

CHAPTER

24

**ELECTRICAL
POWER**



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
24-EFFECTIVE PAGES			24-11-00			24-11-11 (cont)		
1 thru 5	Feb 15/2025		501	Oct 15/2024		R 418	Feb 15/2025	
6	BLANK		502	Oct 15/2024		R 419	Feb 15/2025	
24-CONTENTS			503	Oct 15/2024		O 420	Feb 15/2025	
O 1	Feb 15/2025		504	Oct 15/2024		24-11-11		
2	Jun 15/2024		505	Oct 15/2024		601	Oct 15/2022	
3	Feb 15/2024		506	Oct 15/2024		602	Oct 15/2022	
4	Feb 15/2024		R 507	Feb 15/2025		603	Oct 15/2022	
5	Feb 15/2024		O 508	Feb 15/2025		604	Oct 15/2022	
6	Oct 15/2024		509	Feb 15/2023		605	Oct 15/2022	
7	Oct 15/2024		510	Feb 15/2023		606	Feb 15/2019	
8	Oct 15/2024		511	Oct 15/2024		24-11-21		
9	Oct 15/2024		512	Oct 15/2024		201	Oct 15/2021	
10	Oct 15/2024		513	Oct 15/2024		202	Oct 15/2021	
11	Feb 15/2024		514	Oct 15/2024		203	Jun 15/2024	
12	BLANK		515	Oct 15/2024		204	Jun 15/2024	
24-00-00			R 516	Feb 15/2025		205	Jun 15/2024	
201	Oct 15/2014		517	Feb 15/2024		206	Jun 15/2024	
202	BLANK		518	Oct 15/2024		207	Jun 15/2024	
24-00-00			24-11-11			208	BLANK	
901	Oct 15/2024		401	Oct 15/2024		24-11-21		
902	Oct 15/2024		402	Oct 15/2022		401	Oct 15/2021	
903	Oct 15/2024		403	Jun 15/2023		402	Oct 15/2023	
904	BLANK		404	Jun 15/2023		403	Oct 15/2024	
24-11-00			405	Jun 15/2023		404	Oct 15/2020	
201	Oct 15/2015		R 406	Feb 15/2025		405	Oct 15/2021	
202	Feb 15/2015		R 407	Feb 15/2025		406	Oct 15/2020	
203	Oct 15/2015		R 408	Feb 15/2025		407	Oct 15/2021	
204	Oct 15/2024		R 409	Feb 15/2025		408	BLANK	
205	Feb 15/2020		R 410	Feb 15/2025		24-11-41		
206	Oct 15/2017		O 411	Feb 15/2025		201	Jun 15/2023	
207	Oct 15/2015		O 412	Feb 15/2025		202	Jun 15/2023	
208	Oct 15/2023		O 413	Feb 15/2025		203	Oct 15/2015	
209	Feb 15/2022		R 414	Feb 15/2025		204	Feb 15/2024	
210	Jun 15/2020		O 415	Feb 15/2025		205	Feb 15/2024	
211	Oct 15/2017		R 416	Feb 15/2025		206	Feb 15/2024	
212	BLANK		O 417	Feb 15/2025		207	Oct 15/2015	
						208	Jun 15/2023	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

24-EFFECTIVE PAGES



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
24-11-41 (cont)			24-21-00			24-21-22 (cont)		
209	Oct 15/2023		201	Oct 15/2017		407	Oct 15/2015	
210	BLANK		202	Oct 15/2017		408	Oct 15/2024	
24-11-42			203	Oct 15/2015		409	Feb 15/2024	
R 401	Feb 15/2025		204	Oct 15/2015		410	Feb 15/2024	
O 402	Feb 15/2025		205	Oct 15/2017		411	Feb 15/2024	
O 403	Feb 15/2025		206	Oct 15/2017		412	BLANK	
404	Feb 15/2024	24-21-00				24-21-41		
405	Feb 15/2024		501	Oct 15/2017		401	Feb 15/2024	
406	Feb 15/2024		502	Feb 15/2023		402	Feb 15/2024	
24-11-61			503	Feb 15/2023		403	Oct 15/2015	
401	Feb 15/2023		504	Feb 15/2023		404	Oct 15/2015	
402	Feb 15/2023		505	Feb 15/2023		405	Oct 15/2015	
403	Feb 15/2023		506	Feb 15/2023		406	Oct 15/2024	
R 404	Feb 15/2025		507	Feb 15/2023		407	Feb 15/2024	
R 405	Feb 15/2025		508	Oct 15/2015		408	Feb 15/2024	
406	BLANK		509	Jun 15/2015		24-21-51		
24-11-61			510	Oct 15/2017		401	Oct 15/2023	
601	Oct 15/2023		511	Oct 15/2017		402	Oct 15/2023	
602	Oct 15/2023		512	BLANK		403	Jun 15/2017	
603	Jun 15/2018	24-21-21				404	Jun 15/2024	
604	Jun 15/2018		401	Oct 15/2024		405	Oct 15/2017	
605	Jun 15/2018		402	Oct 15/2024		406	BLANK	
606	BLANK		403	Jun 15/2023		24-21-52		
24-11-62			404	Oct 15/2015		401	Oct 15/2023	
401	Oct 15/2022		405	Feb 15/2019		402	Oct 15/2015	
402	Oct 15/2022		406	Feb 15/2019		403	Oct 15/2024	
403	Oct 15/2019		407	Oct 15/2015		404	Oct 15/2022	
404	Oct 15/2022		408	Oct 15/2024		24-21-53		
405	Oct 15/2022		409	Jun 15/2023		401	Oct 15/2023	
406	BLANK		410	Jun 15/2023		402	Oct 15/2015	
24-11-64			24-21-22			403	Feb 15/2023	
401	Feb 15/2024		401	Feb 15/2024		404	Feb 15/2023	
402	Feb 15/2024		402	Feb 15/2024		24-21-71		
403	Feb 15/2024		403	Feb 15/2024		401	Oct 15/2017	
404	Feb 15/2024		404	Oct 15/2015		402	Oct 15/2014	
405	Feb 15/2024		405	Oct 15/2015		403	Oct 15/2015	
406	Feb 15/2024		406	Oct 15/2015		404	Oct 15/2015	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

24-EFFECTIVE PAGES



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
24-21-71 (cont)			24-31-00			24-31-11		
405	Oct 15/2015		501	Feb 15/2024		501	Oct 15/2024	
406	Oct 15/2015		502	Feb 15/2024		502	Oct 15/2024	
407	Oct 15/2024		503	Feb 15/2024		503	Oct 15/2024	
408	Jun 15/2023		504	Feb 15/2024		504	Oct 15/2024	
409	Jun 15/2023		505	Feb 15/2024		24-31-11		
410	BLANK		506	Feb 15/2024		601	Oct 15/2024	
24-21-81			24-31-11			602	Oct 15/2024	
401	Feb 15/2024		201	Feb 15/2023		603	Feb 15/2023	
402	Feb 15/2024		202	Feb 15/2023		604	Oct 15/2024	
403	Feb 15/2024		203	Feb 15/2023		605	Oct 15/2024	
404	Feb 15/2024		204	BLANK		606	Oct 15/2024	
405	Feb 15/2024		24-31-11 Config 1			607	Oct 15/2024	
406	Oct 15/2024		R 401	Feb 15/2025		608	Feb 15/2023	
407	Oct 15/2024		O 402	Feb 15/2025		609	Feb 15/2023	
408	Oct 15/2024		403	Jun 15/2018		610	BLANK	
24-22-00			404	Jun 15/2018		24-31-21 Config 2		
201	Oct 15/2020		405	Jun 15/2018		401	Oct 15/2024	
R 202	Feb 15/2025		R 406	Feb 15/2025		402	Oct 15/2023	
R 203	Feb 15/2025		R 407	Feb 15/2025		403	Feb 15/2020	
R 204	Feb 15/2025		R 408	Feb 15/2025		404	Oct 15/2024	
205	Oct 15/2015		409	Feb 15/2023		405	Jun 15/2023	
206	Oct 15/2024		410	BLANK		406	Jun 15/2023	
207	Oct 15/2024		24-31-11 Config 2			407	Oct 15/2024	
208	Oct 15/2017		R 401	Feb 15/2025		408	BLANK	
209	Oct 15/2017		R 402	Feb 15/2025		24-31-21		
210	Oct 15/2017		R 403	Feb 15/2025		501	Oct 15/2023	
211	Oct 15/2017		404	Oct 15/2024		502	Oct 15/2023	
212	Oct 15/2017		405	Feb 15/2020		503	Oct 15/2023	
213	Oct 15/2017		406	Oct 15/2024		504	Oct 15/2023	
214	Oct 15/2017		R 407	Feb 15/2025		24-31-31		
24-31-00			R 408	Feb 15/2025		401	Oct 15/2024	
201	Oct 15/2024		R 409	Feb 15/2025		402	Oct 15/2024	
202	Oct 15/2024		R 410	Feb 15/2025		403	Feb 15/2020	
203	Oct 15/2024		R 411	Feb 15/2025		404	Oct 15/2024	
204	Oct 15/2017		R 412	Feb 15/2025		405	Oct 15/2024	
205	Oct 15/2024		R 413	Feb 15/2025		406	Oct 15/2024	
206	Oct 15/2024		414	BLANK		407	Oct 15/2024	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

24-EFFECTIVE PAGES



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
24-31-31 (cont)			24-32-11 (cont)			24-34-31 Config 1 (cont)		
408	BLANK		404	Feb 15/2024		404	Jun 15/2018	
24-31-31			405	Feb 15/2024		405	Jun 15/2018	
501	Oct 15/2024		406	Feb 15/2024		406	Jun 15/2018	
502	Oct 15/2024		407	Feb 15/2024		407	Oct 15/2021	
503	Oct 15/2024		408	BLANK		408	Oct 15/2021	
504	BLANK		24-34-00			409	Oct 15/2021	
24-31-41			201	Oct 15/2024		410	BLANK	
401	Oct 15/2024		202	Feb 15/2015		24-34-31 Config 2		
402	Oct 15/2024		203	Oct 15/2015		401	Oct 15/2024	
403	Oct 15/2024		204	Oct 15/2024		402	Oct 15/2024	
404	Oct 15/2024		24-34-00			403	Feb 15/2020	
405	Oct 15/2024		501	Oct 15/2023		404	Oct 15/2024	
406	Oct 15/2024		502	Jun 15/2024		405	Oct 15/2024	
407	Oct 15/2024		503	Jun 15/2018		406	Oct 15/2024	
408	Oct 15/2024		504	Oct 15/2024		407	Oct 15/2024	
409	Oct 15/2024		505	Oct 15/2024		408	Oct 15/2024	
410	Oct 15/2024		506	Oct 15/2024		409	Oct 15/2024	
411	Oct 15/2024		24-34-11			410	Oct 15/2024	
412	BLANK		401	Oct 15/2024		24-41-00		
24-31-41			402	Jun 15/2021		201	Oct 15/2017	
501	Oct 15/2024		403	Jun 15/2021		202	Oct 15/2017	
502	Oct 15/2024		404	Oct 15/2024		203	Oct 15/2015	
503	Oct 15/2024		405	Oct 15/2022		204	Oct 15/2017	
504	Oct 15/2024		406	BLANK		24-41-00		
505	Oct 15/2024		24-34-21			501	Feb 15/2024	
506	BLANK		401	Oct 15/2020		502	Feb 15/2024	
24-32-11			402	Jun 15/2024		503	Feb 15/2024	
201	Feb 15/2024		403	Oct 15/2017		504	Feb 15/2024	
202	Feb 15/2024		404	Jun 15/2024		505	Oct 15/2015	
203	Feb 15/2024		405	Jun 15/2024		506	Oct 15/2024	
204	Feb 15/2024		406	Jun 15/2024		507	Oct 15/2024	
205	Feb 15/2024		407	Jun 15/2024		508	BLANK	
206	Feb 15/2024		408	Jun 15/2024		24-41-11		
24-32-11			24-34-31 Config 1			401	Oct 15/2024	
401	Feb 15/2024		401	Oct 15/2021		402	Oct 15/2024	
402	Feb 15/2024		402	Oct 15/2021		403	Oct 15/2024	
403	Feb 15/2024		403	Jun 15/2018		404	Oct 15/2024	

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

24-EFFECTIVE PAGES



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
24-41-11 (cont)			24-41-11 (cont)			24-51-11 (cont)		
405	Oct 15/2024		611	Oct 15/2024		407	Oct 15/2024	
406	Oct 15/2024		612	Oct 15/2024		408	Feb 15/2024	
407	Oct 15/2024		613	Oct 15/2024		409	Feb 15/2024	
408	BLANK		614	Oct 15/2024		410	BLANK	
24-41-11 Config 1			615	Oct 15/2024		24-52-01		
401	Oct 15/2024		616	Oct 15/2024		401	Jun 15/2021	
402	Oct 15/2024		617	Oct 15/2024		402	Oct 15/2015	
403	Oct 15/2024		618	Oct 15/2024		403	Oct 15/2024	
404	Oct 15/2024		619	Oct 15/2024		404	Oct 15/2024	
405	Feb 15/2019		620	Jun 15/2024		24-61-01		
406	Oct 15/2024		621	Oct 15/2024		401	Jun 15/2021	
407	Oct 15/2024		622	Oct 15/2023		402	Jun 15/2021	
408	Oct 15/2024		623	Oct 15/2023		403	Oct 15/2015	
409	Oct 15/2024		624	BLANK		404	Oct 15/2024	
410	Oct 15/2024		24-41-12			405	Oct 15/2024	
411	Oct 15/2024		401	Feb 15/2024		406	Oct 15/2023	
412	Oct 15/2024		402	Feb 15/2024		407	Oct 15/2023	
24-41-11 Config 2			403	Oct 15/2015		408	Oct 15/2023	
401	Oct 15/2024		404	Oct 15/2015				
402	Oct 15/2024		405	Oct 15/2024				
403	Oct 15/2024		406	Feb 15/2024				
404	Oct 15/2024		407	Feb 15/2024				
405	Oct 15/2024		408	BLANK				
406	Oct 15/2024		24-41-21					
407	Oct 15/2024		401	Feb 15/2024				
408	Oct 15/2024		402	Feb 15/2024				
24-41-11			403	Oct 15/2015				
R 601	Feb 15/2025		404	Oct 15/2015				
R 602	Feb 15/2025		405	Feb 15/2024				
R 603	Feb 15/2025		406	Feb 15/2024				
604	Oct 15/2024		24-51-11					
605	Oct 15/2024		401	Feb 15/2024				
606	Oct 15/2024		402	Feb 15/2024				
607	Oct 15/2024		403	Jun 15/2021				
608	Oct 15/2024		404	Jun 15/2021				
609	Oct 15/2024		405	Jun 15/2021				
610	Oct 15/2024		406	Oct 15/2024				

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

24-EFFECTIVE PAGES



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	<u>CHAPTER</u>	<u>SECTION</u>	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>ELECTRICAL POWER - CIRCUIT BREAKER LISTS</u>	24-00-00		201			LOM ALL
<u>ELECTRICAL POWER - DDG MAINTENANCE PROCEDURES</u>	24-00-00		901			LOM ALL
MMEL 24-1 (DDPG) Preparation - Engine Driven Generator Systems (IDG) Inoperative			901			LOM ALL
TASK 24-00-00-040-801						
MMEL 24-1 (DDPG) Restoration - Engine Driven Generator Systems (IDG) Inoperative			902			LOM ALL
TASK 24-00-00-440-801						
<u>AC GENERATOR DRIVE SYSTEM - MAINTENANCE PRACTICES</u>	24-11-00		201			LOM ALL
IDG - Deactivation			201			LOM ALL
TASK 24-11-00-040-801						
IDG - Activation			204			LOM ALL
TASK 24-11-00-440-801						
IDG Oil System Static Leak Check			204			LOM ALL
TASK 24-11-00-700-801						
IDG Push-to-Vent Valve Replacement			208			LOM ALL
TASK 24-11-00-700-804						
<u>GENERATOR DRIVE SYSTEM - ADJUSTMENT/TEST</u>	24-11-00		501			LOM ALL
Number 1 IDG - Operational Test			501			LOM ALL
TASK 24-11-00-700-802						
Number 2 IDG - Operational Test			511			LOM ALL
TASK 24-11-00-700-803						
<u>INTEGRATED DRIVE GENERATOR (IDG) - REMOVAL/INSTALLATION</u>	24-11-11		401			LOM ALL
Integrated Drive Generator (IDG) Removal			401			LOM ALL
TASK 24-11-11-000-801						
Integrated Drive Generator (IDG) Installation			414			LOM ALL
TASK 24-11-11-400-801						
<u>INTEGRATED DRIVE GENERATOR (IDG) - INSPECTION/CHECK</u>	24-11-11		601			LOM ALL
Integrated Drive Generator - Disconnect and Reset Check			601			LOM ALL
TASK 24-11-11-700-801						

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	<u>CHAPTER</u>	<u>SECTION</u>	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
IDG AIR/OIL COOLER - MAINTENANCE PRACTICES	24-11-21				201	LOM ALL
Integrated Drive Generator (IDG) Air/Oil Cooler - Inspection/Check					201	LOM ALL
TASK 24-11-21-200-801						
Integrated Drive Generator (IDG) Air/Oil Cooler - Cleaning					205	LOM ALL
TASK 24-11-21-100-801						
IDG AIR/OIL COOLER - REMOVAL/INSTALLATION	24-11-21				401	LOM ALL
Integrated Drive Generator (IDG) Air/Oil Cooler - Removal					401	LOM ALL
TASK 24-11-21-000-801						
Integrated Drive Generator (IDG) Air/Oil Cooler - Installation					405	LOM ALL
TASK 24-11-21-400-801						
IDG SCAVENGE/CHARGE OIL FILTER - MAINTENANCE PRACTICES	24-11-41				201	LOM ALL
IDG Scavenge and Charge Filter - Removal					201	LOM ALL
TASK 24-11-41-000-801						
IDG Scavenge and Charge Filter - Inspection/Check					204	LOM ALL
TASK 24-11-41-200-801						
IDG Scavenge and Charge Filter - Installation					208	LOM ALL
TASK 24-11-41-400-801						
IDG DIFFERENTIAL PRESSURE INDICATOR - REMOVAL/INSTALLATION	24-11-42				401	LOM ALL
IDG Differential Pressure Indicator Removal					401	LOM ALL
TASK 24-11-42-000-801						
IDG Differential Pressure Indicator Installation					405	LOM ALL
TASK 24-11-42-400-801						
QUICK ATTACH/DETACH (QAD) ADAPTER - REMOVAL/INSTALLATION	24-11-61				401	LOM ALL
Quick Attach/Detach (QAD) Adapter Removal					401	LOM ALL
TASK 24-11-61-000-801						
Quick Attach/Detach (QAD) Adapter Installation					404	LOM ALL
TASK 24-11-61-400-801						

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	<u>CHAPTER</u>	<u>SECTION</u>	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>QUICK ATTACH/DETACH (QAD) ADAPTER - INSPECTION/CHECK</u>	24-11-61		QAD Adapter Torque Check TASK 24-11-61-200-801		601	LOM ALL
<u>IDG TERMINAL BLOCK - REMOVAL/INSTALLATION</u>	24-11-62		IDG Terminal Block Removal TASK 24-11-62-000-801		401	LOM ALL
			IDG Terminal Block Installation TASK 24-11-62-400-801		404	LOM ALL
<u>IDG OIL LEVEL SIGHT GLASS - REMOVAL/INSTALLATION</u>	24-11-64		IDG Oil Level Sight Glass Removal TASK 24-11-64-000-801		401	LOM ALL
			IDG Oil Level Sight Glass Installation TASK 24-11-64-400-801		405	LOM ALL
<u>AC GENERATION SYSTEM - MAINTENANCE PRACTICES</u>	24-21-00		AC Generation and Load System - Deactivation TASK 24-21-00-040-801		201	LOM ALL
			AC Generation and Load System - Activation TASK 24-21-00-440-801		205	LOM ALL
<u>AC GENERATION SYSTEM - ADJUSTMENT/TEST</u>	24-21-00		Operational Test for the AC Generation and Control System TASK 24-21-00-700-803		501	LOM ALL
			System Test for the AC Generation and Control System TASK 24-21-00-700-802		509	LOM ALL
<u>POWER DISTRIBUTION PANEL - REMOVAL/INSTALLATION</u>	24-21-21		Power Distribution Panel Removal TASK 24-21-21-000-801		401	LOM ALL
			Power Distribution Panel Installation TASK 24-21-21-400-801		408	LOM ALL

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	<u>CHAPTER</u>	<u>SECTION</u>	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>RIGID BUS ASSEMBLY - REMOVAL/INSTALLATION</u>	24-21-22				401	LOM ALL
Rigid Bus Assembly Removal					401	LOM ALL
TASK 24-21-22-000-801						
Rigid Bus Assembly Installation					408	LOM ALL
TASK 24-21-22-400-801						
<u>GENERATOR, BUS TIE AND AUXILIARY POWER BREAKERS - REMOVAL/INSTALLATION</u>	24-21-41				401	LOM ALL
Breaker Removal					401	LOM ALL
TASK 24-21-41-000-801						
Breaker Installation					406	LOM ALL
TASK 24-21-41-400-801						
<u>AC SYSTEM GENERATOR AND APU MODULE (P5-4) - REMOVAL/INSTALLATION</u>	24-21-51				401	LOM ALL
AC System Generator and APU Module Removal					401	LOM ALL
TASK 24-21-51-000-801						
AC System Generator and APU Module Installation					404	LOM ALL
TASK 24-21-51-400-801						
<u>GENERATOR DRIVE AND STANDBY POWER MODULE (P5-5) - REMOVAL/INSTALLATION</u>	24-21-52				401	LOM ALL
Generator Drive and Standby Power Module Removal					401	LOM ALL
TASK 24-21-52-000-801						
Generator Drive and Standby Power Module Installation					403	LOM ALL
TASK 24-21-52-400-801						
<u>ELECTRICAL METERS, BATTERY AND GALLEY POWER MODULE (P5-13) - REMOVAL/INSTALLATION</u>	24-21-53				401	LOM ALL
Electrical Meters, Battery and Galley Power Module Removal					401	LOM ALL
TASK 24-21-53-000-801						
Electrical Meters, Battery and Galley Power Module Installation					403	LOM ALL
TASK 24-21-53-400-801						

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	<u>CHAPTER</u>	<u>SECTION</u>	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>CURRENT TRANSFORMER - REMOVAL/INSTALLATION</u>	24-21-71		Current Transformer Removal TASK 24-21-71-000-801		401	LOM ALL
			Current Transformer Installation TASK 24-21-71-400-801		407	LOM ALL
<u>GENERATOR CONTROL UNIT - REMOVAL/INSTALLATION</u>	24-21-81				401	LOM ALL
			Generator Control Unit Removal TASK 24-21-81-000-801		401	LOM ALL
			Generator Control Unit Installation TASK 24-21-81-400-801		406	LOM ALL
<u>MANUAL CONTROL - MAINTENANCE PRACTICES</u>	24-22-00				201	LOM ALL
			Supply Electrical Power TASK 24-22-00-860-811		201	LOM ALL
			Remove Electrical Power TASK 24-22-00-860-812		201	LOM ALL
			Supply External Power TASK 24-22-00-860-813		202	LOM ALL
			Remove External Power TASK 24-22-00-860-814		208	LOM ALL
			Supply APU Generator Power TASK 24-22-00-860-815		209	LOM ALL
			Remove APU Generator Power TASK 24-22-00-860-816		210	LOM ALL
			Supply IDG Power TASK 24-22-00-860-817		211	LOM ALL
			Remove IDG Power TASK 24-22-00-860-818		213	LOM ALL
<u>DC GENERATION SYSTEM - MAINTENANCE PRACTICES</u>	24-31-00				201	LOM ALL
			DC Generation System - Deactivation TASK 24-31-00-040-801		201	LOM ALL
			DC Generation System - Activation TASK 24-31-00-440-801		205	LOM ALL

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	CHAPTER SECTION			<u>EFFECT</u>
	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	
<u>DC GENERATION SYSTEM - ADJUSTMENT/TEST</u>	24-31-00	501		LOM ALL
The Operational Test of the DC System TASK 24-31-00-700-801		501		LOM ALL
<u>MAIN BATTERY-MAINTENANCE PRACTICES</u>	24-31-11	201		LOM ALL
Battery Electrolyte Spillage TASK 24-31-11-100-801		201		LOM ALL
<u>BATTERY - REMOVAL/INSTALLATION</u>	24-31-11	1	401	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999
Battery Removal TASK 24-31-11-000-801-001	1	401	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999	
Battery Installation TASK 24-31-11-400-801-001	1	406	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999	
<u>BATTERY - REMOVAL/INSTALLATION</u>	24-31-11	2	401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
Battery Removal TASK 24-31-11-000-802-002	2	401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465	
Battery Installation TASK 24-31-11-400-802-002	2	408	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465	
<u>BATTERY - ADJUSTMENT/TEST</u>	24-31-11	501		LOM ALL
Battery Discharge Check TASK 24-31-11-710-801		501		LOM ALL
<u>BATTERY CONNECTOR - INSPECTION/CHECK</u>	24-31-11	601		LOM ALL
Battery Connector Inspection TASK 24-31-11-200-801		601		LOM ALL
<u>MAIN BATTERY CHARGER - REMOVAL/INSTALLATION</u>	24-31-21	2	401	LOM ALL
Main Battery Charger Removal TASK 24-31-21-000-802-002	2	401		LOM ALL

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

SUBJECT	CHAPTER SECTION	SUBJECT	CONF	PAGE	EFFECT
Main Battery Charger Installation TASK 24-31-21-400-802-002			2	406	LOM ALL
MAIN BATTERY CHARGER - ADJUSTMENT/TEST	24-31-21			501	LOM ALL
Main Battery Charger Operational Test TASK 24-31-21-710-801				501	LOM ALL
AUXILIARY BATTERY CHARGER - REMOVAL/INSTALLATION	24-31-31		401		LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
Auxiliary Battery Charger Removal TASK 24-31-31-000-801			401		LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
Auxiliary Battery Charger Installation TASK 24-31-31-400-801			406		LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
AUXILIARY BATTERY CHARGER - ADJUSTMENT/TEST	24-31-31		501		LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
Auxiliary Battery Charger Operational Test TASK 24-31-31-710-801			501		LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
DUAL BATTERY REMOTE CONTROL CIRCUIT BREAKER (RCCB) - REMOVAL/INSTALLATION	24-31-41		401		LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
Dual Battery RCCB Removal TASK 24-31-41-000-801			401		LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
Dual Battery RCCB Installation TASK 24-31-41-400-801			409		LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	<u>CHAPTER</u>	<u>SECTION</u>	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>DUAL BATTERY REMOTE CONTROL CIRCUIT BREAKER (RCCB) - ADJUSTMENT/TEST</u>	24-31-41		Operational Test for the Dual Battery RCCB TASK 24-31-41-710-801		501	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
<u>TRANSFORMER RECTIFIER UNIT - MAINTENANCE PRACTICES</u>	24-32-11				501	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
			Transformer Rectifier Unit - Deactivation TASK 24-32-11-040-801		201	LOM ALL
			Transformer Rectifier Unit - Activation TASK 24-32-11-440-801		205	LOM ALL
<u>TRANSFORMER RECTIFIER UNIT - REMOVAL/INSTALLATION</u>	24-32-11				401	LOM ALL
			Transformer Rectifier Unit Removal TASK 24-32-11-000-801		401	LOM ALL
			Transformer Rectifier Unit Installation TASK 24-32-11-400-801		405	LOM ALL
<u>STANDBY POWER SYSTEM - MAINTENANCE PRACTICES</u>	24-34-00				201	LOM ALL
			Standby Power System - Deactivation TASK 24-34-00-040-801		201	LOM ALL
			Standby Power System - Activation TASK 24-34-00-440-801		204	LOM ALL
<u>STANDBY POWER SYSTEM - ADJUSTMENT/TEST</u>	24-34-00				501	LOM ALL
			The Operational Test of the Standby Power System TASK 24-34-00-710-801		501	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999
			The Operational Test of the Standby Power System TASK 24-34-00-710-802		504	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	CHAPTER SECTION			<u>EFFECT</u>
	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	
<u>STANDBY POWER CONTROL UNIT (SPCU) - REMOVAL/INSTALLATION</u>	24-34-11		401	LOM ALL
SPCU Removal TASK 24-34-11-000-801			401	LOM ALL
SPCU Installation TASK 24-34-11-400-801			404	LOM ALL
<u>STATIC INVERTER - REMOVAL/INSTALLATION</u>	24-34-21		401	LOM ALL
Static Inverter Removal TASK 24-34-21-000-801			401	LOM ALL
Static Inverter - Installation TASK 24-34-21-400-801			406	LOM ALL
<u>STATIC INVERTER REMOTE CONTROL CIRCUIT BREAKER (RCCB) - REMOVAL/INSTALLATION</u>	24-34-31	1	401	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999
Static Inverter RCCB Removal TASK 24-34-31-000-801-001	1		401	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999
Static Inverter RCCB Installation TASK 24-34-31-400-801-001	1		407	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999
<u>STATIC INVERTER REMOTE CONTROL CIRCUIT BREAKER (RCCB) - REMOVAL/INSTALLATION</u>	24-34-31	2	401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
Static Inverter RCCB Removal TASK 24-34-31-000-803-002	2		401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
Static Inverter RCCB Installation TASK 24-34-31-400-803-002	2		408	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
<u>AC EXTERNAL POWER - MAINTENANCE PRACTICES</u>	24-41-00		201	LOM ALL
AC External Power - Deactivation TASK 24-41-00-040-801			201	LOM ALL
AC External Power - Activation TASK 24-41-00-440-801			204	LOM ALL

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

<u>SUBJECT</u>	CHAPTER SECTION			<u>EFFECT</u>
	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	
<u>AC EXTERNAL POWER - ADJUSTMENT/TEST</u>	24-41-00	501		LOM ALL
AC External Power Operational Test TASK 24-41-00-700-801		501		LOM ALL
<u>EXTERNAL POWER RECEPTACLE - REMOVAL/INSTALLATION</u>	24-41-11	401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE SB 737-24-1198	
External Power Receptacle Removal TASK 24-41-11-000-801		401	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE SB 737-24-1198	
External Power Receptacle Installation TASK 24-41-11-400-801		405	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE SB 737-24-1198	
<u>EXTERNAL POWER RECEPTACLE - REMOVAL/INSTALLATION</u>	24-41-11	1	401	LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198
External Power Receptacle Removal TASK 24-41-11-000-802-001	1	401	LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198	
External Power Receptacle Installation TASK 24-41-11-400-802-001	1	407	LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198	
External Power Receptacle Pins Replacement TASK 24-41-11-960-802-001	1	410	LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198	
<u>EXTERNAL POWER RECEPTACLE - REMOVAL/INSTALLATION</u>	24-41-11	2	401	LOM 427-434, 437-447, 450-999
External Power Receptacle Removal TASK 24-41-11-000-803-002	2	401	LOM 427-434, 437-447, 450-999	
External Power Receptacle Installation TASK 24-41-11-400-803-002	2	406	LOM 427-434, 437-447, 450-999	
<u>EXTERNAL POWER RECEPTACLE - INSPECTION/CHECK</u>	24-41-11	601		LOM ALL
External Power Receptacle - Internal Inspection TASK 24-41-11-200-801		601		LOM ALL

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 24
ELECTRICAL POWER

SUBJECT	CHAPTER SECTION	SUBJECT	CONF	PAGE	EFFECT
External Power Receptacle External Inspection TASK 24-41-11-200-804				616	LOM ALL
External Power Receptacle Pin Inspection TASK 24-41-11-200-802				620	LOM ALL
External Power Receptacle Neutral Pin to Ground Continuity Check TASK 24-41-11-200-803				621	LOM ALL
EXTERNAL POWER CONTACTOR - REMOVAL/INSTALLATION	24-41-12			401	LOM ALL
External Power Contactor Removal TASK 24-41-12-000-801				401	LOM ALL
External Power Contactor Installation TASK 24-41-12-400-801				405	LOM ALL
BUS POWER CONTROL UNIT (BPCU) - REMOVAL/INSTALLATION	24-41-21			401	LOM ALL
BPCU Removal TASK 24-41-21-000-801				401	LOM ALL
BPCU Installation TASK 24-41-21-400-801				405	LOM ALL
LOAD SHED RELAY - REMOVAL/INSTALLATION	24-51-11			401	LOM ALL
Load Shed Relay Removal TASK 24-51-11-000-801				401	LOM ALL
Load Shed Relay Installation TASK 24-51-11-400-801				406	LOM ALL
28-VOLT AC TRANSFORMER - REMOVAL/INSTALLATION	24-52-01			401	LOM ALL
28-Volt AC Transformer Removal TASK 24-52-01-000-801				401	LOM ALL
28-Volt AC Transformer Installation TASK 24-52-01-400-801				403	LOM ALL
CROSS BUS TIE RELAY - REMOVAL/INSTALLATION	24-61-01			401	LOM ALL
Cross Bus Tie Relay Removal TASK 24-61-01-000-801				401	LOM ALL
Cross Bus Tie Relay Installation TASK 24-61-01-400-801				405	LOM ALL

24-CONTENTS



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

ELECTRICAL POWER - CIRCUIT BREAKER LISTS

1. General

- A. The list of circuit breakers can be found in the AMM Introduction.

EFFECTIVITY
LOM ALL

24-00-00

Page 201
Oct 15/2014

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

ELECTRICAL POWER - DDG MAINTENANCE PROCEDURES

1. General

- A. This procedure has maintenance tasks for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Procedures Guide (DDPG). These tasks are used to prepare the airplane for flight with certain systems/components 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 electrical power system:
 - (1) MMEL 24-1 (DDPG) Preparation - Engine Driven Generator Systems (IDG) Inoperative
 - (2) MMEL 24-1 (DDPG) Restoration - Engine Driven Generator Systems (IDG) Inoperative

TASK 24-00-00-040-801

2. MMEL 24-1 (DDPG) Preparation - Engine Driven Generator Systems (IDG) Inoperative

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with one of the Engine Driven Generator Systems (IDG) Inoperative.

B. References

Reference	Title
12-13-21-200-801	IDG Oil Level Check (P/B 301)
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-815	Supply APU Generator Power (P/B 201)
24-22-00-860-816	Remove APU Generator Power (P/B 201)
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Integrated Drive Generator (IDG) Deactivation

SUBTASK 24-00-00-040-001

- (1) If the Integrated Drive Generator (IDG) is not disconnected, disconnect the IDG per the steps that follow:
 - (a) Do this task: IDG Oil Level Check, TASK 12-13-21-200-801.
NOTE: The IDG may be operated without oil for up to 50 hours in the disconnected mode.
 - (b) If the engine operates with the IDG disconnected for more than 50 hours, the IDG input shaft ball bearing assembly must be removed and examined for worn areas.
 - (c) Do this task: Supply External Power, TASK 24-22-00-860-813 or Supply APU Generator Power, TASK 24-22-00-860-815.





737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (d) Start the applicable engine. To start the engine, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.
NOTE: The DRIVE light should go off when the engine reaches idle speed.
- (e) Set the AC meter selector switch on the P5-13 panel to the applicable GEN position.
- (f) Lift the applicable DISCONNECT switch guard on the P5-5 panel.



CAUTION
DO NOT ACTUATE THE DISCONNECT SWITCH FOR MORE THAN 3 SECONDS. ALLOW A MINIMUM OF 60 SECONDS BETWEEN ACTUATION PERIODS. FAILURE TO FOLLOW THIS PROCEDURE CAN CAUSE DAMAGE TO IDG.

- (g) Push the DISCONNECT switch to the DISCONNECT position when the engine is at or above idle speed.
- (h) Make sure the DRIVE light comes on.
- (i) Make sure the AC meter on the P5 panel shows these values:
 - 1) AC VOLTS = 0
 - 2) CPS FREQ = BLANK
- (j) Stop the applicable engine. To stop it, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

SUBTASK 24-00-00-930-001

- (2) Install an INOP placard on the applicable GEN control switch on the P5-4 panel.

SUBTASK 24-00-00-020-001

- (3) Remove the lamp from the applicable GEN OFF BUS (P5-4 panel) and DRIVE (P5-5 panel) light indicators and install INOP placards.

E. Put The Airplane Back to Its Usual Condition

SUBTASK 24-00-00-860-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812 or Remove APU Generator Power, TASK 24-22-00-860-816.

————— END OF TASK ————

TASK 24-00-00-440-801

3. MMEL 24-1 (DDPG) Restoration - Engine Driven Generator Systems (IDG) Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with the Engine Driven Generator Systems (IDG) Inoperative.

B. References

Reference	Title
24-11-11-700-801	Integrated Drive Generator - Disconnect and Reset Check (P/B 601)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

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

— EFFECTIVITY —
LOM ALL

24-00-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Integrated Drive Generator (IDG) Activation

SUBTASK 24-00-00-810-001

- (1) Correct the fault.
 - (a) Find the fault code or description of the fault that occurred.
 - (b) Go to the applicable index or list in the FIM and find the FIM task number.
 - (c) Go to the task in the FIM and do the steps in the task.

SUBTASK 24-00-00-840-001

- (2) Remove the INOP placard from the applicable GEN CTRL switch.

SUBTASK 24-00-00-840-002

- (3) Install the lamps in the applicable GEN OFF BUS (P5-4 panel) and DRIVE (P5-5 panel) light indicators and remove the INOP placards.

SUBTASK 24-00-00-840-003

- (4) If the Integrated Drive Generator (IDG) is disconnected, connect the IDG to the engine. Do this task: Integrated Drive Generator - Disconnect and Reset Check, TASK 24-11-11-700-801.

E. Put The Airplane Back to Its Usual Condition

SUBTASK 24-00-00-860-002

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————



24-00-00

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 903
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

AC GENERATOR DRIVE SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) IDG Deactivation
 - (2) IDG Activation
 - (3) IDG Oil System Static Leak Check
 - (4) IDG Push-to-Vent Valve replacement

TASK 24-11-00-040-801

2. IDG - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power from the IDG.

B. References

Reference	Title
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (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. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Procedure

SUBTASK 24-11-00-860-007

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

F. IDG - Tryout

NOTE: This tryout is to make sure the IDG is in a zero energy state.

SUBTASK 24-11-00-860-008

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-11-00-700-003

NOTE: Engines should not be operating during the tryout procedure.

- (2) Make sure the engines are not operating, if the engines are operating, then do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

SUBTASK 24-11-00-700-004

- (3) Open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

- (a) Make sure the LED lights on the front panel of the Generator Control Unit are not illuminated.

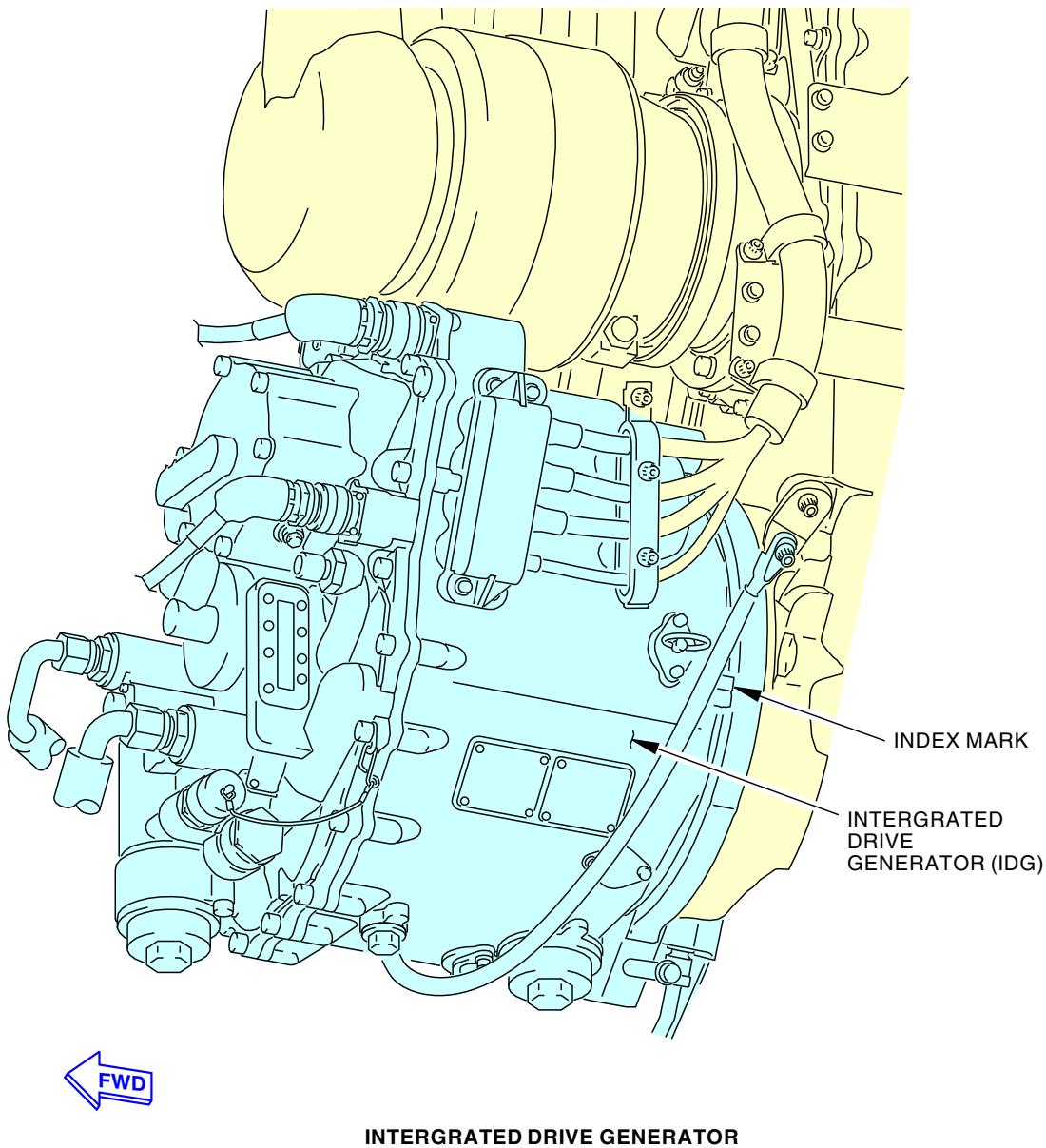
———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Integrated Drive Generator
Figure 201/24-11-00-990-805

EFFECTIVITY
LOM ALL

24-11-00

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 203
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-00-440-801

3. IDG - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the IDG.

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 24-11-00-860-009

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

———— END OF TASK ————

TASK 24-11-00-700-801

4. IDG Oil System Static Leak Check

(Figure 202)

A. General

- (1) The static leak check applies compressed air or nitrogen to the Integrated Drive Generator (IDG) oil system through the IDG pressure fill fitting. The pressure is monitored to see if it starts to decrease. A continuous decrease in pressure indicates there is a leak in the system.

B. References

Reference	Title
12-13-21-200-801	IDG Oil Level Check (P/B 301)
71-00-00 P/B 201	POWER PLANT - MAINTENANCE PRACTICES (OPERATION PROCEDURES)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (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-8912	Test Equipment - Engine Generator Pressure Part #: J24015-23 Supplier: 81205 Opt Part #: J24015-1 Supplier: 81205
STD-3940	Air Source - Regulated, Dry Filtered, 0-150 psig

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

D. Location Zones

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

E. Prepare for check

SUBTASK 24-11-00-010-001

- (1) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

F. Procedure

SUBTASK 24-11-00-710-001



WARNING

DO NOT TOUCH THE COMPONENTS OF THE OIL SYSTEM IF THE ENGINE IS HOT. THESE COMPONENTS STAY HOTTER THAN OTHER COMPONENTS. HOT COMPONENTS CAN BURN YOU.



WARNING

DO NOT LET HOT OIL GET ON YOU. PUT ON GOOGLES AND OTHER EQUIPMENT FOR PROTECTION OR LET THE ENGINE BECOME COOL. HOT OIL CAN BURN YOU.

- (1) Do the static leak check as follows:



WARNING

MAKE SURE YOU PUSH THE PUSH-TO-VENT VALVE. FAILURE TO DO THIS COULD CAUSE HOT OIL TO SPRAY OUT AND CAN CAUSE INJURY TO PERSONS.

- (a) Push the PUSH-TO-VENT VALVE on the IDG to relieve internal IDG pressure.
- (b) Use the engine generator pressure test equipment, SPL-8912 as shown in Figure 202.
- (c) Set the shutoff valve on the test equipment to the off position.
- (d) Set the regulator valve on the test equipment to the off position.
- (e) Remove the cover from the IDG pressure fill fitting.
- (f) Connect the hose adapter on the test equipment to the IDG pressure fill fitting.
- (g) Connect the other end of the test equipment to a regulated, dry filtered regulated air source, STD-3940 or a regulated nitrogen source.



CAUTION

DO NOT APPLY MORE THAN 30 PSI TO THE IDG. TOO MUCH PRESSURE CAN CAUSE DAMAGE TO THE IDG.

- (h) Turn the shutoff valve to the on position and adjust the regulator valve to 25 psi.
- (i) Turn the shutoff valve to the off position.
NOTE: The pressure will decrease a small quantity, then the pressure gage should become stable.
- (j) If the pressure gage continues to decrease, do these steps:
 - 1) Visually examine the IDG and the external cooling circuit for leaks.
 - 2) If you do not find a leak, do a leak check with leak detector fluid or a soap solution.

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



WARNING

MAKE SURE YOU PUSH THE PUSH-TO-VENT VALVE. FAILURE TO DO THIS COULD CAUSE HOT OIL TO SPRAY OUT AND CAN CAUSE INJURY TO PERSONS.

- 3) Push the PUSH-TO-VENT VALVE to relieve the IDG internal pressure.
- 4) Repair any leaks that you found.
- 5) Repeat the Static leak check.



WARNING

MAKE SURE YOU PUSH THE PUSH-TO-VENT VALVE. FAILURE TO DO THIS COULD CAUSE HOT OIL TO SPRAY OUT AND CAN CAUSE INJURY TO PERSONS.

- (k) Push the PUSH-TO-VENT VALVE to relieve the IDG internal pressure.
- (l) Remove the hose on the test equipment from the IDG pressure fill fitting.
- (m) Do this task: IDG Oil Level Check, TASK 12-13-21-200-801.
NOTE: IDG oil level can rise above FULL level during the static leak check. If it is necessary, motor the engine or operate the engine at idle speed to redistribute the IDG oil, then do the IDG oil level check.
 - 1) If it is necessary, motor the engine or operate the engine at idle speed (PAGEBLOCK 71-00-00/201).
- (n) Install the cover on the IDG pressure fill fitting.

G. Put the airplane in its usual condition.

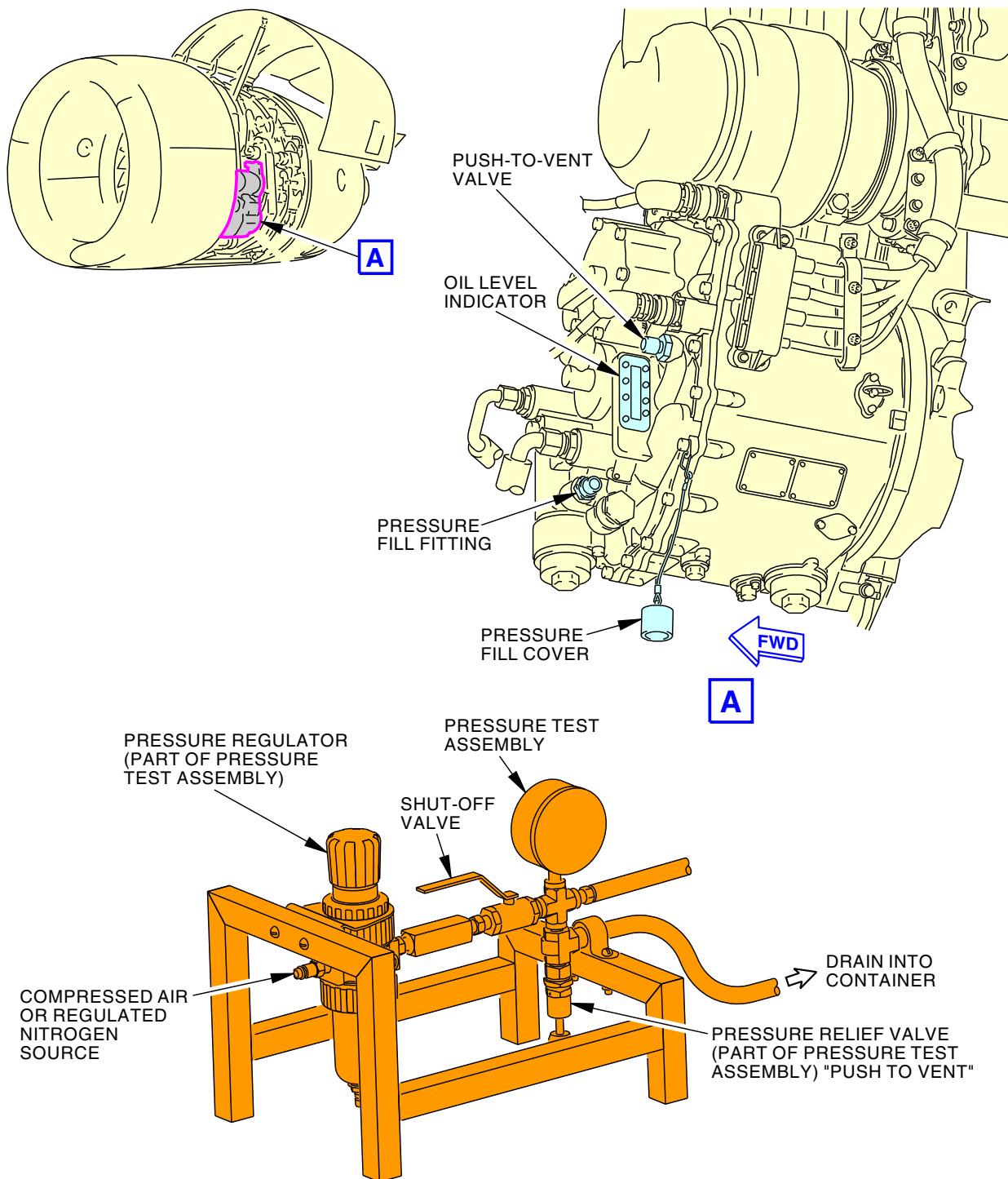
SUBTASK 24-11-00-410-001

- (1) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-00



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IDG Oil System Static Leak Check
Figure 202/24-11-00-990-801

 EFFECTIVITY
 LOM ALL

24-11-00

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-00-700-804

5. IDG Push-to-Vent Valve Replacement

(Figure 203)

A. General

- (1) This task removes and installs the IDG push-to-vent valve. The push-to-vent valve is on the IDG next to the sightglass. After replacement of the valve, it is necessary to do a leak check.

B. References

Reference	Title
12-13-21-600-801	IDG Servicing (Oil Fill) (P/B 301)
71-00-00-700-821-F00	Dry Motor the Engine (P/B 201)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (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-1537	Dispenser - Servicing, Engine Oil Part #: 7011 Supplier: K6057 Part #: 7036 Supplier: K6057 Part #: BOB02 Supplier: D2029 Part #: BOB05 Supplier: D2029 Part #: BOB20 Supplier: D2029 Part #: MODEL 150 Supplier: 94861 Part #: Model 250 Supplier: 94861 Part #: PF53481-3P Supplier: 94861 Part #: PF53481-5PWS Supplier: 94861 Part #: PF53481-8PWS Supplier: 94861 Part #: PF55451-2WS Supplier: 94861 Part #: PF55451-7WS Supplier: 94861 Opt Part #: 150-3 Supplier: 94861 Opt Part #: PF53361-2PWS Supplier: 94861 Opt Part #: PF53361-8PWS Supplier: 94861 Opt Part #: UZ7/1826 Supplier: K6057 Opt Part #: WF150-1 Supplier: 94861 Opt Part #: WF174410 Supplier: 94861

D. Consumable Materials

Reference	Description	Specification
D00068	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class STD (Standard)
D00071	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-7808 Grade 3
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
21	Vent valve	24-11-11-50-223	LOM ALL
22	O-ring	24-11-11-50-224	LOM ALL



24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. Location Zones

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

G. Prepare to remove the push-to-vent valve.

SUBTASK 24-11-00-010-002

- (1) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

H. Procedure

SUBTASK 24-11-00-780-001



WARNING

MAKE SURE YOU PUSH THE PUSH-TO-VENT VALVE. FAILURE TO DO THIS COULD CAUSE HOT OIL TO SPRAY OUT AND CAN CAUSE INJURY TO PERSONS.

- (1) Release the IDG case pressure as follows:

- (a) Push the push-to-vent valve [21] on the IDG for a minimum of 15 seconds to relieve internal IDG pressure.
- (b) If you cannot push the push-to-vent valve [21] to release the pressure, do these steps:
 - 1) Remove the pressure fill cover from the pressure fill fitting on the IDG.
 - 2) Put the container below the pressure fill hose.
 - 3) Connect the pressure fill hose from the engine oil servicing dispenser, COM-1537 to the pressure fill fitting on the IDG.

SUBTASK 24-11-00-020-001

- (2) Remove the IDG push-to-vent valve [21] as follows:

- (a) Remove the lockwire from the push-to-vent valve [21].
- (b) Put an approved container under the vent valve port to catch the oil that drains.



WARNING

DO NOT OPEN THE IDG OIL SYSTEM UNTIL THE PRESSURE GOES TO ZERO. A PRESSURIZED OIL SYSTEM CAN CAUSE INJURY TO PERSONS.

- (c) Remove the push-to-vent valve [21].
- (d) Remove and discard the O-ring [22].

SUBTASK 24-11-00-420-001

- (3) Install the IDG push-to-vent valve [21] as follows:

- (a) Lubricate a new o-ring [22] with oil, D00068 or oil, D00071.
- (b) Put the o-ring [22] in correct position on the push-to-vent valve [21].
- (c) Install the vent valve [21] on the IDG and torque to 110-150 pound-inches (12.4-16.9 Newton-meters).
- (d) Safety the push-to-vent valve with MS20995C32 lockwire, G01048.

SUBTASK 24-11-00-610-001

- (4) Do this task: IDG Servicing (Oil Fill), TASK 12-13-21-600-801.

SUBTASK 24-11-00-790-001

- (5) Do this task: Dry Motor the Engine, TASK 71-00-00-700-821-F00.

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Check for leaks.

I. Put the airplane in its usual condition.

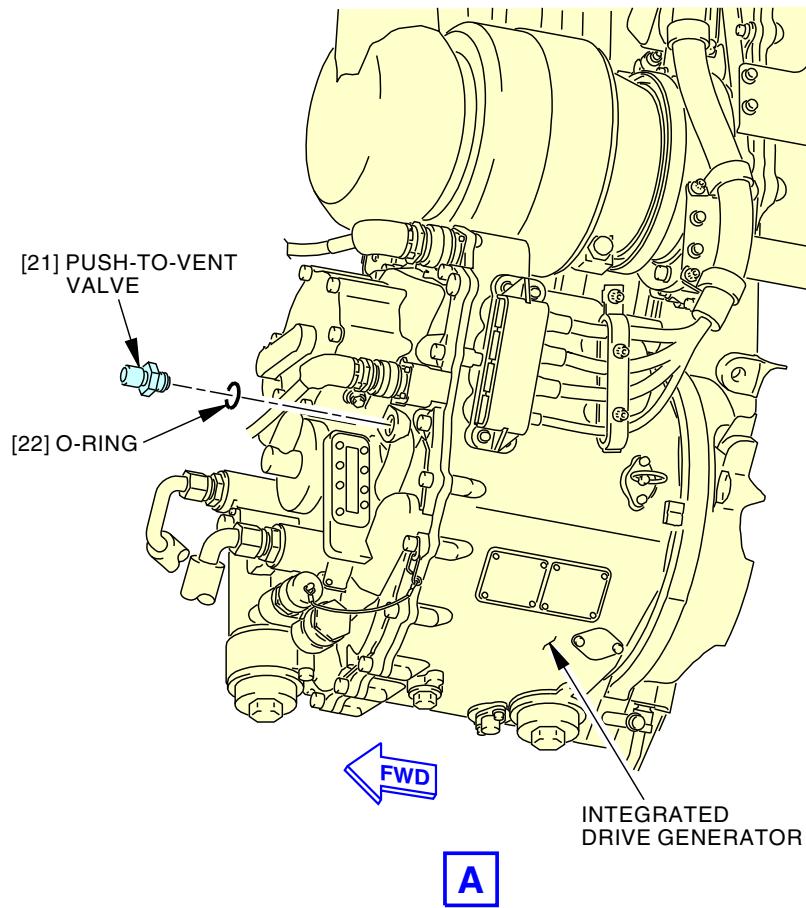
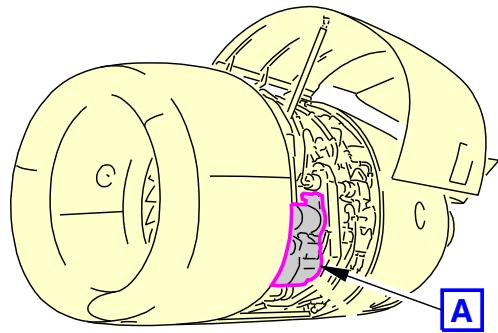
SUBTASK 24-11-00-410-003

- (1) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-00



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IDG Push-To-Vent Valve Replacement
Figure 203/24-11-00-990-804EFFECTIVITY
LOM ALL**24-11-00**

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737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

GENERATOR DRIVE SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has these tasks:
- (1) The Operational Test For The Number 1 IDG.
 - (2) The Operational Test For The Number 2 IDG.

TASK 24-11-00-700-802

2. Number 1 IDG - Operational Test

(Figure 501, Figure 502)

A. General

- (1) This procedure does these tests:
 - (a) An Operational Test
 - (b) A Load Test
 - (c) An Integrated Drive Generator (IDG) Disconnect and Connect Test.
- (2) Operate the engines to do an operational test of the IDG.

B. References

Reference	Title
24-11-11-000-801	Integrated Drive Generator (IDG) Removal (P/B 401)
24-11-11-400-801	Integrated Drive Generator (IDG) Installation (P/B 401)
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
24-22-00-860-815	Supply APU Generator Power (P/B 201)
24-22-00-860-816	Remove APU Generator Power (P/B 201)
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)
71-00-00-800-805-F00	Engine Ground Safety Precautions (P/B 201)
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (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
410	Subzone - Engine 1

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Operational Test

SUBTASK 24-11-00-860-010

- (1) Do this task: Supply External Power, TASK 24-22-00-860-813 or Supply APU Generator Power, TASK 24-22-00-860-815.



24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. Operational Test

SUBTASK 24-11-00-710-002

- (1) Do the operational test as follows:

- (a) Set the AC meter selector switch, on the P5–13 overhead panel, to the GEN 1 position.
- (b) Make sure that the AC meter, on the P5 overhead panel, shows these values:
 - 1) AC VOLTS = 0
 - 2) CPS FREQ = BLANK.

NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.

- (c) Start the No. 1 engine, do this task: Start the Engine Procedure (Selection),
TASK 71-00-00-800-807-F00.



CAUTION

THE DRIVE LIGHT ON THE P5 PANEL MUST GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT DOES NOT GO OFF OR COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, YOU MUST PUSH THE DISCONNECT SWITCH ON THE P5 PANEL. IF YOU DO NOT PUSH THE DISCONNECT SWITCH, DAMAGE CAN OCCUR TO THE IDG.

- (d) Make sure that the number 1 DRIVE light, on the P5 overhead panel, goes off after number 1 engine reaches idle speed.
- (e) Set the GEN 1 switch, on the P5 overhead panel, to the ON position.
- (f) Make sure that the 1 GEN OFF BUS light, on the P5 overhead panel, goes off.
- (g) Make sure that the AC meter, on the P5 overhead panel, shows these values:
 - 1) AC VOLTS = 110 - 120
 - 2) CPS FREQ = 395 - 405.
- (h) Set the GRD PWR switch, on the P5 overhead panel, to the OFF position.
- (i) Make sure that both TRANSFER BUS OFF lights, on the P5 overhead panel, stay off.

G. Load Test

SUBTASK 24-11-00-710-003

- (1) Do the load test as follows:

- (a) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-3

Row Col Number Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461
B 14 C00274 EXTERIOR LIGHTING LANDING RIGHT RETR

LOM 462-999

B 14 C01968 EXTERIOR LIGHTING LTRTL - RIGHT

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461
B 15 C00271 EXTERIOR LIGHTING LANDING LEFT FIXED

LOM 462-999

B 15 C01969 EXTERIOR LIGHTING LTRTL - LEFT

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461
C 14 C00272 EXTERIOR LIGHTING LANDING RIGHT FIXED

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461 (Continued)

(Continued)

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C00273	EXTERIOR LIGHTING LANDING LEFT RETR

LOM ALL

- (b) To get access to the P91 and P92 panels, open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door



WARNING WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING MAKE SURE THAT YOU DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (c) Make sure that these circuit breakers are closed:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00768	ELEC HYD PUMP CONTROL SYS B
LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999			
D	1	C00827	FUEL BOOST PUMP TANK 1 FWD
LOM 402, 404, 406			
D	2	C00827	FUEL BOOST PUMP TANK 1 FWD
LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999			
D	3	C00828	FUEL BOOST PUMP TANK 2 AFT
LOM 402, 404, 406			
D	4	C00828	FUEL BOOST PUMP TANK 2 AFT
LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999			
D	5	C00845	FUEL BOOST PUMP CTR TANK LEFT
LOM 402, 404, 406			
D	6	C00845	FUEL BOOST PUMP CTR TANK LEFT
LOM ALL			
F	3	C00882	ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00767	ELEC HYD PUMP CONTROL SYS A

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Power Distribution Panel Number 2, P92

Row Col Number Name

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 1 C00826 FUEL BOOST PUMP TANK 1 AFT

LOM 402, 404, 406

D 2 C00826 FUEL BOOST PUMP TANK 1 AFT

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 3 C00829 FUEL BOOST PUMP TANK 2 FWD

LOM 402, 404, 406

D 4 C00829 FUEL BOOST PUMP TANK 2 FWD

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 5 C00846 FUEL BOOST PUMP CTR TANK RIGHT

LOM 402, 404, 406

D 6 C00846 FUEL BOOST PUMP CTR TANK RIGHT

LOM ALL

F 3 C00881 ELEC HYD PUMP SYS A

- (d) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door



CAUTION DO NOT OPERATE THE BOOST PUMPS WITH THE FUEL TANKS
EMPTY. DAMAGE TO THE BOOST PUMPS CAN OCCUR.

- (e) Set these switches, on the P5 fuel system panel, to the ON position:

- 1) 2 AFT FUEL PUMP
- 2) 2 FWD FUEL PUMP
- 3) L CTR FUEL PUMP
- 4) R CTR FUEL PUMP.



WARNING KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT
CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING
GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU
SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO
PERSONNEL AND DAMAGE TO EQUIPMENT.

- (f) Set these switches, on the P5 hydraulic pump panel, to the ON position:

- 1) A ELEC 2 HYD PUMP
- 2) B ELEC 1 HYD PUMP.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461

- (g) Set these switches, on the P5 exterior light control panel, to the ON position:

- 1) L RETRACTABLE LANDING
- 2) R RETRACTABLE LANDING
- 3) L FIXED LANDING

EFFECTIVITY
LOM ALL

24-11-00



**737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL**

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461 (Continued)

- 4) R FIXED LANDING.

LOM 462-999

- (h) Set these switches, on the P5 exterior light control panel, to the ON position:
 - 1) L LANDING
 - 2) R LANDING.

LOM ALL

- (i) Make sure that the AC meter, on the P5 overhead panel, shows these values:
 - 1) AC VOLTS = 110 - 120
 - 2) CPS FREQ = 395 - 405.
- (j) Set these switches, on the P5 fuel system panel, to the OFF position:
 - 1) 2 AFT FUEL PUMP
 - 2) 2 FWD FUEL PUMP
 - 3) L CTR FUEL PUMP
 - 4) R CTR FUEL PUMP.
- (k) Set these switches, on the P5 hydraulic pump panel, to the OFF position:
 - 1) A ELEC 2 HYD PUMP
 - 2) B ELEC 1 HYD PUMP.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461

- (l) Set these switches, on the P5 exterior light control panel, to the OFF position:
 - 1) L RETRACTABLE LANDING
 - 2) R RETRACTABLE LANDING
 - 3) L FIXED LANDING
 - 4) R FIXED LANDING.

LOM 462-999

- (m) Set these switches, on the P5 exterior light control panel, to the OFF position:
 - 1) L LANDING
 - 2) R LANDING.

LOM ALL

H. IDG Disconnect and Connect Test

SUBTASK 24-11-00-710-004

- (1) Do the disconnect and connect test as follows:
 - (a) Set the GRD PWR switch, on the P5 overhead panel, to the ON position.
 - (b) Make sure that the 1 GEN OFF BUS light, on the P5 overhead panel, comes on.
 - (c) Make sure that the AC meter, on the P5 overhead panel, shows these values:
 - 1) AC VOLTS = 110 - 120
 - 2) CPS FREQ = 395 - 405.

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



CAUTION

DO NOT ACTUATE THE DISCONNECT SWITCH FOR MORE THAN 3 SECONDS. ALLOW A MINIMUM OF 60 SECONDS BETWEEN ACTUATION PERIODS. FAILURE TO FOLLOW THIS PROCEDURE CAN CAUSE DAMAGE TO IDG.

- (d) Set the 1 DISCONNECT switch, on the P5 overhead panel, to the DISCONNECT position.

- (e) Make sure that the 1 DRIVE light comes on.

- (f) Make sure that the AC meter, on the P5 overhead panel, shows these values:

- 1) AC VOLTS = 0
- 2) CPS FREQ = BLANK.

NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.

- (g) Stop the No. 1 engine, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

- (h) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.



WARNING

DO NOT TOUCH THE COMPONENTS OF THE OIL SYSTEM IF THE ENGINE IS HOT. THESE COMPONENTS STAY HOTTER THAN OTHER COMPONENTS. HOT COMPONENTS CAN BURN YOU.



WARNING

DO NOT LET HOT OIL GET ON YOU. PUT ON CLOTHES, GOGGLES, AND OTHER EQUIPMENT FOR PROTECTION, OR LET THE ENGINE BECOME COOL. HOT OIL CAN BURN YOU.



CAUTION

DO NOT RE-SET THE IDG IF THE INPUT SPEED OF THE ENGINE GEARBOX IS MORE THAN 100 REVOLUTIONS PER MINUTE (RPM). IF THE IDG IS RE-SET WITH THE ENGINE GEARBOX SPEED GREATER THAN 100 RPM, DAMAGE TO THE IDG WILL OCCUR.

- (i) Slowly pull the IDG disconnect reset ring on the IDG to the outward travel limit.

- 1) Monitor the hand force necessary to pull the ring.

- (j) Make sure that a click can be felt in the IDG disconnect reset ring as it gets near the outward limit of travel.

NOTE: Operation of the IDG disconnect reset ring should be smooth with moderate force necessary and no indication of binding.

- (k) Allow the IDG disconnect reset ring to slowly return to the maximum inward position.

- (l) Slowly pull the IDG disconnect reset ring on the IDG to the outward travel limit.

- 1) Monitor the hand force necessary to pull the ring.

- (m) Make sure that the amount of hand force necessary is less than the amount required in the previous pull.

- (n) Make sure that no click is felt in the IDG disconnect reset ring during the second pull.

- 1) If a click is produced during the second pull of the IDG disconnect reset ring, replace the IDG, do these tasks:

- Integrated Drive Generator (IDG) Removal, TASK 24-11-11-000-801

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- Integrated Drive Generator (IDG) Installation, TASK 24-11-11-400-801.
- (o) Allow the IDG disconnect reset ring to slowly return to the maximum inward position.

SUBTASK 24-11-00-710-005

- (2) Do a check of the IDG disconnect inhibit function as follows:

NOTE: The IDG disconnect function is inhibited when the engine is below idle speed.

NOTE: If the Auxiliary Power Unit (APU) was powering the aircraft, after the No. 1 engine shut down, GEN OFF BUS 1 and SOURCE OFF 1 lights come on while TRANSFER BUS OFF 1 and TRANSFER BUS OFF 2 lights stay extinguished, since both XFR buses will be powered from APU GEN. The SOURCE OFF 1 light will extinguish when the APU GEN switch 1 is in the ON position.



CAUTION

DO NOT ACTUATE THE DISCONNECT SWITCH FOR MORE THAN 3 SECONDS. ALLOW A MINIMUM OF 60 SECONDS BETWEEN ACTUATION PERIODS. FAILURE TO FOLLOW THIS PROCEDURE CAN CAUSE DAMAGE TO IDG.

- (a) Set the 1 DISCONNECT switch, on the P5 overhead panel, to the DISCONNECT position.

NOTE: Put a person near the IDG listening for no click and feeling for no movement while lightly holding the IDG disconnect reset ring. There should be no click and no movement at IDG when the 1 DISCONNECT switch is pushed.

- (b) Make sure that the 1 DRIVE light, on the P5 overhead panel, stays on.
(c) Slowly pull the IDG disconnect reset ring on the IDG to the outward travel limit.
 1) Make a note of the amount of hand force necessary.
(d) Make sure that the force necessary is light.
(e) Make sure that no click is felt when pulling the IDG disconnect reset ring.
(f) Allow the IDG disconnect reset ring to slowly return to the maximum inward position.
(g) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row Col Number Name

F 8 C01286 GENERATOR DISC 1

- (h) Obey all safety precautions around running the engines (TASK 71-00-00-800-805-F00).
(i) Start the applicable engine (TASK 71-00-00-800-807-F00).
 1) Let the applicable engine operate at idle power.
(j) Set the GEN 1 switch, on the P5 overhead panel, to the ON position.
(k) Make sure that the AC voltage is 115 ± 5 and the frequency is 400 ± 5 .
(l) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row Col Number Name

F 8 C01286 GENERATOR DISC 1

- (m) Make sure that the AC voltage and the frequency do not change.
(n) Shut down the applicable engine (TASK 71-00-00-700-819-F00).

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-11-00-700-001

- (3) Do a test of the Generator Control Unit (GCU) as follows:
- (a) Make sure that the STANDBY POWER switch, on the P5-5 overhead panel, is set to the AUTO position.
 - (b) Set the BAT switch, on the P5-13 overhead panel, to the ON position.
 - (c) Push the GCU TEST switch, on the GCU, for at least one second.
 - (d) Make sure that all seven of the indicator lights, on the GCU, come on for approximately three seconds.
 - (e) Make sure that all seven of the indicator lights, on the GCU, go off for approximately three seconds.
 - (f) Make sure that the green GCU PASS light, on the GCU, comes on for approximately seven seconds.

SUBTASK 24-11-00-860-002

- (4) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

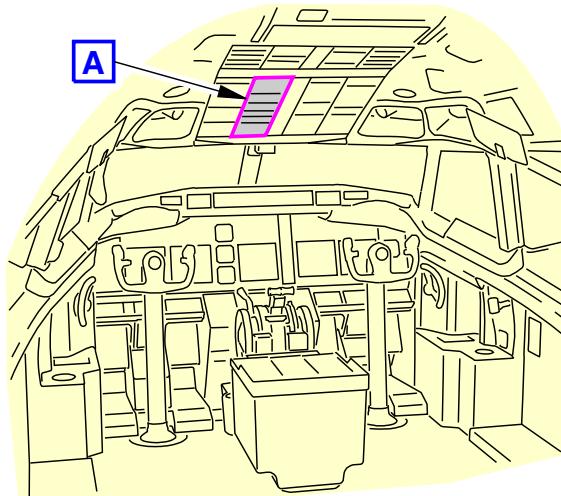
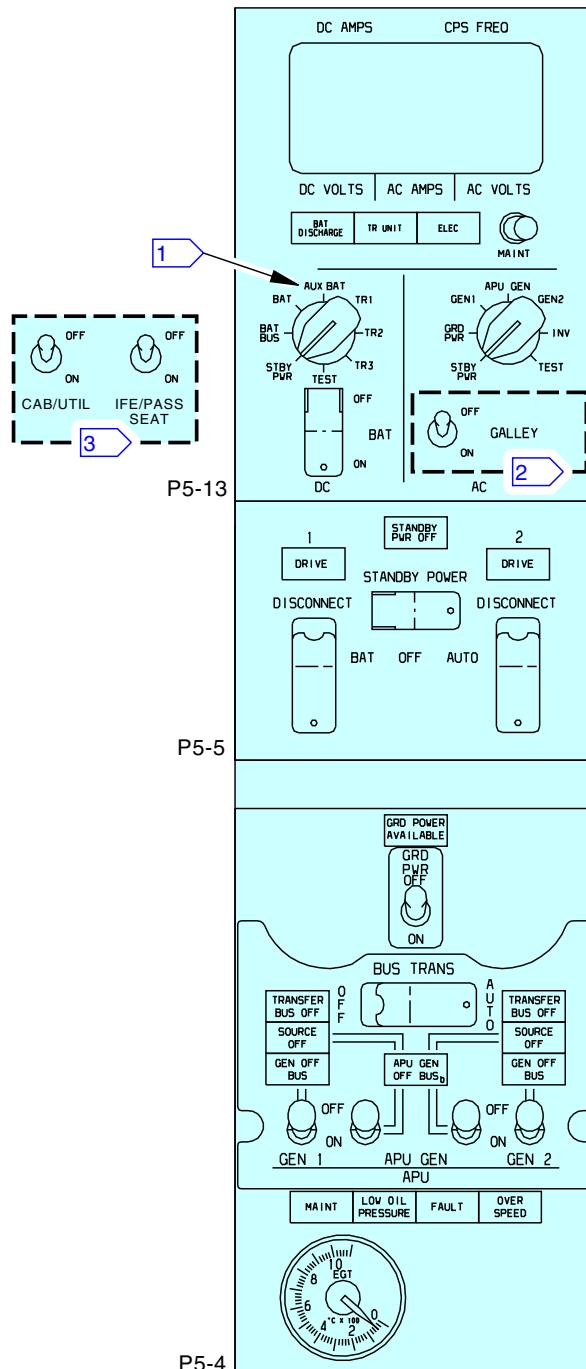
SUBTASK 24-11-00-860-012

- (5) Do the applicable task: Remove External Power, TASK 24-22-00-860-814 or Remove APU Generator Power, TASK 24-22-00-860-816.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-00


FLIGHT COMPARTMENT


G08509 S0006566347_V2

AC/DC Power Control and Display Panels
Figure 501/24-11-00-990-802

EFFECTIVITY
LOM ALL

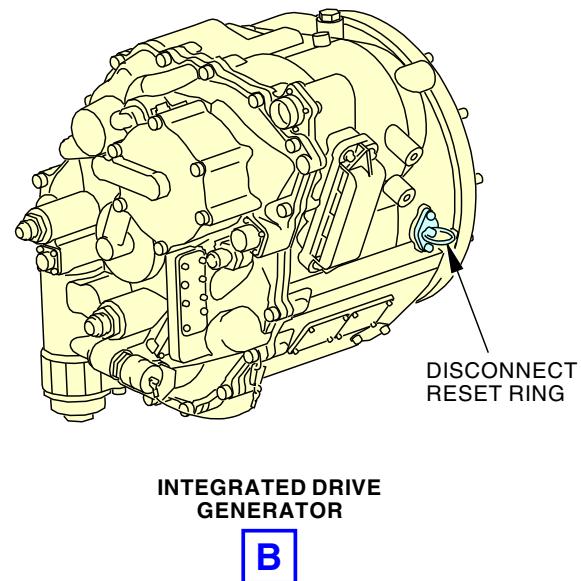
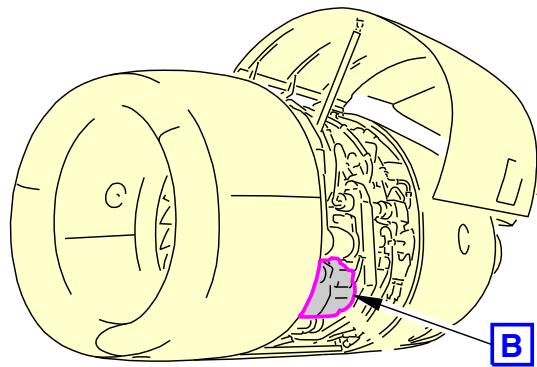
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-11-00

Page 509
Feb 15/2023

BOEING
737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



G11478 S0006566130_V2

IDG Disconnect Reset
Figure 502/24-11-00-990-803

EFFECTIVITY
LOM ALL

24-11-00

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 510
Feb 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-00-700-803

3. Number 2 IDG - Operational Test

(Figure 501, Figure 502)

A. General

- (1) This procedure does these test:
 - (a) An Operational Test
 - (b) A Load Test
 - (c) An Integrated Drive Generator (IDG) Disconnect and Connect Test.
- (2) Operate the engines to do an operational test of the IDG.

B. References

Reference	Title
24-11-11-000-801	Integrated Drive Generator (IDG) Removal (P/B 401)
24-11-11-400-801	Integrated Drive Generator (IDG) Installation (P/B 401)
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
24-22-00-860-815	Supply APU Generator Power (P/B 201)
24-22-00-860-816	Remove APU Generator Power (P/B 201)
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)
71-00-00-800-805-F00	Engine Ground Safety Precautions (P/B 201)
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (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
420	Subzone - Engine 2

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Operational Test

SUBTASK 24-11-00-860-011

- (1) Do this task: Supply External Power, TASK 24-22-00-860-813 or Supply APU Generator Power, TASK 24-22-00-860-815.

F. Operational Test

SUBTASK 24-11-00-710-006

- (1) Do the operational test as follows:
 - (a) Set the AC meter selector switch, on the P5 overhead panel, to the GEN 2 position.
 - (b) Make sure that the AC meter, on the P5 overhead panel, shows these values:
 - 1) AC VOLTS = 0

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 2) CPS FREQ = BLANK.

NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.

- (c) Start the No. 2 engine, do this task: Start the Engine Procedure (Selection),
TASK 71-00-00-800-807-F00.



THE DRIVE LIGHT ON THE P5 PANEL MUST GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT DOES NOT GO OFF OR COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, YOU MUST PUSH THE DISCONNECT SWITCH ON THE P5 PANEL. IF YOU DO NOT PUSH THE DISCONNECT SWITCH, DAMAGE CAN OCCUR TO THE IDG.

- (d) Make sure that the number 2 DRIVE light, on the P5 overhead panel, goes off after number 2 engine reaches idle speed.
(e) Set the GEN 2 switch, on the P5 overhead panel, to the ON position.
(f) Make sure that the 2 GEN OFF BUS light, on the P5 overhead panel, goes off.
(g) Make sure that the AC meter, on the P5 overhead panel, shows these values:
1) AC VOLTS = 110-120
2) CPS FREQ = 395-405.
(h) Set the GRD PWR switch, on the P5 overhead panel, to the OFF position.
(i) Make sure that both TRANSFER BUS OFF lights, on the P5 overhead panel, stay off.

G. Load Test

SUBTASK 24-11-00-410-002

- (1) Do the load test as follows:

- (a) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-3

Row Col Number Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461
B 14 C00274 EXTERIOR LIGHTING LANDING RIGHT RETR

LOM 462-999

B 14 C01968 EXTERIOR LIGHTING LTRTL - RIGHT

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461
B 15 C00271 EXTERIOR LIGHTING LANDING LEFT FIXED

LOM 462-999

B 15 C01969 EXTERIOR LIGHTING LTRTL - LEFT

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461
C 14 C00272 EXTERIOR LIGHTING LANDING RIGHT FIXED
C 15 C00273 EXTERIOR LIGHTING LANDING LEFT RETR

LOM ALL

- (b) To get access to the P91 and P92 panels, open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

MAKE SURE THAT YOU DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (c) Make sure that these circuit breakers are closed:

Power Distribution Panel Number 1, P91

Row Col Number Name

C 8 C00768 ELEC HYD PUMP CONTROL SYS B

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 1 C00827 FUEL BOOST PUMP TANK 1 FWD

LOM 402, 404, 406

D 2 C00827 FUEL BOOST PUMP TANK 1 FWD

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 3 C00828 FUEL BOOST PUMP TANK 2 AFT

LOM 402, 404, 406

D 4 C00828 FUEL BOOST PUMP TANK 2 AFT

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 5 C00845 FUEL BOOST PUMP CTR TANK LEFT

LOM 402, 404, 406

D 6 C00845 FUEL BOOST PUMP CTR TANK LEFT

LOM ALL

F 3 C00882 ELEC HYD PUMP SYS B

Power Distribution Panel Number 2, P92

Row Col Number Name

C 8 C00767 ELEC HYD PUMP CONTROL SYS A

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 1 C00826 FUEL BOOST PUMP TANK 1 AFT

LOM 402, 404, 406

D 2 C00826 FUEL BOOST PUMP TANK 1 AFT

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 3 C00829 FUEL BOOST PUMP TANK 2 FWD

LOM 402, 404, 406

D 4 C00829 FUEL BOOST PUMP TANK 2 FWD

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

D 5 C00846 FUEL BOOST PUMP CTR TANK RIGHT

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999 (Continued)

(Continued)

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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LOM 402, 404, 406

D	6	C00846	FUEL BOOST PUMP CTR TANK RIGHT
---	---	--------	--------------------------------

LOM ALL

F	3	C00881	ELEC HYD PUMP SYS A
---	---	--------	---------------------

- (d) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
---------------	----------------------

117A	Electronic Equipment Access Door
------	----------------------------------



**DO NOT OPERATE THE BOOST PUMPS WITH THE FUEL TANKS
EMPTY. DAMAGE TO THE BOOST PUMPS CAN OCCUR.**

- (e) Set these switches, on the P5 fuel system panel, to the ON position:

- 1) 1 AFT FUEL PUMP
- 2) 1 FWD FUEL PUMP
- 3) L CTR FUEL PUMP
- 4) R CTR FUEL PUMP.



**KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL
SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR.
THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY
HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND
DAMAGE TO EQUIPMENT.**

- (f) Set these switches, on the P5 hydraulic pump panel, to the ON position:

- 1) A ELEC 2 HYD PUMP
- 2) B ELEC 1 HYD PUMP.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461

- (g) Set these switches, on the P5 exterior light control panel, to the ON position:

- 1) L RETRACTABLE LANDING
- 2) R RETRACTABLE LANDING
- 3) L FIXED LANDING
- 4) R FIXED LANDING.

LOM 462-999

- (h) Set these switches, on the P5 exterior light control panel, to the ON position:

- 1) L LANDING
- 2) R LANDING.

LOM ALL

- (i) Make sure that the AC meter, on the P5 overhead panel, shows these values:

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 395-405.
- (j) Set these switches, on the P5 fuel system panel, to the OFF position:
- 1) 1 AFT FUEL PUMP
 - 2) 1 FWD FUEL PUMP
 - 3) L CTR FUEL PUMP
 - 4) R CTR FUEL PUMP.
- (k) Set these switches, on the P5 hydraulic pump panel, to the OFF position:
- 1) A ELEC 2 HYD PUMP
 - 2) B ELEC 1 HYD PUMP.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-461

- (l) Set these switches, on the P5 exterior light control panel, to the OFF position:
- 1) L RETRACTABLE LANDING
 - 2) R RETRACTABLE LANDING
 - 3) L FIXED LANDING
 - 4) R FIXED LANDING.

LOM 462-999

- (m) Set these switches, on the P5 exterior light control panel, to the OFF position:
- 1) L LANDING
 - 2) R LANDING.

LOM ALL

H. IDG Disconnect and Connect Test

SUBTASK 24-11-00-710-007

- (1) Do the disconnect and connect test as follows:
- (a) Set the GRD PWR switch, on the P5 overhead panel, to the ON position.
 - (b) Make sure that the 2 GEN OFF BUS light, on the P5 overhead panel, comes on.
 - (c) Make sure that the AC meter, on the P5 overhead panel, shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 395-405.



CAUTION DO NOT ACTUATE THE DISCONNECT SWITCH FOR MORE THAN 3 SECONDS. ALLOW A MINIMUM OF 60 SECONDS BETWEEN ACTUATION PERIODS. FAILURE TO FOLLOW THIS PROCEDURE CAN CAUSE DAMAGE TO IDG.

- (d) Push the 2 DISCONNECT switch, on the P5 overhead panel, to the DISCONNECT position.
- (e) Make sure that the 2 DRIVE light comes on.
- (f) Make sure that the AC meter, on the P5 overhead panel, shows these values:
 - 1) AC VOLTS = 0

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 2) CPS FREQ = BLANK.

NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.

- (g) Stop the No. 2 engine, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.
- (h) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.



WARNING
DO NOT TOUCH THE COMPONENTS OF THE OIL SYSTEM IF THE ENGINE IS HOT. THESE COMPONENTS STAY HOTTER THAN OTHER COMPONENTS. HOT COMPONENTS CAN BURN YOU.



WARNING
DO NOT LET HOT OIL GET ON YOU. PUT ON CLOTHES, GOGGLES, AND OTHER EQUIPMENT FOR PROTECTION, OR LET THE ENGINE BECOME COOL. HOT OIL CAN BURN YOU.



CAUTION
DO NOT RE-SET THE IDG IF THE INPUT SPEED OF THE ENGINE GEARBOX IS MORE THAN 100 REVOLUTIONS PER MINUTE (RPM). IF THE IDG IS RE-SET WITH THE ENGINE GEARBOX SPEED GREATER THAN 100 RPM, DAMAGE TO THE IDG WILL OCCUR.

- (i) Slowly pull the IDG disconnect reset ring on the IDG to the outward travel limit.
1) Monitor the hand force necessary to pull the ring.
- (j) Make sure that a click can be felt in the IDG disconnect reset ring as it gets near the outward limit of travel.
NOTE: Operation of the IDG disconnect reset ring should be smooth with moderate force necessary and no indication of binding.
- (k) Allow the IDG disconnect reset ring to slowly return to the maximum inward position.
- (l) Slowly pull the IDG disconnect reset ring on the IDG to the outward travel limit.
1) Monitor the hand force necessary to pull the ring.
- (m) Make sure that the amount of hand force necessary is less than the amount required in the previous pull.
- (n) Make sure that no click is felt in the IDG disconnect reset ring during the second pull.
1) If a click is produced during the second pull of the IDG disconnect reset ring, replace the IDG, do these tasks:
• Integrated Drive Generator (IDG) Removal, TASK 24-11-11-000-801
• Integrated Drive Generator (IDG) Installation, TASK 24-11-11-400-801.
- (o) Allow the IDG disconnect reset ring to slowly return to the maximum inward position.

SUBTASK 24-11-00-710-008

- (2) Make a check of the IDG disconnect inhibit function as follows:

NOTE: The IDG disconnect function is inhibited when the engine is below idle speed.

NOTE: If the Auxiliary Power Unit (APU) was powering the aircraft, after the No. 2 engine shut down, GEN OFF BUS 2 and SOURCE OFF 2 lights come on while TRANSFER BUS OFF 1 and TRANSFER BUS OFF 2 lights stay extinguished, since both XFR buses will be powered from APU GEN. The SOURCE OFF 2 light will extinguish when the APU GEN switch 2 is in the ON position.

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



CAUTION
DO NOT ACTUATE THE DISCONNECT SWITCH FOR MORE THAN 3 SECONDS. ALLOW A MINIMUM OF 60 SECONDS BETWEEN ACTUATION PERIODS. FAILURE TO FOLLOW THIS PROCEDURE CAN CAUSE DAMAGE TO IDG.

- (a) Push the 2 DISCONNECT switch, on the P5 overhead panel, to the DISCONNECT position.
NOTE: Put a person near the IDG listening for no click and feeling for no movement while lightly holding the IDG disconnect reset ring. There should be no click and no movement at IDG when the 2 DISCONNECT switch is pushed.
- (b) Make sure that the 2 DRIVE light, on the P5 overhead panel, stays on.
- (c) Slowly pull the IDG disconnect reset ring on the IDG to the outward travel limit.
 - 1) Make a note of the amount of hand force necessary.
- (d) Make sure that the force necessary is light.
- (e) Make sure that no click is felt when pulling the IDG disconnect reset ring.
- (f) Allow the IDG disconnect reset ring to slowly return to the maximum inward position.
- (g) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	9	C01287	GENERATOR DISC 2

- (h) Obey all safety precautions around running the engines (TASK 71-00-00-800-805-F00).
- (i) Start the applicable engine (TASK 71-00-00-800-807-F00).
 - 1) Let the applicable engine operate at idle power.
- (j) Set the GEN 2 switch, on the P5 overhead panel, to the ON position.
- (k) Make sure that the AC voltage is 115 ± 5 and the frequency is 400 ± 5 .
- (l) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	9	C01287	GENERATOR DISC 2

- (m) Make sure that the AC voltage and the frequency do not change.
- (n) Shut down the applicable engine (TASK 71-00-00-700-819-F00).

SUBTASK 24-11-00-700-002

- (3) Do a test of the Generator Control Unit (GCU) as follows:
 - (a) Make sure that the STANDBY POWER switch, on the P5-5 overhead panel, is set to the AUTO position.
 - (b) Set the BAT switch, on the P5-13 overhead panel, to the ON position.
 - (c) Push the GCU TEST switch, on the GCU, for at least one second.
 - (d) Make sure that all seven of the indicator lights, on the GCU, come on for approximately three seconds.
 - (e) Make sure that all seven of the indicator lights, on the GCU, go off for approximately three seconds.

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (f) Make sure that the green GCU PASS light, on the GCU, comes on for approximately seven seconds.

SUBTASK 24-11-00-860-005

- (4) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

SUBTASK 24-11-00-860-013

- (5) Do the applicable task: Remove External Power, TASK 24-22-00-860-814 or Remove APU Generator Power, TASK 24-22-00-860-816.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

INTEGRATED DRIVE GENERATOR (IDG) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the IDG
 - (2) An Installation of the IDG.

TASK 24-11-11-000-801

2. Integrated Drive Generator (IDG) Removal

(Figure 401)(Figure 402)

A. General

- (1) The Integrated Drive Generator (IDG) is found on the accessory gearbox on the left side of the engine fan case.

B. References

Reference	Title
70-10-02-910-801-F00	General Precautions during the Removal and Installation of Engine Components (P/B 201)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
72-60-00-200-802-F00	Accessory Gearbox, Transfer Gearbox, and Horizontal Drive Shaft - Oil Leakage Inspection (P/B 601)

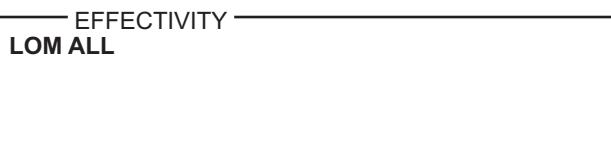
C. Tools/Equipment

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
COM-1443	Jack - Hydraulic, General Low Profile, Capacity: 2000 lbs, Lift: 10 to 44 Inches, or Equivalent Jack Capable of Lifting 300 lbs. Part #: HW93718 Supplier: 28047 Opt Part #: W93718 Supplier: 36251
SPL-1626	Eye - Lifting, Generator Part #: A49002-2 Supplier: 81205
SPL-1634	Jack Adapter - VSCF and IDG Part #: C24002-77 Supplier: 81205 Part #: C24002-78 Supplier: 81205
SPL-20424	Blanking Plates - IDG, CFM Engine Series Part #: 305-110-301-0 Supplier: 07482
STD-1055	Container - Oil Resistant, 5 Gallon (19 Liter)

D. Consumable Materials

Reference	Description	Specification
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
D00068	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class STD (Standard)
D00071	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-7808 Grade 3



24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Description	Specification
D50369	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class HTS (High Thermal Stability)
G00252	Film - Polyethylene Film And Sheeting	ASTM D2103 (Supersedes L-P-512)
G00253	Material - Barrier Materials, Greaseproofed, Waterproof, Flexible, Heat-Sealable	MIL-PRF-121 (Supersedes MIL-B-121)
G00834	Cloth - Lint-free Cotton	
G00920	Tape - Waterproof, Packaging	ASTM D5486
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51576	Tape - Pressure Sensitive Adhesive - BA6866	BAC5034-4
G51663	Tape - Duct, Outdoor - 3M 8979	BAC5034-4
G51664	Tape - Duct, Outdoor - 3M 8979N (MIL-STD-2041 Compliant)	BAC5034-4

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
22	O-ring	24-11-11-50-025	LOM ALL

F. Location Zones

Zone	Area
410	Subzone - Engine 1
411	Engine 1 - Engine
420	Subzone - Engine 2
421	Engine 2 - Engine

G. Prepare for the Removal

SUBTASK 24-11-11-860-007

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

NOTE: No corrective action is necessary if the following maintenance messages display: AUX BAT CHGR INOP or BAT CHGR INOP. These maintenance messages are nuisance faults that will display when only battery power is supplied to the airplane.

SUBTASK 24-11-11-010-001

- (2) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.



24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

H. IDG Removal

SUBTASK 24-11-11-610-001



WARNING

DO NOT START THIS TASK IF THE ENGINE IS HOT. DO NOT TOUCH THE COMPONENTS OF THE OIL SYSTEM IF THE ENGINE IS HOT. THESE COMPONENTS STAY HOTTER THAN OTHER COMPONENTS. WAIT UNTIL THE ENGINE IS COOL. DRY-MOTOR IMMEDIATELY AFTER YOU STOP THE ENGINE CAN DECREASE THE TIME FOR A COOL ENGINE. IF YOU DO NOT OBEY, HOT COMPONENTS CAN BURN YOU.



WARNING

DO NOT OPEN THE OIL SYSTEM UNTIL THE PRESSURE GOES TO ZERO. THE PRESSURE GOES TO ZERO APPROXIMATELY 5 MINUTES AFTER AN ENGINE STOPS. A PRESSURIZED OIL SYSTEM CAN RELEASE A SPRAY OF HOT OIL THAT CAN BURN YOU.



WARNING

DO NOT LET HOT OIL GET ON YOU. PUT ON CLOTHES, GOGGLES, AND OTHER EQUIPMENT FOR PROTECTION, OR LET THE ENGINE BECOME COOL. HOT OIL CAN BURN YOU.



CAUTION

DO NOT LET HOT OIL GET ON THE ENGINE OR OTHER COMPONENTS. IMMEDIATELY CLEAN THE COMPONENT IF OIL FALLS ON IT. OIL CAN CAUSE DAMAGE TO PAINT AND RUBBER.

- (1) Do the following steps to drain the IDG oil:
 - (a) Push the vent valve [15] on the IDG [10] for a minimum of 15 seconds.
 - (b) Remove the lockwire from the IDG case drain plug [17].
 - (c) Place an oil resistant container (5 gal)(19 Liter), STD-1055, below the IDG [10] to catch the oil.
 - (d) Remove the drain plug [17].
 - (e) Remove and discard the O-ring [22] from the drain plug [17].
 - (f) Let the IDG oil drain into the container.



CAUTION

USE ONLY M83485 O-RING WHEN USING HIGH THERMAL STABILITY (HTS) OIL CONFORMING TO MILSPEC-23699 IN THE ENGINE (EXAMPLE: BP/EASTMAN TURBO OIL 2197, AEROSHELL TURBINE OIL 560, MOBIL JET OIL 254). USE OF OTHER O-RING STANDARDS (EXAMPLE: M83248 OR AS3209) WITH HTS OIL WILL RESULT IN REDUCED O-RING LIFE, ENGINE OIL LEAKAGE, AND POTENTIAL ENGINE SHUTDOWN.

- (g) Apply oil, D00071, or oil, D00068, or oil, D50369, to new O-ring [22].
 - (h) Install the new O-ring [22] onto IDG case drain plug [17].
 - (i) Install the IDG case drain plug [17] on the IDG [10].
 - (j) Tighten the case drain plug [17] to 65 ± 10 in-lb (7 ± 1 N·m).
- 1) Secure case drain plug [17] with MS20995C32 lockwire, G01048.

EFFECTIVITY
LOM ALL

24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-11-11-020-001

- (2) Disconnect the electrical connector [4], DP1205, and electrical connector [13], DP1206, from the IDG receptacles:

NOTE: For the specific steps to disconnect and give protection to these electrical connectors, refer to General Precautions during the Removal and Installation of Engine Components, TASK 70-10-02-910-801-F00.

SUBTASK 24-11-11-020-009

- (3) If it is necessary, remove the bolt [34], washer [35], washer [36], bushing [38], nut [37], and bracket [33] to disconnect the lanyard.

SUBTASK 24-11-11-020-008

- (4) Disconnect the IDG lanyards per the steps that follow:

LOM ALL; AIRPLANES WITH THE TWO LANYARDS TO THE SAME SIDE OF THE BRACKET

- (a) Remove the nut [19], washer [21], bolt [20], washer [25], and washer [26] that hold the two lanyards to the bracket on the IDG [10].

LOM ALL

- (b) Remove the nut [32], washer [31], bolt [18], washer [28], washer [29], and washer [30] that hold the lanyard to the bracket on the gearbox.
(c) Move the lanyards so they are not between the IDG and the adapter assembly.

SUBTASK 24-11-11-020-002



CAUTION

USE TWO WRENCHES TO LOOSEN THE TUBE COUPLING NUTS. USE ONE TO HOLD THE UNION, AND THE OTHER TO LOOSEN THE COUPLING NUT. IF YOU DO NOT USE TWO WRENCHES, DAMAGE TO THE TUBE AND UNIONS CAN OCCUR.

- (5) Disconnect the oil-in line [14] and oil-out line [1] from the IDG [10] as follows:

- (a) Disconnect the oil-in line [14] and oil-out line [1] from the oil-in union and oil-out union on the IDG [10].

NOTE: Let the oil drain from the lines into a oil resistant container (5 gal)(19 Liter), STD-1055.

SUBTASK 24-11-11-020-003

- (6) Remove the power feeder leads [5] from the IDG [10] as follows:

- (a) Remove the screws [6] that attach the fanning strip to the IDG [10].

NOTE: Keep the screws [6] for the installation.

- (b) Remove the screws [8] with washers [27] to remove the cover [7] from the IDG [10].

- (c) Remove the nuts [9] from the power feeder terminals on the IDG [10].

- (d) Remove the power feeder leads [5].

- (e) Loosely install the nuts [9] on the power feeder terminals of the IDG [10].

NOTE: If the new IDG does not have four power feeder nuts, keep the nuts for reuse.

- 1) Tighten the nuts [9] with your hand only.

- (f) Loosely attach the cover [7] to the IDG [10] with the screws [8] and washers [27].

SUBTASK 24-11-11-020-005

- (7) Do these steps to remove the IDG [10] (Figure 401):

EFFECTIVITY
LOM ALL

24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Make sure that the VSCF and IDG jack adapter, SPL-1634, is installed on the low profile hydraulic jack, COM-1443.
- (b) Put the jack under the IDG [10] and raise the jack until the adapter engages with the IDG [10].
- (c) Use the strap to attach the IDG [10] to the adapter.



MAKES SURE THAT YOU APPLY ONLY SUFFICIENT PRESSURE WITH THE JACK TO HOLD THE WEIGHT OF THE IDG. TOO MUCH PRESSURE ON THE IDG OR FAILURE TO HOLD THE IDG CORRECTLY CAN CAUSE DAMAGE TO THE INPUT SEAL.

- (d) Continue to raise the jack until the weight of the IDG [10] is held by the jack.
- (e) Remove the lockwire and loosen the Quick Attach/Detach (QAD) tension bolt on the QAD ring.
- (f) Loosen the QAD tension bolt until the alignment marks on the QAD ring and IDG housing align.
NOTE: In this position, the QAD ring is in the open position and the clamping lugs will be disengaged.
NOTE: If the QAD ring turns off the alignment marks on the adapter plate, the IDG cannot be removed. If this occurs, turn the QAD tension bolt to keep the alignment during the IDG removal.
- (g) Move the IDG [10] forward until the input shaft is free of the Accessory Gear Box (AGB) and QAD ring, then move the IDG [10] outboard and away from the power plant.
- (h) Remove the O-ring [16] from the input shaft on the IDG [10].
 - 1) Discard the O-ring [16].
- (i) Put the IDG [10] on a cart or pallet.
 - 1) To lift the IDG [10] from Jack/Adapter Assembly after removal, install the generator lifting eye, SPL-1626, on the IDG [10] housing to facilitate hoist or crane usage.
 - 2) Use hoist or crane to move IDG [10] to Jack/Adapter Assembly before installation.

SUBTASK 24-11-11-790-002

- (8) Inspect the AGB magnetic/sealol seal for leaks, do this task: Accessory Gearbox, Transfer Gearbox, and Horizontal Drive Shaft - Oil Leakage Inspection, TASK 72-60-00-200-802-F00.

SUBTASK 24-11-11-910-001

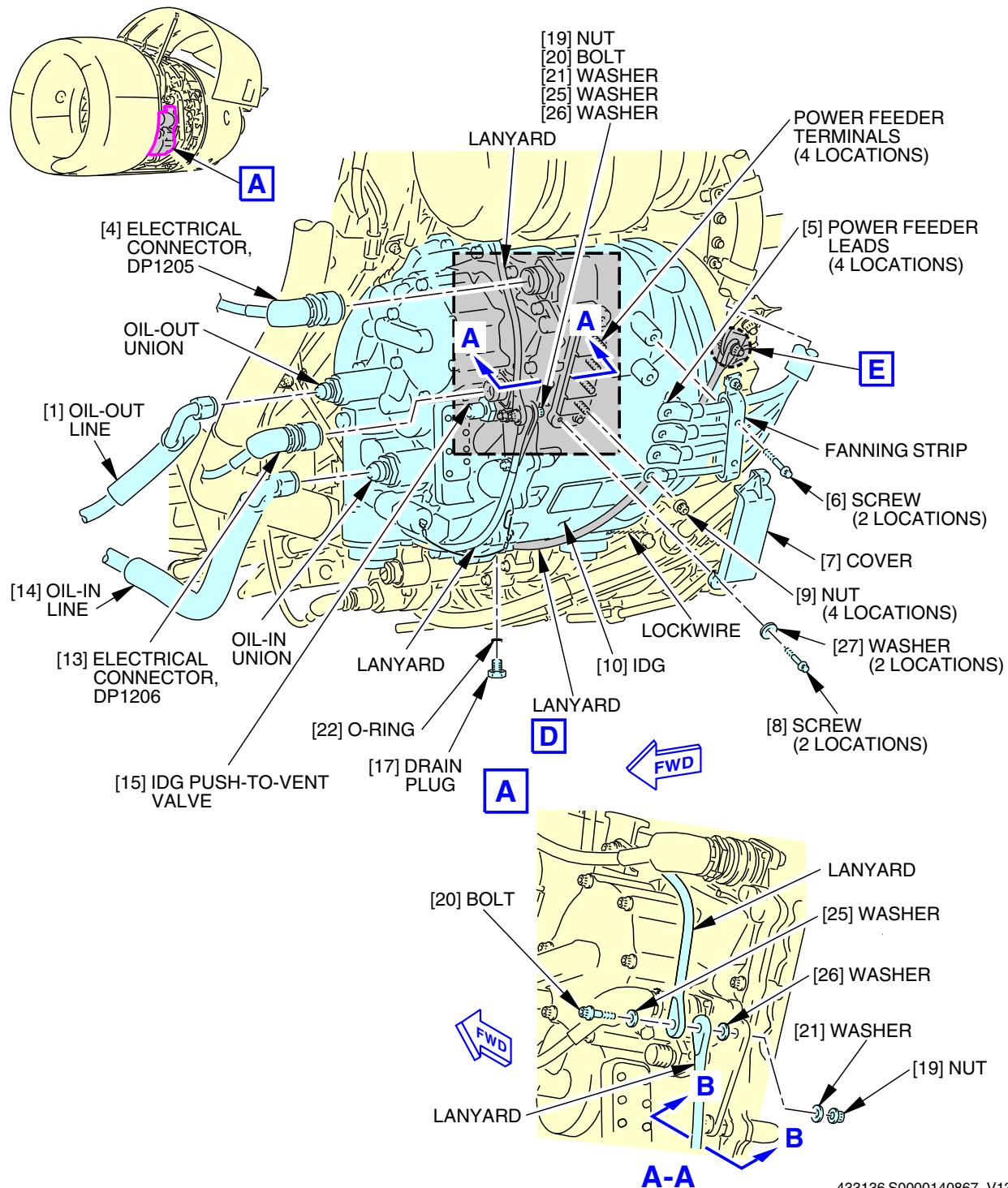
- (9) If the IDG [10] will not be immediately installed, install protective covers to protect the AGB.
 - (a) Install the blanking plate, SPL-20424.
 - (b) If the blanking plate, SPL-20424, is not available, install barrier material, G00253, or polyethylene film, G00252 (alternative), or an equivalent 6 MIL or thicker material.
 - 1) Use preferred 3M 8979 tape, G51663, or 3M 8979N tape, G51664 (alternative), or alternate tape, G51576, or tape, G00920.
 - 2) Use lint-free cloth, G00834, and solvent, B00666, to wipe the area where the tape is used.

NOTE: The tooling must fully cover the AGB mount pad to reduce the risk of corrosion.

———— END OF TASK ———

EFFECTIVITY
LOM ALL

24-11-11



433136 S0000140867_V13

Integrated Drive Generator (IDG) Installation
Figure 401/24-11-11-990-801 (Sheet 1 of 5)

EFFECTIVITY
**LOM ALL; AIRPLANES WITH THE TWO LANYARDS
 TO THE SAME SIDE OF THE BRACKET**

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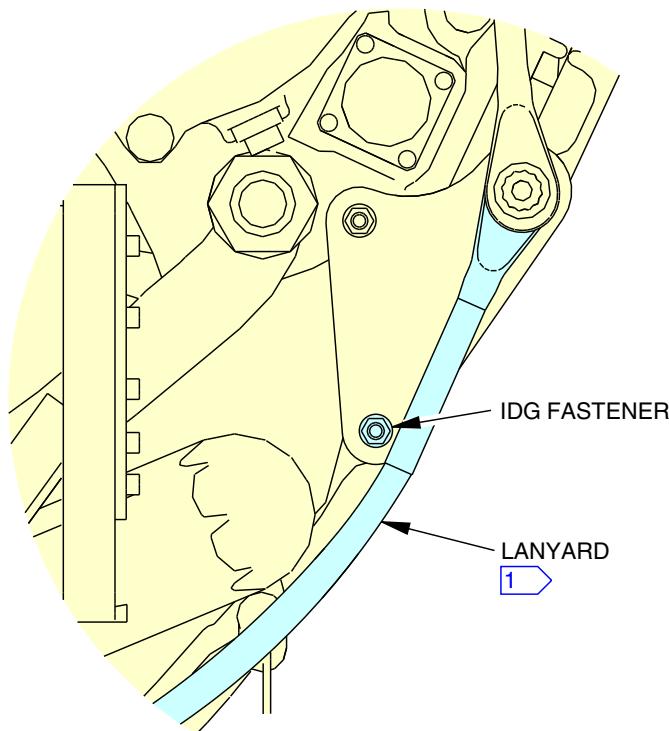
ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-11-11

 Page 406
 Feb 15/2025



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



(VIEW LOOKING AFT)
B-B

- 1 MAINTAIN A CLEARANCE OF
0.03-0.13 INCH (0.762-3.302 mm)
BETWEEN LANYARD AND IDG
FASTENER.

3080169 S0000836015_V1

Integrated Drive Generator (IDG) Installation
Figure 401/24-11-11-990-801 (Sheet 2 of 5)

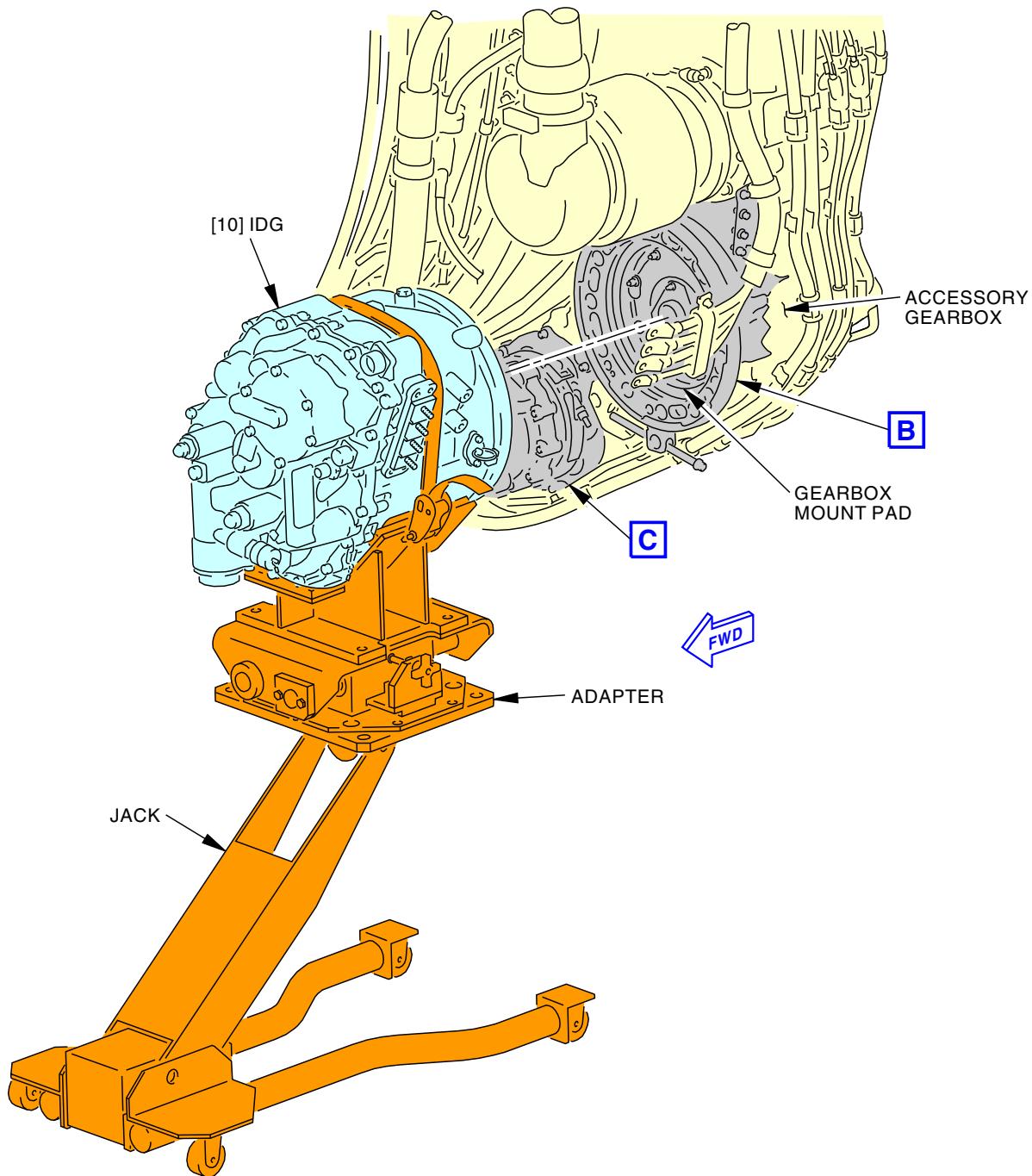
EFFECTIVITY
LOM ALL; AIRPLANES WITH THE TWO LANYARDS
TO THE SAME SIDE OF THE BRACKET

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24-11-11

Page 407
Feb 15/2025

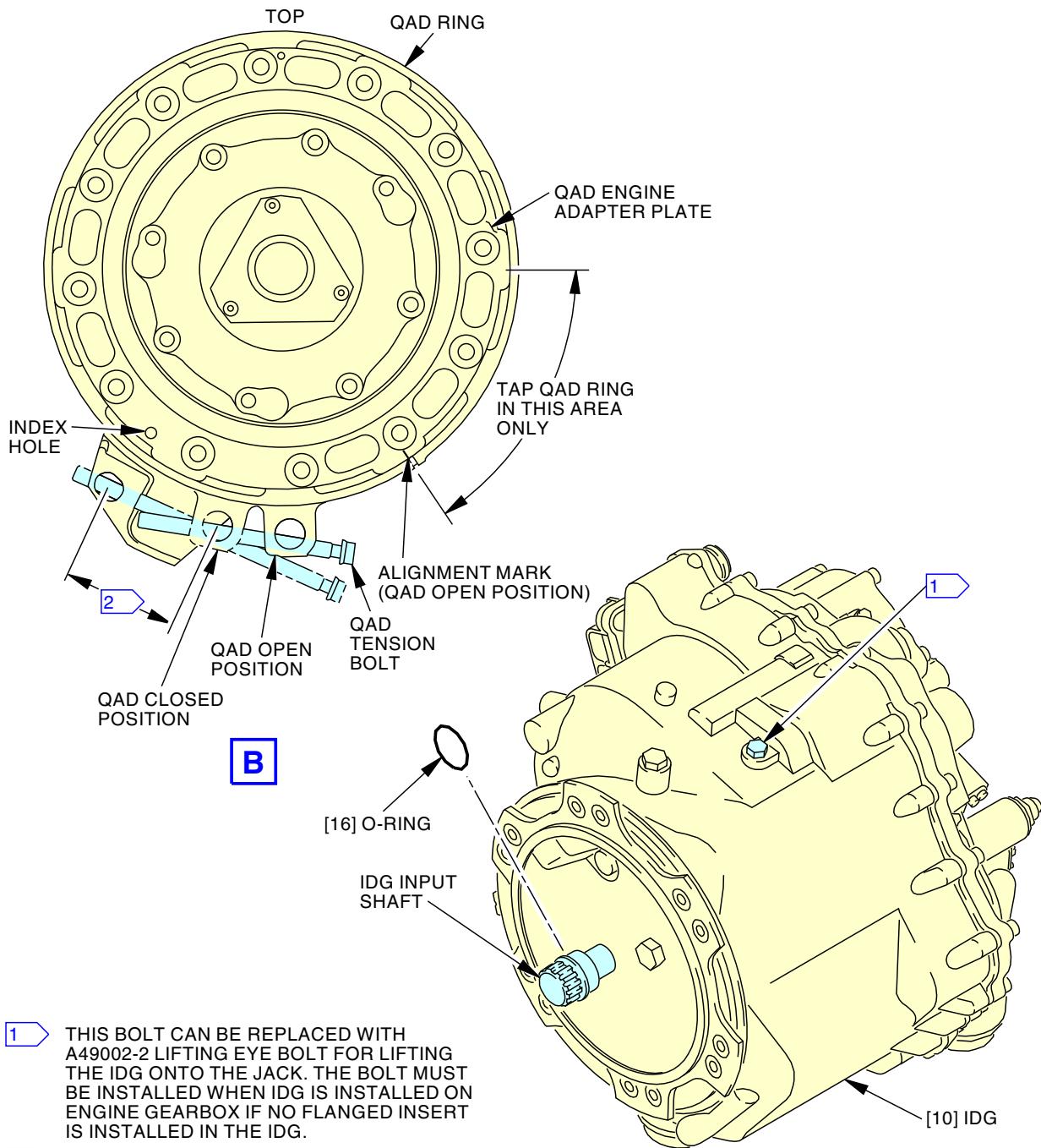


F27531 S0006566136_V3

**Integrated Drive Generator (IDG) Installation
Figure 401/24-11-11-990-801 (Sheet 3 of 5)**EFFECTIVITY
LOM ALL**24-11-11**

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

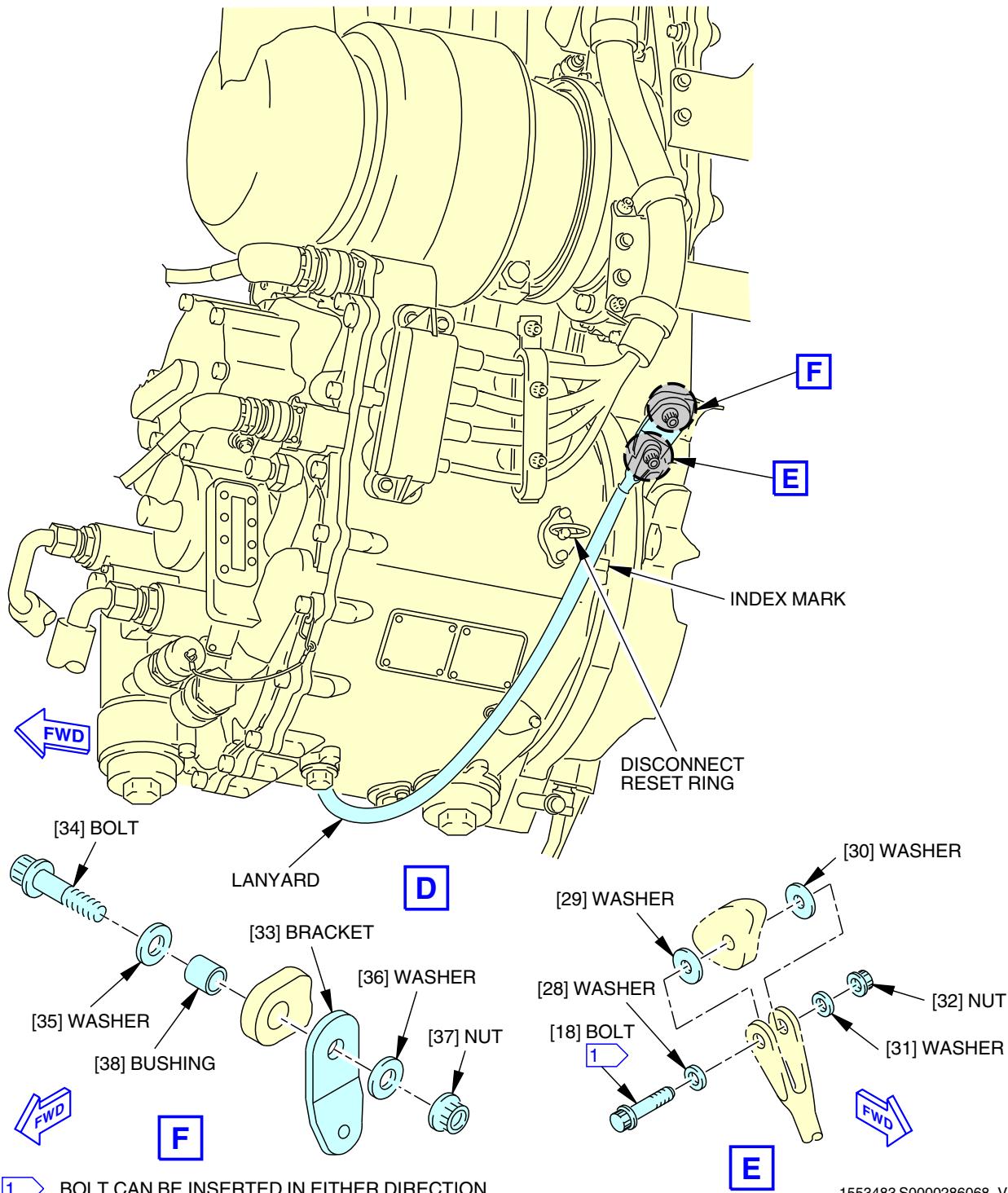


F27717 S0006566137_V7

Integrated Drive Generator (IDG) Installation
Figure 401/24-11-11-990-801 (Sheet 4 of 5)

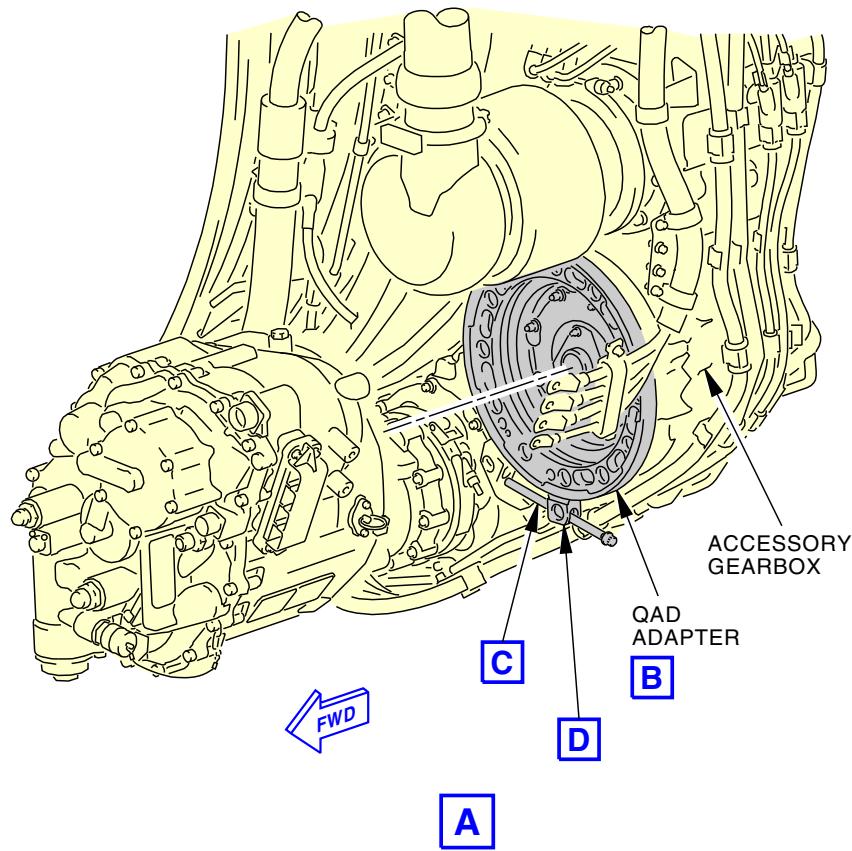
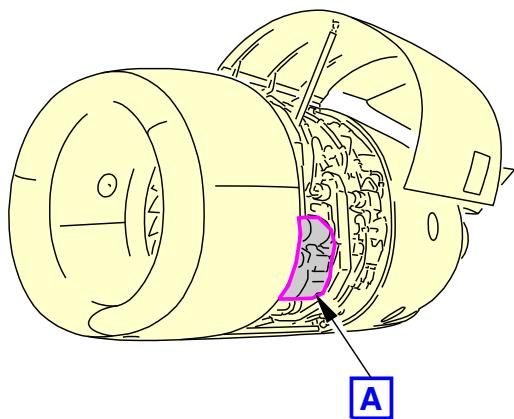
EFFECTIVITY
LOM ALL

24-11-11



Integrated Drive Generator (IDG) Installation
Figure 401/24-11-11-990-801 (Sheet 5 of 5)

24-11-11



F58811 S0006566162_V4

Quick Attach/Detach Adapter Inspection
Figure 402/24-11-11-990-806 (Sheet 1 of 3)

EFFECTIVITY
LOM ALL

24-11-11

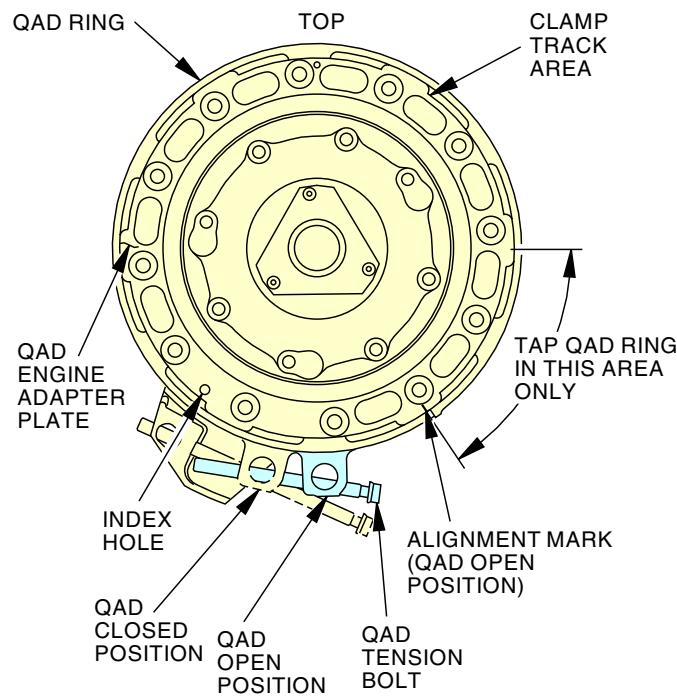
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

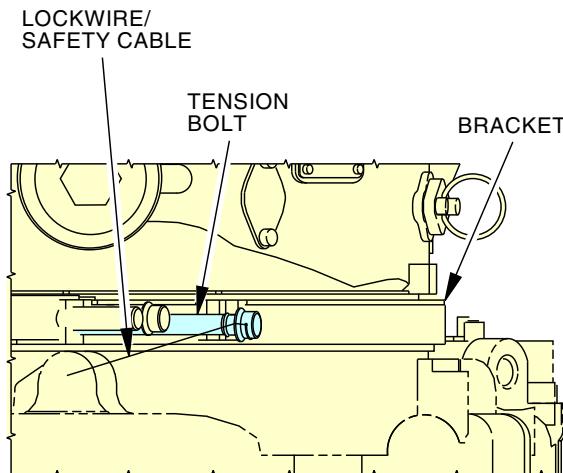
Page 411
Feb 15/2025



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



B



TENSION BOLT WITH LOCKWIRE

C

G13924 S0006566163_V7

Quick Attach/Detach Adapter Inspection
Figure 402/24-11-11-990-806 (Sheet 2 of 3)

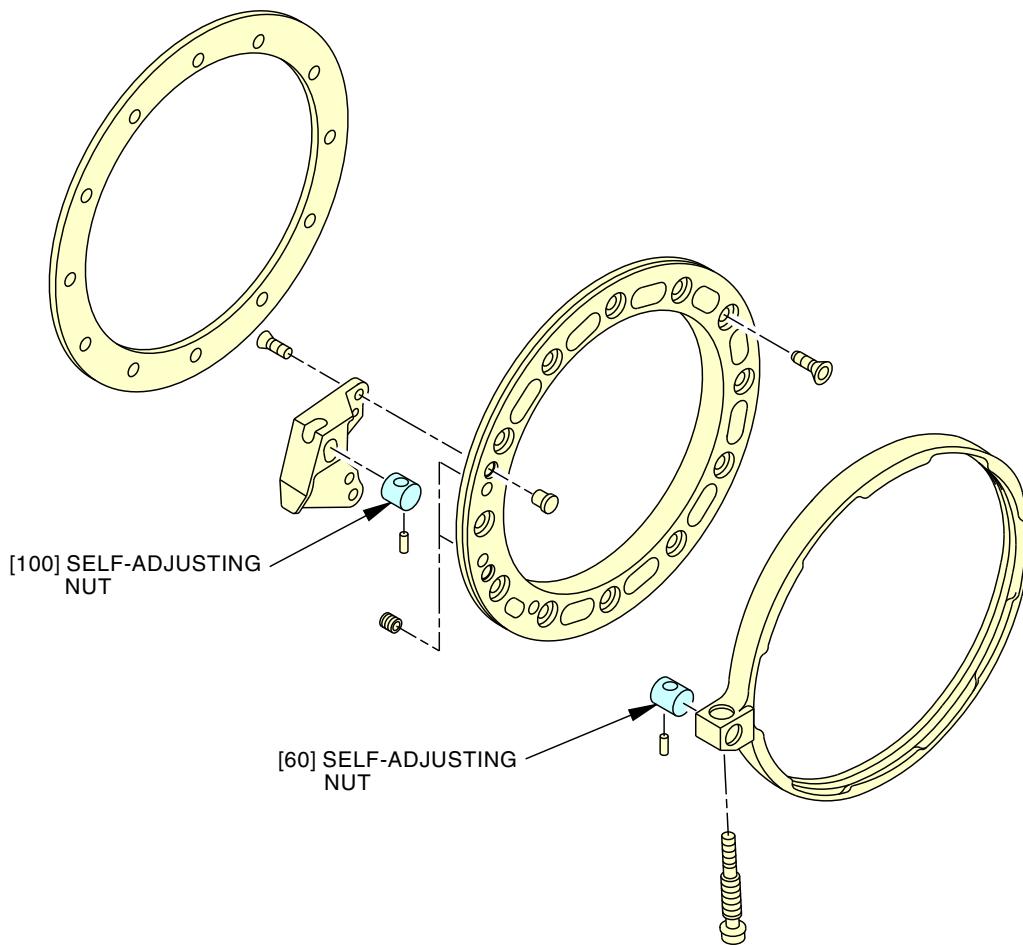
EFFECTIVITY
LOM ALL

24-11-11

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Page 412
Feb 15/2025

**D**

2823778 S0000653920_V1

Quick Attach/Detach Adapter Inspection
Figure 402/24-11-11-990-806 (Sheet 3 of 3)EFFECTIVITY
LOM ALL**24-11-11**

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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-11-400-801

3. Integrated Drive Generator (IDG) Installation

(Figure 401)(Figure 402)

A. General

- (1) The Integrated Drive Generator (IDG) is found on the accessory gearbox on the left side of the engine fan case.

B. References

Reference	Title
12-13-21-600-801	IDG Servicing (Oil Fill) (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
24-11-00-700-802	Number 1 IDG - Operational Test (P/B 501)
24-11-00-700-803	Number 2 IDG - Operational Test (P/B 501)
24-11-61 P/B 401	QUICK ATTACH/DETACH (QAD) ADAPTER - REMOVAL/INSTALLATION
70-10-02-910-801-F00	General Precautions during the Removal and Installation of Engine Components (P/B 201)
71-00-00-800-811-F00	Power Plant Test Reference Table (P/B 501)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)
72-60-00-200-802-F00	Accessory Gearbox, Transfer Gearbox, and Horizontal Drive Shaft - Oil Leakage 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
COM-1443	Jack - Hydraulic, General Low Profile, Capacity: 2000 lbs, Lift: 10 to 44 Inches, or Equivalent Jack Capable of Lifting 300 lbs. Part #: HW93718 Supplier: 28047 Opt Part #: W93718 Supplier: 36251
SPL-1626	Eye - Lifting, Generator Part #: A49002-2 Supplier: 81205
SPL-1634	Jack Adapter - VSCF and IDG Part #: C24002-77 Supplier: 81205 Part #: C24002-78 Supplier: 81205
SPL-20424	Blanking Plates - IDG, CFM Engine Series Part #: 305-110-301-0 Supplier: 07482

D. Consumable Materials

Reference	Description	Specification
B00074	Solvent - Degreasing	MIL-PRF-680 (Supersedes P-D-680)
B01041 [C04-208]	Solvent - Degreaser - Turco 5948 DPM	
B50200 [C04-152]	Cleaner - Turco 5948-R Mild Alkaline	
D00006	Compound - Antiseize, Pure Nickel Special - Never-Seez NSBT-8N/-16N	

EFFECTIVITY
LOM ALL

24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Description	Specification
D00068	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class STD (Standard)
D00071	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-7808 Grade 3
D50369	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class HTS (High Thermal Stability)
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	IDG	24-11-11-01A-005	LOM ALL
16	O-ring	24-11-11-50-030	LOM ALL

F. Location Zones

Zone	Area
410	Subzone - Engine 1
411	Engine 1 - Engine
420	Subzone - Engine 2
421	Engine 2 - Engine

G. Prepare for the IDG installation

SUBTASK 24-11-11-840-002

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

NOTE: No corrective action is necessary if the following maintenance messages display: AUX BAT CHGR INOP or BAT CHGR INOP. These maintenance messages are nuisance faults that will display when only battery power is supplied to the airplane.

SUBTASK 24-11-11-840-001

- (2) Do these steps to prepare the IDG [10] for the installation:

- (a) If it is necessary, inspect the accessory gearbox magnetic/sealol seal for leaks (TASK 72-60-00-200-802-F00).
- (b) If installed, remove the blanking plate, SPL-20424, or other protective coverings from the gearbox mount pad.
 - 1) If alternate materials were used, remove any remaining residue.
 - a) Use Turco 5948-R cleaner, B50200 [C04-152], or Turco 5948 DPM solvent, B01041 [C04-208], to clean the remaining tape residue.
- (c) Examine the IDG [10], the Quick Attach/Detach (QAD) ring and the input seal for signs of damage or unwanted material.



24-11-11



737-600/700/800/900 AIRCRAFT MAINTENANCE MANUAL

- 1) Nicks and dents on the outer edge of the QAD are permitted to a maximum of 0.030 in. (0.762 mm) in depth.

NOTE: Operators can refer to the Component Maintenance Manual (CMM) for additional inspection and repair instructions.

- (d) Clean all grease from the IDG input shaft with solvent, B00074.
- (e) Apply a thin layer of oil, D00068, or oil, D00071, or oil, D50369, to the lugs of the QAD ring and to the threads of the QAD tension bolt.



CAUTION
USE ONLY M83485 O-RING WHEN USING HIGH THERMAL STABILITY (HTS) OIL CONFORMING TO MILSPEC-23699 IN THE ENGINE (EXAMPLE: BP/EASTMAN TURBO OIL 2197, AEROSHELL TURBINE OIL 560, MOBIL JET OIL 254). USE OF OTHER O-RING STANDARDS (EXAMPLE: M83248 OR AS3209) WITH HTS OIL WILL RESULT IN REDUCED O-RING LIFE, ENGINE OIL LEAKAGE, AND POTENTIAL ENGINE SHUTDOWN.

- (f) Lubricate a new O-ring [16] with oil, D00068, or oil, D00071, or oil, D50369.
- (g) Install the new O-ring [16] on the input shaft of the IDG [10].

H. Integrated Drive Generator (IDG) Installation

SUBTASK 24-11-11-420-001

- (1) Do these steps to install the IDG [10]:

- (a) Make sure that the VSCF and IDG jack adapter, SPL-1634, is installed on the low profile hydraulic jack, COM-1443.
- (b) Install the generator lifting eye, SPL-1626, on the IDG [10] to facilitate hoist or crane usage.
- (c) Put the IDG [10] on the jack.
- (d) Remove the generator lifting eye, SPL-1626, from the IDG [10].
- (e) Install the bolt on the IDG [10].
- (f) Tighten the bolt to 15 in-lb (1.7 N·m) - 18 in-lb (2.0 N·m).
- (g) If not already done, turn the QAD tension bolt to put the QAD ring in the open position.
 - 1) Make sure that you align the mark on the QAD ring with the mark on the QAD engine adapter plate.

NOTE: The mark on the QAD ring is inside the gearbox pad and is found on the adapter plate.



CAUTION
DO NOT LET THE IDG HANG ON THE INPUT SHAFT DURING THE INSTALLATION. FAILURE TO GIVE SUFFICIENT SUPPORT TO THE IDG CAN CAUSE DAMAGE TO THE INPUT SHAFT AND CARBON SEALS.

- (h) Align the IDG [10] with the gearbox mount pad.
- (i) Adjust the IDG [10] until the lugs on the IDG input flange engage with the QAD ring openings.
 - 1) Make sure that you align the index pin on the IDG [10] with the index hole on the QAD engine adapter plate.
 - 2) Make sure that the clearance between the IDG [10] and the QAD ring is equivalent for all points around the IDG [10].

EFFECTIVITY
LOM ALL

24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (j) Tighten the QAD tension bolt so that the QAD ring lugs fully engage the input flange lugs on the IDG [10].
 - 1) Make sure that the QAD ring moves smoothly and does not bind or snag.
- (k) Tighten the QAD tension bolt as follows:
 - 1) Tighten the QAD tension bolt to 252 ± 12 in-lb (28 ± 2 N·m).
 - 2) Tap the QAD with a soft mallet or brass drift to prevent an incorrect torque value in the area shown on (View B, Figure 401) .
 - 3) Do a check of the torque value of the QAD tension bolt and if the torque is less than 180 in-lb (20 N·m), do these steps:
 - a) Tighten the QAD tension bolt to 252 ± 12 in-lb (28 ± 2 N·m).
 - b) Repeat tapping and torquing to 252 ± 12 in-lb (28 ± 2 N·m) until the torque of the QAD tension bolt does not drop below 180 in-lb (20 N·m) after tapping on the QAD.
 - c) Tighten the QAD tension bolt to 252 ± 12 in-lb (28 ± 2 N·m).
 - 4) If the first check of the torque of the QAD tension bolt is above 180 in-lb (20 N·m), do these steps:
 - a) Tap on the QAD ring and do a check of the torque again.
 - b) If the second check of the torque is above 180 in-lb (20 N·m), tighten the QAD tension bolt to 252 ± 12 in-lb (28 ± 2 N·m).

SUBTASK 24-11-11-220-001

- (2) Measure the distance between the center of the self-adjusting nut [60] and the centre of self-adjusting nut [100] that are installed on the QAD tension bolt (Figure 402).
 - (a) If the distance is less than 1.75 in. (4.44 cm), replace the QAD (PAGEBLOCK 24-11-61/401).

SUBTASK 24-11-11-910-002

- (3) Install a 0.032 in. (0.813 mm) diameter MS20995NC32 lockwire, G01912, or safety cable kit, G51490, on the QAD tension bolt (TASK 20-10-44-400-801).

SUBTASK 24-11-11-080-001

- (4) Lower the jack with the attached adapter and remove it from the engine.

SUBTASK 24-11-11-420-002

- (5) Connect the power feeder leads [5] to the IDG [10] as follows:
 - (a) Remove the two screws [8] with washer [27] that attach the cover [7] to the IDG [10].
 - (b) Remove the four power feeder nuts [9].



DO NOT INSTALL ANY WASHERS UNDER THE POWER FEEDER LEADS. LOCALIZED RESISTANCE HEATING CAN OCCUR WHICH COULD CAUSE THE TERMINAL BLOCK TO BURN.

- (c) Install the power feeder leads [5] on the power feeder terminals.
 - 1) Make sure that the power feeder leads [5] are on the correct terminal.

EFFECTIVITY
LOM ALL

24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (d) Install the 12-point nuts [9] or the preferred 6-point Spiralock nuts and tighten to 156 ± 12 in-lb (18 ± 1 N·m).

NOTE: For the 6-point Spiralock nut, the nut should have no resistance while it spins down the terminal stud. If resistance is felt, do a check for galling on the stud. If galling is found, the terminal block should be replaced.

- 1) Shake the power feeder leads [5] in the vertical direction near the IDG [10] to make sure that they are secure.

NOTE: The power feeder leads that are not secure can become loose during high vibrations.

- a) If the power feeder leads [5] are not secure, loosen the nuts [9], re-position the power feeder leads [5], and re-tighten to 156 ± 12 in-lb (18 ± 1 N·m).

- (e) Attach the cover [7] to the IDG [10] with the two screws [8] and washer [27].

- 1) Make sure that the cover is correctly aligned with the power feeder leads [5].

- 2) Make sure that the cover orientation is correct.

- a) Make sure that the terminal plug and the cover [7] do not touch.

- b) Make sure that the cover [7] is installed correctly.

NOTE: The cover can accidentally be installed incorrectly by 180 degrees.

- 3) Tighten the screws [8] to 21 ± 1 in-lb (2 ± 0 N·m).

- (f) Attach the fanning strip to the IDG [10] with the two screws [6].

NOTE: The fanning strip is attached to the power feeder leads.

- 1) Apply Pure Nickel Special compound, D00006, to the threads of the screws [6].

- 2) Tighten the screws [6] to 48 in-lb (5.4 N·m) - 53 in-lb (6.0 N·m).

SUBTASK 24-11-11-420-003



CAUTION

USE TWO WRENCHES TO TIGHTEN THE TUBE COUPLING NUTS. USE ONE TO HOLD THE MATING PART, AND THE OTHER TO TIGHTEN THE COUPLING NUT. IF YOU DO NOT USE TWO WRENCHES, DAMAGE TO THE TUBES AND MATING PART CAN OCCUR.

- (6) Install the oil-in line [14] and the oil-out line [1] as follows:

- (a) Remove the protective covers from the oil-in line [14] and the oil-out line [1].
(b) Connect the oil-in line [14] to the oil-in union.
(c) Connect the oil-out line [1] to the oil-out union.
(d) Tighten the oil-in line [14] to 700 ± 35 in-lb (79 ± 4 N·m).
(e) Tighten the oil-out line [1] to 500 ± 25 in-lb (56 ± 3 N·m).

SUBTASK 24-11-11-420-004



CAUTION

MAKE SURE THAT YOU ASSEMBLE THE LANYARD ON THE BRACKET FIRST. THIS PREVENTS DAMAGE TO THE IDG ACCESS PANEL ON THE ENGINE COWL.

- (7) Connect the IDG lanyards per the steps that follow:

- (a) Position lanyards on the IDG bracket.

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24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM ALL; AIRPLANES WITH THE TWO LANYARDS TO THE SAME SIDE OF THE BRACKET

- (b) Install the bolt [20], washer [25], washer [26], washer [21], and nut [19] that hold the lanyards to the IDG bracket.
- (c) Make sure that there is a clearance of 0.03 in. (0.762 mm) - 0.13 in. (3.302 mm) between the lanyard and IDG fastener (Figure 401).

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- (d) Install the bolt [18], washer [28], washer [29], washer [30], washer [31], and nut [32] that hold the lanyard to the bracket on the gearbox.
 - 1) Make sure that the lanyard is aligned with the bracket and is between the disconnect reset ring and the index mark (Figure 401).
- (e) If it is removed, install the bracket [33], bolt [34], washer [35], washer [36], bushing [38] and nut [37] to attach the lanyard to the gearbox.
- (f) Tighten the nut [37] to 310 in-lb (35 N·m) - 330 in-lb (37.3 N·m).
- (g) Tighten the nut [19] and nut [32] to 165 in-lb (19 N·m) - 175 in-lb (20 N·m).

SUBTASK 24-11-11-420-006

- (8) Connect the electrical connector [4], DP1205, and the electrical connector [13], DP1206, to the IDG [10].

NOTE: For the specific steps to connect, clean and remove protection to the electrical connectors, refer to General Precautions during the Removal and Installation of Engine Components, TASK 70-10-02-910-801-F00.

SUBTASK 24-11-11-610-002



CAUTION
MAKE SURE THE PLUG IS SECURED WITH LOCKWIRE BEFORE FILLING THE OIL. IT CAN CAUSE OIL LEAKAGE.

- (9) Do this task: IDG Servicing (Oil Fill), TASK 12-13-21-600-801.

SUBTASK 24-11-11-860-009

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

I. IDG Installation Test

SUBTASK 24-11-11-790-001

- (1) Do the test listed in the Power Plant Test Reference Table, TASK 71-00-00-800-811-F00.

SUBTASK 24-11-11-740-001

- (2) If the IDG was removed and installed due to a fault, perform the applicable Generator Control Unit (GCU) Built-In-Test Equipment (BITE) test.

SUBTASK 24-11-11-710-005

- (3) If the Number 1 IDG was replaced, do this task: Number 1 IDG - Operational Test, TASK 24-11-00-700-802.

SUBTASK 24-11-11-710-006

- (4) If the Number 2 IDG was replaced, do this task: Number 2 IDG - Operational Test, TASK 24-11-00-700-803.

EFFECTIVITY
LOM ALL

24-11-11



**737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL**

J. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-11-860-002

- (1) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

INTEGRATED DRIVE GENERATOR (IDG) - INSPECTION/CHECK

1. General

- A. This procedure has this task:
- (1) A disconnect and reset check of the IDG.

TASK 24-11-11-700-801

2. Integrated Drive Generator - Disconnect and Reset Check

(Figure 601)

A. General

- (1) The Integrated Drive Generator (IDG) is found on the Accessory Gear Box (AGB) on the left side of the engine fan case.
- (2) A disconnected IDG that remains mounted to an engine for about 50 flight hours can receive damage to the ball bearing assembly for the IDG input shaft.

B. References

Reference	Title
12-13-21-200-801	IDG Oil Level Check (P/B 301)
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
410	Subzone - Engine 1
411	Engine 1 - Engine
420	Subzone - Engine 2
421	Engine 2 - Engine

D. Prepare for the Check

SUBTASK 24-11-11-010-002

- (1) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

SUBTASK 24-11-11-860-003

- (2) Do this task: IDG Oil Level Check, TASK 12-13-21-200-801.

SUBTASK 24-11-11-860-004

- (3) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	8	C01286	GENERATOR DISC 1
F	9	C01287	GENERATOR DISC 2
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

E. Integrated Drive Generator Disconnect and Reset Check

SUBTASK 24-11-11-710-001

- (1) Do the check as follows:

EFFECTIVITY
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24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Push the BAT switch, on the P5 forward overhead panel, to the ON position.
- (b) Make sure that the applicable DRIVE light, on the P5 forward overhead panel, is on.

SUBTASK 24-11-11-710-002

- (2) Do a check of the IDG disconnect inhibit function as follows:

NOTE: The IDG disconnect function is inhibited when the engine is below idle speed.

- (a) If it is installed, remove safety wire from the IDG DISCONNECT switch cover (TASK 20-10-44-000-801).



CAUTION DO NOT ACTUATE THE DISCONNECT SWITCH FOR MORE THAN 3 SECONDS. ALLOW A MINIMUM OF 60 SECONDS BETWEEN ACTUATION PERIODS. FAILURE TO FOLLOW THIS PROCEDURE CAN CAUSE DAMAGE TO IDG.

- (b) Push the applicable DISCONNECT switch, on the P5 forward overhead panel, to the DISCONNECT position.

NOTE: Put a person near the IDG listening for no click and feeling for no movement while lightly holding the IDG Disconnect Reset Ring. There should be no click and no movement at IDG when the applicable DISCONNECT switch is pushed.

- (c) Make sure that the DRIVE light, on the P5 forward overhead panel, stays on.

- (d) Slowly pull the IDG Disconnect Reset Ring to the outward travel limit.

- 1) Make a note of the amount of hand force necessary.

- (e) Make sure that the force necessary to pull the ring is light.

- (f) Make sure that no click is felt when pulling the IDG Disconnect Reset Ring.

SUBTASK 24-11-11-710-003

- (3) Do a check of the IDG disconnect function as follows:

- (a) Simulate an engine run as follows:

NOTE: The IDG disconnect function is inhibited when the engine is below idle speed.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
B	1	C01316	ENGINE 1 START LEVER CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2
B	4	C00359	FUEL SPAR VALVE ENG 1
B	5	C00540	FUEL SPAR VALVE IND



24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

- 2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C01319	ENGINE 2 START LEVER CHAN B

- 3) Push the applicable ENGINE START LEVER to the IDLE position.



CAUTION DO NOT ACTUATE THE DISCONNECT SWITCH FOR MORE THAN 3 SECONDS. ALLOW A MINIMUM OF 60 SECONDS BETWEEN ACTUATION PERIODS. FAILURE TO FOLLOW THIS PROCEDURE CAN CAUSE DAMAGE TO IDG.

- (b) Push the DISCONNECT switch, on the P5 forward overhead panel, to the DISCONNECT position.

NOTE: Put a person near the IDG listening for a click and feeling for a movement while lightly holding the IDG Disconnect Reset Ring. There should be a click and movement should be felt when the applicable DISCONNECT switch is pushed.

- (c) Make sure that the DRIVE light, on the P5 forward overhead panel, stays on.
(d) Push the BAT switch, on the P5 forward overhead panel, to the OFF position.
(e) Put the ENGINE START LEVER in the CUTOFF position.
(f) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
B	1	C01316	ENGINE 1 START LEVER CHAN A

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2

EFFECTIVITY
LOM ALL

24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1
B	5	C00540	FUEL SPAR VALVE IND
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 24-11-11-710-004



THE IDG INPUT SHAFT MUST BE RECONNECTED PRIOR TO ENGINE START. WHEN THE IDG IS DISCONNECTED WITH THE ENGINE SHUT DOWN OR BELOW IDLE SPEED, THERE WILL NOT BE COMPLETE SEPARATION OF THE IDG DOG TEETH. IF YOU DO NOT RECONNECT THE IDG PRIOR TO ENGINE START DAMAGE TO THE IDG CAN OCCUR.

- (4) Reconnect the IDG drive shaft as follows:

- (a) Slowly pull the IDG Disconnect Reset Ring to the outward travel limit.
 - 1) Make a note of the amount of hand force necessary.
- (b) Make sure that a click is felt in the Disconnect Reset Ring as it gets near the outward limit of travel.

NOTE: Operation of the Disconnect Rest Ring should be smooth with moderate force necessary and no indication of binding.
- (c) Allow the Disconnect Reset Ring to slowly return to the maximum inward position.

NOTE: Operation of the Disconnect Rest Ring should be smooth with moderate force required and no indication of binding.
- (d) Slowly pull the IDG Disconnect Reset Ring to the outward travel limit.
 - 1) Make a note of the amount of hand force necessary.
- (e) Make sure that the amount of hand force necessary is less than the amount used in the previous step.
- (f) Make sure that there is no click during the second pull of the Disconnect Reset Ring.
 - 1) If the hand force does not decrease, or a click is produced during the second pull of the Disconnect Reset Ring, replace the IDG.
- (g) Allow the Disconnect Reset Ring to slowly return to the maximum inward position.

SUBTASK 24-11-11-700-001

- (5) Do a test of the Generator Control Unit (GCU) as follows:

- (a) Make sure that the STANDBY POWER switch, on the P5-5 overhead panel, is set to the AUTO position.
- (b) Set the BAT switch, on the P5-13 overhead panel, to the ON position.
- (c) Push the GCU TEST switch, on the GCU, for at least one second.
- (d) Make sure that all seven of the indicator lights, on the GCU, come on for approximately three seconds.
- (e) Make sure that all seven of the indicator lights, on the GCU, go off for approximately three seconds.

EFFECTIVITY
LOM ALL

24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (f) Make sure that the green GCU PASS light, on the GCU, comes on for approximately seven seconds.

SUBTASK 24-11-11-710-007

- (6) If it was removed, install safety wire on the IDG DISCONNECT switch cover (TASK 20-10-44-000-801).

F. Put the Airplane Back to Its Usual Condition

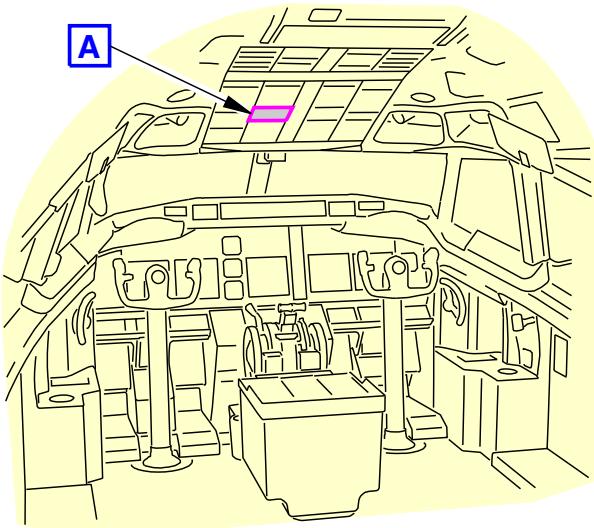
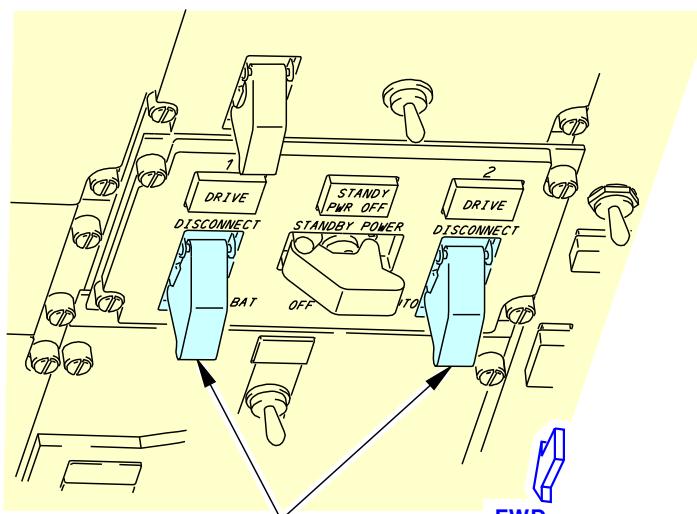
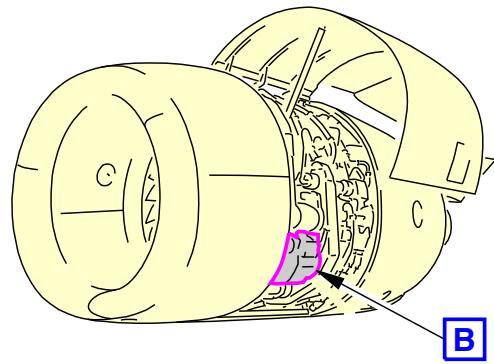
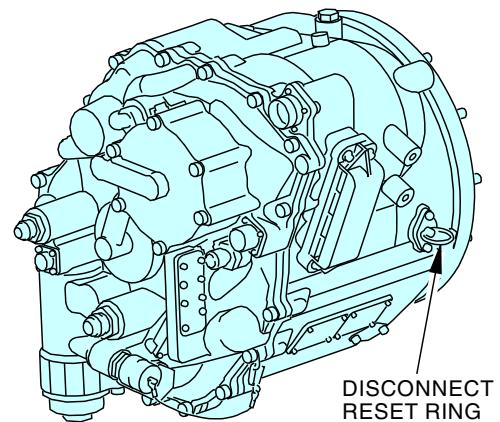
SUBTASK 24-11-11-410-001

- (1) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-11


FLIGHT COMPARTMENT

**GENERATOR DRIVE
DISCONNECT SWITCHES**
**GENERATOR DRIVE AND
STANDBY POWER MODULE (P5-5)**
A

**INTEGRATED DRIVE
GENERATOR**
B

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IDG Disconnect Drive System
Figure 601/24-11-11-990-802

EFFECTIVITY
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24-11-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

IDG AIR/OIL COOLER - MAINTENANCE PRACTICES

1. General

- A. This procedure has two tasks:
- (1) Integrated Drive Generator (IDG) Air/Oil Cooler - Inspection/Check
 - (2) Integrated Drive Generator (IDG) Air/Oil Cooler - Cleaning

TASK 24-11-21-200-801

2. Integrated Drive Generator (IDG) Air/Oil Cooler - Inspection/Check

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The IDG air/oil cooler is an oil-to-air heat exchanger that uses bypass fan air to cool the IDG cooling oil system.
- (2) The IDG air/oil cooler is found inside the fan case and to the left of the 6 o'clock strut.
- (3) For this task, the IDG air/oil cooler will be referred to as the cooler.
- (4) Mild debris in the cooler fins can trap water and contaminants that will promote corrosion. This is especially true in the winter months and during storage. Some runway deicers will attract water to the surface of parts and result in accelerated corrosion.
- (5) Other inspection methods may be used depending on airline policy.

B. References

Reference	Title
24-11-21 P/B 401	IDG AIR/OIL COOLER - REMOVAL/INSTALLATION
71-00-00-800-802-F00	Engine Foreign Object Damage and Birdstrike Inspection (P/B 601)
78-31-00-010-801-F00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-804-F00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1081	Flashlight - Explosion Proof
STD-3907	Mirror - Dental

D. Location Zones

Zone	Area
415	Engine 1 - Thrust Reverser, Left
425	Engine 2 - Thrust Reverser, Left

E. Prepare for the Inspection/Check

SUBTASK 24-11-21-010-004



WARNING

DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO PREPARE THE THRUST REVERSERS FOR THE INSPECTION. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-F00.

EFFECTIVITY
LOM ALL

24-11-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. Inspection/Check Procedure

SUBTASK 24-11-21-210-001

- (1) With a flashlight (explosion proof flashlight, STD-1081) that is less than 6 inches long, access the forward face of the cooler to shine the light through the cooler fins and look for these conditions:

NOTE: Make sure that no bird debris are present (Engine Foreign Object Damage and Birdstrike Inspection, TASK 71-00-00-800-802-F00) prior to proceeding.

- (a) Debris in the cooler fins

NOTE: The most likely area of damage is the forward facing surface of the cooler. You will need a small hand held mirror (dental mirror, STD-3907) to see the forward face of the cooler.

- 1) If you find debris, do this task: Integrated Drive Generator (IDG) Air/Oil Cooler - Cleaning, TASK 24-11-21-100-801.

NOTE: If little to no light is seen through the cooler fins during the check with a flashlight, this indicates that airflow is significantly obstructed and the cooling capability could be diminished. The Cleaning Procedure may be done to remove debris and improve airflow.

- (b) Damage to the fins

- 1) Large dents and broken fins are not permitted. If you find them, do this task: IDG AIR/OIL COOLER - REMOVAL/INSTALLATION, PAGEBLOCK 24-11-21/401.

NOTE: Large dents to the fins are specified as fins with sufficient damage to prevent the correct air flow through the cooler, or fins that show signs of deterioration or fins that cannot be put back to its initial shape. Broken fins are specified as fins that are not attached to the top or bottom.

NOTE: If you find dents in the manifold section of the Air/Oil Cooler, make sure that there are no dents with more than 0.090 in. (2.29 mm) in depth or have the diameter of the dent more than 3 times the depth. If the dents are out of these limits, speak to the manufacturer.

NOTE: If you find dents on attachment points, tubes, or areas of internal parts, speak to the manufacturer.

- (c) Oil stains or leakage

- 1) Oil stains or leakage are not permitted. If you find them, do this task: IDG AIR/OIL COOLER - REMOVAL/INSTALLATION, PAGEBLOCK 24-11-21/401.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-21-410-002

- (1) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-804-F00.

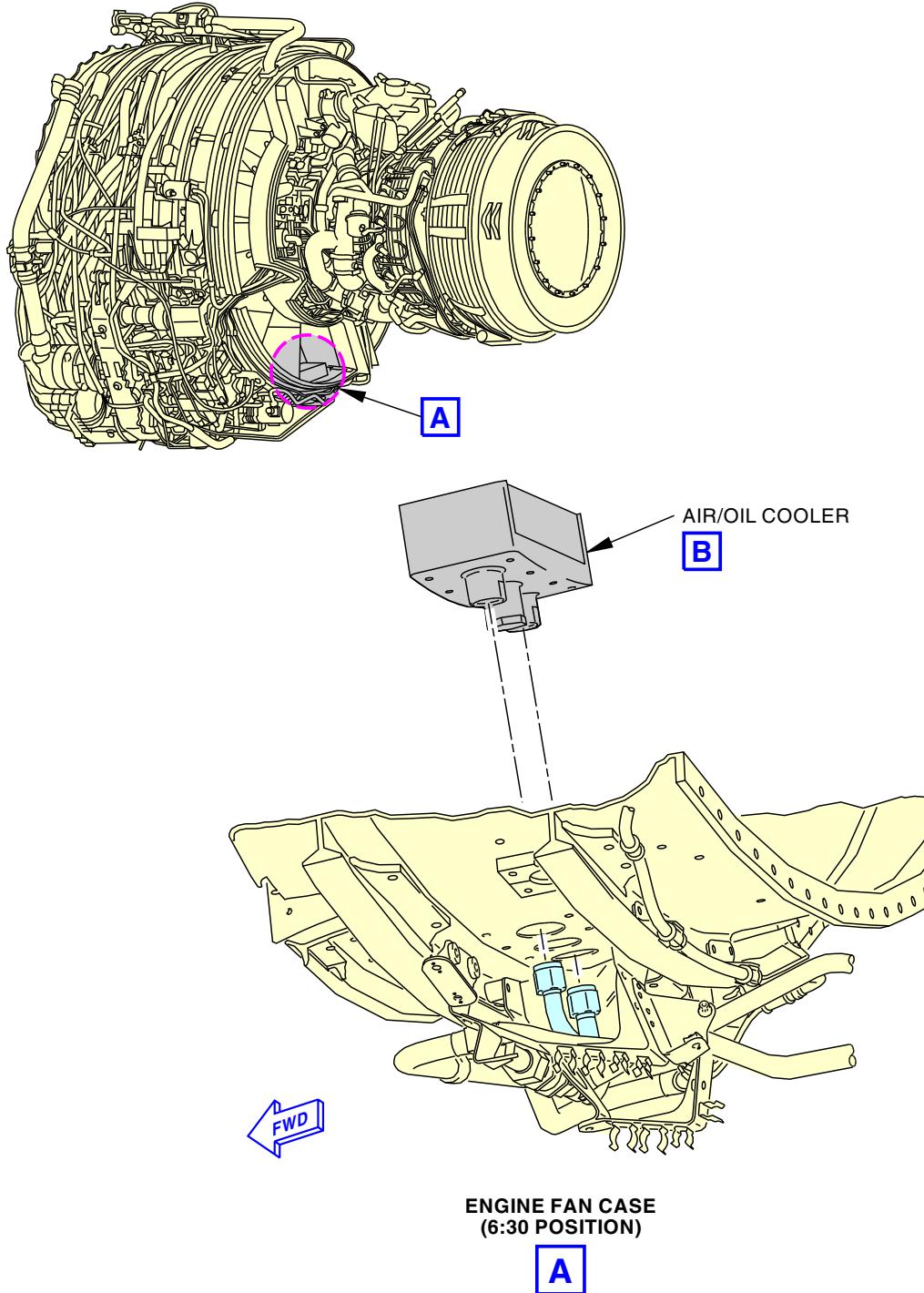
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EFFECTIVITY
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24-11-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Integrated Drive Generator - Air/Oil Cooler
Figure 201/24-11-21-990-804 (Sheet 1 of 2)

EFFECTIVITY
LOM ALL

24-11-21

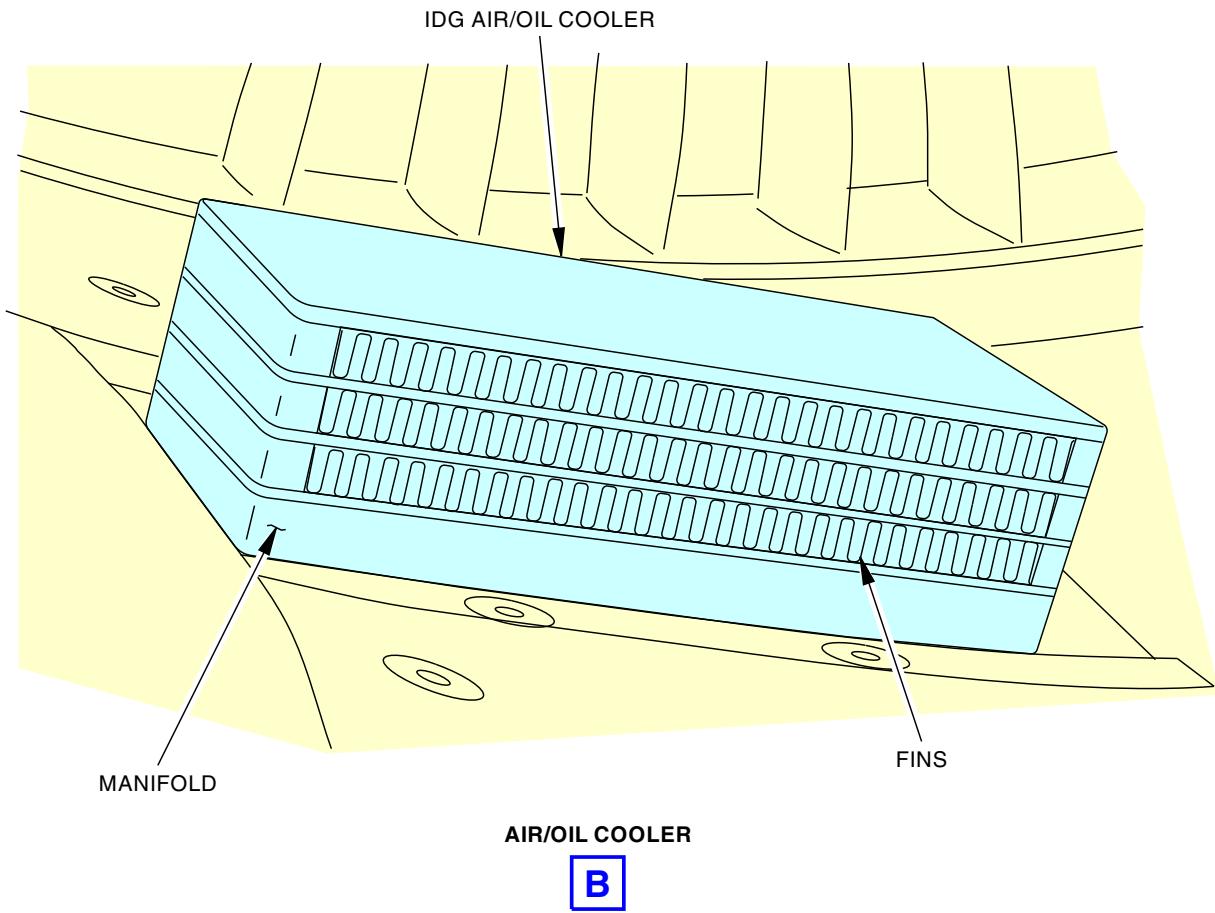
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Page 203
Jun 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Integrated Drive Generator - Air/Oil Cooler
Figure 201/24-11-21-990-804 (Sheet 2 of 2)

EFFECTIVITY
LOM ALL

24-11-21

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 204
Jun 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-21-100-801

3. Integrated Drive Generator (IDG) Air/Oil Cooler - Cleaning

(Figure 202)

A. General

- (1) The IDG air/oil cooler is an oil-to-air heat exchanger that uses bypass fan air to cool the IDG cooling oil system.
- (2) The IDG air/oil cooler is found inside the fan case and to the left of the 6 o'clock strut.
- (3) For this task, the IDG air/oil cooler will be referred to as the cooler.
- (4) Performing this cleaning task when mild debris is found or on a regular basis as determined by airline policy can help reduce the corrosion and extend the life of the cooler.
- (5) Other cleaning methods may be used depending on airline policy.

