procedures in the future. Please check with your Software Loader Supplier for current capabilities since this is still maturing across current and future software loaders.

SUBTASK 34-61-00-840-001

(3) Do these steps to prepare for software installation:

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(a) Do these steps at the data loader control panel:

1) Set the upper switch to L if software will be installed into the left FMC.

2) Set the upper switch to R if software will be installed into the right FMC.

3) Set the system select switch to FMC.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438

SUBTASK 34-61-00-860-059

(4) Open the ADL front cover by releasing the knob.

E. Software Installation - (Preferred)

SUBTASK 34-61-00-470-058

(1) Follow the generic Airborne Data Loader (ADL) procedure to load software part (TASK 20-15-11-400-801).

F. Installation Procedure - (Non-Preferred)

SUBTASK 34-61-00-470-006

(1) Do these steps to install the FMC software:

NOTE: If you install the operational program (OPS), do this procedure again for each customized database.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438 (Continued)

Performance factors that were changed by manual entry from the CDU go back to their default values. After the OPS is loaded, you can enter the values again.

NOTE: If a power interrupt occurs while the FMC OPS software is uploaded, the FMC can crash and not be recoverable. For this condition, the FMC must be replaced.

(a) Put the correct software disk into the disk drive of the data loader.

NOTE: The FMC automatically starts the data load sequence and the CDU shows the FMCS DATA LOADER page.

(b) Follow the prompts on the FMCS DATA LOADER page.

(c) If the message INSERT NEXT DISK shows, do these steps:

1) Push the eject button on the data loader and remove the disk.

2) Put the next disk into the data loader.

3) Repeat the previous two steps as necessary.

(d) When the message LOAD COMPLETE shows, push the eject button on the data loader and remove the disk.

NOTE: After you eject the diskette from the data loader, the FMC will restart. After the FMC restarts, you can continue to install software into the FMC regardless of the page shown on the CDU.

NOTE: If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface wiring failure

DB EXCEEDS FMC MEMORY - data on disk is too large for FMC memory

RESET COUNT EXCEEDED - five load attempts have failed

DB-OFP INCOMPATIBLE - data is not compatible with the FMC OFP

CHECK MEDIA - a portion of data on the disk is not able to load

INCORRECT DISK INSERTED - the wrong disk is put in after INSERT NEXT DISK is shown.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(e) Set the system select switch on the data loader control panel to NORMAL.

LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438; AIRPLANES WITH DUAL FMC

SUBTASK 34-61-00-470-007

(2) Do this task: FMC Software Crossload, TASK 34-61-00-470-806.

LOM 404

SUBTASK 34-61-00-750-001

(3) Do this task: FMC Software Configuration Check, TASK 34-61-00-750-801.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-00-860-060

(1) Close the ADL cover and tighten the knob.

SUBTASK 34-61-00-840-016

(2) Do this step at the data loader control panel:

(a) Set the upper switch to SINGLE SYS.

END OF TASK

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FMC Software installation
Figure 201/34-61-00-990-813 (Sheet 1 of 2)

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FLIGHT COMPARTMENT

P61 PANEL

A

B

K69977 S0006577201_V2

FMC Software installation
Figure 201/34-61-00-990-813 (Sheet 2 of 2)

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LOM 429-431, 440, 442-447, 450-460, 464-999

TASK 34-61-00-470-811

5. FMC Software Installation with an Enhanced Airborne Data Loader

A. General

(1) This procedure tells you how to install software in the Flight Management Computer (FMC) with the enhanced airborne data loader (eADL).

(a) The FMC usually contains these pieces of software:

1) Operational Program Software (OPS)

2) navigation database (NDB)

3) software options database (OPC)

4) model/engine database (MEDB).

(b) The FMC can contain these pieces of optional software:

1) performance defaults database (Perf Defaults)

2) ACARS datalink configuration database (Adaptable Datalink Database (ADDB))

3) flight plan database

4) Loadable Default Data Base (LDDB).

NOTE: When you install a complete set of the FMC software, you should install the OPS first. Loading the OPS will clear any loaded OPC, NDB, LDDB, and ADDB therefore, these programs need to be reloaded.

(2) If you install a full set of the FMC Software, you must install the OPS first. The OPS installation erases all other software installed in the FMC. Also, performance factors that are changed by manual entry from the Control Display Unit (CDU) go back to their default values.

(a) You must install the NDB and MEDB databases again after the OPS. If you do not install the customized OPC, the OPS will use default values.

(b) You must install the optional databases, Perf Defaults, Datalink, flight plan, or LDDB, again if your airline uses them.. If you do not install a customized Perf Defaults or Datalink database the OPS will use default values.

(3) The MEDB installation erases the initial installed LDDB. Also, the manually selected performance factors go back to their default factors.

(a) You must install the customized LDDB, given directly from the FMC supplier, again if your airline uses them.

(4) The installation of the OPC, ADDB, LDDB or NDB does not erase other initially installed software.

(5) An enhanced airborne data loader (eADL) and a CDU are necessary for this procedure. A data loader control panel is also necessary.

(a) The data loader is installed above the eADL, on the P61 control panel.

(6) The eADL software installation:

LOM 429-431, 440, 442-447, 450-460, 464, 465

(a) Floppy Disk Software Installation

LOM 429-431, 440, 442-447, 450-460, 464-999

(b) USB Flash Drive Software Installation.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 429-431, 440, 442-447, 450-460, 464-999 (Continued)

1) This procedure uses the USB port on the front panel of the eADL to install software from a valid USB flash drive to the Mass Storage Device (MSD). Once the software is installed on the MSD, the software is loaded to the FMC.
2) The USB flash drive must be configured correctly using the USB tool defined in the eADL Operations Guide.

(7) The airplane must be on the ground with the engines shutdown before you can install software.

(8) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.

(9) After installation of an MEDB, any factors that had been manually adjusted, will need to be manually updated as the MEDB installation will revert all performance values to their default factory value. Any custom LDDB (provided direct from the FMC supplier) previously installed will need to be re-installed after an MEDB installation.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Prepare for the Software Installation

SUBTASK 34-61-00-760-017

NOTE: If a power interrupt occurs while the FMC OPS software is uploaded, the FMC can crash and not be recoverable. For this condition, the FMC must be replaced.

(1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-00-470-047

(2) Make sure that you know the correct software part number for the FMC.

SUBTASK 34-61-00-470-048

(3) Make sure that the system select switch, on the P61 data loader control panel, is set to NORM or NORMAL.

SUBTASK 34-61-00-470-049

(4) Make sure that the data loader selector switch, on the P61 data loader control panel, is set to SINGLE SYS.

LOM 429-431, 440, 442-447, 450-460, 464-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-840-010

(5) Do these steps, on the P61 data loader control panel:

(a) Set the upper switch to L if software will be installed into the left FMC.

(b) Set the upper switch to R if software will be installed into the right FMC.

LOM 429-431, 440, 442-447, 450-460, 464-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 429-431, 440, 442-447, 450-460, 464-999 (Continued)

SUBTASK 34-61-00-840-014

(6) Set the system select switch to FMC.

SUBTASK 34-61-00-860-051

(7) Open the eADL front cover by releasing the two screws and lifting up on the cover.

E. Software Installation - (Preferred)

SUBTASK 34-61-00-470-057

(1) Follow the generic ADL procedure to load software part (TASK 20-15-11-400-801).

F. Software Installation Procedure - (Non-Preferred)

LOM 429-431, 440, 442-447, 450-460, 464, 465

SUBTASK 34-61-00-470-043

(1) Do these steps to install software from a floppy disk:

(a) Wait until the display shows the eADL Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, choose MAIN or GO BACK until the eADL shows the Main Menu.

(b) Select ‘‘Target Page.’’

1) The eADL will show the Select Target System screen.

(c) Select ‘‘Floppy Drive.’’

1) The eADL will show a Load Confirmation screen.

(d) Carefully push the first disk (label up) into the disk drive.

(e) Select ‘‘CONFIRM.’’

1) The eADL will show ‘‘LOADING’’ on the Transfer In Progress screen.

NOTE: It can take one to two minutes for the installation to start.

NOTE: If the disk set has more than one disk and the data of the first disk is completely transferred, the eADL will prompt you to insert the next diskette. Eject the first diskette, insert the next diskette and follow the instructions on the display.

2) The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

3) The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

NOTE: If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface wiring failure

DB EXCEEDS FMC MEMORY - data on disk is too large for FMC memory

RESET COUNT EXCEEDED - five load attempts have failed

DB-OFP INCOMPATIBLE - data is not compatible with

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LOM 429-431, 440, 442-447, 450-460, 464, 465 (Continued)

the FMC OFP
CHECK MEDIA - a portion of data on the disk
is not able to load
INCORRECT DISK INSERTED - the wrong disk is put in after
INSERT NEXT DISK is shown.

(f) Select ”MAIN” or “GO BACK” to go back to the main menu.

(g) Eject the disk from the disk drive when the software installation is completed.

LOM 429-431, 440, 442-447, 450-460, 464-999

SUBTASK 34-61-00-470-050

(2) Do these steps to install software from a USB flash drive to the eADL MSD:

(a) Put the USB flash drive into the eADL USB port.

NOTE: The USB flash drive must be configured correctly as specified in the eADL Operations Guide.

(b) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

1) If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(c) Select “Maintenance Page.”

1) This will show the “Maintenance Menu” screen.

(d) Select “Transfer Parts From USB.”

1) If the error message “USB Is Not Mounted Or Is Not A Valid USB” is shown, select “GO BACK” and do the steps again.

2) Make sure that the USB flash drive is configured correctly by the USB tool as specified in the eADL Operations Guide.

3) The eADL screen will show “CONFIRM TO BEGIN TRANSFERRING.”

4) Select “CONFIRM.”

NOTE: The USB and MSD annunciators will turn yellow during the transfer procedure.

NOTE: If the software is already on the eADL MSD, this message will show: “This part name already exists.”

(e) Make sure that USB and MSB annunciators turn green and the message shows "Part Transfer Complete".

NOTE: This means that software transfer is complete.

NOTE: The annunciators will turn red if the transfer procedure is aborted or if there is a failure.

(f) Select “MAIN” or “GO BACK” to go back to the main menu.

(g) Remove the USB flash drive from the eADL USB port.

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(h) Following the successful load of the software perform these steps to remove previous versions from the MSD:

NOTE: This procedure allows the operator to remove an LSP from the MSD. This will also delete any downloaded files associated with the LSP that may have been added to the LSP. This action cannot be undone.

NOTE: It is recommended to remove the older LSP on the MSD, but it is not required.

1) On the eADL use the Up and Down keys and select the following:
   a) Select the Maintenance page.
   b) Select delete Software part option.

      NOTE: The listed LSP may or may not appear as a part number. It will appear as it was originally saved using eADL Part Builder.
   c) Select the desired LSP.
   d) The eADL screen will display, Part Selected for Deletion is <Desired LSP>.
   e) Press the CONFIRM softkey to initiate the deletion process.

      NOTE: If you want to cancel the operation, use the Go Back key.
2) The MSD annunciator will turn yellow while the delete operation is taking place.
3) The MSD annunciator will turn back to green and scree will display:
   a) Part Deleted.
4) Press the GO BACK key to return to the Main Menu.

SUBTASK 34-61-00-470-045

(3) If you install the OPS, do the next subtask below again for each customized database.

NOTE: Performance factors that were changed by manual entry from the CDU go back to their default values. After the OPS is loaded, you can enter the values again.

SUBTASK 34-61-00-470-051

(4) Do these steps to install the software from the eADL MSD to the LRU:

(a) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

1) If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(b) Select “Target Page.”

NOTE: This will show the “Select Target System” screen.

(c) Select the software received by the LRU.

NOTE: This will show the “Select Software Part” screen.

(d) Push the “SELECT” button for the desired software.

NOTE: The listed software will appear as it was originally configured in the USB tool. See the supplier eADL Operations Guide.

(e) Make sure that the “Load Confirmation” screen shows.

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LOM 429-431, 440, 442-447, 450-460, 464-999 (Continued)

(f) Select “CONFIRM”.

NOTE: This will show the “Transfer In Progress” screen.

NOTE: The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

NOTE: The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

(g) Select “MAIN” or “GO BACK” to go back to the main menu.

G. Software Installation Test

SUBTASK 34-61-00-750-027

(1) Do the applicable steps in task: FMC Software Configuration Check, TASK 34-61-00-750-801.

SUBTASK 34-61-00-470-046

(2) Do this task: FMC Software Crossload, TASK 34-61-00-470-806.

H. Put the Airplane Back to Its Usual Condition

LOM 429-431, 440, 442-447, 450-460, 464-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-840-018

(1) Set the upper switch, on the P61 data loading control panel, to the SINGLE SYS position.

LOM 429-431, 440, 442-447, 450-460, 464-999

SUBTASK 34-61-00-860-052

(2) Close the eADL cover and tighten screws.

SUBTASK 34-61-00-860-053

(3) Set the system select switch, on the data loader control panel, P61, to NORM or NORMAL.

END OF TASK

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

TASK 34-61-00-470-805

6. FMC Software Installation with a Portable Data Loader

A. General

(1) This procedure tells you how to install software into the Flight Management Computer (FMC) with a portable data loader.

(a) The FMC usually contains these pieces of software:

1) Operational Program Software (OPS)
2) Navigation Database (NDB)
3) Software Options Database (OPC)
4) Model/Engine Database (MEDB).

(b) The FMC can contain these pieces of optional software:

1) Performance Defaults Database (Perf Defaults)
2) ACARS Datalink Configuration Database (Adaptable Datalink Database (ADDB))
3) Flight Plan Database

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4) Loadable Default Data Base (LDDB).

NOTE: When you install a complete set of the FMC software, you should install the OPS first. Loading the OPS will clear any loaded OPC, NDB, LDDB, and ADDB, therefore, these programs need to be reloaded.

(2) If you install a full set of the FMC software, you must install the OPS first. The OPS installation erases all other software installed in the FMC. Also, performance factors that are changed by manual entry from the Control Display Unit (CDU) go back to their default values.

(a) You must install the NDB and MEDB databases again after the installation of the OPS. If you do not install the customized OPC, the OPS will use default values.

(b) You must install the optional databases, Perf Defaults or Datalink, again if your airline uses them. If you do not install a customized Perf Defaults or Datalink database the OPS will use default values.

(3) If the PDL is connected to the DATA TRANSFER UNIT RECEPTACLE, you cannot use the ADL to load data.

(4) A Portable Data Loader (PDL) is not a Boeing supplied part. Refer to the PDL supplier for instructions for operation. PDLs have a disk drive for software installation from disks. Some PDLs have an internal mass storage device. If the software is stored in the PDL, then disks are not necessary.

(5) The MEDB installation erases the initially installed LDDB. Also the manually selected performance factors go back to their default values.

(a) You must install the customized LDDB, given directly from the FMC supplier, again if your airline uses them.

(6) The installation of the OPC, ADDB, LDDB or NDB does not erase other initially installed software.

(7) Modern software loaders that meet the security requirements defined in ARINC 645-1 or newer are recommended to use. The procedures for modern software loaders will be marked as preferred for now and will be the only procedures available after removing floppy disk loaders procedures in the future. Please check with your Software Loader Supplier for current capabilities since this is still maturing across current and future software loaders.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999 (Continued)

Reference	Description
COM-1915	Data Loader - ARINC 615 (without ARINC 645-1 Compliant) Part #: 11615-50 Supplier: 0D4J3 Part #: 2231560-1-B Supplier: 98571 Part #: 465130-01-01 Supplier: 30782 Part #: 800-0631 Supplier: 1JSZ6 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: PXS-LDS-10 Supplier: 98571 Part #: YV68A110 Supplier: FAQ15 Opt Part #: 11615-02 Supplier: 0D4J3 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 18000-02 Supplier: 0D4J3 Opt Part #: 30100 Supplier: 0BAW0 Opt Part #: 80000-03-01010203 Supplier: 0BAW0 Opt Part #: 80000-04-01020301 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-024 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-044 Supplier: 97896 Opt Part #: 964-0400-045 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896 Opt Part #: P2K-615A-06 Supplier: 0BAW0
COM-21223	Data Loader - ARINC 615 (with ARINC 645-1 Compliant) Part #: 403474 Supplier: CG603 Part #: 403562 Supplier: CG603 Part #: AE-615-MPDL Supplier: CD624 Part #: PDL-615-XT Supplier: 89Q20

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. FMC Software Installation

SUBTASK 34-61-00-760-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

NOTE: If a power interrupt occurs while the FMC OPS software is uploaded, the FMC can crash and not be recoverable. For this condition, the FMC must be replaced.

SUBTASK 34-61-00-840-002

(2) Use a portable data loader (PDL) to install software in the FMC.

SUBTASK 34-61-00-840-003

(3) Do these steps to prepare for software installation:

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(a) Make sure the system select switch on the data loader control panel (P61) is set to NORMAL.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999 (Continued)

> **CAUTION** MAKE SURE THAT THE DATA LOADER CIRCUIT-BREAKER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

> **CAUTION** MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(c) Set the power switch on the PDL to the off position.

(d) Connect the ARINC 615 data loader, COM-1915, or ARINC 645-1 compliant portable data loader, COM-21223, interface cable from the PDL to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

(e) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(f) Do these steps at the data loader control panel:

1) Set the upper switch to L if software will be installed into the left FMC.
2) Set the upper switch to R if software will be installed into the right FMC.
3) Set the system select switch to FMC.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

(g) Set the power switch on the portable data loader to the on position.

NOTE: For more information on how to use the data loader, refer to the suppliers instructions for the portable data loader.

SUBTASK 34-61-00-470-059

(4) Do this step to install the software - (Preferred):

(a) Follow the generic PDL procedure to load software part (TASK 20-15-11-400-801).