B. References

Reference	Title
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)
78-31-00-010-801-F00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-804-F00	Close the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1114	Air Source - Regulated, Dry, Filtered 0-150 PSIG with Pressure Gauge Range 0-100 PSIG, 1 PSIG Increment, and +/-1 PSI Minimum Accuracy
STD-1115	Source - Nitrogen, 0-100 PSIG
STD-1286	Equipment - Pressure Washer, Electric or Diesel Driven, 1500 PSIG to 2500 PSIG with Adjustable Output Pressure
STD-1287	Hose - Pressure Washer, 3/8 Inch I.D. 50 to 150 Foot Length

D. Location Zones

Zone	Area
415	Engine 1 - Thrust Reverser, Left
425	Engine 2 - Thrust Reverser, Left

E. Prepare for the Integrated Drive Generator (IDG) Air/Oil Cooler Cleaning

SUBTASK 24-11-21-010-009



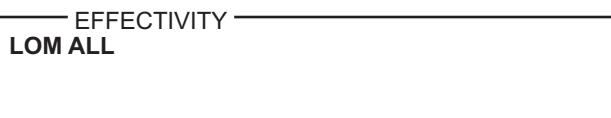
DO ALL OF THE SPECIFIED TASKS IN THE CORRECT SEQUENCE TO PREPARE THE THRUST REVERSERS FOR THE INSPECTION. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-F00.

F. Integrated Drive Generator (IDG) Air/Oil Cooler Cleaning

SUBTASK 24-11-21-200-006

- (1) Do these steps to clean the cooler:
 - (a) Place the debris shield forward of the cooler to keep debris from flying forward through the outlet guide vanes.



24-11-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (b) Direct high pressure air (Regulated Dry Filtered Air Source, STD-1114)/nitrogen (0-100 PSIG nitrogen source, STD-1115) or water through the air fins of the cooler from the aft side forward. (Water can be used in place of air/nitrogen, but the unit must be dried after rinsing if it is going to be out of service for any length of time.)
- NOTE: If the temperature is below freezing, and the water is used to rinse the cooler, it is recommended to move the airplane to the hanger to perform this procedure.
- (c) If water is used, rinse the cooler using the pressure washer (1500 PSIG to 2500 PSIG), STD-1286, with extension and pressure washer hose, STD-1287. Rinse the cooler by directing high pressure water through the air fins of the cooler from the aft side forward while moving the nozzle back and forth along the aft face of the cooler 3 or 4 times. (This method will require the unit to be dried following rinsing if it is going to be out of service for any length of time.)
- (d) Ensure that all debris removed from the cooler is also removed from the fan duct and inlet area.
- (e) If the airplane is going to be out of operation for 5 days or longer, dry the cooler with high pressure air/nitrogen or operate the engine (Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00) prior to parking.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-21-410-005

- (1) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-804-F00.

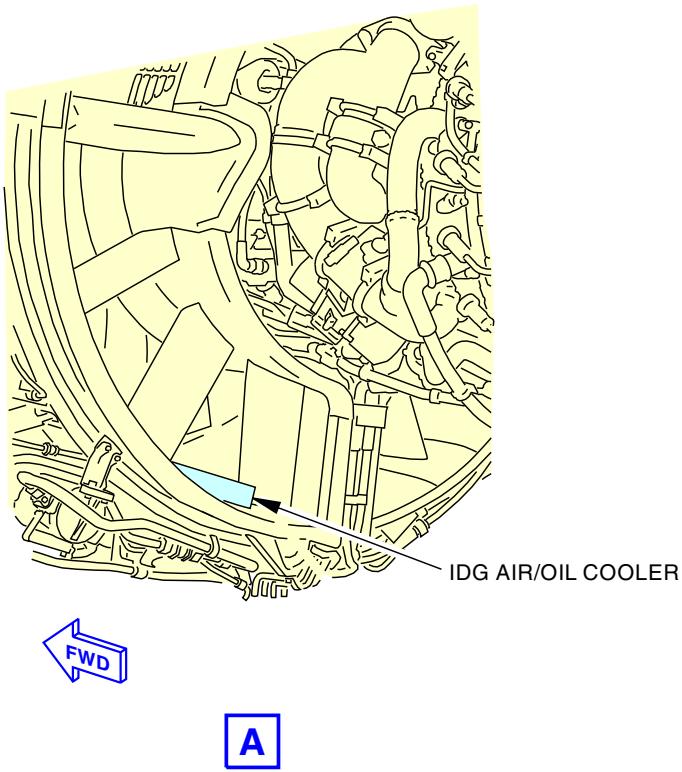
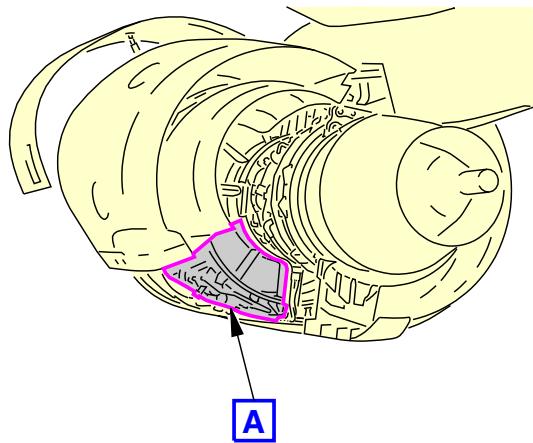
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24-11-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Integrated Drive Generator (IDG) Air/Oil Cooler
Figure 202/24-11-21-990-803

EFFECTIVITY
LOM ALL

24-11-21

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Page 207
Jun 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

IDG AIR/OIL COOLER - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) IDG Air/Oil Cooler Removal
 - (2) IDG Air/Oil Cooler Installation.

TASK 24-11-21-000-801

2. Integrated Drive Generator (IDG) Air/Oil Cooler - Removal

(Figure 401 and Figure 402)

A. General

- (1) The Integrated Drive Generator (IDG) air/oil cooler is an oil-to-air heat exchanger that uses bypass fan air to cool the IDG cooling oil system.
- (2) The IDG air/oil cooler is found inside the fan case and to the left of the 6 o'clock strut.
- (3) For the procedure the IDG air/oil cooler will be referred to as the cooler.

B. References

Reference	Title
78-31-00-010-801-F00	Open the Thrust Reverser (Selection) (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1055	Container - Oil Resistant, 5 Gallon (19 Liter)

D. Location Zones

Zone	Area
410	Subzone - Engine 1
411	Engine 1 - Engine
420	Subzone - Engine 2
421	Engine 2 - Engine

E. Prepare for the Integrated Drive Generator (IDG) Air/Oil Cooler Removal

SUBTASK 24-11-21-010-001



WARNING

DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do this task: Open the Thrust Reverser (Selection), TASK 78-31-00-010-801-F00.

SUBTASK 24-11-21-680-001



WARNING

DO NOT TOUCH THE COMPONENTS OF THE OIL SYSTEM IF THE ENGINE IS HOT. THESE COMPONENTS STAY HOTTER THAN OTHER COMPONENTS. HOT COMPONENTS CAN BURN YOU.

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24-11-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT LET HOT OIL GET ON YOU. PUT ON CLOTHES, GOGGLES, AND OTHER EQUIPMENT FOR PROTECTION, OR LET THE ENGINE BECOME COOL. HOT OIL CAN BURN YOU.



CAUTION

DO NOT LET OIL GET ON THE ENGINE, OR OTHER COMPONENTS. IMMEDIATELY CLEAN THE AREAS THAT OIL FALLS ON. OIL CAN CAUSE DAMAGE TO PAINT AND RUBBER.

- (2) Do these steps to drain the IDG oil:



WARNING

MAKE SURE THAT YOU PUSH THE PUSH-TO-VENT VALVE. IF YOU DO NOT DO THIS, IT COULD CAUSE HOT OIL TO SPRAY AND CAN CAUSE INJURY TO PERSONS.

- (a) Push the PUSH-TO-VENT VALVE on the IDG for a minimum of 15 seconds.
- (b) Place an oil resistant container (5 gal)(19 Liter), STD-1055, below the IDG to catch the oil.
- (c) Remove the lockwire from the drain plug on the IDG.
- (d) Remove the drain plug [21] and let the oil drain into the container.
- (e) Remove the used O-ring [22] from case drain plug and discard.

F. Integrated Drive Generator (IDG) Air/Oil Cooler Removal

SUBTASK 24-11-21-020-001

- (1) Do these steps to remove the cooler [1]:



CAUTION

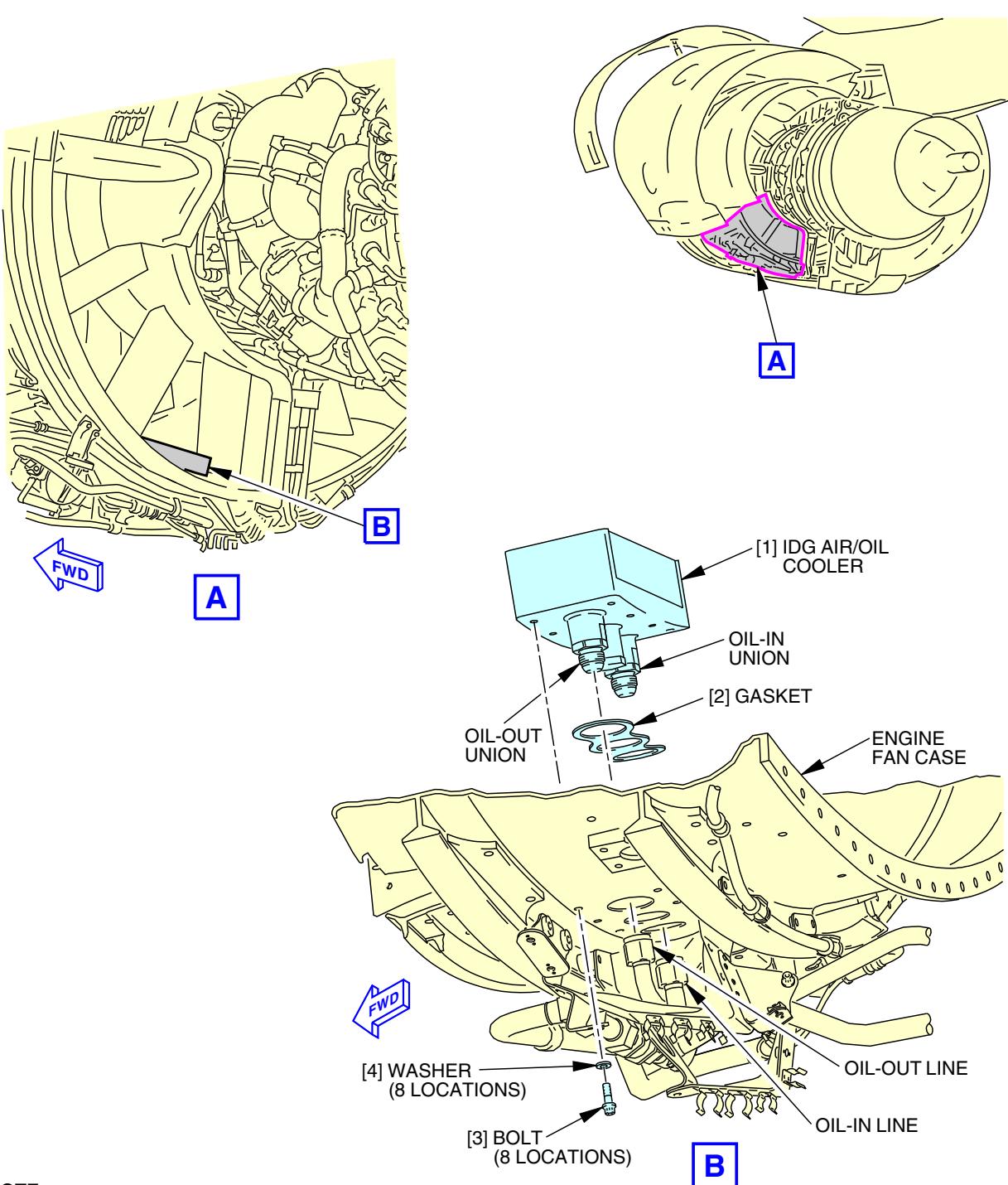
USE TWO WRENCHES TO LOOSEN THE TUBE COUPLING NUTS. USE ONE TO HOLD THE UNION, AND THE OTHER TO LOOSEN THE COUPLING NUT. IF YOU DO NOT USE TWO WRENCHES, DAMAGE TO THE TUBE AND UNIONS CAN OCCUR.

- (a) Disconnect the oil-in line and the oil-out line from the cooler [1].
- (b) If the bolts [3] are lockwired in-place, remove the lockwire.
- (c) Remove the bolts [3] and washers [4] that attach the cooler [1] to the engine fan case.
- (d) To remove the cooler [1], lift it free of the engine fan case.
- (e) Remove the gasket [2].

— END OF TASK —

EFFECTIVITY
LOM ALL

24-11-21


NOTE:

CFMI WIRE HARNESSES ARE NOT SHOWN.

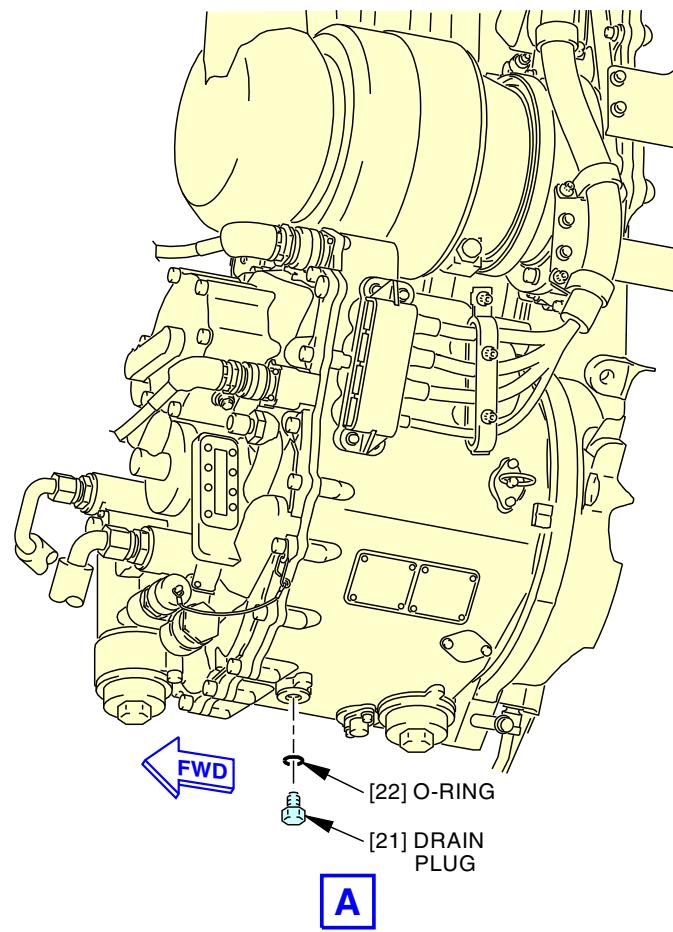
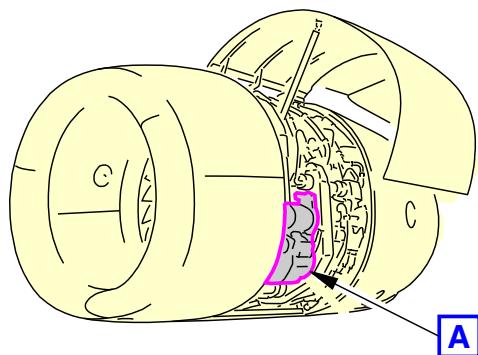
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Integrated Drive Generator (IDG) Air/Oil Cooler Installation
Figure 401/24-11-21-990-801

EFFECTIVITY
LOM ALL

24-11-21

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G11911 S0006566146_V3

Integrated Drive Generator (IDG)
Figure 402/24-11-21-990-802

 EFFECTIVITY
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24-11-21

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-21-400-801

3. Integrated Drive Generator (IDG) Air/Oil Cooler - Installation

(Figure 401, Figure 402)

A. General

- (1) The Integrated Drive Generator (IDG) air/oil cooler is an oil-to-air heat exchanger that uses bypass fan air to cool the IDG cooling oil system.
- (2) The IDG air/oil cooler is found inside the fan case and to the left of the 6 o'clock strut.
- (3) For the procedure the IDG air/oil cooler will be referred to as the cooler.

B. References

Reference	Title
12-13-21-600-801	IDG Servicing (Oil Fill) (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
70-20-01-800-804-F00	Lockwire Installation (P/B 201)
71-00-00-800-811-F00	Power Plant Test Reference Table (P/B 501)
78-31-00-010-804-F00	Close the Thrust Reverser (Selection) (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00068	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class STD (Standard)
D00071	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-7808 Grade 3
D00504	Grease - Petrolatum	VV-P-236
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Cooler	24-11-21-01A-020	LOM ALL
2	Gasket	24-11-21-01A-022	LOM ALL
22	O-ring	24-11-11-50-025	LOM ALL

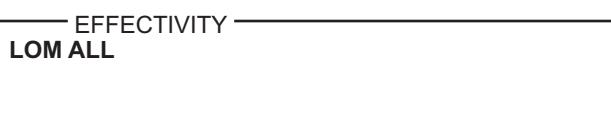
E. Location Zones

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

F. Prepare for the Integrated Drive Generator (IDG) Air/Oil Cooler Installation

SUBTASK 24-11-21-420-001

- (1) Install the IDG case drain plug as follows:
 - (a) Apply Acryloid, oil, D00071, or oil, D00068, to new O-ring [22].
 - (b) Install new O-ring [22] on the drain plug [21].
 - (c) Install the drain plug [21] on the IDG.
 - (d) Tighten the drain plug to 65 ± 10 in-lb (7 ± 1 N·m).
 - (e) Install a 0.032 in. (0.813 mm) diameter MS20995NC32 lockwire, G01912, (TASK 20-10-44-400-801).



24-11-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-11-21-840-001

- (2) Prepare the cooler [1] for installation.
 - (a) If installed, remove the protective covers from the openings on the cooler [1].
 - (b) Examine the cooler [1] for signs of damage or unwanted material.

G. Integrated Drive Generator (IDG) Air/Oil Cooler Installation

SUBTASK 24-11-21-420-002

- (1) Install the cooler [1].
 - (a) Lubricate the new gasket [2] with grease, D00504.
 - (b) Install the new gasket [2] on the cooler [1].
 - (c) Install the cooler [1] onto the engine fan case.

NOTE: Make sure the bolt holes in the cooler line up with the holes on the engine fan case.
 - (d) Install the eight bolts [3] and washers [4] that hold the cooler to the engine fan case.
 - (e) Tighten the eight bolts [3] to 70 in-lb (7.9 N·m) - 80 in-lb (9.0 N·m).
 - (f) If the bolts [3] were originally lockwired in place, do this task: Lockwire Installation, TASK 70-20-01-800-804-F00.

SUBTASK 24-11-21-420-003



CAUTION

USE TWO WRENCHES TO TIGHTEN THE TUBE COUPLING NUTS. USE ONE WRENCH TO HOLD THE UNION AND THE WRENCH TO TIGHTEN THE COUPLING NUT. IF YOU DO NOT USE TWO WRENCHES, DAMAGE TO THE TUBES AND UNIONS CAN OCCUR.

- (2) Install the oil-in and the oil-out lines.
 - (a) Connect the coupling nut on the oil-in line to the oil-in union.
 - 1) Tighten the coupling nut on the oil-in line to 360 ± 18 in-lb (41 ± 2 N·m).
 - 2) Back off the coupling nut on the oil-in line to decrease the torque.
 - 3) Tighten the coupling nut again to 360 ± 18 in-lb (41 ± 2 N·m).
 - (b) Connect the coupling nut on the oil-out line to the oil-out union.
 - 1) Tighten the coupling nut on the oil-out line to 360 ± 18 in-lb (41 ± 2 N·m).
 - 2) Back off the coupling nut on the oil-out line to decrease the torque.
 - 3) Tighten the coupling nut again to 360 ± 18 in-lb (41 ± 2 N·m).

SUBTASK 24-11-21-610-001

- (3) Do this task: IDG Servicing (Oil Fill), TASK 12-13-21-600-801.

H. IDG Air/Oil Cooler Installation Test

SUBTASK 24-11-21-790-001

- (1) Do the test listed in the Power Plant Test Reference Table, TASK 71-00-00-800-811-F00.

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24-11-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-21-010-003



WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-804-F00.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

IDG SCAVENGE/CHARGE OIL FILTER - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) A removal of the IDG scavenge and charge filter
 - (2) An inspection/check of the IDG scavenge and charge filter
 - (3) An installation of the IDG scavenge and charge filter.

TASK 24-11-41-000-801

2. IDG Scavenge and Charge Filter - Removal

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) Identify the filter element that came out of the scavenge cavity and the charge cavity on the IDG.
- (2) If the IDG is to be replaced, put the element back into the cavity that it was removed from and install the filter cover finger tight before you send the IDG to the repair shop.
- (3) The IDG Scavenge Filter and Charge Filter elements are the same.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)

C. Tools/Equipment

Reference	Description
STD-205	Container - Oil Resistant, 5 U.S. Gallon (19 Liter)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Element	24-11-11-50-105	LOM ALL
3	O-ring	24-11-11-50-100	LOM ALL

E. Location Zones

Zone	Area
410	Subzone - Engine 1
411	Engine 1 - Engine
420	Subzone - Engine 2
421	Engine 2 - Engine

F. Prepare for the Removal

SUBTASK 24-11-41-010-001

- (1) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.



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24-11-41

Page 201
Jun 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

G. IDG Scavenge and Charge Filter Removal

SUBTASK 24-11-41-020-001



WARNING

DO NOT TOUCH THE COMPONENTS OF THE OIL SYSTEM IF THE ENGINE IS HOT. THESE COMPONENTS STAY HOTTER THAN OTHER COMPONENTS. HOT COMPONENTS CAN BURN YOU.



WARNING

DO NOT LET HOT OIL GET ON YOU. PUT ON CLOTHES, GOGGLES, AND OTHER EQUIPMENT FOR PROTECTION, OR LET THE ENGINE BECOME COOL. HOT OIL CAN BURN YOU.

- (1) Remove the filter, do these steps:



WARNING

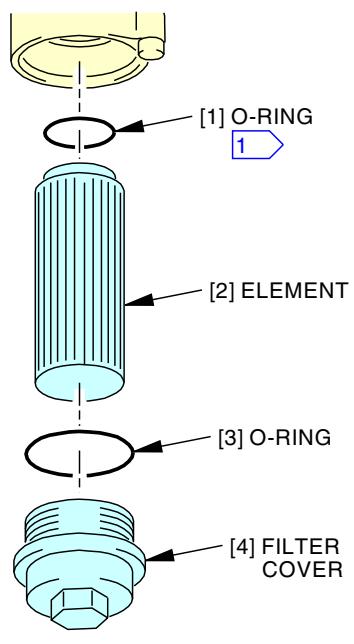
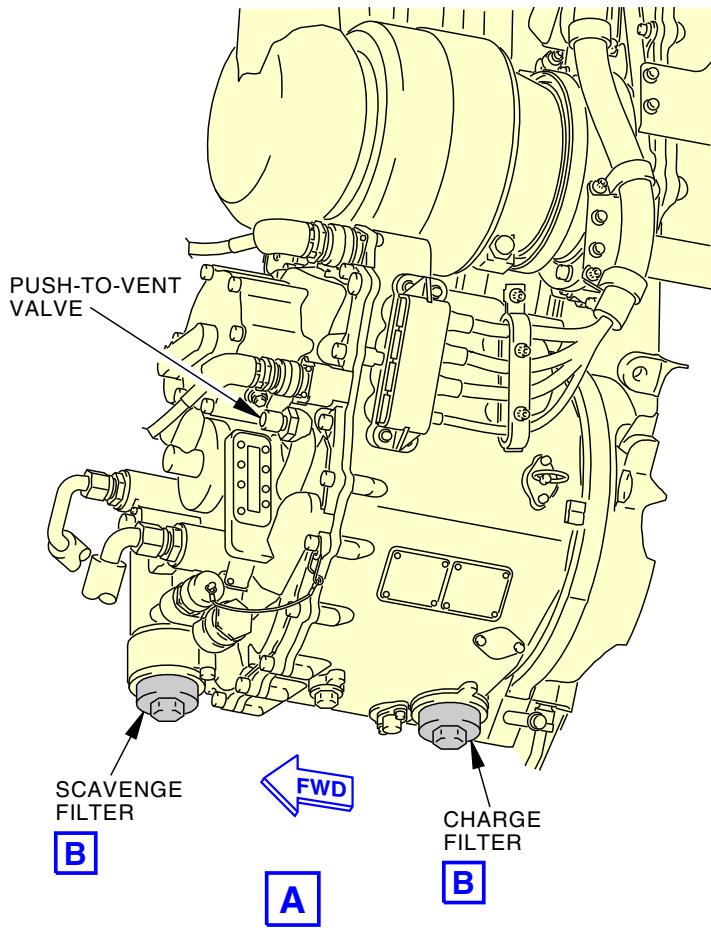
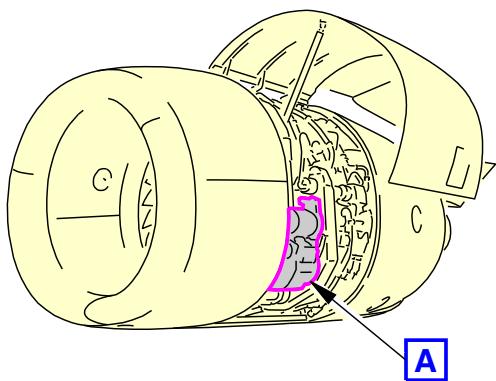
MAKE SURE THAT YOU PUSH THE PUSH-TO-VENT VALVE. IF YOU DO NOT DO THIS, IT COULD CAUSE HOT OIL TO SPRAY AND CAN CAUSE INJURY TO PERSONS.

- (a) Push the PUSH-TO-VENT VALVE on the IDG for a minimum of 15 seconds.
- (b) Remove the lockwire from the filter cover [4].
- (c) Place the oil resistant container (5 gal), STD-205, under IDG filter to catch the oil.
- (d) Do these steps to remove the filter:
 - 1) Remove the filter cover [4].
 - a) Inspect the oil in the cover for bright metal particles before you discard the oil.
 - 2) Remove the O-ring [3] from the filter cover [4] and discard.
 - 3) Remove the element [2].
- NOTE: Do not reinstall a used filter element, even if it looks clean. Always install a new filter element.
 - a) Make sure that the O-ring [1] is removed with the element [2].
- (e) Do this task: IDG Scavenge and Charge Filter - Inspection/Check, TASK 24-11-41-200-801.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-41



FILTER
(EXAMPLE)



1 O-RING CAN COME INSTALLED
IN FILTER ELEMENT

F94931 S0006566151_V3

IDG Scavenge Filter and Charge Filter Installation

Figure 201/24-11-41-990-801

EFFECTIVITY
LOM ALL

24-11-41

D633A101-LOM

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737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-41-200-801

3. IDG Scavenge and Charge Filter - Inspection/Check

(Figure 202)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task inspects the integrated drive generator (IDG) scavenge and charge filter.
- (2) When the differential pressure indicator (DPI) on the IDG is extended, the scavenge filter, charge filter, and the IDG oil must be examined.
- (3) If the scavenge filter, charge filter, and the IDG oil condition are not satisfactory, or the DPI Resets decal (if installed) shows it is the 4th extension, the IDG must be replaced.
- (4) If the scavenge filter, charge filter, and the IDG oil condition are satisfactory, and the DPI Resets decal (if installed) shows it is not the 4th extension, the DPI can be reset.

NOTE: The DPI can be reset up to three times without removing the IDG, provided:

1. The filters are removed and the filter and filter covers are examined for metal debris.
2. No other indications of electrical power system problems are present, for example, IDG fault indication or DP (feeder) fault.
3. The filters and oil are changed prior to resetting the DPI.
4. The DPI is inspected every 100 hours.
5. For any given IDG, the IDG is removed upon the discovery of the fourth DPI extension.
6. Prior to implementation of this procedure on a new airplane, operators perform a one-time oil and filter change, at some time between 125 and 500 operating hours.

B. References

Reference	Title
12-13-21 P/B 301	INTEGRATED DRIVE GENERATOR (IDG) - SERVICING
12-13-21-600-802	IDG Oil Change (P/B 301)
24-11-11 P/B 401	INTEGRATED DRIVE GENERATOR (IDG) - REMOVAL/INSTALLATION
24-11-21 P/B 401	IDG AIR/OIL COOLER - REMOVAL/INSTALLATION
73-11-06 P/B 401	IDG OIL COOLER - REMOVAL/INSTALLATION

C. Tools/Equipment

Reference	Description
STD-205	Container - Oil Resistant, 5 U.S. Gallon (19 Liter)

D. Location Zones

Zone	Area
410	Subzone - Engine 1
411	Engine 1 - Engine
420	Subzone - Engine 2
421	Engine 2 - Engine

E. Prepare for Inspection/Check

SUBTASK 24-11-41-010-002

- (1) If the filter is not already removed, do this task: IDG Scavenge and Charge Filter - Removal, TASK 24-11-41-000-801.

EFFECTIVITY
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24-11-41



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. IDG Scavenge and Charge Filter Inspection/Check

SUBTASK 24-11-41-210-006

- (1) Do these steps to visually examine the differential pressure indicator (DPI):

NOTE: The DPI is the red button adjacent to the scavenge/charge filter on the IDG.

- (a) If the DPI is in the up position, examine the scavenge/charge filter condition, the IDG oil condition and do actions in the DPI extension table below.

NOTE: When the DPI is in the up position and if the DPI resets decal (if installed) shows it is the 4th DPI extension, the IDG must be replaced.

- 1) If the IDG was replaced, no more work is necessary.
- 2) If the IDG was not replaced, check the DPI resets decal (if installed) on the scavenge/charge filter cover for the number of DPI resets that has been done.

NOTE: When the DPI is in the up position and if the actions in the DPI extension table does not require to replace the IDG, the DPI can be reset 3 times.

NOTE: When the DPI is set, an inspection must occur at an interval of 100 flight hours.

NOTE: After four consecutive 100 flight hour check without DPI extension, the DPI check can revert back to the normal interval.

- a) If the DPI resets decal (if installed) shows it is the fourth (4th) DPI extension, replace the IDG (PAGEBLOCK 24-11-11/401).
- b) If the DPI resets decal (if installed) shows it is not the fourth (4th) DPI extension, use a blunt tool to rub out the next number on the DPI resets decal and use finger to push the DPI red button down.

- (b) If the button is in the down position, do these steps:

- 1) If other regular IDG service maintenance is not required, no more work is necessary.
- 2) If other regular IDG service maintenance tasks are required, do those tasks.

DPI EXTENSION

SCAVENGE/CHARGE FILTER CONDITION	IDG OIL CONDITION	ACTION
No visible magnetic or non-metallic particles (See NOTE for more scavenge/charge filter data) * ^[1]	No oil discoloration. No sign of over-heating. No chemical contamination of the oil is suspected.	<ol style="list-style-type: none">1. Drain the oil in the oil resistant container (5 gal), STD-205.2. Replace the scavenge/charge filter (PAGEBLOCK 24-11-41/201).3. Service with oil (PAGEBLOCK 12-13-21/301).

EFFECTIVITY
LOM ALL

24-11-41



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

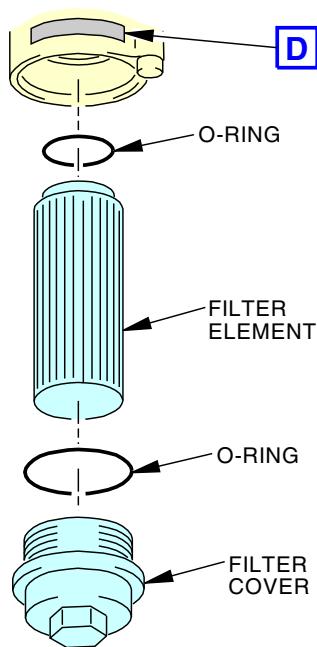
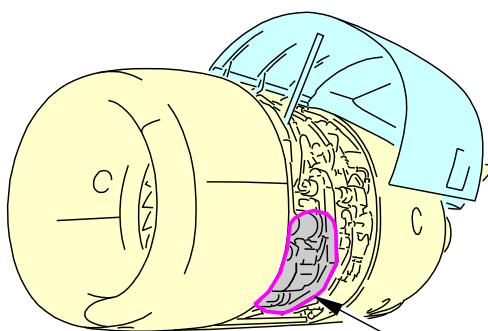
DPI EXTENSION (Continued)

SCAVENGE/CHARGE FILTER CONDITION	IDG OIL CONDITION	ACTION
No visible magnetic or non-metallic particles (See NOTE for more scavenge/charge filter data)* ^[1]	Oil discoloration, signs of overheating or chemical contamination of the oil is suspected (Hydraulic fluid and water)	<ol style="list-style-type: none"> 1. Drain the oil in the oil resistant container (5 gal), STD-205. 2. Replace the scavenge/charge filter (PAGEBLOCK 24-11-41/201). 3. Service with oil (PAGEBLOCK 12-13-21/301). 4. Run the engine for 5 minutes to raise the temperature of the oil. 5. Drain the oil in the oil resistant container (5 gal), STD-205. 6. Replace the scavenge/charge filter (PAGEBLOCK 24-11-41/201). 7. Service with oil (PAGEBLOCK 12-13-21/301).
Visible magnetic or non-metallic particles in the scavenge/charge filter and the scavenge/charge filter is not breached. (See NOTE for more scavenge/charge filter data)* ^[1]	No oil discoloration. No sign of over-heating. No chemical contamination of the oil is suspected.	<ol style="list-style-type: none"> 1. Replace the IDG (PAGEBLOCK 24-11-11/401).
Visible magnetic or non-metallic particles in the scavenge/charge filter and the scavenge/charge filter is not breached. (See NOTE for more scavenge/charge filter data)* ^[1]	Oil discoloration, signs of overheating or chemical contamination of the oil is suspected (Hydraulic fluid and water)	<ol style="list-style-type: none"> 1. Flush the IDG oil system (IDG Oil Change, TASK 12-13-21-600-802).
Visible magnetic or non-metallic particles in the scavenge/charge filter and the scavenge/charge filter is breached. (See NOTE for more scavenge/charge filter data)* ^[1]	Oil condition is not a factor	<ol style="list-style-type: none"> 1. Remove the IDG (PAGEBLOCK 24-11-11/401). 2. Replace the IDG air/oil cooler (PAGEBLOCK 24-11-21/401). 3. Replace the IDG oil cooler (PAGEBLOCK 73-11-06/401) 4. Replace the IDG oil cooler lines. 5. Install the IDG (PAGEBLOCK 24-11-11/401).

*[1] If the scavenge/charge filter element or filter cover shows a number of moderately scattered, small metallic flakes (bronze or silver colored metal), flakes of generator insulation, black epoxy flakes, or sleeving, do not replace the IDG. These products are normal wear during IDG operation. If the filter element shows bright metal deposits that can be clearly specified as chunks or pieces caused by breakage, or a large number of small metallic flakes (bronze or silver-colored metal), replace the IDG. These are indications of IDG internal damage. The filter is breached if the filter is damaged or missing, the O-ring is damaged or missing, or the filter cap is damaged or loose.

— END OF TASK —

— EFFECTIVITY —
LOM ALL



FILTER
(EXAMPLE)

B

PUSH-TO-VENT
VALVE

C

SCAVENGE
FILTER

B

FWD

RED BUTTON

NORMAL (RESET)

EXTENDED

PRESSURE DIFFERENTIAL INDICATOR

C

DPI RESETS

REFER TO APPROPRIATE DOCUMENTATION
FOR DETAILS OF THE ALTERNATE DPI
PROCEDURE

- 1
- 2
- 3
- 4 REMOVE IDG

DPI RESETS DECAL

D

1494355 S0000271038_V3

DPI Reset Procedure

Figure 202/24-11-41-990-802

EFFECTIVITY
LOM ALL

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-11-41



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-41-400-801

4. IDG Scavenge and Charge Filter - Installation

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The Integrated Drive Generator (IDG) scavenge filter and charge filter elements are the same.
- (2) Do not reinstall a used filter element, even if it looks clean. Always install a new filter element.

B. References

Reference	Title
12-13-21-600-801	IDG Servicing (Oil Fill) (P/B 301)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-10-44-400-802	Safety Cable Installation (P/B 401)
71-00-00-700-810-F00	Test 2 - Dry Motor Leak Test (P/B 501)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00068	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class STD (Standard)
D00071	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-7808 Grade 3
D50369	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class HTS (High Thermal Stability)
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689
G51526	Kit - Safety Cable, 321 CRES - 0.022 Inch (0.56 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT2K18, AMS5689

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Element	24-11-11-50-105	LOM ALL
3	O-ring	24-11-11-50-100	LOM ALL

E. IDG Scavenge and Charge Filter Installation

SUBTASK 24-11-41-420-001

- (1) Install the filter element [2] as follows:
 - (a) Apply oil, D00071, or oil, D00068, or oil, D50369, on the new O-ring [3].
 - (b) Install the O-ring [3] on the filter cover [4].
 - (c) Make sure that the O-ring [1] is on the new element [2].
NOTE: The O-ring can come installed in the element.
 - (d) Apply oil, D00071, or oil, D00068, or oil, D50369, on the O-ring [1].



24-11-41

Page 208
Jun 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Install the element [2] in the cavity on the IDG until O-ring [1] on filter element [2] makes a seal.
- (f) Make sure that filter element [2] is properly seated into the IDG cavity before you install the filter cover [4].



DO NOT TIGHTEN THE FILTER COVER TO PUSH THE FILTER ELEMENT INTO THE HOUSING. IF YOU DO, DAMAGE TO THE FILTER ELEMENT CAN OCCUR.

- (g) Install the filter cover [4].
- (h) Tighten the filter cover [4] to 156 in-lb (17.6 N·m) - 180 in-lb (20.3 N·m).
- (i) Install the 0.032 in. (0.8128 mm) diameter MS20995C32 lockwire, G01048, or safety cable kit, G51526, or safety cable kit, G51490, onto the filter cover [4] (TASK 20-10-44-400-801 or TASK 20-10-44-400-802).
- (j) Do this task: IDG Servicing (Oil Fill), TASK 12-13-21-600-801.
- (k) Do this task: Test 2 - Dry Motor Leak Test, TASK 71-00-00-700-810-F00.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-41-410-001

- (1) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-41



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

IDG DIFFERENTIAL PRESSURE INDICATOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the Differential Pressure Indicator (DPI).
 - (2) An installation of the DPI.
- B. The DPI is located on the IDG scavenge oil system and senses pressure upstream and downstream of the filter element.

TASK 24-11-42-000-801

2. IDG Differential Pressure Indicator Removal

(Figure 401)

A. General

- (1) This task gives the instructions to remove the Differential Pressure Indicator (DPI).

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (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-1537	Dispenser - Servicing, Engine Oil Part #: 7011 Supplier: K6057 Part #: 7036 Supplier: K6057 Part #: BOB02 Supplier: D2029 Part #: BOB05 Supplier: D2029 Part #: BOB20 Supplier: D2029 Part #: MODEL 150 Supplier: 94861 Part #: Model 250 Supplier: 94861 Part #: PF53481-3P Supplier: 94861 Part #: PF53481-5PWS Supplier: 94861 Part #: PF53481-8PWS Supplier: 94861 Part #: PF55451-2WS Supplier: 94861 Part #: PF55451-7WS Supplier: 94861 Opt Part #: 150-3 Supplier: 94861 Opt Part #: PF53361-2PWS Supplier: 94861 Opt Part #: PF53361-8PWS Supplier: 94861 Opt Part #: UZ/7/1826 Supplier: K6057 Opt Part #: WF150-1 Supplier: 94861 Opt Part #: WF174410 Supplier: 94861
STD-195	Container - 1 Quart, Oil/Fuel Resistant
STD-1055	Container - Oil Resistant, 5 Gallon (19 Liter)

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

EFFECTIVITY
LOM ALL

24-11-42



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

E. Prepare for the Removal

SUBTASK 24-11-42-010-002

- (1) On the applicable engine, open the left fan cowl panel (TASK 71-11-02-010-801-F00).

SUBTASK 24-11-42-780-001



WARNING

DO NOT TOUCH THE COMPONENTS OF THE OIL SYSTEM IF THE ENGINE IS HOT. THESE COMPONENTS STAY HOTTER THAN OTHER COMPONENTS. HOT COMPONENTS CAN BURN YOU.



WARNING

DO NOT LET HOT OIL GET ON YOU. PUT ON PROTECTIVE CLOTHES, GOGGLES, AND EQUIPMENT OR LET THE APU BECOME COOL. HOT OIL CAN BURN YOU.



WARNING

DO NOT OPEN THE OIL SYSTEM UNTIL THE PRESSURE GOES TO ZERO. THE PRESSURE GOES TO ZERO APPROXIMATELY 5 MINUTES AFTER AN ENGINE STOPS. A PRESSURIZED OIL SYSTEM CAN RELEASE A SPRAY OF HOT OIL THAT CAN BURN YOU.



WARNING

MAKE SURE THAT YOU PUSH THE PUSH-TO-VENT VALVE. IF YOU DO NOT DO THIS, IT COULD CAUSE HOT OIL TO SPRAY AND CAN CAUSE INJURY TO PERSONS.



CAUTION

DO NOT LET OIL GET ON THE ENGINE, OR OTHER COMPONENTS. IMMEDIATELY CLEAN THE AREAS THAT OIL FALLS ON. OIL CAN CAUSE DAMAGE TO PAINT AND RUBBER.

- (2) Release the Integrated Drive Generator (IDG) case pressure as follows:

- (a) Push the push-to-vent valve on the IDG for a minimum of 15 seconds to relieve the internal IDG pressure.
- (b) If you cannot push the push-to-vent valve to release the pressure, do these steps:
 - 1) Remove the pressure fill cover from the pressure fill fitting on the IDG.
 - 2) Put a oil resistant container (5 gal)(19 Liter), STD-1055, below the pressure fill hose.
 - 3) Connect the pressure fill hose from an engine oil servicing dispenser, COM-1537, to the pressure fill fitting on the IDG.

F. IDG Differential Pressure Indicator Removal

SUBTASK 24-11-42-480-001

- (1) Put a 1 quart oil/fuel resistant container, STD-195, below the IDG to collect the oil from the DPI cavity.

SUBTASK 24-11-42-020-001

- (2) Remove the screws [2] that attach the DPI [1] to the IDG.

SUBTASK 24-11-42-020-002

- (3) Remove the DPI [1] from the IDG.

- (a) If necessary, carefully put a small screwdriver between the flange on the DPI [1] and IDG housing.

EFFECTIVITY
LOM ALL

24-11-42



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

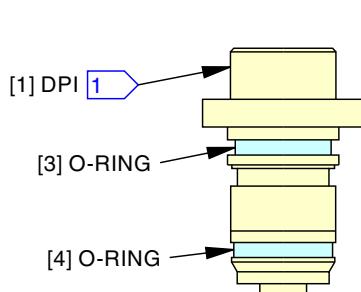
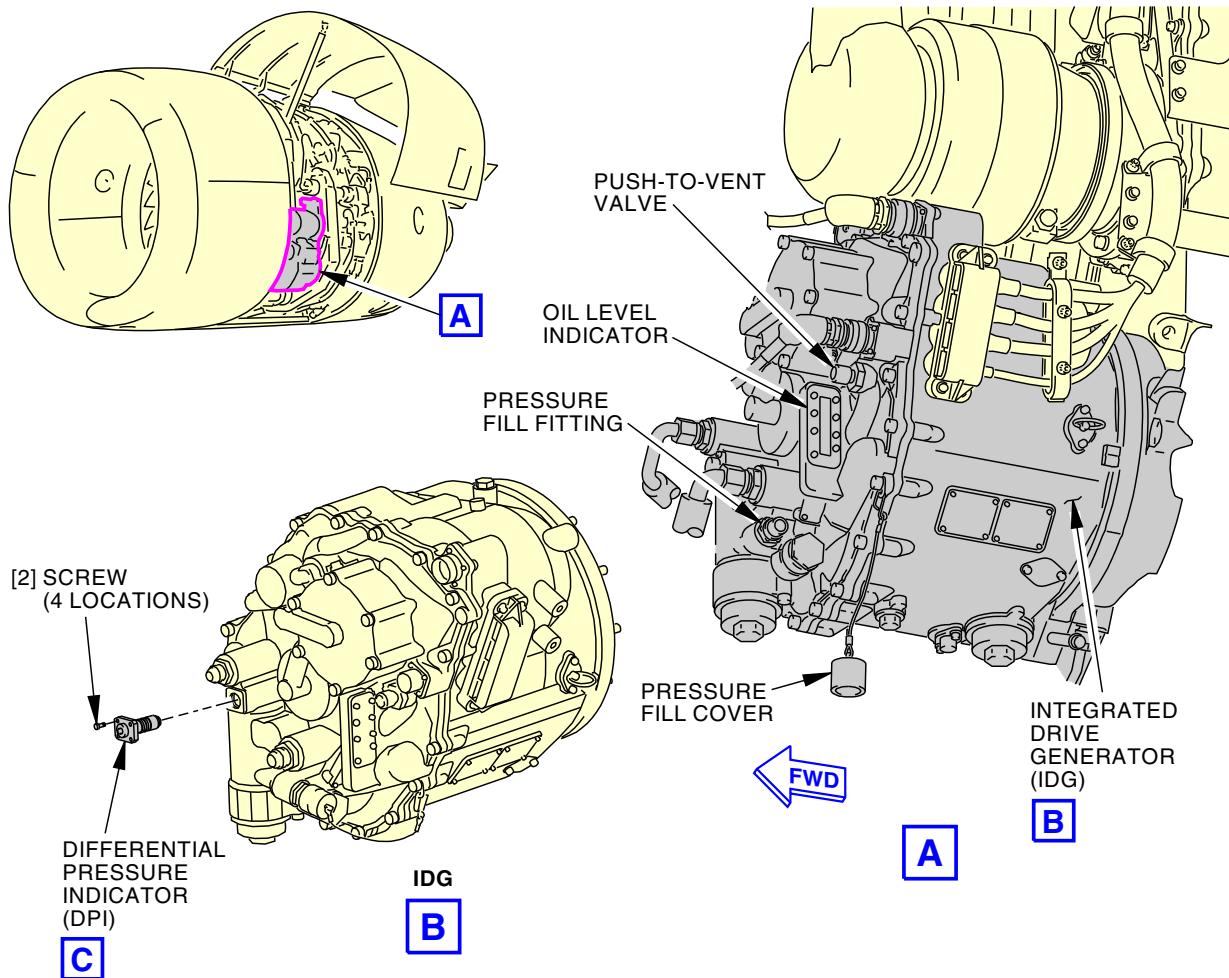
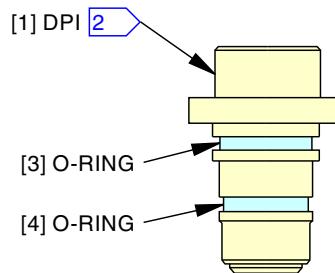
SUBTASK 24-11-42-020-003

- (4) Remove and discard the O-ring [3] and O-ring [4].

———— END OF TASK ——

— EFFECTIVITY —
LOM ALL

24-11-42


DIFFERENTIAL PRESSURE INDICATOR (DPI)

DIFFERENTIAL PRESSURE INDICATOR (DPI)

- 1 DPI WITH THREE GROOVES.
2 DPI WITH TWO GROOVES.

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IDG Differential Pressure Indicator Installation

Figure 401/24-11-42-990-801

 EFFECTIVITY
 LOM ALL

24-11-42



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-42-400-801

3. IDG Differential Pressure Indicator Installation

(Figure 401)

A. General

- (1) This task gives the instructions to install the Differential Pressure Indicator (DPI).

B. References

Reference	Title
12-13-21-600-801	IDG Servicing (Oil Fill) (P/B 301)
71-00-00-700-821-F00	Dry Motor the Engine (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (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-23626	Bullet Part #: AGE13207 Supplier: 99167

D. Consumable Materials

Reference	Description	Specification
D00068	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class STD (Standard)
D00071	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-7808 Grade 3
D50369	Oil - Aircraft Turbine Engine, Synthetic Base	MIL-PRF-23699 Class HTS (High Thermal Stability)

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. IDG Differential Pressure Indicator Installation

SUBTASK 24-11-42-640-001

- (1) Lubricate the new O-ring [3] and new O-ring [4] with oil, D00071, oil, D00068, or oil, D50369.

SUBTASK 24-11-42-420-001

- (2) Install the O-ring [3] and O-ring [4] in the top and bottom grooves of the DPI [1] as follows:
- If the DPI [1] has three grooves, do not install the O-ring in the middle groove.
 - Use a bullet, COM-23626, to install the O-ring [3].
 - Install the O-ring [4] with your hand.

SUBTASK 24-11-42-420-002

- (3) Install the DPI [1] in the position on the Integrated Drive Generator (IDG).

SUBTASK 24-11-42-420-003

- (4) Install the screws [2] to attach the DPI [1] to the IDG.
- Tighten the screws [2] to 7.5 in-lb (0.85 N·m) - 8 in-lb (0.90 N·m).

EFFECTIVITY
LOM ALL

24-11-42



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

G. IDG Differential Pressure Indicator Installation Test

SUBTASK 24-11-42-200-001

- (1) Do this task: IDG Servicing (Oil Fill), TASK 12-13-21-600-801.

SUBTASK 24-11-42-910-001

- (2) Do this task: Dry Motor the Engine, TASK 71-00-00-700-821-F00.

SUBTASK 24-11-42-200-002

- (3) Wait for five minutes while the oil level becomes stable.

SUBTASK 24-11-42-790-001

- (4) Do a general visual inspection for leak around the DPI [1].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-42-410-002

- (1) On the applicable engine, close the left fan cowl panel (TASK 71-11-02-410-801-F00).

———— END OF TASK ————



ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-11-42

Page 406
Feb 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

QUICK ATTACH/DETACH (QAD) ADAPTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Quick Attach/Detach (QAD) Adapter Removal
 - (2) Quick Attach/Detach (QAD) Adapter Installation.

TASK 24-11-61-000-801

2. Quick Attach/Detach (QAD) Adapter Removal

(Figure 401)

A. General

- (1) This task removes the QAD adapter from the engine accessory gearbox.

B. References

Reference	Title
24-11-11-000-801	Integrated Drive Generator (IDG) Removal (P/B 401)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)

C. Tools/Equipment

Reference	Description
STD-3906	Mallet - Rubber

D. Location Zones

Zone	Area
410	Subzone - Engine 1
413	Engine 1 - Fan Cowl, Left
420	Subzone - Engine 2
423	Engine 2 - Fan Cowl, Left

E. Prepare for the Removal

SUBTASK 24-11-61-010-001

- (1) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

SUBTASK 24-11-61-010-002

- (2) If the IDG is installed, do this task: Integrated Drive Generator (IDG) Removal, TASK 24-11-11-000-801.

F. Quick Attach/Detach (QAD) Adapter Removal

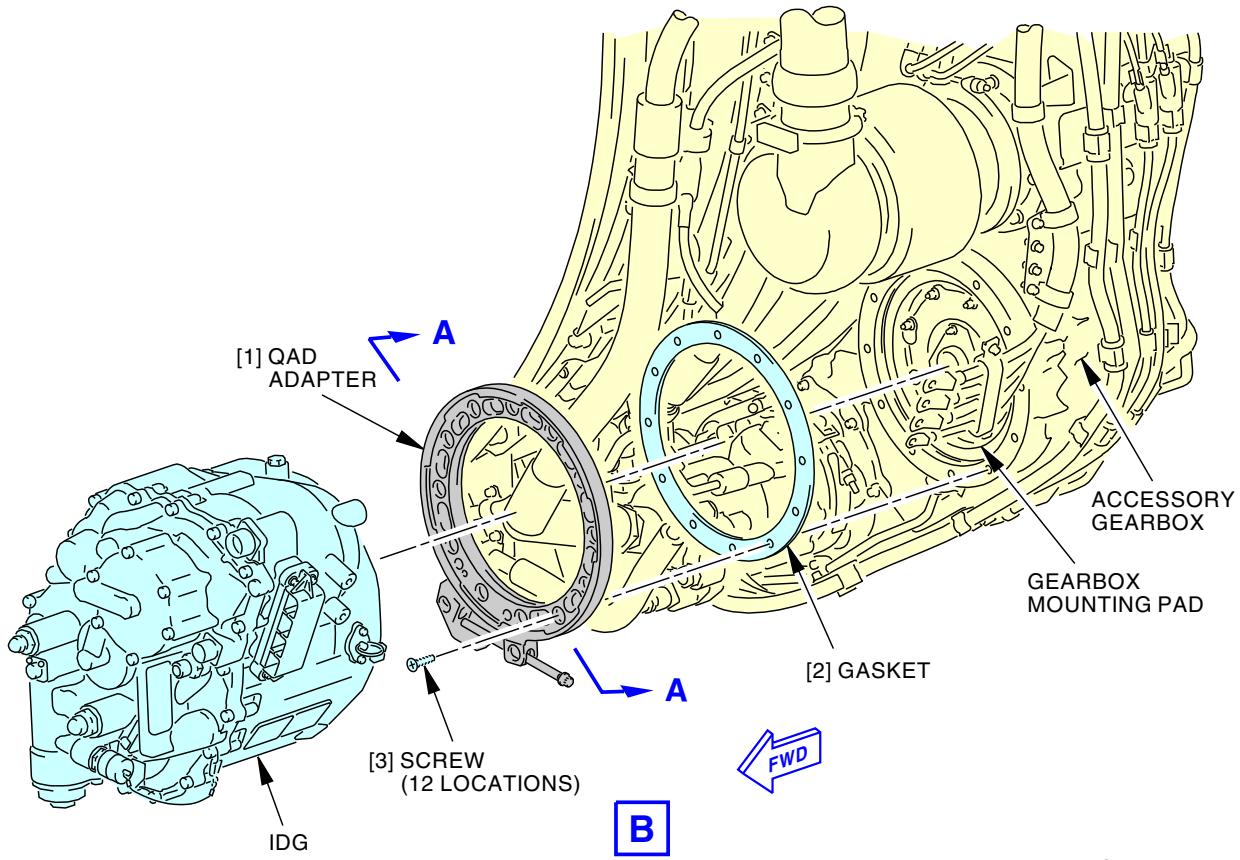
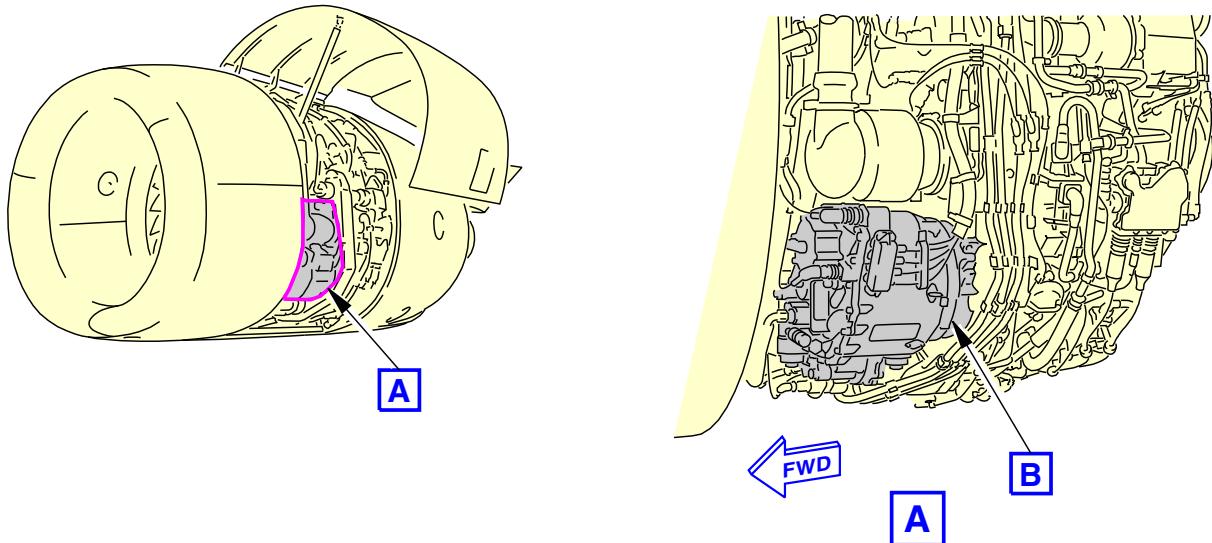
SUBTASK 24-11-61-020-001

- (1) Do the following steps to remove the QAD adapter [1]:
 - (a) Remove the twelve flathead screws [3] that attach the QAD adapter [1] to the gearbox mount pad.
 - (b) Pull the QAD adapter [1] away from the pad.
NOTE: If the QAD adapter does not release easily from the pad, lightly hit it with a rubber mallet, STD-3906.
 - (c) Remove the QAD adapter [1].
 - (d) Remove and discard the gasket [2].

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-61



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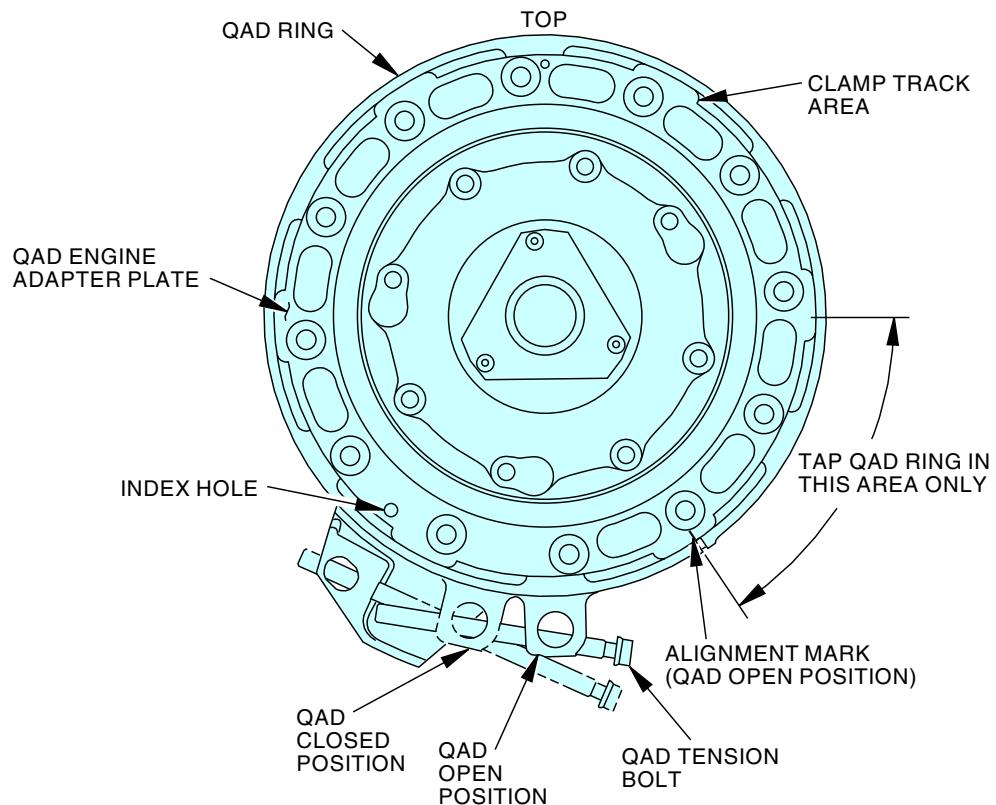
Quick Attach/Detach Adapter Installation
Figure 401/24-11-61-990-801 (Sheet 1 of 2)

 EFFECTIVITY
 LOM ALL

24-11-61



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



A-A

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Quick Attach/Detach Adapter Installation
Figure 401/24-11-61-990-801 (Sheet 2 of 2)

EFFECTIVITY
LOM ALL

24-11-61

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Feb 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-61-400-801

3. Quick Attach/Detach (QAD) Adapter Installation

(Figure 401)

A. General

- (1) This task installs the QAD adapter to the engine accessory gearbox.

B. References

Reference	Title
24-11-11-400-801	Integrated Drive Generator (IDG) Installation (P/B 401)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00006	Compound - Antiseize, Pure Nickel Special - Never-Seez NSBT-8N/-16N	
D00254	Compound - Silicone	SAE AS8660 (NATO S-736) (Supersedes MIL-S-8660)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	QAD adapter	24-11-61-01A-005	LOM ALL
2	Gasket	24-11-61-01A-015	LOM ALL

E. Location Zones

Zone	Area
410	Subzone - Engine 1
413	Engine 1 - Fan Cowl, Left
420	Subzone - Engine 2
423	Engine 2 - Fan Cowl, Left

F. Prepare for the Installation

SUBTASK 24-11-61-210-001

- (1) Visually examine the mating surfaces of the QAD adapter and the gearbox mounting pad.

NOTE: The surfaces must be smooth and clean.

G. Quick Attach/Detach (QAD) Adapter Installation

SUBTASK 24-11-61-420-001

- (1) Install the QAD adapter [1] per the steps that follow:



CAUTION YOU MUST NOT LET GREASE GET INTO THE DOWEL PIN HOLES AND BOLT HOLES. IF GREASE GETS INTO THESE HOLES DAMAGE TO THE GEARBOX CAN OCCUR DUE TO PRESSURE BUILDUP WHEN THE BOLTS ARE INSTALLED AND TIGHTENED.

- (a) Apply a light coat of silicone compound, D00254, to the QAD flange and gearbox pad where they contact the gasket [2].
- (b) Position the new gasket [2] on the side of the QAD adapter that mates up with the gearbox pad.

EFFECTIVITY
LOM ALL

24-11-61



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (c) Make sure that the hole pattern of the gasket [2] aligns with the hole pattern of the QAD adapter [1].

NOTE: If applicable, remove sheet covering the gasket to bond on the QAD and gearbox pad.

- | (d) Apply a thin layer of Pure Nickel Special compound, D00006, to the twelve flathead screws [3].
- (e) Position the QAD adapter [1] to the gearbox mounting pad.
- (f) Make sure that the QAD coupling is in the correct position (Figure 401).
- (g) Install the twelve flathead screws [3].
- (h) Tighten the screws [3] to 287 ± 13 in-lb (32 ± 2 N·m).

SUBTASK 24-11-61-410-001

- (2) Do this task: Integrated Drive Generator (IDG) Installation, TASK 24-11-11-400-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-61-410-002

- (1) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-61



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

QUICK ATTACH/DETACH (QAD) ADAPTER - INSPECTION/CHECK

1. General

- A. This procedure has this task:
- (1) A check of the Quick Attach/Detach (QAD) adapter torque.

TASK 24-11-61-200-801

2. QAD Adapter Torque Check

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure does a check of the torque on the Quick Attach/Detach (QAD) tension bolt with the Integrated Drive Generator (IDG) installed.

B. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
24-11-61-000-801	Quick Attach/Detach (QAD) Adapter Removal (P/B 401)
24-11-61-400-801	Quick Attach/Detach (QAD) Adapter Installation (P/B 401)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)

C. Tools/Equipment

Reference	Description
STD-291	Drift - Light Weight, Metal or Plastic

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995
G51490	Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 18 Inches Long	BACC13AT3K18, AMS 5689

E. Location Zones

Zone	Area
410	Subzone - Engine 1
413	Engine 1 - Fan Cowl, Left
420	Subzone - Engine 2
423	Engine 2 - Fan Cowl, Left

F. Prepare for the Torque Check

SUBTASK 24-11-61-010-004

- (1) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

G. QAD Adapter Torque Check

SUBTASK 24-11-61-200-001

- (1) Do the steps that follow to check the torque of the QAD adapter tension bolt:
 - (a) Remove the lockwire or safety cable from the tension bolt on the QAD adapter.

EFFECTIVITY
LOM ALL

24-11-61

Page 601
Oct 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (b) Tap the QAD in the special area with a light weight, metal or plastic drift, STD-291, to prevent an incorrect torque value (Figure 601).

SUBTASK 24-11-61-200-002

- (2) Do a check of the torque value of the QAD tension bolt.
- Use the light weight, metal or plastic drift, STD-291, to tap the edge of the QAD adapter.
 - Measure the torque of the tension bolt.
 - If the torque is above 180 in-lb (20 N·m), do these steps:
 - Tap on the QAD ring and check the torque again.
 - If second check of the torque is above 180 in-lb (20 N·m), then tighten the QAD tension bolt to 240 in-lb (27 N·m) - 264 in-lb (30 N·m).
 - If the torque is less than 180 in-lb (20 N·m), do these steps:
 - Tighten the QAD tension bolt to 240 in-lb (27 N·m) - 264 in-lb (30 N·m).
 - Tap the QAD ring again and measure the torque on the tension bolt.
 - <1> Continue to tap and tighten the tension bolt until the torque of the QAD tension bolt does not drop below 180 in-lb (20 N·m) after you tap the QAD ring.
 - Tighten the QAD tension bolt to 240 in-lb (27 N·m) - 264 in-lb (30 N·m).

SUBTASK 24-11-61-200-003

- (3) Measure the distance between the self-adjusting nut [60] and self-adjusting nut [100] that are installed on the tension bolt.

NOTE: One located on the QAD ring and one on the bracket attached to the adapter plate.

- If the distance is less than 1.75 in. (4.44 cm), replace the QAD.
 - Quick Attach/Detach (QAD) Adapter Removal, TASK 24-11-61-000-801.
 - Quick Attach/Detach (QAD) Adapter Installation, TASK 24-11-61-400-801.

SUBTASK 24-11-61-400-001

- (4) Install a 0.032 in. (0.813 mm) diameter MS20995NC32 lockwire, G01912, or safety cable kit, G51490, on QAD tension bolt (TASK 20-10-44-400-801).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-61-410-003

- (1) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

———— END OF TASK ————

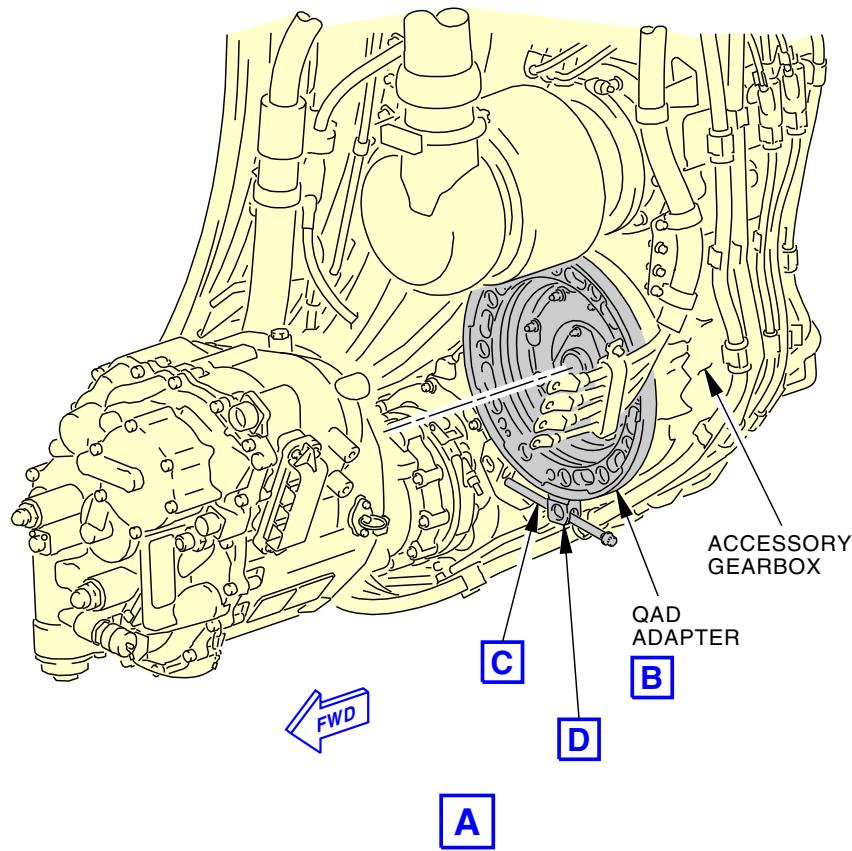
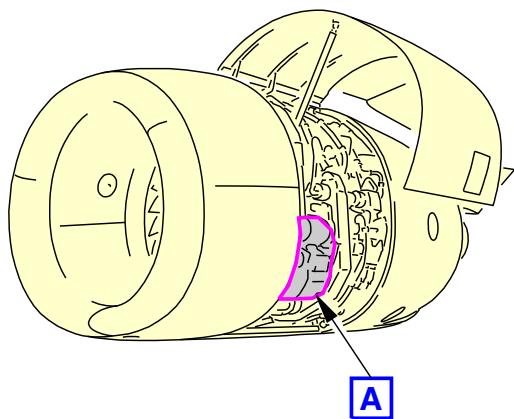
EFFECTIVITY
LOM ALL

24-11-61

Page 602
Oct 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Quick Attach/Detach Adapter Inspection
Figure 601/24-11-61-990-802 (Sheet 1 of 3)

EFFECTIVITY
LOM ALL

24-11-61

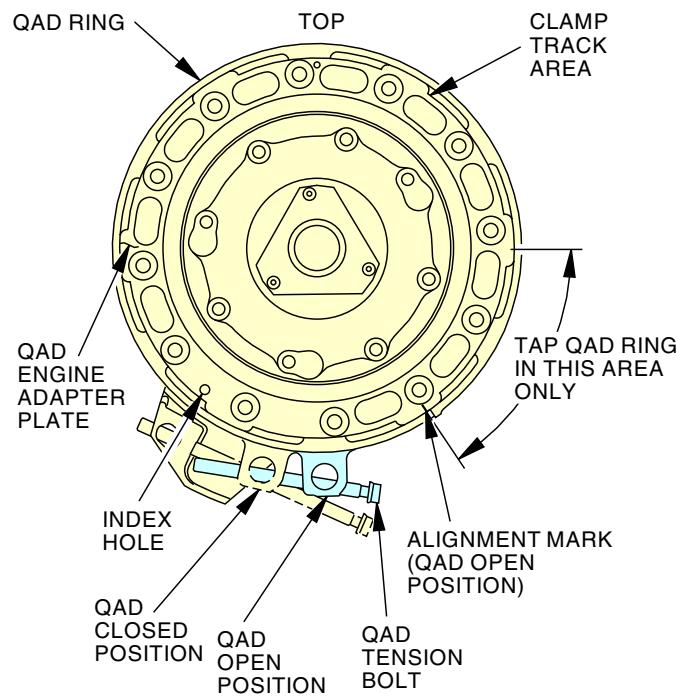
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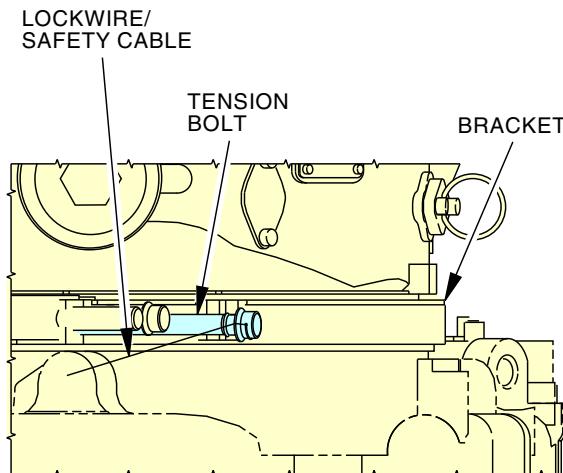
Page 603
Jun 15/2018



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



B



TENSION BOLT WITH LOCKWIRE

C

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Quick Attach/Detach Adapter Inspection
Figure 601/24-11-61-990-802 (Sheet 2 of 3)

EFFECTIVITY
LOM ALL

24-11-61

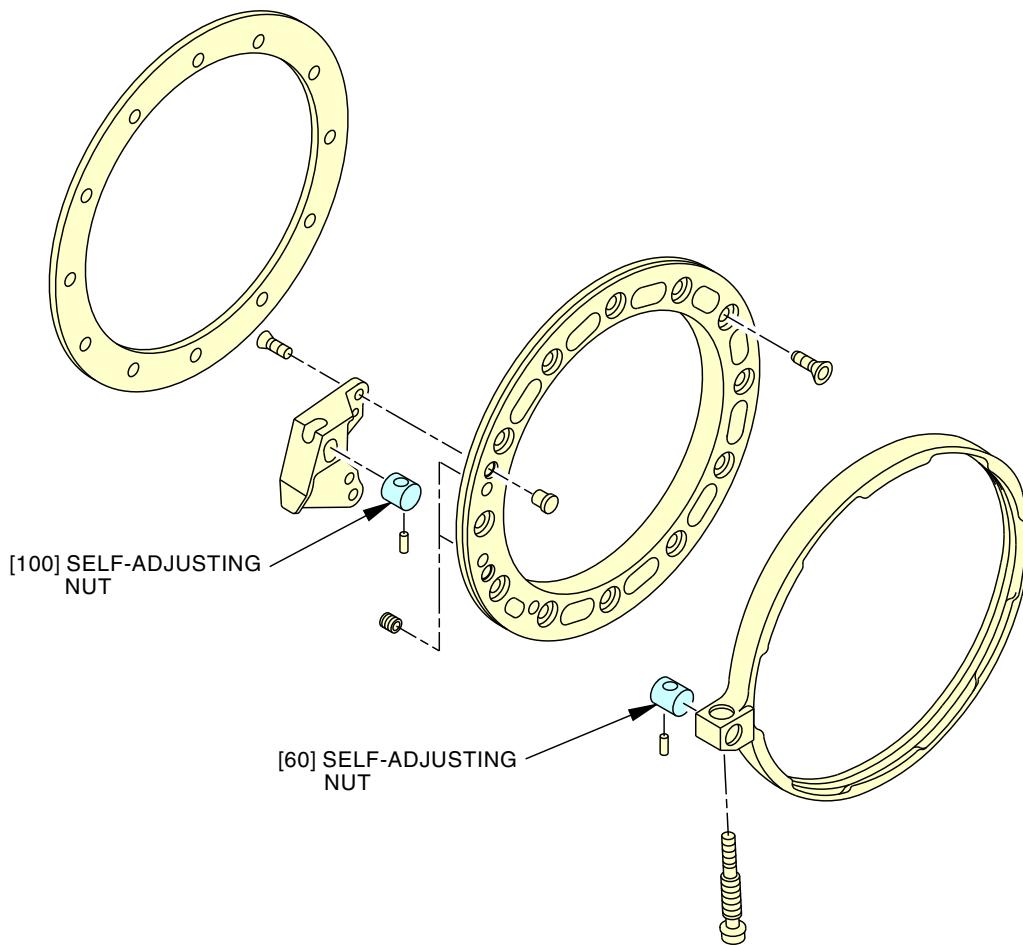
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Page 604
Jun 15/2018



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Quick Attach/Detach Adapter Inspection
Figure 601/24-11-61-990-802 (Sheet 3 of 3)

EFFECTIVITY
LOM ALL

24-11-61

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 605
Jun 15/2018



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

IDG TERMINAL BLOCK - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the IDG terminal block
 - (2) An installation of the IDG terminal block.

TASK 24-11-62-000-801

2. IDG Terminal Block Removal

(Figure 401)

A. General

- (1) This task includes the steps to remove the IDG terminal block.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)

C. Location Zones

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

D. Prepare for the Removal

SUBTASK 24-11-62-860-001

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

NOTE: No corrective action is necessary if the following maintenance messages display: AUX BAT CHGR INOP or BAT CHGR INOP. These maintenance messages are nuisance faults that will display when only battery power is supplied to the airplane.

SUBTASK 24-11-62-010-001

- (2) On the applicable engine, open the left fan cowl panel (TASK 71-11-02-010-801-F00).

E. IDG Terminal Block Removal

SUBTASK 24-11-62-000-001

- (1) Do these steps to remove the terminal block [9] from the IDG [1]:
 - (a) Remove the screws [2] and washers [3] to remove the terminal block cover [4].
 - (b) Remove the captive washer nuts [5] from the power feeder leads.
 - (c) Remove the power feeder leads from the terminal block [9].

NOTE: Place identification tags on the power feeder leads before removing, if necessary.

 - (d) Remove the screws [6] and washers [7] that hold the terminal block [9] to the IDG [1].
 - (e) Remove the terminal block [9] by sliding it to the input end of the IDG [1] to remove it from the through leads.



24-11-62



737-600/700/800/900
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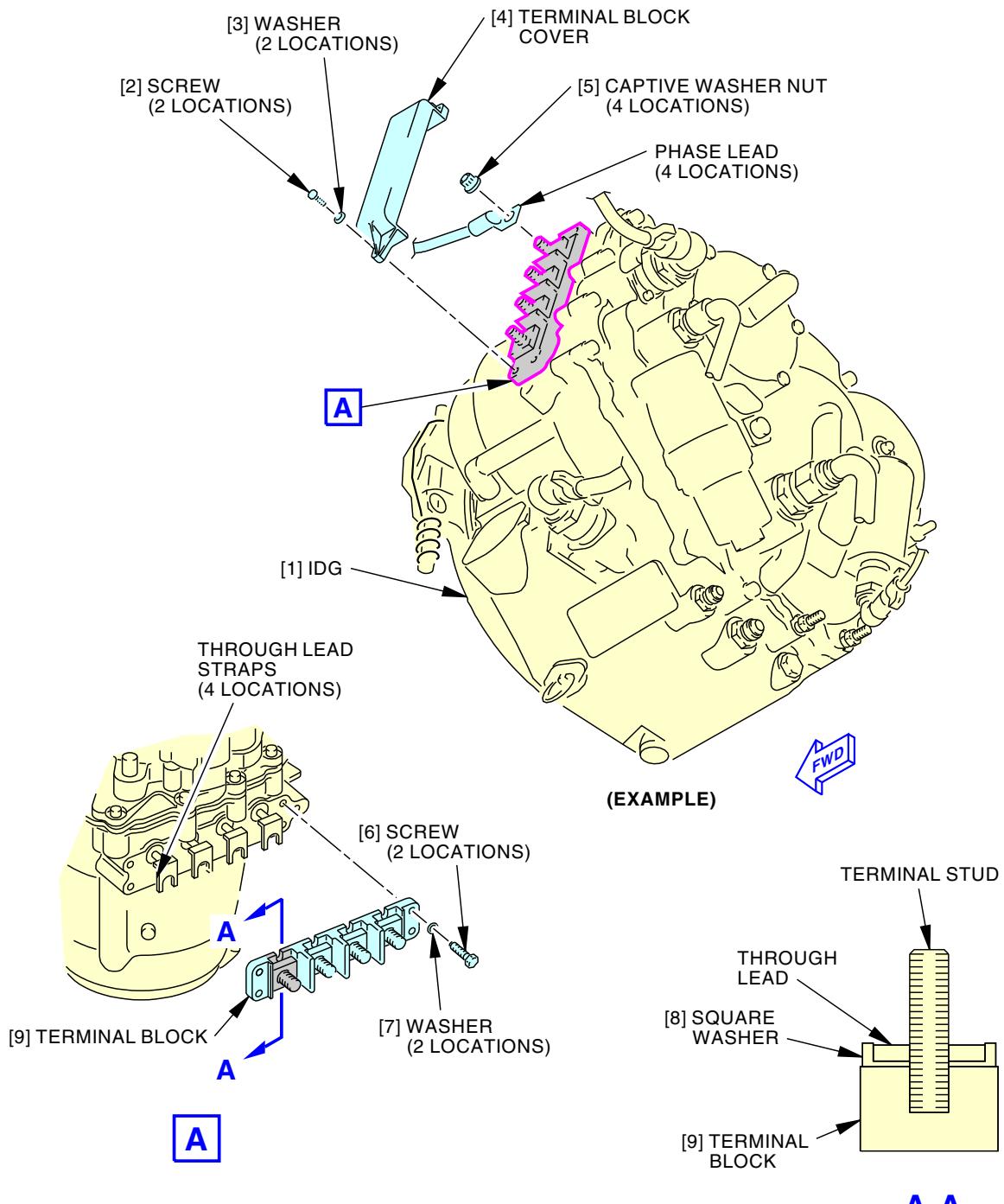
- (f) Remove the square washers [8] from the terminal block [9].

NOTE: The square washers are installed between the through lead straps and the terminal block.

———— END OF TASK ————

— EFFECTIVITY —
LOM ALL

24-11-62

**737-600/700/800/900
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**IDG Terminal Block Installation
Figure 401/24-11-62-990-801**

 EFFECTIVITY
LOM ALL

24-11-62



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-62-400-801

3. IDG Terminal Block Installation

(Figure 401)

A. General

- (1) This task includes the steps to install the IDG terminal block.

B. References

Reference	Title
24-11-11 P/B 401	INTEGRATED DRIVE GENERATOR (IDG) - REMOVAL/INSTALLATION
24-22-00-860-817	Supply IDG Power (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)

C. Location Zones

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

D. Prepare for the Installation

SUBTASK 24-11-62-860-002

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

NOTE: No corrective action is necessary if the following maintenance messages display: AUX BAT CHGR INOP or BAT CHGR INOP. These maintenance messages are nuisance faults that will display when only battery power is supplied to the airplane.

SUBTASK 24-11-62-910-001

- (2) Use a dry clean cloth to wipe any oil or debris from the surface of IDG [1] where terminal block mates with the IDG [1].

E. IDG Terminal Block Installation

SUBTASK 24-11-62-400-001

- (1) Do these steps to install the terminal block [9] on the IDG [1]:

- (a) Install the square washer [8] on each of the four studs of the terminal block [9].



CAUTION MAKE SURE THAT THE WASHERS ARE INSTALLED IN THE CORRECT LOCATIONS. INCORRECT INSTALLATION OF THE WASHERS CAN CAUSE DAMAGE TO THE EQUIPMENT.

- (b) Position the terminal block [9] on the IDG [1] with the four square washers [8] under the through lead straps.

- 1) Make sure that the square washers [8] are under the through lead straps (View A-A, Figure 401).
- 2) Make sure that the through lead straps are between the raised edges of the square washers [8].

- (c) Install the screws [6] and washers [7] that hold the terminal block [9] to the IDG [1].

EFFECTIVITY
LOM ALL

24-11-62



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) Tighten the screws [6] to 20 in-lb (2 N·m) - 22 in-lb (2 N·m).



CAUTION
MAKE SURE THAT YOU CONNECT THE GENERATOR WIRES TO THE
CORRECT TERMINAL STUDS ON THE IDG. AN INCORRECT
INSTALLATION CAN CAUSE DAMAGE TO ELECTRICAL EQUIPMENT.

- (d) Install the power feeder leads on the correct terminal studs of the terminal block [9].
- 1) Install the captive washer nuts [5].
 - a) Tighten the captive washer nuts [5] to 144 in-lb (16 N·m) - 168 in-lb (19 N·m).

NOTE: For the 6-point Spiralock nut, the nut should have no resistance while it spins down the terminal stud. If resistance is felt, do a check for galling on the stud. If galling is found, the terminal block should be replaced.
 - (e) Attach the terminal block cover [4] to the IDG [1] with the screws [2] and washers [3] (PAGEBLOCK 24-11-11/401).
 - 1) Make sure that the cover is correctly aligned with the power feeder leads.
 - 2) Make sure that the cover orientation is correct.
 - a) Make sure that the terminal plug and terminal block cover [4] do not touch.
 - b) Make sure that the terminal block cover [4] is installed correctly.

NOTE: The cover can accidentally be installed incorrectly by 180 degrees.
 - 3) Tighten the screws [2] to 20 in-lb (2 N·m) - 22 in-lb (2 N·m).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-62-410-001

- (1) On the applicable engine, close the left fan cowl panel (TASK 71-11-02-410-801-F00).

SUBTASK 24-11-62-860-003

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

NOTE: No corrective action is necessary if the following maintenance messages display: AUX BAT CHGR INOP or BAT CHGR INOP. These maintenance messages are nuisance faults that will display when only battery power is supplied to the airplane.

G. IDG Terminal Block Installation Test

SUBTASK 24-11-62-700-001

- (1) For the applicable IDG, do this task: Supply IDG Power, TASK 24-22-00-860-817.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-62



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

IDG OIL LEVEL SIGHT GLASS - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the Integrated Drive Generator (IDG) oil level sight glass.
 - (2) An installation of the IDG oil level sight glass.

TASK 24-11-64-000-801

2. IDG Oil Level Sight Glass Removal

(Figure 401)

A. General

- (1) This task includes the steps to remove the Integrated Drive Generator (IDG) oil level sight glass.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1055	Container - Oil Resistant, 5 Gallon (19 Liter)

D. Location Zones

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

E. Prepare for the Removal

SUBTASK 24-11-64-860-001

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

NOTE: No corrective action is necessary if the following maintenance messages display: AUX BAT CHGR INOP or BAT CHGR INOP. These maintenance messages are nuisance faults that will display when only battery power is supplied to the airplane.

SUBTASK 24-11-64-010-001



DO THESE SPECIFIED TASKS IN THE CORRECT SEQUENCE BEFORE YOU OPEN THE THRUST REVERSERS: RETRACT THE LEADING EDGE, DO THE DEACTIVATION PROCEDURES FOR THE LEADING EDGE AND THE THRUST REVERSER (FOR GROUND MAINTENANCE), AND OPEN THE FAN COWL PANELS. IF YOU DO NOT OBEY THE ABOVE SEQUENCE, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (2) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

EFFECTIVITY
LOM ALL

24-11-64



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. IDG Oil Level Sight Glass Removal

SUBTASK 24-11-64-020-001



WARNING

DO NOT TOUCH THE COMPONENTS OF THE OIL SYSTEM IF THE ENGINE IS HOT. THESE COMPONENTS STAY HOTTER THAN OTHER COMPONENTS. HOT COMPONENTS CAN BURN YOU.



WARNING

DO NOT OPEN THE OIL SYSTEM UNTIL THE PRESSURE GOES TO ZERO. THE PRESSURE GOES TO ZERO APPROXIMATELY 5 MINUTES AFTER AN ENGINE STOPS. A PRESSURIZED OIL SYSTEM CAN RELEASE A SPRAY OF HOT OIL THAT CAN BURN YOU.



WARNING

DO NOT LET HOT OIL GET ON YOU. PUT ON CLOTHES, GOGGLES, AND OTHER EQUIPMENT FOR PROTECTION, OR LET THE ENGINE BECOME COOL. HOT OIL CAN BURN YOU.



CAUTION

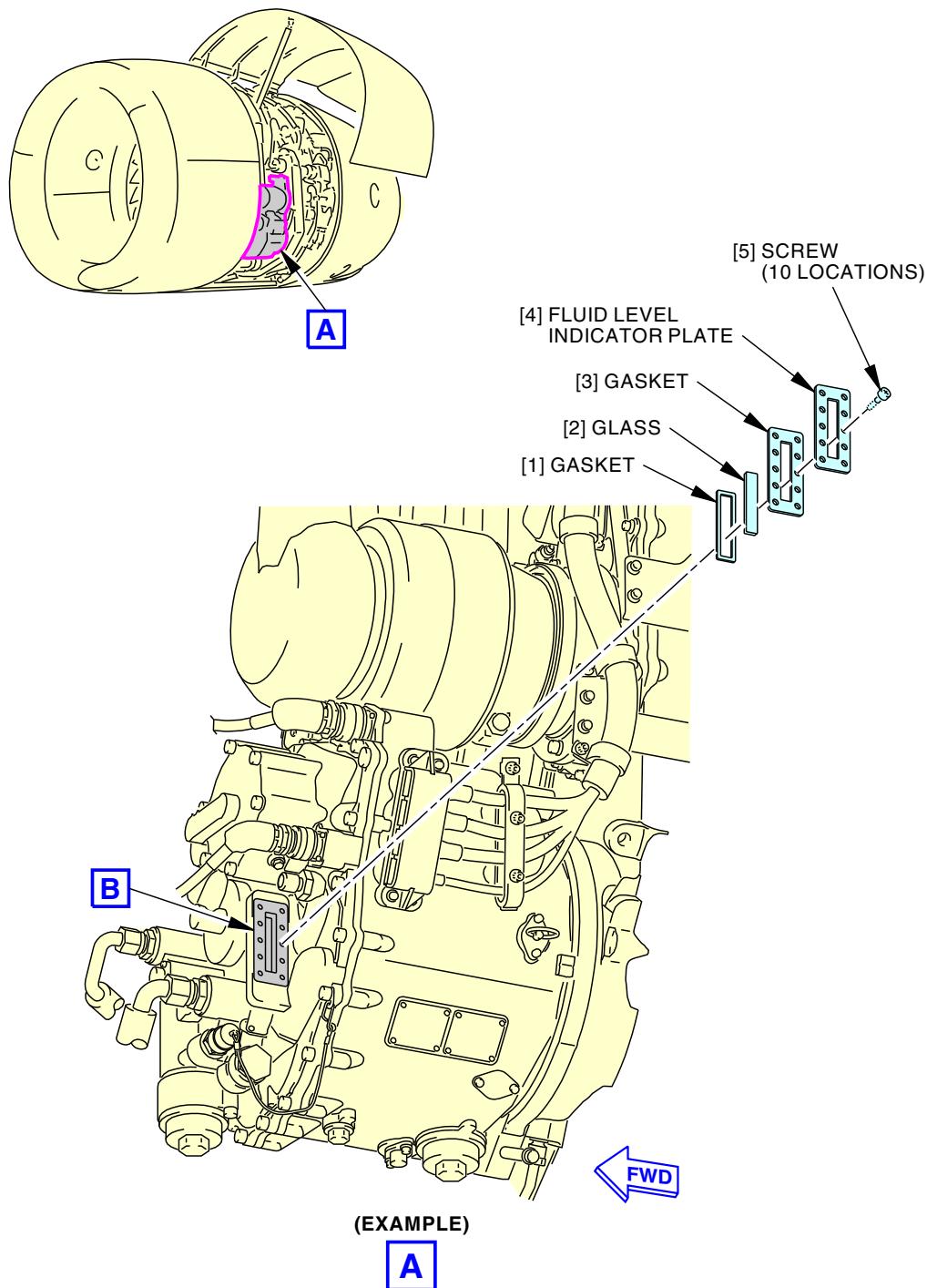
DO NOT LET OIL GET ON THE ENGINE, OR OTHER COMPONENTS. IMMEDIATELY CLEAN THE AREAS THAT OIL FALLS ON. OIL CAN CAUSE DAMAGE TO PAINT AND RUBBER.

- (1) Do these steps to remove the glass [2] from the IDG:
 - (a) Push the PUSH-TO-VENT VALVE on the IDG for a minimum of 15 seconds.
 - (b) Place the oil resistant container (5 gal)(19 Liter), STD-1055, under IDG filter to catch the oil.
 - (c) Remove screws [5], fluid level indicator plate [4], gasket [3], glass [2], and gasket [1].
 - 1) Discard the gasket [3] and gasket [1].

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-64



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IDG Oil Level Sight Glass Installation
Figure 401/24-11-64-990-801 (Sheet 1 of 2)

EFFECTIVITY
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24-11-64

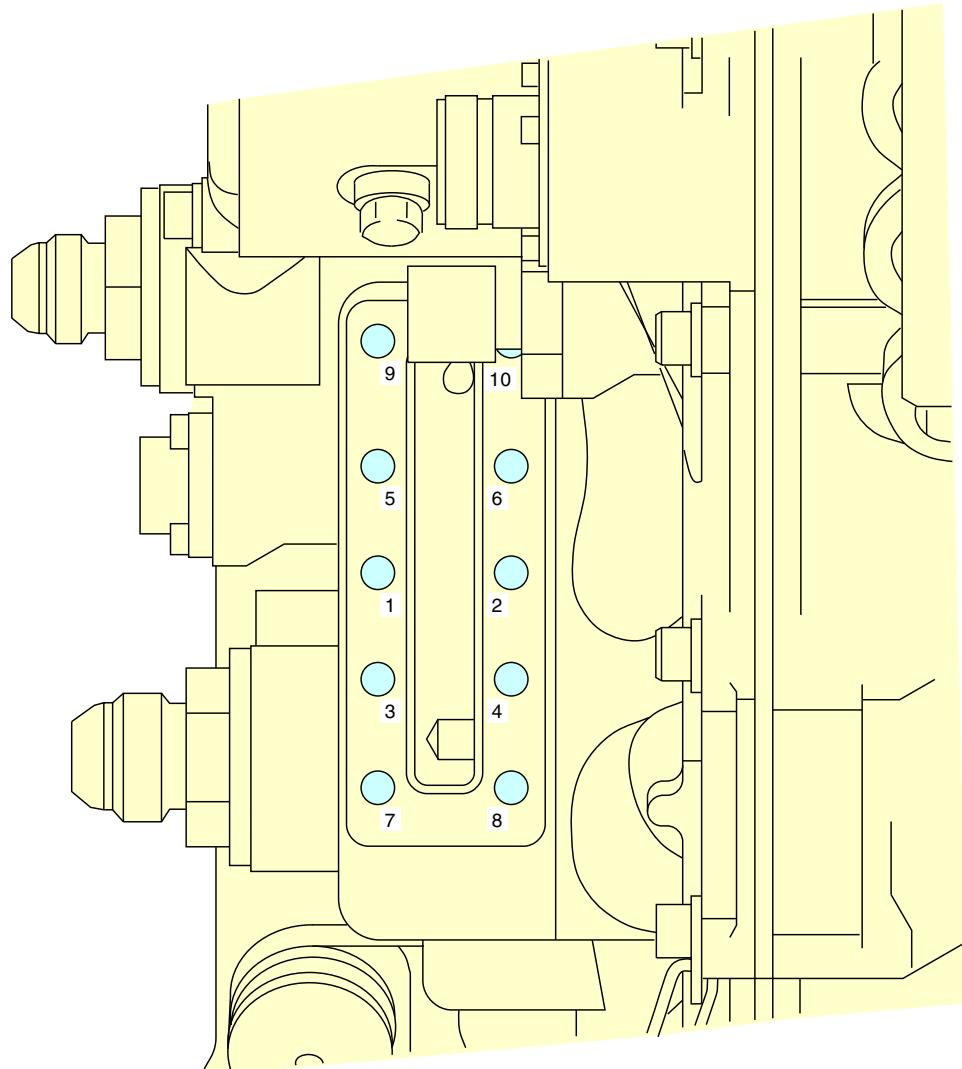
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Page 403
Feb 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



B

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IDG Oil Level Sight Glass Installation
Figure 401/24-11-64-990-801 (Sheet 2 of 2)

EFFECTIVITY
LOM ALL

24-11-64

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Feb 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-11-64-400-801

3. IDG Oil Level Sight Glass Installation

(Figure 401)

A. General

- (1) This task includes the steps to install the Integrated Drive Generator (IDG) oil level sight glass.

B. References

Reference	Title
24-11-00-700-801	IDG Oil System Static Leak Check (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Gasket	24-11-11-50-150	LOM ALL
2	Glass	24-11-11-50-145	LOM ALL
3	Gasket	24-11-11-50-140	LOM ALL

D. Location Zones

Zone	Area
410	Subzone - Engine 1
420	Subzone - Engine 2

E. Prepare for the Installation

SUBTASK 24-11-64-860-002

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

NOTE: No corrective action is necessary if the following maintenance messages display: AUX BAT CHGR INOP or BAT CHGR INOP. These maintenance messages are nuisance faults that will display when only battery power is supplied to the airplane.

F. IDG Oil Level Sight Glass Installation

SUBTASK 24-11-64-420-001

- (1) Do these steps to install the glass [2]:
- Install a new gasket [1] in the sight glass cavity.
 - Install the glass [2], new gasket [3], and fluid level indicator plate [4].
 - Attach the fluid level indicator plate [4] with the screws [5].
 - Tighten the screws [5] to 4 in-lb (0.45 N·m) - 5 in-lb (0.56 N·m) in the sequence shown on View B, Figure 401.
 - Repeat the sequence to tighten the screws [5] to 7 in-lb (0.79 N·m) - 9 in-lb (1.02 N·m).



24-11-64



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

G. Put the Airplane Back to Its Usual Condition

SUBTASK 24-11-64-860-003

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

SUBTASK 24-11-64-790-001

- (2) Do this task: IDG Oil System Static Leak Check, TASK 24-11-00-700-801.

SUBTASK 24-11-64-860-004

- (3) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-11-64



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

AC GENERATION SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has two tasks:

NOTE: Deactivation and Activation procedures are for the Generator Control Unit (GCU) and Electric Control Panels, P91 and P92.

- (1) AC Generation and Load System Deactivation
- (2) AC Generation and Load System Activation

TASK 24-21-00-040-801

2. AC Generation and Load System - Deactivation

(Figure 201)

A. General

- (1) This task has these procedures:
 - (a) Remove external power from the ground service buses.
 - (b) Remove external power from the 115V AC transfer buses.

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Procedure

SUBTASK 24-21-00-010-001

- (1) Do these steps to remove external power from the ground service buses:
 - (a) Push the GROUND SERVICE switch on the FWD ATTENDANT panel, P13.
 - 1) Make sure the light in the GROUND SERVICE switch goes off.
 - (b) Remove power from the external power cable.
 - (c) Make sure these lights on the P19 panel go off:
 - 1) EXTERNAL PWR CONN
 - 2) EXTERNAL PWR NOT IN USE



REMOVE ELECTRICAL POWER FROM THE EXTERNAL POWER SOURCE. IF YOU DO NOT REMOVE ELECTRICAL POWER, YOU CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (d) Remove the external power cable.
- (e) Close the External Power Receptacle Door.

EFFECTIVITY
LOM ALL

24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-21-00-010-002

- (2) Do these steps to remove external power from the 115V AC transfer buses:
 - (a) Set the GRD PWR switch on the P5-4 panel to the OFF position.
 - (b) Make sure the GRD PWR AVAILABLE light on the P5-4 stays on.
 - (c) Make sure these lights on the P5-4 panel come on:
 - 1) 1 SOURCE OFF
 - 2) 2 SOURCE OFF
 - 3) 1 TRANSFER BUS OFF
 - 4) 2 TRANSFER BUS OFF
 - (d) Make sure the EXTERNAL POWER NOT IN USE light on the P19 panel comes on.
 - (e) Remove power from the external power cable.
 - (f) Make sure the EXTERNAL POWER CONN light on the P19 panel goes off.



REMOVE ELECTRICAL POWER FROM THE EXTERNAL POWER SOURCE. IF YOU DO NOT REMOVE ELECTRICAL POWER, YOU CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (g) Remove the external power cable.
- (h) Make sure the EXTERNAL POWER NOT IN USE light on the P19 panel goes off.
- (i) Close the External Power Receptacle Door.

SUBTASK 24-21-00-480-001



PUT A DO-NOT-OPERATE TAG ON THE EXTERNAL POWER RECEPTACLE. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS CAN OCCUR.

- (3) Attach a DO NOT OPERATE tag, STD-858 to the external power receptacle.

F. AC Generation and Load System - Tryout

NOTE: This tryout is to make sure the AC Generation and Load system is in a zero energy state.

SUBTASK 24-21-00-211-001

- (1) Make sure the External Power Plug is removed from the receptacle and a DO NOT OPERATE tag, STD-858 is installed.

SUBTASK 24-21-00-010-003

- (2) Open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

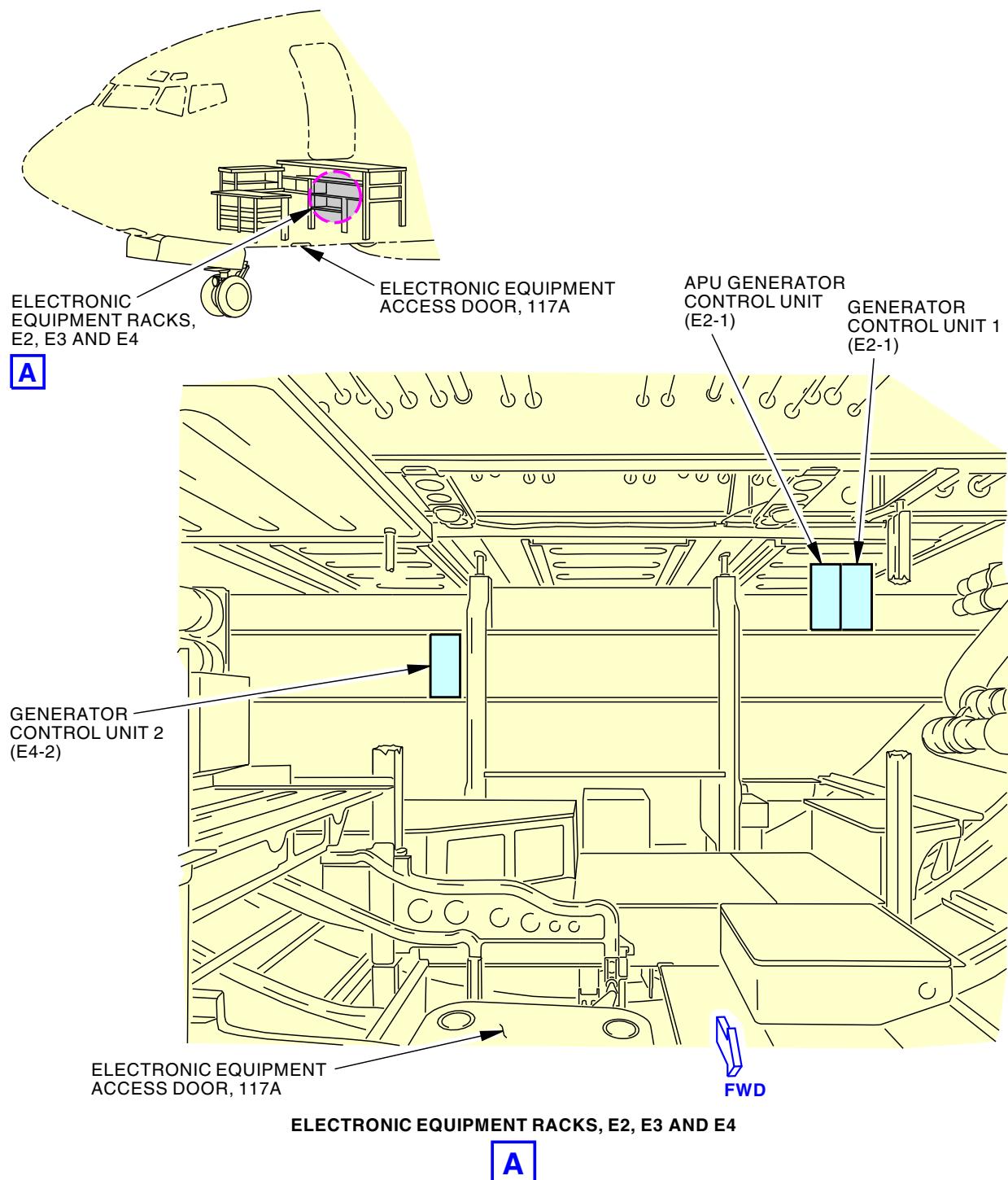
SUBTASK 24-21-00-211-002

- (3) Verify that the power warning lights are off on the power distribution panels (P91, P92)

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-00



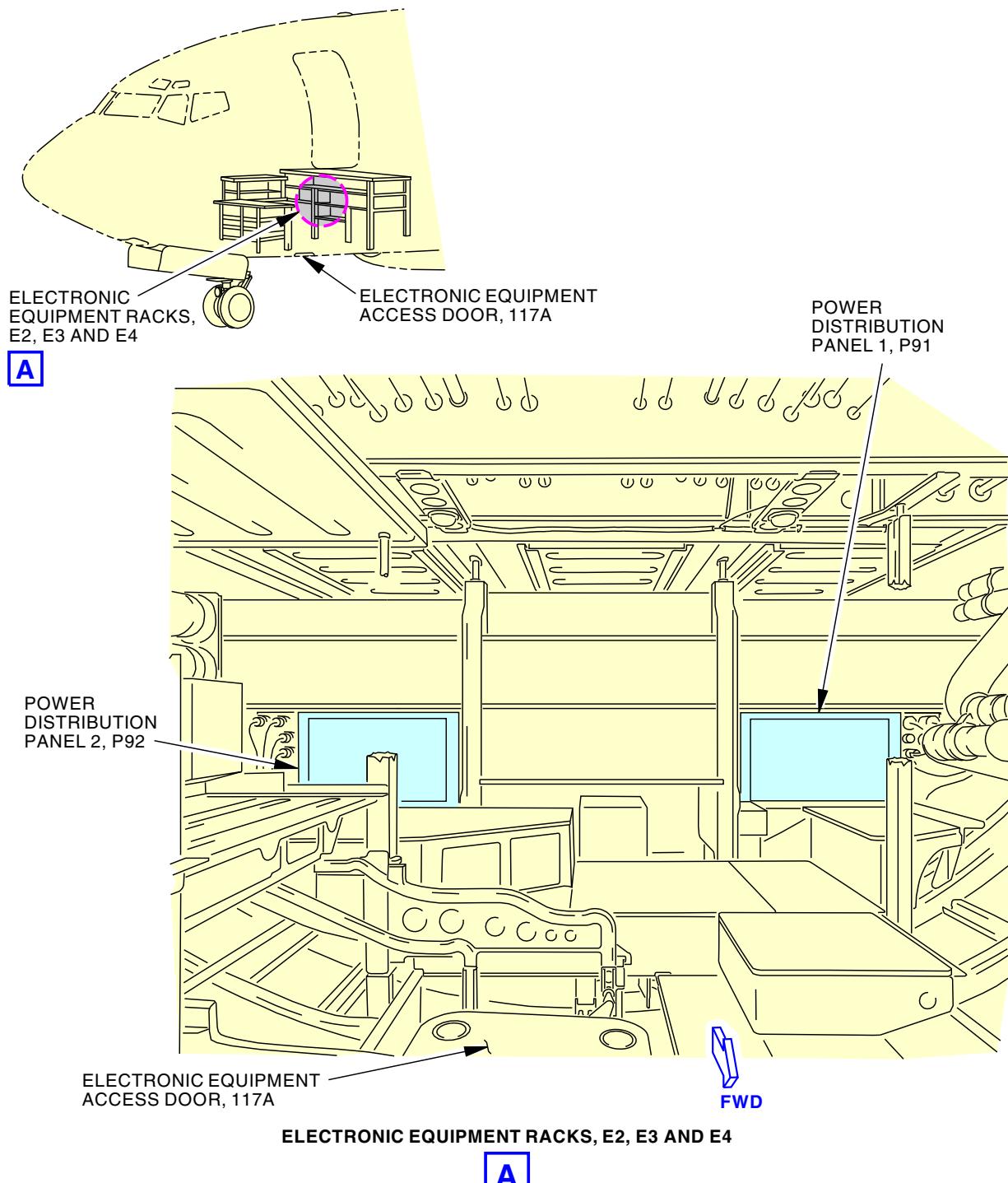
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Generator Control Unit and Electrical Control Panels P91, P92
Figure 201/24-21-00-990-802 (Sheet 1 of 2)

EFFECTIVITY
LOM ALL

24-21-00

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2360795 S0000539765_V2

Generator Control Unit and Electrical Control Panels P91, P92
Figure 201/24-21-00-990-802 (Sheet 2 of 2)

EFFECTIVITY
LOM ALL

24-21-00

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 204
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-00-440-801

3. AC Generation and Load System - Activation

(Figure 201)

A. General

- (1) This task has these procedures:
 - (a) Supply external power from the ground service buses.
 - (b) Supply external power from the 115V AC transfer buses.
- (2) Use the applicable procedure to energize the necessary buses.

B. References

Reference	Title
20-40-11-910-801	Static Grounding (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Procedure

SUBTASK 24-21-00-860-016

- (1) Do these steps to supply external power to the ground service and 115V AC transfer buses:
 - (a) Open the External Power Receptacle Door.



MAKE SURE THAT THERE IS NO OPEN OR FLOATING GROUND IN THE NEUTRAL CIRCUIT OF THE POWER SUPPLY OR THE AIRCRAFT. AN OPEN OR FLOATING GROUND CAN CAUSE ELECTRICAL SHOCK TO PERSONNEL WHO TOUCH THE AIRCRAFT.

- (b) Make sure the external power supply operates correctly before you supply external power to the airplane.
 - 1) If the ground return (neutral) circuit on the external power supply or the external power receptacle do not operate correctly, do this task: Static Grounding, TASK 20-40-11-910-801



REMOVE ELECTRICAL POWER FROM THE EXTERNAL POWER SOURCE. IF YOU DO NOT REMOVE ELECTRICAL POWER, YOU CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (c) Install the power cable to the external power receptacle.
- (d) Energize the external power cable.
- (e) Make sure these lights on the external power panel, P19 are on:

EFFECTIVITY
LOM ALL

24-21-00

Page 205
Oct 15/2017

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) EXTERNAL PWR CONN
 - 2) EXTERNAL PWR NOT IN USE
- (f) Make sure the GRD POWER AVAILABLE light on the P5-4 panel comes on.
 - (g) Push the GROUND SERVICE switch on the FWD ATTENDANT panel, P13.
 - 1) Make sure the light in the GROUND SERVICE switch comes on.
 - (h) Make sure the EXTERNAL PWR NOT IN USE light on the P19 panel is off.
 - (i) Remove the DO NOT OPERATE tag, STD-858 from the receptacle.

SUBTASK 24-21-00-410-001

- (2) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-00

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 206
Oct 15/2017



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

AC GENERATION SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) Operational Test for the AC Generation and Control System
 - (2) System Test for the AC Generation and Control System
- C. It is necessary to operate the engines and the APU when you do these tests.

TASK 24-21-00-700-803

2. Operational Test for the AC Generation and Control System

(Figure 501)

A. General

- (1) This procedure does these tests:
 - (a) APU Start with External Power and Switch Check
 - (b) Engine Start with APU Power and Switch Check
 - (c) Bus Tie Breaker and Generator Control Breaker Check
 - (d) Switch Check with External Power and IDG Power

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)
49-11-00-860-801	APU Starting and Operation (P/B 201)
49-11-00-860-802	APU Usual Shutdown (P/B 201)
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)

C. Location Zones

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

D. Prepare for the Test

SUBTASK 24-21-00-860-011

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

E. APU Start with External Power and Switch Check

SUBTASK 24-21-00-710-005

- (1) Do the check as follows:
 - (a) Make sure the BAT switch on the P5-13 panel is set to the ON position.
 - (b) Make sure the BUS TRANS switch on the P5-4 panel is set to the AUTO position.
 - (c) Make sure the GRD POWER AVAILABLE light on the P5-4 panel is on.
 - (d) Make sure these lights on the P5-4 panel are off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF

EFFECTIVITY
LOM ALL

24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 3) 2 TRANSFER BUS OFF
 - 4) 2 SOURCE OFF
- (e) Make sure these lights on the P5-4 panel are on:
- 1) 1 GEN OFF BUS
 - 2) 2 GEN OFF BUS
- (f) Set the AC meter selector switch on the P5-13 panel to the GRD PWR position.
- (g) Make sure the AC meter on the P5-13 panel shows these values:
- 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 395-405
- (h) Make sure the APU GEN OFF BUS light on the P5-4 panel is off
- (i) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
- (j) Make sure the APU GEN OFF BUS light on the P5-4 panel comes on.
NOTE: The APU GEN OFF BUS light should come on approximately 50 seconds after the Auxiliary Power Unit (APU) is started.
- (k) Set the 1 APU GEN switch on the P5-4 panel to the ON position.
- (l) Make sure the APU GEN OFF BUS light goes off.
- (m) Make sure the GRD POWER AVAILABLE light stays on.
- (n) Make sure these lights on the P5-4 panel stay off:
- 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF
 - 3) 2 TRANSFER BUS OFF
- (o) Set the 2 APU GEN switch on the P5-4 panel to the ON position.
- (p) Make sure the 2 SOURCE OFF light goes off.
- (q) Set the AC meter selector switch on the P5-13 panel to the APU GEN position.
- (r) Make sure the AC meter on the P5-13 panel shows these values:
- 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 395-405
- (s) Set the GRD PWR switch to the ON position.
- (t) Make sure the APU GEN OFF BUS light comes on.
- (u) Make sure the GRD POWER AVAILABLE light stays on.
- (v) Make sure these lights on the P5-4 panel stay off:
- 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF
 - 3) 2 TRANSFER BUS OFF
 - 4) 2 SOURCE OFF
- (w) Set both of the APU GEN switches to the ON position.
- (x) Make sure the APU GEN OFF BUS light goes off.
- (y) Make sure the GRD POWER AVAILABLE light stays on.
- (z) Make sure these lights on the P5-4 panel stay off:

EFFECTIVITY
LOM ALL

24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) 1 TRANSFER BUS OFF
- 2) 1 SOURCE OFF
- 3) 2 TRANSFER BUS OFF
- 4) 2 SOURCE OFF

F. Engine Start with APU Power and Switch Check

SUBTASK 24-21-00-710-006

- (1) Do the check as follows:

- (a) Start the No. 1 engine. To start it, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.



CAUTION

THE DRIVE LIGHT ON THE P5 PANEL MUST GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT DOES NOT GO OFF OR COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, YOU MUST PUSH THE DISCONNECT SWITCH ON THE P5 PANEL. IF YOU DO NOT PUSH THE DISCONNECT SWITCH, DAMAGE CAN OCCUR TO THE IDG.

- (b) Make sure the number 1 DRIVE light on the P5-5 panel goes off after number 1 engine reaches idle speed.
- (c) Set the GEN 1 switch on the P5-4 panel to the ON position.
- (d) Make sure the 1 GEN OFF BUS light on the P5-4 panel goes off.
- (e) Make sure these lights stay off:
 - 1) APU GEN OFF BUS
 - 2) 1 TRANSFER BUS OFF
 - 3) 1 SOURCE OFF
 - 4) 2 TRANSFER BUS OFF
 - 5) 2 SOURCE OFF
- (f) Set the AC meter selector switch on the P5-13 panel to the GEN 1 position.
- (g) Make sure the AC meter shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 395-405
- (h) Start the No. 2 engine. To start it, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.



CAUTION

THE DRIVE LIGHT ON THE P5 PANEL MUST GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT DOES NOT GO OFF OR COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, YOU MUST PUSH THE DISCONNECT SWITCH ON THE P5 PANEL. IF YOU DO NOT PUSH THE DISCONNECT SWITCH, DAMAGE CAN OCCUR TO THE IDG.

- (i) Make sure the number 2 DRIVE light on the P5-5 panel goes off after number 2 engine reaches idle speed.
- (j) Set the GEN 2 switch on the P5-4 panel to the ON position.
- (k) Make sure the 2 GEN OFF BUS light on the P5-4 panel goes off.

EFFECTIVITY
LOM ALL

24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (l) Make sure the APU GEN OFF BUS light comes on.
- (m) Make sure these lights stay off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF
 - 3) 1 GEN OFF BUS
 - 4) 2 TRANSFER BUS OFF
 - 5) 2 SOURCE OFF
- (n) Set the AC meter selector switch on the P5-13 panel to the GEN 2 position.
- (o) Make sure the AC meter shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 395-405
- (p) Set the APU GEN 1 switch to the ON position.
- (q) Make sure the APU GEN OFF BUS light goes off.
- (r) Make sure the 1 GEN OFF BUS light comes on.
- (s) Make sure these lights stay off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF
 - 3) 2 TRANSFER BUS OFF
 - 4) 2 SOURCE OFF
 - 5) 2 GEN OFF BUS
- (t) Set the APU GEN 2 switch to the ON position.
- (u) Make sure the 2 GEN OFF BUS light comes on.
- (v) Make sure these lights stay off:
 - 1) APU GEN OFF BUS
 - 2) 1 TRANSFER BUS OFF
 - 3) 1 SOURCE OFF
 - 4) 2 TRANSFER BUS OFF
 - 5) 2 SOURCE OFF
- (w) Set the GEN 1 switch on the P5-4 panel to the ON position.
- (x) Make sure the 1 GEN OFF BUS light on the P5-4 panel goes off.
- (y) Make sure these lights stay off:
 - 1) APU GEN OFF BUS
 - 2) 1 TRANSFER BUS OFF
 - 3) 1 SOURCE OFF
 - 4) 2 TRANSFER BUS OFF
 - 5) 2 SOURCE OFF
- (z) Set the GEN 2 switch on the P5-4 panel to the ON position.
- (aa) Make sure the 2 GEN OFF BUS light on the P5-4 panel goes off.
- (ab) Make sure the APU GEN OFF BUS light comes on.

EFFECTIVITY
LOM ALL

24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (ac) Make sure these lights stay off:
- 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF
 - 3) 1 GEN OFF BUS
 - 4) 2 TRANSFER BUS OFF
 - 5) 2 SOURCE OFF

G. Bus Tie Breaker and Generator Control Breaker Check

SUBTASK 24-21-00-710-007

- (1) Do the check as follows:

NOTE: The #1 and #2 Transfer Buses will de-energize during parts of this test. Some equipment connected to the related bus will de-energize. This will cause Flight Deck Effect (FDE).

- (a) Set the GEN 1 switch to the OFF position.
- (b) Make sure these lights come on:
 - 1) 1 GEN OFF BUS
 - 2) 1 SOURCE OFF
- (c) Make sure these lights stay off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 2 TRANSFER BUS OFF
 - 3) 2 GEN OFF BUS
 - 4) 2 SOURCE OFF
- (d) Set the BUS TRANS switch to the OFF position.
- (e) Make sure this light comes on:
 - 1) 1 TRANSFER BUS OFF
- (f) Make sure these lights stay off:
 - 1) 2 TRANSFER BUS OFF
 - 2) 2 GEN OFF BUS
 - 3) 2 SOURCE OFF
- (g) Set the GEN 1 switch to the ON position.
- (h) Make sure these lights go off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 1 GEN OFF BUS
 - 3) 1 SOURCE OFF
- (i) Set the BUS TRANS switch to the AUTO position.
- (j) Set the GEN 2 switch to the OFF position.
- (k) Make sure these lights come on:
 - 1) 2 GEN OFF BUS
 - 2) 2 SOURCE OFF
- (l) Make sure these lights stay off:
 - 1) 2 TRANSFER BUS OFF

EFFECTIVITY
LOM ALL

24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 2) 1 TRANSFER BUS OFF
 - 3) 1 GEN OFF BUS
 - 4) 1 SOURCE OFF
- (m) Set the BUS TRANS switch to the OFF position.
- (n) Make sure these light comes on:
 - 1) 2 TRANSFER BUS OFF
- (o) Make sure these lights stay off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 1 GEN OFF BUS
 - 3) 1 SOURCE OFF
- (p) Set the GEN 2 switch to the ON position.
- (q) Make sure these lights go off:
 - 1) 2 TRANSFER BUS OFF
 - 2) 2 GEN OFF BUS
 - 3) 2 SOURCE OFF
- (r) Set the BUS TRANS switch to the AUTO position.

H. Switch Check with External Power and IDG Power

SUBTASK 24-21-00-710-008

- (1) Do the check as follows:
- (a) Make sure the GRD POWER AVAILABLE light on the P5-4 panel is on.
- (b) Set the GRD PWR switch to the ON position.
- (c) Make sure these lights stay off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF
 - 3) 2 TRANSFER BUS OFF
 - 4) 2 SOURCE OFF
- (d) Make sure these lights come on:
 - 1) 1 GEN OFF BUS
 - 2) 2 GEN OFF BUS
- (e) Set the GEN 1 switch on the P5-4 panel to the ON position.
- (f) Make sure the 1 GEN OFF BUS light on the P5-4 panel goes off.
- (g) Make sure these lights stay off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF
 - 3) 2 TRANSFER BUS OFF
 - 4) 2 SOURCE OFF
- (h) Set the GEN 2 switch on the P5-4 panel to the ON position.
- (i) Make sure the 2 GEN OFF BUS light on the P5-4 panel goes off.
- (j) Make sure these lights stay off:

EFFECTIVITY	LOM ALL
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24-21-00

Page 506
Feb 15/2023

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) 1 TRANSFER BUS OFF
- 2) 1 SOURCE OFF
- 3) 1 GEN OFF BUS
- 4) 2 TRANSFER BUS OFF
- 5) 2 SOURCE OFF

I. Engine and APU Shutdown

SUBTASK 24-21-00-860-012

- (1) Shut down the number 1 engine. To shut down the engine, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

SUBTASK 24-21-00-860-013

- (2) Shut down the number 2 engine. To shut down the engine, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

SUBTASK 24-21-00-860-014

- (3) Do this task: APU Usual Shutdown, TASK 49-11-00-860-802.

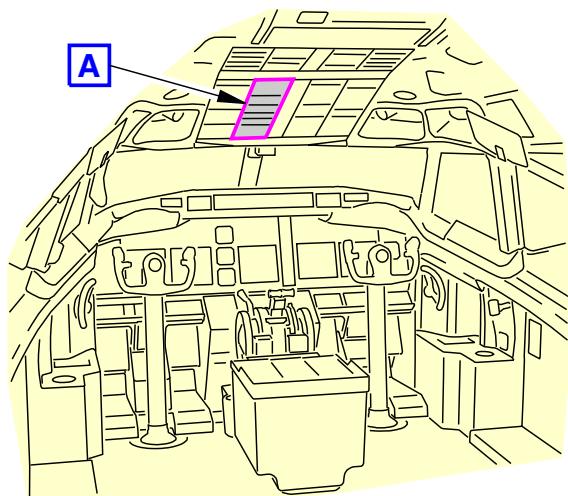
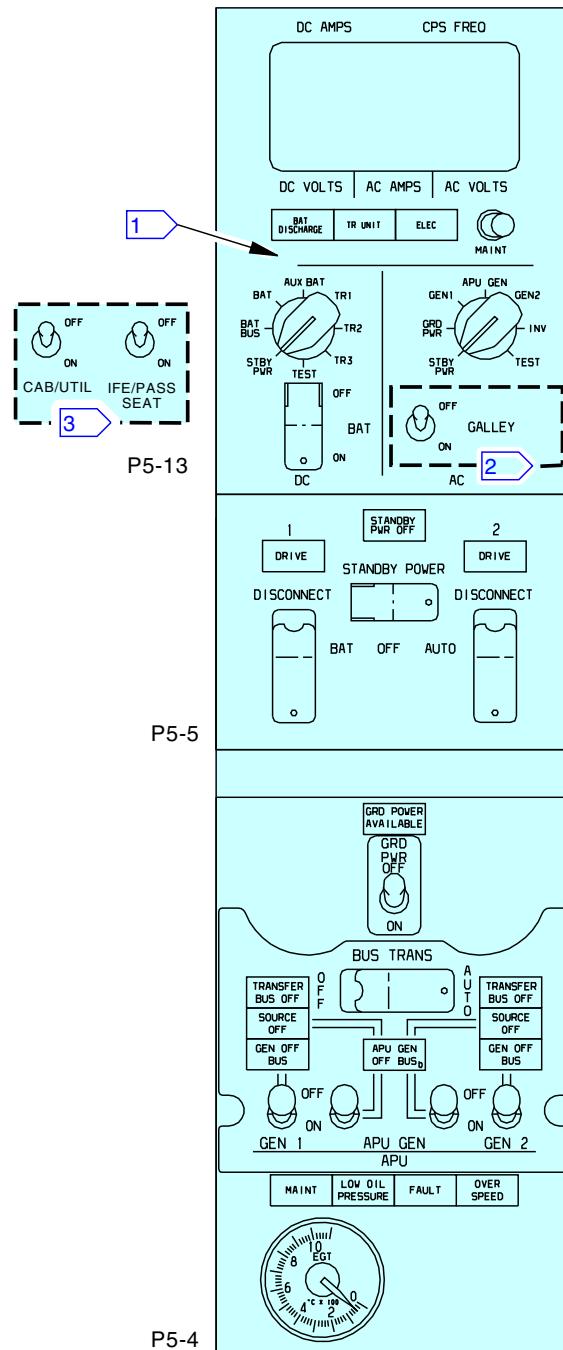
SUBTASK 24-21-00-860-015

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

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-00


FLIGHT COMPARTMENT


- 1** AIRPLANES WITH AUXILIARY BATTERY
- 2** AIRPLANES WITH GALLEY SWITCH
- 3** AIRPLANES WITH CABIN UTILITY AND IFE SWITCHES

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AC Generator and Control System
Figure 501/24-21-00-990-801

EFFECTIVITY
LOM ALL
24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-00-700-802

3. System Test for the AC Generation and Control System

(Figure 501)

A. General

- (1) The system test has an Air Mode test.
- (2) The automatic transfer from APU to IDG power happens only once per Air Mode cycle. If you need to repeat this test you will need to put the airplane into ground mode and then simulate air mode again.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-815	Supply APU Generator Power (P/B 201)
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)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)

C. Location Zones

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

D. Prepare for the Test

SUBTASK 24-21-00-860-007

- (1) Do this task: Supply APU Generator Power, TASK 24-22-00-860-815.

SUBTASK 24-21-00-860-008

- (2) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.

E. Procedure

SUBTASK 24-21-00-730-001

- (1) Do the Air Mode test as follows:

- (a) Make sure these lights on the P5-4 panel are off:
 - 1) APU GEN OFF BUS
 - 2) 1 TRANSFER BUS OFF
 - 3) 1 SOURCE OFF
 - 4) 2 TRANSFER BUS OFF
 - 5) 2 SOURCE OFF
 - (b) Make sure these lights on the P5-4 panel are on:
 - 1) 1 GEN OFF BUS
 - 2) 2 GEN OFF BUS
 - (c) Start the No. 1 engine. To start it, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.





737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



THE DRIVE LIGHT ON THE P5 PANEL SHOULD GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, THE DISCONNECT SWITCH ON THE P5 PANEL MUST BE PUSHED. FAILURE TO PUSH THE DISCONNECT SWITCH CAN CAUSE DAMAGE TO THE IDG.

- (d) Make sure the number 1 DRIVE light on the P5-5 panel goes off after number 1 engine reaches idle speed.
- (e) Start the No. 2 engine. To start it, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.



THE DRIVE LIGHT ON THE P5 PANEL SHOULD GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, THE DISCONNECT SWITCH ON THE P5 PANEL MUST BE PUSHED. FAILURE TO PUSH THE DISCONNECT SWITCH CAN CAUSE DAMAGE TO THE IDG.

- (f) Make sure the number 2 DRIVE light on the P5-5 panel goes off after number 2 engine reaches idle speed.
- (g) 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.
- (h) Set the APU switch on the P5 panel to the OFF position.
- (i) Make sure these lights on the P5-4 panel go off:
 - 1) 1 GEN OFF BUS
 - 2) 2 GEN OFF BUS
- (j) Make sure these lights on the P5-4 panel stay off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 1 SOURCE OFF
 - 3) 2 TRANSFER BUS OFF
 - 4) 2 SOURCE OFF
- (k) Set the GEN 1 switch to the OFF position.
- (l) Make sure these lights come on:
 - 1) 1 GEN OFF BUS
 - 2) 1 SOURCE OFF
- (m) Make sure these lights on the P5-4 panel stay off:
 - 1) 1 TRANSFER BUS OFF
 - 2) 2 TRANSFER BUS OFF
 - 3) 2 SOURCE OFF
 - 4) 2 GEN OFF BUS
- (n) Set the GEN 1 switch to the ON position.
- (o) Make sure these lights go off:
 - 1) 1 GEN OFF BUS
 - 2) 1 SOURCE OFF
- (p) Set the GEN 2 switch to the OFF position.

EFFECTIVITY
LOM ALL

24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (q) Make sure these lights come on:
 - 1) 2 GEN OFF BUS
 - 2) 2 SOURCE OFF
- (r) Make sure these lights on the P5-4 panel stay off:
 - 1) 2 TRANSFER BUS OFF
 - 2) 1 TRANSFER BUS OFF
 - 3) 1 SOURCE OFF
 - 4) 1 GEN OFF BUS
- (s) Set the GEN 2 switch to the ON position.
- (t) Make sure these lights go off:
 - 1) 2 GEN OFF BUS
 - 2) 2 SOURCE OFF
- (u) Shut down both engines. To shut down the engines, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

F. Put the airplane in its usual condition.

SUBTASK 24-21-00-860-009

- (1) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 24-21-00-860-010

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

POWER DISTRIBUTION PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the Power Distribution Panel (PDP).
 - (2) An installation of the Power Distribution Panel (PDP).
- B. You must remove the PDP from the rack for some components. When necessary to remove a PDP component, remove the PDP from the rack. Replace the internal component in a clean, dry area. Complete the replacement and assemble the PDP. Install it on the rack. Do the installation test in this procedure.

TASK 24-21-21-000-801

2. Power Distribution Panel Removal

(Figure 401)

A. General

- (1) There are two power distribution panels (PDP), P91 and P92 installed in the electronic equipment area.
- (2) It is necessary to get access to the front and the rear of the power distribution panels to remove and install them.
- (3) You get access to the front of the PDP from the electronic equipment area.
- (4) You get access to the rear of the PDP from the forward cargo area.

B. References

Reference	Title
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.

Reference	Description
SPL-1635	Equipment - Installation, Power Distribution Panels Part #: C24004-43 Supplier: 81205 Opt Part #: C24004-1 Supplier: 81205

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Power Distribution Panel	24-21-21-08-022	LOM 466-999
		24-21-21-09-021	LOM 407, 411
		24-21-21-09-022	LOM 407, 411
		24-21-21-10-010	LOM 402, 404, 406
		24-21-21-14-010	LOM 407, 411, 412, 415, 416, 420, 422
		24-21-21-14-011	LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-465
		24-21-21-30-020	LOM 402, 404, 406

EFFECTIVITY
LOM ALL

24-21-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
1 (cont.)		24-21-21-30-021	LOM 402, 404, 406
		24-21-21-34-020	LOM 412, 415, 416, 420, 422
		24-21-21-34-021	LOM 412, 415, 416, 420, 422-434, 437-447, 450-999

E. 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

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Prepare for removal.

SUBTASK 24-21-21-860-001



REMOVE ELECTRICAL POWER BEFORE YOU REMOVE OR INSTALL COMPONENTS IN THE POWER DISTRIBUTION PANELS. THERE ARE HIGH VOLTAGES THAT CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.
 - (a) Make sure that all of the power warning lights on the power distribution panel are off.

SUBTASK 24-21-21-010-001

- (2) Open this access panel to get access to the main equipment center.

Number Name/Location

117A Electronic Equipment Access Door

H. Procedure

SUBTASK 24-21-21-010-002

- (1) Get access to the forward cargo area and do the steps that follow:
 - (a) Remove the applicable forward bulkhead liner to get access to the rear of the power distribution panel.

SUBTASK 24-21-21-020-001

- (2) Remove the power feeders from the power distribution panel, do the steps that follow:
 - (a) Install identification tags on the power feeders before removal.
 - (b) Remove the nuts [6] and washers [7] from each terminal stud.
 - (c) Remove the power feeders from the terminal studs.

SUBTASK 24-21-21-020-002

- (3) Remove the cooling duct from the power distribution panel per the steps that follow:



24-21-21

Page 402
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Remove the four screws [8] and washers [9] that hold the cooling duct to the power distribution panel.
- (b) Pull the duct away from the panel and remove the gasket [10].

SUBTASK 24-21-21-020-003

- (4) Remove the electrical connectors from the power distribution panels.

SUBTASK 24-21-21-020-004

- (5) Remove the two ground straps from the power distribution panel per the steps that follow:
 - (a) Remove the two nuts [2] and washers [3] from the ground studs on the power distribution panel.
NOTE: Do not remove the other end of the ground strap attached to the airplane structure.
 - (b) Remove the ground strap from the ground stud on the power distribution panel.
NOTE: Move the strap or use tape to hold the strap so that it does not interfere with the panel when it is removed.

SUBTASK 24-21-21-020-005

- (6) Remove the Power Distribution Panel [1], do the steps that follow:
 - (a) Remove the four bolts [5] and washers [4] located at the corners of the power distribution panel.
 - (b) Pull the Power Distribution Panel [1] out from the rack onto the equipment, SPL-1635.

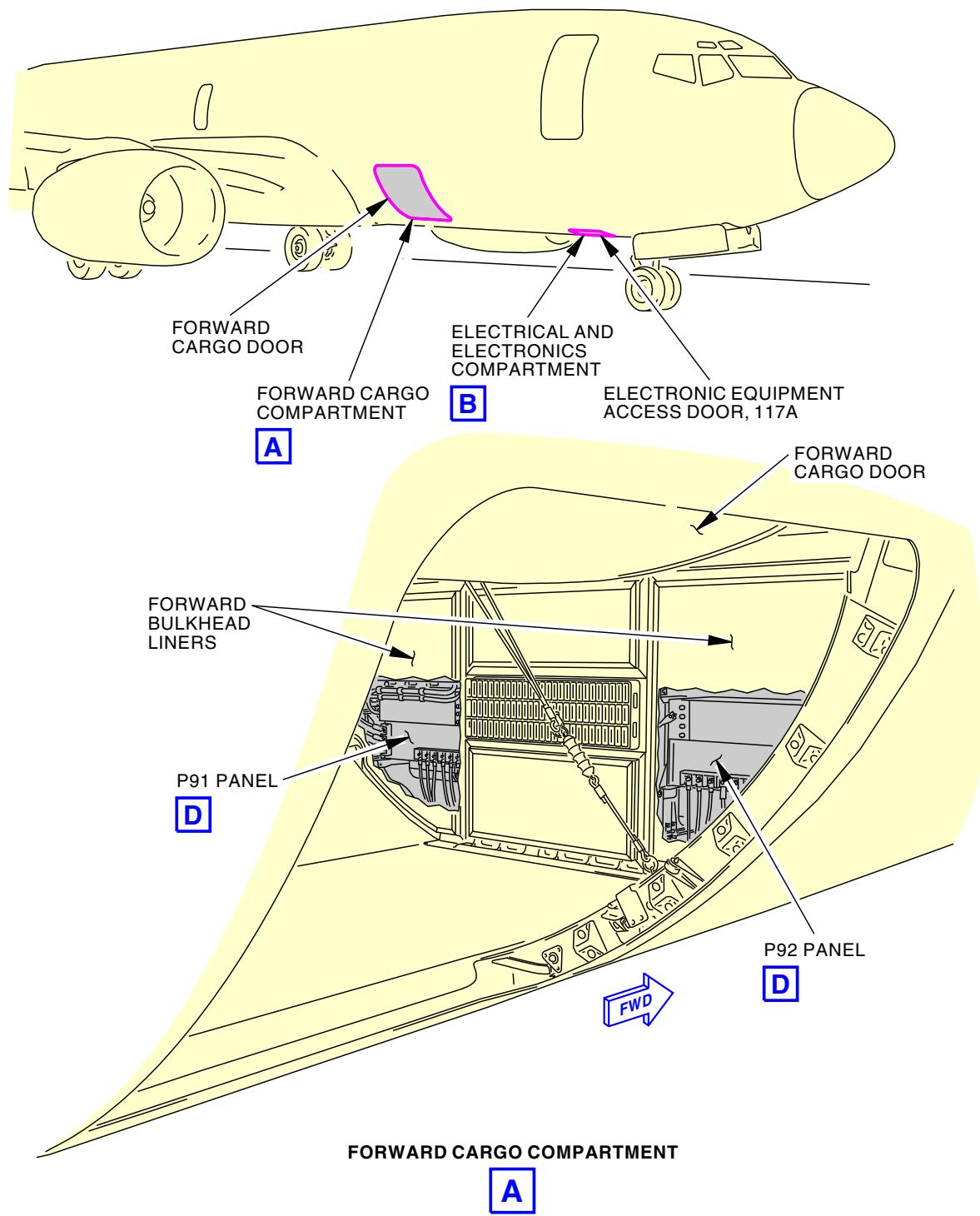
———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-21



737-600/700/800/900
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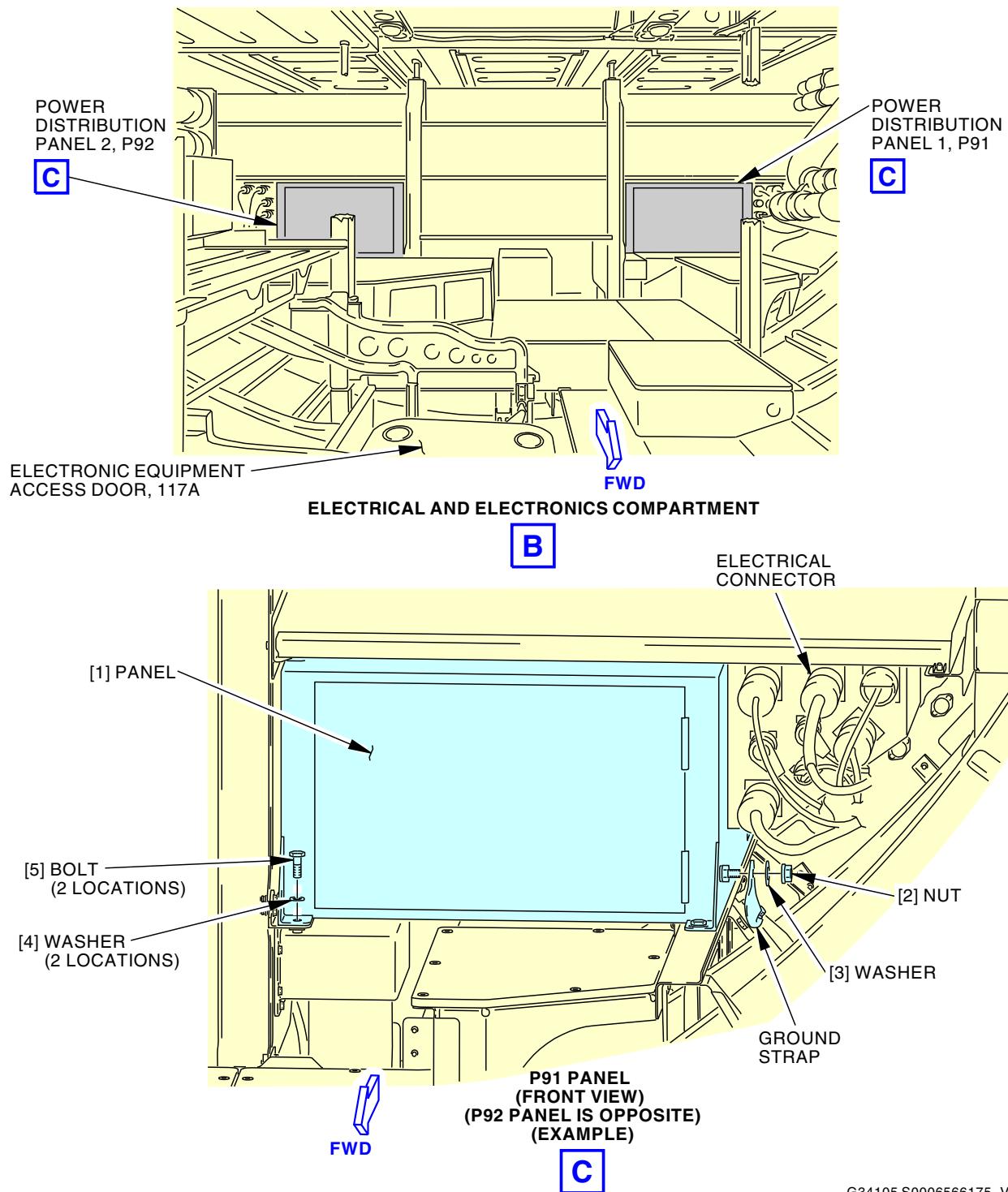
Power Distribution Panel Installation
Figure 401/24-21-21-990-801 (Sheet 1 of 4)

EFFECTIVITY
LOM ALL

24-21-21

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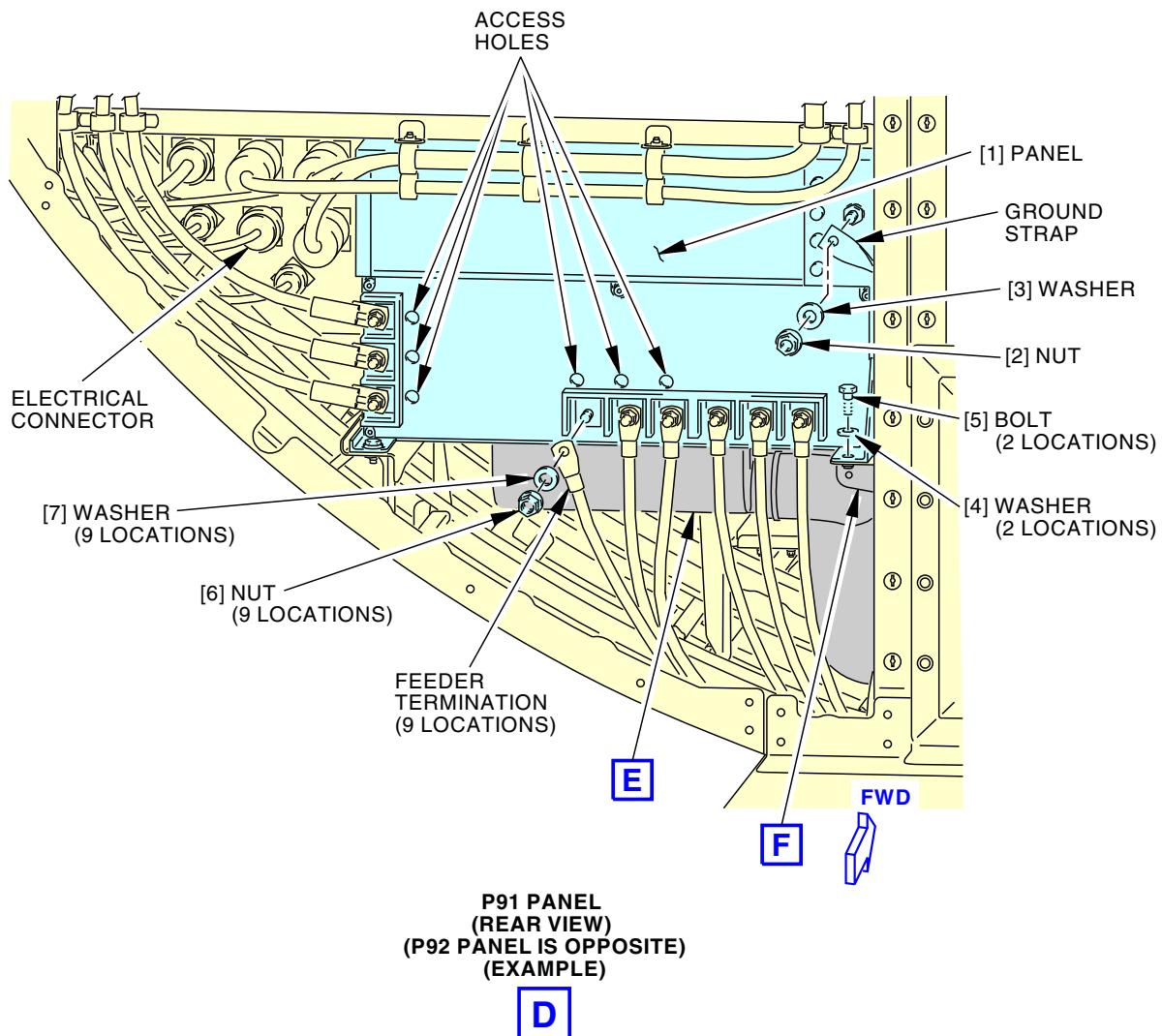
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Power Distribution Panel Installation
Figure 401/24-21-21-990-801 (Sheet 2 of 4)

24-21-21



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**Power Distribution Panel Installation
Figure 401/24-21-21-990-801 (Sheet 3 of 4)**

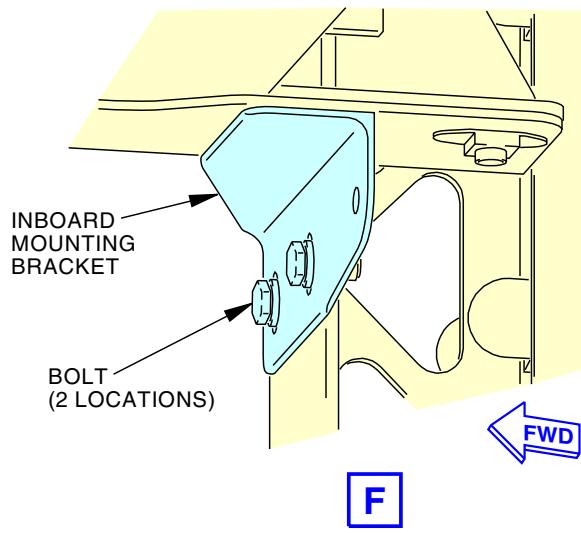
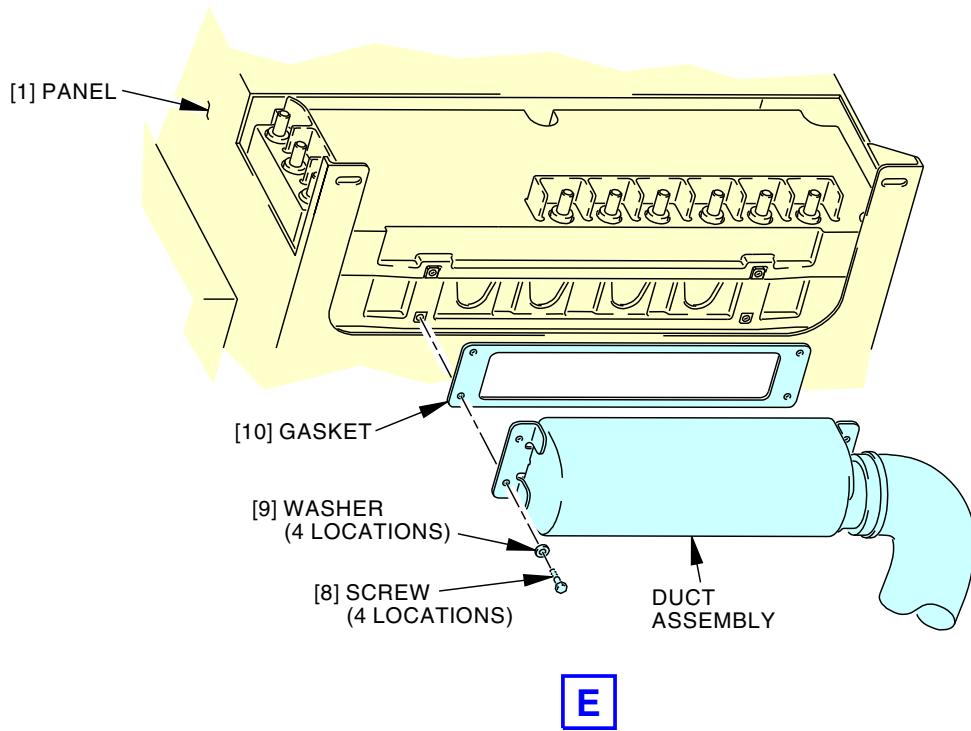
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LOM ALL

24-21-21

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AIRCRAFT MAINTENANCE MANUAL



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Power Distribution Panel Installation
Figure 401/24-21-21-990-801 (Sheet 4 of 4)

EFFECTIVITY
LOM ALL

24-21-21

D633A101-LOM

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737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-21-400-801

3. Power Distribution Panel Installation

(Figure 401)

A. General

- (1) There are two power distribution panels (PDP), P91 and P92 installed in the electronic equipment area.
- (2) It is necessary to get access to the front and the rear of the power distribution panels to remove and install them.
- (3) You get access to the front of the PDP from the electronic equipment area.
- (4) You get access to the rear of the PDP from the forward cargo area.

B. References

Reference	Title
21-27-00-700-802	Equipment Cooling Fans - Operational Test (P/B 501)
24-21-00-700-803	Operational Test for the AC Generation and Control System (P/B 501)
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-31-00-700-801	The Operational Test of the DC System (P/B 501)
28-22-00-730-801	Engine Fuel Feed Pumps - Functional Test (P/B 501)
29-11-00-700-801	Operational Test of the Hydraulic Systems A and B (P/B 501)
29-21-00-700-801	Operational Test of the Standby Hydraulic System (P/B 501)
38-42-00-800-803	Water Tank Pressurization System - Operational Test (P/B 501)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Power Distribution Panel	24-21-21-08-022	LOM 466-999
		24-21-21-09-021	LOM 407, 411
		24-21-21-09-022	LOM 407, 411
		24-21-21-10-010	LOM 402, 404, 406
		24-21-21-14-010	LOM 407, 411, 412, 415, 416, 420, 422
		24-21-21-14-011	LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-465
		24-21-21-30-020	LOM 402, 404, 406
		24-21-21-30-021	LOM 402, 404, 406
		24-21-21-34-020	LOM 412, 415, 416, 420, 422
		24-21-21-34-021	LOM 412, 415, 416, 420, 422-434, 437-447, 450-999

D. Location Zones

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



24-21-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Zone Area

122 Forward Cargo Compartment - Right

E. Access Panels

Number Name/Location

117A Electronic Equipment Access Door

F. Prepare for installation.

SUBTASK 24-21-21-860-002



WARNING

REMOVE ELECTRICAL POWER BEFORE REMOVING OR INSTALLING POWER DISTRIBUTION PANELS. HIGH VOLTAGES PRESENT CAN CAUSE INJURY TO PERSONS.

- (1) Make sure that electrical power is removed from airplane.

- (a) Make sure that all of the power warning lights on the power distribution panel are off.

NOTE: Look at opposite power distribution panel if it is installed.

G. Procedure

SUBTASK 24-21-21-420-001

- (1) Do these steps to install the Power Distribution Panel [1]:

- (a) Move the Power Distribution Panel [1] into position on the rack.

NOTE: The door on the panel must face forward.

- (b) Loosen the two bolts on the inboard mounting bracket. The bracket is located at the inboard corner of the panel when you view the rear of the panel from the forward cargo area.

NOTE: This step is done to get the required flat mounting surface for the power distribution panel.

- (c) Loosely install the four bolts [5] and washers [4] that hold the panel at the corners.

- (d) Tighten the four bolts [5] to 82 ± 18 in-lb (9 ± 2 N·m).

- 1) Make sure you tighten the bolt located at the same corner as the inboard mounting bracket last.

- (e) Tighten the two bolts on the inboard mounting bracket to 32 ± 2 in-lb (4 ± 1 N·m).

SUBTASK 24-21-21-420-002

- (2) Install the two ground straps on the power distribution panel, do the steps that follow:

- (a) Install the straps on the ground stud on the power distribution panel.

- (b) Install the two nuts [2] and washers [3] on the ground studs.

- (c) Tighten the nuts to 190 ± 10 in-lb (21 ± 2 N·m).

SUBTASK 24-21-21-420-003

- (3) Install the electrical connectors on the power distribution panels.

SUBTASK 24-21-21-420-004

- (4) Do these steps to install the cooling duct on the power distribution panel:

- (a) Install the gasket [10] on the duct and put the duct in position on the power distribution panel.

EFFECTIVITY
LOM ALL

24-21-21

Page 409
Jun 15/2023

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (b) Install the four screws [8] and washers [9] that hold the cooling duct to the power distribution panel.
- (c) Tighten the screws [8].

SUBTASK 24-21-21-420-005

- (5) Do these steps to install the power feeders on the power distribution panel:
 - (a) Use the identification tags to install the power feeders on the correct terminal studs.
 - (b) Install the nuts [6] and washers [7] on each terminal stud.
 - (c) Tighten the nuts to 190 ± 10 in-lb (21 ± 2 N·m).

NOTE: When you install and tighten the power feeders to the rigid bus assembly, there may be some axial movement of the terminal studs (particularly TB5004 and TB5008). A small amount of movement is normal and should not affect the tightening of the nuts to the specified torque.

H. Installation Test

SUBTASK 24-21-21-710-001

- (1) Do this task: Operational Test for the AC Generation and Control System, TASK 24-21-00-700-803.

SUBTASK 24-21-21-710-002

- (2) Do this task: The Operational Test of the DC System, TASK 24-31-00-700-801.

SUBTASK 24-21-21-710-003

- (3) Do this task: Equipment Cooling Fans - Operational Test, TASK 21-27-00-700-802.

SUBTASK 24-21-21-710-004

- (4) Do this task: Engine Fuel Feed Pumps - Functional Test, TASK 28-22-00-730-801.

SUBTASK 24-21-21-710-005

- (5) Do this task: Operational Test of the Hydraulic Systems A and B, TASK 29-11-00-700-801.

SUBTASK 24-21-21-710-006

- (6) Do this task: Operational Test of the Standby Hydraulic System, TASK 29-21-00-700-801.

SUBTASK 24-21-21-710-007

- (7) Do this task: Water Tank Pressurization System - Operational Test, TASK 38-42-00-800-803.

I. Put the airplane back to its usual condition.

SUBTASK 24-21-21-410-002

- (1) Install the forward bulkhead liner.

SUBTASK 24-21-21-410-001

- (2) Close this access panel:

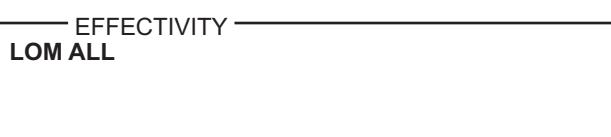
Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 24-21-21-860-003

- (3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————



24-21-21

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 410
Jun 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

RIGID BUS ASSEMBLY - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the rigid bus assembly
 - (2) An installation of the rigid bus assembly.

TASK 24-21-22-000-801

2. Rigid Bus Assembly Removal

(Figure 401)

A. General

- (1) There is one rigid bus assembly located at the rear of each of the Power Distribution Panel (PDP), P91 and P92.

NOTE: If the troubleshooting points to a defective current transformer, the airline must remove and send back the rigid bus assembly to Honeywell. Write or speak to Honeywell for more data.

- (2) It is necessary to get access to the front and the rear of the PDPs to remove and install the rigid bus assembly [1].
- (3) You get access to the front of the PDP from the electronic equipment area.
- (4) You get access to the rear of the PDP from the forward cargo area.

B. References

Reference	Title
24-21-41-000-801	Breaker Removal (P/B 401)
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-41-12-000-801	External Power Contactor Removal (P/B 401)

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

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 24-21-22-860-001



REMOVE THE ELECTRICAL POWER BEFORE YOU REMOVE OR INSTALL THE RIGID BUS ASSEMBLY. HIGH VOLTAGES CAN CAUSE INJURY TO PERSONS.

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.
 - (a) Make sure that all of the power warning lights on the PDP are off.



24-21-22



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-21-22-010-001

- (2) Open this access panel to get access to the main equipment center:

Number Name/Location

117A Electronic Equipment Access Door

F. Rigid Bus Assembly Removal

SUBTASK 24-21-22-020-001



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) To remove the rigid bus assembly [1] from the PDP 1, P91, do the steps that follow:

NOTE: These steps are done at the front of the PDP, in the electronic equipment area.

- (a) Remove the breakers listed below, do this task: Breaker Removal,
TASK 24-21-41-000-801.

- 1) These are the circuit breakers:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
---	---	C00803	AUXILIARY POWER BREAKER
---	---	C00804	BUS TIE BREAKER 1
---	---	C00801	GENERATOR BREAKER 1

- (b) Loosen the screws that hold the electrical connectors to the rigid bus assembly [1].
(c) Remove the electrical connectors from the rigid bus assembly [1].
(d) Remove the nuts [9], lockwashers [10], and washers [11] that hold the bus bars to the rigid bus assembly [1].

SUBTASK 24-21-22-020-002



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
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24-21-22



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (2) To remove the rigid bus assembly [1] from the PDP 2, P92, do the steps that follow:

NOTE: These steps are done at the front of the PDP, in the electronic equipment area.

- (a) Remove the breakers listed below, do this task: Breaker Removal, TASK 24-21-41-000-801.

- 1) These are the circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
---	---	C00805	BUS TIE BREAKER 2
---	---	C00802	GENERATOR BREAKER 2

- (b) Do this task: External Power Contactor Removal, TASK 24-41-12-000-801.
(c) Loosen the screws that hold the electrical connectors to the rigid bus assembly [1].
(d) Remove the electrical connectors from the rigid bus assembly [1].
(e) Remove the nuts [9], lockwashers [10], and washers [11] that hold the bus bars to the rigid bus assembly [1].
(f) Remove the bolts [12] and washers [13] that hold the wires to the terminal posts on the rigid bus assembly [1].

NOTE: Install identification tags on wires before removing these wires.

SUBTASK 24-21-22-010-002

- (3) Get access to the forward cargo area and do the steps that follow:

- (a) Remove the applicable forward bulkhead liner to get access to the rear of the PDP.

SUBTASK 24-21-22-020-003

- (4) Remove the power feeders from the PDP per the steps that follow:

- (a) Install identification tags on the power feeders before removal.
(b) Remove the nuts [4] and washers [5] from each terminal stud.
(c) Remove power feeders from terminal studs.

SUBTASK 24-21-22-020-004

- (5) Remove the cooling duct from the PDP per the steps that follow:

- (a) Remove the screws [6] and washers [7] that hold the cooling duct to the power distribution panel.
(b) Pull the duct away from the panel and remove the gasket [8].

SUBTASK 24-21-22-020-005

- (6) Do these steps to remove the rigid bus assembly [1]:

- (a) Remove the screws [3] and washers [2] that hold the rigid bus assembly [1] to the PDP.
(b) Remove the rigid bus assembly [1].