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE

SUBTASK 34-61-00-470-008

(5) Do these steps to install the software - (Non-Preferred):

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

NOTE: If you install the operational program (OPS), do this procedure again for the customized NDB, OPC, and MEDB databases after the OPS program is installed.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999 (Continued)

If your airline uses any of the optional customized databases, Perf Defaults or Datalink, they must also be installed again.

Performance factors that were changed by manual entry from the CDU go back to their default values. After the OPS is loaded, you can enter the values again.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE

(a) Put the correct software disk into the disk drive of the data loader.

NOTE: When the data load sequence starts, the CDU shows the FMCS DATA LOADER page.

(b) Follow the prompts on the FMCS DATA LOADER page.

(c) If the message INSERT NEXT DISK shows, do these steps:

1) Push the eject button on the data loader and remove the disk.

2) Put the next disk into the data loader.

3) Repeat the previous two steps as necessary.

(d) When the message LOAD COMPLETE shows, push the eject button on the data loader and remove the disk.

NOTE: Because of data loader incompatibility, LOAD COMPLETE may not be shown on the CDU after the completion of a successful data load. If the CURRENT RECORD on line 3 of the FMCS DATA LOADER page increments to the number shown for TOTAL RECORDS on line 5, then a successful data load occurred.

NOTE: After you eject the diskette from the data loader, the FMC will restart. After the FMC restarts, you can continue to install software into the FMC regardless of the page shown on the CDU.

NOTE: If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface

wiring failure

DB EXCEEDS FMC MEMORY - data on disk is too large for

FMC memory

RESET COUNT EXCEEDED - five load attempts have failed

DB-OFP INCOMPATIBLE - data is not compatible with

the FMC OFP

CHECK MEDIA - a portion of data on the disk

is not able to load

INCORRECT DISK INSERTED - the wrong disk is put in after

INSERT NEXT DISK is shown.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE

SUBTASK 34-61-00-470-018

(6) Follow the PDL supplier instructions to install the software - (Non-Preferred).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

NOTE: If you install the operational program (OPS), do this procedure again for the customized NDB, OPC, and MEDB databases after the OPS program is installed.

If your airline uses any of the optional customized databases, Perf Defaults or Datalink, they must also be installed again.

Performance factors that were changed by manual entry from the CDU go back to their default values. After the OPS is loaded, you can enter the values again.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE

NOTE: When the data load sequence starts, the CDU shows the FMCS DATA LOADER page.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

SUBTASK 34-61-00-760-011

(7) Set the power switch on the PDL to the off position after all the software is loaded into the FMC.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-470-010

(8) Set the system select switch on the data loader control panel to NORMAL.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

SUBTASK 34-61-00-840-004

(9) Do these steps to put the airplane back to its usual condition:

CAUTION	MAKE SURE THAT THE DATA LOADER CIRCUIT-BREAKER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

I (b) Remove the PDL interface cable from the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

(c) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; AIRPLANES WITH DUAL FMC

SUBTASK 34-61-00-470-012

(10) Do this task: FMC Software Crossload, TASK 34-61-00-470-806.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-00-840-015

(1) Do this step at the data loader control panel:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Set the upper switch to SINGLE SYS.

SUBTASK 34-61-00-760-019

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FMC Software installation
Figure 202/34-61-00-990-812

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-00-470-806

7. FMC Software Crossload

A. General

(1) This procedure tells you how to crossload software from one FMC to the other FMC. A crossload will install the software into the second FMC significantly faster than the data loader.

(a) The Flight Management Computer (FMC) usually contains these pieces of software:

1) Operational Program Software (OPS)
2) Navigation Database (NDB)
3) Software Options Database (OPC)
4) Model/Engine Database (MEDB).

(b) The FMC can contain these pieces of optional software:

1) Performance Defaults Database (Perf Defaults)
2) ACARS Datalink Configuration Database (Adaptable Datalink Database (ADDB))
3) Flight Plan Database
4) Loadable Default Data Base (LDDB).

(2) If an OP PROGRAM or DATABASE crossload is carried out, all previously entered performance factors, such as F-F Factor, must be manually entered into the FMC.

(3) If you install a full set of the FMC Software, you must install the OPS first. The OPS installation erases all other software installed in the FMC. Also, performance factors that are changed by manual entry from the Control Display Unit (CDU) go back to their default values.

(a) You must install the NDB and MEDB databases again after the installation of the OPS. If you do not install the customized OPC, the OPS will use default values.

(b) You must install the optional databases, Perf Defaults, Datalink, flight plan or LDDB, again if your airline uses them. If you do not install a customized Perf Defaults or Datalink database the OPS will use default values.

(4) The MEDB installation erases the initially installed LDDB. Also, the manually selected performance factors go back to their default values.

(a) You must install the customized LDDB, given directly from the FMC supplier, again if your airline uses them.

(5) The installation of the OPC, ADDB, LDDB or NDB does not erase other initially installed software.

(6) After a dual FMC power-up, the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page is shown automatically on the CDU if the two FMCs have different software installed.

(7) When the CROSSLOAD> prompt is shown on the FMCS BITE page, you can push the LSK to manually select the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page.

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

ECCN 9E991 BOEING PROPRIETARY - See title page for details

C. Procedure

SUBTASK 34-61-00-470-013

(1) Do these steps to crossload the software:

(a) Make sure the CDU shows one of these two pages, the OP PROGRAM CROSSLOAD page or the DATABASE CROSSLOAD page.

NOTE: The CROSSLOAD> prompt is not shown if an FMC is failed, or only one FMC is powered, or only one FMC is installed in a dual FMC configuration.

NOTE: The OP PROGRAM CROSSLOAD page lets you install the operational program and databases into the other FMC. The DATABASE CROSSLOAD page lets you install only the databases into the other FMC.

NOTE: If the OP PROGRAM INVALID page shows, you must set the FMC source select switch to the position shown on the CDU.

(b) Push the CDU LSK next to COPY FROM LEFT(RIGHT) to select the FMC you want to copy from.

NOTE: If you see the message SET FMC SOURCE SELECT TO BOTH-ON-L(R), make sure the switch is in the correct position.

(c) Push the EXEC key on the CDU.

(d) The CROSSLOAD IN PROGRESS message shows during the FMC crossload.

(e) The CROSSLOAD COMPLETE message shows for a successful crossload.

NOTE: The CROSSLOAD FAIL message is shown if the FMC crossload fails. Possible causes for a failure are loss of communication between the FMC's, loss of power to one FMC, or failure of the FMC receiving the data. A second attempt may be made to do the crossload. Select the INDEX prompt to return to the FMC BITE page. Then select the CROSSLOAD> prompt to repeat the crossload operation.

NOTE: A database crossload failure causes the NEXT MISMATCH prompt to show with the CROSSLOAD COMPLETE message. The prompt can also show for mismatches in the analog input discretes or the performance factors. Select the NEXT MISMATCH prompt to continue.

SUBTASK 34-61-00-750-003

(2) Do this task: FMC Software Configuration Check, TASK 34-61-00-750-801.

LOM ALL

——— END OF TASK ———

TASK 34-61-00-750-801

8. FMC Software Configuration Check

A. General

(1) This procedure tells you how to check the Flight Management Computer (FMC) software installation.

(2) You must know the correct part number for the FMC software. For the FMC to be an approved installation, software with the correct part number must be installed.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 34-61-00-750-004

(1) Do these steps to do a software configuration check of the FMC:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

(a) Set the Flight Management Computer System (FMCS) transfer switch to the applicable position:

1) To check the software for the left FMC, set the FMCS transfer switch to the NORMAL position.

2) To check the software for the right FMC, set the FMCS transfer switch to the BOTH ON R position.

LOM ALL

(b) Make sure that the Control Display Unit (CDU) display shows the IDENT 1/2 page.

(c) Do these steps if the IDENT 1/2 page is not shown:

1) Push the INIT/REF key on both CDUs.

2) Push the LSK next to IDENT on both CDUs.

(d) Do a check of the FMC operational program and navigational database software:

1) Make sure that the correct part number for the operational program shows below OP PROGRAM on the CDU.

2) Make sure that the correct part number for the navigation database shows below NAV DATA on the CDU.

3) Make sure that the correct date range shows below ACTIVE on the CDU.

(e) Push the NEXT PAGE button on the CDU.

(f) Make sure that the CDU display shows the IDENT 2/2 page.

(g) Do a check of this FMC software:

1) Make sure that the correct part number for the software options database shows below SW OPTIONS on the CDU.

NOTE: You must install the software options database for the FMC to operate. If you did not install a software options database the CDU will show DEFAULT050 below SW OPTIONS.

2) Make sure that the correct part number for the model/engine database shows below MODEL/ENGINE DATA on the CDU.

NOTE: You must install the model/engine database for the FMC to operate. If INVALID shows on the CDU, the model/engine database was not installed. If PROGRAM PIN NOT IN MODEL/ENGINE DATABSE shows, the model/engine database installed does not match the airframe/engine program pin configuration.

3) Make sure that the correct part number is shown for any installed optional databases (Perf Defaults, Datalink, Flight plan or Loadable Default).

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-00-470-025

(2) If a part number is not correct, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805 or FMC Software Installation with an Enhanced Airborne Data Loader, TASK 34-61-00-470-811

——— END OF TASK ———

LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; LOM 404 PRE SB 737-23-1484

TASK 34-61-00-470-807

9. CDU Software Installation with an Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU)

A. General

(1) This procedure tells you how to install software into the CDU with an airborne data loader.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. CDU Software Installation

SUBTASK 34-61-00-760-009

(1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-00-470-014

(2) Use the Airborne Data Loader (ADL) to install the CDU software.

NOTE: Modern software loaders that meet the security requirements defined in ARINC 645-1 or newer are recommended to use. The procedures for modern software loaders will be marked as preferred for now and will be the only procedures available after removing floppy disk loaders procedures in the future. Please check with your Software Loader Supplier for current capabilities since this is still maturing across current and future software loaders.

LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; LOM 404 PRE SB 737-23-1484; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-840-005

(3) Do these steps to prepare for software installation:

(a) Do these steps at the data loader control panel:

1) Set the upper switch to CAPT or F/O.

2) Set the system select switch to CDU.

LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; LOM 404 PRE SB 737-23-1484

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; LOM 404 PRE SB 737-23-1484 (Continued)

SUBTASK 34-61-00-860-061

(4) Open the ADL front cover by releasing the knob.

SUBTASK 34-61-00-470-060

(5) Do this step to install the software - (Preferred):

(a) Follow the generic ADL procedure to load software part (TASK 20-15-11-400-801).

SUBTASK 34-61-00-470-015

(6) Do these steps to install the CDU software - (Non-Preferred):

NOTE: When you install the operational program (OPS), any software options database (OPC) that was previously installed is deleted. If an OPC is required, you must repeat these steps to install the OPC.

(a) Put the correct software disk into the disk drive of the data loader.

NOTE: The data load sequence starts automatically.

(b) Follow the prompts on the DATA LOADER page.

(c) When the message LOAD COMPLETE shows, push the eject button on the data loader and remove the disk.

NOTE: After you eject the diskette from the data loader, the CDU DATA LOADER page will be removed from the display.

NOTE: If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface

wiring failure

EXCEEDS CDU MEMORY - data on disk is too large for

CDU memory

RESET COUNT EXCEEDED - five load attempts have failed

OPS INCOMPATIBLE - data is not compatible with

the CDU OPS

CHECK MEDIA - a portion of data on the disk

is not able to load

LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; LOM 404 PRE SB 737-23-1484; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(d) Set the system select switch on the data loader control panel to NORMAL.

LOM 402, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; LOM 404 PRE SB 737-23-1484

SUBTASK 34-61-00-860-062

(7) Close the ADL front cover and tighten the knob.

SUBTASK 34-61-00-470-032

(8) Make sure the software part number is correct. Do this task: CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-750-802.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-00-470-808

10. CDU Software Installation with a Portable Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU)

A. General

(1) This procedure tells you how to install software into the CDU with a portable data loader.

(2) A Portable Data Loader (PDL) is not a Boeing supplied part. Refer to the PDL supplier for instructions for operation. PDLs have a disk drive for software installation from disks. Some PDLs have an internal mass storage device. If the software is stored in the PDL, then disks are not necessary.

(3) Modern software loaders that meet the security requirements defined in ARINC 645-1 or newer are recommended to use. The procedures for modern software loaders will be marked as preferred for now and will be the only procedures available after removing floppy disk loaders procedures in the future. Please check with your Software Loader Supplier for current capabilities since this is still maturing across current and future software loaders.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1915	Data Loader - ARINC 615 (without ARINC 645-1 Compliant) Part #: 11615-50 Supplier: 0D4J3 Part #: 2231560-1-B Supplier: 98571 Part #: 465130-01-01 Supplier: 30782 Part #: 800-0631 Supplier: 1JSZ6 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: PXS-LDS-10 Supplier: 98571 Part #: YV68A110 Supplier: FAQ15 Opt Part #: 11615-02 Supplier: 0D4J3 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 18000-02 Supplier: 0D4J3 Opt Part #: 30100 Supplier: 0BAW0 Opt Part #: 80000-03-01010203 Supplier: 0BAW0 Opt Part #: 80000-04-01020301 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-024 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-044 Supplier: 97896 Opt Part #: 964-0400-045 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896 Opt Part #: P2K-615A-06 Supplier: 0BAW0

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999 (Continued)

(Continued)

Reference	Description
COM-21223	Data Loader - ARINC 615 (with ARINC 645-1 Compliant) Part #: 403474 Supplier: CG603 Part #: 403562 Supplier: CG603 Part #: AE-615-MPDL Supplier: CD624 Part #: PDL-615-XT Supplier: 89Q20

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. CDU Software Installation

SUBTASK 34-61-00-760-010

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 34-61-00-470-016

(2) Use a portable data loader (PDL) to install the CDU software.

SUBTASK 34-61-00-840-006

(3) Do these steps to prepare for software installation:

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(a) Make sure the system select switch on the data loader control panel (P61) is set to NORMAL.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

> **CAUTION** MAKE SURE THAT THE DATA LOADER CIRCUIT-BREAKER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

> **CAUTION** MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(c) Set the power switch on the PDL to the off position.

(d) Connect the ARINC 615 data loader, COM-1915, or ARINC 645-1 compliant portable data loader, COM-21223, interface cable from the PDL to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999 (Continued)

(e) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(f) Do these steps at the data loader control panel:

1) Set the upper switch to CAPT or F/O.

2) Set the system select switch to CDU.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

(g) Set the power switch on the portable data loader to the on position.

NOTE: For more information on how to use the data loader, refer to the suppliers instructions for the portable data loader.

SUBTASK 34-61-00-470-061

(4) Do this step to install the software - (Preferred):

(a) Follow the generic PDL procedure to load software part (TASK 20-15-11-400-801).

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE

SUBTASK 34-61-00-470-017

(5) Do these steps to install the software - (Non-Preferred):

NOTE: When you install the operational program (OPS), any software options database (OPC) that was previously installed is deleted. If an OPC is required, you must repeat these steps to install the OPC.

NOTE: When the data load sequence starts, the CDU shows the DATA LOADER page.

(a) Put the correct software disk into the disk drive of the data loader.

NOTE: The data load sequence starts automatically.

(b) Follow the prompts on the DATA LOADER page.

(c) When the message LOAD COMPLETE shows, push the eject button on the data loader and remove the disk.

NOTE: Because of data loader incompatibility, LOAD COMPLETE may not be shown on the CDU after the completion of a successful data load. If the CURRENT RECORD on line 3 of the FMCS DATA LOADER page increments to the number shown for TOTAL RECORDS on line 5, then a successful data load occurred.

NOTE: After you eject the diskette from the data loader, the CDU DATA LOADER page will be removed from the display.

NOTE: If a failure occurs, the CDU will show LOAD FAILURE and DATA LOAD INOP and one of these messages:

CHECK DBL OR INTERFACE - data loader or interface

wiring failure

EXCEEDS CDU MEMORY - data on disk is too large for

CDU memory

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE (Continued)

RESET COUNT EXCEEDED - five load attempts have failed
OPS INCOMPATIBLE - data is not compatible with
the CDU OPS
CHECK MEDIA - a portion of data on the disk
is not able to load

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE

SUBTASK 34-61-00-470-019

(6) Follow the PDL supplier instructions to install the software - (Non-Preferred).

NOTE: When you install the operational program (OPS), any software options database (OPC) that was previously installed is deleted. If an OPC is required, you must repeat these steps to install the OPC.

NOTE: When the data load sequence starts, the CDU shows the DATA LOADER page.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

SUBTASK 34-61-00-760-012

(7) Set the power switch on the PDL to the off position after all the software is loaded into the FMC.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-470-020

(8) Set the system select switch on the data loader control panel (P61) to NORMAL.

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999

SUBTASK 34-61-00-470-033

(9) Make sure the software part number is correct. Do this task: CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-750-802.

SUBTASK 34-61-00-840-007

(10) Do these steps to put the airplane back to its usual condition:

CAUTION MAKE SURE THAT THE DATA LOADER CIRCUIT-BREAKER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

(b) Remove the interface cable from the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 412, 415, 423, 424, 427, 428, 437-447, 450-999 (Continued)

(c) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

——— **END OF TASK** ———

LOM 429-431, 440, 442-447, 450-460, 464-999

TASK 34-61-00-470-812

11. CDU Software Installation with an Enhanced Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU)

A. General

(1) This procedure tells you how to install software into the CDU with an enhanced Airborne Data Loader (eADL).

(2) The eADL software installation:

LOM 429-431, 440, 442-447, 450-460, 464, 465

(a) Floppy Disk Software Installation

LOM 429-431, 440, 442-447, 450-460, 464-999

(b) USB Flash Drive Software Installation

1) This procedure uses the USB port on the front panel of the eADL to install software from a valid USB flash drive to the Mass Storage Device (MSD). Once the software is installed on the MSD, the software is loaded to the CDU.

2) The USB flash drive must be configured correctly using the USB tool defined in the eADL Operations Guide.

(3) The airplane must be on the ground with the engines shutdown before you can install software.

(4) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.

(5) The word "media" refers to a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Prepare for the Software Installation

SUBTASK 34-61-00-470-039

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 429-431, 440, 442-447, 450-460, 464-999 (Continued)

SUBTASK 34-61-00-840-011

(2) Set the SYSTEM SELECT switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 34-61-00-760-018

(3) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-00-840-012

(4) Set the upper switch on the data loader control panel (P61) to CAPT or F/O, then set the SYSTEM SELECT switch on the data loader control panel (P61) to CDU.

SUBTASK 34-61-00-860-063

(5) Open the eADL front cover by releasing the two screws and lifting up on the cover.

E. Software Installation - (Preferred)

SUBTASK 34-61-00-470-056

(1) Follow the generic ADL procedure to load software part (TASK 20-15-11-400-801).

F. Software Installation Procedure - (Non-Preferred)

LOM 429-431, 440, 442-447, 450-460, 464, 465

SUBTASK 34-61-00-470-052

(1) Do these steps to install software from a floppy disk:

(a) Wait until the display shows the eADL Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

1) If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(b) Select “Target Page.”

1) The eADL will show the Select Target System screen.

(c) Select “Floppy Drive.”

1) The eADL will show a Load Confirmation screen.

(d) Carefully push the first disk (label up) into the disk drive.

(e) Select “CONFIRM.”

1) The eADL will show “LOADING” on the Transfer In Progress screen.

NOTE: It may take one to two minutes for the installation to start.

NOTE: If the disk set has more than one disk and the data of the current disk is completely transferred, the eADL will prompt you to insert the next diskette. Eject the current diskette, insert the next diskette and select “CONTINUE.”

2) The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

3) The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(f) Select “MAIN” or “GO BACK” to go back to the main menu.

(g) Eject the disk from the disk drive when the software installation is completed.

LOM 429-431, 440, 442-447, 450-460, 464-999

SUBTASK 34-61-00-470-053

(2) Do these steps to install software from a USB flash drive to the eADL MSD:

(a) Put the USB flash drive into the eADL USB port.

NOTE: The USB flash drive must be configured correctly as specified in the eADL Operations Guide.

(b) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

1) If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(c) Select “Maintenance Page.”

1) This will show the “Maintenance Menu” screen.

(d) Select “Transfer Parts From USB.”

1) If the error message “USB Is Not Mounted Or Is Not A Valid USB” is shown, select “GO BACK” and do the steps again.

2) Make sure that the USB flash drive is configured correctly by the USB tool as specified in the eADL Operations Guide.

3) The eADL screen will show “CONFIRM TO BEGIN TRANSFERRING.”

4) Select “CONFIRM.”

NOTE: The USB and MSD annunciators will turn yellow during the transfer procedure.

NOTE: If the software is already on the eADL MSD, this message will show: “This part name already exists.”

(e) Make sure that USB and MSB annunciators turn green and the message shows "Part Transfer Complete".

NOTE: This means that software transfer is complete.

NOTE: The annunciators will turn red if the transfer procedure is aborted or if there is a failure.

(f) Select “MAIN” or “GO BACK” to go back to the main menu.

(g) Remove the USB flash drive from the eADL USB port.

(h) Following the successful load of the software perform these steps to remove previous versions from the MSD:

NOTE: This procedure allows the operator to remove an LSP from the MSD. This will also delete any downloaded files associated with the LSP that may have been added to the LSP. This action cannot be undone.

NOTE: It is recommended to remove the older LSP on the MSD, but it is not required.

1) On the eADL use the Up and Down keys and select the following:

a) Select the Maintenance page.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

b) Select delete Software part option.

NOTE: The listed LSP may or may not appear as a part number. It will appear as it was originally saved using eADL Part Builder.

c) Select the desired LSP.

d) The eADL screen will display, Part Selected for Deletion is <Desired LSP>.

e) Press the CONFIRM softkey to initiate the deletion process.

NOTE: If you want to cancel the operation, use the Go Back key.

2) The MSD annunciator will turn yellow while the delete operation is taking place.

3) The MSD annunciator will turn back to green and scree will display:

a) Part Deleted.

4) Press the GO BACK key to return to the Main Menu.

SUBTASK 34-61-00-470-054

(3) Do these steps to install the software from the eADL MSD to the LRU:

(a) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

1) If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(b) Select “Target Page.”

NOTE: This will show the “Select Target System” screen.

(c) Select the software received by the LRU.

NOTE: This will show the “Select Software Part” screen.

(d) Push the “SELECT” button for the desired software.

NOTE: The listed software will appear as it was originally configured in the USB tool. See the supplier eADL Operations Guide.

(e) Make sure that the “Load Confirmation” screen shows.

(f) Select “CONFIRM”.

NOTE: This will show the “Transfer In Progress” screen.

NOTE: The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

NOTE: The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

(g) Select “MAIN” or “GO BACK” to go back to the main menu.

SUBTASK 34-61-00-470-055

(4) Make sure the software part number is correct. Do this task: CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-750-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-00-860-055

(1) Close the eADL cover and tighten the screws.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 429-431, 440, 442-447, 450-460, 464-999 (Continued)

SUBTASK 34-61-00-860-056

(2) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 34-61-00-860-057

(3) Do this task:Remove Electrical Power, TASK 24-22-00-860-812

——— END OF TASK ———

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 PRE SB 737-23-1484

TASK 34-61-00-750-802

12. CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU)

A. General

(1) This procedure gives the instructions to check the CDU software installation.

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU)

SUBTASK 34-61-00-750-007

(1) Do these steps to do a software configuration check of the CDU:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

(a) Set the FMC source select switch to the NORMAL position.

(b) On the MENU page, push the LSK next to FMC.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 PRE SB 737-23-1484

(c) Make sure that the CDU shows the IDENT 1/2 page.

(d) Do this step if the IDENT 1/2 page is not shown:

1) Push the INIT/REF key on the applicable CDU.

(e) Push these LSKs in sequence on the applicable CDU:

1) MAINT

2) FMCS

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

3) FMC LEFT(RIGHT)

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 PRE SB 737-23-1484

4) LCD CDU

5) CONFIG.

(f) Make sure that the CDU shows the CDU CONFIGURATION page.

(g) Make sure that the correct part number is shown below SOFTWARE P/N.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 PRE SB 737-23-1484 (Continued)

SUBTASK 34-61-00-470-026

(2) If a part number is not correct, do this task: CDU Software Installation with an Enhanced Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-470-812 or CDU Software Installation with an Airborne Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-470-807 or CDU Software Installation with a Portable Data Loader (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-470-808.

——— END OF TASK ———

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

TASK 34-61-00-470-809

13. Software Installation when the Airborne Data Loader is Inoperative

A. General

(1) This procedure tells you how to use a portable data loader (PDL) to load software when the airborne data loader (ADL) is inoperative.

(2) A portable data loader (PDL) is not a Boeing supplied part. Refer to the PDL supplier for instructions for operation. PDLs have a disk drive for software installation from disks. Some PDLs have an internal mass storage device. If the software is stored in the PDL, then disks are not necessary.

(3) Modern software loaders that meet the security requirements defined in ARINC 645-1 or newer are recommended to use. The procedures for modern software loaders will be marked as preferred for now and will be the only procedures available after removing floppy disk loaders procedures in the future. Please check with your Software Loader Supplier for current capabilities since this is still maturing across current and future software loaders.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software - Installation (P/B 201)
34-61-03-000-801	Airborne Data Loader Removal (P/B 401)
34-61-03-000-803	Enhanced Airborne Data Loader Removal (P/B 401)
34-61-03-400-801	Airborne Data Loader - Installation (P/B 401)
34-61-03-400-803	Enhanced Airborne Data Loader Installation (P/B 401)
WDM 34-61-18	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999 (Continued)

Reference	Description
COM-261	Data Loader - ARINC 615 (without ARINC 645-1 Compliant) Part #: 11615-50 Supplier: 0D4J3 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: PXS-LDS-10 Supplier: 98571 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 30100 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896 Opt Part #: 964-0400-060 Supplier: 97896 Opt Part #: 964-0400-064 Supplier: 97896 Opt Part #: 964-0400-065 Supplier: 97896 Opt Part #: P2K-615A-06 Supplier: 0BAW0
COM-21223	Data Loader - ARINC 615 (with ARINC 645-1 Compliant) Part #: 403474 Supplier: CG603 Part #: 403562 Supplier: CG603 Part #: AE-615-MPDL Supplier: CD624 Part #: PDL-615-XT Supplier: 89Q20

D. Location Zones

Zone	Area
212	Flight Compartment - Right

E. Software Installation

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438

SUBTASK 34-61-00-000-001

(1) Do this task: Airborne Data Loader Removal, TASK 34-61-03-000-801.

LOM 429-431, 440, 442-447, 450-460, 464-999

SUBTASK 34-61-00-000-005

(2) Do this task: Enhanced Airborne Data Loader Removal, TASK 34-61-03-000-803.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

SUBTASK 34-61-00-840-008

(3) Do these steps to prepare for software installation:

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

(a) Make sure the system select switch is set to NORMAL.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999 (Continued)

> **CAUTION** MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE FOR THE PORTABLE DATA LOADER. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

> **CAUTION** MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

(c) Set the power switch on the Portable Data Loader (PDL) to the OFF position.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434

(d) Do one of the steps that follow to connect the interface cable from the PDL to the aircraft wiring receptacle (Figure 203):

1) Connect the interface cable from the PDL to the D01907 cable connector that was disconnected from the airborne data loader [1] (WDM 34-61-18).

NOTE: Boeing recommends this step as the airborne data loader [1] will already be removed.

NOTE: This option will depend on the compatibility of the PDL interface cable connections.

2) Connect the interface cable from the PDL to the D02875 receptacle at the rear of the data loading control panel [2]:

a) Release the four quick-release fasteners on the front of the data loading control panel [2].

b) Pull the data loading control panel [2] out of the P61 Control Panel.

c) Disconnect the connector from the D02875 receptacle on the rear of the data loading control panel [2].

d) Connect the interface cable from the PDL to the D02875 receptacle.

LOM 437, 438, 440, 442-447, 450-460, 464-999

(e) Connect the ARINC 615 data loader, COM-261, or ARINC 645-1 compliant portable data loader, COM-21223, interface cable from the PDL to the aircraft wiring receptacle.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

(f) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(g) Set the position of the data loader control panel switch(es) to the unit that is to receive software from the PDL.

(h) Set the power switch on the portable data loader to the ON position.

SUBTASK 34-61-00-470-062

(4) Do this step to install the software - (Preferred):

(a) Follow the generic PDL procedure to load software part (TASK 20-15-11-400-801).

SUBTASK 34-61-00-470-021

(5) Do these steps to install the software - (Non-Preferred):

(a) Follow the PDL supplier instructions to operate the data loader.

(b) Do the applicable airborne data loader procedure to complete the software installation.

SUBTASK 34-61-00-760-014

(6) Set the power switch on the PDL to the off position after all the software is loaded into the Flight Management Computer (FMC).

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

SUBTASK 34-61-00-470-024

(7) Set the system select switch to NORMAL.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

F. Put the Aircraft Back to Its Usual Condition

SUBTASK 34-61-00-840-017

CAUTION	MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE FOR THE PORTABLE DATA LOADER. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434

SUBTASK 34-61-00-420-001

(2) Do one of the steps that follow (Figure 203):

(a) Remove the PDL interface cable from the D01907 cable connector (WDM 34-61-18).

(b) Install the data loading control panel [2]:

1) Remove the PDL interface cable from the D02875 receptacle.

2) Connect the D02875 connector to the D02875 receptacle on the rear of the data loading control panel [2].

3) Put the data loading control panel [2] in its position on the P61 Control Panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434 (Continued)

4) Secure the four quick-release fasteners on the front of the data loading control panel [2].

LOM 437, 438, 440, 442-447, 450-460, 464-999

SUBTASK 34-61-00-020-001

(3) Remove the PDL interface cable from the airplane wiring receptacle on the P61 panel.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438

SUBTASK 34-61-00-000-007

(4) Do this task: Airborne Data Loader - Installation, TASK 34-61-03-400-801.

LOM 429-431, 440, 442-447, 450-460, 464-999

SUBTASK 34-61-00-000-008

(5) Do this task: Enhanced Airborne Data Loader Installation, TASK 34-61-03-400-803.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1 TO LOCATE THE D01907 CONNECTOR, NAVIGATE TO WDM 34-61-18.

2906282 S0000695845_V1

DATA LOADER INTERFACE
Figure 203/34-61-00-990-816 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

2906283 S0000695858_V1

DATA LOADER INTERFACE
Figure 203/34-61-00-990-816 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL

TASK 34-61-00-810-801

14. FMC Diagnostic Data Transfer

A. General

(1) An Airborne Data Loader (ADL) or Portable Data Loader (PDL) is necessary for this procedure.

(2) This procedure tells you how to transfer diagnostic data from the Left and Right FMC to a 3.5 inch diskette.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

NOTE: A single diskette has sufficient capacity to hold data from both FMCs.

LOM 429-431, 440, 442-447, 450-460, 464-999

(3) This procedure tells you how to transfer diagnostic data to a Universal Serial Bus (USB) flash drive using an Enhanced ADL (eADL).

NOTE: The USB flash drive must be configured correctly using the USB tool defined in the eADL Operations Guide.

LOM ALL

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. FMC Diagnostic Data Transfer

SUBTASK 34-61-00-750-008

(1) Use the FMCPREP PC software to format the disk or prepare the USB flash drive.

(a) You must make a copy of the FMCPREP software on the root directory of a PC hard drive.

(b) To format a disk, enter the text that follows on your PC:

> FMCPREP<DRIVE>:<Airline ID

where:

<drive> is the letter "A" or "B" of the PCs 3.5 inch disk drive.

Airline ID> is the name of the airline maintenance site (11 characters maximum).

example: FMCPREP B: Cincinatti

LOM 429-431, 440, 442-447, 450-460, 464-999

1) For USB flash drive, transfer the “config.ldr” file from the disk to the USB flash drive to create the FMC download LSAP (Loadable Software Airplane Part).

NOTE: Use the USB tool defined in the eADL Operations Guide.

2) Do these steps to install the FMC download LSAP from the USB flash drive to the eADL Mass Storage Device (MSD) which will receive the FMC diagnostic data:

a) Put the USB flash drive into the eADL USB port.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

b) Make sure that the "eADL Main Menu" is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

c) Select "Maintenance Page."

<1> This will show the "Maintenance Menu" screen.

d) Select "Transfer Parts From USB."

NOTE: If the error message "USB Is Not Mounted Or Is Not A Valid USB" is shown, select "GO BACK" and do the steps again.

NOTE: Make sure the USB flash drive is configured correctly by the USB tool as specified in the eADL Operations Guide.

<1> The eADL screen will show "CONFIRM TO BEGIN TRANSFERRING."

<2> Select "CONFIRM."

NOTE: The USB and MSD annunciators will turn yellow during the transfer procedure.

NOTE: If the software is already on the eADL MSD, this message will show: "This part name already exists."

e) When the software transfer is complete, the USB and MSD annunciators will turn green and this message will show:

"Part Transfer Complete"

NOTE: The annunciators will turn red if the transfer procedure is aborted or if there is a failure.

f) Select "MAIN" or "GO BACK" to go back to the main menu.

g) Remove the USB flash drive.

LOM ALL

SUBTASK 34-61-00-750-009

(2) Make sure the MAINT BITE INDEX 1/1 page shows on the CDU.

(a) If the MAINT BITE INDEX 1/1 page is not shown, do these steps:

1) Push the INIT REF key.

2) Push the LSK adjacent to MAINT> to show the MAINT BITE INDEX 1/1 page.

SUBTASK 34-61-00-750-010

(3) Push the LSK adjacent to FMC DOWNLOAD>.

SUBTASK 34-61-00-750-023

(4) Follow the directions on the FMC DATA LOADER page.

(a) Select Capt Left System or F/O Right System on Data Load Select switch.

(b) Select FMC on the Data Load System Select switch.

(c) Select FMC Source on the Overhead Source Select Panel.

NOTE: When the FMC Source Select Switch is in the Both On Right Position the diagnostic data from the F/Os or Right FMC will be downloaded.

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SUBTASK 34-61-00-750-012

(5) Push the LSK adjacent to CONTINUE.

NOTE: If you push the LSK adjacent to PRESS HERE TO EXIT>, the FMC will do a cold start power-up.

SUBTASK 34-61-00-750-028

LOM 429-431, 440, 442-447, 450-460, 464, 465

(6) Do these steps to transfer FMC diagnostic data using the eADL floppy drive:

(a) Wait until the eADL display shows the eADL Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(b) Select ‘‘Target Page.’’

1) The eADL will show the Select Target System screen.

(c) Carefully push the formatted floppy disk into the data loader disk drive.

(d) Select ‘‘Floppy Drive.’’

1) The eADL will show a Load Confirmation screen:

CONFIRM TO START

SELECTED SOURCE IS

<Floppy Drive>

(e) Select ‘‘CONFIRM.’’

1) The eADL will show ‘‘LOADING’’ on the Transfer In Progress screen.

2) The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the download procedure. The download can take several minutes.

3) The “LOADING” annunciator will change to “COMPLETE” and turn green when the download procedure is completed.

NOTE: It will change to ABORTED or XMIT FAIL and turn red if the download process is aborted or if it fails with an error.

(f) Select ‘‘MAIN’’ or “GO BACK” to go back to the main menu.