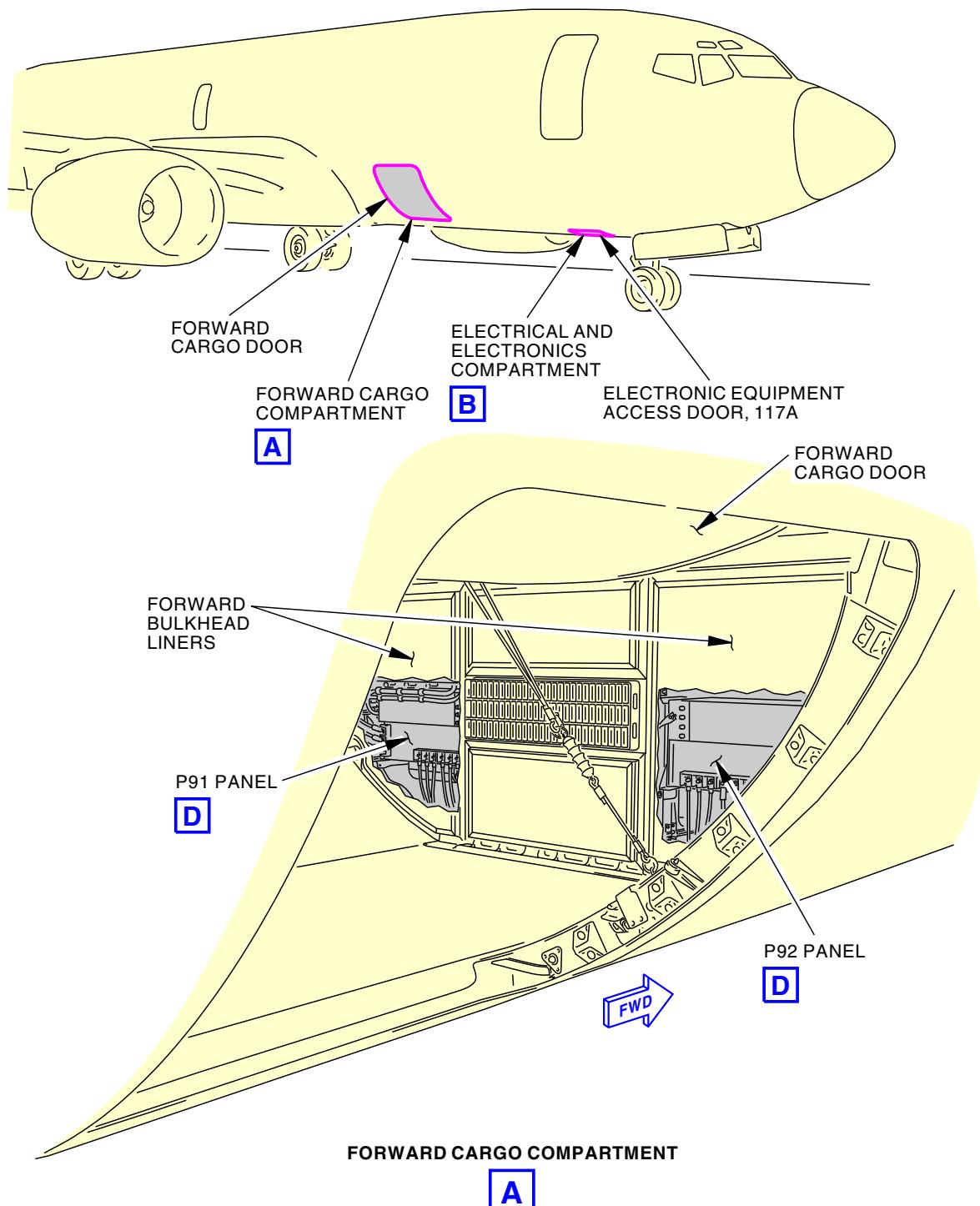
— END OF TASK —

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24-21-22

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**Rigid Bus Assembly Installation
Figure 401/24-21-22-990-801 (Sheet 1 of 4)**

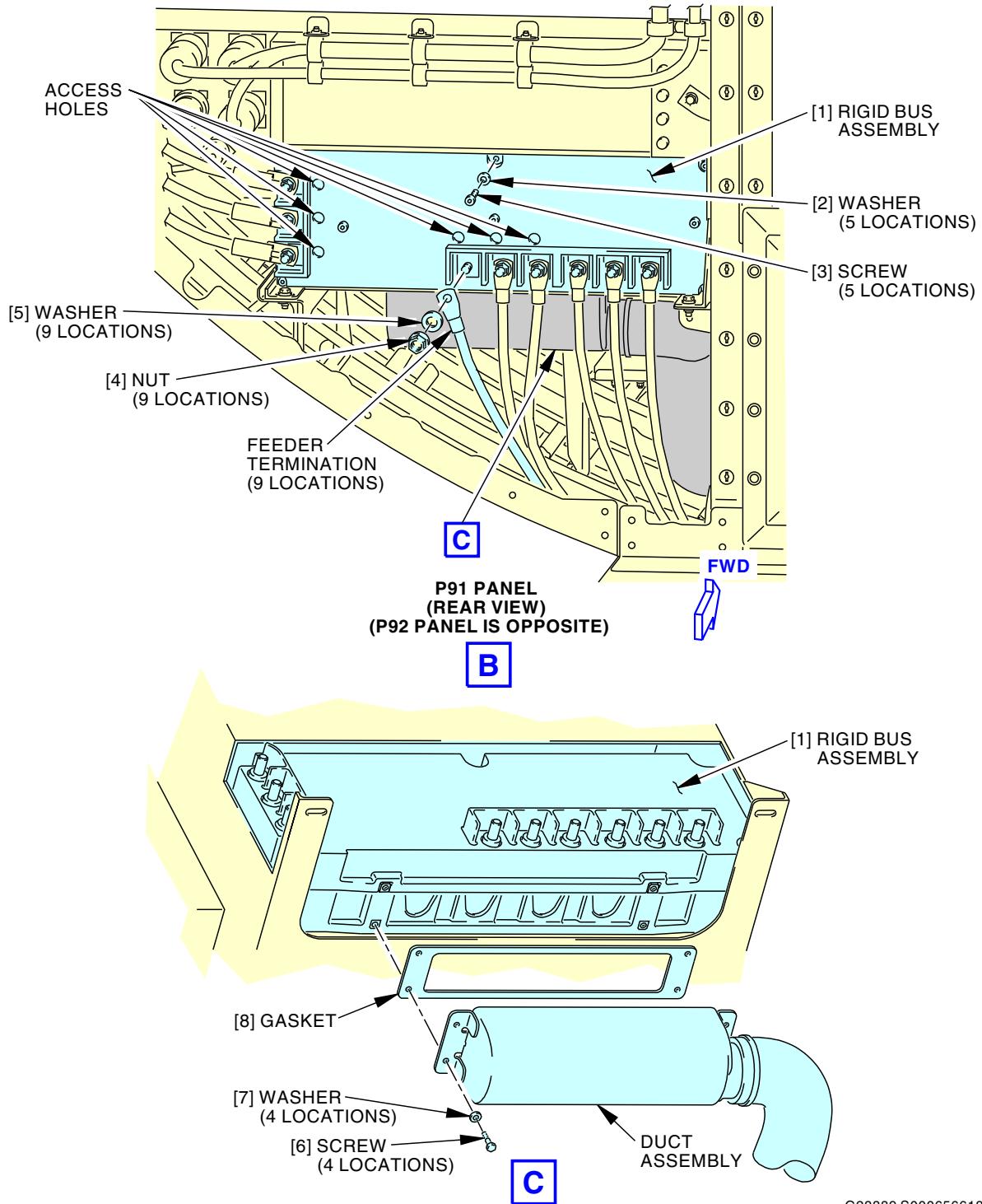
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LOM ALL

24-21-22

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Page 404
Oct 15/2015

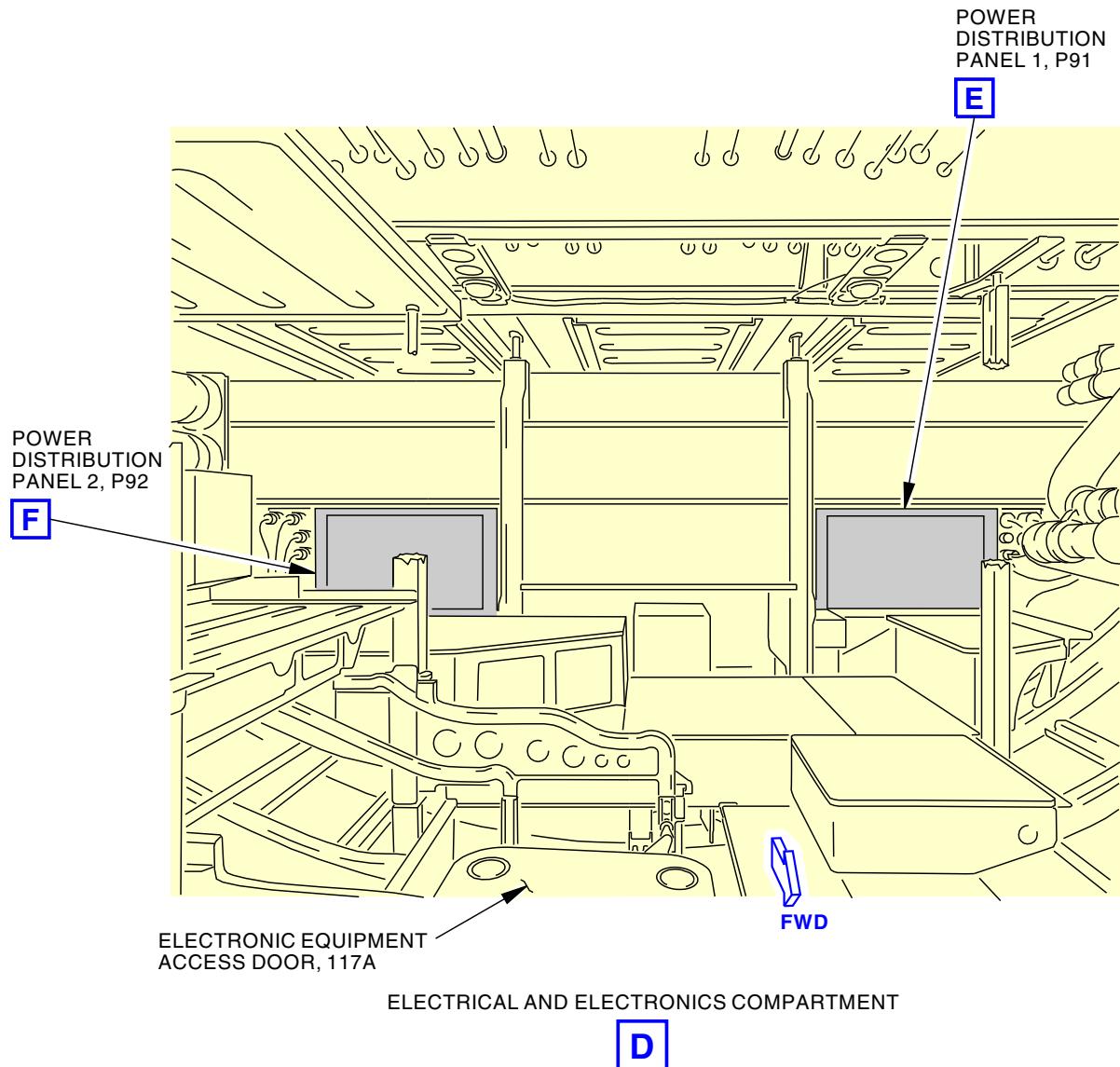
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Rigid Bus Assembly Installation
Figure 401/24-21-22-990-801 (Sheet 2 of 4)

24-21-22



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Rigid Bus Assembly Installation
Figure 401/24-21-22-990-801 (Sheet 3 of 4)

EFFECTIVITY
LOM ALL

24-21-22

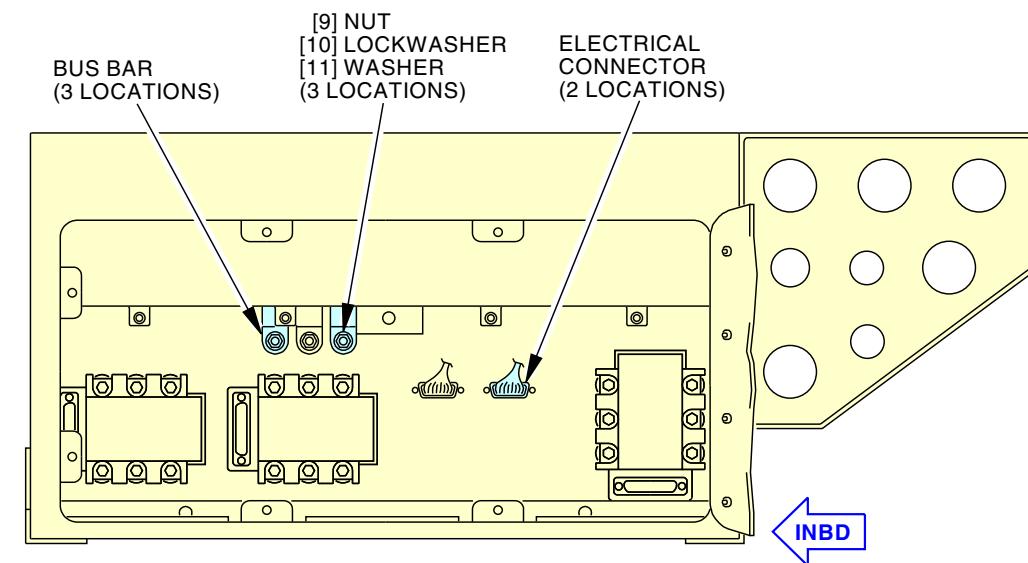
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Page 406
Oct 15/2015

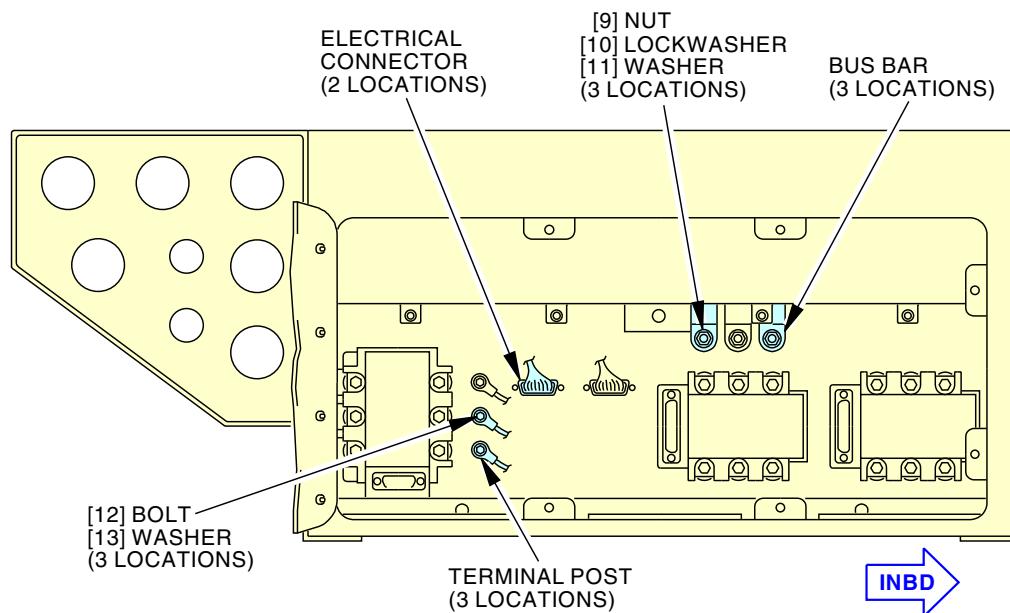
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POWER DISTRIBUTION PANEL 1, P91

E



POWER DISTRIBUTION PANEL 2, P92

F

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**Rigid Bus Assembly Installation
Figure 401/24-21-22-990-801 (Sheet 4 of 4)**

EFFECTIVITY
LOM ALL

24-21-22

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 407
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-22-400-801

3. Rigid Bus Assembly Installation

(Figure 401)

A. General

- (1) There is one rigid bus assembly located at the rear of each of the Power Distribution Panel (PDP), P91 and P92.
- (2) It is necessary to get access to the front and the rear of the PDPs to remove and install the rigid bus assembly.
- (3) You get access to the front of the PDP from the electronic equipment area.
- (4) You get access to the rear of the PDP from the forward cargo area.

B. References

Reference	Title
24-21-00-700-803	Operational Test for the AC Generation and Control System (P/B 501)
24-21-41-400-801	Breaker Installation (P/B 401)
24-41-12-400-801	External Power Contactor Installation (P/B 401)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Rigid bus assembly	24-21-21-20A-682	LOM 404
		24-21-21-20A-685	LOM 404
		24-21-21-40-120	LOM 404, 406
		24-21-21-40-125	LOM 404, 406
		24-21-21-41B-810	LOM 407
		24-21-21-41G-735	LOM 402, 406
		24-21-21-44D-480	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422
		24-21-21-44M-750	LOM 402, 404, 406
		24-21-21-47A-090	LOM 404, 407, 411, 412, 415, 416, 420, 422-425, 429, 433, 434, 437-447, 450-465
		24-21-21-47B-115	LOM 426-428, 430-432, 466-999
		24-21-21-48C-140	LOM ALL

D. 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



24-21-22



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Installation.

SUBTASK 24-21-22-860-002



REMOVE THE ELECTRICAL POWER BEFORE YOU REMOVE OR INSTALL THE RIGID BUS ASSEMBLY. HIGH VOLTAGES CAN CAUSE INJURY TO PERSONS.

- (1) Make sure that electrical power is removed from airplane.

- (a) Make sure that all of the power warning lights on the PDP are off.

G. Rigid Bus Assembly Installation

SUBTASK 24-21-22-420-001

- (1) Do these steps to install the rigid bus assembly [1]:

- (a) Hold the rigid bus assembly [1] in position.
 - (b) Install the five screws [3] and washers [2].
 - (c) Tighten the screws to 123 ± 8 in-lb (14 ± 1 N·m).

SUBTASK 24-21-22-420-002

- (2) Do these steps to install the cooling duct on the PDP:

- (a) Install the gasket [8] on the duct and put the duct in position on the PDP.
 - (b) Install the screws [6] and washers [7] that hold the cooling duct to the PDP.
 - (c) Tighten the screws [6].

SUBTASK 24-21-22-420-003

- (3) Do these steps to install the power feeders on the PDP:

- (a) Use the identification tags to install the power feeders on the correct terminal studs.
 - (b) Install the nuts [4] and washers [5] on each terminal stud.
 - (c) Tighten the nuts to 190 ± 10 in-lb (21 ± 2 N·m).

NOTE: When you install and tighten the power feeders to the rigid bus assembly, there may be some axial movement of the terminal studs (particularly TB5004 and TB5008). A small amount of movement is normal and should not affect the tightening of the nuts to the specified torque.

SUBTASK 24-21-22-420-004



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-21-22



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) To install the rigid bus assembly [1] on the PDP 1, P91, do the steps that follow:
- Install the electrical connectors on the rigid bus assembly [1] and tighten the two screws.
 - Install the nuts [9], lockwashers [10], and washers [11] that hold the bus bars to the rigid bus assembly [1].
 - Tighten the nuts to 22 ± 2 in-lb (2 ± 1 N·m).
 - Install the breakers listed below, do this task: Breaker Installation, TASK 24-21-41-400-801.
 - These are the circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
---	---	C00803	AUXILIARY POWER BREAKER
---	---	C00804	BUS TIE BREAKER 1
---	---	C00801	GENERATOR BREAKER 1

SUBTASK 24-21-22-420-005



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (5) To install the rigid bus assembly [1] on the PDP 2, P92, do the steps that follow:
- Install the electrical connectors on the rigid bus assembly [1] and tighten the two screws.
 - Install the nuts [9], lockwashers [10], and washers [11] that hold the bus bars to the rigid bus assembly [1].
 - Tighten the nuts to 22 ± 2 in-lb (2 ± 1 N·m).
 - Install the bolts [12] and washers [13] that hold wires to the terminal posts on the rigid bus assembly [1].
NOTE: Use identification tags on wires for correct installation.
 - Install the breakers listed below, do this task: Breaker Installation, TASK 24-21-41-400-801.

EFFECTIVITY
LOM ALL

24-21-22



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) These are the circuit breakers:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
---	---	C00805	BUS TIE BREAKER 2
---	---	C00802	GENERATOR BREAKER 2

- (f) Do this task: External Power Contactor Installation, TASK 24-41-12-400-801.

H. Installation Test

SUBTASK 24-21-22-710-001

- (1) Do this task: Operational Test for the AC Generation and Control System, TASK 24-21-00-700-803.

I. Put the Airplane Back to Its Usual Condition.

SUBTASK 24-21-22-410-001

- (1) Install the applicable forward bulkhead liner.

SUBTASK 24-21-22-410-002

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-22



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GENERATOR, BUS TIE AND AUXILIARY POWER BREAKERS - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) The first task removes any of the following breakers:
 - (a) GENERATOR CONTROL BREAKER 1 (GCB)
 - (b) GENERATOR CONTROL BREAKER 2 (GCB)
 - (c) AUXILIARY POWER BREAKER (APB)
 - (d) BUS TIE BREAKER 1 (BTB)
 - (e) BUS TIE BREAKER 2 (BTB)
 - (2) The second task installs any of these breakers.
- B. These power breakers are the same. This procedure is applicable to all of these power breakers.

TASK 24-21-41-000-801

2. Breaker Removal

(Figure 401)

A. General

- (1) The breakers are located as follows:
 - (a) GENERATOR CONTROL BREAKER 1, C801 - P91
 - (b) GENERATOR CONTROL BREAKER 2, C802 - P92
 - (c) AUXILIARY POWER BREAKER, C803 - P91
 - (d) BUS TIE BREAKER 1, C804 - P91
 - (e) BUS TIE BREAKER 2, C805 - P92.

B. References

Reference	Title
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. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 24-21-41-860-001



REMOVE ELECTRICAL POWER BEFORE YOU REPLACE THE CIRCUIT
BREAKERS IN THE POWER DISTRIBUTION PANELS. HIGH VOLTAGES CAN
CAUSE INJURIES TO PERSONNEL.

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.
 - (a) Make sure that all of the power warning lights, on the power distribution panel, are off.

EFFECTIVITY
LOM ALL

24-21-41



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-21-41-010-001

- (2) Open this access panel to get access to the main equipment center:

Number Name/Location

117A Electronic Equipment Access Door

F. Breaker Removal

SUBTASK 24-21-41-020-001



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) Do these steps to remove the breaker [1]:

- (a) Open the applicable panel for the breaker [1] that is to be removed.
- (b) Loosen two screws and remove the electrical connector from the breaker [1].
- (c) Remove the bolts [2] and washers [3] that hold the breaker [1].
- (d) Remove the breaker [1].

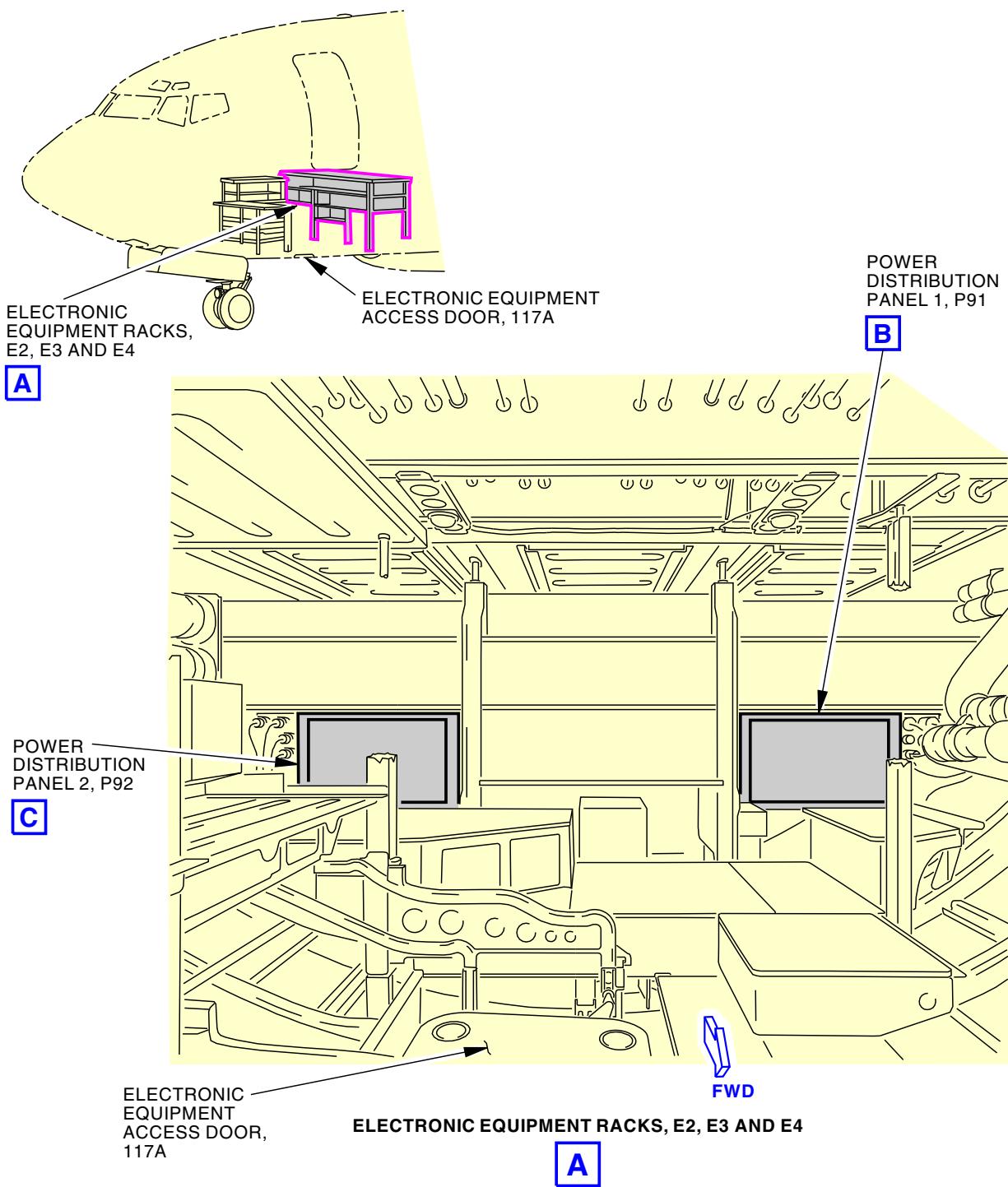
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LOM ALL

24-21-41



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Main Power Breaker Installation
Figure 401/24-21-41-990-801 (Sheet 1 of 3)

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24-21-41

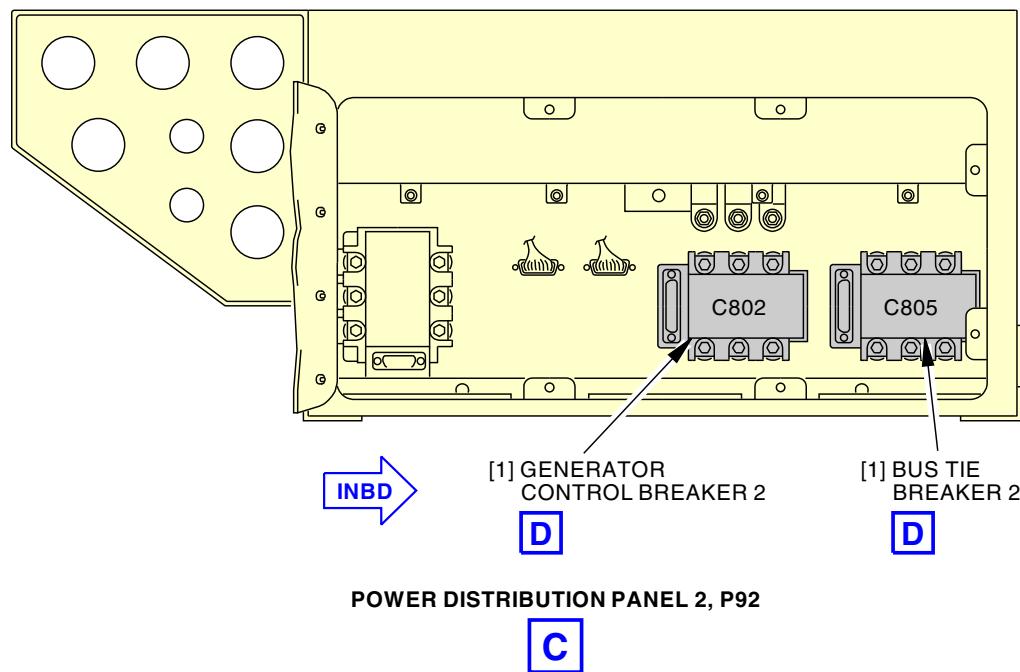
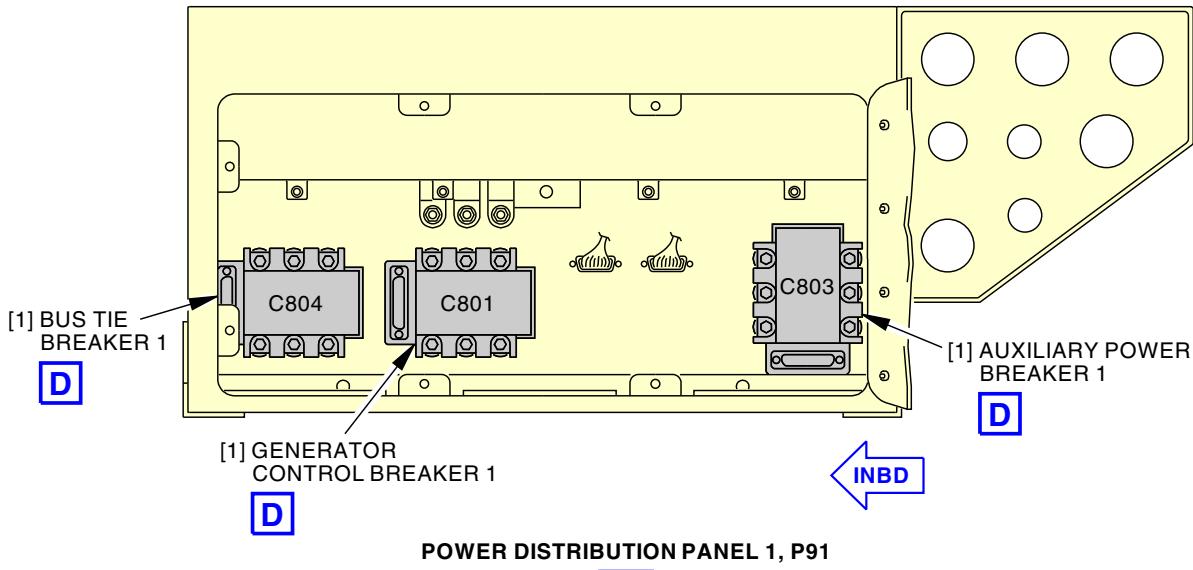
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Page 403
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Main Power Breaker Installation
Figure 401/24-21-41-990-801 (Sheet 2 of 3)

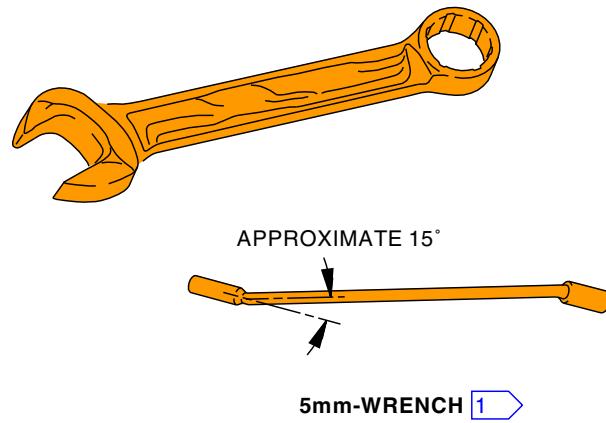
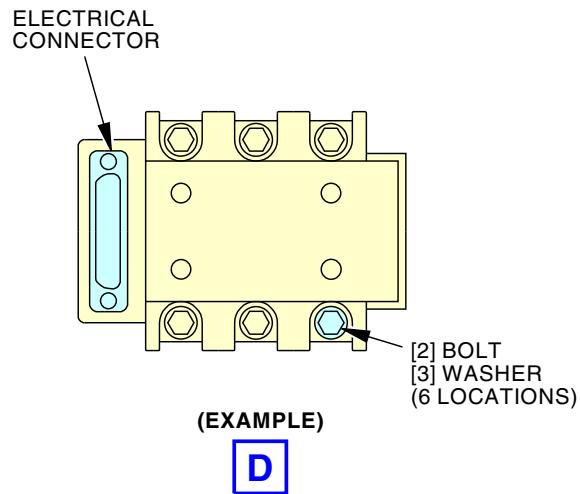
EFFECTIVITY
LOM ALL

24-21-41

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

BOEING
737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



- 1** USE 5mm-WRENCH TO HOLD THE SPACER NUTS IN PLACE WHILE LOOSENING THE SCREWS ON THE ELECTRICAL CONNECTOR. FAILURE TO USE WRENCH COULD RESULT IN DAMAGE TO HARDWARE.

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Main Power Breaker Installation
Figure 401/24-21-41-990-801 (Sheet 3 of 3)

EFFECTIVITY
LOM ALL

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-21-41

Page 405
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-41-400-801

3. Breaker Installation

(Figure 401)

A. General

- (1) The breakers are located as follows:
 - (a) GENERATOR CONTROL BREAKER 1, C801 - P91
 - (b) GENERATOR CONTROL BREAKER 2, C802 - P92
 - (c) AUXILIARY POWER BREAKER, C803 - P91
 - (d) BUS TIE BREAKER 1, C804 - P91
 - (e) BUS TIE BREAKER 2, C805 - P92.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
24-22-00-860-816	Remove APU Generator Power (P/B 201)
49-11-00-860-801	APU Starting and Operation (P/B 201)
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Breaker	24-21-21-20A-740	LOM 404
		24-21-21-40-315	LOM 404, 406
		24-21-21-41B-915	LOM 407
		24-21-21-41C-563	LOM 404, 407, 411, 412, 415, 416, 420, 422
		24-21-21-41G-776	LOM 402, 406
		24-21-21-41G-840	LOM 402, 406
		24-21-21-44D-549	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422
		24-21-21-44M-865	LOM 402, 404, 406
		24-21-21-47A-195	LOM 404, 407, 411, 412, 415, 416, 420, 422-425, 429, 433, 434, 437-447, 450-465
		24-21-21-47B-220	LOM 426-428, 430-432, 466-999
		24-21-21-48C-250	LOM ALL
		24-21-21-48C-255	LOM ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left



24-21-41



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AIRCRAFT MAINTENANCE MANUAL

(Continued)

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 24-21-41-860-002



WARNING

REMOVE ELECTRICAL POWER BEFORE YOU REPLACE THE CIRCUIT BREAKERS IN THE POWER DISTRIBUTION PANELS. HIGH VOLTAGES CAN CAUSE INJURIES TO PERSONNEL.

- (1) Make sure that the electrical power is removed from airplane.

- (a) Make sure that all of the power warning lights, on the power distribution panel, are off.

G. Breaker Installation

SUBTASK 24-21-41-420-001



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) Do these steps to install the breaker [1]:

- (a) Hold the breaker [1] in place and install the bolts [2] and washers [3].
(b) Tighten the bolts [2] to 48 ± 4 in-lb (5 ± 1 N·m).
(c) Install the electrical connector on the breaker [1] and tighten the two screws on the electrical connector.
(d) Close the access door on the panel.

H. Breaker Installation Test

SUBTASK 24-21-41-700-001

- (1) If one of the Generator Control Breakers was replaced, do these steps:

- (a) Start the applicable engine, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.
(b) Make sure that the blue GEN OFF BUS light, on the P5-4 panel, is on.
(c) Set the GEN control switch, on the P5-4 panel, to the ON position.
(d) Make sure that the blue GEN OFF BUS light, on the P5-4 panel, goes off.

EFFECTIVITY
LOM ALL

24-21-41



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Stop the engine, do this task: Stop the Engine Procedure (Usual Engine Stop),
TASK 71-00-00-700-819-F00.

SUBTASK 24-21-41-700-002

- (2) If one of the Bus Tie Breakers was replaced, do these steps:
- (a) Do this task: Supply External Power, TASK 24-22-00-860-813.
 - (b) Make sure that the BAT switch, on the P5-13 panel, is in the ON position.
 - (c) Set the BUS TRANS switch, on the P5-4 panel, to the AUTO position.
 - (d) Make sure that the both amber TRANSFER BUS OFF lights, on the P5-4 panel, are on.
 - (e) Connect external power to the P19 panel.
 - (f) Make sure that the blue GRD POWER AVAILABLE light, on the P5-4 panel, is on.
 - (g) Set the GRD PWR switch, on the P5-4 panel, to the ON position.
 - (h) Make sure that the both amber TRANSFER BUS OFF lights, on the P5-4 panel, go off.
 - (i) Do this task: Remove External Power, TASK 24-22-00-860-814.

SUBTASK 24-21-41-700-003

- (3) If the Auxiliary Power Breaker was replaced, do these steps:
- (a) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
 - (b) Make sure that the blue APU GEN OFF BUS light, on the P5-4 panel, comes on (approximately 50 seconds) after Auxiliary Power Unit (APU) start.
 - (c) Set either of the APU GEN switches, on the P5-4 panel, to the ON position.
 - (d) Make sure the blue APU GEN OFF BUS light, on the P5-4 panel, goes off.
 - (e) Do this task: Remove APU Generator Power, TASK 24-22-00-860-816.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-21-41-410-001

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 24-21-41-860-003

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-41



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AIRCRAFT MAINTENANCE MANUAL

AC SYSTEM GENERATOR AND APU MODULE (P5-4) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of the AC System Generator and APU Module
 - (2) Installation of the AC System Generator and APU Module

TASK 24-21-51-000-801

2. AC System Generator and APU Module Removal

(Figure 401)

A. General

- (1) The AC System Generator and APU Module, P5-4, is located on the P5 Overhead Panel in the flight compartment.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Prepare for the Removal

SUBTASK 24-21-51-860-002

- (1) Make sure the APU master switch on the P5 forward overhead panel is OFF and install a DO-NOT-OPERATE tag.

SUBTASK 24-21-51-860-003

- (2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	19	C01344	APU FIRE SW POWER

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
A	14	C00033	AUX POWER UNIT CONT

SUBTASK 24-21-51-860-001

- (3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

E. Procedure

SUBTASK 24-21-51-020-001

- (1) Do these steps to remove the module [1]:

- (a) Unlatch the P5 overhead panel and let the panel hinge down to the open position.
- (b) Disconnect the electrical connectors from the module [1].
- (c) Put protective covers on the electrical connectors.
- (d) Loosen the quarter turn fasteners on the module [1].

NOTE: Hold the module when you loosen the quarter turn fasteners so that the module does not fall.

EFFECTIVITY
LOM ALL

24-21-51



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Carefully pull the module [1] out from the P5 overhead panel.

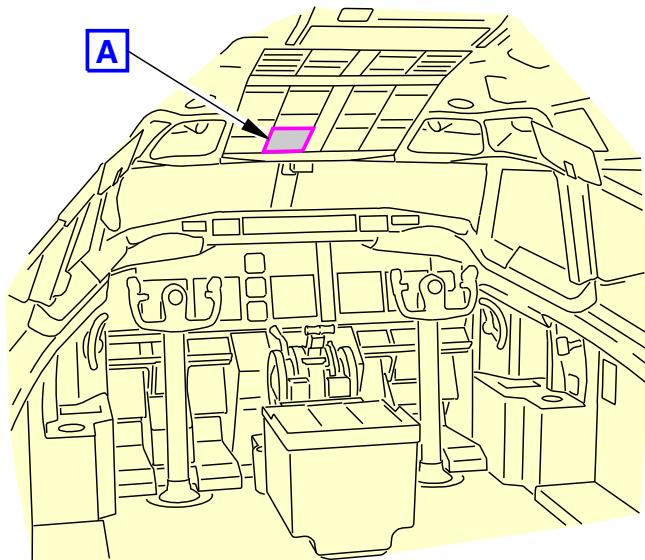
———— END OF TASK ————

— EFFECTIVITY —
LOM ALL

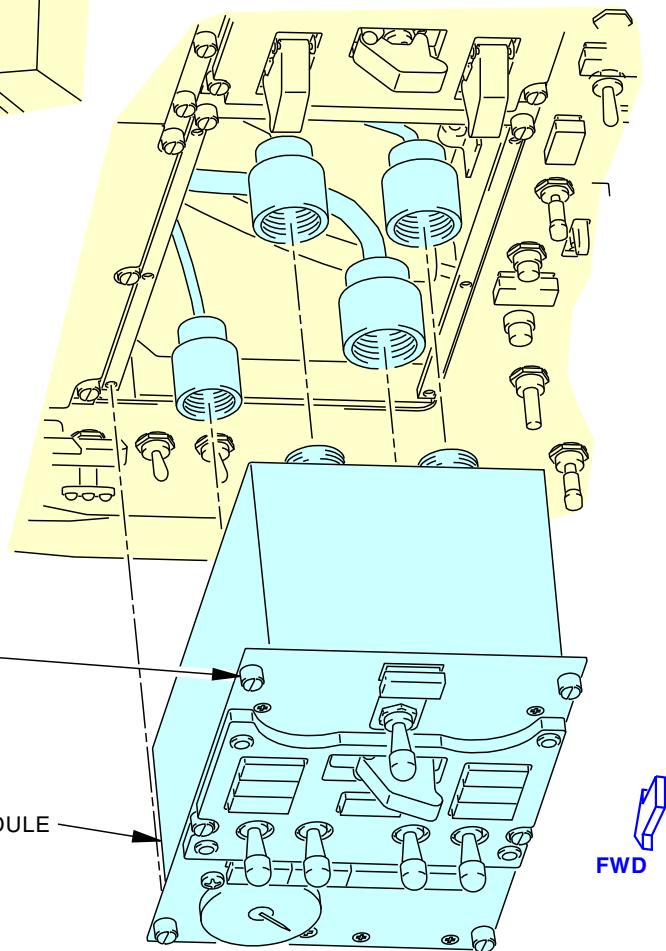
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Page 402
Oct 15/2023

D633A101-LOM



FLIGHT COMPARTMENT



A

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AC System Generator and APU Module Installation
Figure 401/24-21-51-990-801EFFECTIVITY
LOM ALL**24-21-51**

D633A101-LOM

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737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-51-400-801

3. AC System Generator and APU Module Installation

(Figure 401)

A. General

- (1) The AC System Generator and APU Module, P5-4, is located on the P5 Overhead Panel in the flight compartment.

B. References

Reference	Title
24-21-00-700-803	Operational Test for the AC Generation and Control System (P/B 501)
24-22-00-860-812	Remove Electrical Power (P/B 201)
30-42-00-700-801	Windshield Wiper System - Operational Test (P/B 501)
49-11-00-860-801	APU Starting and Operation (P/B 201)
49-11-00-860-802	APU Usual Shutdown (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module	24-21-51-02-005	LOM ALL
		24-41-51-01-050	LOM ALL

D. Location Zones

Zone	Area
211	Flight Compartment - Left

E. Procedure

SUBTASK 24-21-51-420-001

- (1) Do these steps to install the module [1]:
- Put the module [1] carefully into position in the P5 overhead panel.
 - Tighten the quarter turn fasteners on the module [1].
 - Remove the protective covers from the electrical connectors.
 - Examine the electrical connectors for bent or broken pins, dirt and damage.
 - Clean or repair the electrical connectors if it is necessary.
 - Connect the electrical connectors to the module [1].
 - Push the P5 overhead panel up to the closed position and latch it.

F. Installation Test of the AC System Generator and APU Module

SUBTASK 24-21-51-710-001

- (1) Do this task: Operational Test for the AC Generation and Control System, TASK 24-21-00-700-803.

SUBTASK 24-21-51-700-001

- (2) If the module [1] has a L-Wiper switch attached, do this task: Windshield Wiper System - Operational Test, TASK 30-42-00-700-801.

SUBTASK 24-21-51-700-002

- (3) Do the installation test for the Exhaust Gas Temperature (EGT) indicator:

EFFECTIVITY
LOM ALL

24-21-51



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AIRCRAFT MAINTENANCE MANUAL

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	19	C01344	APU FIRE SW POWER

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	14	C00033	AUX POWER UNIT CONT

- (b) Remove the DO-NOT-OPERATE tag from the APU master switch on the P5 forward overhead panel.
- (c) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
1) Look at the EGT indicator on the P5 forward overhead panel.
2) Make sure that the EGT indicator shows a minimum of 482°F (250°C).
- (d) If it is not necessary to do other tasks, do this task: APU Usual Shutdown, TASK 49-11-00-860-802.

G. Put the Airplane Back to its Usual Condition

SUBTASK 24-21-51-710-002

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————



24-21-51



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

GENERATOR DRIVE AND STANDBY POWER MODULE (P5-5) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) Removal of the Generator Drive and Standby Power Module
 - (2) Installation of the Generator Drive and Standby Power Module

TASK 24-21-52-000-801

2. Generator Drive and Standby Power Module Removal

(Figure 401)

A. General

- (1) The Generator Drive and Standby Power Module, P5-5, is located on the P5 Overhead Panel in the flight compartment.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Prepare for the Removal

SUBTASK 24-21-52-860-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

E. Procedure

SUBTASK 24-21-52-020-002

- (1) Do these steps to remove the module [1]:

- (a) Unlatch the P5 overhead panel and let the panel hinge down to the open position.
- (b) Disconnect the electrical connectors from the module [1].
- (c) Put protective covers on the electrical connectors.
- (d) Loosen the quarter turn fasteners on the module [1].

NOTE: Hold the module when you loosen the quarter turn fasteners so that the module does not fall.

- (e) Carefully pull the module [1] out from the P5 overhead panel.

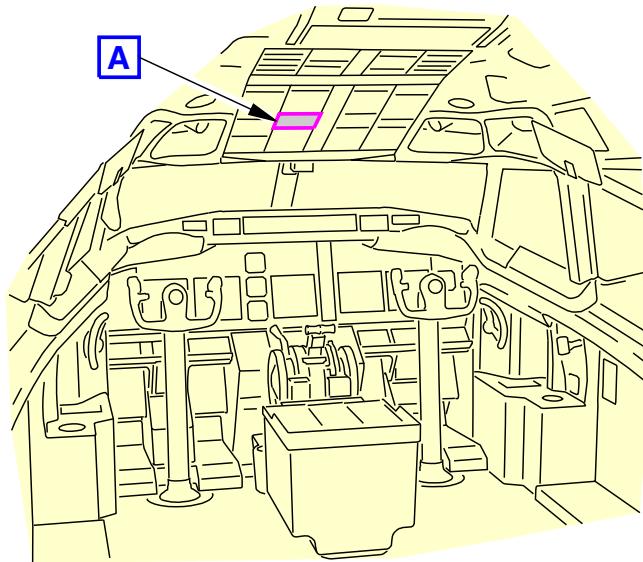
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EFFECTIVITY
LOM ALL

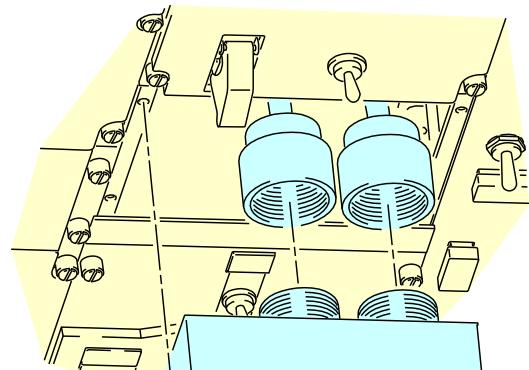
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737-600/700/800/900
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FLIGHT COMPARTMENT



QUARTER-TURN
FASTENER
(4 LOCATIONS)

[1] MODULE

FWD

A

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Generator Drive and Standby Power Module Installation
Figure 401/24-21-52-990-801

EFFECTIVITY
LOM ALL

24-21-52

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-52-400-801

3. Generator Drive and Standby Power Module Installation

(Figure 401)

A. General

- (1) The Generator Drive and Standby Power Module, P5-5, is located on the P5 Overhead Panel in the flight compartment.

B. References

Reference	Title
24-11-00-700-802	Number 1 IDG - Operational Test (P/B 501)
24-11-00-700-803	Number 2 IDG - Operational Test (P/B 501)
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-34-00-710-801	The Operational Test of the Standby Power System (P/B 501)
24-34-00-710-802	The Operational Test of the Standby Power System (P/B 501)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module	24-21-52-03-010	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426
		24-21-52-04-010	LOM 427-434, 437-447, 450-999

D. Location Zones

Zone	Area
211	Flight Compartment - Left

E. Procedure

SUBTASK 24-21-52-420-002

- (1) Do these steps to install the module [1]:
- Put the module [1] carefully into position in the P5 overhead panel.
 - Tighten the quarter turn fasteners on the module [1].
 - Remove the protective covers from the electrical connectors.
 - Examine the electrical connectors for bent or broken pins, dirt and damage.
 - Clean or repair the electrical connectors if it is necessary.
 - Connect the electrical connectors to the module [1].
 - Push the P5 overhead panel up to the closed position and latch it.

F. Installation Test of the Generator Drive and Standby Power Module

SUBTASK 24-21-52-710-001

- (1) Do these tasks: Number 1 IDG - Operational Test, TASK 24-11-00-700-802 and Number 2 IDG - Operational Test, TASK 24-11-00-700-803.

SUBTASK 24-21-52-710-004

- (2) Do this task: The Operational Test of the Standby Power System, TASK 24-34-00-710-801 or The Operational Test of the Standby Power System, TASK 24-34-00-710-802.

EFFECTIVITY
LOM ALL

24-21-52

Page 403
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

G. Put the Airplane Back to its Usual Condition

SUBTASK 24-21-52-710-002

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-52



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

ELECTRICAL METERS, BATTERY AND GALLEY POWER MODULE (P5-13) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of the Electrical Meters, Battery and Galley Power Module
 - (2) Installation of the Electrical Meters, Battery and Galley Power Module

TASK 24-21-53-000-801

2. Electrical Meters, Battery and Galley Power Module Removal

(Figure 401)

A. General

- (1) The Electrical Meters, Battery and Galley Power Module, P5-13, is located on the P5 Overhead Panel in the flight compartment.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Prepare for the Removal

SUBTASK 24-21-53-860-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-21-53-860-002

- (2) Make sure the BAT switch on the P5-13 panel is in the OFF position.

E. Procedure

SUBTASK 24-21-53-020-002

- (1) Do these steps to remove the module [1]:

- (a) Unlatch the P5 overhead panel and let the panel hinge down to the open position.
- (b) Disconnect the electrical connectors from the module [1].
- (c) Put protective covers on the electrical connectors.
- (d) Loosen the quarter turn fasteners on the module [1].

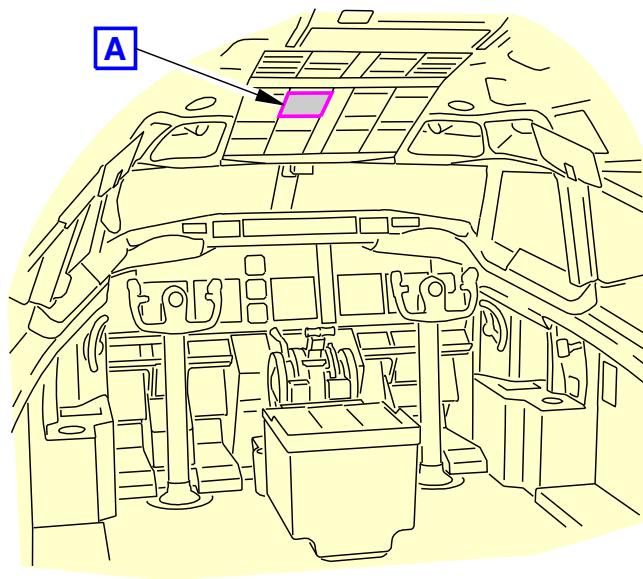
NOTE: Hold the module when you loosen the quarter turn fasteners so that the module does not fall.

- (e) Carefully pull the module [1] out from the P5 overhead panel.

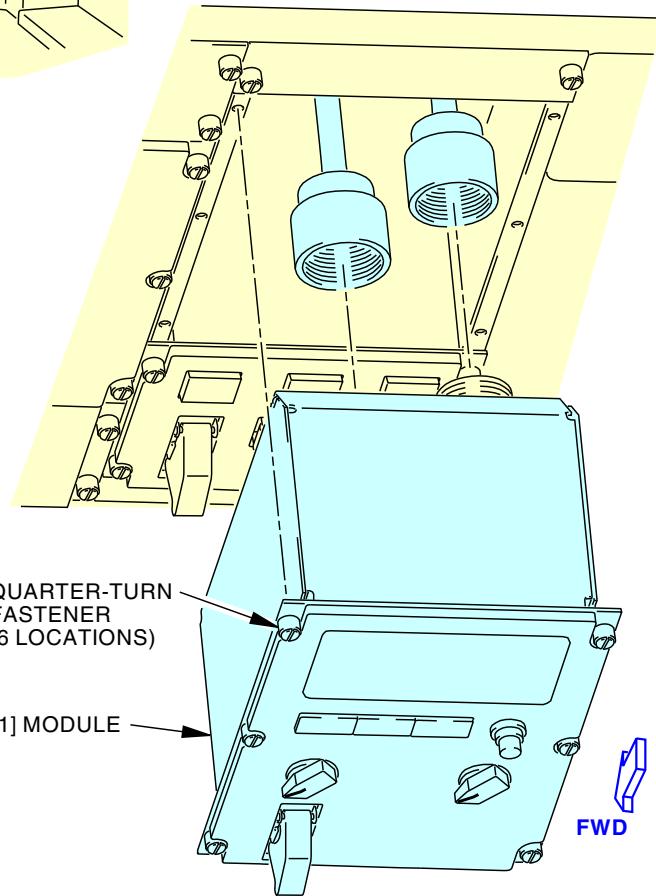
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EFFECTIVITY
LOM ALL

24-21-53



FLIGHT COMPARTMENT



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Electrical Meters, Battery and Galley Power Module Installation
Figure 401/24-21-53-990-801EFFECTIVITY
LOM ALL**24-21-53**

D633A101-LOM

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Page 402
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-53-400-801

3. Electrical Meters, Battery and Galley Power Module Installation

(Figure 401)

A. General

- (1) The Electrical Meters, Battery and Galley Power Module, P5-13, is located on the P5 Overhead Panel in the flight compartment.

B. References

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

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module	24-21-53-02-006	LOM ALL

D. Location Zones

Zone	Area
211	Flight Compartment - Left

E. Procedure

SUBTASK 24-21-53-860-005

- (1) Make sure that the BAT switch, on the P5-13 panel, is in the OFF position.

SUBTASK 24-21-53-420-002

- (2) Do these steps to install the module [1]:
- Put the module [1] carefully into position in the P5 overhead panel.
 - Tighten the quarter turn fasteners on the module [1].
 - Remove the protective covers from the electrical connectors.
 - Examine the electrical connectors for bent or broken pins, dirt and damage.
 - Clean or repair the electrical connectors if it is necessary.
 - Connect the electrical connectors to the module [1].
 - Push the P5 overhead panel up to the closed position and latch it.

F. Installation Test of the Electrical Meters, Battery and Galley Power Module

SUBTASK 24-21-53-710-001

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

- (a) If the ELEC light on the P5-13 panel is on do the steps that follow:

NOTE: The P5-13 panel may have fault messages latched in from the previous shop test. Do these steps to clear any fault messages.

- Set the AC meter selector switch and the DC meter selector switch on the P5-13 panel to the TEST position.

- Push and release the MAINT switch on the P5-13 panel to start the display test.

NOTE: The display test will exercise all of the segments of the alphanumeric display to allow the operator to verify the functionality of the display. The display test is automatically terminated after a complete test cycle.

- After completion of the display test the fault messages, (if there are any), will be displayed on the meter. The fault messages will be displayed one at a time. Press the MAINT switch again to step to the next message.

EFFECTIVITY
LOM ALL

24-21-53



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 4) After the last message has been displayed, the following message will be displayed:
 - a) HOLD BUTTON CLEAR FAULTS
- 5) To clear the fault messages, push and hold the MAINT switch for 6 ± 0.2 seconds. The following message will be displayed if the faults have been successfully cleared:
 - a) FAULTS CLEARED
- (b) Make sure the ELEC light on the P5-13 panel is off.
- (c) Set the AC meter selector switch on the P5-13 panel to the GRD PWR position.
- (d) Make sure the AC meter on the P5-13 panel shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 390-410
- (e) Set the DC Meter Selector Switch on the P5-13 panel to the TR 1 position.
- (f) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 22-30

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-53



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CURRENT TRANSFORMER - REMOVAL/INSTALLATION

1. General

A. This procedure has two tasks:

- (1) The first task removes any of the following current transformers:
 - (a) GEN 1 DIFFERENTIAL PROTECTION CURRENT TRANSFORMER (DPCT), T374
 - (b) GEN 2 DIFFERENTIAL PROTECTION CURRENT TRANSFORMER (DPCT), T375
 - (c) APU DIFFERENTIAL PROTECTION CURRENT TRANSFORMER (DPCT), T376
 - (d) EXT PWR CURRENT TRANSFORMER (CT), T378
- (2) The second task installs any of these current transformers.

TASK 24-21-71-000-801

2. Current Transformer Removal

(Figure 401)

A. General

- (1) These current transformers are located in the Rigid Bus Assemblies which are installed in the back of the P91 and P92 Power Distribution Panels.

NOTE: If the troubleshooting points to a defective current transformer, the airline must remove and send back the rigid bus assembly to Honeywell. Write or speak to Honeywell for more data.

- (2) You get access to the current transformers from the forward cargo area.
- (3) The current transformers are located as follows:
 - (a) GEN 1 DPCT, T374 - P91 Panel
 - (b) GEN 2 DPCT, T375 - P92 Panel
 - (c) APU DPCT, T376 - P91 Panel
 - (d) EXT PWR CT, T378 - P92 Panel

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

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

D. Prepare for Removal

SUBTASK 24-21-71-860-001



REMOVE ELECTRICAL POWER BEFORE REMOVAL OR INSTALLATION OF THE CURRENT TRANSFORMERS IN THE POWER DISTRIBUTION PANELS. HIGH VOLTAGES PRESENT CAN CAUSE INJURY TO PERSONS.

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.
 - (a) Make sure that all of the power warning lights on the power distribution panel are off.

EFFECTIVITY
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24-21-71



737-600/700/800/900
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SUBTASK 24-21-71-010-001

- (2) Remove the applicable forward bulkhead liner in the forward cargo area to get access to the back of the power distribution panel.

SUBTASK 24-21-71-010-002

- (3) Do the following steps to remove the power feeders from the power distribution panel:
 - (a) Install identification tags on the power feeders before removing them.
 - (b) Remove the nuts [2] and washers [1] from each terminal stud.
 - (c) Remove power feeders from terminal studs.

E. Procedure

SUBTASK 24-21-71-020-002

- (1) AIRPLANES WITH NEW RIGID BUS ASSEMBLIES (POST- SB 24-1128) (POST - PRR 38317); do the steps that follow to remove the current transformer [10]:
 - (a) Remove the three screws [4] and washers [5] that hold the cover [3] on the rigid bus assembly.
 - (b) Remove the aft two bolts and washers that hold the cooling duct assembly to the bottom of the cover [3].

NOTE: You can loosen the fwd two bolts to make removal of the cover [3] easier.
 - (c) Remove the four screws [13] that hold the cover [3] and the retainer [14] together.
 - (d) Remove the cover [3].

NOTE: Be careful when removing the cover. There are bushings [6] installed between the terminal studs and the cover that could fall out when the cover is removed.
 - (e) Install identification tags on the three wires connected to the terminal studs [7].
 - (f) Remove the three screws [12] and washers [11] that hold the terminal studs [7] and the wires to the rigid bus assembly.
 - (g) Remove the terminal studs [7] and the retainer [14] from the current transformer in one piece.

NOTE: Leave retainer [14] attached to the terminal studs [7]. If these items show any damage, then they should be replaced.
 - (h) Loosen the two screws that hold the electrical connector to the current transformer.
 - (i) Remove the electrical connector.
 - (j) Remove the screw [8] and washer [9] that hold the current transformer to the rigid bus assembly.
 - (k) Remove the current transformer [10].

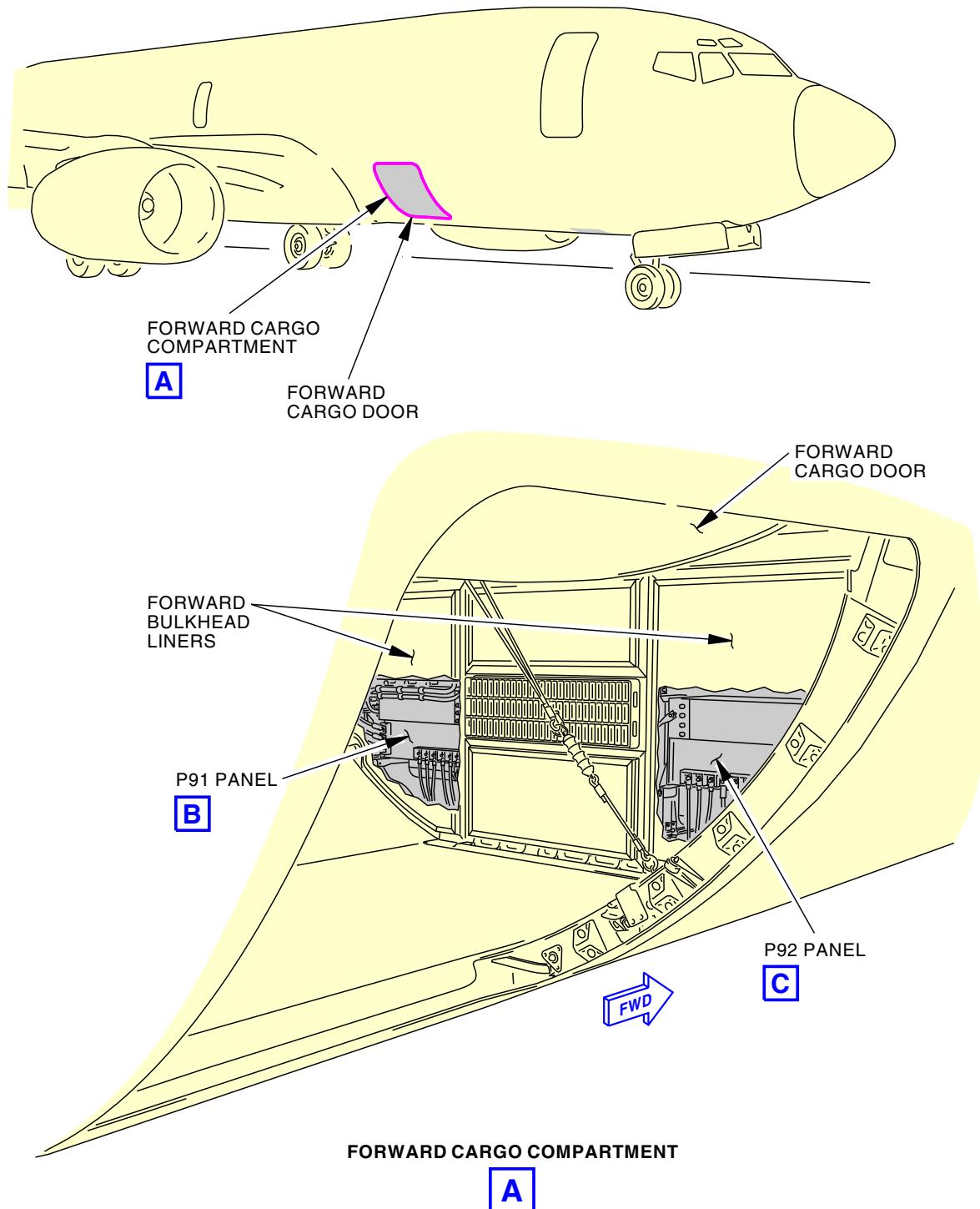
———— END OF TASK ———

EFFECTIVITY
LOM ALL

24-21-71

BOEING

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**Current Transformer Installation
Figure 401/24-21-71-990-801 (Sheet 1 of 4)**

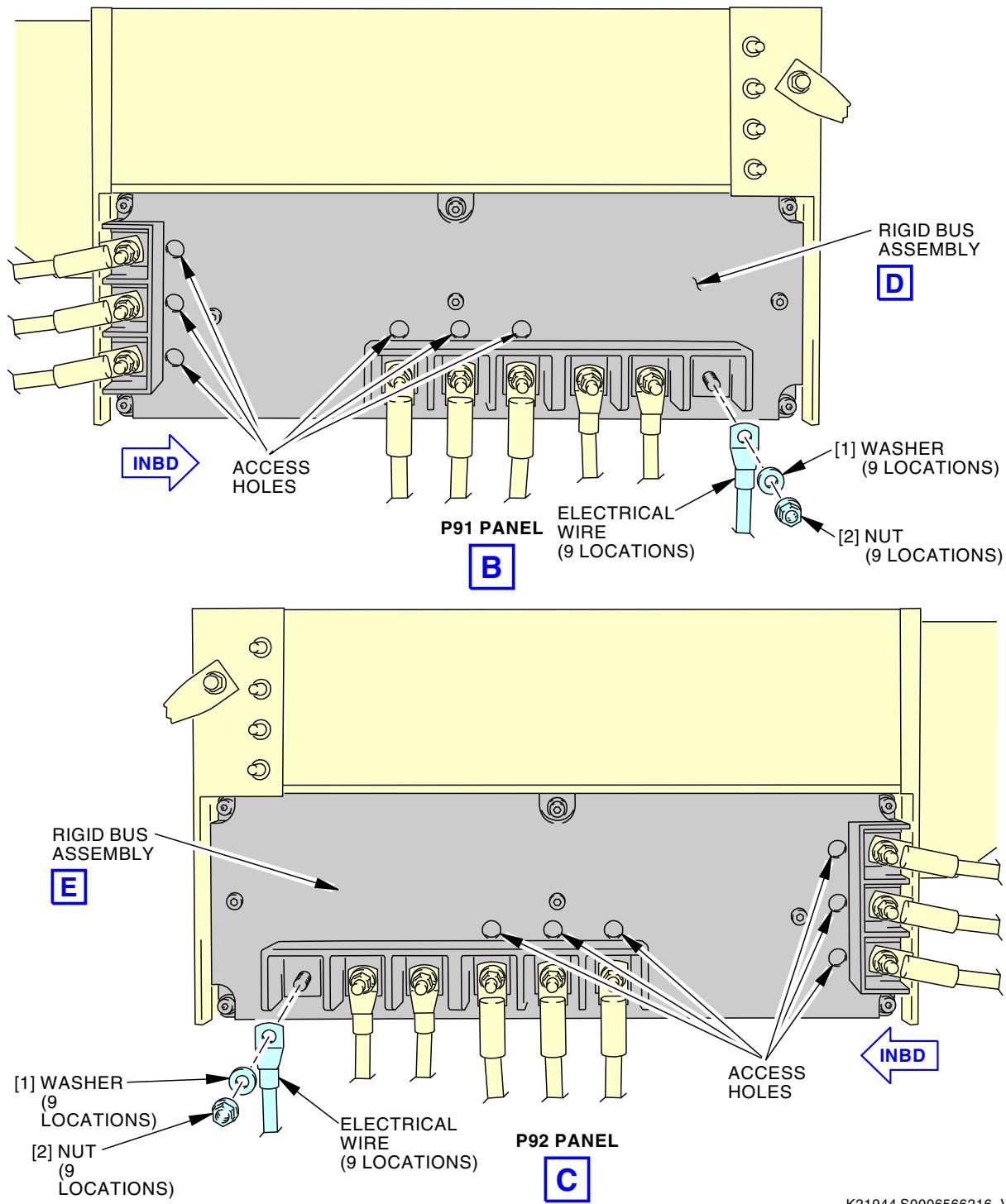
EFFECTIVITY
LOM ALL

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Page 403
Oct 15/2015



K21944 S0006566216_V3

Current Transformer Installation
Figure 401/24-21-71-990-801 (Sheet 2 of 4)

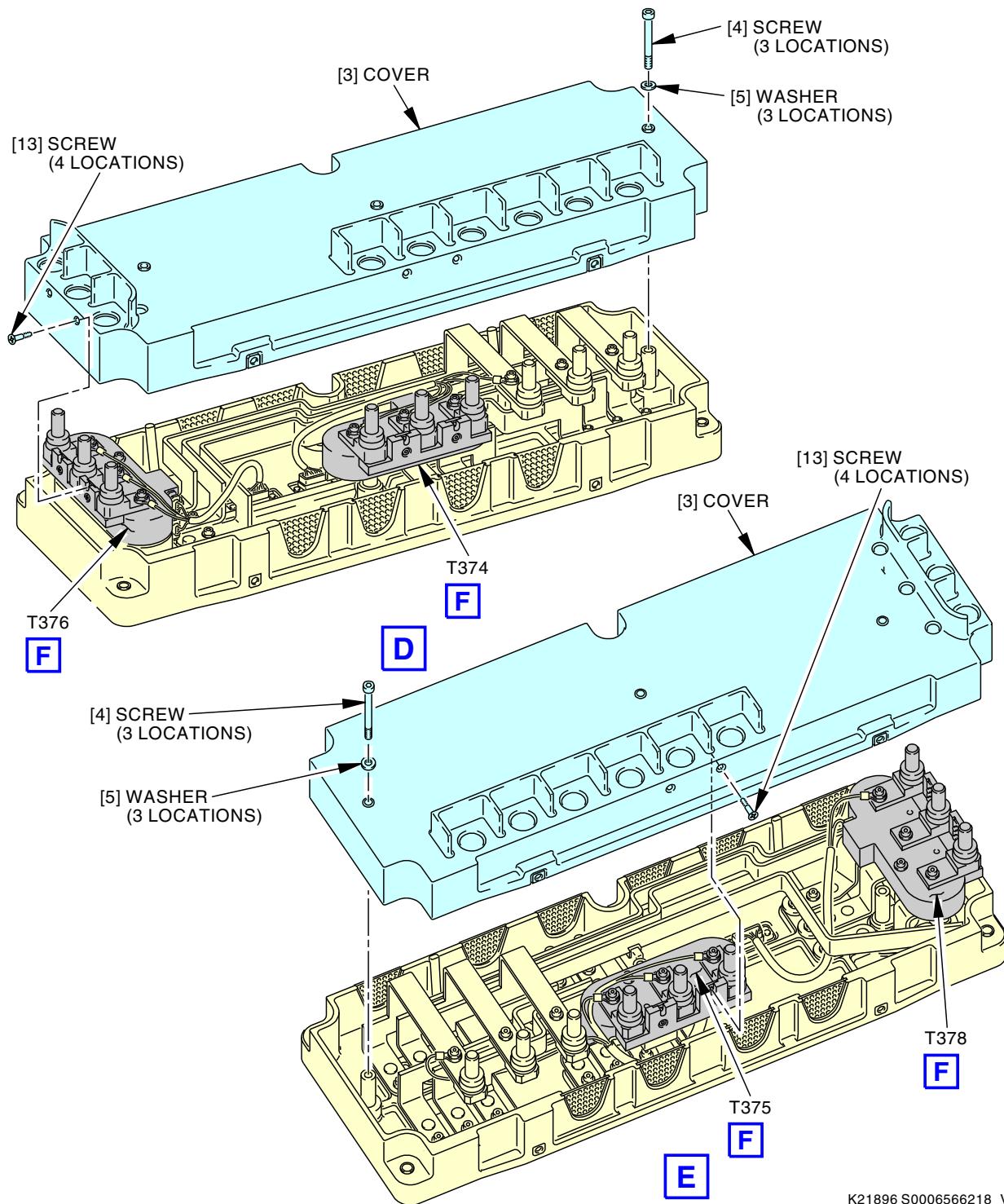
EFFECTIVITY
LOM ALL**24-21-71**

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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



Current Transformer Installation
Figure 401/24-21-71-990-801 (Sheet 3 of 4)

EFFECTIVITY
LOM ALL

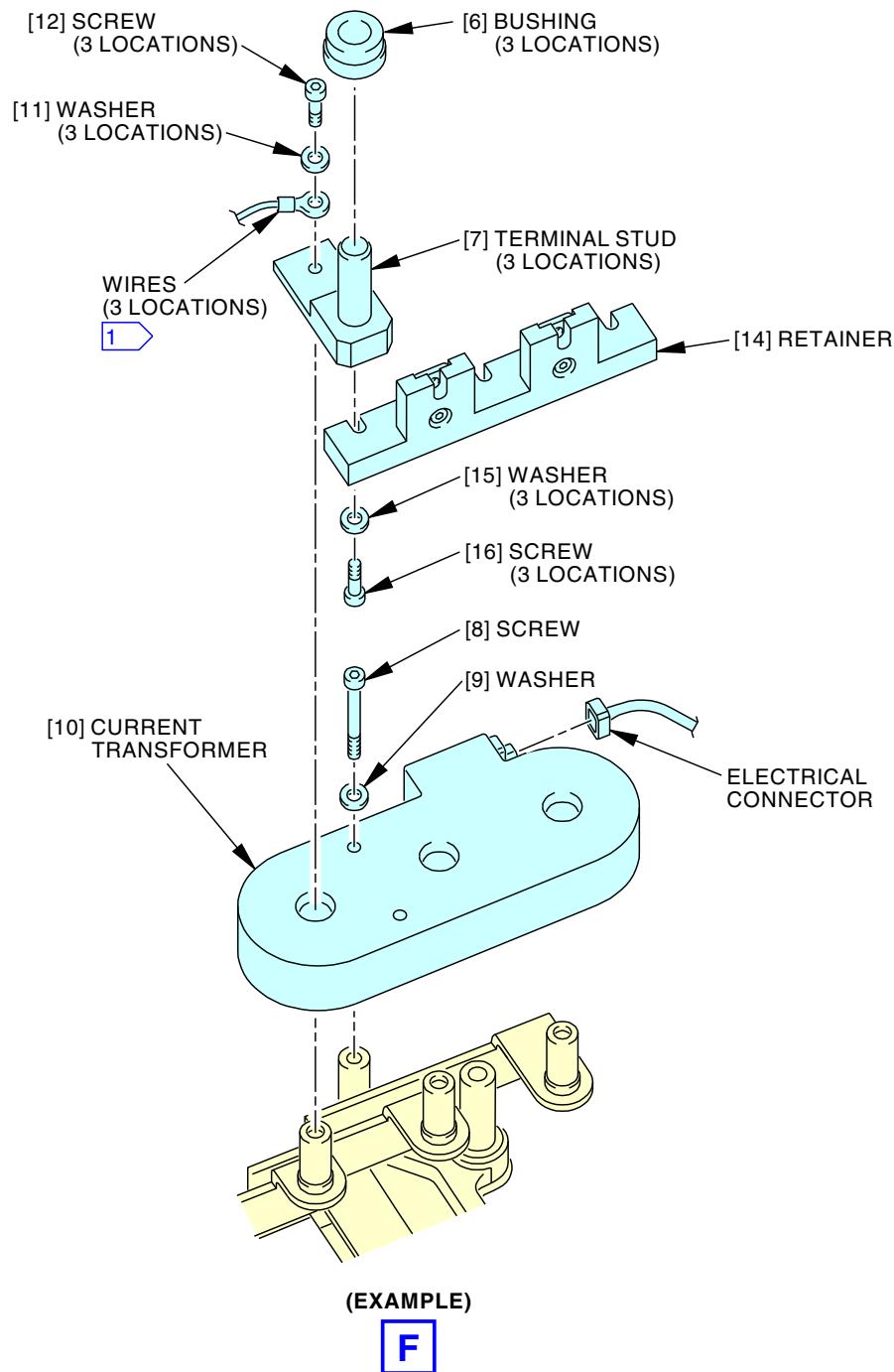
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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
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1 EXTERNAL POWER CURRENT TRANSFORMER, T378 HAS ONE WIRE

K21897 S0006566220_V2

Current Transformer Installation
Figure 401/24-21-71-990-801 (Sheet 4 of 4)

EFFECTIVITY
LOM ALL

24-21-71



737-600/700/800/900
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TASK 24-21-71-400-801

3. Current Transformer Installation

(Figure 401)

A. General

- (1) These current transformers are located in the Rigid Bus Assemblies which are installed in the back of the P91 and P92 Power Distribution Panels.
- (2) You get access to the current transformers from the forward cargo area.
- (3) The current transformers are located as follows:
 - (a) GEN 1 DPCT, T374 - P91 Panel
 - (b) GEN 2 DPCT, T375 - P92 Panel
 - (c) APU DPCT, T376 - P91 Panel
 - (d) EXT PWR CT, T378 - P92 Panel

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
24-22-00-860-816	Remove APU Generator Power (P/B 201)
49-11-00-860-801	APU Starting and Operation (P/B 201)
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	Transformer	24-21-21-20A-712	LOM 404
		24-21-21-40-210	LOM 404, 406
		24-21-21-41B-855	LOM 407
		24-21-21-41C-527	LOM 404, 407, 411, 412, 415, 416, 420, 422
		24-21-21-41G-780	LOM 402, 406
		24-21-21-44D-507	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422
		24-21-21-44M-795	LOM 402, 404, 406
		24-21-21-47A-135	LOM 404, 407, 411, 412, 415, 416, 420, 422-425, 429, 433, 434, 437-447, 450-465
		24-21-21-47B-160	LOM 426-428, 430-432, 466-999
		24-21-21-48C-185	LOM ALL

D. Location Zones

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



24-21-71



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(Continued)

Zone Area

- | | |
|-----|----------------------------|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

E. Prepare for Installation

SUBTASK 24-21-71-860-002



WARNING

REMOVE ELECTRICAL POWER BEFORE REMOVAL OR INSTALLATION OF THE CURRENT TRANSFORMERS IN THE POWER DISTRIBUTION PANELS. HIGH VOLTAGES PRESENT CAN CAUSE INJURY TO PERSONS.

- (1) Make sure that electrical power is removed from airplane.

- (a) Make sure that all of the power warning lights on the power distribution panel are off.

F. Procedure

SUBTASK 24-21-71-420-003

- (1) AIRPLANES WITH NEW RIGID BUS ASSEMBLIES (POST- SB 24-1128) (POST - PRR 38317); do the steps that follow to install the current transformer [10]:
 - (a) Hold the current transformer [10] in position.
 - (b) Install the screw [8] and washer [9] that hold the current transformer to the rigid bus assembly.
 - (c) Tighten the screw [8] to 19 ± 1 in-lb (2 ± 0 N·m).
 - (d) Install the electrical connector on the current transformer and tighten the two screws.
 - (e) Put the three terminal studs [7] and retainer [14] in position. Install the wires, screws [12] and washers [11].

NOTE: Loosely install the screws [12], they will be tightened after the cover [3] is installed.

NOTE: The torque for the three screws [16] that hold the retainer [14] to the terminal studs [7] is 1.5 ± 0.5 in-lb (0.2 ± 0.1 N·m).
 - (f) Install the cover [3] on the rigid bus assembly so that all of the terminal studs [7] fit through the holes in the cover [3].

NOTE: Make sure that the bushings [6] are installed between each terminal stud [7] and the cover [3].
 - (g) Install the three screws [4] and washers [5] that hold the cover [3].
 - (h) Tighten the screws [4] to 48 ± 2 in-lb (5 ± 1 N·m).
 - (i) Tighten the three screws [12] to 22 ± 1 in-lb (2 ± 1 N·m).

NOTE: Use the access holes in the cover [3] located just above the terminal studs, to tighten these screws.
 - (j) Install the four screws [13] that hold the cover [3] and the retainer [14] together.
 - (k) Tighten the screws [13] to 11 ± 1 in-lb (1 ± 0 N·m).
 - (l) Install the aft two screws and washers that hold the cooling duct assembly to the bottom of the cover [3]. Tighten all four screws that hold the duct to the rigid bus assembly.

SUBTASK 24-21-71-420-002

- (2) Do the following steps to install the power feeders on the power distribution panel:

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LOM ALL

24-21-71



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- (a) Use the identification tags to install the power feeders on the correct terminal studs.
- (b) Install the nuts [2] and washers [1] on each terminal stud.
- (c) Tighten the nuts to 190 ± 10 in-lb (21 ± 2 N·m).

NOTE: When you install and tighten the power feeders to the rigid bus assembly, there may be some axial movement of the terminal studs (particularly TB5004 and TB5008). A small amount of movement is normal and should not affect the tightening of the nuts to the specified torque.

SUBTASK 24-21-71-410-001

- (3) Install the applicable forward bulkhead liner.

G. The Installation Test of the Current Transformer

SUBTASK 24-21-71-700-001

- (1) If you replaced the GEN 1 DPCT, T374 or GEN 2 DPCT, T375 do this test:
 - (a) Start the applicable engine, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.
 - (b) Make sure the applicable GEN OFF BUS light on the P5-4 panel is on.
 - (c) Set the applicable GEN control switch on the P5-4 panel to the ON position.
 - (d) Make sure the applicable GEN OFF BUS light on the P5-4 panel goes off.
 - (e) Stop the engine, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

SUBTASK 24-21-71-700-002

- (2) If you replaced the EXT PWR CT, T378 do this test:
 - (a) Make sure the BAT switch on the P5-13 panel is in the ON position.
 - (b) Set the BUS TRANS switch on the P5-4 panel to the AUTO position.
 - (c) Make sure both TRANSFER BUS OFF lights on the P5-4 panel are on.
 - (d) Connect external power to the P19 panel.
 - (e) Make sure the GRD POWER AVAILABLE light on the P5-4 panel is on.
 - (f) Set the GRD PWR switch on the P5-4 panel to the ON position.
 - (g) Make sure both TRANSFER BUS OFF lights on the P5-4 panel go OFF.
 - (h) Do this task: Remove External Power, TASK 24-22-00-860-814.

SUBTASK 24-21-71-700-003

- (3) If you replaced the APU DPCT, T376 do this test:
 - (a) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
 - (b) Make sure the APU GEN OFF BUS light on the P5-4 panel comes on (approximately 50 seconds) after APU start.
 - (c) Set either of the APU GEN switches on the P5-4 panel to the ON position.
 - (d) Make sure the APU GEN OFF BUS light on the P5-4 panel goes off.
 - (e) Do this task: Remove APU Generator Power, TASK 24-22-00-860-816.