LOM 429-431, 440, 442-447, 450-460, 464-999

(7) Do these steps to transfer FMC diagnostic data (FMC download LSAP) using the eADL USB port:

(a) Wait until the eADL display shows the Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the applicable buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

(b) Do these steps if the FMC diagnostic data has not been downloaded from the LRU to the eADL MSD:

1) Select “Target Page.”

a) This will show the “Select Target System” screen.

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2) Select the target LRU.
   a) This will show the “Select Software Part” screen.
3) Push the “SELECT” button for the desired software.
   NOTE: The listed software will appear as it was originally configured in the USB tool. See the eADL Operations Guide.
4) Make sure that the “Confirm Transfer” screen shows.
5) Select “CONFIRM.”
   a) This will show the “Transfer In Progress” screen.
   b) The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the download procedure.
   c) The “LOADING” annunciator will change to “COMPLETE” and turn green when the download procedure is completed.

(8) Do these steps to download the FMC diagnostic data from the eADL MSD to a USB flash drive:
   (a) Put the USB flash drive into the eADL USB port.
      NOTE: The USB flash drive must be configured correctly by the USB tool as specified in the eADL Operations Guide.
   (b) Make sure that the “eADL Main Menu” is shown.
      NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.
      NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.
   (c) Select “Maintenance Page.”
      1) This will show the “Maintenance Menu” screen.
   (d) Select “Transfer Downloaded Data to USB.”
      NOTE: If the error message “USB Is Not Mounted Or Is Not A Valid USB” is shown, select “GO BACK” and do the steps again.
      NOTE: Make sure the USB flash drive is configured correctly by the USB tool as specified in the eADL Operations Guide.
      1) The eADL screen will show “CONFIRM TO BEGIN TRANSFERRING.”
      2) Select “CONFIRM.”
         NOTE: The USB and MSD annunciators will turn yellow during the transfer procedure.
   (e) When the download is complete, the USB and MSD annunciators will turn green and this message will show:
      “Part Transfer Complete”
      NOTE: The annunciators will turn red if the transfer procedure is aborted or if there is a failure.
   (f) Select “MAIN” or “GO BACK” to go back to the main menu.

LOM ALL

(9) Remove the media from the drive or port when the download is complete.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-00-750-013

(10) Put the formatted disk into the data loader disk drive.

NOTE: If the disk is write protected, the FMC download will not continue from this page. Remove the disk and set the write- protected tab to the write position. Put the disk back into the data loader disk drive.

NOTE: The disk may only contain FMC download data.

SUBTASK 34-61-00-750-014

(11) The FMC automatically starts the data transfer sequence.

NOTE: When the data transfer is complete, the FMC DATA LOADER page shows DOWNLOAD COMPLETE.

SUBTASK 34-61-00-750-015

(12) Remove the disk and push the LSK adjacent to PRESS HERE TO EXIT>.

NOTE: If you push the LSK adjacent to PRESS HERE TO EXIT>, the FMC will do a cold start power-up.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 34-61-00-750-021

(13) To download data from the second FMC, set the FMC Source Select Switch position to the other FMC and do the Diagnostic Data Transfer task again.

NOTE: A single diskette or USB flash drive has sufficient capacity to hold data from both FMCs.

LOM ALL

SUBTASK 34-61-00-750-022

(14) After you make a copy of the data on the disk or USB flash drive, send the disk or data to the vendor.

NOTE: For the USB flash drive, use the eADL Connect software to extract the data.

D. Data Transfer Failure Indications

SUBTASK 34-61-00-750-017

(1) If the disk that you put into the data loader disk drive contains an FMC operational program or database, the FMC DATA LOADER page shows this message:

WARNING: DISK UNUSABLE

OFP OR DB DISK INSERTED

(a) Replace the disk with a correctly formatted disk.

SUBTASK 34-61-00-750-018

(2) If the disk that you put into the data loader disk drive is not write-protected and contains data (may be FMC diagnostic transfer data from the currently selected FMC) that is not an FMC operational program or database, the FMC DATA LOADER page shows this message:

WARNING: DISK UNUSABLE

DISK CONTAINS DATA

(a) Remove the disk from the data loader disk drive.

(b) Push the LSK adjacent to PRESS HERE TO RETRY>.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-00-750-019

(3) If the disk that you put into the data loader disk drive is not write-protected and is not formatted by the FMCPREP software, the FMC DATA LOADER page shows this message:

WARNING: DISK UNUSABLE

FORMAT DISK USING THE

FMCPREP PC UTILITY

(a) Remove the disk from the data loader disk drive.

(b) Push the LSK adjacent to PRESS HERE TO RETRY>.

SUBTASK 34-61-00-750-020

(4) If the diagnostic data transfer is not successful for any other reason, the FMC DATALOADER page shows this message:

DEVICE NOT PRESENT

DISK WAS REMOVED OR

INTERFACE HAS FAILED

(a) Push the LSK adjacent to PRESS HERE TO RETRY>.

END OF TASK

TASK 34-61-00-400-801

15. Setting Zero Fuel Weight

A. General

(1) This procedure tells you how to enter a zero fuel weight (ZFW) using the Control Display Unit (CDU).

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-61-00-869-001

(1) Do these steps to set a zero fuel weight:

(a) Make sure the IDENT page shows on the CDU.

(b) Push the INDEX page next to LSK 6L.

(c) Push the PERF from the INIT/REF page.

(d) Enter a zero fuel weight on the scratch pad.

(e) Push the LSK 3L.

SUBTASK 34-61-00-869-002

(2) Make sure the CDU display the zero fuel weight.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FLIGHT MANAGEMENT COMPUTER SYSTEM - ADJUSTMENT/TEST

1. General
   A. This procedure contains scheduled maintenance task data.
   B. This procedure has these tasks:
      (1) An operational test of the flight management computer system (FMCS).
      (2) A system test of the FMCS.
      (3) An adjustment of the FMCS performance factors.

TASK 34-61-00-710-801

2. Flight Management Computer System - Operational Test

A. General

(1) The operational test does a quick check of the flight management computer system. The test makes sure that the system is serviceable.

(2) You can do the tests in sequence or one at a time. The Prepare For Test steps must be done before each test or sequence of tests.

LOM 404; AIRPLANES WITH SINGLE FMC AND CDU

(3) The Control Display Unit (CDU) is necessary for this procedure. You can use CDU No. 1 (Left or Captain's CDU) or CDU No. 2 (Right or First Officer's CDU) to do this procedure. This procedure makes reference to the two CDUs to verify their operational integrity.

LOM 404 POST SB 737-23-1484; AIRPLANES WITH SINGLE FMC AND MCDU

(4) The CDU is necessary for this procedure. You can use CDU No. 1 (Left or Captain's CDU) or CDU No. 2 (Right or First Officer's CDU) to do this procedure. This procedure makes reference to the two CDUs to verify their operational integrity.

LOM 420, 426; AIRPLANES WITH DUAL FMC AND CDU

(5) The two Control Display Units (Left or Captain's CDU and Right or First Officer's CDU) are necessary for this procedure. This procedure uses two CDUs to make sure the operational test is conducted from the two corresponding Flight Management Computer (FMC)s (Left and Right FMC).

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC AND MCDU

(6) The two Control Display Units (Left or Captain's CDU and Right or First Officer's CDU) are necessary for this procedure. This procedure uses two CDUs to make sure the operational test is conducted from the two corresponding Flight Management Computers (Left and Right FMC).

LOM 407, 420, 422, 425-434, 440, 442-447, 450-460, 465-999

(7) An FMC software option causes the CDU to normally show information in color. Default operation is white text on a black background.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

(8) The Flight Management Computer System (FMCS) transfer switch allows the operation of the Left FMC to be displayed on the two CDUs when the transfer switch is in the NORMAL position. If the transfer switch is in the BOTH ON L or BOTH ON R position, the two CDUs will display simultaneously the Left or Right Flight Management Computer output and software database configuration, respectively.

LOM ALL

B. References

Reference	Title
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-61-00-470-804	FMC Software Installation with an Airborne Data Loader (P/B 201)
34-61-00-470-805	FMC Software Installation with a Portable Data Loader (P/B 201)
34-61-00-470-811	FMC Software Installation with an Enhanced Airborne Data Loader (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare For Test

SUBTASK 34-61-00-860-040

(1) Do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

E. Flight Management Computer System Operational Test

SUBTASK 34-61-00-710-025

(1) Do this test of the operational program and databases:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMCS transfer switch to the applicable position:

1) To check the operational program and databases for the left FMC, set the FMCS transfer switch to the NORMAL position.

2) To check the operational program and databases for the right FMC, set the FMCS transfer switch to the BOTH ON R position.

LOM ALL

(b) Push the INIT REF key on the two CDUs.

(c) Push the Line Select Key (LSK) adjacent to INDEX on the two CDUs.

(d) Push the LSK adjacent to IDENT on the two CDUs.

(e) Make sure that the two CDUs show the IDENT 1/X page.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(f) Make sure that the part number of the OP PROGRAM is correct on the two CDUs.

NOTE: The applicable airline department has the correct part number for the OP PROGRAM.

1) If the OP PROGRAM is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805 or FMC Software Installation with an Enhanced Airborne Data Loader, TASK 34-61-00-470-811.

(g) Make sure that the part number of the NAV DATA is correct on the CDU.

NOTE: The applicable airline department has the correct part number for the NAV DATA.

1) If the NAV DATA is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805 or FMC Software Installation with an Enhanced Airborne Data Loader, TASK 34-61-00-470-811.

(h) Make sure that the date of the NAV DATA is correct on the two CDUs.

NOTE: You can find the dates for the active navigation database below ACTIVE.

(i) Push the NEXT PAGE button on the two CDUs.

(j) Make sure that the part number of the PERF DEFAULTS is correct on the two CDUs.

NOTE: DEFAULTXXP will be shown if a customized PERF DEFAULTS diskette is not installed.

1) If the PERF DEFAULTS is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805 or FMC Software Installation with an Enhanced Airborne Data Loader, TASK 34-61-00-470-811.

(k) Make sure that the part number of the SW OPTIONS is correct on the two CDUs.

NOTE: DEFAULTXXX will be shown if a customized software options database diskette is not installed.

1) If the SW OPTIONS part number is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805 or FMC Software Installation with an Enhanced Airborne Data Loader, TASK 34-61-00-470-811.

LOM 427, 428

(l) Make sure that the part number of the DATALINK CONFIG is correct on the two CDUs.

NOTE: DEFAULT03D will be shown if a customized ACARS Datalink Config database diskette is not installed.

1) If the DATALINK CONFIG part number is incorrect, then, do this task: FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805.

LOM ALL

(m) Make sure that the part number of the MODEL/ENGINE DATA is correct on the two CDUs.

NOTE: The applicable airline department has the correct part number for the MODEL/ENGINE DATA.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) If the MODEL/ENGINE DATA part number is incorrect, then, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805 or FMC Software Installation with an Enhanced Airborne Data Loader, TASK 34-61-00-470-811.

SUBTASK 34-61-00-710-026

(2) Do this test of the FMCS sensor status:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMC transfer switch to the NORMAL position.

LOM ALL

(b) Push the INIT REF key on the two CDUs.

(c) Push the LSK adjacent to INDEX on the two CDUs.

(d) Push the LSK adjacent to MAINT on the two CDUs.

(e) Push the LSK adjacent to FMCS on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(f) Push the LSK adjacent to L FMC on the Captain's CDU.

(g) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

(h) Push the LSK adjacent to SENSORS on the two CDUs.

(i) Make sure that the two CDUs agree with the data shown below (Table 501):

Table 501/34-61-00-993-801

LRU	LEFT	RIGHT
VOR	OK	OK
DME	OK	OK
ADIRS	OK	OK
MMR	OK	OK
DFCS	OK	----
FQIS	OK	----
LOM 404		
CLOCK SINGLE FMC	OK	----
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999		
CLOCK [L CDU] DUAL FMC	OK	----
CLOCK [R CDU] DUAL FMC	----	OK
LOM ALL		

(j) Push the NEXT PAGE button on the two CDUs.

(k) Make sure that the status of CDS DEU LEFT and CDS DEU RIGHT is OK.

(l) Push the INIT REF button on the two CDUs.

SUBTASK 34-61-00-710-027

(3) Do this test of the FMCS fixed outputs:

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMC transfer switch to the NORMAL position.

(b) Set the master dim and test switch to the BRT position.

LOM ALL

(c) Push the INIT REF key on the two CDUs.

(d) Push the LSK adjacent to INDEX on the two CDUs.

(e) Push the LSK adjacent to MAINT on the two CDUs.

(f) Push the LSK adjacent to FMCS on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(g) Push the LSK adjacent to L FMC on the Captain's CDU.

(h) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

(i) Push the LSK adjacent to FIXED OUTPUTS on the two CDUs.

(j) Turn the mode selector switch on the captain's and first officer's EFIS control panels to the MAP position.

(k) Make sure that the captain's and first officer's EFIS display shows "FMC INTERFACE OK".

(l) Make sure that the OFST, FAIL and MSG annunciators on the two CDUs come on.

(m) Make sure that the Thrust Mode Annunciator on Engine Format above the N1 Display cycles through these thrust modes: CRZ, CLB, ---, CON, TO, GA.

(n) Push the INIT REF button on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(o) Set the master dim and test switch back to the DIM position.

LOM ALL

SUBTASK 34-61-00-860-058

(4) Make sure that the F-F (fuel flow) factors are in the permitted entry range (TASK 34-61-00-800-801).

NOTE: Values between -9.9 and +9.9 (%) are permitted. The default value is +0.0 (%).

(a) If necessary, do the adjustment of the F-F factors.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 34-61-00-860-064

(5) Make sure that the performance values are the same on FMC 1 and FMC 2.

(a) If necessary, adjust the performance values (TASK 34-61-00-800-801).

LOM ALL

SUBTASK 34-61-00-860-045

(6) Shut down the Air Data Inertial Reference System if no longer necessary.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-00-730-801

3. Flight Management Computer System - System Test

A. General

(1) The system test does a complete check of the Flight Management Computer System (FMCS). The test makes sure that the system operates correctly.

(2) You can do the tests in sequence or one at a time. All tests must be done to make sure that the system operates correctly. The Prepare For Test steps must be done before each test or sequence of tests.

B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
192CL	ECS Access Door
192CR	ECS Access Door
192DR	ECS High Pressure Access Door

E. Prepare For Test

SUBTASK 34-61-00-800-001

(1) Do this task: Flight Management Computer System - Operational Test, TASK 34-61-00-710-801.

F. Flight Management Computer System Test

SUBTASK 34-61-00-710-028

(1) Do this test of the annunciators:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Make sure that the Flight Management Computer (FMC) transfer switch is set to the NORMAL position.

LOM ALL

(b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

(c) Make sure that the FMC P/RST annunciator on the captain's and first officer's Autoflight Status Annunciator (ASA) comes on.

LOM 404, 420, 426; AIRPLANES WITH CDUs

(d) Make sure that the FAIL annunciator on the two Control Display Unit (CDU)s comes on.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(e) Set the master dim and test switch to the TEST position.

LOM 404, 420, 426; AIRPLANES WITH CDUs

1) Make sure that the MSG, DSPY, FAIL, OFST, and EXEC annunciators on the two CDUs come on.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484; AIRPLANES WITH MULTI-PURPOSE CDUs

2) Make sure that the MSG, CALL, FAIL, OFST, and EXEC annunciators on the two CDUs come on.

LOM ALL

(f) Make sure that the FMC P/RST annunciator on the two ASAs is on.

(g) If necessary, push the FMC P/RST annunciator on the captain's or first officer's ASA.

1) Make sure that the FMC P/RST annunciator on the two ASAs goes off.

(h) Set the master dim and test switch back to the DIM position.

(i) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

NOTE: This circuit breaker must be closed for at least 15 seconds before you continue.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484

(j) If the MENU page is shown on either CDU, push Line Select Key (LSK) 1L (FMC) on that CDU.

LOM ALL

(k) If necessary, push the CLR button on the CDU to remove all messages from the CDU scratchpad.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(l) Do these steps to do a test of the annunciators for the right FMC:

1) Set the FMC transfer switch to the NORMAL position.

2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

3) Make sure that the FMC P/RST annunciator on the captain's and first officer's ASA comes on.

LOM 420, 426; AIRPLANES WITH CDUs

4) Make sure that the message Single FMC Operation shows in the scratchpads.

5) Set the FMC transfer switch to Both On R position.

a) Make sure that the FAIL annunciator on the two CDUs comes on.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

6) Set the master dim and test switch to the TEST position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 420, 426

a) Make sure that the MSG, DSPY, FAIL, OFST, and EXEC annunciators on the two CDUs come on.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

b) Make sure that the MSG, CALL, FAIL, OFST, and EXEC annunciators on the two CDUs come on.

7) Make sure that the FMC P/RST annunciator on the two ASAs is on.

8) Push the FMC P/RST annunciator on the captain's or first officer's ASA.

a) Make sure that the FMC P/RST annunciator on the two ASAs goes off.

9) Set the master dim and test switch back to the DIM position.

10) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

NOTE: This circuit breaker must be closed for at least 15 seconds before you continue.

11) If the MENU page is shown on either CDU, push LSK 1L (FMC) on that CDU.

12) If necessary, push the CLR button on the CDU to remove all messages from the CDU scratchpad.

LOM ALL

SUBTASK 34-61-00-730-001

(2) Do this test of the pack valves:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMC transfer switch to the NORMAL position.

LOM ALL

I (b) Push this sequence of keys on the two CDUs to show the FMCS ANALOG DISCRETE 1/4 page:

1) Push the INIT REF mode key on the two CDUs.

2) Push LSK adjacent to INDEX on the two CDUs.

3) Push LSK 6R, adjacent to MAINT on the two CDUs.

4) Push the LSK adjacent to FMCS on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

5) Push the LSK adjacent to L FMC on the Captain's CDU.

6) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

7) Push LSK 4L, adjacent to DISCRETES on the two CDUs.

(c) Make sure that the L PACK and R PACK switches, located on the P5 overhead panel, are in the OFF position.

(d) Make sure that the BLEED 1 and BLEED 2 switches are in the ON position.

(e) Make sure that the L PACK and R PACK valve discrete statuses show OFF.

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(f) To get access to the left pack valve, do this step:

1) Open this access door:

Number	Name/Location
192CL	ECS Access Door

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464

(g) Remove connector D41500 from the left pack valve, V18.

LOM 465-999

(h) Remove connector D41500 from the left pack valve, V184.

LOM ALL

(i) Make sure that the two CDUs agree with the data shown below (Table 502):

Table 502/34-61-00-993-802

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	L PACK	AUTO	ECS PACK	ON	OFF
2	L PACK	HIGH	ECS PACK	ON	OFF

CAUTION

DO NOT OPEN THE ECS ACCESS DOOR 192CR, UNTIL YOU OPEN THE ECS HIGH PRESSURE ACCESS DOOR 192DR. IF YOU DO NOT OBEY, DAMAGE TO THE ECS HIGH PRESSURE ACCESS DOOR 192DR, ITS LATCHES AND HINGES CAN OCCUR.

(j) To get access to the right pack valve, do these steps (TASK 06-41-00-800-801):

1) Open this access door:

Number	Name/Location
192DR	ECS High Pressure Access Door

2) Open this access door:

Number	Name/Location
192CR	ECS Access Door

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464

(k) Remove connector D41600 from the right pack valve, V19.

LOM 465-999

(l) Remove connector D41600 from the right pack valve, V185.

LOM ALL

(m) Make sure that the two CDUs agree with the data shown below (Table 503):

Table 503/34-61-00-993-803

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	R PACK	AUTO	ECS PACK	ON	ON
2	R PACK	HIGH	ECS PACK	ON	ON
3	R PACK	OFF	ECS PACK	ON	ON

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Table 503/34-61-00-993-803 (Continued)

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
4	L PACK	OFF	ECS PACK	ON	ON

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464

(n) Connect connector D41500 to the left pack valve, V18.

LOM 465-999

(o) Connect connector D41500 to the left pack valve, V184.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464

(p) Connect connector D41600 to the right pack valve, V19.

LOM 465-999

(q) Connect connector D41600 to the right pack valve, V185.

LOM ALL

(r) Make sure that the L PACK and R PACK valve discrete statuses show OFF.

(s) Do this step:

1) Close this access door:

Number	Name/Location
192CL	ECS Access Door

(t) Do these steps (TASK 06-41-00-800-801):

1) Close this access door:

Number	Name/Location
192CR	ECS Access Door

2) Close this access door:

Number	Name/Location
192DR	ECS High Pressure Access Door

NOTE: The ECS high pressure access door, 192DR, will not latch in its position if the ECS access door, 192CR, is not closed.

(u) Make sure that the two CDUs agree with the data shown below (Table 504):

Table 504/34-61-00-993-804

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status Left	Discrete Status Right
1	L PACK	OFF	ECS PACK H/L	HI	HI
2	L PACK	AUTO	ECS PACK H/L	LO	HI
3	L PACK	HIGH	ECS PACK H/L	HI	HI
4	R PACK	OFF	ECS PACK H/L	HI	HI
5	R PACK	AUTO	ECS PACK H/L	HI	LO
6	R PACK	HIGH	ECS PACK H/L	HI	HI

(v) Set the L PACK and R PACK switches to the OFF position.

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SUBTASK 34-61-00-730-002

(3) Do this test of the isolation valve:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMC transfer switch to the NORMAL position.

LOM ALL

(b) Make sure that the FMCS ANALOG DISCRETES 1/4 page is shown on the two CDUs.

1) If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:

a) Push the INIT REF mode key on the two CDUs.

b) Push LSK 6L, adjacent to INDEX on the two CDUs.

c) Push LSK 6R, adjacent to MAINT on the two CDUs.

d) Push the LSK adjacent to FMCS on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

e) Push the LSK adjacent to L FMC on the Captain's CDU.

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.

(c) Set the L PACK and R PACK switches on the Pilot's Forward Overhead Panel (P5) to the HIGH position.

(d) Set the ISOLATION VALVE switch on the Pilot's Forward Overhead Panel (P5) to the CLOSE position.

1) Make sure that the ISOL VALVE discrete on the two CDUs shows CL.

(e) Set the ISOLATION VALVE switch to the OPEN position.

1) Make sure that the ISOL VALVE discrete on the two CDUs shows OP.

(f) Set the L PACK and R PACK switches on the Pilot's Forward Overhead Panel (P5) to the OFF position.

SUBTASK 34-61-00-730-003

(4) Do this test of the anti-ice discretes:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMC transfer switch to the NORMAL position.

LOM ALL

(b) Make sure that the FMCS ANALOG DISCRETES 1/4 page is shown on the two CDUs.

1) If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:

a) Push the INIT REF mode key on the two CDUs.

b) Push LSK 6L, adjacent to INDEX on the two CDUs.

c) Push LSK 6R, adjacent to MAINT on the two CDUs.

d) Push the LSK adjacent to FMCS on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

e) Push the LSK adjacent to L FMC on the Captain's CDU.

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f) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.

(c) Set the L PACK and R PACK switches, on the P5 forward overhead panel, to the HIGH position.

(d) Make sure that the ENG ANTI-ICE 1 and ENG ANTI-ICE 2 switches are set to the OFF position.

(e) Make sure that the WING ANTI-ICE switch is set to the OFF position.

(f) Set the WING ANTI-ICE switch to the ON position.

WARNING MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(g) Make sure that the ground locks are installed in the nose and main landing gear (TASK 32-00-01-480-801).

(h) Make sure that EXISTING FAULTS shows on the Proximity Switch Electronic Unit (PSEU) control panel, M02601.

1) If the PSEU control panel is off, push the ON/OFF button.

2) If EXISTING FAULTS? does not show, push the MENU button.

a) Push the MENU button until EXISTING FAULTS? shows.

(i) Push the DOWN ARROW button on the PSEU control panel three times.

1) Make sure that AIR/GND OVRD? shows on the PSEU control panel.

(j) Push the YES button on the PSEU control display panel.

1) Make sure that SET SYS1 IN AIR? shows on the PSEU control panel.

(k) Push the YES button on the PSEU control panel.

1) Make sure that ARE YOU SURE? shows on the PSEU control panel.

(l) Push the YES button on the PSEU control panel.

1) Make sure that SYS1 IS IN AIR changes to SET SYS1 ON GND? on the PSEU control panel.

NOTE: The flight deck PSEU fault light will stay ON while the AIR/GND system is overridden.

2) Make sure that the OLEO SWITCH discrete on the two CDUs changes from GND to AIR.

3) Make sure that the WING A/ICE discrete on the two CDUs changes to ON.

NOTE: The FMCS ANALOG DISCRETES page on the CDU will be replaced by IDENT Page after 2 seconds.

(m) Set the WING ANTI-ICE switch to the OFF position.

(n) Push the MENU button on the PSEU control panel.

1) Make sure that RESET OVRD? shows on the PSEU control panel.

(o) Push the YES button on the PSEU control display panel.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Make sure that ARE YOU SURE? shows on the PSEU control panel.

(p) Push the YES button on the PSEU control panel.

1) Make sure that OVRD RESET changes to AIR/GND OVRD? on the PSEU control panel.

(q) Access the FMCS ANALOG DISCRETES 1/4 page on the CDU.

1) Make sure that the OLEO SWITCH discrete on the two CDUs is set to GND.

2) Make sure that the WING A/ICE discrete on the two CDUs changes to OFF.

(r) Set the ENG ANTI-ICE 1 switch to the ON position.

1) Make sure that the COWL A/ICE LEFT discrete on the two CDUs changes to ON.

2) Make sure that the COWL A/ICE RIGHT discrete on the two CDUs shows OFF.

(s) Set the ENG ANTI-ICE 1 switch to the OFF position.

1) Make sure that the COWL A/ICE LEFT discrete on the two CDUs changes to OFF.

(t) Set the ENG ANTI-ICE 2 switch to the ON position.

1) Make sure that the COWL A/ICE LEFT discrete on the two CDUs shows OFF.

2) Make sure that the COWL A/ICE RIGHT discrete on the two CDUs changes to ON.

(u) Set the ENG ANTI-ICE 2 switch to the OFF position.

1) Make sure that the COWL A/ICE RIGHT discrete on the two CDUs changes to OFF.

(v) Set the L PACK and R PACK switches to the OFF position.

SUBTASK 34-61-00-730-004

(5) Do this test of the air/ground discrete:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMC transfer switch to the NORMAL position.

LOM ALL

(b) Make sure that the FMCS ANALOG DISCRETES 1/4 page is shown on the two CDUs.

1) If the FMCS ANALOG DISCRETES 1/4 page is not shown, push this sequence of keys on the CDU:

a) Push the INIT REF mode key on the two CDUs.

b) Push LSK 6L, adjacent to INDEX on the two CDUs.

c) Push LSK 6R, adjacent to MAINT on the two CDUs.

d) Push the LSK adjacent to FMCS on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

e) Push the LSK adjacent to L FMC on the Captain's CDU.

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.

h) Set the L PACK and R PACK switches, on the P5 forward overhead panel, to the HIGH position.

i) Make sure that the ENG ANTI-ICE 1 and ENG ANTI-ICE 2 switches are set to the OFF position.

j) Make sure that the WING ANTI-ICE switch is set to the OFF position.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

WARNING MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make sure that the ground locks are installed in the nose and main landing gear (TASK 32-00-01-480-801).

(d) Make sure that EXISTING FAULTS shows on the PSEU control panel, M02601.

1) If the PSEU control panel is off, push the ON/OFF button.

2) If EXISTING FAULTS? does not show, push the MENU button.

a) Push the MENU button until EXISTING FAULTS? shows.

(e) Push the DOWN ARROW button on the PSEU control panel three times.

1) Make sure that AIR/GND OVRD? shows on the PSEU control panel.

(f) Push the YES button on the PSEU control display panel.

1) Make sure that SET SYS1 IN AIR? shows on the PSEU control panel.

(g) Push the YES button on the PSEU control panel.

1) Make sure that ARE YOU SURE? shows on the PSEU control panel.

(h) Push the YES button on the PSEU control panel.

1) Make sure that SYS1 IS IN AIR changes to SET SYS1 ON GND? on the PSEU control panel.

NOTE: The flight deck PSEU fault light will stay ON while the AIR/GND system is overridden.

2) Make sure that the OLEO SWITCH discrete on the two CDUs changes from GND to AIR.

NOTE: The FMCS ANALOG DISCRETES page on the CDU will be replaced by IDENT Page after 2 seconds.

(i) Push the MENU button on the PSEU control panel.

1) Make sure that RESET OVRD? shows on the PSEU control panel.

(j) Push the YES button on the PSEU control display panel.

1) Make sure that ARE YOU SURE? shows on the PSEU control panel.

(k) Push the YES button on the PSEU control panel.

1) Make sure that OVRD RESET changes to AIR/GND OVRD? on the PSEU control panel.

(l) Access the FMCS ANALOG DISCRETES page on the CDU.

1) Make sure that the OLEO SWITCH discrete on the two CDUs is set to GND.

SUBTASK 34-61-00-730-005

(6) Do this test of the engine bleed discretes:

(a) Push the NEXT PAGE button on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(b) Set the FMC transfer switch to the NORMAL position.

LOM ALL

(c) Make sure that the FMCS ANALOG DISCRETES 3/4 page is shown on the two CDUs.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) If the FMCS ANALOG DISCRETES 3/4 page is not shown, push this sequence of keys on the CDU:
   a) Push the INIT REF mode key on the two CDUs.
   b) Push LSK 6L, adjacent to INDEX on the two CDUs.
   c) Push LSK 6R, adjacent to MAINT on the two CDUs.
   d) Push the LSK adjacent to FMCS on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

   e) Push the LSK adjacent to L FMC on the Captain's CDU.
   f) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

   g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.
2) Push the NEXT PAGE button two times on the two CDUs.

(d) Make sure that the BLEED 1 and BLEED 2 switches, located on the P5 forward overhead panel, are in the OFF position.

(e) Make sure that the two CDUs agree with the data below (Table 505):

Table 505/34-61-00-993-805

Test Step	Switch Name	Switch Position	CDU Discrete Name	Discrete Status NO. 1	Discrete Status NO. 2
1	BLEED 1	ON	ENGINE BLEED	ON	OFF
2	BLEED 1	OFF	ENGINE BLEED	OFF	OFF
3	BLEED 2	ON	ENGINE BLEED	OFF	ON
4	BLEED 2	OFF	ENGINE BLEED	OFF	OFF

SUBTASK 34-61-00-730-006

(7) Do this test of the program pins:

(a) Push the PREV PAGE button two times on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(b) Set the FMC transfer switch to the NORMAL position.

LOM ALL

(c) Make sure that the FMCS ANALOG DISCRETES 2/4 page is shown on the two CDUs.
1) If the FMCS ANALOG DISCRETES 2/4 page is not shown, push this sequence of keys on the CDU:
   a) Push the INIT REF mode key on the two CDUs.
   b) Push LSK 6L, adjacent to INDEX on the two CDUs.
   c) Push LSK 6R, adjacent to MAINT on the two CDUs.
   d) Push the LSK adjacent to FMCS on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

   e) Push the LSK adjacent to L FMC on the Captain's CDU.
   f) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

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g) Push LSK 4L, adjacent to DISCRETES on the two CDUs.

h) Push the NEXT PAGE button on the two CDUs.

(d) Make sure that the two CDUs agree with the data below (Table 506):

Table 506/34-61-00-993-A18

Discrete	State
LOM 402, 406, 407, 412, 415, 416, 423, 424, 426, 427, 429-432, 437-439, 441, 443-447, 451, 452, 455-999; LOM 404 PRE SB 737-34-4291; LOM 420 PRE SB 737-34-3619; LOM 428 POST SB 737-34-2542 AND PRE SB 737-34-2543	
JAA FLT RULES	DISABLE
LOM 411, 422, 425, 433, 434, 440, 442, 450, 453, 454; LOM 404 POST SB 737-34-4291; LOM 420 POST SB 737-34-3619; LOM 428 PRE SB 737-34-2542 OR POST SB 737-34-2543	
JAA FLT RULES	ENABLE
LOM 402, 406, 407, 432, 451, 452, 458-463, 465-999; LOM 420 PRE SB 737-31-1365; LOM 457 POST SB 737-31-2184	
KILOGRAM OPTION	DISABLE
LOM 404, 411, 412, 415, 416, 422-431, 433, 434, 437-447, 450, 453-456, 464; LOM 420 POST SB 737-31-1365; LOM 457 PRE SB 737-31-2184	
KILOGRAM OPTION	ENABLE
LOM ALL	
MAG/TRUE	MAG
LOM 404	
SRCE/DEST IDENT	LEFT
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999	
SRCE/DEST IDENT	*[1] *[2]
LOM 402, 406, 407, 411, 412, 415, 420, 422-434, 437-442, 445-447, 450-465	
ASPIRATED TAT	DISABLE
LOM 404, 416, 443, 444, 466-999	
ASPIRATED TAT	ENABLE
LOM ALL	
°C/°F DEFAULT	°C
PERF CODE	1

*[1] The SOURCE/DEST IDENT shows LEFT on the left CDU.

*[2] The SOURCE/DEST IDENT shows RIGHT on the right CDU.

(e) Push the NEXT PAGE button on the two CDUs.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(f) Set the FMC transfer switch to the NORMAL position.

LOM ALL

(g) Make sure that the MODEL/ENG discrete on the two CDUs shows VALID.

(h) Push the NEXT PAGE button on the two CDUs.

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1) Make sure that the FMCS ANALOG DISCRETES 4/4 page is shown on the two CDUs.

(i) Make sure that the two CDUs agree with the data below (Table 507):

Table 507/34-61-00-993-A19

Discrete	State
VOR INHIBIT	DISABLE
FLIGHT NUMBER	ENABLE
LOM 451, 452	
TOGA RW POS UPD	DISABLE
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450, 453-999	
TOGA RW POS UPD	ENABLE
LOM 402, 406, 407, 420, 458-460	
TAKEOFF PROFILE	DISABLE
LOM 404, 411, 412, 415, 416, 422-434, 437-447, 450-457, 461-999	
TAKEOFF PROFILE	ENABLE
LOM 402, 404, 406, 407, 416, 420, 426-431, 443, 444, 446, 447, 450-452, 455-463; LOM 445 POST SB 737-31-2146	
TAKEOFF SPEEDS	DISABLE
LOM 411, 412, 415, 422-425, 432-434, 437-442, 453, 454, 464-999; LOM 445 PRE SB 737-31-2146	
TAKEOFF SPEEDS	ENABLE
LOM ALL	
NAVAID SUPPRESS	ENABLE
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450, 453-999	
SEL CRS INHIBIT	DISABLE
LOM 451, 452	
SEL CRS INHIBIT	ENABLE
LOM 404, 411, 457, 461, 462, 465-999	
ACARS INSTALLED	OFF
LOM 402, 406, 407, 412, 415, 420, 422-425, 427-434, 437-447, 450-456, 458-460, 463, 464	
ACARS INSTALLED	ON
LOM ALL	

(j) Press LSK 6L, adjacent to INDEX.

SUBTASK 34-61-00-730-007

(8) Do this test of the model/engine configuration:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMC transfer switch to the NORMAL position.

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(b) Make sure that the FMCS Built-In-Test Equipment (BITE) page is shown on the two CDUs.

1) If the FMCS BITE page is not shown, push this sequence of keys on the CDU:

a) Push the INIT REF mode key.

b) Push LSK 6L, adjacent to INDEX.

c) Push LSK 6R, adjacent to MAINT.

d) Push the LSK adjacent to FMCS.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

e) Push the LSK adjacent to L FMC on the Captain's CDU.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

(c) Push LSK 1R, adjacent to MODEL/ENG.