H. Put the airplane in its usual condition.

SUBTASK 24-21-71-860-003

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-71



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GENERATOR CONTROL UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the Generator Control Unit
 - (2) An Installation of the Generator Control Unit

TASK 24-21-81-000-801

2. Generator Control Unit Removal

(Figure 401)

A. General

- (1) There are three GCU's installed as follows:
 - (a) GCU 1, G10 - located on the E2-1 Rack
 - (b) GCU 2, G12 - located on the E4-2 Rack
 - (c) APU GCU, G14 - located on the E2-1 Rack

B. 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)
24-22-00-860-816	Remove APU Generator Power (P/B 201)
24-22-00-860-818	Remove IDG Power (P/B 201)

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. Prepare for the Removal

SUBTASK 24-21-81-010-001

- (1) Open this access panel to get access to the main equipment center:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-21-81-860-001

- (2) If you are going to remove the APU GCU, G14, do the steps that follow:

- (a) Remove power from APU generator. To remove APU power, do this task: Remove APU Generator Power, TASK 24-22-00-860-816.
- (b) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	12	C01285	GENERATOR APU GEN CONT UNIT

EFFECTIVITY
LOM ALL

24-21-81



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WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (c) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C01326	APU GEN CONT UNIT

SUBTASK 24-21-81-860-002

- (3) If you are going to remove GCU 1, G10, do the steps that follow:
- Remove power from IDG 1. To remove IDG power, do this task: Remove IDG Power, TASK 24-22-00-860-818.
 - Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	10	C01283	GENERATOR CONT UNIT 1

SUBTASK 24-21-81-860-003

- (4) If you are going to remove GCU 2, G12, do the steps that follow:
- Remove power from IDG 2. To remove IDG power, do this task: Remove IDG Power, TASK 24-22-00-860-818.
 - Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C01284	GENERATOR CONT UNIT 2

F. Generator Control Unit Removal

SUBTASK 24-21-81-910-001



CAUTION

DO NOT TOUCH THE CONTROL UNIT BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CONTROL UNIT.

- (1) Before you touch the GCU [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

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24-21-81



737-600/700/800/900
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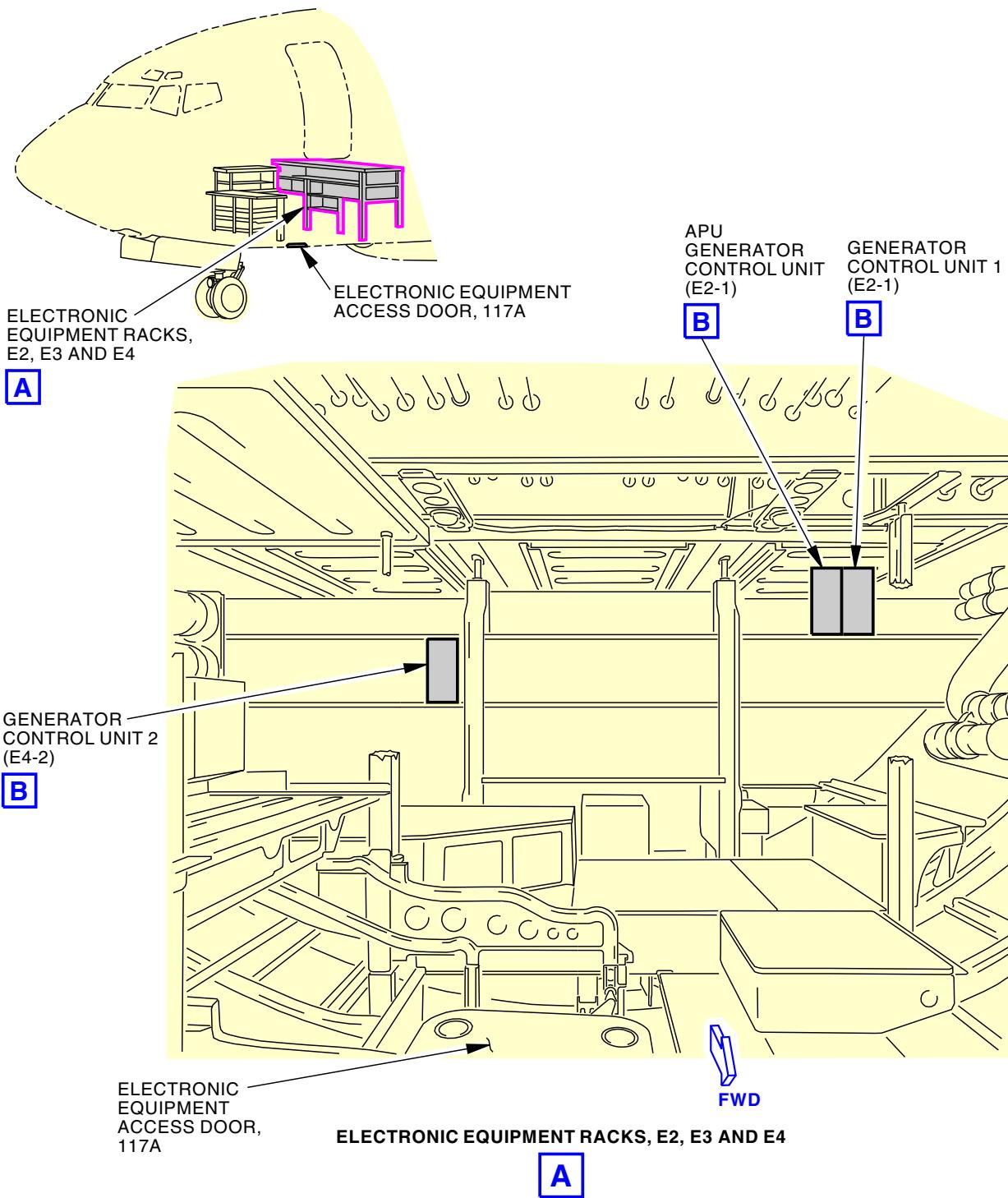
SUBTASK 24-21-81-020-001

- (2) Remove the GCU [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ——

— EFFECTIVITY —
LOM ALL

24-21-81



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Generator Control Unit (GCU) Installation
Figure 401/24-21-81-990-801 (Sheet 1 of 2)

EFFECTIVITY
LOM ALL

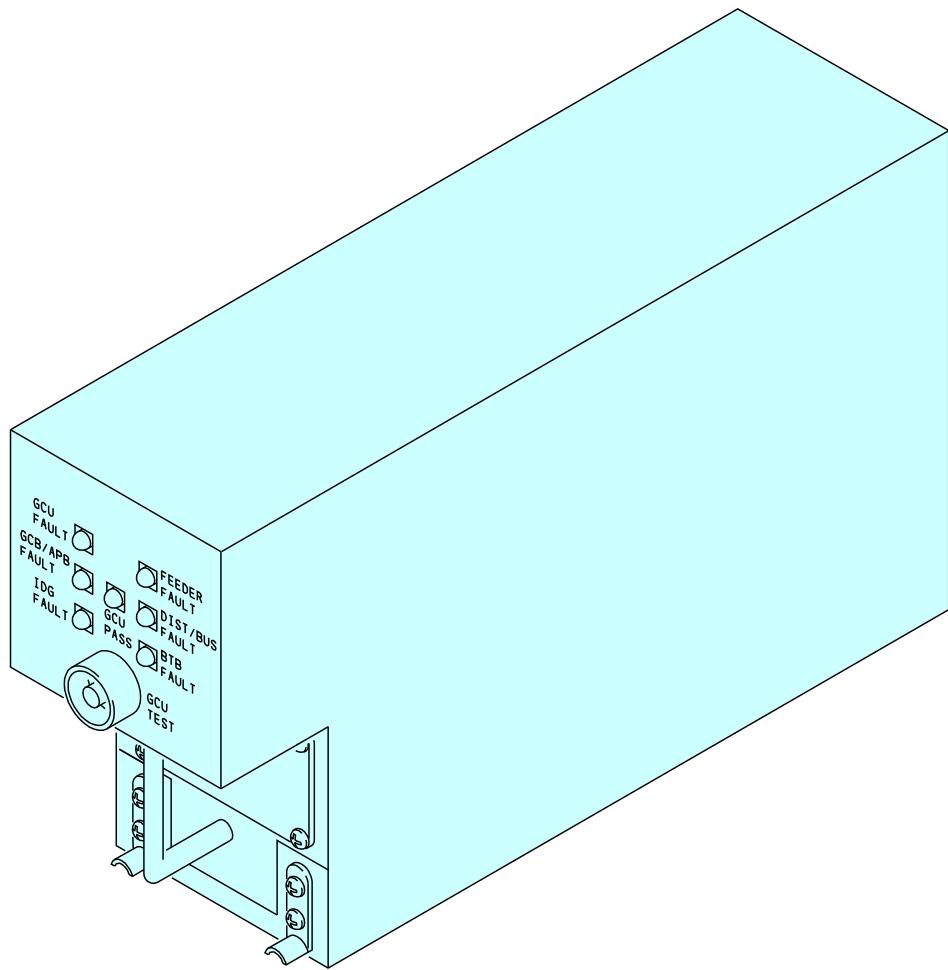
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737-600/700/800/900
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[1] GENERATOR CONTROL UNIT

B

F98820 S0006566228_V2

Generator Control Unit (GCU) Installation
Figure 401/24-21-81-990-801 (Sheet 2 of 2)

EFFECTIVITY
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24-21-81

D633A101-LOM

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Page 405
Feb 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-21-81-400-801

3. Generator Control Unit Installation

(Figure 401)

A. General

- (1) There are three GCU's installed as follows:
 - (a) GCU 1, G10 - located on the E2-1 Rack
 - (b) GCU 2, G12 - located on the E4-2 Rack
 - (c) APU GCU, G14 - located on the E2-1 Rack

B. 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)
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
24-22-00-860-815	Supply APU Generator Power (P/B 201)
24-22-00-860-816	Remove APU Generator Power (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	GCU	24-21-81-02A-005	LOM ALL
		24-21-81-02A-005L	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437, 438
		24-21-81-03A-005	LOM ALL
		24-21-81-03A-005L	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437, 438

D. Location Zones

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

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Generator Control Unit Installation

SUBTASK 24-21-81-910-002



CAUTION DO NOT TOUCH THE CONTROL UNIT BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CONTROL UNIT.

- (1) Before you touch the GCU [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 24-21-81-420-001

- (2) Install the GCU [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

EFFECTIVITY
LOM ALL

24-21-81



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-21-81-860-004

- (3) Close applicable circuit breaker:



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C01326	APU GEN CONT UNIT

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2
F	12	C01285	GENERATOR APU GEN CONT UNIT

G. Installation Test of the GCU

SUBTASK 24-21-81-700-002

- (1) Do a test of the GCU as follows:

- (a) If you installed the GCU 1, G10 or GCU 2, G12, do this task: Supply External Power, TASK 24-22-00-860-813 or Supply APU Generator Power, TASK 24-22-00-860-815.
- (b) If you installed the APU GCU, G14, do this task: Supply External Power, TASK 24-22-00-860-813.
- (c) Make sure the STANDBY POWER switch on the P5-5 panel is set to the AUTO position.
- (d) Set the BAT switch on the P5-13 panel to the ON position.
- (e) Push the GCU TEST switch on the GCU for at least one second.
- (f) Make sure all seven of the indicator lights on the GCU come on for approximately three seconds.
- (g) Make sure all seven of the indicator lights on the GCU go off for approximately three seconds.
- (h) Make sure the green GCU PASS light on the GCU comes on for approximately seven seconds.



24-21-81



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-21-81-210-001

- (2) If the TR UNIT and ELEC lights on the P5-13 panel are on do the steps that follow:

NOTE: If either GCU 1, G10 or GCU 2, G12 is replaced with only battery power supplied (no power on the 115 VAC TRANSFER BUSES) and the STANDBY POWER switch in the AUTO position, the TR UNIT and ELEC lights on the P5-13 panel will come on.

- (a) The TR UNIT light will go off after the GCU's are installed and their associated circuit breakers are closed.
- (b) The ELEC light will remain on until you clear the BAT CHGR INOP or AUX BAT CHGR INOP message.
 - 1) To clear the BAT CHGR INOP or AUX BAT CHGR INOP message, do this task: P5-13 ELEC light Message BITE Procedure (FIM 24-31 TASK 801).

LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

SUBTASK 24-21-81-210-002

- (3) If the TR UNIT and ELEC lights on the P5-13 panel are on do the steps that follow:

NOTE: If the GCU 2, G12 is replaced with only battery power supplied (no power on the 115 VAC TRANSFER BUSES) and the STANDBY POWER switch in the AUTO position, the TR UNIT and ELEC lights on the P5-13 panel will come on.

- (a) The TR UNIT light will go off after GCU 2, G12 is installed and its associated circuit breaker is closed.
- (b) The ELEC light will remain on until you clear the BAT CHGR INOP message.
 - 1) To clear the BAT CHGR INOP message, do this task: P5-13 ELEC light Message BITE Procedure (FIM 24-31 TASK 801).

LOM ALL

H. Put the Airplane Back to Its Usual Condition

SUBTASK 24-21-81-010-002

- (1) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-21-81-760-001

- (2) If power no longer needed, do the applicable task: Remove External Power, TASK 24-22-00-860-814 or Remove APU Generator Power, TASK 24-22-00-860-816.

SUBTASK 24-21-81-860-006

- (3) Set the BAT switch on the P5-13 panel to the OFF position.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-21-81



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

MANUAL CONTROL - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
 - (1) Supply Electrical Power
 - (2) Remove Electrical Power
 - (3) Supply External Power
 - (4) Remove External Power
 - (5) Supply APU Generator Power
 - (6) Remove APU Generator Power
 - (7) Supply IDG Power
 - (8) Remove IDG Power
- B. Most of the switches you use to control the electrical power system are on the electrical system control panel. The electrical system control panel is on the P5 overhead panel.
- C. It is recommended that you put the BAT switch on the P5-13 panel to the ON position when you transfer power sources on the airplane.

TASK 24-22-00-860-811

2. Supply Electrical Power

A. Location Zones

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

B. Procedure

SUBTASK 24-22-00-860-001



WARNING

SET THE WXR SWITCH TO TEST BEFORE YOU SUPPLY POWER TO THE AIRCRAFT. RADIATION CAN CAUSE INJURIES TO PERSONNEL.

- (1) Set the WXR switch on the WXR control panel to TEST.
- (2) Do the applicable task(s) to supply electrical power to the airplane:
 - (a) Do this task: Supply External Power, TASK 24-22-00-860-813.
 - (b) Do this task: Supply APU Generator Power, TASK 24-22-00-860-815.
 - (c) Do this task: Supply IDG Power, TASK 24-22-00-860-817.

———— END OF TASK ————

TASK 24-22-00-860-812

3. Remove Electrical Power

A. Location Zones

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

EFFECTIVITY
LOM ALL

24-22-00

Page 201
Oct 15/2020



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

B. Procedure

SUBTASK 24-22-00-860-023

- (1) Do the applicable task(s) to remove electrical power from the airplane:
 - (a) Do this task: Remove External Power, TASK 24-22-00-860-814.
 - (b) Do this task: Remove APU Generator Power, TASK 24-22-00-860-816.
 - (c) Do this task: Remove IDG Power, TASK 24-22-00-860-818.

———— END OF TASK ————

TASK 24-22-00-860-813

4. **Supply External Power**

(Figure 201, Figure 202)

A. General

- (1) This task has these procedures:
 - (a) Supply external power to the ground service buses
 - (b) Supply external power to the 115V Alternating Current (AC) transfer buses.
- (2) Use the applicable procedure to energize the necessary buses.

B. References

Reference	Title
20-40-11-910-801	Static Grounding (P/B 201)
24-41-11 P/B 601	EXTERNAL POWER RECEPTACLE - INSPECTION/CHECK

C. Location Zones

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

D. Procedure

SUBTASK 24-22-00-860-004

- (1) Do these steps to supply external power to the ground service buses:
 - (a) Open the External Power Receptacle Door.



MAKE SURE THAT THERE IS NO WATER ON THE EXTERNAL POWER RECEPTACLE. WATER CAN CAUSE AN ELECTRICAL SHORT OR AN UNSATISFACTORY ELECTRICAL CONNECTION. IF YOU DO NOT OBEY, INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Examine the external power receptacle for water (PAGEBLOCK 24-41-11/601).
 - 1) Remove any water with a dry sponge.

EFFECTIVITY
LOM ALL

24-22-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



IF THE EXTERNAL POWER SUPPLY HAS AN EARTH GROUNDED NEUTRAL, THERE MUST NOT BE AN OPEN OR FLOATING GROUND IN THE NEUTRAL CIRCUIT WIRE OF THE SUPPLY OR THE AIRPLANE. IF AN OPEN OR FLOATING GROUND IS PRESENT, THE AIRPLANE CAN BE PUT AT AN ELECTRICAL POTENTIAL ABOVE EARTH GROUND. THIS ELECTRICAL POTENTIAL CAN CAUSE ELECTRIC SHOCK WITH POSSIBLE DANGEROUS INJURY TO PERSONNEL WHO TOUCH THE AIRPLANE.

- (c) Make sure the external power supply operates correctly before you supply external power to the airplane.
 - 1) If the ground return (neutral) circuit on the external power supply or the external power receptacle do not operate correctly, do this task: Static Grounding, TASK 20-40-11-910-801.



REMOVE THE ELECTRICAL POWER FROM THE EXTERNAL POWER BEFORE YOU CONNECT THE CABLE TO THE AIRPLANE. IF YOU DO NOT, INJURY TO PERSONS CAN OCCUR.

- (d) Install the power cable to the external power receptacle.
 - (e) Energize the external power cable.
 - (f) Make sure these lights on the external power panel, P19 are on:
 - 1) EXTERNAL PWR CONN
 - 2) EXTERNAL PWR NOT IN USE.
 - (g) Make sure the GRD POWER AVAILABLE light on the P5-4 panel comes on.
 - (h) Push the GROUND SERVICE switch on the FWD ATTENDANT panel, P13.
 - 1) Make sure the light in the GROUND SERVICE switch comes on.
 - (i) Make sure the EXTERNAL PWR NOT IN USE light on the P19 panel is off.
- NOTE: The ground service buses energizes when the external power is supplied to the receptacle and the GROUND SERVICE switch is set to ON.

SUBTASK 24-22-00-860-005

- (2) Do these steps to supply external power to the 115V AC transfer buses:

NOTE: The ground service buses are energized automatically when external power is supplied to the 115V AC transfer bus 1 and the 115V AC transfer bus 2.

- (a) Open the External Power Receptacle Door.



MAKE SURE THAT THERE IS NO WATER ON THE EXTERNAL POWER RECEPTACLE. WATER CAN CAUSE AN ELECTRICAL SHORT OR AN UNSATISFACTORY ELECTRICAL CONNECTION. IF YOU DO NOT OBEY, INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Examine the external power receptacle for water (PAGEBLOCK 24-41-11/601).
 - 1) Remove any water with a dry sponge.

EFFECTIVITY
LOM ALL

24-22-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



WARNING

IF THE EXTERNAL POWER SUPPLY HAS AN EARTH GROUNDED NEUTRAL, THERE MUST NOT BE AN OPEN OR FLOATING GROUND IN THE NEUTRAL CIRCUIT WIRE OF THE SUPPLY OR THE AIRPLANE. IF AN OPEN OR FLOATING GROUND IS PRESENT, THE AIRPLANE CAN BE PUT AT AN ELECTRICAL POTENTIAL ABOVE EARTH GROUND. THIS ELECTRICAL POTENTIAL CAN CAUSE ELECTRIC SHOCK WITH POSSIBLE DANGEROUS INJURY TO PERSONNEL WHO TOUCH THE AIRPLANE.

- (c) Make sure the external power supply operates correctly before you supply external power to the airplane.
 - 1) If the ground return (neutral) circuit on the external power supply or the external power receptacle do not operate correctly, do this task: Static Grounding, TASK 20-40-11-910-801.



WARNING

REMOVE THE ELECTRICAL POWER FROM THE EXTERNAL POWER BEFORE YOU CONNECT THE CABLE TO THE AIRPLANE. IF YOU DO NOT, INJURY TO PERSONS CAN OCCUR.

- (d) Install the power cable to the external power receptacle.
- (e) Energize the external power cable.
- (f) Make sure these lights on the external power panel, P19 are on:
 - 1) EXTERNAL PWR CONN
 - 2) EXTERNAL PWR NOT IN USE.
- (g) Set the BAT switch located on the P5-13 panel to the ON position.
- (h) Make sure the GRD POWER AVAILABLE light on the P5-4 panel is on.



WARNING

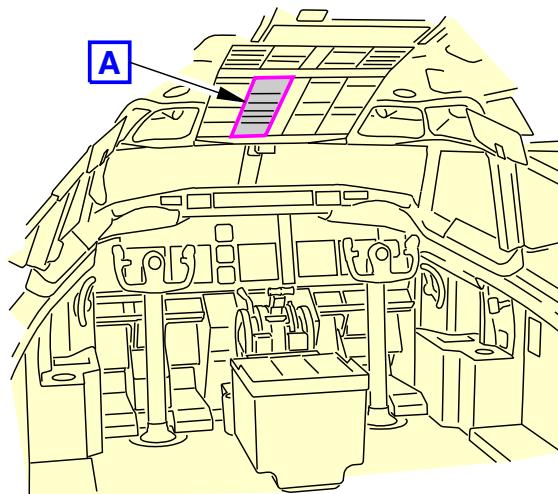
USE CAUTION WHEN YOU APPLY 115V AC (400HZ), EXTERNAL OR APU GENERATOR POWER. THE STANDBY HYDRAULIC PUMP CAN OPERATE APPROXIMATELY 4 SECONDS AND CAN MOVE THE RUDDER AND THRUST REVERSERS. TO PREVENT POSSIBLE INJURY, MAKE SURE THAT THE RUDDER AND THRUST REVERSERS ARE CLEAR OF PERSONNEL BEFORE YOU APPLY POWER.

- (i) Set the GRD POWER switch on the P5-4 panel to the ON position.
- (j) Make sure these lights on the P5-4 panel go off:
 - 1) 1 SOURCE OFF
 - 2) 2 SOURCE OFF
 - 3) 1 TRANSFER BUS OFF
 - 4) 2 TRANSFER BUS OFF.
- (k) Make sure the EXTERNAL PWR NOT IN USE light on the P19 panel is off.

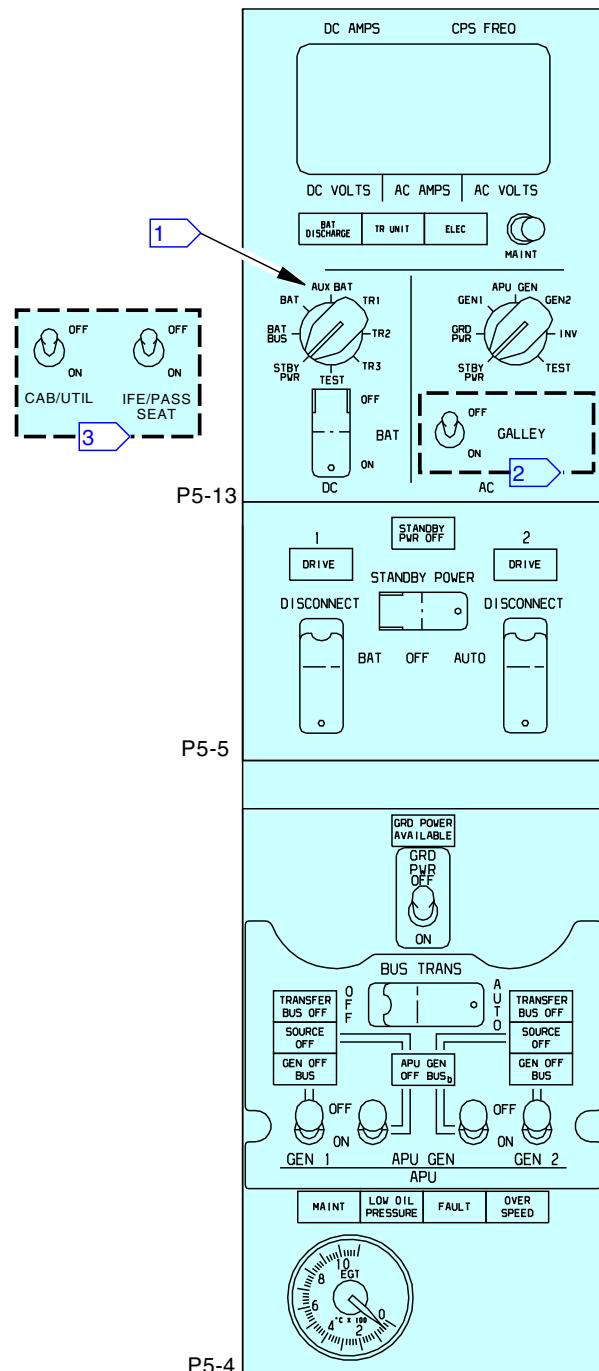
———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-22-00



FLIGHT COMPARTMENT



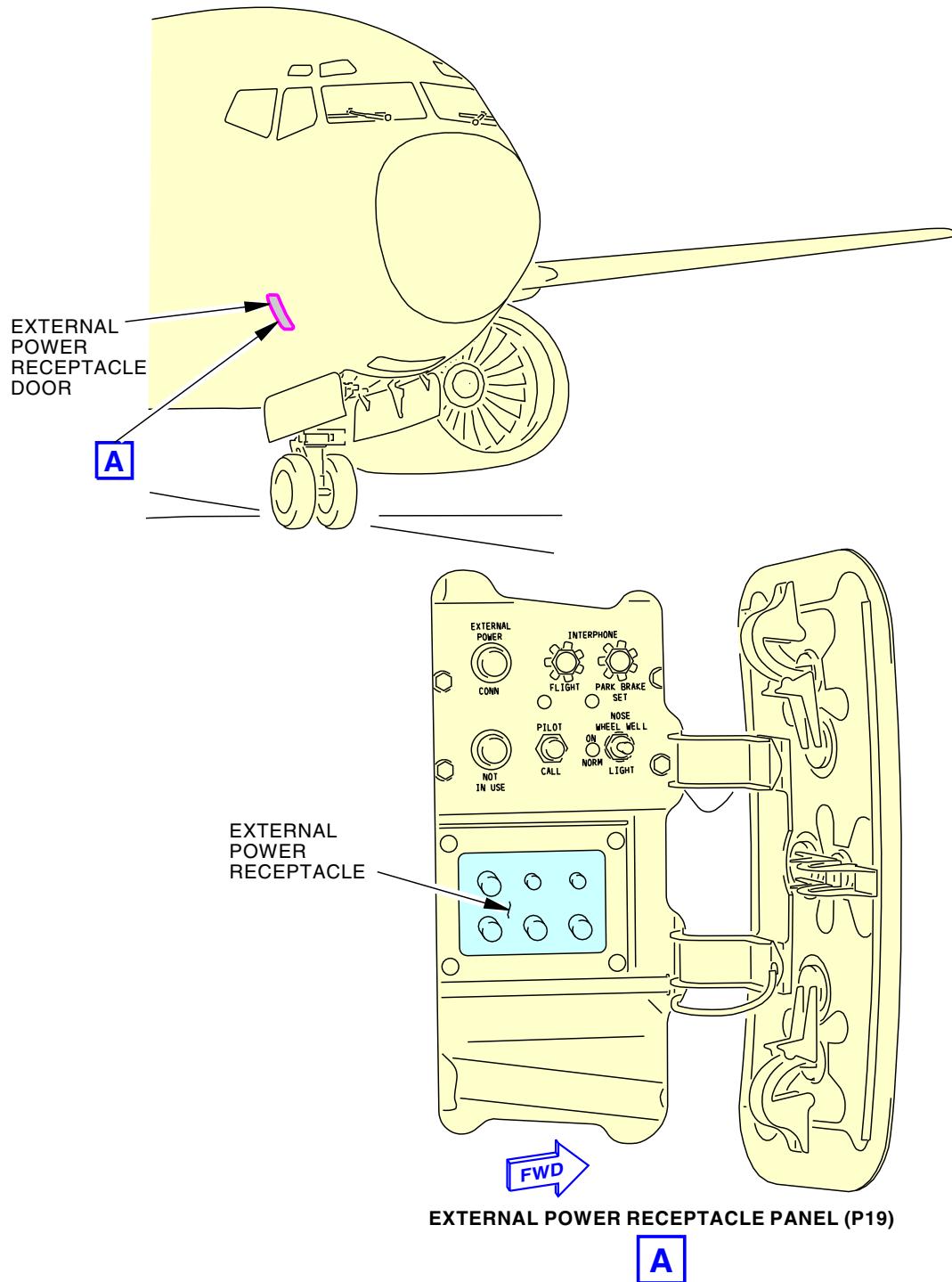
- AIRPLANES WITH AUXILIARY BATTERY
- AIRPLANES WITH GALLEY SWITCH
- AIRPLANES WITH CABIN UTILITY AND IFE SWITCHES

F96117 S0006566241_V2

AC Generator and Bus Control
Figure 201/24-22-00-990-801

EFFECTIVITY
LOM ALL

24-22-00



F96119 S0006566242_V2

External Power Receptacle and Indication
Figure 202/24-22-00-990-802 (Sheet 1 of 2)

EFFECTIVITY
LOM 427-434, 437-447, 450-999; LOM 402, 404, 406,
407, 411, 412, 415, 416, 420 PRE SB 737-24-1198

24-22-00

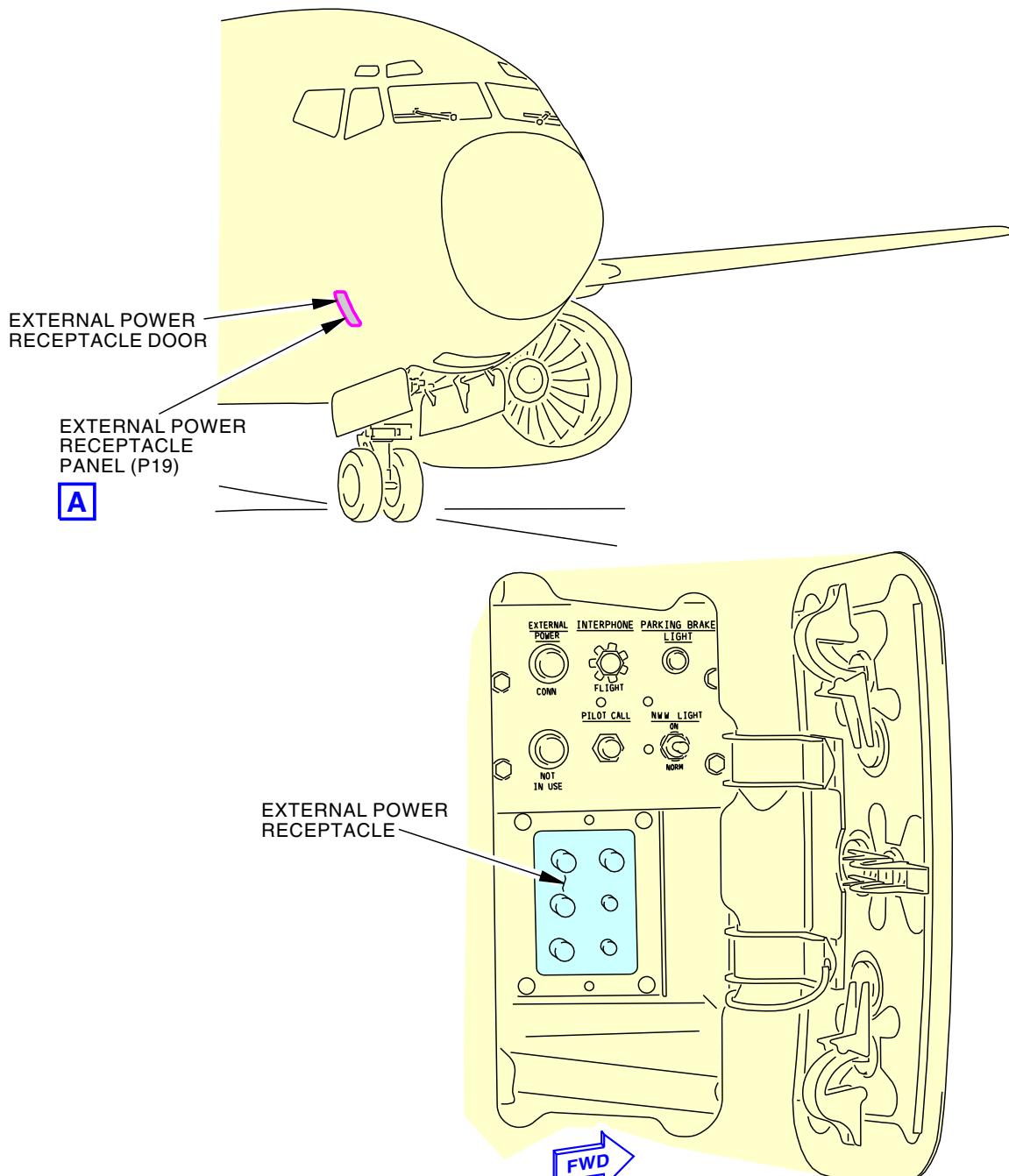
D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 206
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



EXTERNAL POWER RECEPTACLE PANEL (P19)

A

2067467 S0000429438_V2

External Power Receptacle and Indication
Figure 202/24-22-00-990-802 (Sheet 2 of 2)

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

24-22-00

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 207
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-22-00-860-814

5. Remove External Power

(Figure 201, Figure 202)

A. General

- (1) This task has these procedures:
 - (a) Remove external power from the ground service buses.
 - (b) Remove external power from the 115V ac transfer buses.

B. Location Zones

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

C. Procedure

SUBTASK 24-22-00-860-007

- (1) Do these steps to remove external power from the ground service buses:
 - (a) Push the GROUND SERVICE switch on the FWD ATTENDANT panel, P13.
 - 1) Make sure the light in the GROUND SERVICE switch goes off.
 - (b) Remove power from the external power cable.
 - (c) Make sure these lights on the P19 panel go off:
 - 1) EXTERNAL POWER CONN
 - 2) EXTERNAL POWER NOT IN USE



REMOVE ELECTRICAL POWER FROM THE EXTERNAL POWER CABLE
BEFORE YOU REMOVE THE CABLE FROM THE AIRPLANE. INJURY TO
PERSONS CAN BE CAUSED BY AN ELECTRICAL SHOCK.

- (d) Remove the external power cable.
- (e) Close the External Power Receptacle Door.

SUBTASK 24-22-00-860-008

- (2) Do these steps to remove external power from the 115V AC transfer buses:
 - (a) Set the GRD PWR switch on the P5-4 panel to the OFF position.
 - (b) Make sure the GRD POWER AVAILABLE light on the P5-4 stays on.
 - (c) Make sure these lights on the P5-4 panel come on:
 - 1) 1 SOURCE OFF
 - 2) 2 SOURCE OFF
 - 3) 1 TRANSFER BUS OFF
 - 4) 2 TRANSFER BUS OFF
 - (d) Make sure the EXTERNAL POWER NOT IN USE light on the P19 panel comes on.
 - (e) Remove power from the external power cable.
 - (f) Make sure the EXTERNAL POWER CONN light on the P19 panel goes off.

EFFECTIVITY
LOM ALL

24-22-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



WARNING

REMOVE ELECTRICAL POWER FROM THE EXTERNAL POWER CABLE BEFORE YOU REMOVE THE CABLE FROM THE AIRPLANE. INJURY TO PERSONS CAN BE CAUSED BY AN ELECTRICAL SHOCK.

- (g) Remove the external power cable.
- (h) Make sure the EXTERNAL POWER NOT IN USE light on the P19 panel goes off.
- (i) Close the External Power Receptacle Door.

D. Put the Airplane into its Usual Condition

SUBTASK 24-22-00-860-025

- (1) Set the BAT switch on the P5-13 panel to the OFF position.

————— END OF TASK ————

TASK 24-22-00-860-815

6. Supply APU Generator Power

(Figure 201)

A. General

- (1) This task has this procedure:
 - (a) Supply the APU generator power to the 115V AC transfer buses

B. References

Reference	Title
49-11-00-860-801	APU Starting and Operation (P/B 201)

C. Location Zones

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

D. Procedure

SUBTASK 24-22-00-860-013

- (1) Do these steps to supply the APU generator power to the 115V AC transfer buses:
 - (a) Set the BAT switch on the P5-13 panel to the ON position.
 - (b) Set the BUS TRANS switch on the P5-4 panel to the AUTO position.
 - (c) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
 - (d) Make sure the APU GEN OFF BUS light on the P5-4 panel comes on.



24-22-00

Page 209
Oct 15/2017



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



WARNING

WHEN APPLYING 115V AC, 400HZ EXTERNAL OR APU GENERATOR POWER, THE STANDBY HYDRAULIC PUMP CAN OPERATE FOR APPROX 4 SECONDS AND MAY MOVE THE RUDDER AND THRUST REVERSERS. TO PREVENT POSSIBLE INJURY, MAKE SURE THE RUDDER AND THRUST REVERSERS ARE CLEAR OF PERSONNEL BEFORE APPLYING POWER.

- (e) To energize the 115V ac transfer buses, set both of the APU GEN switches on the P5-4 panel to the ON position.

NOTE: Either of the APU GEN switches will connect the APU generator to both TRANSFER BUSES. However both of the APU GEN switches must be set to the ON position to make both of the SOURCE OFF lights go off.

NOTE: The APU exhaust gas temperature (EGT) indicator on the P5 forward overhead panel can spike (move) quickly to half scale (400°C-500°C) when you put an electrical load on the APU starter-generator and then move down to zero after a few bounces. This APU condition is satisfactory.

- (f) Make sure these lights on the P5-4 panel go off:

- 1) APU GEN OFF BUS
- 2) 1 SOURCE OFF
- 3) 2 SOURCE OFF
- 4) 1 TRANSFER BUS OFF
- 5) 2 TRANSFER BUS OFF

— END OF TASK —

TASK 24-22-00-860-816

7. Remove APU Generator Power

(Figure 201)

A. General

- (1) This task has this procedure:
 - (a) Remove the APU generator power from the 115V AC buses.

B. References

Reference	Title
49-11-00-860-802	APU Usual Shutdown (P/B 201)

C. Location Zones

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

D. Procedure

SUBTASK 24-22-00-860-014

- (1) Do these steps to remove the APU generator power from the 115V AC transfer buses:
 - (a) To remove power from the 115V AC transfer buses, set both of the APU GEN switches on the P5-4 panel to the OFF position.
 - (b) Make sure these lights on the P5-4 panel come on:
 - 1) APU GEN OFF BUS

EFFECTIVITY
LOM ALL

24-22-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 2) 1 SOURCE OFF
 - 3) 2 SOURCE OFF
 - 4) 1 TRANSFER BUS OFF
 - 5) 2 TRANSFER BUS OFF
- (c) Do this task: APU Usual Shutdown, TASK 49-11-00-860-802.

E. Put the Airplane into its Usual Condition

SUBTASK 24-22-00-860-019

- (1) Set the BAT switch on the P5-13 panel to the OFF position.

———— END OF TASK ————

TASK 24-22-00-860-817

8. Supply IDG Power

(Figure 201)

A. General

- (1) This task has three procedures to supply IDG power to the transfer buses:
- (a) Supply IDG 1 power to both 115V AC transfer buses
 - (b) Supply IDG 2 power to both 115V AC transfer buses
 - (c) Supply IDG 1 power to the 115V AC TRANSFER BUS 1 and IDG 2 power to the 115 AC TRANSFER BUS 2

B. References

Reference	Title
71-00-00-800-807-F00	Start the Engine Procedure (Selection) (P/B 201)

C. Location Zones

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

D. Procedure

SUBTASK 24-22-00-860-015

- (1) Do these steps to supply power to the 115V AC TRANSFER BUS 1 and 2 from IDG 1:
- (a) Set the BAT switch on the P5-13 panel to the ON position.
 - (b) Set the BUS TRANS switch on the P5-4 panel to the OFF position.
 - (c) Start the Number 1 engine. To start the Number 1 engine, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.



THE DRIVE LIGHT ON THE P5 PANEL SHOULD GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, THE DISCONNECT SWITCH ON THE P5 PANEL MUST BE PUSHED. FAILURE TO PUSH THE DISCONNECT SWITCH CAN CAUSE DAMAGE TO THE IDG.

- (d) Make sure the 1 DRIVE light on the P5-5 panel goes off after number 1 engine reaches idle speed.
- (e) Set the GEN 1 switch on the P5-4 panel to the ON position.
- (f) Make sure these lights on the P5-4 panel go off.

EFFECTIVITY
LOM ALL

24-22-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) 1 GEN OFF BUS
 - 2) 1 SOURCE OFF
 - 3) 1 TRANSFER BUS OFF
- (g) Set the BUS TRANS switch on the P5-4 panel to the AUTO position.
- (h) Make sure the 2 TRANSFER BUS OFF light on the P5-4 panel goes off.
- (i) To remove IDG power, do this task: Remove IDG Power, TASK 24-22-00-860-818.

SUBTASK 24-22-00-860-020

- (2) Do these steps to supply power to the 115V AC TRANSFER BUS 1 and 2 from IDG 2:
- (a) Set the BAT switch on the P5-13 panel to the ON position.
 - (b) Set the BUS TRANS switch on the P5-4 panel to the OFF position.
 - (c) Start the Number 2 engine. To start the Number 2 engine, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.



THE DRIVE LIGHT ON THE P5 PANEL SHOULD GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, THE DISCONNECT SWITCH ON THE P5 PANEL MUST BE PUSHED. FAILURE TO PUSH THE DISCONNECT SWITCH CAN CAUSE DAMAGE TO THE IDG.

- (d) Make sure the 2 DRIVE light on the P5-5 panel goes off after number 2 engine reaches idle speed.
- (e) Set the GEN 2 switch on the P5-4 panel to the ON position.
- (f) Make sure these lights on the P5-4 panel go off.
 - 1) 2 GEN OFF BUS
 - 2) 2 SOURCE OFF
 - 3) 2 TRANSFER BUS OFF
- (g) Set the BUS TRANS switch on the P5-4 panel to the AUTO position.
- (h) Make sure the 1 TRANSFER BUS OFF light on the P5-4 panel goes off.
- (i) To remove IDG power, do this task: Remove IDG Power, TASK 24-22-00-860-818.

SUBTASK 24-22-00-860-021

- (3) Do these steps to supply power to the 115V AC TRANSFER BUS 1 from IDG 1 and the 115V AC TRANSFER BUS 2 from IDG 2:
- (a) Set the BAT switch on the P5-13 panel to the ON position.
 - (b) Set the BUS TRANS switch on the P5-4 panel to the AUTO position.
 - (c) Start the Number 1 engine. To start the Number 1 engine, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.



THE DRIVE LIGHT ON THE P5 PANEL SHOULD GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, THE DISCONNECT SWITCH ON THE P5 PANEL MUST BE PUSHED. FAILURE TO PUSH THE DISCONNECT SWITCH CAN CAUSE DAMAGE TO THE IDG.

- (d) Make sure the 1 DRIVE light on the P5-5 panel goes off after number 1 engine reaches idle speed.

EFFECTIVITY
LOM ALL

24-22-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Set the GEN 1 switch on the P5-4 panel to the ON position.
- (f) Make sure these lights on the P5-4 panel go off.
 - 1) 1 GEN OFF BUS
 - 2) 1 SOURCE OFF
 - 3) 1 TRANSFER BUS OFF
 - 4) 2 TRANSFER BUS OFF
- (g) Start the Number 2 engine. To start the Number 2 engine, do this task: Start the Engine Procedure (Selection), TASK 71-00-00-800-807-F00.



THE DRIVE LIGHT ON THE P5 PANEL SHOULD GO OFF AFTER THE ENGINE GETS UP TO IDLE SPEED. IF THE DRIVE LIGHT COMES ON WHEN THE ENGINE IS AT OR ABOVE IDLE SPEED, THE DISCONNECT SWITCH ON THE P5 PANEL MUST BE PUSHED. FAILURE TO PUSH THE DISCONNECT SWITCH CAN CAUSE DAMAGE TO THE IDG.

- (h) Make sure the 2 DRIVE light on the P5-5 panel goes off after number 2 engine reaches idle speed.
- (i) Set the GEN 2 switch on the P5-4 panel to the ON position.
- (j) Make sure the 2 GEN OFF BUS and 2 SOURCE OFF lights on the P5-4 panel go off.
- (k) To remove IDG power, do this task: Remove IDG Power, TASK 24-22-00-860-818.

———— END OF TASK ————

TASK 24-22-00-860-818

9. Remove IDG Power

(Figure 201)

A. General

- (1) This task has these procedures:
 - (a) Remove IDG 1 power from the 115V AC transfer buses.
 - (b) Remove IDG 2 power from the 115V AC transfer buses.

B. References

Reference	Title
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)

C. Location Zones

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

D. Procedure

SUBTASK 24-22-00-860-017

- (1) Do these steps to remove IDG 1 power from the 115V AC transfer buses:
 - (a) Set the GEN 1 switch on the P5-4 panel to the OFF position.
NOTE: It is sufficient to shut down the engine without setting the GEN 1 switch to OFF.
 - (b) Make sure the 1 GEN OFF BUS light on the P5-4 panel comes on.

EFFECTIVITY
LOM ALL

24-22-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (c) Stop the number 1 engine. To stop the number 1 engine, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

SUBTASK 24-22-00-860-018

- (2) Do these steps to remove IDG 2 power from the 115V AC transfer buses:
- (a) Set the GEN 2 control switch on the P5-4 panel to the OFF position.
NOTE: It is sufficient to shut down the engine without setting the GEN 2 switch to OFF.
 - (b) Make sure the 2 GEN OFF BUS light on the P5-4 panel comes on.
 - (c) Stop the number 2 engine. To stop the number 2 engine, do this task: Stop the Engine Procedure (Usual Engine Stop), TASK 71-00-00-700-819-F00.

E. Put the Airplane into its Usual Condition

SUBTASK 24-22-00-860-022

- (1) Set the BAT switch on the P5-13 panel to the OFF position.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-22-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

DC GENERATION SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) DC Generation System Deactivation
 - (2) DC Generation System Activation

TASK 24-31-00-040-801

2. DC Generation System - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power from the DC Generation 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. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. DC Generation System Deactivation

SUBTASK 24-31-00-010-001

- (1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-31-00-860-004



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-31-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (2) Open these circuit breakers and install safety tags:

Battery Shield, J9

Row Col Number Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

A 3 C01209 AUX BAT CHARGER

LOM ALL

A 4 C00142 BATTERY CHARGER

A 5 C01340 BATTERY BUS

Power Distribution Panel Number 1, P91

Row Col Number Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

E 3 C00922 AUX BAT CHGR

Power Distribution Panel Number 2, P92

Row Col Number Name

LOM ALL

E 1 C00809 BAT CHGR

Standby Power Control Unit, M01720

Row Col Number Name

B 1 C01410 SPCU NORMAL

E. DC Generation System - Tryout

NOTE: This tryout is to make sure the DC Generation System is in a zero energy state.

SUBTASK 24-31-00-860-005



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-31-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

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

Battery Shield, J9

Row Col Number Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

A 3 C01209 AUX BAT CHARGER

LOM ALL

A 4 C00142 BATTERY CHARGER

A 5 C01340 BATTERY BUS

Power Distribution Panel Number 1, P91

Row Col Number Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

E 3 C00922 AUX BAT CHGR

Power Distribution Panel Number 2, P92

Row Col Number Name

LOM ALL

E 1 C00809 BAT CHGR

Standby Power Control Unit, M01720

Row Col Number Name

B 1 C01410 SPCU NORMAL

SUBTASK 24-31-00-410-002

- (2) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 24-31-00-700-001

- (3) Do the steps that follow:

LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

- (a) Set the GRD PWR switch on the P5-4 panel to the OFF position.

LOM ALL

- (b) Set the BAT switch on the P5-13 panel to the ON position.

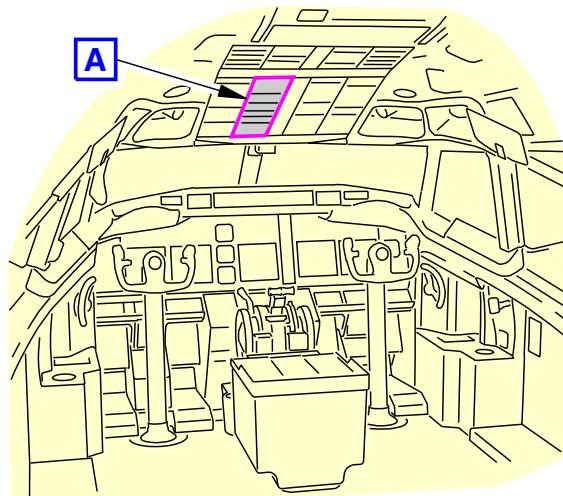
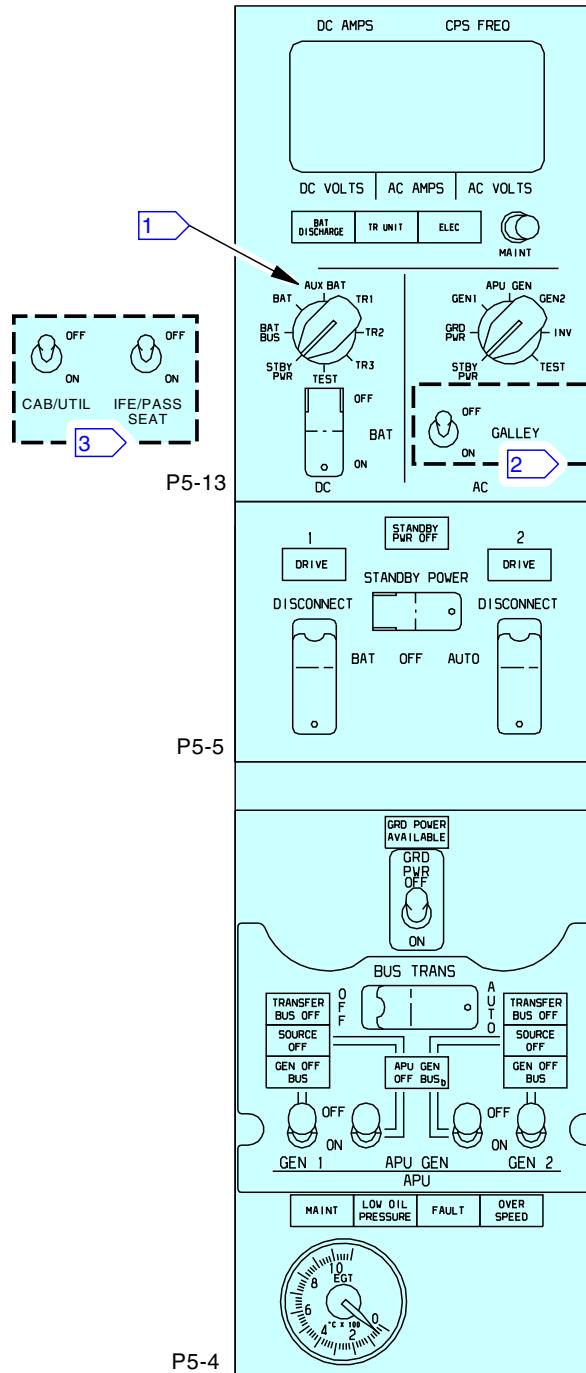
- (c) Set the DC meter selector switch on the P5-13 panel to the BAT position.

- (d) Make sure the DC meter on the P5-13 panel shows no value and the screen is blank.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-31-00


FLIGHT COMPARTMENT


G07983 S0006566263_V2

**AC/DC Power Controls and Display Panels
Figure 201/24-31-00-990-802**
**EFFECTIVITY
LOM ALL**

D633A101-LOM

24-31-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-31-00-440-801

3. DC Generation System - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the DC Generation System.

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. DC Generation System Activation

SUBTASK 24-31-00-010-003

- (1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-31-00-860-006



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

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

Battery Shield, J9

Row **Col** **Number** **Name**

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457,
465

 A 3 C01209 AUX BAT CHARGER

LOM ALL

 A 4 C00142 BATTERY CHARGER

 A 5 C01340 BATTERY BUS

EFFECTIVITY
LOM ALL

24-31-00

Page 205
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

Power Distribution Panel Number 1, P91

Row Col Number Name

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

E 3 C00922 AUX BAT CHGR

Power Distribution Panel Number 2, P92

Row Col Number Name

LOM ALL

E 1 C00809 BAT CHGR

Standby Power Control Unit, M01720

Row Col Number Name

B 1 C01410 SPCU NORMAL

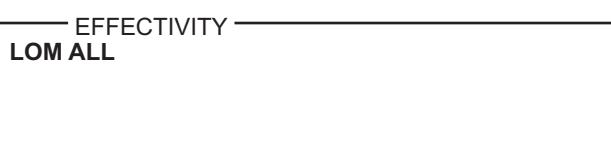
SUBTASK 24-31-00-410-001

- (3) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

———— END OF TASK ————



24-31-00



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DC GENERATION SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has this task:
- (1) The Operational Test of the DC System.

TASK 24-31-00-700-801

2. The Operational Test of the DC System

(Figure 501)

A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-813	Supply External Power (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. Prepare for the Test

SUBTASK 24-31-00-860-001

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

SUBTASK 24-31-00-010-002

- (2) To get access to the P91 and P92 panels, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. DC System Operation Test

SUBTASK 24-31-00-710-001



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-31-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) Do a check of the Transformer Rectifier Units (TRU) and the DC Bus Tie Relay as follows:
 - (a) Make sure the BAT switch on the P5-13 panel is set to the ON position.
 - (b) Make sure the BUS TRANS switch on the P5-4 panel is set to the AUTO position.
 - (c) Set the DC Meter Selector Switch on the P5-13 panel to the TR 3 position.
 - (d) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 22-30
 - (e) Set the DC Meter Selector Switch on the P5-13 panel to the TR 2 position.
 - (f) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 22-30
 - (g) Set the DC Meter Selector Switch on the P5-13 panel to the TR 1 position.
 - (h) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 22-30
 - (i) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00806	TRU 1

- (j) Make sure the DC meter on the P5-13 panel shows these values:
 - 1) DC VOLTS = 22-30
 - 2) DC AMPS = 0
- (k) Make sure the TR UNIT light on the P5-13 panel comes on.
- (l) Set the BUS TRANS switch on the P5-4 panel to the OFF position.
- (m) Make sure the DC meter on the P5-13 panel shows these values:
 - 1) DC VOLTS = 0
 - 2) DC AMPS = 0
- (n) Set the BUS TRANS switch on the P5-4 panel to the AUTO position.
- (o) Make sure the DC meter on the P5-13 panel shows these values:
 - 1) DC VOLTS = 22-30
 - 2) DC AMPS = 0
- (p) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00806	TRU 1

- (q) Make sure the TR UNIT light on the P5-13 panel goes off.

EFFECTIVITY
LOM ALL

24-31-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (r) Set the DC Meter Selector Switch on the P5-13 panel to the TR 2 position.
- (s) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 22–30
- (t) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00807	TRU 2

- (u) Make sure the DC meter on the P5-13 panel shows these values:
 - 1) DC VOLTS = 22–30
 - 2) DC AMPS = 0
- (v) Make sure the TR UNIT light on the P5-13 panel comes on.
- (w) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00807	TRU 2

- (x) Make sure the TR UNIT light on the P5-13 panel goes off.

SUBTASK 24-31-00-710-003



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (2) Do a check of the TR3 Transfer Relay as follows:
 - (a) Set the DC Meter Selector Switch on the P5-13 panel to the TR 3 position.
 - (b) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 22-30
 - (c) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00808	TRU 3

- (d) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 22-30

EFFECTIVITY
LOM ALL

24-31-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00941	TRU 3 ALTN

- (f) Make sure the DC meter on the P5-13 panel shows this value:
1) DC VOLTS = Less than 10
(g) Make sure the TR UNIT light on the P5-13 panel comes on.
(h) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00808	TRU 3

- (i) Make sure the DC meter on the P5-13 panel shows this value:
1) DC VOLTS = 22-30
(j) Make sure the TR UNIT light on the P5-13 panel goes off.
(k) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00941	TRU 3 ALTN

SUBTASK 24-31-00-710-002



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (3) Do a check of the battery bus transfer relays as follows:
- Set the DC Meter Selector Switch on the P5-13 panel to the BAT position.
 - Make sure the DC meter on the P5-13 panel shows this value:
 - DC VOLTS = 30 ± 3
 - Set the DC Meter Selector Switch on the P5-13 panel to the BAT BUS position.
 - Make sure the DC meter on the P5-13 panel shows this value:
 - DC VOLTS = 22-30

EFFECTIVITY
LOM ALL

24-31-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00941	TRU 3 ALTN

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00808	TRU 3

- (f) Make sure the DC meter on the P5-13 panel shows this value:
1) DC VOLTS = 22-30
(g) Set the DC Meter Selector Switch on the P5-13 panel to the TR 3 position.
(h) Make sure the DC meter on the P5-13 panel shows this value:
1) DC VOLTS = Less than 10
(i) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00941	TRU 3 ALTN

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00808	TRU 3

F. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-00-410-003

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

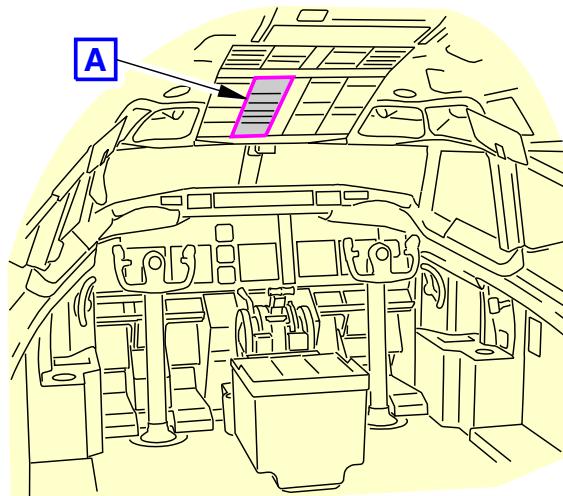
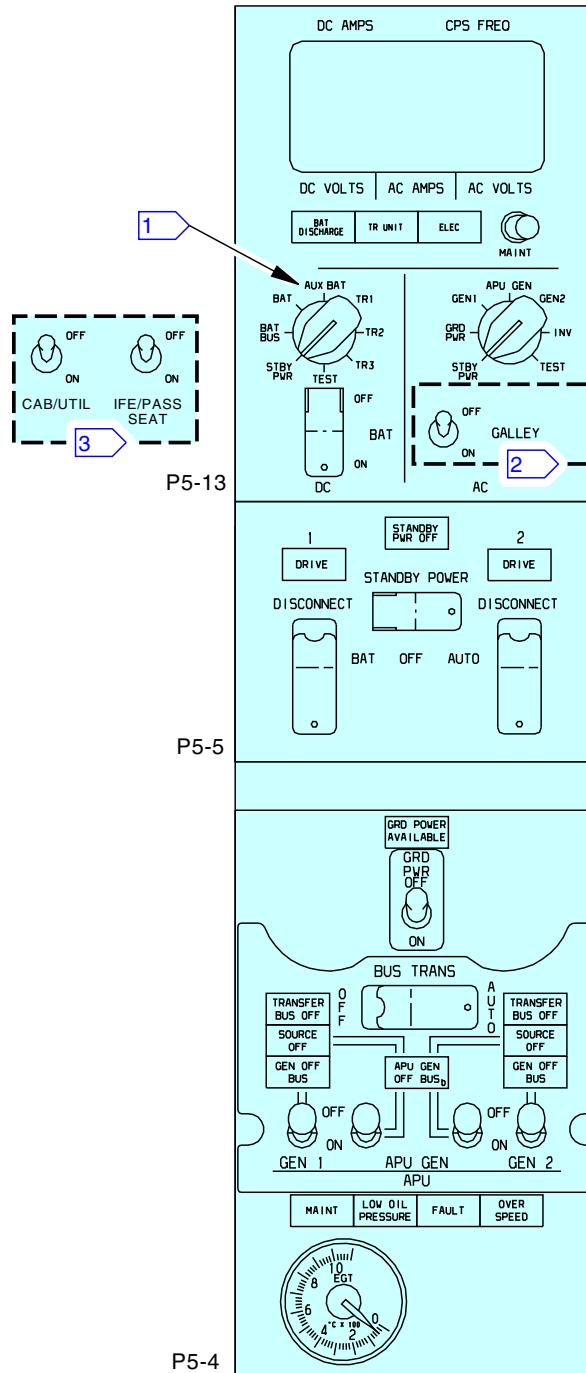
SUBTASK 24-31-00-860-003

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-31-00


FLIGHT COMPARTMENT


- 1** AIRPLANES WITH AUXILIARY BATTERY
- 2** AIRPLANES WITH GALLEY SWITCH
- 3** AIRPLANES WITH CABIN UTILITY AND IFE SWITCHES

G07983 S0006566263_V2

AC/DC Power Control and Display Panels
Figure 501/24-31-00-990-801

EFFECTIVITY
LOM ALL

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-31-00

Page 506
Feb 15/2024



737-600/700/800/900

AIRCRAFT MAINTENANCE MANUAL

MAIN BATTERY-MAINTENANCE PRACTICES

1. General

- A. This procedure contains one task:
 - (1) Battery Electrolyte Spillage.
- B. In all cases of an electrolyte spill, an incident report should be completed detailing the area affected, the level of cleansing effected (units/cables removed, etc.) and calling for the area to be reinspected after 14 days for signs of corrosive attack following the local regulatory protocols.
- C. Should corrosion be evident after the 14 days, appropriate action must be taken and consideration given to repeat inspection at a later date.

TASK 24-31-11-100-801

2. Battery Electrolyte Spillage

A. General

- (1) If battery fluid is dropped in the airplane, do these steps immediately.

B. Consumable Materials

Reference	Description	Specification
B00095	Compound - Sodium Bicarbonate	ASTM D928
B00636	Acid, Acetic (Vinegar) (5%-10% Acetic Acid)	Commercially available product
B50113	Acid, Acetic (10% / 100 grain)	JAN-A-465
G50412	Paper - Litmus (Used to find the acidity or alkalinity of a liquid solution)	

C. Location Zones

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

D. Procedure

SUBTASK 24-31-11-100-001



WARNING

MAKE SURE THAT YOU DO NOT LET THE ELECTROLYTE TOUCH YOUR SKIN. IF YOU DO NOT OBEY, INJURY TO PERSONNEL CAN OCCUR.



CAUTION

DO NOT LET THE BATTERY TOUCH THE CAPSTRIP IMMEDIATELY BELOW THE BATTERY-MOUNTING-RACK. IF THE BATTERY TOUCHES THE CAPSTRIP, THEN IT CAN SCRATCH IT. THIS CAN CAUSE SEAL DAMAGE THAT FORMS WHEN YOU INSTALL THE CLOSE-OUT PANEL.

- (1) Do these steps to remove electrolyte spillage:

- (a) Use a clean rag and water to remove the accessible pools of the electrolyte.
 - 1) Make sure that you do not let the electrolyte spread.
- (b) Rinse the rag in water frequently to prevent the spread of electrolyte contamination.
- (c) If the electrolyte is not trapped in a complex structure, rinse the area with clean cold water.

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) Make sure that you do not spread the contamination to the electrical equipment that is in the area.

NOTE: Be careful of electrical wires and equipment that you may find below the floor.

- (d) If the electrolyte is on the carpet, remove the carpet from the airplane as soon as possible.

- 1) Clean the area where the carpet was removed.

NOTE: If the carpet was left in place for some time, examine the area for evidence of corrosion.

- (e) Use a clean rag to dry the affected area.

SUBTASK 24-31-11-200-001

- (2) If the electrolyte is on the control cables of the airplane, replace the cables.

- (a) Send the cables to the cable workshop.

NOTE: The cable workshop will clean and examine the cables for damage.

SUBTASK 24-31-11-110-001

- (3) If you have lead/acid electrolyte (dilute sulphuric acid), do these steps if you think the electrolyte is in a complex (blind) structure:

- (a) Put in compound, B00095 powder on the area.

- (b) Rinse the area with a saturated solution of compound, B00095.

- (c) Rinse the area with clean water.

NOTE: Be careful of electrical wires and equipment that you may find below the floor.

- (d) Use a clean rag to dry the area as thoroughly as possible.

SUBTASK 24-31-11-110-002

- (4) If you have NiCad electrolyte (potassium hydroxide solution), do these steps if you think the electrolyte is in a complex (blind) structure:

- (a) Rinse the area with acid, B50113 or acid, B00636.

NOTE: If the acetic acid is not available, use household white vinegar.

- (b) Rinse the area with clean water.

NOTE: Be careful of electrical wires and equipment that you may find below the floor.

- (c) Use a clean rag to dry the area as thoroughly as possible.

SUBTASK 24-31-11-960-001

- (5) If you do not think that these procedures were effective, replace the suspect components.

- (a) Send the components that you removed to the workshop to be cleaned and examined.

SUBTASK 24-31-11-200-002

- (6) Examine the cleaned area with a piece of litmus paper, G50412.

NOTE: The acetic acid, the vinegar, and the sodium bicarbonate (alkali) are all mildly corrosive to light alloys. A residual of the sulphuric acid, the acetic acid, or the vinegar will cause the PH test to go red. A residual of the potassium hydroxide or the sodium bicarbonate will cause the PH test to go blue.

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-11-970-001

- (7) Complete an incident report that describes the electrolyte spill following the local regulatory protocol.

———— END OF TASK ————

— EFFECTIVITY —
LOM ALL

24-31-11

Page 203
Feb 15/2023

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

BATTERY - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
 - (1) A removal of the battery
 - (2) An installation of the battery.

TASK 24-31-11-000-801-001

2. **Battery Removal**

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **General**

- (1) The M6 Battery is located below the E3 equipment rack in the main equipment area.
- (2) The battery is removed and installed in the forward cargo area. The circuit breakers, on the J9 panel, are installed in the main equipment center.

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-1633	Equipment - Battery Installation Part #: C24003-9 Supplier: 81205 Opt Part #: C24003-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

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

D. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

E. **Prepare for the Removal**

SUBTASK 24-31-11-860-001-001

- (1) Make sure that the BAT switch, on the P5-13 panel, is set to the OFF position.
 - (a) Install the DO NOT OPERATE tag, STD-858, on the BAT switch.

SUBTASK 24-31-11-860-003-001

- (2) Make sure that the STANDBY POWER switch, on the P5-5 panel, is set to the AUTO position.

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-31-11

Config 1

Page 401

Feb 15/2025



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-11-860-054-001

- (3) Open this circuit breaker and install safety tag:

Standby Power Control Unit, M01720

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01410	SPCU NORMAL

SUBTASK 24-31-11-010-001-001

- (4) To get access to the main equipment center, do this step:

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 24-31-11-010-005

- (5) Remove the access cover on top of the J39 shield to get access to the circuit breakers.

SUBTASK 24-31-11-860-004-001

- (6) Open these circuit breakers and install safety tags:

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-31-11-010-002-001

- (7) Get access to the forward cargo area through the forward cargo door.

- (a) Remove the forward bulkhead liner to get access to the battery [1].

F. Battery Removal

SUBTASK 24-31-11-020-001-001

- (1) Remove the battery [1] as follows:

- Cut and remove the safety lockwire from the battery connector.
- Disconnect the battery connector from the battery [1].
- Disconnect the electrical connector from the battery [1].
- Remove the bolts [2] and washers [3] from the battery mounting brackets.
- Slide the skid plate, equipment, SPL-1633, under the battery [1].

NOTE: The skid plate is used so that the battery will not touch the capstrip just below it.



DO NOT LET THE BATTERY TOUCH THE CAPSTRIP IMMEDIATELY
BELOW THE BATTERY-MOUNTING-RACK. IF THE BATTERY TOUCHES
THE CAPSTRIP, THEN IT CAN SCRATCH IT. THIS CAN CAUSE SEAL
DAMAGE THAT FORMS WHEN YOU INSTALL THE CLOSE-OUT PANEL.

- (f) Slide the battery [1] out from the battery rack to the forward cargo area.

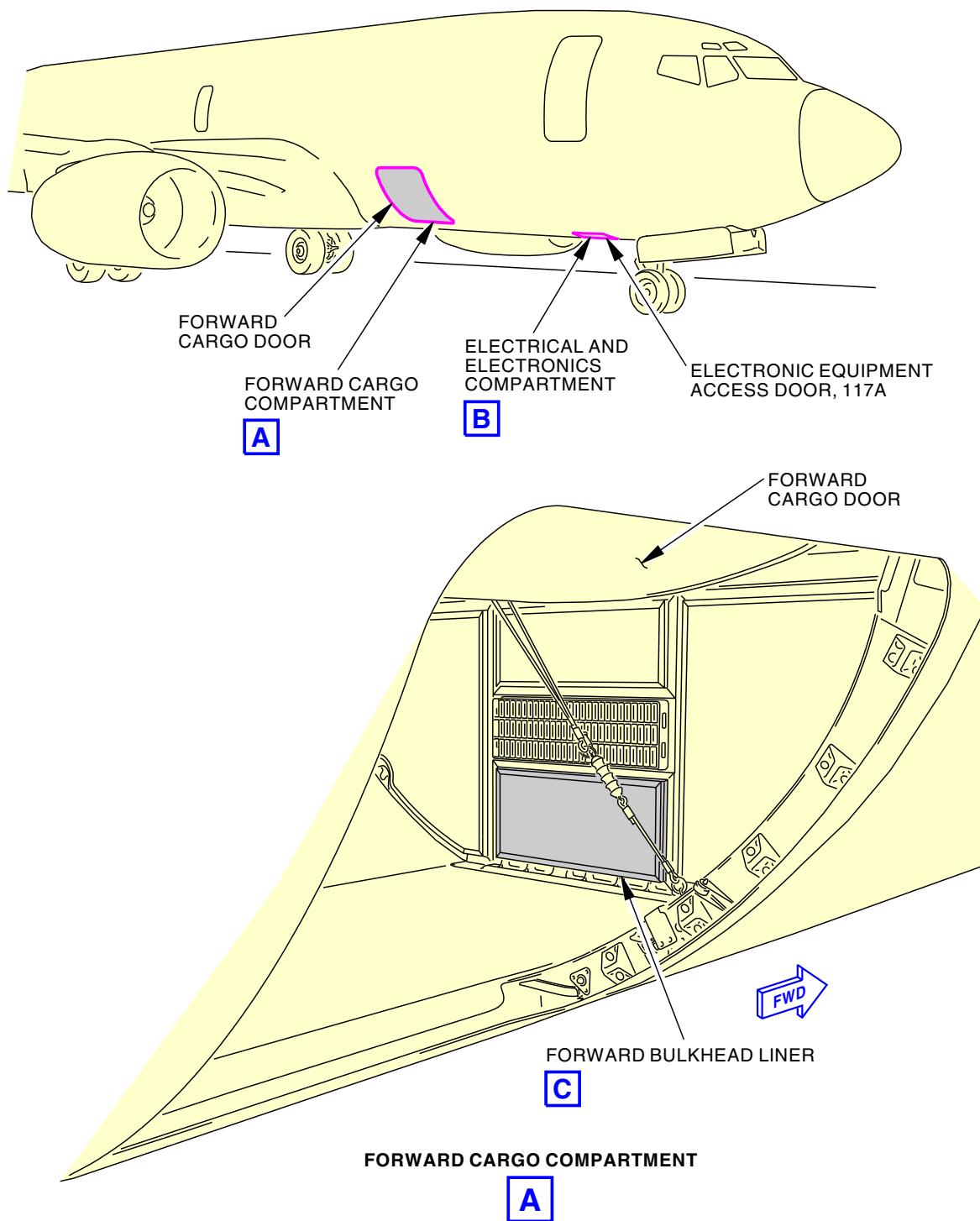
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EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-31-11
Config 1
Page 402
Feb 15/2025



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Battery Installation
Figure 401/24-31-11-990-801-001 (Sheet 1 of 3)

EFFECTIVITY
 LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
 466-999

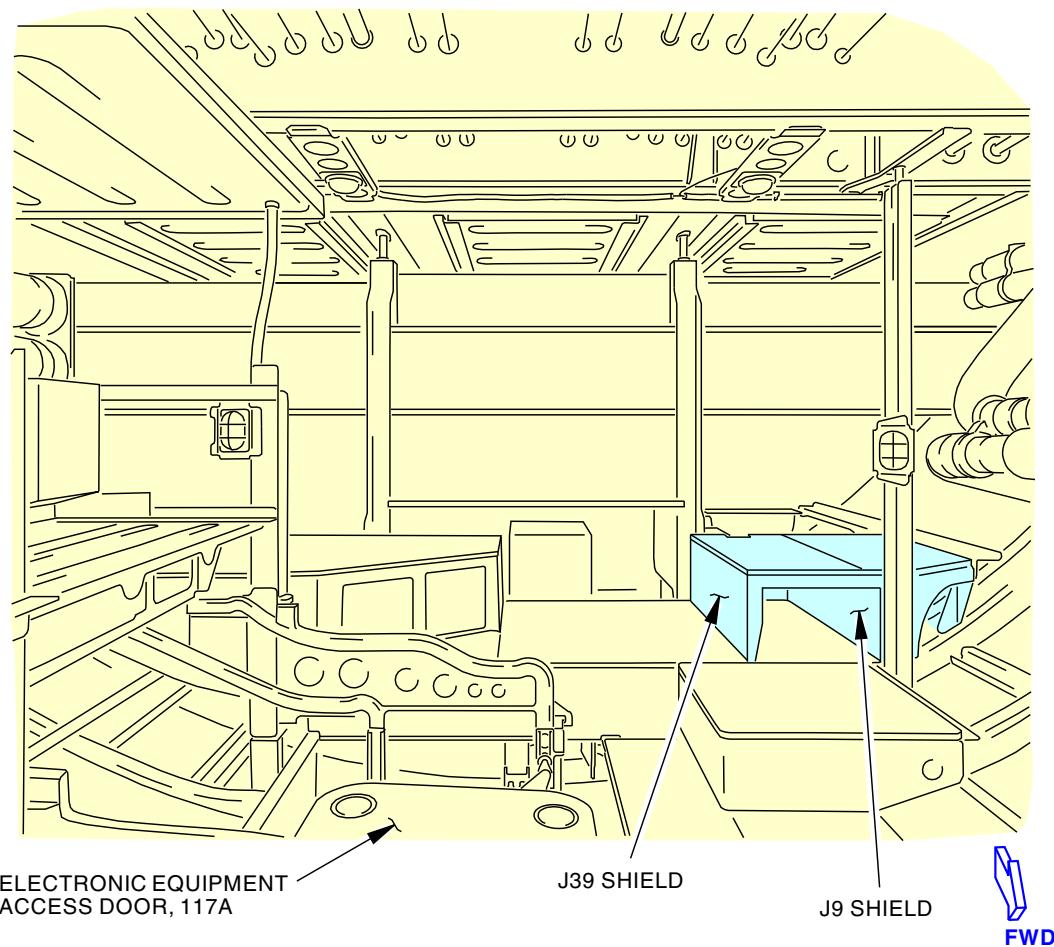
ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-31-11
 Config 1
 Page 403
 Jun 15/2018



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



ELECTRICAL AND ELECTRONICS COMPARTMENT

B

1494797 S0000270991_V2

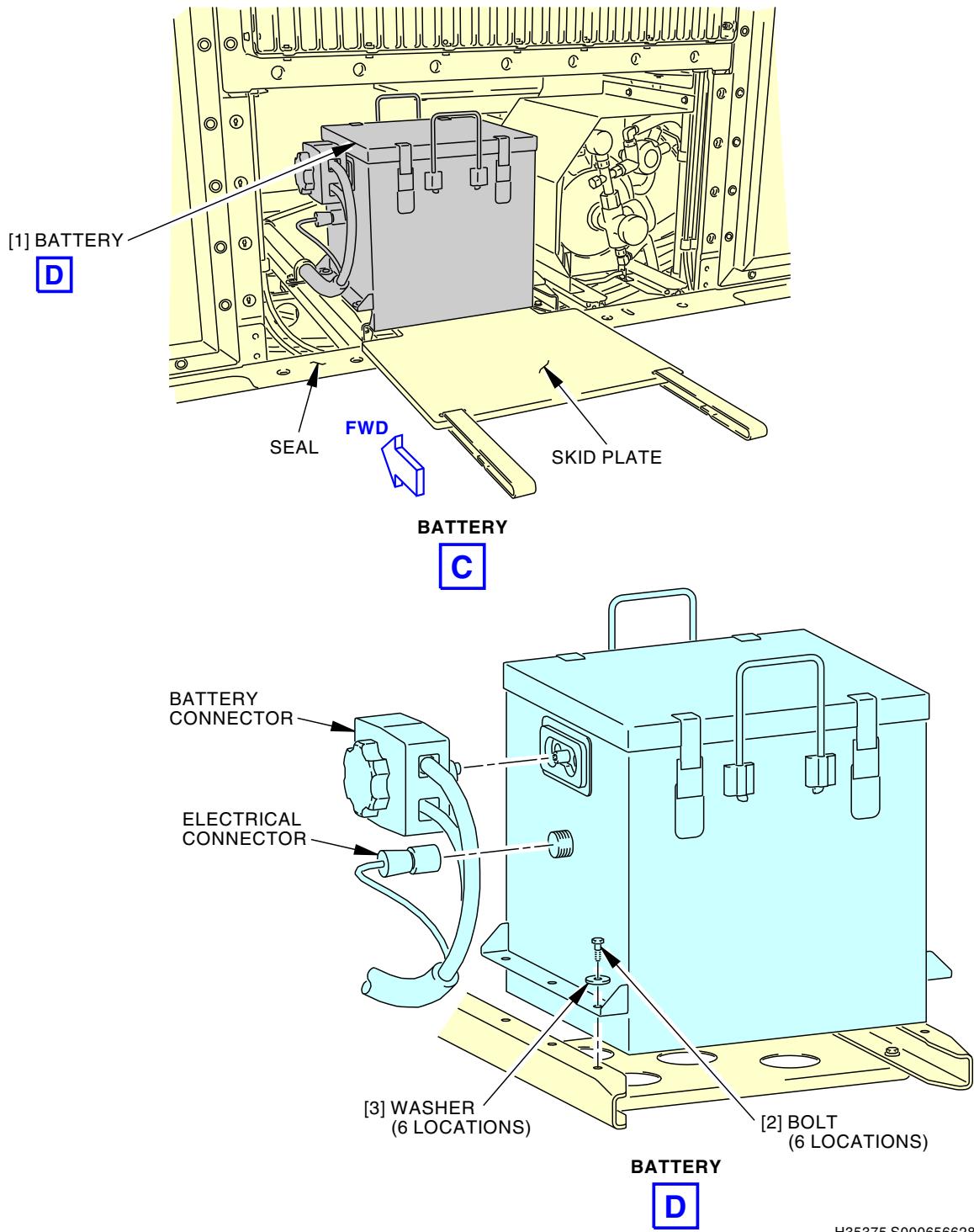
Battery Installation
Figure 401/24-31-11-990-801-001 (Sheet 2 of 3)

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

24-31-11
Config 1
Page 404
Jun 15/2018

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details



H35375 S0006566283_V2

Battery Installation
Figure 401/24-31-11-990-801-001 (Sheet 3 of 3)

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-31-11
Config 1
Page 405
Jun 15/2018



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-31-11-400-801-001

3. Battery Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The M6 Battery is located below the E3 equipment rack in the main equipment area.
- (2) The battery is removed and installed in the forward cargo area. The circuit breakers, on the J9 panel, are installed in the main equipment center.

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)
31-25-00 P/B 501	CLOCKS - ADJUSTMENT/TEST
FIM 24-31 TASK 801	P5-13 ELEC Light Message 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
SPL-1633	Equipment - Battery Installation Part #: C24003-9 Supplier: 81205 Opt Part #: C24003-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
G02479	Lockwire - MS20995CY20, Copper - 0.020 Inch (0.508 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Battery	24-31-11-02-005	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

F. 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

G. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

H. Battery Installation

SUBTASK 24-31-11-420-001-001

- (1) Install the battery [1] as follows:

- (a) Put the skid plate, equipment, SPL-1633, in position (Figure 401).



CAUTION DO NOT LET THE BATTERY TOUCH THE CAPSTRIP IMMEDIATELY BELOW THE BATTERY-MOUNTING-RACK. IF THE BATTERY TOUCHES THE CAPSTRIP, THEN IT CAN SCRATCH IT. THIS CAN CAUSE SEAL DAMAGE THAT FORMS WHEN YOU INSTALL THE CLOSE-OUT PANEL.

- (b) Have two persons hold each of the battery handles and lift the battery [1] onto the skid plate.
- 1) Slide the battery [1] into position.
 - 2) Make sure that the terminals point left.
- (c) Remove the skid plate.
NOTE: It can be necessary to tilt the battery back some to remove the skid plate.
- (d) Install the bolts [2] and washers [3] on the battery mounting brackets.
- (e) Connect the electrical connector to the battery [1].
- (f) Connect the battery connector to the battery [1].
1) Safety wire the battery connector with a 0.020 in. (0.508 mm) diameter MS20995CY20 lockwire, G02479 (TASK 20-10-44-400-801).

SUBTASK 24-31-11-860-055-001

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

Standby Power Control Unit, M01720

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01410	SPCU NORMAL

I. Battery Installation Test

SUBTASK 24-31-11-860-035-001

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-31-11-410-005

- (2) Install the access cover on top of the J39 shield.

SUBTASK 24-31-11-860-036-001

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

SUBTASK 24-31-11-860-037-001

- (4) Make sure that the STANDBY POWER switch, on the P5-5 panel, is in the AUTO position.

SUBTASK 24-31-11-210-002-001

- (5) Make sure that the ELEC light, on the P5-13 panel, is off.

- (a) To clear ELEC light messages, do this task: FIM 24-31 TASK 801.

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

24-31-11

Config 1

Page 407

Feb 15/2025

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-11-710-007-001

- (6) Test the battery [1] as follows:

- (a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
- (b) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.
 - 1) Remove the DO NOT OPERATE tag, STD-858, from the BAT switch.
- (c) Set the DC meter selector switch, on the P5-13 panel, to the BAT position.
- (d) Make sure that the DC meter, on the P5-13 panel, shows these values:
 - 1) DC VOLTS = 22-28
 - 2) DC AMPS = a negative value.