1) Make sure that the FMCS MODEL/ENG CFG 1/1 page is shown on the two CDUs.

(d) Make sure that the two CDUs agree with the data below (Table 508):

Table 508/34-61-00-993-A20

Parameter	Value
MODEL	737-800W*[1]
LOM 404, 416, 420 PRE SB 737-34A2216 AND PRE SB 737-34-2252 AND PRE SB 737-34-2600 AND PRE SB 737-34-2906 AND PRE SB 737-34-3066	
BRAKE OPT	CAT_C
LOM 402, 406, 407, 411, 412, 415, 422-434, 437-447, 450-999; LOM 404, 416, 420 (POST SB 737-34A2216 AND PRE SB 737-34-2252) OR (POST SB 737-34-2252 AND PRE SB 737-34-2906) OR POST SB 737-34-2600 OR POST SB 737-34-2906 OR POST SB 737-34-3066	
BRAKE OPT	CAT_C/N
LOM ALL	
ENGINE	CFM56-7B
ENGINE OPT	SAC or SAC/3 or SAC/3F
LOM 446, 447, 455, 456	
ENG RATINGS FULL TO-1 TO-2 BUMP	 27B1 26K 24K NONE

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LOM 446, 447, 455, 456 (Continued)

Table 508/34-61-00-993-A20 (Continued)

Parameter	Value
LOM 427, 452; LOM 451 (POST SB 737-34-2906 OR POST SB 737-34-3066) AND (PRE SB 737-34-2906 OR POST SB 737-34-3066)	
ENG RATINGS	
FULL	27K
TO-1	26K
TO-2	24K
BUMP	NONE
LOM 404 PRE SB 737-34-1918 AND PRE SB 737-34A2216 AND PRE SB 737-34-2252 AND PRE SB 737-34-2600 AND PRE SB 737-34-2906 AND PRE SB 737-34-3066	
ENG RATINGS	
FULL	26K
TO-1	24K
TO-2	22K
BUMP	NONE
LOM 423, 424, 450, 458-460, 466-999; LOM 412, 415 POST SB 737-71-1622; LOM 416 PRE SB 737-71-1537; LOM 465 POST SB 737-71-1898	
ENG RATINGS	
FULL	24K
TO-1	22K
TO-2	NONE
BUMP	NONE
LOM 451 PRE SB 737-34-3066	
ENG RATINGS	
FULL	27K
BUMP	NONE
LOM 402, 406, 407, 411, 420, 422, 425, 426, 428-434, 437-445, 453, 454, 457, 461-464; LOM 404 (POST SB 737-34-1918 AND PRE SB 737-34A2216) OR (POST SB 737-34A2216 AND PRE SB 737-34-2252) OR (POST SB 737-34-2252 AND PRE SB 737-34-2906) OR POST SB 737-34-2600 OR POST SB 737-34-2906 OR POST SB 737-34-3066; LOM 412, 415 PRE SB 737-71-1622; LOM 416 POST SB 737-71-1537; LOM 427 POST SB 737-71-1933; LOM 465 PRE SB 737-71-1898	
ENG RATINGS	
FULL	26K
BUMP	NONE
LOM 412, 415 POST SB 737-71-1622 AND PRE SB 737-34-3066; LOM 416 PRE SB 737-71-1537 AND PRE SB 737-34-3066 AND ((PRE SB 737-34-2600 AND (PRE SB 737-34A2216 OR (POST SB 737-34-2252 AND PRE SB 737-34-2906))) OR (POST SB 737-34-2600 AND PRE SB 737-34-2906) OR (POST SB 737-34A2216 AND PRE SB 737-34-2252 AND PRE SB 737-34-2600) OR POST SB 737-34-2906); LOM 423, 424, 458-460, 466-999 PRE SB 737-34-3066; LOM 465 POST SB 737-71-1898 AND PRE SB 737-34-3066	
ENG RATINGS	
FULL	24K
BUMP	NONE
LOM ALL	

*[1] The W.x indicates winglets are installed, and a one or two position tail skid (x=1 or 2) is also installed.

(e) Push LSK 6L, adjacent to INDEX.

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SUBTASK 34-61-00-730-009

(9) Do this test of the performance factors:

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(a) Set the FMC transfer switch to the NORMAL position.

LOM ALL

(b) Make sure that the FMCS BITE page is shown on the two CDUs.

1) If the FMCS BITE page is not shown, push this sequence of keys on the CDU:

a) Push the INIT REF mode key.

b) Push LSK 6L, adjacent to INDEX.

c) Push LSK 6R, adjacent to MAINT.

d) Push the LSK adjacent to FMCS.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

e) Push the LSK adjacent to L FMC on the Captain's CDU.

f) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

(c) Push LSK 3R, adjacent to PERF FACTR.

1) Make sure that the FMCS PERF FACTORS 1/1 page is shown on the two CDUs.

(d) Make sure that the two CDUs agree with the data below (Table 509):

NOTE: The values shown in the table below are factory defaults. If a different value is desired, do this task: FMCS Performance Factors - Adjustment (TASK 34-61-00-800-801).

Table 509/34-61-00-993-A23

Parameter	Value
DRAG FACTOR	+0.0
F-F FACTOR	+0.0
MNVR MARGIN	1.30
MIN CRZ TIME	1
MIN R/C CLB CRZ ENG OUT	 300 100 100

END OF TASK

TASK 34-61-00-800-801

4. FMCS Performance Factors - Adjustment

A. General

(1) This task gives steps to adjust these performance factors:

(a) Drag factor

(b) F-F factor

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Maneuver margin

(d) Minimum cruise time

(e) Minimum rate of climb (climb) margin

(f) Minimum rate of climb (cruise) margin

(g) Minimum rate of climb (engine out) margin.

(2) You can do these adjustments in sequence or one at a time. The Prepare For Adjustment steps must be done before each adjustment or sequence of adjustments.

NOTE: If a factor has had its entry capability disabled by a loadable performance defaults database, you cannot change its value using this procedure. You must load a new performance defaults database with the new factor value.

(3) The Control Display Unit (CDU) is necessary for this procedure. You can use CDU No. 1 or CDU No. 2 to do this procedure.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare For Adjustment

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 34-61-00-860-044

(1) Set the Flight Management Computer (FMC) transfer switch to the NORMAL position.

LOM ALL

SUBTASK 34-61-00-940-001

(2) Push this sequence of keys on the CDU:

(a) Push the INIT REF key.

(b) Push Line Select Key (LSK) 6L, adjacent to INDEX.

(c) Push LSK 6R, adjacent to MAINT.

(d) Push the LSK adjacent to FMCS.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

(e) Push the LSK adjacent to L FMC on the Captain's CDU.

(f) Push the LSK adjacent to R FMC on the First Officer's CDU.

LOM ALL

(g) Push LSK 3R, adjacent to PERF FACTR.

(h) Push this sequence of keys on the CDU: "A", "R", "M".

(i) Push LSK 6R, adjacent to ---.

D. Procedure

SUBTASK 34-61-00-820-001

(1) Do this adjustment of the drag factor:

(a) Push the sequence of keys for the new DRAG FACTOR value.

NOTE: Values between -9.9 and +9.9 (%) are permitted. The default value is +0.0 (%).

(b) Push LSK 2L.

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1) Make sure the new value of DRAG FACTOR is shown adjacent to LSK 2L.

SUBTASK 34-61-00-820-002

(2) Do this adjustment of the F-F factor:

(a) Push the sequence of keys for the new F-F FACTOR value.

NOTE: Values between -9.9 and +9.9 (%) are permitted. The default value is +0.0 (%).

(b) Push LSK 3L.

1) Make sure the new value of F-F FACTOR is shown adjacent to LSK 3L.

2) Make sure that the F-F FACTOR value shows the same value on the two CDUs.

SUBTASK 34-61-00-820-003

(3) Do this adjustment of the maneuver margin:

LOM 402, 406, 407, 412, 415, 416, 423, 424, 426, 427, 429-432, 437-439, 441, 443-447, 451, 452, 455-999; LOM 404 PRE SB 737-34-4291; LOM 420 PRE SB 737-34-3619; LOM 428 POST SB 737-34-2542 AND PRE SB 737-34-2543

(a) Push the sequence of keys for the new MNVR MARGIN value.

NOTE: Values between 1.20 and 1.60 are permitted. The default value is 1.30.

LOM 411, 422, 425, 433, 434, 440, 442, 450, 453, 454; LOM 404 POST SB 737-34-4291; LOM 420 POST SB 737-34-3619; LOM 428 PRE SB 737-34-2542 OR POST SB 737-34-2543

(b) Push the sequence of keys for the new MNVR MARGIN value.

NOTE: Values between 1.30 and 1.60 are permitted. The default value is 1.30.

LOM ALL

(c) Push LSK 4L.

1) Make sure the new value of MNVR MARGIN is shown adjacent to LSK 4L.

SUBTASK 34-61-00-820-004

(4) Do this adjustment of the minimum cruise time:

(a) Push the sequence of keys for the new MIN CRZ TIME value.

NOTE: Values between 1 and 20 (minutes) are permitted. The default value is 1.

(b) Push LSK 5L.

1) Make sure the new value of MIN CRZ TIME is shown adjacent to LSK 5L.

SUBTASK 34-61-00-820-005

(5) Do this adjustment of the minimum rate of climb (climb) margin:

(a) Push the sequence of keys for the new MIN R/C CLB value.

NOTE: Values between 0 and 999 are permitted. The default value is 300.

(b) Push LSK 3R.

1) Make sure the new value of MIN R/C CLB is shown adjacent to LSK 3R.

SUBTASK 34-61-00-820-006

(6) Do this adjustment of the minimum rate of climb (cruise) margin:

(a) Push the sequence of keys for the new MIN R/C CRZ value.

NOTE: Values between 0 and 999 are permitted. The default value is 100.

(b) Push LSK 4R.

1) Make sure the new value of MIN R/C CRZ is shown adjacent to LSK 4R.

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SUBTASK 34-61-00-820-007

(7) Do this adjustment of the minimum rate of climb (engine out) margin:

(a) Push the sequence of keys for the new MIN R/C ENG OUT value.

NOTE: Values between 0 and 500 are permitted. The default value is 100.

(b) Push LSK 5R.

1) Make sure the new value of MIN R/C ENG OUT is shown adjacent to LSK 5R.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FMCS CONTROL DISPLAY UNIT - MAINTENANCE PRACTICES

1. General

A. This procedure contains four tasks. The first task is the cleaning of the FMCS Control Display Units (CDU) cooling vent and surfaces. The second task is the cleaning of the CDU display. The third task is the removal of the CDU keyboard. The fourth task is the installation of the CDU keyboard.

B. You can find the CDU(s) in the flight compartment on the forward electronic panel, P9. You can replace the keyboard when one of the keys does not operate.

LOM 407, 420, 422, 425-434, 440, 442-447, 450-460, 465-999

C. An FMC software option causes the CDU to normally show information in color. Default operation is white text on a black background.

LOM ALL

TASK 34-61-01-100-801

2. FMCS CDU Cooling Vent and Surfaces Cleaning

Figure 201

A. References

Reference	Title
20-30-31-910-801	Cleaners and Polishes (P/B 201)
34-61-01-000-802	FMCS Control Display Unit (CDU) Removal (P/B 401)
34-61-01-400-802	FMCS Control Display Unit (CDU) - Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2618	Cleaner - Vacuum Part #: 106542 Supplier: 3LFF2 Part #: AVIATION VAC 106542 Supplier: 03FQ4 Part #: AVQ250-2 Supplier: U1761 Part #: AVQ350-2 Supplier: 03FQ4 Part #: RSAV130 Supplier: $1291 Part #: RSV150 Supplier: U1761 Opt Part #: 02146A Supplier: 0A5X2 Opt Part #: 44SPEC Supplier: 0Y8U0 Opt Part #: 655406-7M Supplier: 0Y8U0 Opt Part #: BP80 Supplier: $0373 Opt Part #: C-39485-41 Supplier: 16893 Opt Part #: C-39485-42 Supplier: 16893 Opt Part #: MORCLEAN 300/15D Supplier: $1316 Opt Part #: R80 Supplier: $0373 Opt Part #: RSV130 Supplier: $1291 Opt Part #: WD80 Supplier: $0373

C. Consumable Materials

Reference	Description	Specification
B00673	Detergent - Liquid - Liqui-Nox	

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Control Display Unit (CDU) Cooling Vent and Surfaces Cleaning

SUBTASK 34-61-01-020-001

(1) Do this task: FMCS Control Display Unit (CDU) Removal, TASK 34-61-01-000-802.

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU

SUBTASK 34-61-01-140-001

(2) Clean the cooling vent:

(a) Use a vacuum cleaner, COM-2618 to remove blockage from the air inlet and outlet holes on the CDU.

(b) Clean the grills with a paper towel or soft cloth moist with Liqui-Nox detergent, B00673, and water (TASK 20-30-31-910-801).

(c) Dry the grills with a cotton wiper, G00034.

(d) Use a vacuum cleaner, COM-2618 to remove blockage from the air outlet hole below the Pilot's Forward Electronic Panel (P9).

LOM ALL; AIRPLANES WITH LCD CDUS

SUBTASK 34-61-01-100-003

(3) Clean the cooling vents:

(a) Use a vacuum cleaner, COM-2618 to remove blockage from the LCD backlight cooling vents, top and bottom central chamber cooling vent, and the rear chamber vent.

(b) Inspect for any loose debris and dust buildup that remains in the vent openings.

(c) Do these steps if any debris and dust remain in the display unit vent openings. The display unit cover panels do not need to be removed for these steps.

1) Use protective eyewear and dust mask as required.

2) Blow pressurized air controlled at 40 to 90 psi through and around these display unit locations:

a) Rear chamber vent opening.

b) Top and bottom central chamber cooling vent. For the top vent the air should be blown toward the display unit keyboard.

c) LCD backlight cooling vents.

3) Use the vacuum to remove dirt and dust debris.

4) Repeat these cleaning steps as necessary since debris may dislodge and move into other areas of the display unit.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM ALL; AIRPLANES WITH LCD CDUS (Continued)

(d) Inspect the LCD backlight cooling vents to make sure they are clear of debris. If significant amounts of debris still remain, this could result in a cooling airflow blockage and reduced display unit reliability.

NOTE: It is recommended that the unit be returned to the supplier for cleaning if significant debris remains after this procedure is completed.

LOM ALL

SUBTASK 34-61-01-160-001

(4) Do these steps to clean the CDU surfaces:

(a) Remove dust and dirt with a vacuum cleaner, COM-2618.

(b) Clean the surfaces with a paper towel or soft cloth moist with Liqui-Nox detergent, B00673, and water (TASK 20-30-31-910-801).

(c) Remove the remaining detergent with a cotton wiper, G00034, moist with water.

SUBTASK 34-61-01-420-001

(5) Do this task: FMCS Control Display Unit (CDU) - Installation, TASK 34-61-01-400-802.

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CONTROL DISPLAY UNIT

U49343 S0000197517_V3

Control Display Unit - Cooling Vent Locations
Figure 201/34-61-01-990-804 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CONTROL DISPLAY UNIT

1344699 S0000239356_V2

Control Display Unit - Cooling Vent Locations
Figure 201/34-61-01-990-804 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-01-100-802

3. FMCS CDU Display Cleaning

A. Consumable Materials

Reference	Description	Specification
B50012	Cleaner - Optical Cleaning, Calotherm Solution - Supaspray	
B50013	Cloth - Calocoat Hi-Tech Lenscloth - Supacloth	
G02457	Cleaner - Wet/Dry Anti-Static Sachet - ALGLAS Visial ALG/CR 215	

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 34-61-01-100-002

(1) Clean the display surface of the FMCS control display unit (CDU) with the Supaspray cleaner, B50012, and the Supacloth cloth, B50013, or the ALGLAS Visial cleaner, G02457:

(a) Apply 2 or 3 sprays of the Supaspray to the Supacloth, or open the wet sachet.

(b) Use the moist cloth or the wet sachet to clean the display surface in a straight line from top to bottom.

(c) Gradually move from one side of the display surface to the other side while you clean from top to bottom.

(d) When the display surface is clean, use a clean, dry area of the cloth or the dry sachet in a straight line from top to bottom to dry the display surface.

——— END OF TASK ———

TASK 34-61-01-000-801

4. FMCS CDU Keyboard Removal

(Figure 202)

A. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

B. Procedure

LOM 404

SUBTASK 34-61-01-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
A	7	C01018	FMCS CDU 1

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 (Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2

LOM 404 POST SB 737-23-1484

SUBTASK 34-61-01-860-023

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

LOM 420, 426; AIRPLANES WITH DUAL FMC AND CDU

SUBTASK 34-61-01-860-046

(3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 426			
A	7	C01018	FMCS CDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01050	FMCS CDU 2
LOM 420, 426; AIRPLANES WITH DUAL FMC AND CDU			
D	16	C01262	FMCS CMPTR 2

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC AND MCDU

SUBTASK 34-61-01-860-024

(4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999 (Continued)

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC AND MCDU			
D	16	C01262	FMCS CMPTR 2

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU

SUBTASK 34-61-01-020-002

(5) Do these steps to remove the Control Display Unit (CDU) keyboard:

(a) Loosen the six captive screws that hold the keyboard to the mounting plate.

(b) Carefully move the keyboard from the mounting plate to get access to connector J3 and P3 behind the keyboard.

(c) Remove the two captive screws that hold connector J3 to P3.

(d) Disconnect connector J3 from the keyboard connector P3.

(e) Put a cover on connector J3 and cable to prevent damage.

LOM ALL; AIRPLANES WITH LCD CDUS

SUBTASK 34-61-01-000-001

(6) Do these steps to remove the Control Display Unit (CDU) keyboard:

(a) Loosen the six captive screws that hold the keyboard to the front chassis.

(b) Carefully move the keyboard away from the front chassis to get access to the cable assembly.

(c) Remove and retain the display gasket.

(d) Unlock and disconnect cable assembly connector W1P1 from connector DS1J1.

LOM ALL

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CONTROL DISPLAY UNIT

F54595 S0006577342_V3

Control Display Unit - Lighted Switch Panel Replacement
Figure 202/34-61-01-990-801

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-01-400-801

5. FMCS CDU Keyboard Installation

(Figure 202)

A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-61-01-710-801	CDU Lamp Test (P/B 301)

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU

SUBTASK 34-61-01-420-002

(1) Do these steps to install the Control Display Unit (CDU) keyboard:

(a) Make sure the gasket is correctly aligned.

(b) Connect the connector J3 to the keyboard connector P3.

(c) Tighten the two captive screws which attach connector J3 to P3.

(d) Tighten the six captive screws that hold the keyboard to the mounting plate.

LOM ALL; AIRPLANES WITH LCD CDUS

SUBTASK 34-61-01-400-001

(2) Do these steps to install the Control Display Unit (CDU) keyboard:

(a) Make sure the display gasket is correctly aligned.

(b) Connect and lock cable assembly connector W1P1 to connector DS1J1.

(c) Position keyboard on the front chassis.

(d) Tighten the six captive screws that hold the keyboard to the front chassis.

LOM ALL

SUBTASK 34-61-01-860-026

(3) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 426; LOM 404 PRE SB 737-23-1484 (Continued)

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2
LOM ALL			
D	16	C01262	FMCS CMPTR 2

D. CDU Keyboard Test

SUBTASK 34-61-01-860-005

(1) Prepare for the CDU keyboard test:

(a) Make sure that the BAT switch on the Pilot's Forward Overhead Panel is in the ON position.

(b) Set the STANDBY POWER switch on the Pilot's Forward Overhead Panel to the AUTO position.

SUBTASK 34-61-01-740-001

(2) Do these steps to do the CDU keyboard test:

(a) Push the INIT REF key on the CDU.

(b) Push the line select key (LSK) adjacent to INDEX.

(c) Push the LSK adjacent to MAINT.

(d) Push the LSK adjacent to FMCS.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; AIRPLANES WITH DUAL FMC

(e) Push the LSK adjacent to FMC LEFT (RIGHT).

LOM ALL

(f) Push the LSK adjacent to CDU TEST or LCD CDU.

(g) Push the LSK adjacent to KEY TEST.

(h) Make sure that the CDU display shows the legends of all the keys the same as on the CDU keyboard.

1) Push each key on the CDU.

2) Make sure that the same key legend on the CDU display comes on.

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU

(i) Push the LSK adjacent to CDU TEST to go back to the FMCS CDU TEST 1/1 page.

(j) Push the LSK adjacent to INDEX.

LOM ALL; AIRPLANES WITH LCD CDUS

(k) Push the LSK adjacent to INDEX to go back to the CDU MAINT BITE INDEX page.

(l) Push the LSK adjacent to EXIT to go back to the FMCS BITE page.

LOM ALL

(m) Do this task: CDU Lamp Test, TASK 34-61-01-710-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-01-860-027

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FMCS CONTROL DISPLAY UNIT - SERVICING

1. General

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU

A. This procedure contains three tasks. The first task is the replacement of the lamp for the DSPY/FAIL (or CALL/FAIL) and MSG/OFST annunciators. The second task is the replacement of the lamp for the EXEC key. The third task is the CDU lamp test.

B. You can find the FMCS control display units (CDUs) in the flight compartment on the forward electronic panel, P9. The CDU has four annunciators (DSPY or CALL,FAIL, MSG, and OFST) and a lighted EXEC key. Two of the annunciators are on the left of the CDU (DSPY or CALL/FAIL), and two are on the right of the CDU(MSG/OFST). On each side, the two annunciators lamps are attached to a circuit board assembly. The EXEC key is on the right side of the CDU. It has a lamp assembly with two lamps and a lamp holder.

LOM ALL; AIRPLANES WITH LCD CDUS

C. This procedure contains the task for the CDU lamp test.

D. You can find the FMCS control display units (CDUs) in the flight compartment on the forward electronic panel, P9. The CDU has four annunciators (DSPY or CALL, FAIL, MSG, and OFST) and a lighted EXEC key. Two of the annunciators are on the left of the CDU (DSPY or CALL/FAIL), and two are on the right of the CDU(MSG/OFST).

E. The CDU has lamps for the annunciators and the EXEC key that are not line replaceable. This requires replacement of the keyboard or the CDU.

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU

TASK 34-61-01-960-801

2. Annunciator Replacement (CRT CDU P/N 10-XXXXX-XXX)

(Figure 301)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

LOM 404 POST SB 737-23-1484

SUBTASK 34-61-01-860-011

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU

SUBTASK 34-61-01-020-003

(2) Remove the annunciator lamp assembly:

(a) Remove the two screws and lockwashers that hold the legend plate to the CDU.

(b) Remove the legend plate to get access to the annunciator lamp assembly.

NOTE: Each annunciator lamp assembly has two lamps.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU (Continued)

(c) Remove the defective annunciator lamp assembly from the circuit board assembly.

SUBTASK 34-61-01-420-004

(3) Install the annunciator lamp assembly:

(a) Install the new annunciator lamp assembly on the circuit board assembly.

(b) Put the legend plate in its position over the screw holes on the circuit board assembly.

(c) Install the lockwashers and screws that attach the legend plate to the circuit board assembly.

LOM 404 POST SB 737-23-1484

SUBTASK 34-61-01-860-013

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

LOM 404 POST SB 737-23-1484; AIRPLANES WITH CRT CDU

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

G18756 S0006577346_V2

Control Display Unit - Annunciator Lamp Replacement
Figure 301/34-61-01-990-803

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 POST SB 737-23-1484

TASK 34-61-01-960-802

3. EXEC Key Replacement (CRT CDU P/N 10-XXXXX-XXX)

(Figure 301)

A. Tools/Equipment

Reference	Description
STD-123	Brush - Soft Bristle
STD-1134	Vacuum Source, 24 Inches Hg Minimum

B. Consumable Materials

Reference	Description	Specification
B00090	Solvent - Inhibited Trichloroethane 1,1,1	MIL-T-81533

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 34-61-01-860-015

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

SUBTASK 34-61-01-020-004

(2) Remove the EXEC key assembly:

(a) Remove the two screws that hold the lamp holder to the lighted switch panel.

(b) Remove the lamp holder from the lighted switch panel.

(c) Remove the EXEC lamp assembly from the lamp holder.

SUBTASK 34-61-01-100-001

(3) If the EXEC key lamp operation is intermittent, do these steps:

(a) Remove all dust or loose dirt from the EXEC push-button housing and the EXEC lamp assembly with a soft bristle brush, STD-123.

WARNING

YOU MUST WEAR A FACE MASK OR GOGGLES, PLASTIC (PVA) GLOVES, AND BE IN A WELL VENTILATED AREA WHEN YOU USE TRICHLOROETHANE. TRICHLORETHANE IS CAUSTIC AND TOXIC. IF YOU DO NOT FOLLOW THESE PRECAUTIONS, INJURY TO PERSONNEL CAN RESULT.

(b) Clean the electrical contacts on the EXEC lamp assembly with a soft bristle brush, STD-123 and solvent, B00090.

(c) Dry the EXEC lamp assembly with a vacuum source (24 inches Hg minimum), STD-1134.

SUBTASK 34-61-01-420-005

(4) Install the EXEC lamp assembly:

(a) Install the new EXEC lamp assembly in the lamp holder.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 404 POST SB 737-23-1484 (Continued)

(b) Put the lamp holder in its position over the screw holes on the lighted switch panel.

(c) Install the lamp holder with the two screws that attach the lamp holder to the lighted switch panel.

SUBTASK 34-61-01-860-017

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2

LOM ALL

END OF TASK

TASK 34-61-01-710-801

4. CDU Lamp Test

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 34-61-01-710-002

(1) Do the CDU Lamp Test:

(a) Hold the LIGHTS switch in the TEST position. You can find the LIGHTS switch on the pilots' center instrument panel (P2).

(b) Make sure that the DSPY (or CALL), FAIL, MSG, OFST, and EXEC lights on the two CDUs come on.

(c) Set the LIGHTS switch to the BRT or DIM position if it is necessary.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FMCS CONTROL DISPLAY UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure contains two tasks:

(1) The first task is for the removal of the flight management computer system (FMCS) control display unit (CDU)

(2) The second task is for the installation of the FMCS CDU.

B. You can find the FMCS CDU No. 1 on the left corner of the Pilots' Forward Electronics Panel, P9. You can find the CDU No. 2 on the right corner of the Pilots' Forward Electronics Panel, P9.

C. Six quick-release fasteners hold the CDU in position. An electrical connector attaches the electrical cable to a connector (J1) on the rear panel of the CDU.

LOM 407, 420, 422, 425-434, 440, 442-447, 450-460, 465-999

D. An FMC software option causes the CDU to normally show information in color. Default operation is white text on a black background.

LOM ALL

TASK 34-61-01-000-802

2. FMCS Control Display Unit (CDU) Removal

(Figure 401)

A. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Removal

SUBTASK 34-61-01-860-006

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2

LOM ALL

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-01-480-001

WARNING	MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR. IF THE GROUND LOCKS ARE NOT INSTALLED, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Make sure the ground locks are installed in the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 34-61-01-020-005

(3) If you remove the CDU [1] No.2, put the control lever for the landing gear in the OFF position.

D. Procedure

SUBTASK 34-61-01-860-007

CAUTION	DO NOT TOUCH THE CONDUCTOR PINS OR OTHER CONDUCTORS ON THE CDU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CDU.

CAUTION	DO NOT LET THE CDU PUSH AGAINST OR FALL ON OTHER COMPONENTS ON THE AISLE STAND. THIS CAN OCCUR WHEN YOU DISCONNECT THE CONNECTOR FROM THE REAR OF THE CDU. DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these steps to remove the CDU [1]:

(a) Loosen the six quick-release fasteners [2] on the front of the CDU [1].

(b) Pull the CDU [1] out of the panel until you can get access to the electrical connector [3].

(c) Disconnect the electrical connector [3].

(d) Remove the CDU [1] from the panel.

(e) Put a protective cover on the electrical connector [3].

——— END OF TASK ———

ECCN 9E991 BOEING PROPRIETARY - See title page for details

CDU Installation
Figure 401/34-61-01-990-802

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-01-400-802

3. FMCS Control Display Unit (CDU) - Installation

(Figure 401)

A. References

Reference	Title
34-61-00-750-802	CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU) (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. FMCS Control Display Unit (CDU) Installation

SUBTASK 34-61-01-420-007

CAUTION DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

CAUTION AIR DUCT OBSTRUCTIONS IN THE CDU MOUNTING PEDESTAL CAN DAMAGE CDU OR CAUSE CDU SHUTOFF DUE TO OVERHEATING.

(1) Do these steps to install the CDU [1]:

(a) Remove the protective cover from the electrical connector [3].

(b) Examine the electrical electrical connector [3] for bent or broken pins, dirt, and damage.

(c) Inspect the interior of the CDU [1] mounting pedestal and remove any loose materials or tools which might obstruct the air duct or cause damage.

(d) Connect the electrical connector [3] to the CDU [1].

(e) Carefully lower the CDU [1] into the panel.

(f) Tighten the six quarter-turn fasteners [2].

SUBTASK 34-61-01-860-048

(2) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 426; LOM 404 PRE SB 737-23-1484 (Continued)

(Continued)

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2

LOM 407, 420, 422, 425, 429-431, 433, 434, 440, 442-444, 453, 454

SUBTASK 34-61-01-710-005

(3) If the INVALID CDU MODE page is shown on the CDU:

(a) Push the LSK for the FANS MCDU.

LOM ALL; AIRPLANES WITH LCD CDUS

SUBTASK 34-61-01-470-002

(4) Make sure that the software part number is correct. Do this task: CDU Software Configuration Check (AIRPLANES WITH LIQUID CRYSTAL DISPLAY CDU), TASK 34-61-00-750-802.

LOM ALL

D. Installation Test

LOM 404, 420, 426; AIRPLANES WITH CDUs

SUBTASK 34-61-01-710-006

(1) Do an installation test of the control display unit:

(a) Make sure that the CDU display shows the IDENT 1/2 page.

(b) Set the MASTER DIM and TEST switch to the TEST position.

(c) Make sure that the DSPY, FAIL, MSG, OFST, and EXEC lights on the CDU are on.

LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484; AIRPLANES WITH MULTI-PURPOSE CDUs

SUBTASK 34-61-01-710-007

(2) Do an installation test of the multi-purpose control display unit:

(a) Make sure that the MCDU shows <FMC on the MENU page.

(b) Set the MASTER DIM and TEST switch to the TEST position.

(c) Make sure that the CALL, FAIL, MSG, OFST, and EXEC lights on the MCDU are on.

LOM ALL

E. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-01-420-008

(1) Put the control lever for the landing gear in the DN position.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FMCS COMPUTER - REMOVAL/INSTALLATION

1. General

A. This procedure contains these tasks:

(1) A removal of the FMCS computer

(2) An installation of the FMCS computer.

B. You can find the FMCS computer in the main equipment center on the E5-2 shelf.

TASK 34-61-02-000-801

2. FMCS Computer Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. FMCS Computer Removal

SUBTASK 34-61-02-860-019

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2
LOM ALL			
D	16	C01262	FMCS CMPTR 2

SUBTASK 34-61-02-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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SUBTASK 34-61-02-860-004

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE FMCS COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FMCS COMPUTER.

(3) To remove the FMCS computer [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

F28258 S0006577356_V2

FMCS - Computer Installation
Figure 401/34-61-02-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

ELECTRONIC EQUIPMENT RACK, E5

A

H61498 S0006577357_V2

FMCS - Computer Installation
Figure 401/34-61-02-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-02-400-801

3. FMCS Computer Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Installation Procedure

SUBTASK 34-61-02-860-021

(1) Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2
LOM ALL			
D	16	C01262	FMCS CMPTR 2

SUBTASK 34-61-02-860-008

CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE FMCS COMPUTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FMCS COMPUTER.

(2) To install the FMCS computer [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-02-010-002

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 34-61-02-860-023

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999; LOM 404 POST SB 737-23-1484			
D	15	C01239	FMCS MCDU 2
LOM ALL			
D	16	C01262	FMCS CMPTR 2

E. Installation Test

SUBTASK 34-61-02-710-003

(1) Do this task: Flight Management Computer System - Operational Test, TASK 34-61-00-710-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-02-860-024

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIRBORNE DATA LOADER - MAINTENANCE PRACTICES

1. General

A. This procedure has the following tasks:

(1) Airborne Data Loader (ADL) Deactivation.

(2) Airborne Data Loader (ADL) Activation.

(3) Clean the Airborne Data Loader (ADL) head without removing the equipment from the airplane.

B. A commercial disk drive cleaning kit may be use to clean the heads. All 3.5 inch disk drives have 2 heads (1 on each side of the diskette), so any kit will work.

TASK 34-61-03-040-801

2. Airborne Data Loader - Deactivation

A. General

(1) This procedure removes electrical power to the Airborne Data Loader (ADL) system.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-61-03-860-015

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

D. Airborne Data Loader - Tryout

NOTE: This tryout is to make sure the Airborne Data Loader is in a zero energy state.

SUBTASK 34-61-03-860-016

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-03-860-018

(2) Make sure the PWR indicator light is not illuminated.

END OF TASK

TASK 34-61-03-440-801

3. Airborne Data Loader - Activation

A. General

(1) This procedure adds electrical power to the ADL system.

B. Location Zones

Zone	Area
211	Flight Compartment - Left

ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

Zone	Area
212	Flight Compartment - Right

C. **Procedure**

SUBTASK 34-61-03-860-017

(1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

END OF TASK

TASK 34-61-03-100-801

4. **Airborne Data Loader Head Cleaning**

A. **Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. **Procedure**

SUBTASK 34-61-03-160-001

(1) Follow the directions supplied with the cleaning kit.

SUBTASK 34-61-03-160-002

(2) Insert the cleaning disk in the ADL.

SUBTASK 34-61-03-860-011

(3) Make sure the disk drive access LED goes on for approximately 1 second.

NOTE: The disk drive access LED goes on for approximately 1 second, then nothing appears to happen for several seconds (no more than 10 seconds).

SUBTASK 34-61-03-860-012

(4) Make sure that either the CHNG or the R/W LED on the ADL goes on.

SUBTASK 34-61-03-860-013

(5) Ignore the LED.

SUBTASK 34-61-03-020-004

(6) Eject the cleaning disk.

SUBTASK 34-61-03-160-003

(7) Do steps (2) thru (6) again, approximately 10 to 30 times to meet the kit cleaning directions.

NOTE: Cleaning kits normally require that the cleaning disk be in contact with the heads for 10 or 30 seconds. Each insertion of the cleaning disk causes approximately 1 second of head/disk contact. Therefore, many insertions are required.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-03-020-005

(8) Discard the cleaning disk.

NOTE: If the cleaning kit uses a liquid on the cleaning disk, the cleaning disk may be reused on subsequent cleaning sessions. If the kit does not use a liquid (i.e., dry method), the cleaning disk should be discarded after cleaning the ADL. The dry method expects the heads to be positioned over a different track during each session. The liquid method always put the heads on the same track.