NOTE: The battery current is negative when the battery is discharging.

- (e) Make sure that the BAT DISCHARGE light, on the P5-13 panel, comes on in one of these conditions:
 - 1) The battery current is greater than 5 Amps for more than 95 seconds.
 - 2) The battery current is greater than 15 Amps for more than 25 seconds.
 - 3) The battery current is greater than 100 Amps for more than 1.2 seconds.
- (f) For a new or recently re-conditioned batteries, allow the battery to discharge for 5 minutes.

NOTE: This will help to prevent battery discharge messages after the battery sets to the TR Mode.

NOTE: New or re-conditioned batteries can hold capacitance better when you set from main mode charge (31.5 V) to the TR mode charger output (27.5V \pm 3%, 26.675 - 28.325V). The battery can have a discharge of more than 5 Amps for more than 95 seconds until the battery voltage equals the TR mode charger output (27.5V \pm 3%, 26.675 - 28.325V).

- (g) Set the GRD PWR switch to the ON position.
- (h) Make sure that the DC AMPS value goes to 45 ± 10 AMPS and then goes down to less than 5 AMPS within 180 minutes.

NOTE: When charging the battery at 45 ± 10 Amps, the battery voltage will increase to 31.5 ± 2 Volts.

NOTE: 180 minutes is the maximum. It can take less time depending the state of the battery.

- (i) Make sure that the DC VOLTS value goes to 27.5 ± 2 Volts.

NOTE: After Main Mode charge the battery will decrease from 31.5V to 27.5V.

- (j) Make sure that the BAT DISCHARGE light goes off.

NOTE: For a new or re-conditioned batteries, the BAT DISCHARGE light may come on 95 seconds after the battery charger goes into the TR mode. This condition will continue until the battery decreases under 5 Amps of discharge for one second. A discharge will show on the P5-13 panel (DC meter selector switch set to BAT) until the battery voltage equals the TR mode charger output (27.5V \pm 3%, 26.675 - 28.325V).

SUBTASK 24-31-11-860-038-001

- (7) Set the clocks to the correct date and Greenwich Mean Time (GMT)
(PAGEBLOCK 31-25-00/501).

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-11-860-039-001

- (8) Get access to the main equipment center.
 - (a) Make sure that the BATTERY and CHARGER lights on the front of the battery charger are on.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-11-410-001-001

- (1) Install the forward bulkhead liner.

SUBTASK 24-31-11-410-002-001

- (2) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

———— END OF TASK ————

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-31-11
Config 1
Page 409
Feb 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

BATTERY - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the main battery and auxiliary battery
 - (2) An installation of the main battery and auxiliary battery.

TASK 24-31-11-000-802-002

2. Battery Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The main battery, M6 is located below the E3 equipment rack in the main equipment area. The auxiliary battery, M3054 is located just forward of the main battery.
- (2) The main battery must be removed before you can remove the auxiliary battery. It is not necessary to remove the auxiliary battery to replace the main battery. Both batteries are the same part number.
- (3) The batteries are removed and installed through a liner in the forward cargo area. The circuit breakers for both batteries are installed, on the J9 panel, in the main equipment center.

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-1633	Equipment - Battery Installation Part #: C24003-9 Supplier: 81205 Opt Part #: C24003-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

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

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 24-31-11-860-009-002

- (1) Make sure that the BAT switch, on the P5-13 panel, is set to the OFF position.
 - (a) Install the DO NOT OPERATE tag, STD-858, on the BAT switch.

SUBTASK 24-31-11-860-010-002

- (2) Make sure that the STANDBY POWER switch, on the P5-5 panel, is set to the AUTO position.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-11-860-052-002

- (3) Open this circuit breaker and install safety tag:

Standby Power Control Unit, M01720

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01410	SPCU NORMAL

SUBTASK 24-31-11-010-003-002

- (4) To get access to the main equipment center, do this step:

- (a) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-11-020-006

- (5) Remove the access cover on top of the J39 shield to get access to the circuit breakers.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-11-860-011-002

- (6) Open these circuit breakers and install safety tags:

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-31-11-010-004-002

- (7) Get access to the forward cargo area through the forward cargo door.

- (a) Remove the forward bulkhead liner to get access to the battery [1].

F. Battery Removal

SUBTASK 24-31-11-020-002-002

- (1) Remove the main battery [1] as follows:

- Cut and remove the safety lockwire from the battery connector.
- Disconnect the battery connector from the battery [1].
- Disconnect the electrical connector from the battery [1].
- Remove the bolts [2] and washers [3] from the battery mounting brackets.
- Slide the skid plate, equipment, SPL-1633, under the battery [1].

NOTE: The skid plate is used so that the battery will not touch the capstrip just below it.



DO NOT LET THE BATTERY TOUCH THE CAPSTRIP IMMEDIATELY
BELOW THE BATTERY-MOUNTING-RACK. IF THE BATTERY TOUCHES
THE CAPSTRIP, THEN IT CAN SCRATCH IT. THIS CAN CAUSE SEAL
CAUTION DAMAGE THAT FORMS WHEN YOU INSTALL THE CLOSE-OUT PANEL.

- (f) Slide the battery [1] out from the battery rack to the forward cargo area.

SUBTASK 24-31-11-020-003-002

- (2) Remove the auxiliary battery [1] as follows:

EFFECTIVITY
**LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465**



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Cut and remove the safety lockwire from the battery connector.
- (b) Disconnect the battery connector from the battery [1].
- (c) Disconnect the electrical connector from the battery [1].
- (d) Remove the bolts [2] and washers [3] from the battery mounting brackets.
- (e) Slide the skid plate, equipment, SPL-1633, under the washers [3].

NOTE: The skid plate is used so that the battery will not touch the capstrip just below it.



CAUTION

DO NOT LET THE BATTERY TOUCH THE CAPSTRIP IMMEDIATELY
BELOW THE BATTERY-MOUNTING-RACK. IF THE BATTERY TOUCHES
THE CAPSTRIP, THEN IT CAN SCRATCH IT. THIS CAN CAUSE SEAL
DAMAGE THAT FORMS WHEN YOU INSTALL THE CLOSE-OUT PANEL.

- (f) Slide the battery [1] out from the battery rack to the forward cargo area.

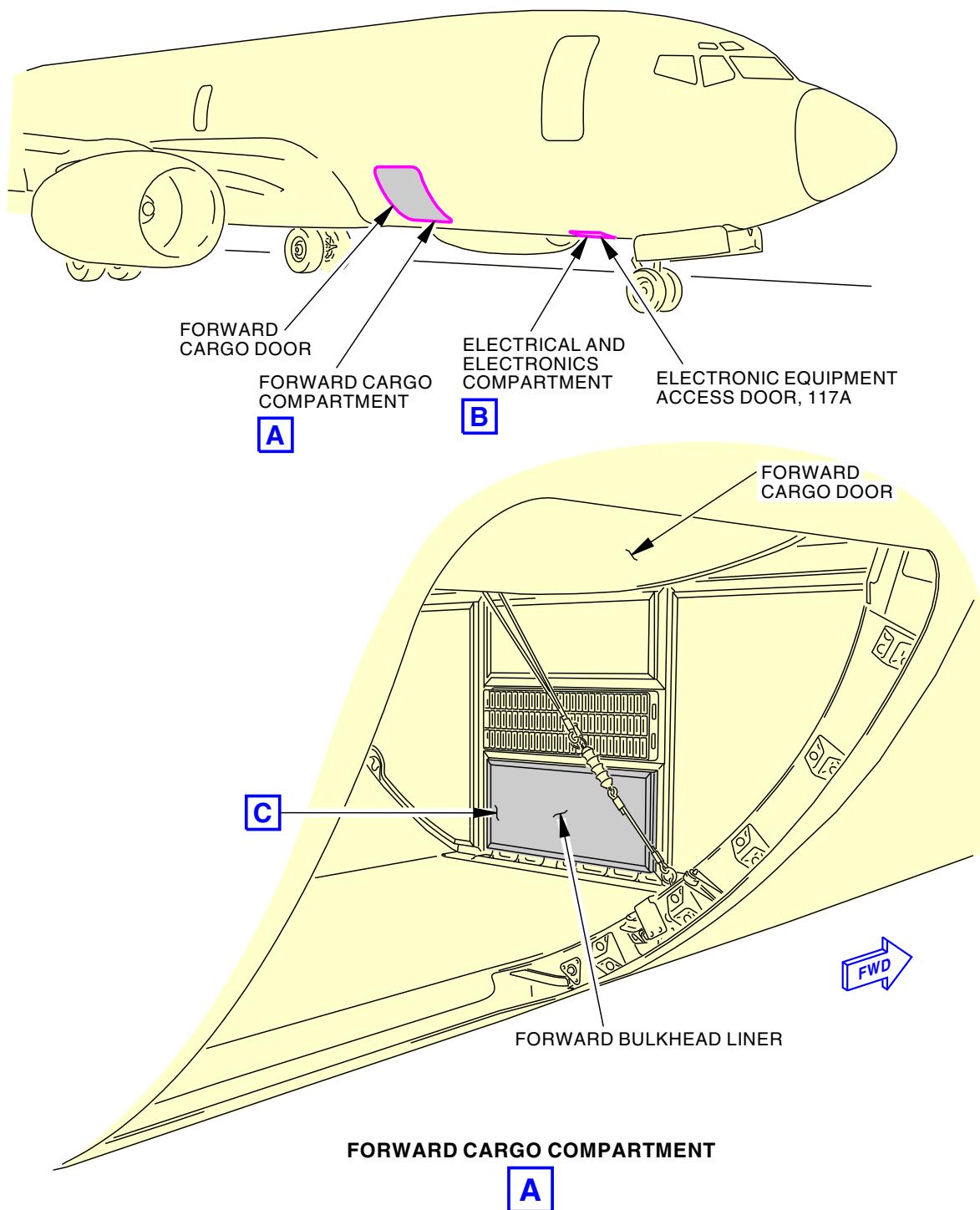
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— EFFECTIVITY —
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-31-11
Config 2
Page 403
Feb 15/2025



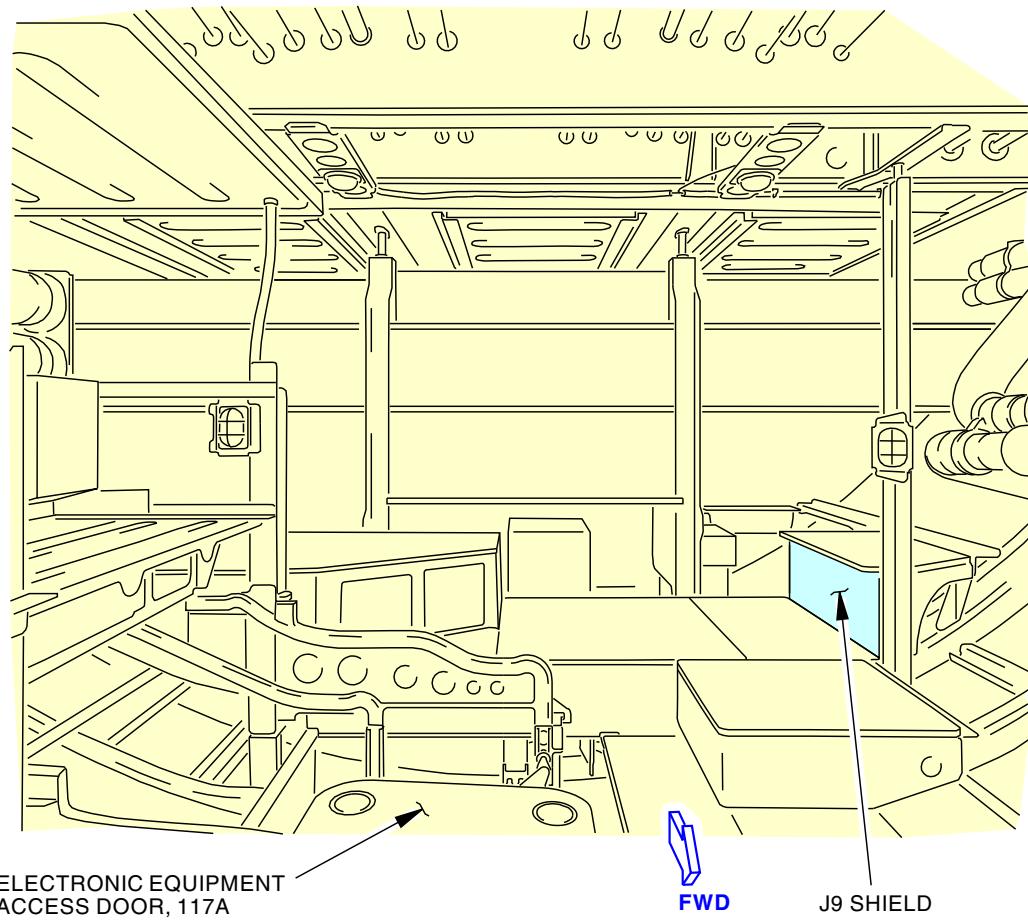
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Battery Installation
Figure 401/24-31-11-990-802-002 (Sheet 1 of 4)

EFFECTIVITY
 LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
 425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



ELECTRICAL AND ELECTRONICS COMPARTMENT

B

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Battery Installation
Figure 401/24-31-11-990-802-002 (Sheet 2 of 4)

EFFECTIVITY
LOM 402, 404, 406

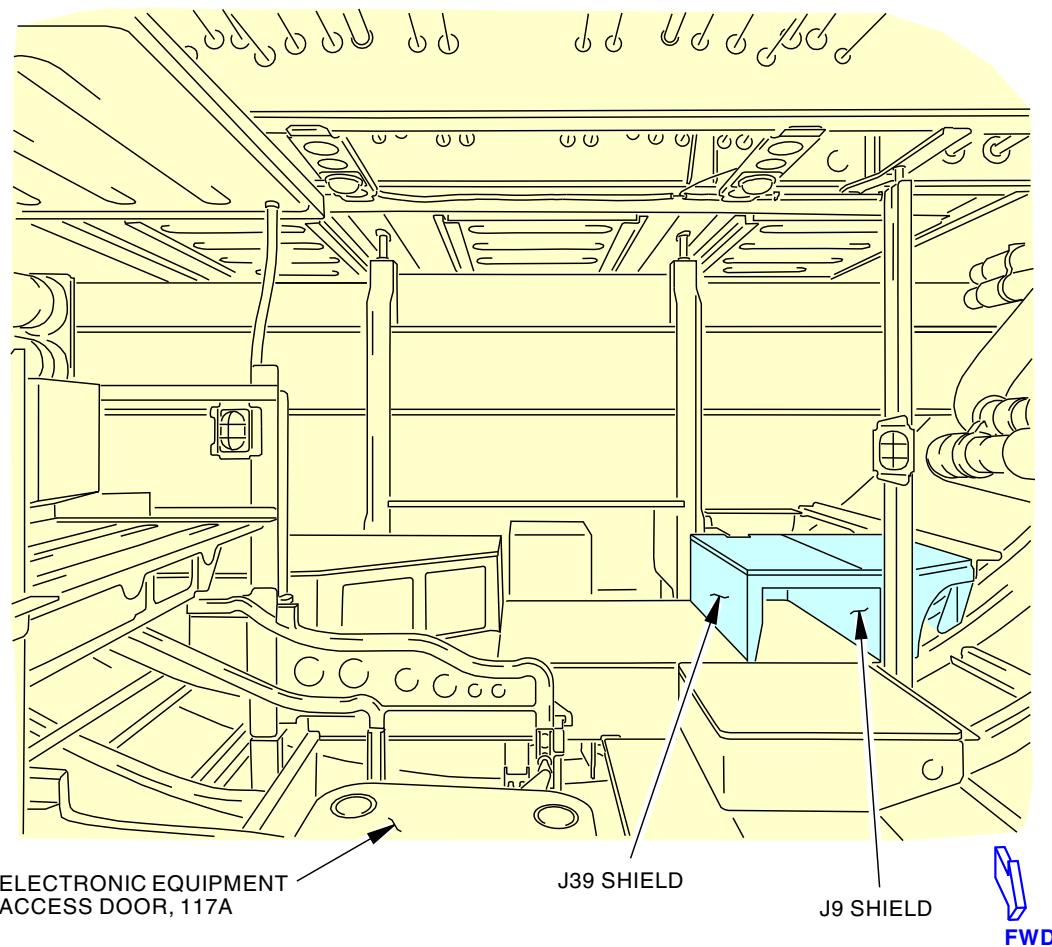
24-31-11
Config 2
Page 405
Feb 15/2020

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



ELECTRICAL AND ELECTRONICS COMPARTMENT

B

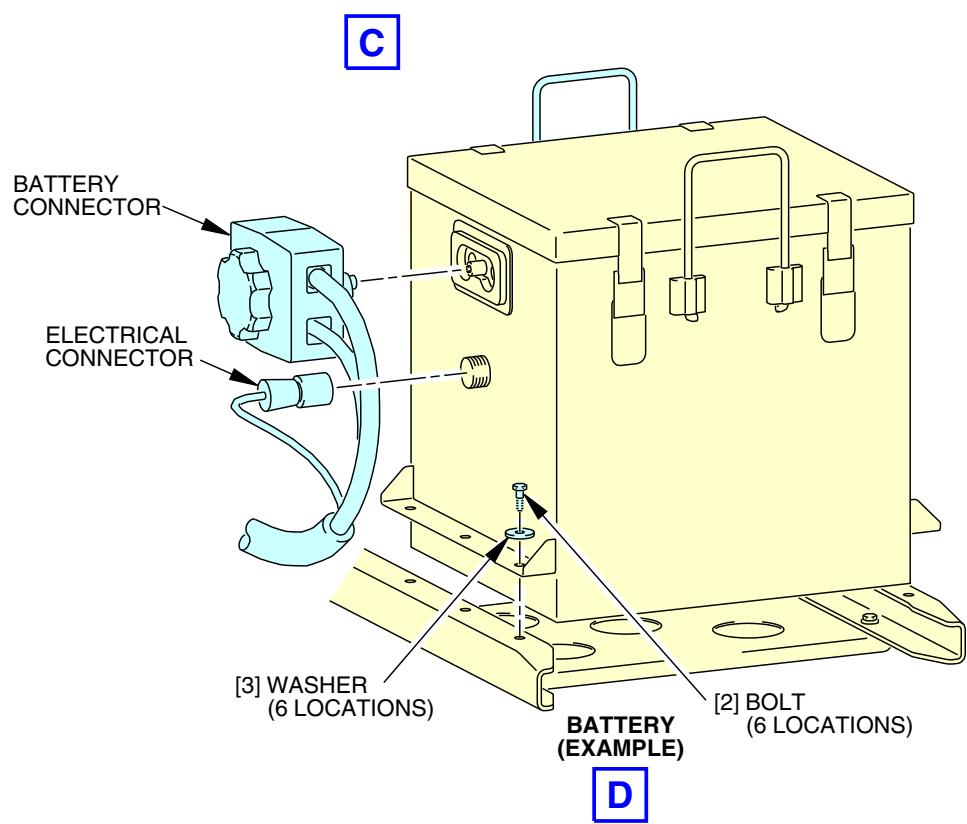
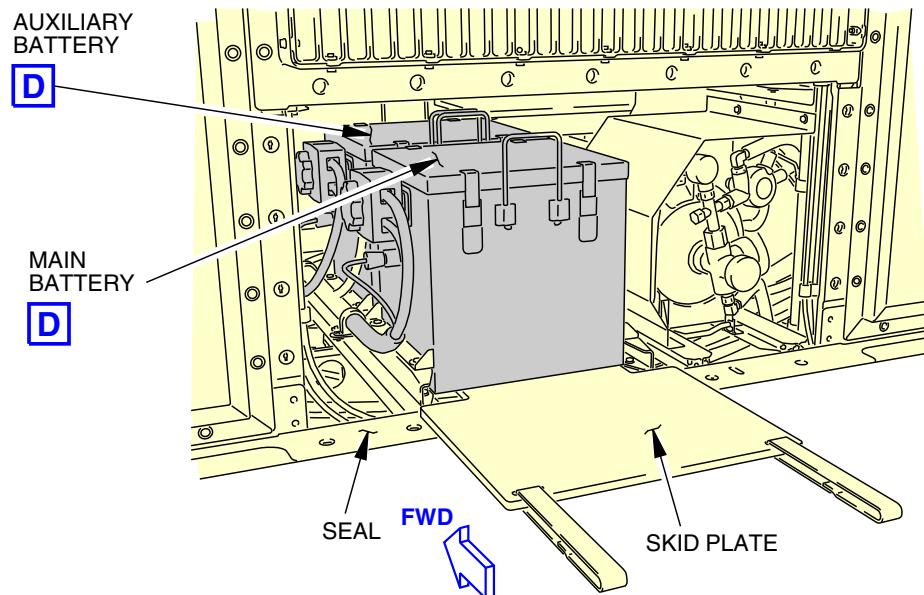
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Battery Installation
Figure 401/24-31-11-990-802-002 (Sheet 3 of 4)

EFFECTIVITY
LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437,
438, 440, 442-445, 450-454, 457, 465

24-31-11
Config 2
Page 406
Oct 15/2024

D633A101-LOM



G35862 S0006566290_V4

Battery Installation
Figure 401/24-31-11-990-802-002 (Sheet 4 of 4)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-31-11
Config 2
Page 407
Feb 15/2025



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-31-11-400-802-002

3. Battery Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The main battery, M6 is located below the E3 equipment rack in the main equipment area. The auxiliary battery, M3054 is located just forward of the main battery.
- (2) The main battery must be removed before you can remove the auxiliary battery. It is not necessary to remove the auxiliary battery to replace the main battery. Both batteries are the same part number.
- (3) The batteries are removed and installed through a liner in the forward cargo area. The circuit breakers for both batteries, on the J9 panel, are installed in the main equipment center.

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)
31-25-00 P/B 501	CLOCKS - ADJUSTMENT/TEST
49-11-00-860-801	APU Starting and Operation (P/B 201)
49-11-00-860-802	APU Usual Shutdown (P/B 201)
FIM 24-31 TASK 801	P5-13 ELEC Light Message 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
SPL-1633	Equipment - Battery Installation Part #: C24003-9 Supplier: 81205 Opt Part #: C24003-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
G02479	Lockwire - MS20995CY20, Copper - 0.020 Inch (0.508 mm) Diameter	NASM20995

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Battery	24-31-11-01-020 24-31-11-02-105	LOM 402, 404, 406 LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

F. Location Zones

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

EFFECTIVITY
**LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465**



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

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

G. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

H. Battery Installation

SUBTASK 24-31-11-420-002-002

- (1) Install the auxiliary battery [1] as follows:

- (a) Put the skid plate, equipment, SPL-1633, in position (Figure 401).



CAUTION DO NOT LET THE BATTERY TOUCH THE CAPSTRIP IMMEDIATELY BELOW THE BATTERY-MOUNTING-RACK. IF THE BATTERY TOUCHES THE CAPSTRIP, THEN IT CAN SCRATCH IT. THIS CAN CAUSE SEAL DAMAGE THAT FORMS WHEN YOU INSTALL THE CLOSE-OUT PANEL.

- (b) Have two persons hold each of the battery handles and lift the battery [1] onto the skid plate.

- 1) Slide the battery into position.

- 2) Make sure that the terminals point left.

- (c) Remove the skid plate.

NOTE: It can be necessary to tilt the battery back some to remove the skid plate.

- (d) Install the bolts [2] and washers [3] on the battery mounting brackets.

- (e) Connect the electrical connector to the battery [1].

- (f) Connect the battery connector to the battery [1].

- 1) Safety wire the battery connector with 0.02 in. (0.508 mm) diameter MS20995CY20 lockwire, G02479 (TASK 20-10-44-400-801).

SUBTASK 24-31-11-420-003-002

- (2) Install the main battery [1] as follows:

- (a) Put the skid plate, equipment, SPL-1633, in position (Figure 401).



CAUTION DO NOT LET THE BATTERY TOUCH THE CAPSTRIP IMMEDIATELY BELOW THE BATTERY-MOUNTING-RACK. IF THE BATTERY TOUCHES THE CAPSTRIP, THEN IT CAN SCRATCH IT. THIS CAN CAUSE SEAL DAMAGE THAT FORMS WHEN YOU INSTALL THE CLOSE-OUT PANEL.

- (b) Have two persons hold each of the battery handles and lift the battery onto the skid plate.

- 1) Slide the battery into position.

- 2) Make sure that the terminals point left.

- (c) Remove the skid plate.

NOTE: It can be necessary to tilt the battery back some to remove the skid plate.

- (d) Install the bolts [2] and washers [3] on the battery mounting brackets.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Connect the electrical connector to the battery [1].
- (f) Connect the battery connector to the battery [1].
 - 1) Safety wire the battery connector with 0.02 in. (0.508 mm) diameter MS20995CY20 lockwire, G02479 (TASK 20-10-44-400-801).

SUBTASK 24-31-11-860-040-002

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-11-420-006

- (4) Install the access cover on top of the J39 shield.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-11-860-053-002

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

Standby Power Control Unit, M01720

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01410	SPCU NORMAL

I. Battery Installation Test

SUBTASK 24-31-11-860-041-002

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

SUBTASK 24-31-11-860-042-002

- (2) Make sure that the STANDBY POWER switch, on the P5-5 panel, is in the AUTO position.

SUBTASK 24-31-11-210-003-002

- (3) Make sure that the ELEC light, on the P5-13 panel, is off.

- (a) To clear ELEC light messages, do this task: FIM 24-31 TASK 801.

SUBTASK 24-31-11-710-008-002

- (4) Do these steps to test the main battery [1]:

- (a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.

- (b) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.

- 1) Remove the DO NOT OPERATE tag, STD-858, from the BAT switch.

- (c) Set the DC meter selector switch, on the P5-13 panel, to the BAT position.

- (d) Make sure that the DC meter, on the P5-13 panel, shows these values:

- 1) DC VOLTS = 22-28

- 2) DC AMPS = a negative value.

NOTE: The battery current is negative when the battery is discharging.

- (e) Make sure that the BAT DISCHARGE light, on the P5-13 panel, comes on in one of these conditions:

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) The battery current is greater than 5 Amps for more than 95 seconds.
 - 2) The battery current is greater than 15 Amps for more than 25 seconds.
 - 3) The battery current is greater than 100 Amps for more than 1.2 seconds.
- (f) For a new or recently re-conditioned batteries, allow the battery to discharge for 5 minutes.
- NOTE: This will help to prevent battery discharge messages after the battery sets to the TR Mode.
- NOTE: New or re-conditioned batteries can hold capacitance better when you set from main mode charge (31.5 V) to the TR mode charger output (27.5V +/- 3%, 26.675 - 28.325V). The battery can have a discharge of more than 5 Amps for more than 95 seconds until the battery voltage equals the TR mode charger output (27.5V +/- 3%, 26.675 - 28.325V).
- (g) Set the GRD PWR switch to the ON position.
- (h) Make sure that the DC AMPS value goes to 45 ± 10 AMPS and then goes down to less than 5 AMPS within 180 minutes.
- NOTE: When charging the battery at 45 ± 10 Amps, the battery voltage will increase to 31.5 ± 2 Volts.
- NOTE: 180 minutes is the maximum. It can take less time depending the state of the battery.
- (i) Make sure that the DC VOLTS value goes to 27.5 ± 2 Volts.
- NOTE: After Main Mode charge the battery will decrease from 31.5V to 27.5V.
- (j) Make sure that the BAT DISCHARGE light goes off.
- NOTE: For a new or re-conditioned batteries, the BAT DISCHARGE light may come on 95 seconds after the battery charger goes into the TR mode. This condition will continue until the battery decreases under 5 Amps of discharge for one second. A discharge will show on the P5-13 panel (DC meter selector switch set to BAT) until the battery voltage equals the TR mode charger output (27.5V +/- 3%, 26.675 - 28.325V).
- 1) If the BAT DISCHARGE light stays on, do these steps:
 - a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
 - b) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
 - c) Do this task: APU Usual Shutdown, TASK 49-11-00-860-802.
 - d) Do the above test again.

SUBTASK 24-31-11-710-009-002

- (5) Do these steps to test auxiliary battery [1]:
- (a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
 - (b) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.
 - 1) Remove the DO NOT OPERATE tag, STD-858, from the BAT switch.
 - (c) Set the DC meter selector switch, on the P5-13 panel, to the AUX BAT position.
 - (d) Make sure that the DC meter, on the P5-13 panel, shows these values:
 - 1) DC VOLTS = 22-28
 - 2) DC AMPS = a negative value.

NOTE: The battery current is negative when the battery is discharging.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Make sure that the BAT DISCHARGE light, on the P5-13 panel, comes on in one of these conditions:
 - 1) The battery current is greater than 5 Amps for more than 95 seconds.
 - 2) The battery current is greater than 15 Amps for more than 25 seconds.
 - 3) The battery current is greater than 100 Amps for more than 1.2 seconds.
- (f) For a new or recently re-conditioned batteries, allow the battery to discharge for 5 minutes.

NOTE: This will help to prevent battery discharge messages after the battery sets to the TR Mode.

NOTE: New or re-conditioned batteries can hold capacitance better when you set from main mode charge (31.5 V) to the TR mode charger output (27.5V +/- 3%, 26.675 - 28.325V). The battery can have a discharge of more than 5 Amps for more than 95 seconds until the battery voltage equals the TR mode charger output (27.5V +/- 3%, 26.675 - 28.325V).
- (g) Set the GRD PWR switch to the ON position.
- (h) Make sure that the DC AMPS value goes to 45 ± 10 AMPS and then goes down to less than 5 AMPS within 180 minutes.

NOTE: When charging the battery at 45 ± 10 Amps, the battery voltage will increase to 31.5 ± 2 Volts.

NOTE: 180 minutes is the maximum. It can take less time depending the state of the battery.
- (i) Make sure that the DC VOLTS value goes to 27.5 ± 2 Volts.
- (j) Make sure that the BAT DISCHARGE light goes off.

NOTE: For a new or re-conditioned batteries, the BAT DISCHARGE light may come on 95 seconds after the battery charger goes into the TR mode. This condition will continue until the battery decreases under 5 Amps of discharge for one second. A discharge will show on the P5-13 panel (DC meter selector switch set to BAT) until the battery voltage equals the TR mode charger output (27.5V +/- 3%, 26.675 - 28.325V).

 - 1) If the BAT DISCHARGE light stays on, do these steps:
 - a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
 - b) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
 - c) Do this task: APU Usual Shutdown, TASK 49-11-00-860-802.
 - d) Do the above test again.

SUBTASK 24-31-11-860-043-002

- (6) Set the clocks to the correct date and Greenwich Mean Time (GMT) (PAGEBLOCK 31-25-00/501).

SUBTASK 24-31-11-860-044-002

- (7) Get access to the main equipment center.
 - (a) Make sure that the BATTERY and CHARGER lights on the front of the main battery charger and auxiliary battery charger are on.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

J. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-11-410-003-002

- (1) Install the forward bulkhead liner.

SUBTASK 24-31-11-410-004-002

- (2) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

———— END OF TASK ————

— EFFECTIVITY —
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-11
Config 2
Page 413
Feb 15/2025

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

BATTERY - ADJUSTMENT/TEST

1. General

- A. This procedure contains this task:
 - (1) Battery Discharge Check
- B. The main battery, M6, is located below the E3 equipment rack in the main equipment area.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- C. The auxiliary battery, M3054, is located just forward of the main battery.
- D. The main battery must be removed before you can remove the auxiliary battery. You do not have to remove the auxiliary battery to replace the main battery.

LOM ALL

TASK 24-31-11-710-801

2. Battery Discharge Check

A. General

- (1) This task contains steps to functionally check the main and if applicable, auxiliary battery, to determine their state of charge.
 - (a) When batteries are found to be in a low state of charge, this task contains steps to evaluate them and will refer the operator to accomplish a battery installation test if it is necessary.
 - (b) When batteries discharge at an excessively high rate, this task contains steps to evaluate and will refer the user to the applicable fault isolation procedure.
- (2) This task does not test the battery capacitance.
- (3) This test covers the following 737NG model single and dual battery configurations:
 - (a) 737-700
 - 1) Single Battery System
 - a) 40A Nominal Amp draw.
 - 2) Dual Battery System
 - a) 20A Nominal Amp draw per battery.
 - (b) 737-800
 - 1) Single Battery System
 - a) 46A Nominal Amp draw.
 - 2) Dual Battery System
 - a) 23A Nominal Amp draw per battery.
 - (c) 737-900
 - 1) Only Single Battery System
 - a) 49A Nominal Amp draw.
- (4) Battery System Evaluation Criteria

LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

- (a) Single Battery Systems

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999 (Continued)

- 1) If amperage reading is < 20% nominal draw, recommend following procedural steps to accomplish battery installation test (TASK 24-31-11-400-801-001).
- 2) If amperage reading is > 20% nominal draw, recommend following procedural steps to isolate source of excessive draw.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

(b) Dual Battery System

- 1) If unbalanced, one battery's amperage reading is low (< 30% of nominal draw), while the other battery is high (> 30% of nominal draw), it is recommended to follow the steps to accomplish the battery installation test (TASK 24-31-11-400-802-002).
- 2) If an individual battery amperage reading is > 30% nominal draw, recommend following procedural steps to isolate source of excessive draw.

LOM ALL

B. References

Reference	Title
24-31-11-400-801-001	Battery Installation (P/B 401)
24-31-11-400-802-002	Battery Installation (P/B 401)
24-34-00-710-801	The Operational Test of the Standby Power System (P/B 501)
24-34-00-710-802	The Operational Test of the Standby Power System (P/B 501)
FIM 24-31 TASK 801	P5-13 ELEC Light Message BITE Procedure
FIM 24-31 TASK 825	AUX BAT CHGR INOP Message - Fault Isolation
FIM 24-31 TASK 829	BAT CHGR INOP Message - Fault Isolation
FIM 24-31 TASK 833	BAT DISCHARGE Light - Fault Isolation
SSM 24-31-11	System Schematics Manual
SSM 24-31-12	System Schematics Manual
SSM 24-61-11	System Schematics Manual

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 Check

SUBTASK 24-31-11-860-068

- (1) Make sure that the STANDBY POWER switch, on the P5-5 panel, is in the AUTO position.

SUBTASK 24-31-11-860-069

- (2) Make sure that both select switches, on the Inertial Reference System (IRS) Mode Select Unit (MSU), are set to the OFF position.

SUBTASK 24-31-11-210-009

- (3) Make sure that the ELEC light, on the P5-13 panel, is off.

- (a) To clear ELEC light messages, do this task: FIM 24-31 TASK 801.

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

E. Battery Discharge Check

SUBTASK 24-31-11-710-012

- (1) Do the following steps to test the main battery:

- Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
- Select BAT switch, on the P5-13 panel, to the ON position.
- Wait for the BAT DISCHARGE light, on the P5-13 panel, to come on.

NOTE: Make sure that the light comes on after approximately 25 seconds. Also, with the BAT switch set to ON and no other power source available, the battery will discharge. This battery discharge will put the battery in to a below specification condition. Thus, you must keep the time that the BAT switch is in the ON position to a minimum.

- Set the DC meter selector switch, on the P5-13 panel, to the BAT position.
- Make sure that the DC meter, on the P5-13 panel, indicates a negative value within the following range in the table below.

NOTE: A negative DC AMP value indicates that the battery is discharging.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- (2) Do the following steps to test the auxiliary battery on a dual battery system:

- Set the DC meter selector switch, on the P5-13 panel, to the AUX BAT position.
- Make sure that the DC meter, on the P5-13 panel, indicates a negative value within the following range in the table below.

NOTE: A negative DC AMP value indicates that the battery is discharging

LOM ALL

F. Evaluation

SUBTASK 24-31-11-700-001

- (1) If a battery reading is lower than the value in Table 501, e.g. 737-900 is <-39A; then the battery is less than optimally charged. In order to determine the condition of the battery and battery charger system do the following:

LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

- Accomplish a battery installation test for the battery (TASK 24-31-11-400-801-001).

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- Accomplish a battery installation test for the battery that recorded low current draw during the test (TASK 24-31-11-400-802-002).

LOM ALL

- Repeat test.

NOTE: If the battery installation test or this battery discharge test fails again, either the battery or battery charger system is degraded. Troubleshoot per Fault Isolation Manual (FIM).

- Main Battery: FIM 24-31 TASK 829.



24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- 2) Auxiliary Battery: FIM 24-31 TASK 825.

LOM ALL

- (2) If a battery reading is higher than the value in Table 501, example: 737-900 is > -59A; then the amperage draw is excessive. To fault isolate, do the following:
 - (a) Cycle STANDBY POWER switch, on the P5-5 panel, from AUTO to OFF then back to AUTO position.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- 1) If amperage immediately returned to within nominal range, the Standby Power Control Unit (SPCU) may have intermittently sticking relay contacts. Do this task: The Operational Test of the Standby Power System, TASK 24-34-00-710-802.

LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

- 2) If amperage immediately returned to within nominal range, the SPCU may have intermittently sticking relay contacts (TASK 24-34-00-710-801).

LOM ALL

- 3) If amperage remains high, check the battery current sensing wiring (FIM 24-31 TASK 833).
- 4) If amperage remains high, fault isolate individual branch circuit by alternately pulling the SPCU circuit breakers (SSM 24-31-11, SSM 24-31-12, SSM 24-61-11).

NOTE: By de-energizing individual circuits, the user can isolate to the defective branch circuit component or to the SPCU.

Table 501/24-31-11-993-802 Battery Discharge Table

Battery Configuration	Airplane Models		
	737-700	737-800	737-900
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999			
Single Battery System Main Battery (20% Deviation Range)	-32 — -48	-37 — -55	-39 — -59
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465			
Dual Battery System Main & Auxiliary Battery (30% Deviation Range)	-14 — -26	-16 — -30	N/A

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

BATTERY CONNECTOR - INSPECTION/CHECK

1. General

- A. This procedure contains this task:
 - (1) Battery Connector Inspection
- B. The main battery, M6, is located below the E3 equipment rack in the main equipment area.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- C. The auxiliary battery, M3054, is located just forward of the main battery.
- D. The main battery must be removed before you can remove the auxiliary battery. You do not have to remove the auxiliary battery to replace the main battery.

LOM ALL

TASK 24-31-11-200-801

2. Battery Connector Inspection

(Figure 601)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-50-11 P/B 201	STANDARD TORQUE VALUES - MAINTENANCE PRACTICES
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
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)
31-25-00 P/B 501	CLOCKS - ADJUSTMENT/TEST
49-11-00-860-801	APU Starting and Operation (P/B 201)
49-11-00-860-802	APU Usual Shutdown (P/B 201)
FIM 24-31 TASK 801	P5-13 ELEC Light Message BITE Procedure
SWPM 20-30-11	Standard Wiring Practices Manual
SWPM 20-62-25	Standard Wiring Practices 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
SPL-12292	Gage Tool - Battery Inspection Part #: J24016-1 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
G02479	Lockwire - MS20995CY20, Copper - 0.020 Inch (0.508 mm) Diameter	NASM20995

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

D. 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

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Inspection

SUBTASK 24-31-11-860-056

- (1) Make sure that the BAT switch, on the P5-13 panel, is set to the OFF position.

SUBTASK 24-31-11-860-066

- (2) Make sure that the STANDBY POWER switch, on the P5-5 panel, is set to the AUTO position.

SUBTASK 24-31-11-860-057

- (3) Open this circuit breaker and install safety tag:

Standby Power Control Unit, M01720

Row	Col	Number	Name
B	1	C01410	SPCU NORMAL

SUBTASK 24-31-11-010-006

- (4) To get access to the main equipment center, do this step:

- (a) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 24-31-11-010-007

- (5) Remove the access cover on top of the J39 shield to get access to the circuit breakers.

LOM ALL

SUBTASK 24-31-11-860-058

- (6) Open these circuit breakers and install safety tags:

Battery Shield, J9

Row	Col	Number	Name
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465	A	3	C01209 AUX BAT CHARGER

LOM ALL

A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-31-11-010-008

- (7) Get access to the forward cargo area through the forward cargo door.

- (a) Remove the forward bulkhead liner to get access to the battery, do this task: Forward Cargo Compartment Forward Bulkhead Liner - Removal, TASK 25-52-16-000-801.

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-11-020-007

- (8) Disconnect the connectors from the battery:
 - (a) Remove MS20995CY20 lockwire, G02479, from the connector jackscrew knob [12].
 - (b) Turn the jackscrew knob [12] on the battery power connector counterclockwise until the connector is free from the battery receptacle.
 - (c) Disconnect the battery sensor connector from the battery receptacle.

G. Battery Connector Inspection

SUBTASK 24-31-11-210-004

- (1) Examine the battery sensor connector:
 - (a) If you find one of the conditions below, repair or replace the connector:
 - 1) Corrosion or pitting of the contacts
 - 2) Burn marks on the contacts
 - 3) Bent or pushed back contacts
 - 4) Damage or corrosion to the connector body.

SUBTASK 24-31-11-210-005

- (2) Do the check of the battery power connector:
 - (a) Disassemble the battery power connector:
 - 1) Remove the screws [3], washers [4], and nuts [5] that attach the housing [1] to the housing [2].
 - 2) Remove the housing [1] from the housing [2].
 - (b) Examine the battery power connector:
 - 1) If you find one of the conditions below, replace the battery power connector (SWPM 20-62-25):
 - a) Corrosion and pitting of the power contacts [11] or the terminal lug [9] mating surfaces
 - b) Excessive free play or broken pins on the handwheel-worm assembly
 - c) Burn marks on the power contacts [11], or the mating surfaces between the terminal lug [9] and the contact bar [6] or terminal stud [8].

LOM ALL; AIRPLANES WITH SPIRAL SPRING TYPE CONNECTORS

- (c) Use the battery inspection gage tool, SPL-12292, to do a check of the power contact [11] as follows:
 - 1) Put the 0.385 end of the tool into the power contact [11].
 - a) Make sure that the fit is snug and it requires at least 1 lbf (4 N) to remove the tool.
- NOTE: Attach the force gage through the hole in the tool.

LOM ALL; AIRPLANES WITH LONGITUDINAL SPRING TYPE CONNECTORS

- (d) Use the battery inspection gage tool, SPL-12292, to do a check of the power contact [11] to connect with a worn or incorrect pin as follows:
 - 1) Put the 0.370 end of the tool in the power contact [11].

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM ALL; AIRPLANES WITH LONGITUDINAL SPRING TYPE CONNECTORS (Continued)

- a) Make sure that the fit is snug and it requires at least 0.8 lbf (3.6 N) to remove the tool.

NOTE: Attach the force gage through the hole in the tool.

LOM ALL

- (e) Do a check of the 2 contact bars [6]:
 - 1) If the 2 contact bars [6] are held on with a screw [7], make sure that the 2 screws [7] are tight and the 2 contact bars [6] are tight.
 - a) Use standard torque values for the 2 screws [7] (PAGEBLOCK 20-50-11/201).
 - 2) If the 2 contact bars [6] are held with a rivet, make sure that the 2 contact bars [6] can not be removed from the housing [1].
- NOTE: The contact bar is loose on the housing.
- (f) If the terminal lug [9] or terminal stud [8] is damaged, deformed, discolored or annealed, repair or replace the terminal lug [9] (SWPM 20-62-25).
 - 1) Use a high temperature terminal lug to replace the annealed terminal lug [9] (SWPM 20-30-11).
- (g) Tighten the nuts [10] to 145 ± 10 in-lb (16.4 ± 1.1 N·m) (SWPM 20-62-25).
 - 1) Do not pull or move the wires after the nuts [10] are tightened.
- (h) If the shipping plug [13] are installed, remove the shipping plug [13].

NOTE: Wire type contacts have less contact surface.
- (i) Assemble the battery power connector (SWPM 20-62-25):
 - 1) Put the housing [1] on the housing [2].
 - 2) Make sure that the housing [1] and housing [2] touch on all sides of the connector.
 - a) If the housing [1] and housing [2] do not touch on all sides of the connector, adjust the connector (SWPM 20-62-25).
 - 3) Install the screws [3], washers [4] and nuts [5] that attach the housing [1] to the housing [2].
 - 4) Tighten the screws [3] to 32 in-lb (4 N·m).
- (j) Make sure that the wires are centered in the connector openings.
- (k) Connect the battery sensor connector to the battery.
- (l) Put the battery power connector into the battery receptacle on the battery.
 - 1) Turn the jackscrew knob [12] on the connector clockwise with your hand until it is tight.
 - 2) Use the double twist method to install the MS20995CY20 lockwire, G02479, from the battery power connector jackscrew knob [12] to one of the connector bolts (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801).

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-11-860-059

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

A	3	C01209	AUX BAT CHARGER
---	---	--------	-----------------

LOM ALL

A	4	C00142	BATTERY CHARGER
---	---	--------	-----------------

A	5	C01340	BATTERY BUS
---	---	--------	-------------

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 24-31-11-410-006

- (4) Install the access cover on top of the J39 shield.

LOM ALL

SUBTASK 24-31-11-860-060

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

Standby Power Control Unit, M01720

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

B	1	C01410	SPCU NORMAL
---	---	--------	-------------

H. Battery Installation Test

SUBTASK 24-31-11-860-061

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

SUBTASK 24-31-11-860-062

- (2) Make sure that the STANDBY POWER switch, on the P5-5 panel, is in the AUTO position.

SUBTASK 24-31-11-210-006

- (3) Make sure that the ELEC light, on the P5-13 panel, is off.

(a) To clear ELEC light messages, do this task: P5-13 ELEC light Message BITE Procedure (FIM 24-31 TASK 801).

SUBTASK 24-31-11-710-010

- (4) Do these steps to test the main battery:

(a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.

(b) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.

(c) Set the DC meter selector switch, on the P5-13 panel, to the BAT position.

(d) Make sure that the DC meter, on the P5-13 panel, shows these values:

1) DC VOLTS = 22-28

2) DC AMPS = a negative value.

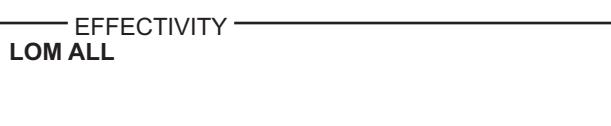
NOTE: The battery current is negative when the battery is discharging.

(e) Make sure that the BAT DISCHARGE light, on the P5-13 panel, comes on. This light will come on when any of these conditions are met:

1) The battery current is greater than 5 Amps for more than 95 seconds.

2) The battery current is greater than 15 Amps for more than 25 seconds.

3) The battery current is greater than 100 Amps for more than 1.2 seconds.



24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (f) Set the GRD PWR switch to the ON position.
- (g) Make sure that the DC AMPS value goes to 45 ± 10 AMPS and then goes down to less than 5 AMPS within 180 minutes.
NOTE: 180 minutes is the maximum. It can take less time depending the state of the battery.

LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

- (h) Make sure that the DC VOLTS value goes to 27.5 ± 2 VOLTS.
NOTE: After Main Mode charge the battery will decrease from 31.5V to 27.5V.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- (i) Make sure that the DC VOLTS value goes to 30 ± 3 VOLTS.

LOM ALL

- (j) Make sure that the BAT DISCHARGE light goes off.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- 1) If the BAT DISCHARGE light stays on, then do these steps:
 - a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
 - b) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
 - c) Do this task: APU Usual Shutdown, TASK 49-11-00-860-802.
 - d) Do the above test again.

SUBTASK 24-31-11-710-011

- (5) Do these steps to test auxiliary battery:
 - (a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
 - (b) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.
 - (c) Set the DC meter selector switch, on the P5-13 panel, to the AUX BAT position.
 - (d) Make sure that the DC meter, on the P5-13 panel, shows these values:
 - 1) DC VOLTS = 22-28
 - 2) DC AMPS = a negative value.
NOTE: The battery current is negative when the battery is discharging.
- (e) Make sure that the BAT DISCHARGE light on the P5-13 panel comes on. This light will come on when any of these conditions are met:
 - 1) The battery current is greater than 5 Amps for more than 95 seconds.
 - 2) The battery current is greater than 15 Amps for more than 25 seconds.
 - 3) The battery current is greater than 100 Amps for more than 1.2 seconds.
- (f) Set the GRD PWR switch to the ON position.
- (g) Make sure that the DC AMPS value goes to 45 ± 10 AMPS and then goes down to less than 5 AMPS within 180 minutes.
NOTE: 180 minutes is the maximum. It can take less time depending the state of the battery.
- (h) Make sure that the DC VOLTS value goes to 30 ± 3 VOLTS.
- (i) Make sure that the BAT DISCHARGE light goes off.

EFFECTIVITY
LOM ALL

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
(Continued)

- 1) If the BAT DISCHARGE light stays on, then do these steps:
 - a) Set the GRD PWR switch on the P5-4 panel to the OFF position.
 - b) Do this task: APU Starting and Operation, TASK 49-11-00-860-801.
 - c) Do this task: APU Usual Shutdown, TASK 49-11-00-860-802.
 - d) Do the above test again.

LOM ALL

SUBTASK 24-31-11-860-063

- (6) Set the clocks to the correct date and Greenwich Mean Time (GMT) (CLOCKS - ADJUSTMENT/TEST, PAGEBLOCK 31-25-00/501).

SUBTASK 24-31-11-860-064

- (7) Get access to the main equipment center.
 - (a) Make sure that the BATTERY and CHARGER lights on the front of the battery charger are on.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-11-410-007

- (1) Install the forward bulkhead liner, do this task: Forward Cargo Compartment Forward Bulkhead Liner - Installation, TASK 25-52-16-400-801.

SUBTASK 24-31-11-410-008

- (2) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

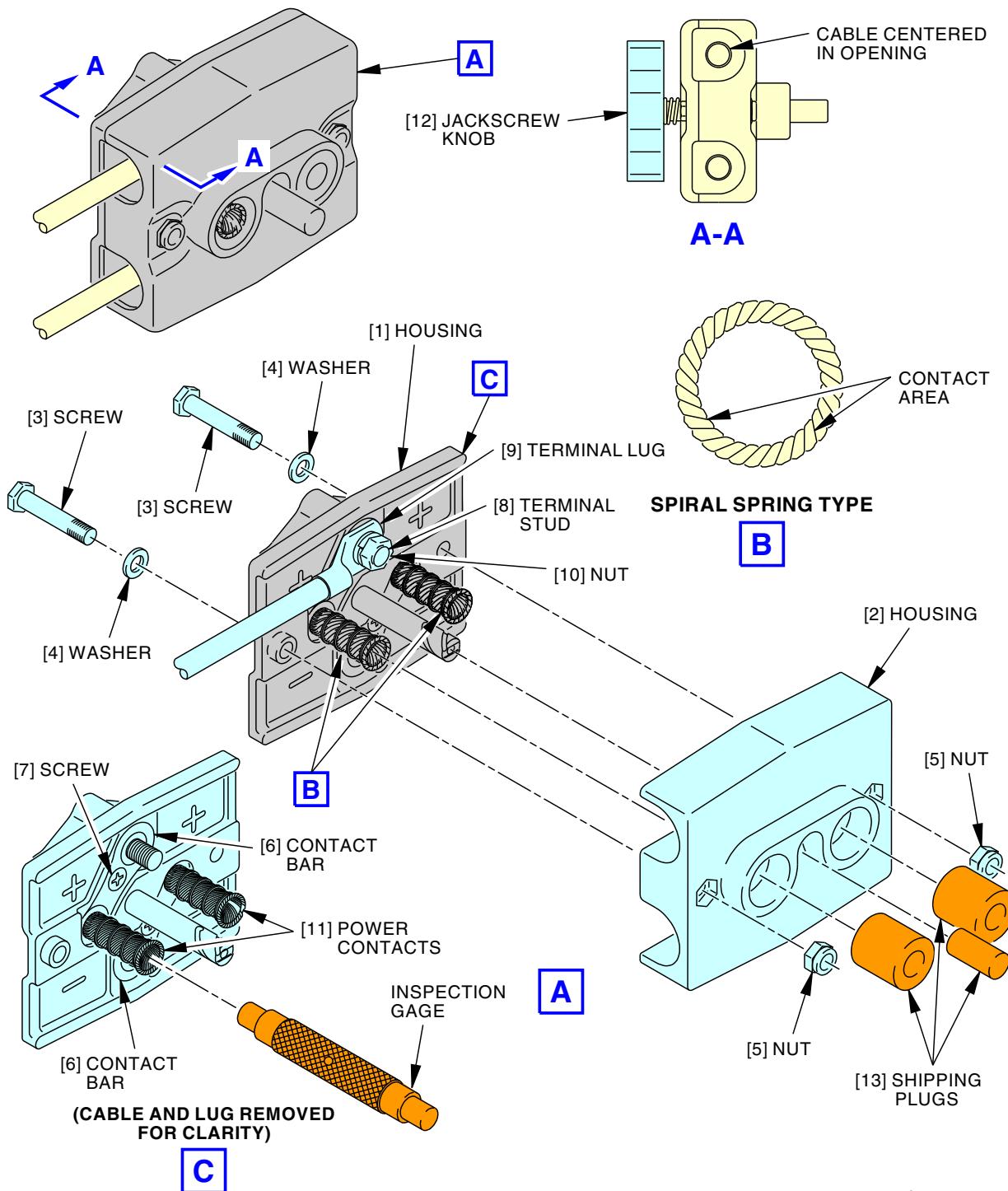
SUBTASK 24-31-11-860-065

- (3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-31-11



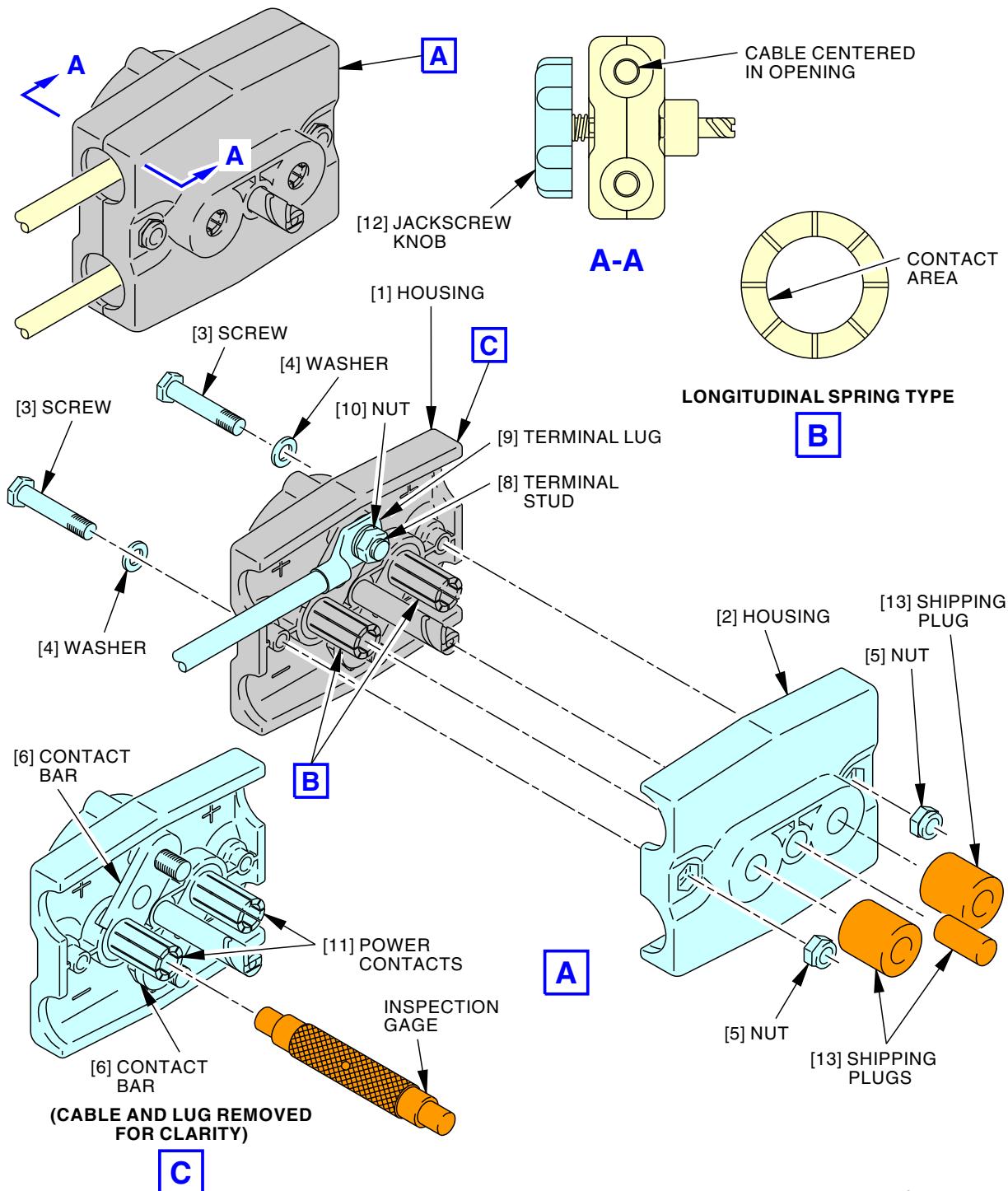
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Battery Connector Inspection/Check

Figure 601/24-31-11-990-804 (Sheet 1 of 2)

24-31-11

Page 608
Feb 15/2023



Battery Connector Inspection/Check
Figure 601/24-31-11-990-804 (Sheet 2 of 2)

EFFECTIVITY
LOM ALL; AIRPLANES WITH LONGITUDINAL
SPRING TYPE CONNECTORS

24-31-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

MAIN BATTERY CHARGER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the Main Battery Charger
 - (2) An installation of the Main Battery Charger.

TASK 24-31-21-000-802-002

2. Main Battery Charger Removal

(Figure 401)

A. General

- (1) The M5 Battery Charger is located on the E2-1 equipment rack in the main equipment center.

B. 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)

C. Location Zones

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

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 24-31-21-010-003-002

- (1) Set the BAT switch, on the P5-13 panel, to the OFF position.

SUBTASK 24-31-21-010-004-002

- (2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 24-31-21-020-005

- (3) Remove the access cover on top of the J39 shield to get access to the circuit breakers.

LOM ALL

SUBTASK 24-31-21-860-004-002



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-31-21

Config 2

Page 401

Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.



CAUTION

DO NOT DISCONNECT THE BATTERY CHARGER BEFORE YOU OPEN THE CIRCUIT BREAKERS. WITH THE BATTERY SWITCH IN THE OFF POSITION, THE BATTERY WILL CONTINUE TO ENERGIZE THE POSITIVE TERMINAL OF THE BATTERY CHARGER. IF YOU DISCONNECT THE BATTERY CHARGER BEFORE YOU OPEN THE CIRCUIT BREAKERS, YOU CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00809	BAT CHGR

NOTE: When these circuit breakers are opened the battery will supply power to the hot battery bus. You can remove the main battery connector to stop the drain on the battery.

F. Main Battery Charger Removal

SUBTASK 24-31-21-910-003-002



CAUTION

DO NOT TOUCH THE BATTERY CHARGER BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

- (1) Before you touch the battery charger [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

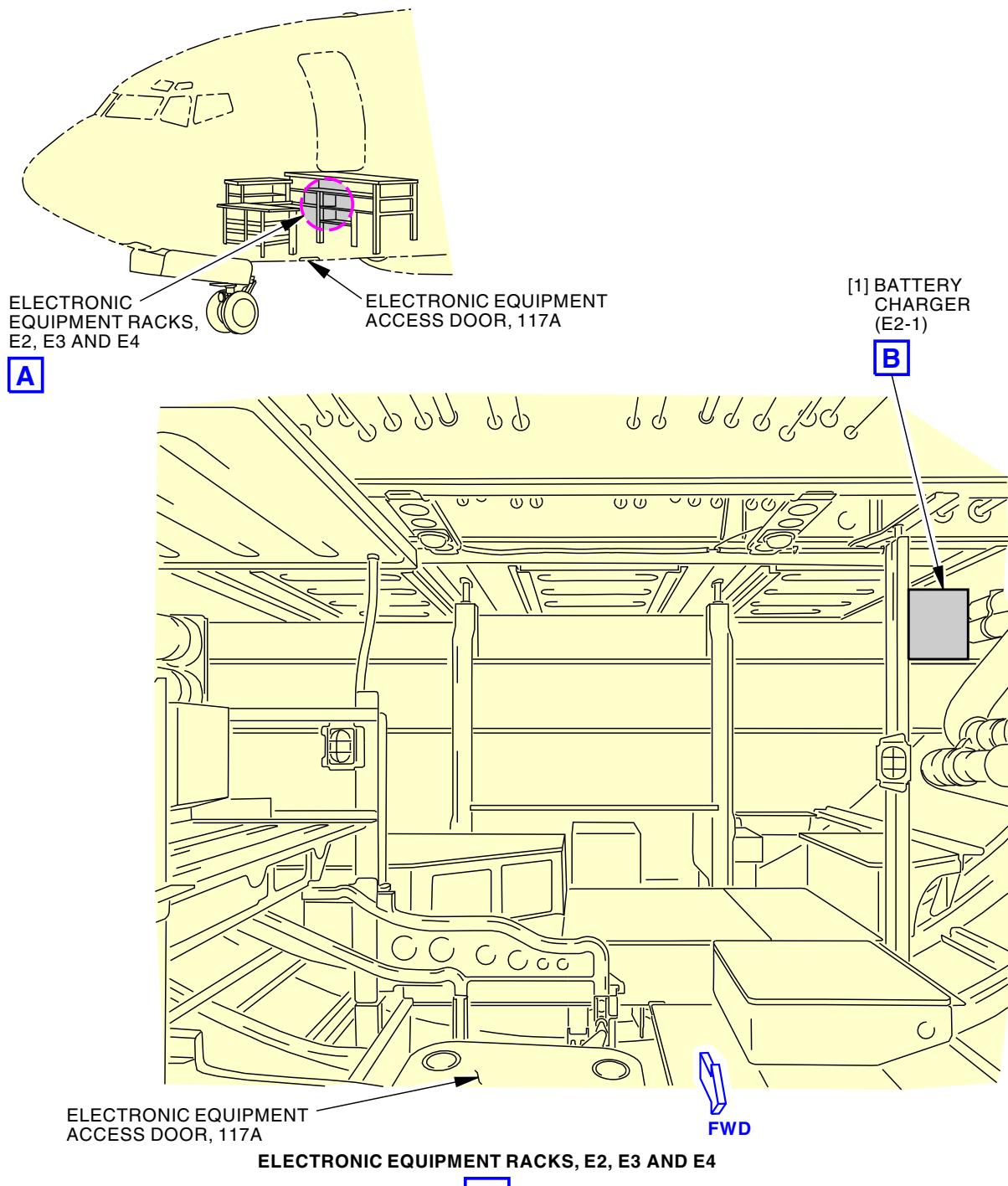
SUBTASK 24-31-21-020-002-002

- (2) Remove the battery charger [1] per the steps that follow:

- (a) Remove the electrical connector from the front of the battery charger [1].
- (b) Remove the screw [9], washers [8], and washer [11] to remove the terminal block cover [10] from the battery charger [1].
- (c) Remove the terminal block cover [10] from the front of the battery charger [1].
- (d) Remove the nut [2], lockwasher [3], and washer [4] from the terminal stud.
- (e) Remove the nut [7], lockwasher [6], and washer [5] from the terminal stud.
- (f) Remove the wires from the terminals.
- (g) To remove the battery charger [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

— END OF TASK —

EFFECTIVITY
LOM ALL



G37149 S0006566308_V2

Main Battery Charger Installation
Figure 401/24-31-21-990-802-002 (Sheet 1 of 3)

 EFFECTIVITY
 LOM 402, 404, 406

24-31-21

Config 2

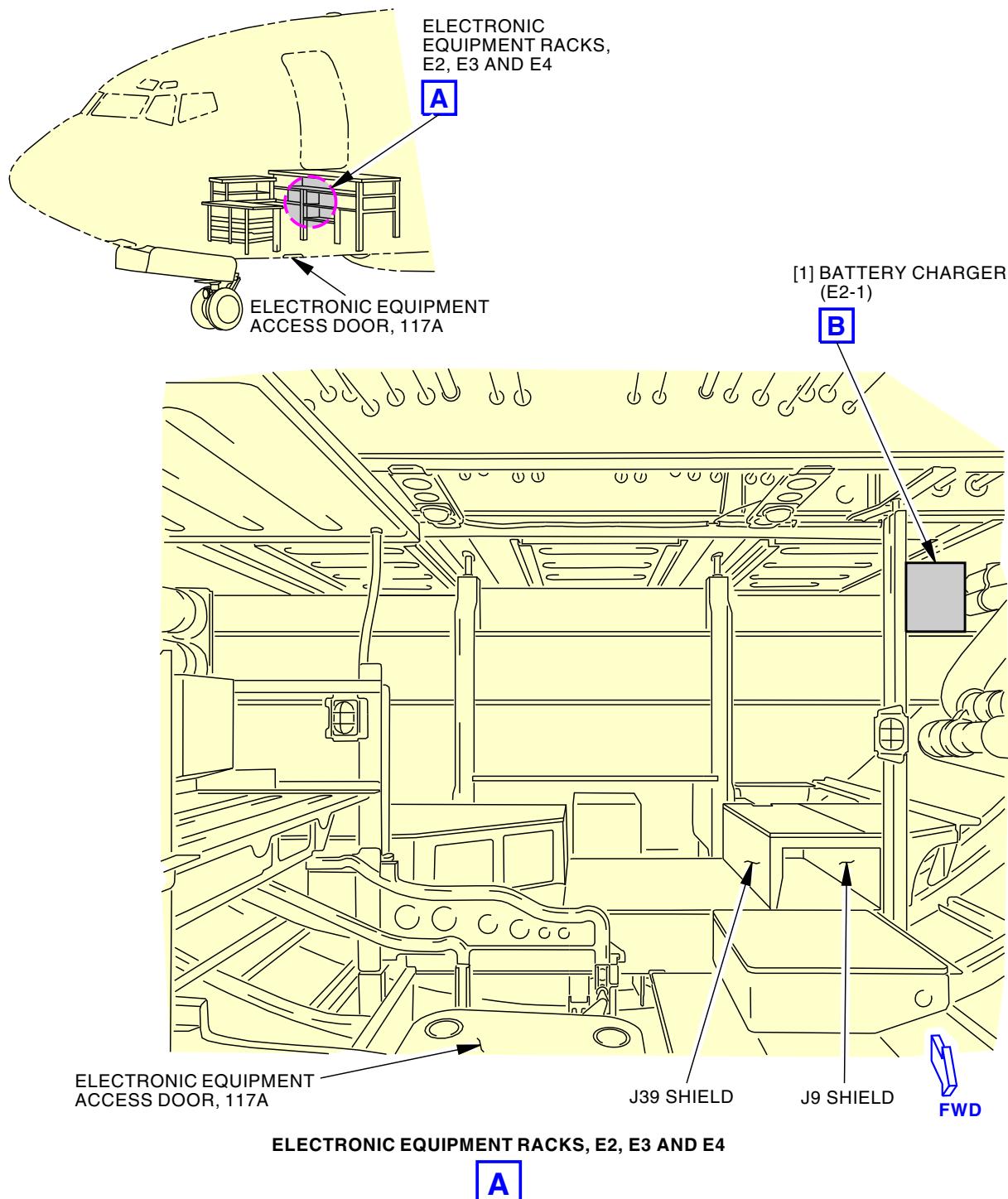
Page 403

Feb 15/2020

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



ELECTRONIC EQUIPMENT RACKS, E2, E3 AND E4

A

1494886 S0000271000_V2

Main Battery Charger Installation
Figure 401/24-31-21-990-802-002 (Sheet 2 of 3)

EFFECTIVITY
LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447,
450-999

24-31-21

Config 2

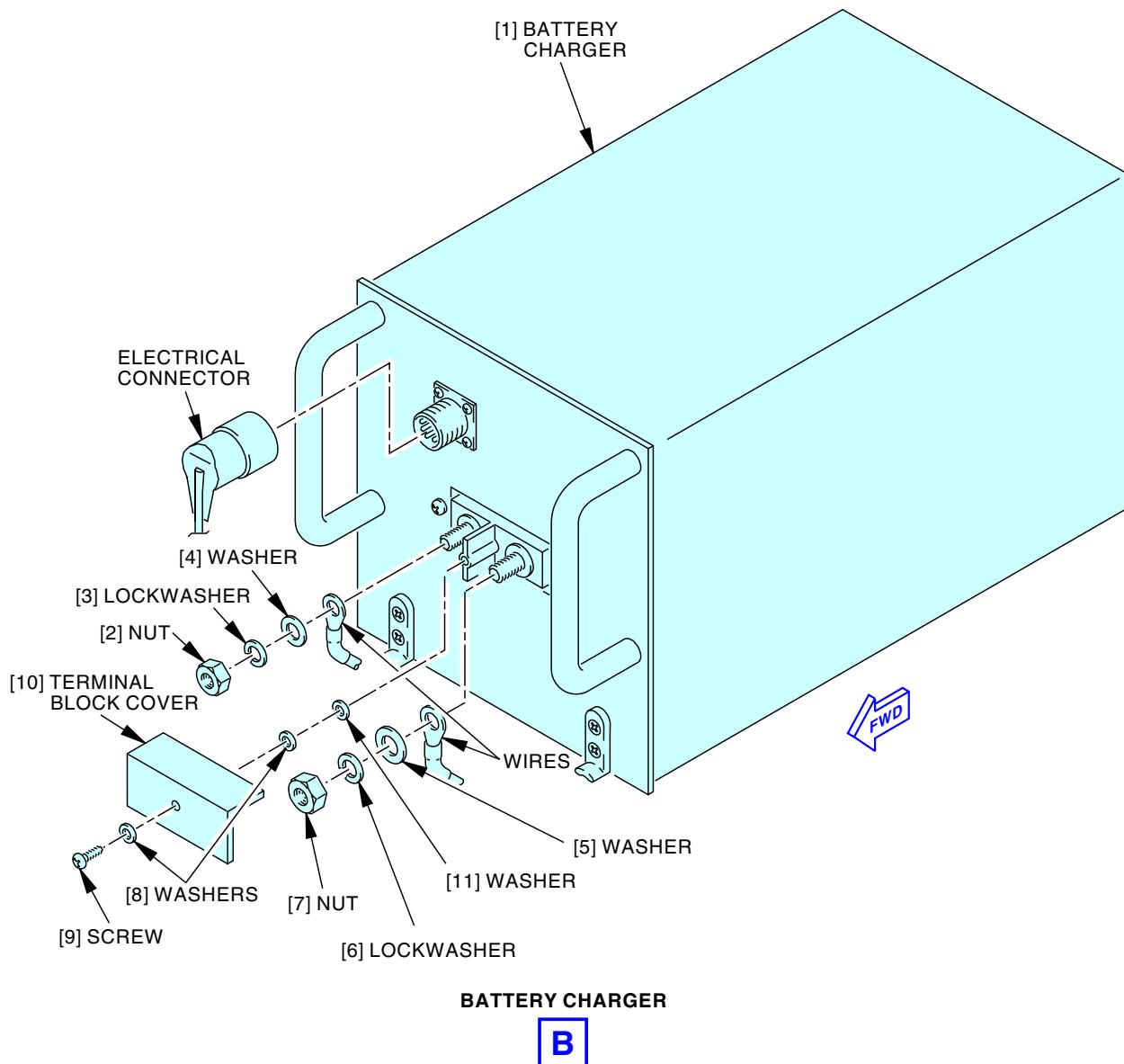
Page 404

Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



G37151 S0006566309_V3

Main Battery Charger Installation
Figure 401/24-31-21-990-802-002 (Sheet 3 of 3)

EFFECTIVITY
LOM ALL

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-31-21
Config 2
Page 405
Jun 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-31-21-400-802-002

3. Main Battery Charger 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)
24-31-21-710-801	Main Battery Charger Operational Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Battery charger	24-31-21-01J-015	LOM ALL

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. Main Battery Charger Installation

SUBTASK 24-31-21-910-004-002



CAUTION
DO NOT TOUCH THE BATTERY CHARGER BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

- (1) Before you touch the battery charger [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 24-31-21-420-002-002

- (2) Install the battery charger [1] on the E2-1 shelf, do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 24-31-21-420-003-002

- (3) Connect the battery charger [1], do these steps:
 - (a) Install the wires on the terminal studs of the battery charger [1].
 - (b) Install the nut [2], lockwasher [3], and washer [4] on the terminal stud.
 - (c) Tighten the nut [2] to 145 ± 10 in-lb (16.38 ± 1.13 N·m).
 - (d) Install the nut [7], lockwasher [6], and washer [5] on the terminal stud.
 - (e) Tighten the nut [7] to 185 ± 15 in-lb (20.90 ± 1.69 N·m).
 - (f) Install the washer [11], washers [8], terminal block cover [10], and screw [9].
 - (g) Tighten the screw [9] to 13.5 ± 1.5 in-lb (1.53 ± 0.17 N·m).
 - (h) Install the electrical connector on the battery charger [1].



24-31-21

Config 2

Page 406

Jun 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-21-860-005-002



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00809	BAT CHGR

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 24-31-21-420-006

- (5) Install the access cover on top of the J39 shield.

LOM ALL

F. Main Battery Charger Installation Test

SUBTASK 24-31-21-710-002-002

- (1) Do this task: Main Battery Charger Operational Test, TASK 24-31-21-710-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-21-410-003-002

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-31-21

Config 2

Page 407

Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

MAIN BATTERY CHARGER - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has this task:
 - (1) The Main Battery Charger Operational Test.

TASK 24-31-21-710-801

2. Main Battery Charger Operational Test

A. General

- (1) The Battery Charger, M5 is located on the E2-1 equipment rack in the main equipment center.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-813	Supply External 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)

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. Prepare for Test

SUBTASK 24-31-21-860-007

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

SUBTASK 24-31-21-860-008

- (2) Make sure that the BUS TRANS switch, on the P5-4 panel, is in the AUTO position.

SUBTASK 24-31-21-860-009

- (3) Make sure that the STANDBY POWER switch, on the P5-5 panel, is in the AUTO position.

SUBTASK 24-31-21-210-001

- (4) Make sure that the ELEC light, on the P5-13 panel, is OFF.

(a) To clear ELEC light messages, do this task: P5-13 ELEC Light Message BITE Procedure (FIM 24-31 TASK 801).

SUBTASK 24-31-21-010-006

- (5) To get access to the P92 panel, open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

EFFECTIVITY
LOM ALL

24-31-21

Page 501
Oct 15/2023



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. Main Battery Charger Operational Test

SUBTASK 24-31-21-710-003

- (1) Do a check of the battery charger per the steps that follow:
 - (a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
 - (b) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.
 - (c) Set the DC meter selector switch, on the P5-13 panel, to the BAT position.
 - (d) Make sure that the DC meter, on the P5-13 panel, shows these values:
 - 1) DC VOLTS = 22-28
 - 2) DC AMPS = a negative value

NOTE: The battery current is negative when the battery is discharging.
 - (e) Make sure that the BAT DISCHARGE light, on the P5-13 panel, comes on. This light will come on when any of these conditions are met:
 - 1) The battery current is greater than 5 Amps for more than 95 seconds.
 - 2) The battery current is greater than 15 Amps for more than 25 seconds.
 - 3) The battery current is greater than 100 Amps for more than 1.2 seconds.
 - (f) Set the GRD PWR switch to the ON position.
 - (g) Make sure that the DC AMPS value goes to 45 ± 10 AMPS and then goes down to less than 5 AMPS within 180 minutes.

NOTE: 180 minutes is the maximum. It can take less time depending the state of the battery.
 - (h) Make sure that the DC VOLTS value goes to 30 ± 3 VOLTS.
 - (i) Make sure that the BAT DISCHARGE light goes off.
 - (j) Make sure that the BATTERY and CHARGER lights on the front panel of the battery charger are ON.



WARNING
WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING
DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (k) Open this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00809	BAT CHGR

NOTE: Leave the circuit breaker open for more than 60 seconds.

EFFECTIVITY
LOM ALL

24-31-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (l) Close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00809	BAT CHGR

- (m) Get access to the flight compartment, make sure that the ELEC light, on the P5-13 panel, is ON.
- (n) Set both the AC meter selector switch and DC meter selector switch to the TEST positions.
- (o) Push and release the MAINT switch, on the P5-13 panel, to start the display test.
- (p) After the display test is complete, push the MAINT switch to view the messages.
- (q) Make sure that this message appears: BAT CHGR INOP.
- (r) Push the MAINT switch until this message appears: HOLD BUTTON CLEAR FAULTS.
- (s) To clear the message push and hold the MAINT switch for 6 seconds.
- (t) Make sure that this message appears: FAULTS CLEARED.

LOM 439, 441, 450-452, 461-464

SUBTASK 24-31-21-710-004

- (2) Do a check of the battery discharge warning as follows:

- (a) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.
- (b) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2

- (c) Make sure that the airplane is in the ground mode (TASK 32-09-00-860-802).
- (d) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C01940	BAT SW ON ALARM

- (e) Wait for 2 minutes +/- 20 seconds.
- (f) Make sure that the Ground Crew Horn in the nose wheel well does not sound.
- (g) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	15	C01355	LANDING GEAR AIR/GND SYS 2

- (h) Wait for 2 minutes +/- 20 seconds.
- (i) Make sure that the Ground Crew Horn in the nose wheel well sounds.
- (j) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C01940	BAT SW ON ALARM

- (k) Make sure that the Ground Crew Horn in the nose wheel well stops sounding.

EFFECTIVITY
LOM ALL

24-31-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 439, 441, 450-452, 461-464 (Continued)

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C01940	BAT SW ON ALARM

- (m) Wait for 2 minutes +/- 20 seconds.
(n) Make sure that the Ground Crew Horn in the nose wheel well sounds.
(o) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
(p) Make sure that the Ground Crew Horn in the nose wheel well stops sounding.
(q) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
(r) Wait for 2 minutes +/- 20 seconds.
(s) Make sure that the Ground Crew Horn in the nose wheel well sounds.
(t) Set the GRD PWR switch, on the P5-4 panel, to the ON position.
(u) Make sure that the Ground Crew Horn in the nose wheel well stops sounding.

LOM ALL

G. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-21-410-004

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 24-31-21-860-010

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-31-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

AUXILIARY BATTERY CHARGER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the Auxiliary Battery Charger
 - (2) An installation of the Auxiliary Battery Charger.

TASK 24-31-31-000-801

2. Auxiliary Battery Charger Removal

(Figure 401)

A. General

- (1) The Auxiliary Battery Charger, M3055 is located on the E3-3 equipment rack in the main equipment center.

B. 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)

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. Prepare for the Removal

SUBTASK 24-31-31-860-001

- (1) Set the BAT switch, on the P5-13 panel, to the OFF position.