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

AIRBORNE DATA LOADER - REMOVAL/INSTALLATION

1. General

A. This procedure contains the following tasks:

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438

(1) A removal of the Airborne Data Loader (ADL)

(2) An installation of the ADL

LOM 429-431, 440, 442-447, 450-460, 464-999

(3) A removal of the Enhanced Airborne Data Loader (eADL)

(4) An installation of the eADL.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

B. You can find the ADL in the control cabin on the P61 Panel.

C. Quick-release fasteners hold the ADL in position. One electrical connector attaches an electrical cable to the rear of the ADL.

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438

TASK 34-61-03-000-801

2. Airborne Data Loader Removal

A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 34-61-03-860-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-03-020-006

CAUTION

ESDS COMPONENTS AND UNITS MUST BE PROTECTED FROM STATIC DISCHARGE DAMAGE AT ALL TIMES.

(2) Do this task ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802 as part of the removal procedure for the ADL.

SUBTASK 34-61-03-020-001

(3) Release the quick-release fasteners on the front of the ADL.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-03-010-004

(4) Pull the ADL out of P61 Control Panel. Disconnect the electrical connector on the rear of the ADL.

SUBTASK 34-61-03-020-003

(5) Remove the ADL.

——— END OF TASK ———

TASK 34-61-03-400-801

3. Airborne Data Loader - Installation

A. References

Reference	Title
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Installation

SUBTASK 34-61-03-860-002

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

D. Airborne Data Loader Installation

SUBTASK 34-61-03-420-007

CAUTION

ESDS COMPONENTS AND UNITS MUST BE PROTECTED FROM STATIC DISCHARGE DAMAGE AT ALL TIMES.

(1) Do this task ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802 as part of the installation procedure for the ADL.

SUBTASK 34-61-03-210-001

(2) Examine the ADL connect for dust, loose or bent pins.

SUBTASK 34-61-03-410-001

(3) Connect the electrical connector to the rear of the ADL.

SUBTASK 34-61-03-420-006

(4) Put the ADL in its position on the P61 Panel.

NOTE: Install the unit with the lever at the top of the ADL.

SUBTASK 34-61-03-410-002

(5) Tighten the quick-release fasteners on the front of the ADL.

ECCN 9E991 BOEING PROPRIETARY - See title page for details

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 432-434, 437, 438 (Continued)

E. Airborne Data Loader Installation Test

SUBTASK 34-61-03-860-004

(1) Put the ADL selector switch to the NORMAL position.

SUBTASK 34-61-03-860-005

(2) Open the door on the ADL to gain access to the diskette drive.

(a) Remove the plastic diskette (if installed) from the diskette drive.

SUBTASK 34-61-03-860-006

(3) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 34-61-03-710-001

(4) Make sure that the PWR indicator comes on when power is applied.

(a) Make sure that the remaining indicators on the ADL come on and then go off.

(b) The FAIL indicator comes on if the internal Built-in Test (BIT) circuity detects a fault which reduces the integrity of the ADL.

END OF TASK

LOM 429-431, 440, 442-447, 450-460, 464-999

TASK 34-61-03-000-803

4. Enhanced Airborne Data Loader Removal

(Figure 401)

A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Enhanced Airborne Data Loader Removal

SUBTASK 34-61-03-860-025

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER
B	10	C01192	FMCS BITE DC

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-03-020-010

CAUTION

ESDS COMPONENTS AND UNITS MUST BE PROTECTED FROM STATIC DISCHARGE DAMAGE AT ALL TIMES.

(2) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802 as part of the removal procedure for the eADL [2].

SUBTASK 34-61-03-020-011

(3) Release the quick-release fasteners [1] on the front of the eADL [2].

SUBTASK 34-61-03-010-006

(4) Pull out the eADL [2] out of the P61 Control Panel.

SUBTASK 34-61-03-010-007

(5) Disconnect the electrical connector on the rear of the eADL [2].

SUBTASK 34-61-03-020-012

(6) Remove the eADL [2].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Enhanced Airborne Data Loader Installation
Figure 401/34-61-03-990-803 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Enhanced Airborne Data Loader Installation
Figure 401/34-61-03-990-803 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-03-400-803

5. Enhanced Airborne Data Loader Installation

(Figure 401)

A. References

Reference	Title
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Enhanced Airborne Data Loader Installation

SUBTASK 34-61-03-860-026

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER
B	10	C01192	FMCS BITE DC

SUBTASK 34-61-03-420-010

> **CAUTION**
> ESDS COMPONENTS AND UNITS MUST BE PROTECTED FROM STATIC DISCHARGE DAMAGE AT ALL TIMES.

(2) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802 as part of the installation procedure for the eADL [2].

SUBTASK 34-61-03-210-003

(3) Examine the eADL [2] connector for dust, loose or bent pins.

SUBTASK 34-61-03-410-004

(4) Connect the electrical connector to the rear of the eADL [2].

SUBTASK 34-61-03-420-011

(5) Put the eADL [2] in its position on the P61 control panel.

(a) Install the unit with the lever at the top of the eADL [2].

LOM 429-431, 440, 442-447, 450-460, 464-999; AIRPLANES WITH BLANKET PANEL

(b) Install the eADL [2] with the blanket panel [3].

LOM 429-431, 440, 442-447, 450-460, 464-999

SUBTASK 34-61-03-410-005

(6) Tighten the quick-release fasteners [1] on the front of the eADL [2].

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LOM 429-431, 440, 442-447, 450-460, 464-999 (Continued)

D. Enhanced Airborne Data Loader Installation Test

SUBTASK 34-61-03-860-028

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER
B	10	C01192	FMCS BITE DC

SUBTASK 34-61-03-710-002

(2) Make sure that the PWR indicator on the eADL [2] comes on when power is applied.

(a) Make sure that the remaining indicators on the eADL [2] come on and then go off.

(b) The eADL [2] does an internal self-test when power is applied. Check that the HEAT and FAIL indicators do not come on and the Main Menu is displayed.

(c) The HEAT indicator comes on when power is applied and the unit internal temperature is below the operating temperature of approximately 5°F (-15°C). When this occurs, the unit will not function correctly until the internal temperature reaches operational level.

(d) The FAIL indicator comes on if the internal Built-In-Test (BIT) circuitry detects a fault which reduces the integrity of the eADL [2].

LOM 402, 404, 406, 407, 411, 416, 420, 422, 425, 426, 429-434, 437, 438, 440, 442-447, 450-460, 464-999

——— END OF TASK ———

TASK 34-61-03-000-804

6. Data Load Selector Panel Removal

(Figure 402)

A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Data Load Selector Panel Removal

SUBTASK 34-61-03-960-001

(1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-03-020-013

CAUTION

ESDS COMPONENTS AND UNITS MUST BE PROTECTED FROM STATIC DISCHARGE DAMAGE AT ALL TIMES.

(2) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

NOTE: This procedure should be done as part of the removal procedure for the data load selector panel.

SUBTASK 34-61-03-020-014

(3) Remove the quick-release fasteners [1] on the front of the data load selector panel [4].

SUBTASK 34-61-03-010-009

(4) Pull the data load selector panel [4] out of P61 control panel.

SUBTASK 34-61-03-010-010

(5) Disconnect the electrical connectors on the rear of the data load selector panel [4].

SUBTASK 34-61-03-020-015

(6) Remove the data load selector panel [4].

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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Data Load Selector Panel Installation
Figure 402/34-61-03-990-804

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-03-400-804

7. Data Load Selector Panel Installation

(Figure 402)

A. References

Reference	Title
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Installation

SUBTASK 34-61-03-960-002

(1) Make sure that this circuit breaker is open and has safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

D. Data Load Selector Panel Installation

SUBTASK 34-61-03-420-012

> **CAUTION**
> ESDS COMPONENTS AND UNITS MUST BE PROTECTED FROM STATIC DISCHARGE DAMAGE AT ALL TIMES.

(1) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

NOTE: This procedure should be done as part of the installation procedure for the data load selector panel.

SUBTASK 34-61-03-210-004

(2) Examine the connectors of the data load selector panel [4] for dust, loose, or bent pins.

SUBTASK 34-61-03-410-007

(3) Connect the electrical connectors to the rear of the data load selector panel [4].

SUBTASK 34-61-03-420-013

(4) Put the data load selector panel [4] in its position on the P61 control panel.

SUBTASK 34-61-03-410-008

(5) Tighten the quick-release fasteners [1] on the front of the data load selector panel [4].

SUBTASK 34-61-03-960-003

(6) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FMCS TRANSFER RELAYS - REMOVAL/INSTALLATION

1. General

A. This procedure contains these tasks:

(1) Flight Management Computer System (FMCS) Transfer Relay Removal.

(2) FMCS Transfer Relay Installation.

B. There are two FMCS transfer relays installed on the E5-2 shelf in the electrical and electronics compartment.

TASK 34-61-04-000-801

2. FMCS Transfer Relay Removal

(Figure 401)

A. General

(1) This task includes the steps to remove the FMCS transfer relay.

(2) The removal procedure is the same for both FMCS transfer relays.

B. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 34-61-04-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999			
D	16	C01262	FMCS CMPTR 2
E	15	C01263	FMCS XFR

SUBTASK 34-61-04-010-001

(2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 34-61-04-010-002

(3) To remove the FMCS transfer relay bracket, do this task: E/E Box Removal, TASK 20-10-07-000-801.

F. FMCS Transfer Relay Removal

SUBTASK 34-61-04-020-002

(1) Do these steps to remove the FMCS transfer relay:

(a) Disconnect the electrical connector from the FMCS transfer relay.

(b) Remove the screws from the bracket.

(c) Remove the FMCS transfer relay.

——— END OF TASK ———

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FMCS Transfer Relay Installation
Figure 401/34-61-04-990-801 (Sheet 1 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

FMCS TRANSFER RELAY BRACKET
(ELECTRONIC EQUIPMENT SHELF)
(EXAMPLE)

B

2309449 S0000524887_V2

FMCS Transfer Relay Installation
Figure 401/34-61-04-990-801 (Sheet 2 of 2)

ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 34-61-04-400-801

3. FMCS Transfer Relay Installation

(Figure 401)

A. General

(1) This task includes the steps to install the FMCS transfer relay.

(2) The installation procedure is the same for both FMCS transfer relays.

B. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
34-61-00-470-804	FMC Software Installation with an Airborne Data Loader (P/B 201)
34-61-00-470-805	FMC Software Installation with a Portable Data Loader (P/B 201)
34-61-00-470-811	FMC Software Installation with an Enhanced Airborne Data Loader (P/B 201)
34-61-00-710-801	Flight Management Computer System - Operational Test (P/B 501)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. FMCS Transfer Relay Installation

SUBTASK 34-61-04-420-001

(1) Do these steps to install the FMCS transfer relay:

(a) Put the FMCS transfer relay in the bracket.

(b) Install the screws.

(c) Connect the applicable electrical connectors to the FMCS transfer relay.

SUBTASK 34-61-04-410-001

(2) To install the FMCS transfer relay bracket, do this task: E/E Box Installation, TASK 20-10-07-400-801.

F. Prepare for the FMCS Transfer Relay Installation Test

SUBTASK 34-61-04-860-003

(1) Make sure the BAT switch on the pilots' forward overhead panel is in the ON position.

SUBTASK 34-61-04-860-004

(2) Make sure the STANDBY POWER switch on the pilots' forward overhead panel is in the AUTO position.

SUBTASK 34-61-04-860-005

(3) Make sure the FMC SOURCE SELECT SWITCH on the pilots' forward overhead panel is in the NORMAL position.

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SUBTASK 34-61-04-860-006

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-425, 427-434, 437-447, 450-999			
A	7	C01238	FMCS MCDU 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	15	C01239	FMCS MCDU 2
LOM 402, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999			
D	16	C01262	FMCS CMPTR 2
E	15	C01263	FMCS XFR

G. FMCS Transfer Relay Installation Test

SUBTASK 34-61-04-710-001

(1) Do these steps for the annunciator test:

(a) Make sure the FMC SOURCE SELECT SWITCH is set to the NORMAL position.

NOTE: If the MENU page is displayed on either CDU, press the LSK adjacent to FMC on that CDU.

(b) Push the CLR Key on the CDUs to remove the alert level message from the CDU scratchpad.

(c) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

(d) Make sure the FMC P/RST annunciator lights on the captain's (P1) and first officer's (P3) instrument panels come on.

(e) Push the FMC P/RST annunciator lights on the autoflight status annunciators (ASAs) and make sure that the lights go off.

(f) Set the FMC SOURCE SELECT SWITCH to the BOTH ON R position.

NOTE: If the MENU page is displayed on either CDU, press the LSK adjacent to FMC on that CDU.

(g) Push the CLR Key on the CDUs to remove the alert level message from the CDU scratchpad.

(h) Make sure that the FMC P/RST annunciator lights on the captain's and first officer's ASAs are off.

(i) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

(j) Make sure the FMC P/RST annunciator lights on the captain's and first officer's ASAs come on.

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(k) Push the FMC P/RST annunciator lights on the ASAs and make sure that the lights go off.

(l) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

(m) After 15 seconds, set the FMC SOURCE SELECT SWITCH to the BOTH ON L position.

NOTE: If the MENU page is displayed on either CDU, press the LSK adjacent to FMC on that CDU.

(n) Push the CLR Key on the CDUs to remove the alert level message from the CDU scratchpad.

(o) Make sure that the FMC P/RST annunciator lights on the captain's and first officer's ASAs are off.

(p) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

(q) After 15 seconds, set the FMC SOURCE SELECT SWITCH to the NORMAL position.

(r) Make sure that the FMC P/RST annunciator lights on the captain's and first officer's ASAs are still off.

(s) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

(t) Put the MASTER DIM and TEST switch in the TEST position.

(u) Make sure that the MSG, CALL, FAIL, OFST, and EXEC annunciator lights on the CDUs come on.

(v) Make sure that the FMC P/RST annunciator lights on the captain's and first officer's ASAs come on.

(w) Push the FMC P/RST annunciator lights on the ASAs and make sure that the lights go off.

(x) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

H. Operational Program, Navigation Database, and Fixed Outputs Checks

SUBTASK 34-61-04-710-002

(1) If it is necessary, do the “Prepare for Test” steps from Flight Management Computer System - Operational Test, TASK 34-61-00-710-801.

SUBTASK 34-61-04-710-003

(2) Do these steps to examine the operational program and navigation database:

(a) Set the FMC SOURCE SELECT SWITCH to the BOTH ON L position.

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(b) Push the INIT REF key on the two CDUs.

(c) Push the line select key (LSK) adjacent to INDEX on the two CDUs.

(d) Push the LSK adjacent to IDENT on the two CDUs.

(e) Make sure the two CDUs show the IDENT 1/X page.

(f) Make sure the part number of the OP PROGRAM is correct on the two CDUs.

NOTE: The applicable airline department has the correct part number for the OP PROGRAM.

1) If the OP PROGRAM is incorrect, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805 or FMC Software Installation with an Enhanced Airborne Data Loader, TASK 34-61-00-470-811.

(g) Make sure the part number of the NAV DATA is correct on the CDU.

NOTE: The applicable airline department has the correct part number for the NAV DATA.

1) If the NAV DATA is incorrect, do this task: FMC Software Installation with an Airborne Data Loader, TASK 34-61-00-470-804 or FMC Software Installation with a Portable Data Loader, TASK 34-61-00-470-805 or FMC Software Installation with an Enhanced Airborne Data Loader, TASK 34-61-00-470-811.

(h) Make sure the date of the NAV DATA is correct on the two CDUs.

NOTE: You can find the dates for the active navigation database below ACTIVE.

SUBTASK 34-61-04-710-004

(3) Do these steps to do a test of the FMCS fixed outputs.

(a) Make sure that the captain's and first officer's MAIN PANEL CDUs switches are set to NORM.

(b) Make sure that the captain's and first officer's LOWER CDUs switches are set to NORM.

(c) Select MAP mode on the captain's and first officer's EFIS control panels.

(d) Set the N1 SET switch to AUTO.

(e) Make sure that the FMC SOURCE SELECT SWITCH is set to NORMAL.

(f) Push the INIT REF key on the two CDUs.

(g) Push the line select key (LSK) adjacent to INDEX on the two CDUs.

(h) Push the LSK adjacent to MAINT on the two CDUs.

(i) Push the LSK adjacent to FMCS on the two CDUs.

(j) Push the LSK adjacent to L FMC on the captain's CDU.

(k) Push the LSK adjacent to R FMC on the first officer's CDU.

(l) Push the LSK adjacent to FIXED OUTPUTS on the two CDUs.

(m) Make sure that the captain's and first officer's EFIS display shows "FMC INTERFACE OK".

(n) Make sure that the OFST, FAIL, and MSG annunciator lights on the two CDUs come on.

(o) Make sure that the FMC P/RST annunciator lights on the two CDUs come on.

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(p) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

(q) Make sure that the thrust mode annunciator on engine format above the N1 display cycles through these thrust modes: CRZ, CLB, - - -, CON, TO, GA.

(r) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	16	C01262	FMCS CMPTR 2

NOTE: Wait at least 15 seconds after closing the circuit breaker.

(s) Set the FMC SOURCE SELECT SWITCH to BOTH ON R.

NOTE: If the MENU page is displayed on either CDU, press the LSK adjacent to FMC on that CDU.

(t) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

(u) Push the LSK adjacent to R FMC on the first officer's CDU.

(v) Push the LSK adjacent to FIXED OUTPUTS on the first officer's CDU.

(w) Make sure that the thrust mode annunciator on engine format above the N1 display cycles through these thrust modes: CRZ, CLB, - - -, CON, TO, GA.

(x) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1

NOTE: Wait at least 15 seconds after closing the circuit breaker.

(y) Push the LSK adjacent to INDEX on the first officer's CDU.

(z) Set the FMC SOURCE SELECT SWITCH to NORMAL.

NOTE: If the MENU page is displayed on either CDU, press the LSK adjacent to FMC on that CDU.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 34-61-04-410-002

(1) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

ECCN 9E991 BOEING PROPRIETARY - See title page for details