SUBTASK 24-31-31-010-001

- (2) To get access to the main equipment center, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-31-020-004

- (3) Remove the access cover on top of the J39 shield to get access to the circuit breakers.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-31

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 401
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-31-860-002



CAUTION
DO NOT DISCONNECT THE BATTERY CHARGER BEFORE YOU OPEN THE CIRCUIT BREAKERS. WITH THE BATTERY SWITCH IN THE OFF POSITION, THE BATTERY WILL CONTINUE TO ENERGIZE THE POSITIVE TERMINAL OF THE BATTERY CHARGER. IF YOU DISCONNECT THE BATTERY CHARGER BEFORE YOU OPEN THE CIRCUIT BREAKERS, YOU CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00922	AUX BAT CHGR

F. Auxiliary Battery Charger Removal

SUBTASK 24-31-31-910-001



CAUTION
DO NOT TOUCH THE AUXILIARY BATTERY CHARGER BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

- (1) Before the auxiliary battery charger [1] is touched, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 24-31-31-020-001

- (2) Remove the auxiliary battery charger [1], do these steps:
- Remove the electrical connector from the front of the auxiliary battery charger [1].
 - Remove the screw [9], washers [8], and washer [11] to remove the terminal block cover [10] from the auxiliary battery charger [1].
 - Remove the terminal block cover [10] from the front of the auxiliary battery charger [1].
 - Remove the nut [2], lockwasher [3], and washer [4] from the terminal stud.
 - Remove the nut [7], lockwasher [6], and washer [5] from the terminal stud.
 - Remove the wires from the terminals.
 - To remove the auxiliary battery charger [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

— END OF TASK —

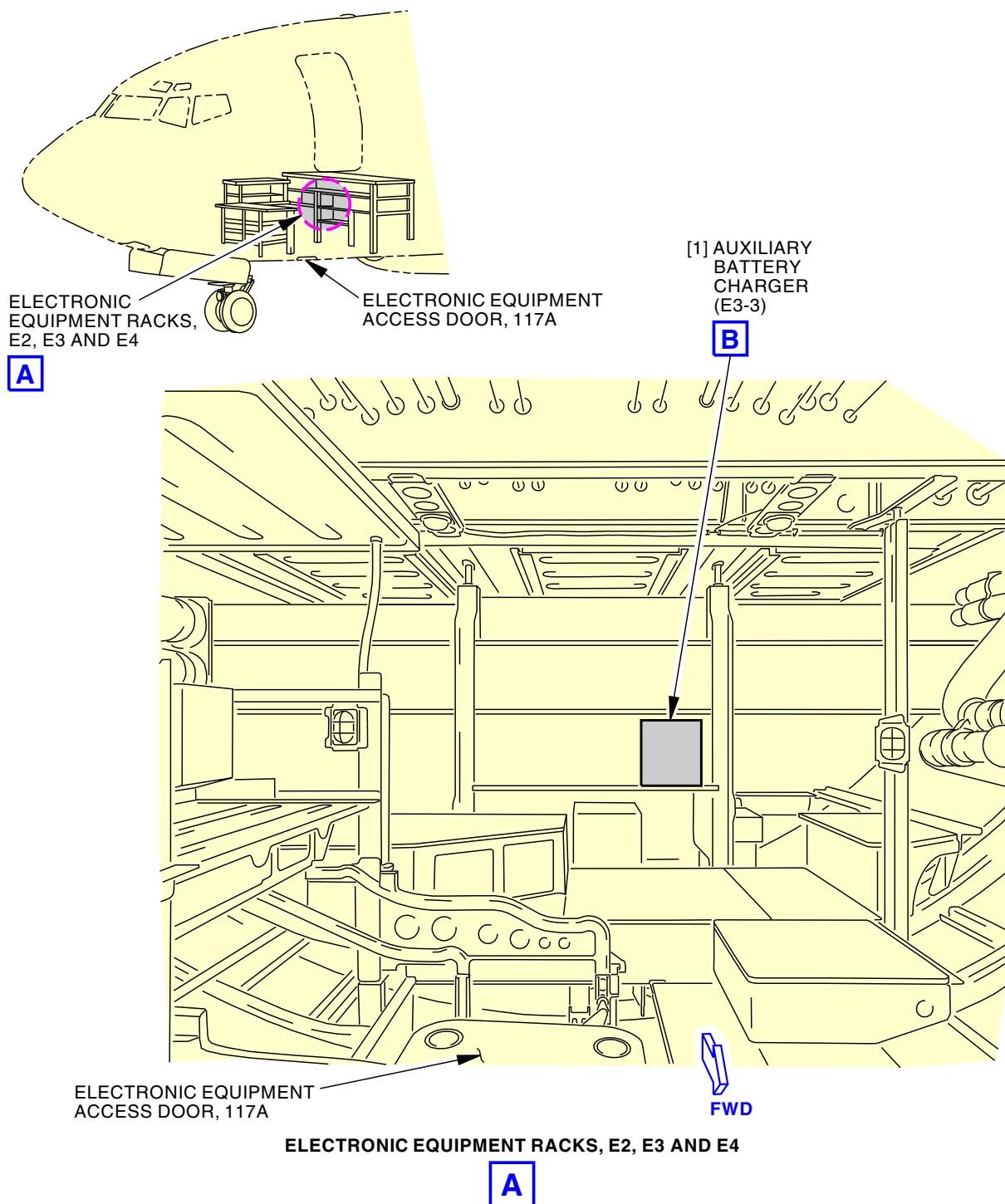
— EFFECTIVITY —
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-31

Page 402
Oct 15/2024

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

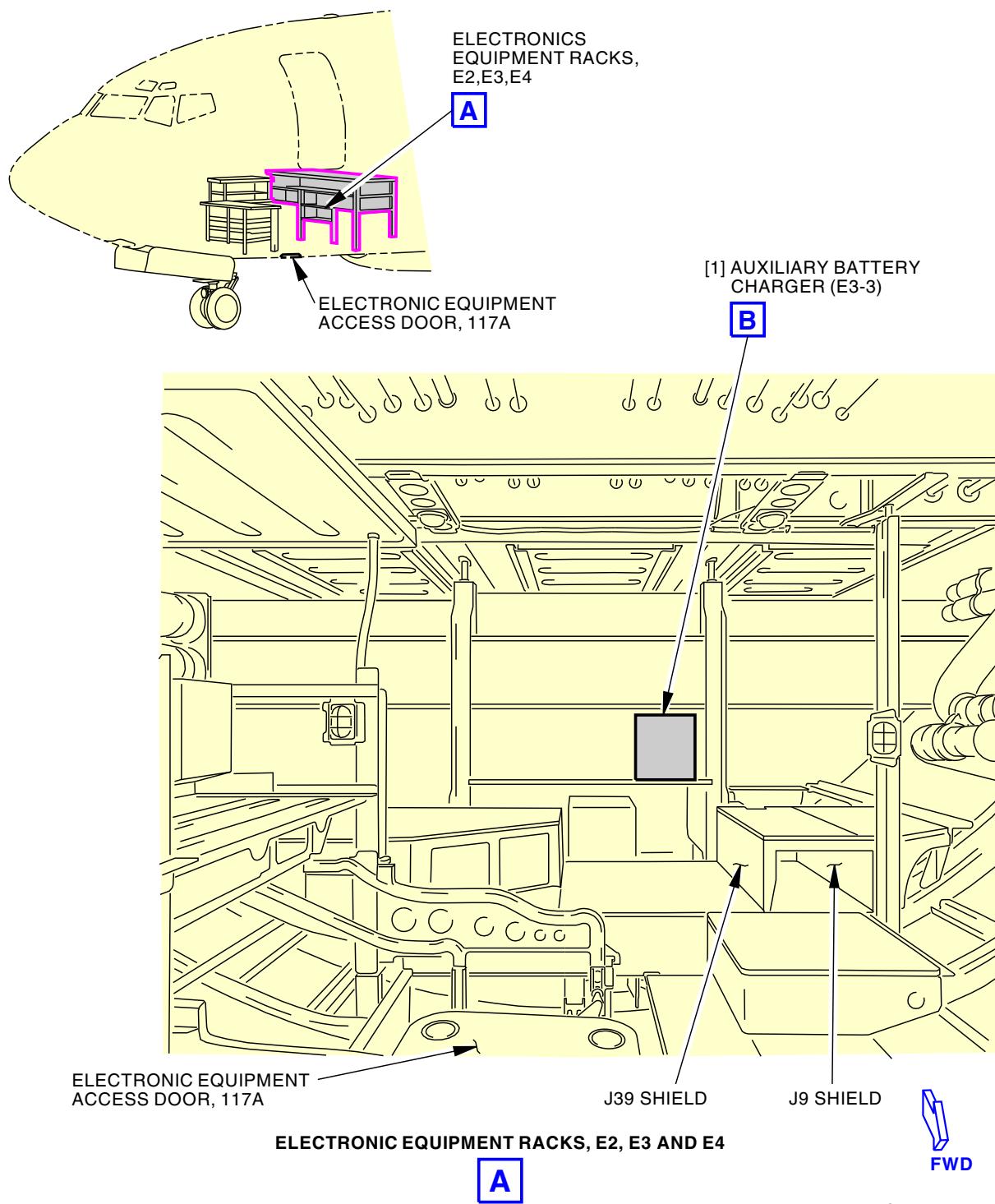


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Auxiliary Battery Charger Installation
Figure 401/24-31-31-990-801 (Sheet 1 of 3)

EFFECTIVITY
LOM 402, 404, 406

24-31-31



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Auxiliary Battery Charger Installation
Figure 401/24-31-31-990-801 (Sheet 2 of 3)

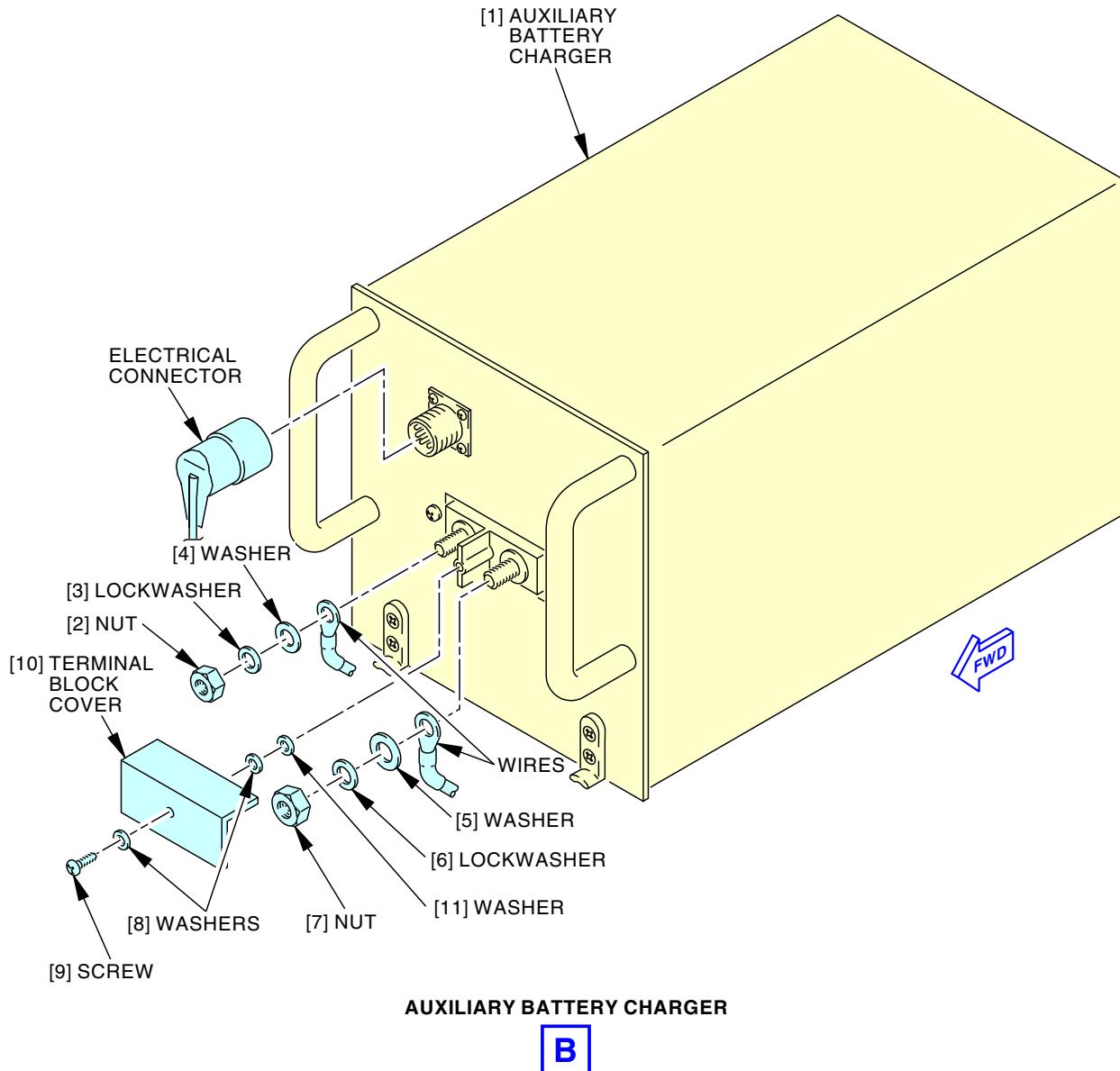
EFFECTIVITY
 LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437,
 438, 440, 442-445, 450-454, 457, 465

24-31-31

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

BOEING
737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



G37020 S0006566317_V3

Auxiliary Battery Charger Installation
Figure 401/24-31-31-990-801 (Sheet 3 of 3)

EFFECTIVITY
 LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-31

Page 405
 Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-31-31-400-801

3. Auxiliary Battery Charger 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)
24-31-31-710-801	Auxiliary Battery Charger Operational Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Auxiliary battery charger	24-31-31-02-005	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

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. Auxiliary Battery Charger Installation

SUBTASK 24-31-31-910-002



CAUTION DO NOT TOUCH THE AUXILIARY BATTERY CHARGER BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

- (1) Before the auxiliary battery charger [1] is touched, do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 24-31-31-420-001

- (2) Install the auxiliary battery charger [1] on the E3-3 shelf, do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 24-31-31-420-002

- (3) Connect the auxiliary battery charger [1], do these steps:
- Install the wires on the terminal studs of the auxiliary battery charger [1].
 - Install the nut [2], lockwasher [3], and washer [4] on the terminal stud.
 - Tighten the nut [2] to 145 ± 10 in-lb (16.38 ± 1.13 N·m).
 - Install the nut [7], lockwasher [6], and washer [5] on the terminal stud.
 - Tighten the nut [7] to 185 ± 15 in-lb (20.90 ± 1.69 N·m).
 - Install the washer [11], washers [8], terminal block cover [10], and screw [9].
 - Tighten the screw [9] to 13.5 ± 1.5 in-lb (1.53 ± 0.17 N·m).

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-31

Page 406
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (h) Install the electrical connector on the auxiliary battery charger [1].

SUBTASK 24-31-31-860-003

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00922	AUX BAT CHGR

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-31-420-005

- (5) Install the access cover on top of the J39 shield.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

F. Auxiliary Battery Charger Installation Test

SUBTASK 24-31-31-710-001

- (1) Do this task: Auxiliary Battery Charger Operational Test, TASK 24-31-31-710-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-31-410-001

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

———— END OF TASK ————

— EFFECTIVITY —
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-31

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 407
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

AUXILIARY BATTERY CHARGER - ADJUSTMENT/TEST

1. General

- A. This procedure has this task:
- (1) The Auxiliary Battery Charger Operational Test.

TASK 24-31-31-710-801

2. Auxiliary Battery Charger Operational Test

A. General

- (1) The Auxiliary Battery Charger, M3055 is located on the E3-3 equipment rack in the main equipment center.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-813	Supply External 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. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for Test

SUBTASK 24-31-31-860-005

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

SUBTASK 24-31-31-860-006

- (2) Make sure the BUS TRANS switch on the P5-4 panel is in the AUTO position.

SUBTASK 24-31-31-860-007

- (3) Make sure the STANDBY POWER switch on the P5-5 panel is in the AUTO position.

SUBTASK 24-31-31-210-001

- (4) Make sure the ELEC light on the P5-13 panel is OFF.

- (a) To clear ELEC light messages, do this task: P5-13 ELEC Light Message BITE Procedure (FIM 24-31 TASK 818).

F. Operational Test

SUBTASK 24-31-31-710-002

- (1) Do a check of the auxiliary battery charger per the steps that follow:

- (a) Set the GRD PWR switch on the P5-4 panel to the OFF position.

- (b) Make sure the BAT switch on the P5-13 panel is set to the ON position.

- (c) Set the DC meter selector switch on the P5-13 panel to the AUX BAT position.

- (d) Make sure the DC meter on the P5-13 panel shows these values:

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

1) DC VOLTS = 22-28

2) DC AMPS = a negative value

NOTE: The auxiliary battery current is negative when the battery is discharging.

(e) Make sure the BAT DISCHARGE light on the P5-13 panel comes on. This light will come on when any of these conditions are met:

- 1) Auxiliary or main battery current is greater than 5 Amps for more than 95 seconds.
- 2) Auxiliary or main battery current is greater than 15 Amps for more than 25 seconds.
- 3) Auxiliary or main battery current is greater than 100 Amps for more than 1.2 seconds.

(f) Set the GRD PWR switch to the ON position.

(g) Make sure the DC AMPS value goes to 45 ± 10 AMPS and then goes down to less than 5 AMPS within 180 minutes.

NOTE: 180 minutes is the maximum. It can take less time depending the state of the auxiliary battery.

(h) Make sure the DC VOLTS value goes to 30 ± 3 VOLTS.

(i) Make sure the BAT DISCHARGE light goes OFF.

(j) To get access to the main equipment center, open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

(k) Make sure the BATTERY and CHARGER lights on the front panel of the auxiliary battery charger are ON.

(l) Open this circuit breaker:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00922	AUX BAT CHGR

NOTE: Leave the circuit breaker open for more than 60 seconds.

(m) Close this circuit breaker:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00922	AUX BAT CHGR

(n) Get access to the flight compartment, make sure the ELEC light on the P5-13 panel is ON.

(o) Set both the AC meter selector switch and the DC meter selector switch to the TEST positions.

(p) Push and release the MAINT switch on the P5-13 panel to start the display test.

(q) After the display test is complete, push the MAINT switch to view the messages.

(r) Make sure this message appears: AUX BAT CHGR INOP.

(s) Push the MAINT switch until this message appears: HOLD BUTTON CLEAR FAULTS.

(t) To clear the message push and hold the MAINT switch for 6 seconds.

(u) Make sure this message appears: FAULTS CLEARED.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-31

Page 502
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

G. Put the Airplane Back to its Usual Condition

SUBTASK 24-31-31-410-002

- (1) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 24-31-31-860-008

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

— EFFECTIVITY —
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-31

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 503
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

DUAL BATTERY REMOTE CONTROL CIRCUIT BREAKER (RCCB) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Dual Battery RCCB Removal
 - (2) Dual Battery RCCB Installation.

TASK 24-31-41-000-801

2. Dual Battery RCCB Removal

(Figure 401, Figure 402)

A. General

- (1) The Dual Battery Remote Controlled Circuit Breaker (RCCB), C1212, is located on the J9 Battery Shield in the Main Equipment Center.

B. References

Reference	Title
SWPM 20-83-00	Standard Wiring Practices Manual

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Dual Battery RCCB	24-31-41-02-015	LOM 402, 404, 406
		24-31-41-03-015	LOM 412, 415, 422, 425, 433, 434, 440, 442, 453, 454, 465
		24-34-31-02-017	LOM 407, 411, 416, 420, 426-432, 437, 438, 443-445, 450-452, 457

D. Location Zones

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

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Removal

SUBTASK 24-31-41-860-001

- (1) Set the STANDBY POWER switch on the P5-5 panel to the OFF position and attach a DO-NOT-OPERATE tag to it.

SUBTASK 24-31-41-860-002

- (2) Set the BAT switch on the P5-13 panel to the OFF position and attach a DO-NOT-OPERATE tag to it.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 401
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-31-41-010-001

- (3) Open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- (a) Remove the access cover on top of the J39 shield to get access to the circuit breakers.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- (b) Open these circuit breakers and install safety tags:

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-31-41-020-001

- (4) Disconnect the battery connectors from the main and auxiliary batteries per the steps that follow:

- (a) Gain access to the forward cargo area.
(b) Remove the access panel that covers the batteries.
(c) Cut and remove the safety lockwire from the battery connectors.
(d) Disconnect the battery connectors from both batteries.

NOTE: Do not let the terminals on the connector rest against the airplane structure.

G. Procedure

SUBTASK 24-31-41-020-002

- (1) Do these steps to remove the Dual Battery RCCB [1]:

- (a) Remove the access cover on top of the J9 shield to get access to the Dual Battery RCCB [1].
(b) Install identification tags on all wires attached to the Dual Battery RCCB [1] before removing them.
(c) Remove the two nuts [2], lockwashers [3] and washers [4] from both terminal studs on the Dual Battery RCCB [1].
(d) Remove the nut [2], lockwasher [3] and washer [4] from the top terminal stud on the Static Inverter RCCB.

NOTE: This step must be done because the terminals are close together on the same wire.

- (e) Remove the wires from the terminal studs.
(f) Remove the control wires from the connector on the Dual Battery RCCB [1] SWPM 20-83-00.

NOTE: Be sure to install an identification tag on wire so that you can install the wire into the correct socket later.

- (g) Remove the two screws [5] that hold the Dual Battery RCCB [1] to the panel.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

Page 402
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(h) Remove the Dual Battery RCCB [1].

———— END OF TASK ————

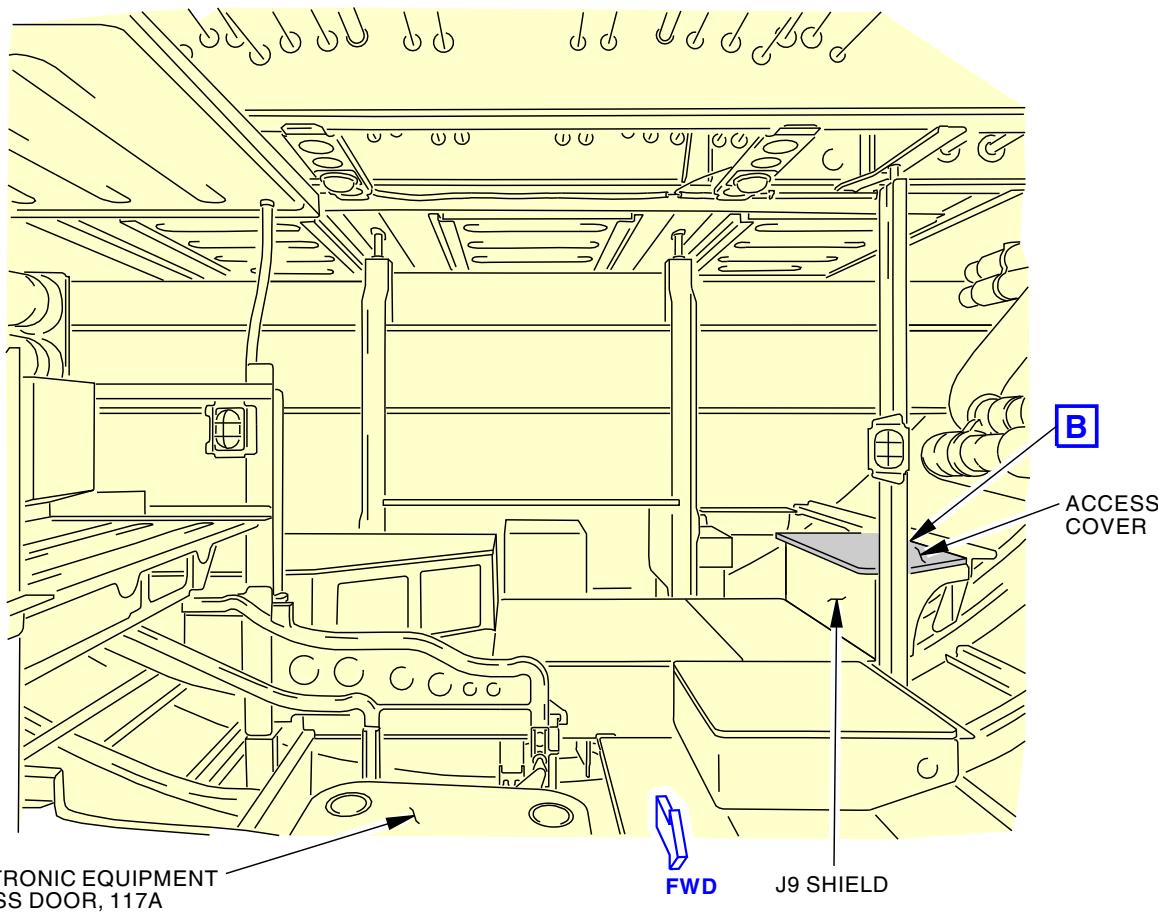
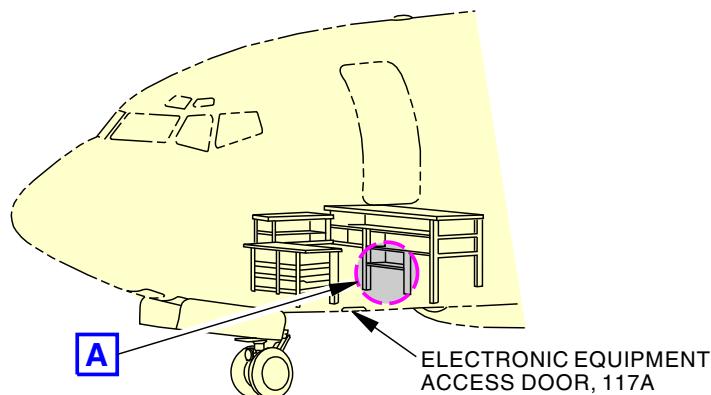
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**LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465**

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D633A101-LOM

24-31-41

Page 403
Oct 15/2024



A

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Dual Battery Remote Control Circuit Breaker (RCCB) Installation
Figure 401/24-31-41-990-801 (Sheet 1 of 3)

EFFECTIVITY
 LOM 402, 404, 406

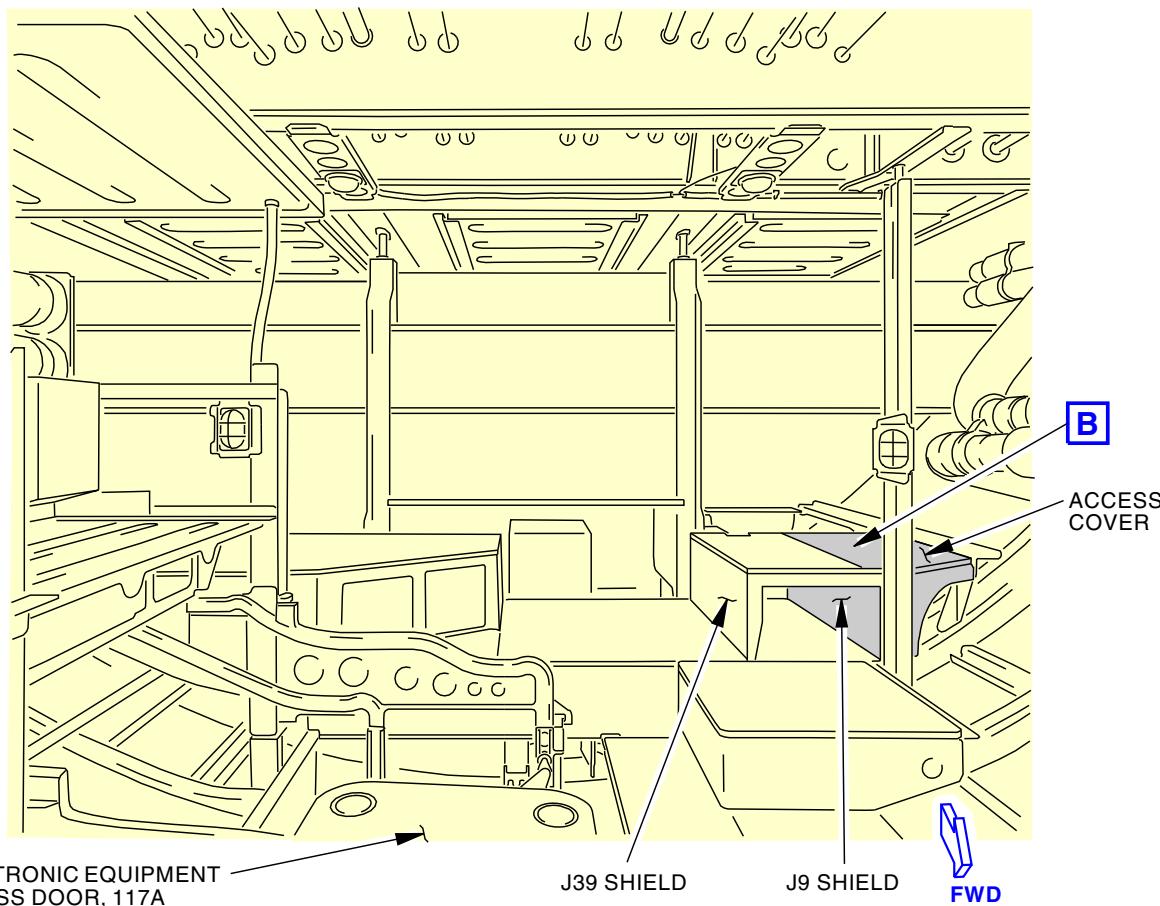
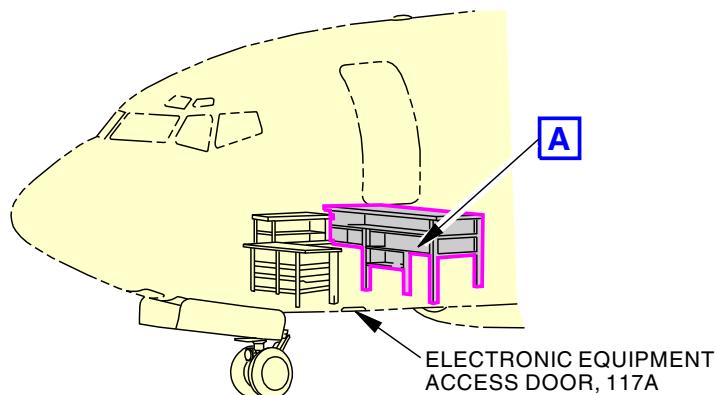
24-31-41

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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



ELECTRICAL AND ELECTRONICS COMPARTMENT

A

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Dual Battery Remote Control Circuit Breaker (RCCB) Installation
Figure 401/24-31-41-990-801 (Sheet 2 of 3)

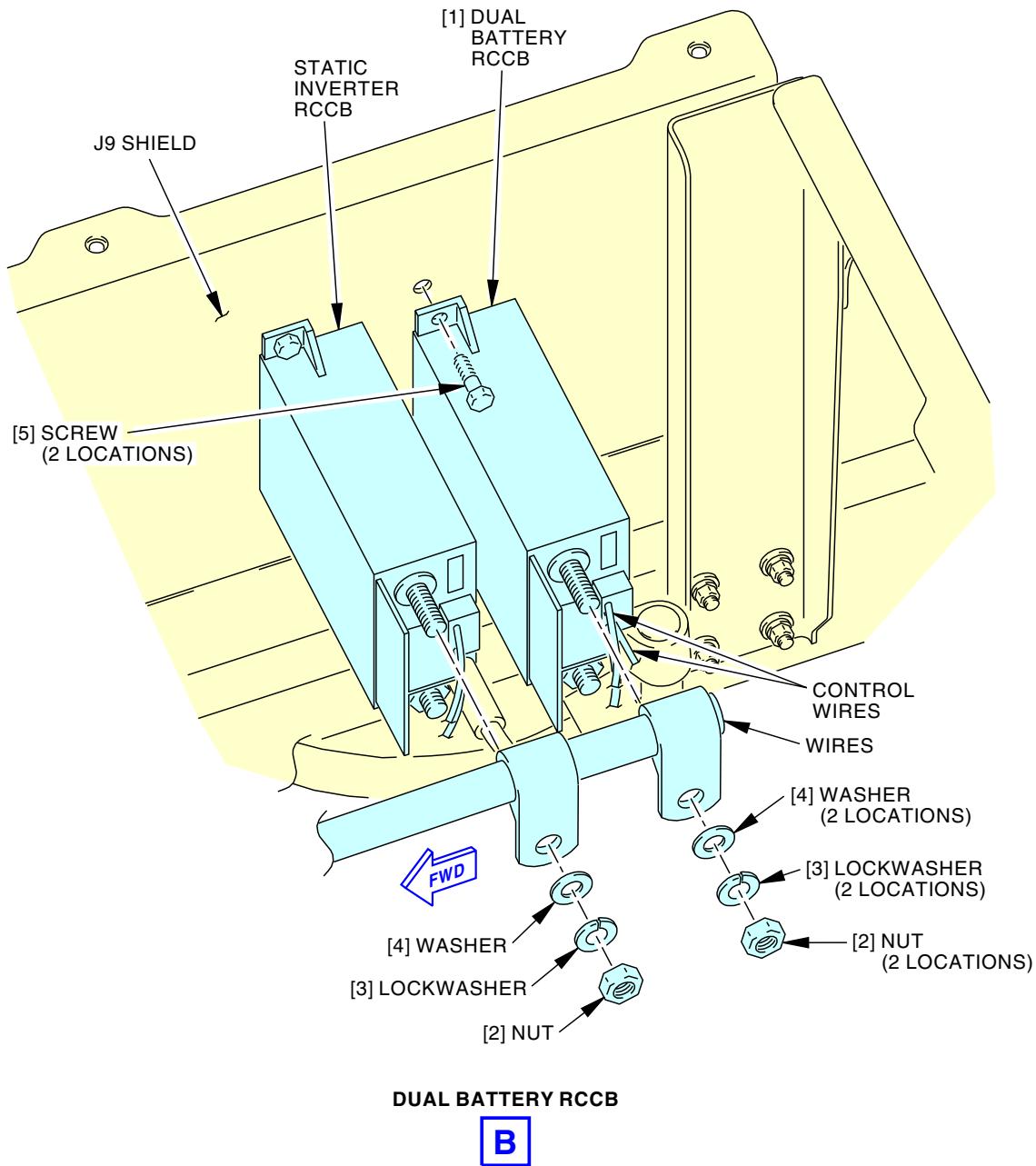
EFFECTIVITY
LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437,
438, 440, 442-445, 450-454, 457, 465

24-31-41

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 405
Oct 15/2024



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Dual Battery Remote Control Circuit Breaker (RCCB) Installation
Figure 401/24-31-41-990-801 (Sheet 3 of 3)

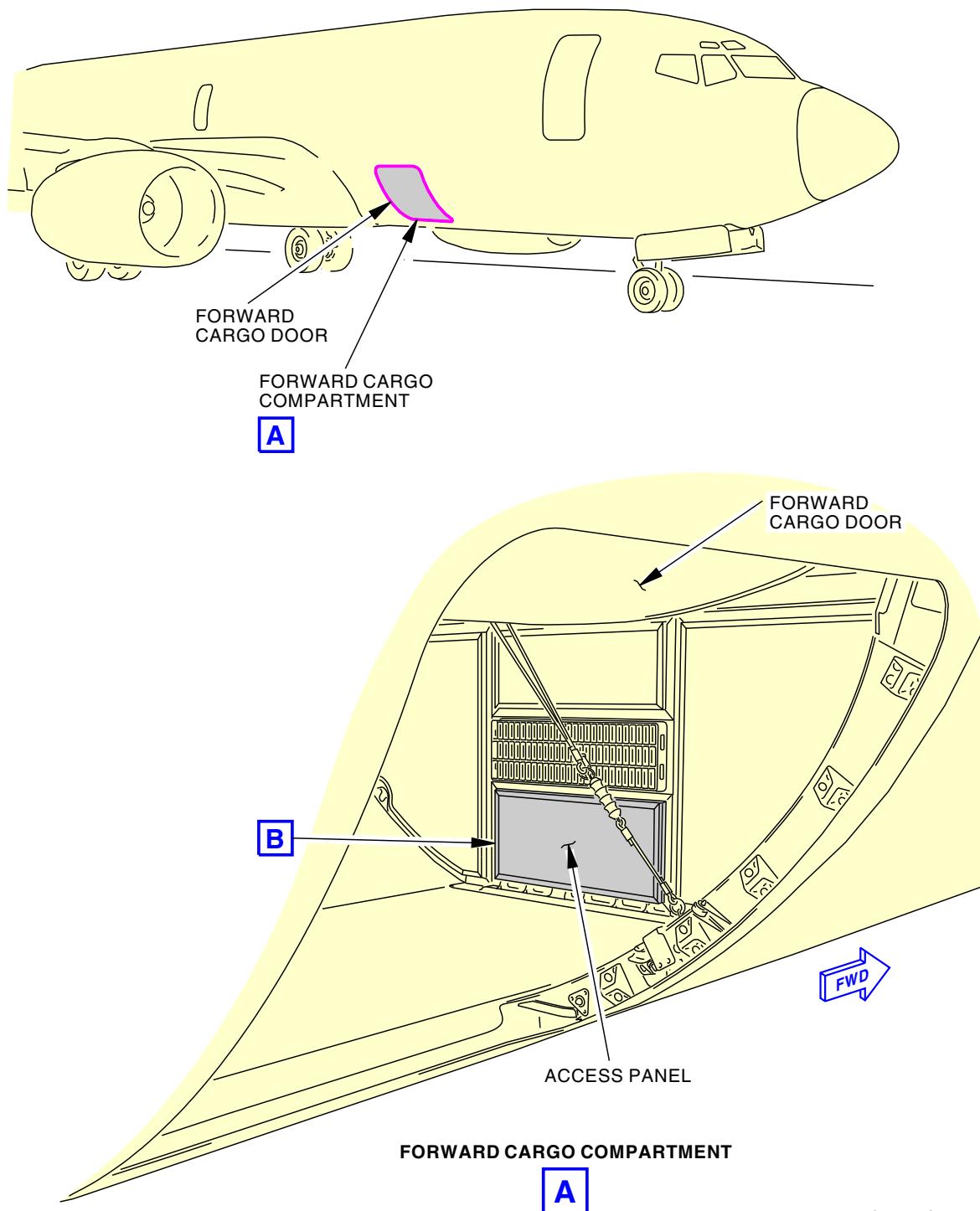
EFFECTIVITY
 LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-31-41

 Page 406
 Oct 15/2024



G37985 S0006566326_V2

Battery Installation
Figure 402/24-31-41-990-802 (Sheet 1 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

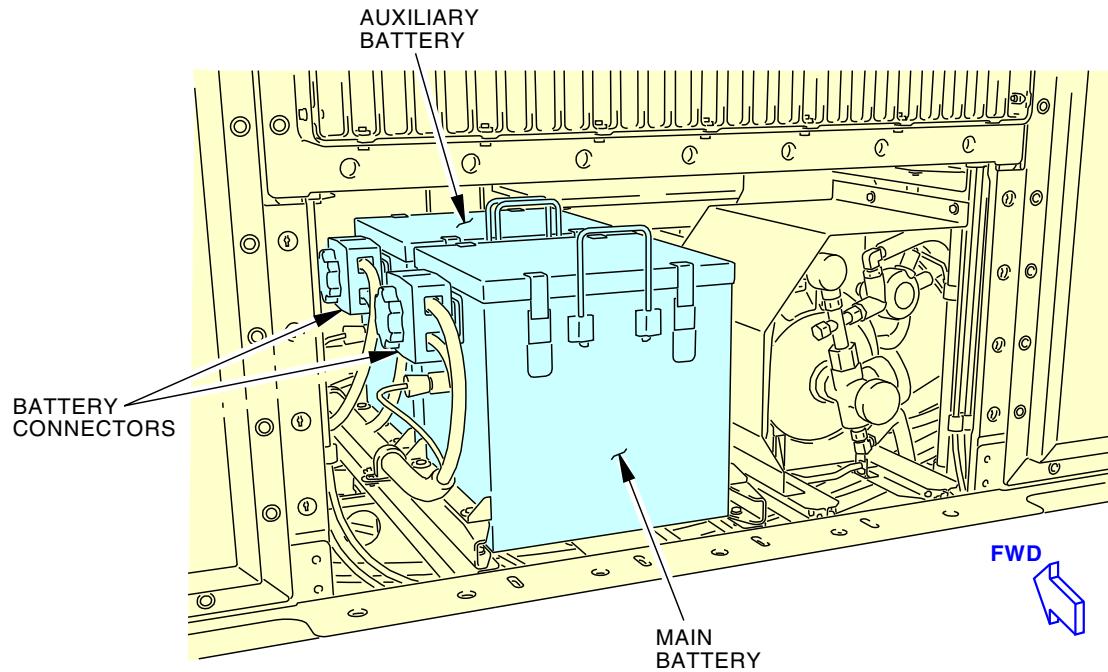
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 407
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



BATTERIES

B

G37988 S0006566328_V2

Battery Installation
Figure 402/24-31-41-990-802 (Sheet 2 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

Page 408
Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-31-41-400-801

3. Dual Battery RCCB Installation

(Figure 401, Figure 402)

A. General

- (1) The Dual Battery Remote Controlled Circuit Breaker (RCCB), C1212, is located on the J9 Battery Shield in the Main Equipment Center.

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)
24-22-00-860-814	Remove External Power (P/B 201)
24-31-21-710-801	Main Battery Charger Operational Test (P/B 501)
24-31-31-710-801	Auxiliary Battery Charger Operational Test (P/B 501)
SWPM 20-83-00	Standard Wiring Practices Manual

C. Consumable Materials

Reference	Description	Specification
G02479	Lockwire - MS20995CY20, Copper - 0.020 Inch (0.508 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Dual Battery RCCB	24-31-41-02-015	LOM 402, 404, 406
		24-31-41-03-015	LOM 412, 415, 422, 425, 433, 434, 440, 442, 453, 454, 465
		24-34-31-02-017	LOM 407, 411, 416, 420, 426-432, 437, 438, 443-445, 450-452, 457

E. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
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. Procedure

SUBTASK 24-31-41-420-001

- (1) Do these steps to install the Dual Battery RCCB [1]:
- Hold the Dual Battery RCCB [1] in position.
 - Install the two screws [5] that hold the Dual Battery RCCB [1].
 - Install the wires on the terminal studs.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

Page 409
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (d) Install the two nuts [2], lockwashers [3] and washers [4] on both terminal studs on the Dual Battery RCCB [1].
- (e) Install the nut [2], lockwasher [3] and washer [4] on the top terminal stud on the Static Inverter RCCB.
- (f) Torque the nuts [2] to 43 ± 2 in-lb (5 ± 0 N·m).
- (g) Install the control wires into sockets on the Dual Battery RCCB [1] per the identification tags (SWPM 20-83-00).
- (h) Install the access cover on top of the J9 shield.

SUBTASK 24-31-41-420-002

- (2) Re-connect the battery connector to the main battery per the steps that follow:

NOTE: Do not connect the battery connector to the auxiliary battery until after the check of the dual battery RCCB is complete.

- (a) Gain access to the forward cargo area.
- (b) Re-connect the battery connector to the main battery.
- (c) Safety wire the battery connector with a 0.020 in. (0.508 mm) diameter MS20995CY20 lockwire, G02479 (TASK 20-10-44-400-801).
- (d) Remove the safety tags and close these circuit breakers:

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

NOTE: Do not close the AUX BATTERY CHARGER circuit breaker until after the check of the dual battery RCCB is complete.

H. Dual Battery RCCB Installation Test

SUBTASK 24-31-41-710-003

- (1) Do a check of the Dual Battery RCCB [1] per the steps that follow:
 - (a) Do this task: Supply External Power, TASK 24-22-00-860-813.
 - (b) Set the DC Meter Selector Switch on the P5-13 panel to the AUX BAT position.
 - (c) Set the BAT switch on the P5-13 panel to the ON position.
 - (d) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 0
 - (e) Set the STANDBY POWER switch on the P5-5 panel to the BAT position.
 - (f) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 22-28
 - (g) Set the STANDBY POWER switch on the P5-5 panel to the AUTO position.
 - (h) Make sure the DC meter on the P5-13 panel shows this value:
 - 1) DC VOLTS = 0

SUBTASK 24-31-41-420-004

- (2) Re-connect the battery connector to the auxiliary battery per the steps that follow:
 - (a) Gain access to the forward cargo area.
 - (b) Re-connect the battery connector to the auxiliary battery.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

Page 410
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (c) Safety wire the battery connector with a 0.020 in. (0.508 mm) diameter MS20995CY20 lockwire, G02479 (TASK 20-10-44-400-801).
- (d) Install the access panel that covers the batteries.

SUBTASK 24-31-41-860-011

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-41-420-005

- (4) Install the access cover on top of the J39 shield.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-41-710-004

- (5) Do a check of the main battery charger per the steps that follow:

- (a) Do this task: Main Battery Charger Operational Test, TASK 24-31-21-710-801.

SUBTASK 24-31-41-710-005

- (6) Do a check of the auxiliary battery charger per the steps that follow:

- (a) Do this task: Auxiliary Battery Charger Operational Test, TASK 24-31-31-710-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-41-410-004

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 24-31-41-860-012

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

———— END OF TASK ————

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 411
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

DUAL BATTERY REMOTE CONTROL CIRCUIT BREAKER (RCCB) - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has this task:
 - (1) The Operational Test of the Dual Battery RCCB

TASK 24-31-41-710-801

2. Operational Test for the Dual Battery RCCB

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

A. 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)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for Test

SUBTASK 24-31-41-860-005

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

SUBTASK 24-31-41-860-006

- (2) Set the STANDBY POWER switch on the P5-5 panel to the OFF position.

SUBTASK 24-31-41-860-007

- (3) Set the BAT switch on the P5-13 panel to the OFF position.

SUBTASK 24-31-41-010-002

- (4) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- (a) Remove the access cover on top of the J39 shield to get access to the circuit breakers.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

Page 501
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (b) Open this circuit breaker and install safety tag:

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER

SUBTASK 24-31-41-020-003

- (5) Disconnect the battery connector from the auxiliary battery per the steps that follow:

NOTE: Do not disconnect the battery connector from the main battery. The applicable connector can be accessed through the Electrical and Electronics compartment (EE Bay) or the forward cargo access panel.

- (a) Gain access to the forward cargo area or the Electrical and Electronics compartment (EE Bay).
1) If you access in the forward cargo area, then remove the access panel that covers the batteries.
(b) Disconnect the battery connector from the auxiliary battery.

NOTE: Do not let the terminals on the connector rest against the airplane structure.

E. Operational Test

SUBTASK 24-31-41-710-002

- (1) Do a check of the Dual Battery RCCB per the steps that follow:
(a) Set the DC Meter Selector Switch on the P5-13 panel to the AUX BAT position.
(b) Set the BAT switch on the P5-13 panel to the ON position.
(c) Make sure the DC meter on the P5-13 panel shows this value:
1) DC VOLTS = 0
(d) Set the STANDBY POWER switch on the P5-5 panel to the BAT position.
(e) Make sure the DC meter on the P5-13 panel shows this value:
1) DC VOLTS = 22-28
(f) Set the STANDBY POWER switch on the P5-5 panel to the AUTO position.
(g) Make sure the DC meter on the P5-13 panel shows this value:
1) DC VOLTS = 0

F. Put the Airplane Back to Its Usual Condition

SUBTASK 24-31-41-420-003

- (1) Re-connect the battery connector to the auxiliary battery per the steps that follow:
(a) Gain access to the forward cargo area or the EE Bay.
(b) Re-connect the battery connector to the auxiliary battery.
(c) If you access in the forward cargo area, then install the access panel that covers the batteries.

SUBTASK 24-31-41-860-008

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

Page 502
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-41-860-013

- (3) Install the access cover on top of the J39 shield.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-31-41-410-003

- (4) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 24-31-41-860-009

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

SUBTASK 24-31-41-860-010

- (6) Set the BAT switch on the P5-13 panel to the OFF position.

———— END OF TASK ————

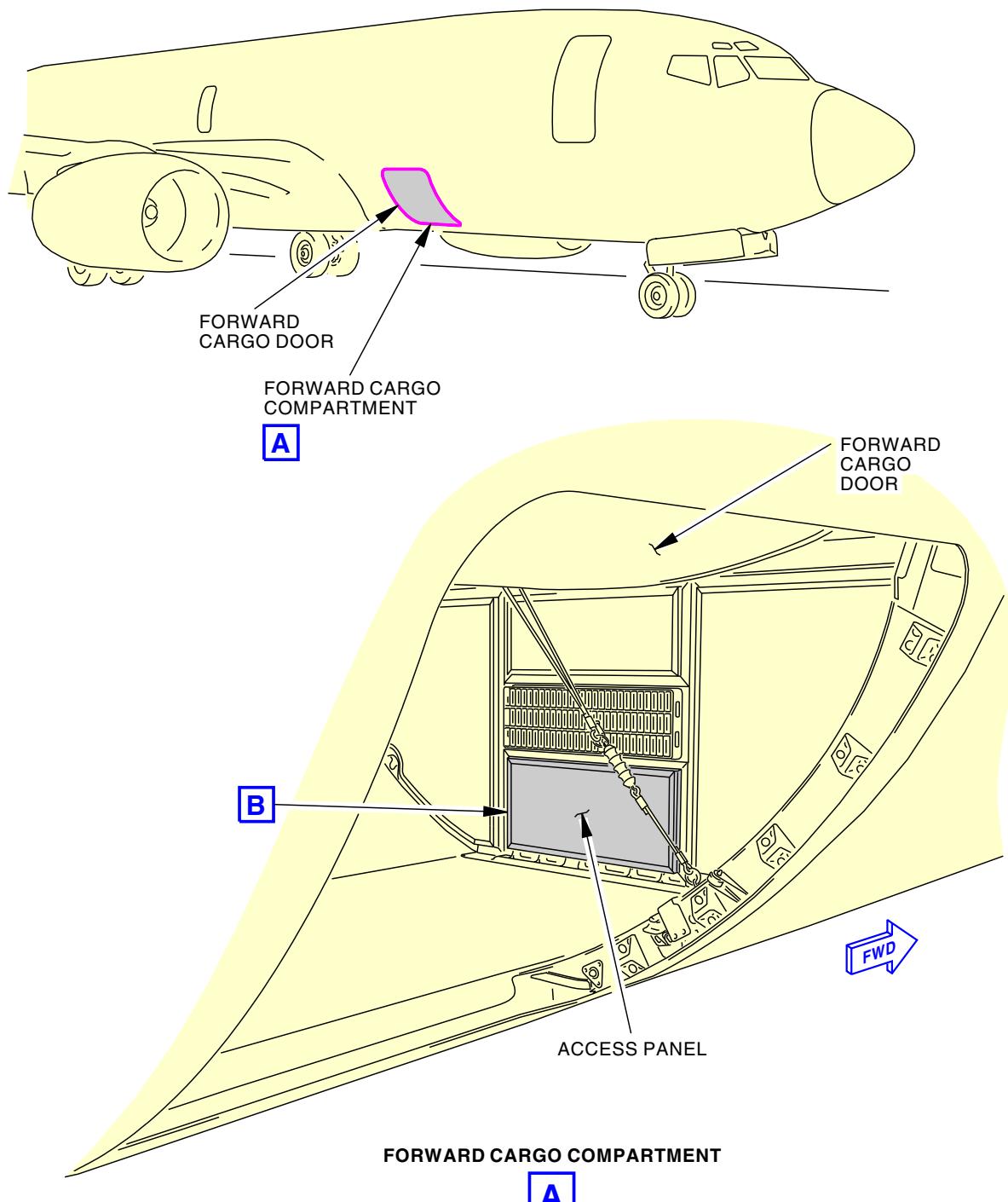
— EFFECTIVITY —
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 503
Oct 15/2024



G88307 S0006566332_V2

Batteries
Figure 501/24-31-41-990-803 (Sheet 1 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

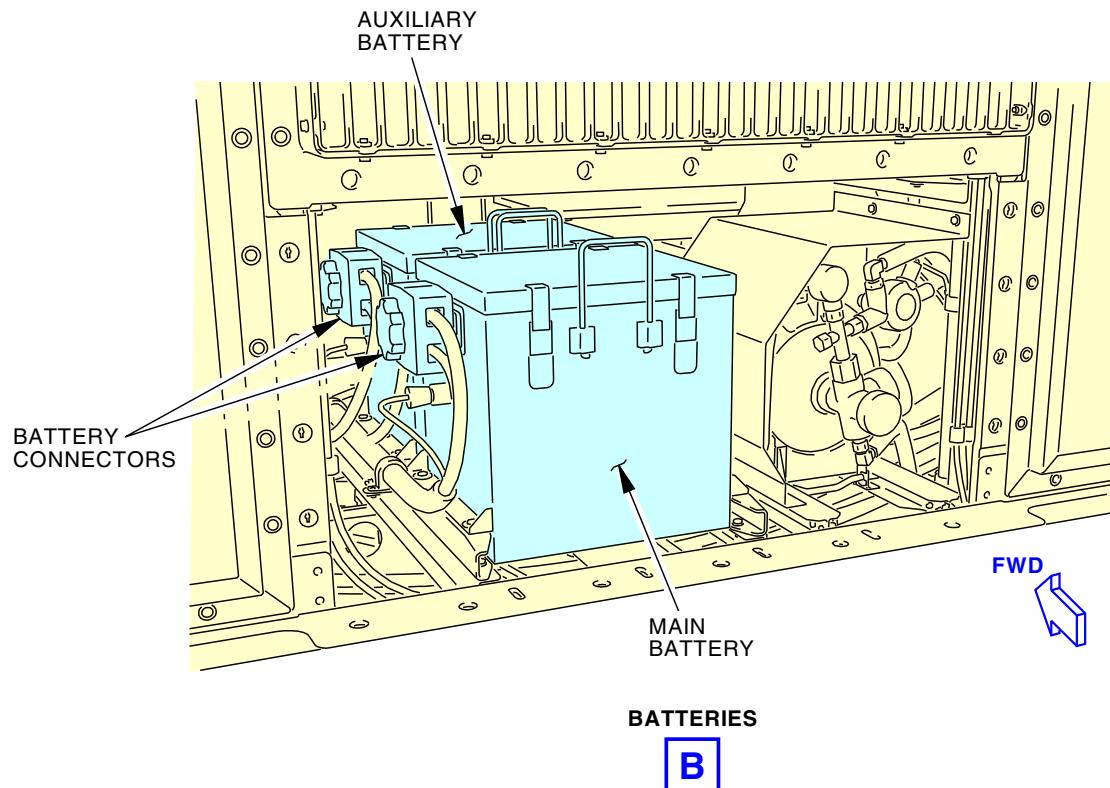
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737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Batteries
Figure 501/24-31-41-990-803 (Sheet 2 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-31-41

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 505
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TRANSFORMER RECTIFIER UNIT - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Transformer Rectifier Unit Deactivation.
 - (2) Transformer Rectifier Unit Activation.

TASK 24-32-11-040-801

2. Transformer Rectifier Unit - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power to the Transformer Rectifier Unit.

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. Transformer Rectifier Unit Deactivation

SUBTASK 24-32-11-010-006

- (1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-32-11-860-015

 WARNING	WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.
---	--

 WARNING	DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.
---	--

- (2) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
A	4	C00941	TRU 3 ALTN

EFFECTIVITY
LOM ALL

24-32-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00806	TRU 1

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00807	TRU 2
A	6	C00808	TRU 3

E. Transformer Rectifier Unit - Tryout

NOTE: This tryout is to make sure the Transformer Rectifier Units are in a zero energy state.

SUBTASK 24-32-11-860-016



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00941	TRU 3 ALTN
A	6	C00806	TRU 1

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00807	TRU 2
A	6	C00808	TRU 3

SUBTASK 24-32-11-410-003

- (2) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 24-32-11-700-002

- (3) Do these steps at the P5-13 panel:

- (a) Turn the DC meter selector switch on the P5-13 Electrical Meters, Battery and Galley Power module to the TR 1 position.
1) Make sure the DC meter on the P5-13 panel shows no value and is blank.

EFFECTIVITY
LOM ALL

24-32-11



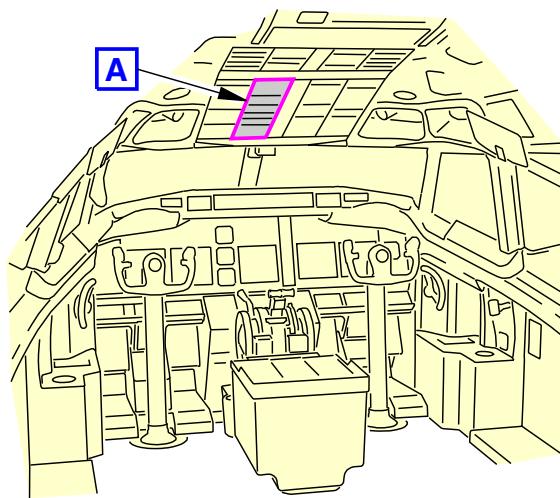
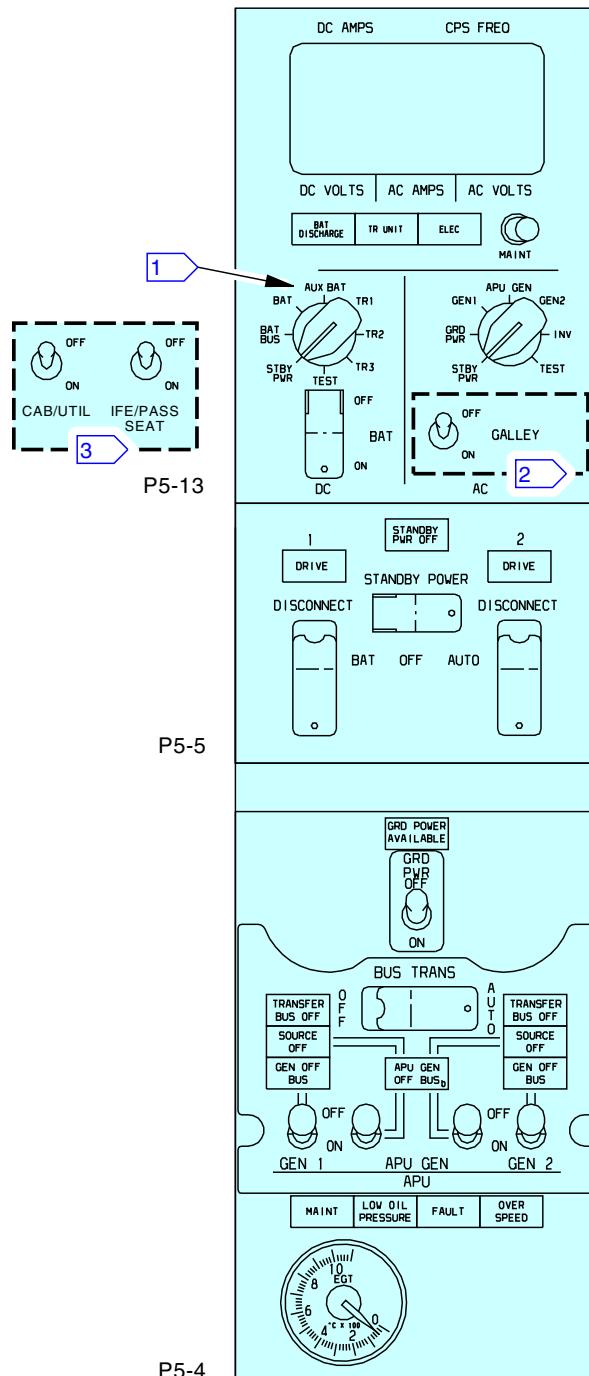
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AIRCRAFT MAINTENANCE MANUAL

- 2) Make sure the amber TRU fail light on the P5-13 panel is on.
- (b) Turn the DC meter selector switch on the P5-13 Electrical Meters, Battery and Galley Power module to the TR 2 position.
 - 1) Make sure the DC meter on the P5-13 panel shows no value and is blank.
 - 2) Make sure the amber TRU fail light on the P5-13 panel is on.
- (c) Turn the DC meter selector switch on the P5-13 Electrical Meters, Battery and Galley Power module to the TR 3 position.
 - 1) Make sure the DC meter on the P5-13 panel shows no value and is blank.
 - 2) Make sure the amber TRU fail light on the P5-13 panel is on.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-32-11


FLIGHT COMPARTMENT


- 1** AIRPLANES WITH AUXILIARY BATTERY
- 2** AIRPLANES WITH GALLEY SWITCH
- 3** AIRPLANES WITH CABIN UTILITY AND IFE SWITCHES

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AC/DC Power Controls and Display Panels

Figure 201/24-32-11-990-802

EFFECTIVITY
LOM ALL

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-32-11

Page 204
Feb 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-32-11-440-801

3. Transformer Rectifier Unit - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Transformer Rectifier Units.

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. Transformer Rectifier Unit Activation

SUBTASK 24-32-11-010-007

- (1) To get access to the P91 and P92 panels, open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-32-11-860-017



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (2) Make sure that these circuit breakers are closed:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
A	4	C00941	TRU 3 ALTN
A	6	C00806	TRU 1

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	4	C00807	TRU 2
A	6	C00808	TRU 3

EFFECTIVITY
LOM ALL

24-32-11

Page 205
Feb 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-32-11-410-002

- (3) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

———— END OF TASK ————

— EFFECTIVITY —
LOM ALL

24-32-11

Page 206
Feb 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TRANSFORMER RECTIFIER UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the transformer rectifier unit (TRU).
 - (2) An installation of the transformer rectifier unit (TRU).
- B. The removal and installation procedures are the same for all of the units.

TASK 24-32-11-000-801

2. Transformer Rectifier Unit Removal

(Figure 401)

A. General

- (1) There are 3 TRUs in the Electrical Power System. The TRU's are located as follows:
 - (a) TRU 1, T11 is located on the E2-1 Equipment Rack
 - (b) TRU 2, T12 is located on the E4-2 Equipment Rack
 - (c) TRU 3, T13 is located on the E4-2 Equipment Rack

B. 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)

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. Prepare for the Removal

SUBTASK 24-32-11-010-001

- (1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-32-11-860-001



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-32-11

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (2) Before you remove TRU number 1, do this step:
(a) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00806	TRU 1

SUBTASK 24-32-11-860-002



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (3) Before you remove TRU number 2, do this step:
(a) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00807	TRU 2

SUBTASK 24-32-11-860-003



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

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(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) Before you remove TRU 3, do this step:
(a) Open these circuit breakers and install safety tags:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00941	TRU 3 ALTN

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00808	TRU 3

SUBTASK 24-32-11-910-001



CAUTION

DO NOT TOUCH THE E/E BOX BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE E/E BOX.

- (5) Before you touch the transformer rectifier unit [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

F. Transformer Rectifier Unit (TRU) Removal

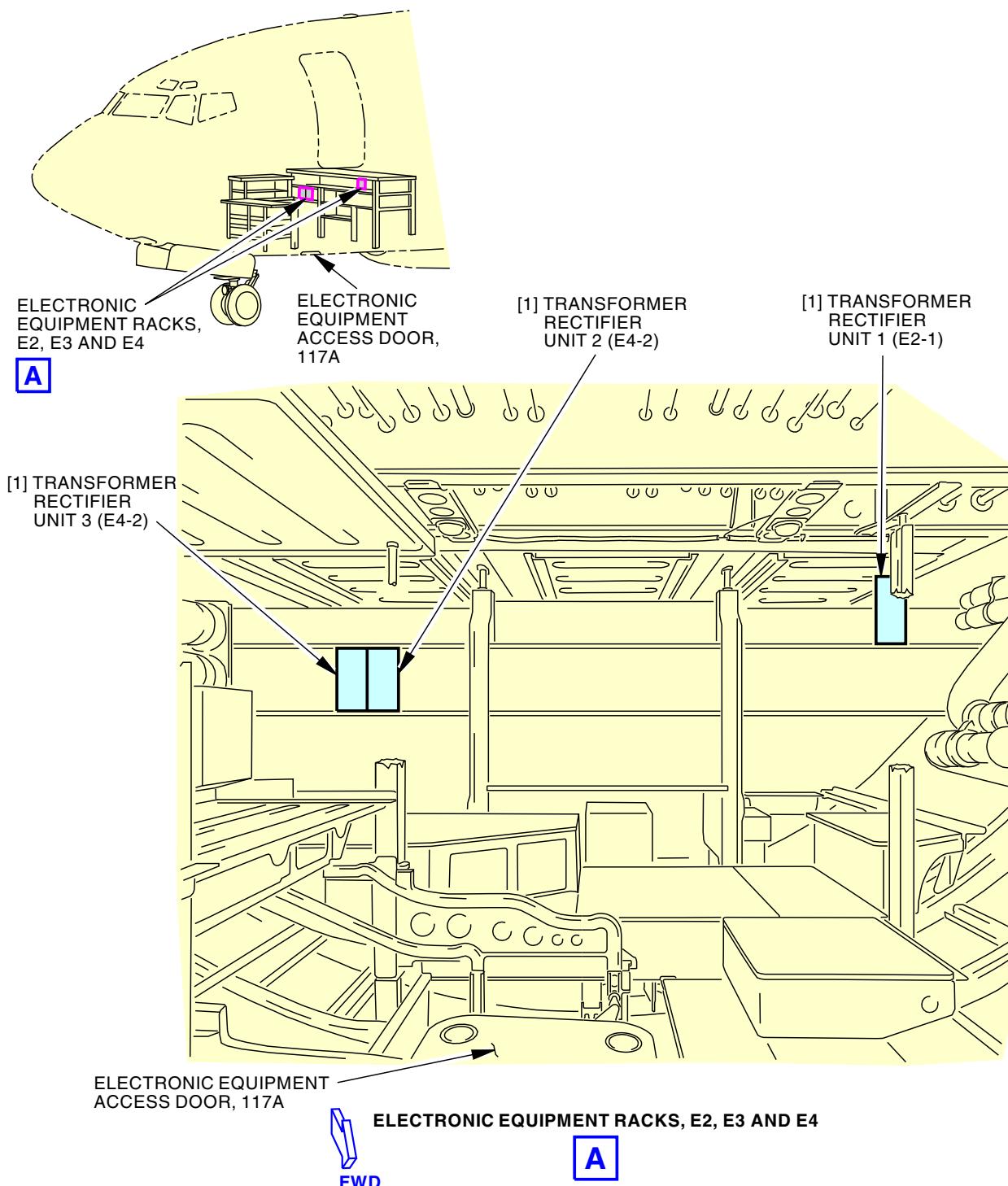
SUBTASK 24-32-11-020-001

- (1) Remove the transformer rectifier unit [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-32-11



G21928 S0006566339_V3

Transformer Rectifier Units (TRU) Installation
Figure 401/24-32-11-990-801

EFFECTIVITY
LOM ALL

24-32-11

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details



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TASK 24-32-11-400-801

3. Transformer Rectifier Unit Installation

(Figure 401)

A. General

- (1) There are 3 TRUs in the Electrical Power System. The TRU's are located as follows:
 - (a) TRU 1, T11 is located on the E2-1 Equipment Rack
 - (b) TRU 2, T12 is located on the E4-2 Equipment Rack
 - (c) TRU 3, T13 is located on the E4-2 Equipment Rack

B. 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)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Unit	24-32-11-02-005	LOM ALL
		24-32-11-04-010	LOM ALL

D. Location Zones

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

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Transformer Rectifier Unit (TRU) Installation

SUBTASK 24-32-11-010-002

- (1) Make sure that this access panel is open:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-32-11-910-002



DO NOT TOUCH THE E/E BOX BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE E/E BOX.

- (2) Before you touch transformer rectifier unit [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 24-32-11-420-001

- (3) Install the transformer rectifier unit [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

EFFECTIVITY
LOM ALL

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SUBTASK 24-32-11-860-004



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (4) If you installed the TRU 1, do this step:

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00806	TRU 1

SUBTASK 24-32-11-860-005



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (5) If you installed TRU 2, do this step:

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00807	TRU 2

SUBTASK 24-32-11-860-006



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-32-11



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AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (6) If you installed TRU 3, do this step:
(a) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00941	TRU 3 ALTN

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00808	TRU 3

SUBTASK 24-32-11-410-001

- (7) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

G. Transformer Rectifier Unit (TRU) Installation Test

SUBTASK 24-32-11-860-007

- (1) Do this task: (Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 24-32-11-700-001

- (2) Do a test of the TRU as follows:

- If you replaced TRU 1, set the DC Meter Selector switch on the P5-13 Electrical Meters, Battery and Galley Power module to the TR 1 position.
- If you replaced TRU 2, set the DC Meter Selector switch on the P5-13 Electrical Meters, Battery and Galley Power module to the TR 2 position.
- If you replaced TRU 3, set the DC Meter Selector switch on the P5-13 Electrical Meters, Battery and Galley Power module to the TR 3 position.
- Make sure the DC meter on the P5-13 panel shows this value:
 - DC VOLTS = 22-30

NOTE: The total current drawn is almost shared equally by all 3 TRUs.

- (e) Make sure the amber TRU fail light on the P5-13 panel is off.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 24-32-11-860-008

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
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24-32-11



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STANDBY POWER SYSTEM - MAINTENANCE PRACTICES

1. General

A.

This procedure has these tasks:

- (1) Standby Power System Deactivation.
- (2) Standby Power System Activation.

TASK 24-34-00-040-801

2. Standby Power System - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power from the Standby Power 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. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 24-34-00-010-001

- (1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 24-34-00-010-002

- (2) Remove the access cover on top of the J39 shield to get access to the circuit breaker.

LOM ALL

SUBTASK 24-34-00-860-009

- (3) Open these circuit breakers and install safety tags:

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

E. Standby Power System - Tryout

NOTE: This tryout is to make sure the Standby Power System is in a zero energy state.

EFFECTIVITY
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24-34-00



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SUBTASK 24-34-00-860-010

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-34-00-710-003

- (2) Do the following steps at the P5-5 panel:

- (a) Make sure the STANDBY POWER switch on the P5-5 panel is in the AUTO position.
- (b) Make sure the STANDBY PWR OFF light on the P5-5 panel is off.
- (c) Set both the AC meter selector switch and the DC meter selector switch on the P5-13 panel to the STBY PWR position.
- (d) Make sure the AC meter shows no values.
- (e) Make sure the DC meter shows no values
- (f) Set the STANDBY POWER switch to the OFF position.
- (g) Make sure the STANDBY POWER OFF light does not come on.

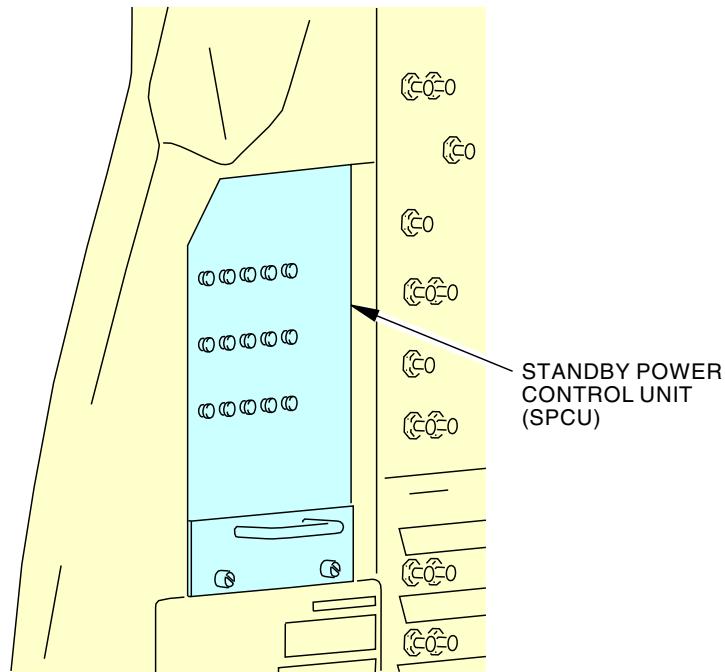
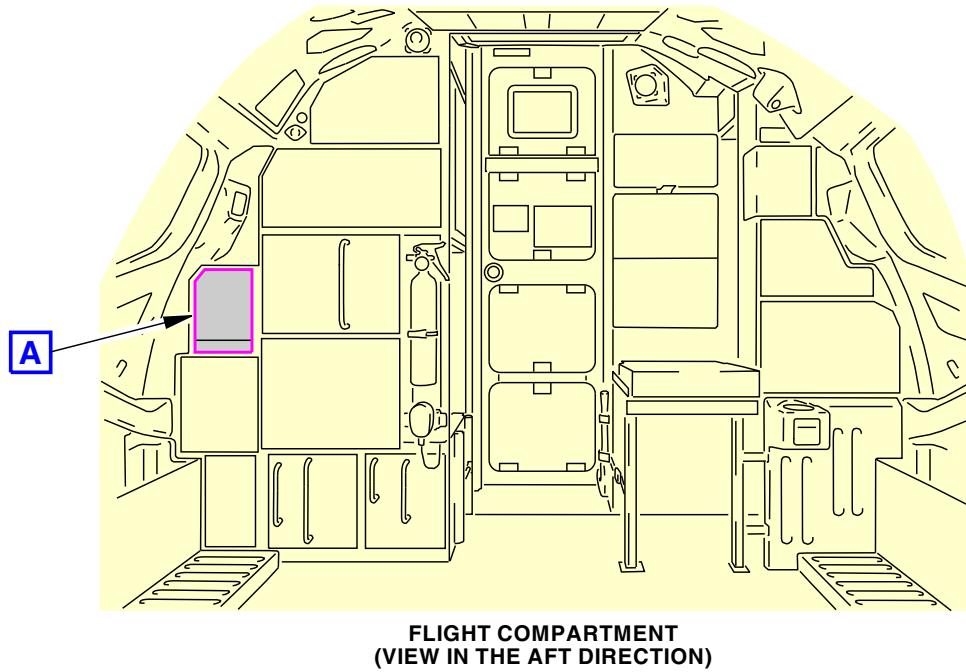
———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-34-00



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A

2385144 S0000545085_V1

Standby Power Unit
Figure 201/24-34-00-990-804

EFFECTIVITY
LOM ALL

24-34-00

D633A101-LOM

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Page 203
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-34-00-440-801

3. Standby Power System - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Standby Power System.

B. References

Reference	Title
31-25-00-710-803	Clocks - System Test (P/B 501)
31-25-00-710-804	Clocks - System 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. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Procedure

SUBTASK 24-34-00-860-011

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

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 24-34-00-410-001

- (2) Install the access cover on top of the J39 shield.

LOM ALL

SUBTASK 24-34-00-410-002

- (3) Close this access panel:

Number Name/Location

117A	Electronic Equipment Access Door
------	----------------------------------

LOM ALL; AIRPLANES WITH GPS CLOCKS WITH SET BUTTON

SUBTASK 24-34-00-860-013

- (4) Set the clock and date (Clocks - System Test, TASK 31-25-00-710-803).

LOM ALL; AIRPLANES WITH GPS CLOCKS WITH SET CONTROL KNOB

SUBTASK 24-34-00-860-014

- (5) Set the clock and date (Clocks - System Test, TASK 31-25-00-710-804).

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-34-00



737-600/700/800/900
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STANDBY POWER SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has this task:
- (1) An operational test of the standby power system.

LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

TASK 24-34-00-710-801

2. The Operational Test of the Standby Power System

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

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

B. The Operational Test of the Standby Power System

SUBTASK 24-34-00-710-001

- (1) Do an operational check of the standby power system as follows:
 - (a) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.
 - (b) Make sure that the STANDBY POWER switch, on the P5-5 panel, is set to the AUTO position.
 - (c) Make sure that the STANDBY PWR OFF light, on the P5-5 panel, is off.
 - (d) Set both the AC meter selector switch and DC meter selector switch, on the P5-13 panel, to the STBY PWR position.
 - (e) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 395-405.
 - (f) Make sure that the DC meter shows this value:
 - 1) DC VOLTS = 20-28.
 - (g) Set the STANDBY POWER switch, on the P5-5 panel, to the OFF position.
 - (h) Make sure that the STANDBY PWR OFF light, on the P5-5 panel, comes on.
 - (i) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 0
 - 2) CPS FREQ = BLANK.

NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.
 - (j) Make sure that the DC meter shows this value:
 - 1) DC VOLTS = 0.
 - (k) Set the STANDBY POWER switch, on the P5-5 panel, to the BAT position.
 - (l) Make sure that the STANDBY PWR OFF light, on the P5-5 panel, goes off.
 - (m) Make sure that the AC meter shows these values:

EFFECTIVITY
LOM ALL

24-34-00



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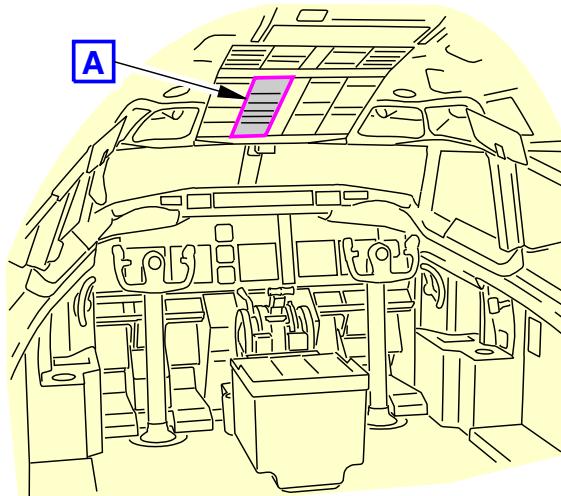
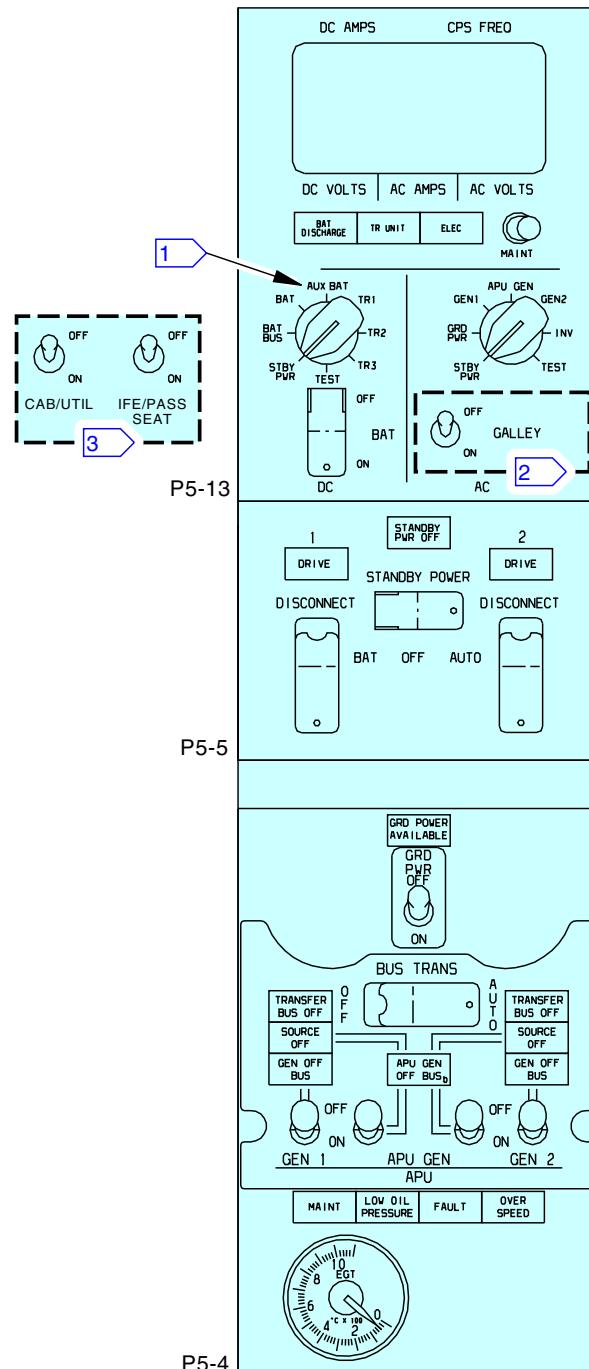
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999 (Continued)

- 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 395-405.
- (n) Make sure that the DC meter shows this value:
- 1) DC VOLTS = 20-28.
- (o) Set the STANDBY POWER switch, on the P5-5 panel, to the AUTO position.
- (p) If it is not required for other maintenance purposes, put the BAT switch, on the P5-13 panel, to the OFF position.

———— END OF TASK ————

— EFFECTIVITY —
LOM ALL

24-34-00


FLIGHT COMPARTMENT


G08509 S0006566347_V2

AC/DC Power Control and Display Panels
Figure 501/24-34-00-990-802

EFFECTIVITY
 LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
 466-999

D633A101-LOM

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24-34-00

 Page 503
 Jun 15/2018



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

TASK 24-34-00-710-802

3. The Operational Test of the Standby Power System

(Figure 502)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure does an operational test of the standby power system.

B. Location Zones

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

C. The Operational Test of the Standby Power System

SUBTASK 24-34-00-710-002

- (1) Do an operational check of the standby power system as follows:
 - (a) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.
 - (b) Make sure that the STANDBY POWER switch, on the P5-5 panel, is set to the AUTO position.
 - (c) Make sure that the STANDBY PWR OFF light, on the P5-5 panel, is off.
 - (d) Set both the AC meter selector switch and DC meter selector switch, on the P5-13 panel, to the STBY PWR position.
 - (e) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 390-410.
 - (f) Make sure that the DC meter shows this value:
 - 1) DC VOLTS = 22-30.
 - (g) Set the STANDBY POWER switch, on the P5-5 panel, to the OFF position.
NOTE: Ignore the flight deck effects that are not specified in this test procedure.
 - (h) Make sure that the STANDBY PWR OFF light, on the P5-5 panel, comes on.
 - (i) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 0 +/- 5
 - 2) CPS FREQ = BLANK.
NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.
 - (j) Make sure that the DC meter shows this value:
 - 1) DC VOLTS = 0.
 - (k) Set the STANDBY POWER switch, on the P5-5 panel, to the BAT position.
 - (l) Make sure that the STANDBY PWR OFF light, on the P5-5 panel, goes off.
 - (m) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 390-410.

EFFECTIVITY
LOM ALL

24-34-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465
(Continued)

- (n) Make sure that the DC meter shows this value:
 - 1) DC VOLTS = 22-30.
- (o) Set the STANDBY POWER switch, on the P5-5 panel, to the AUTO position.
- (p) Set the applicable switch(es), on the P5-4 panel, to the OFF position:

NOTE: This step is to remove power from the 115 VAC Transfer Buses.

 - 1) GRD POWER control switch
 - 2) APU GEN control switches
 - 3) GEN 1 and GEN 2 control switches.
- (q) Make sure that both TRANSFER BUS OFF lights, on the P5-4 panel, are on.
- (r) Set the DC meter selector switch, on the P5-13 panel, to the BAT position.
- (s) Make sure that the DC meter shows these values:
 - 1) DC VOLTS = 22-30
 - 2) DC AMPS = a negative value.

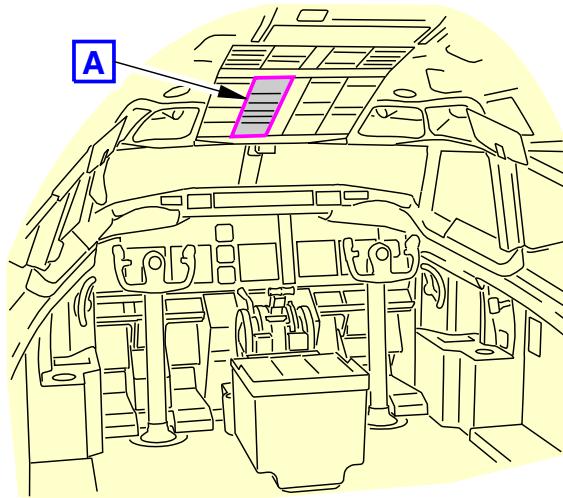
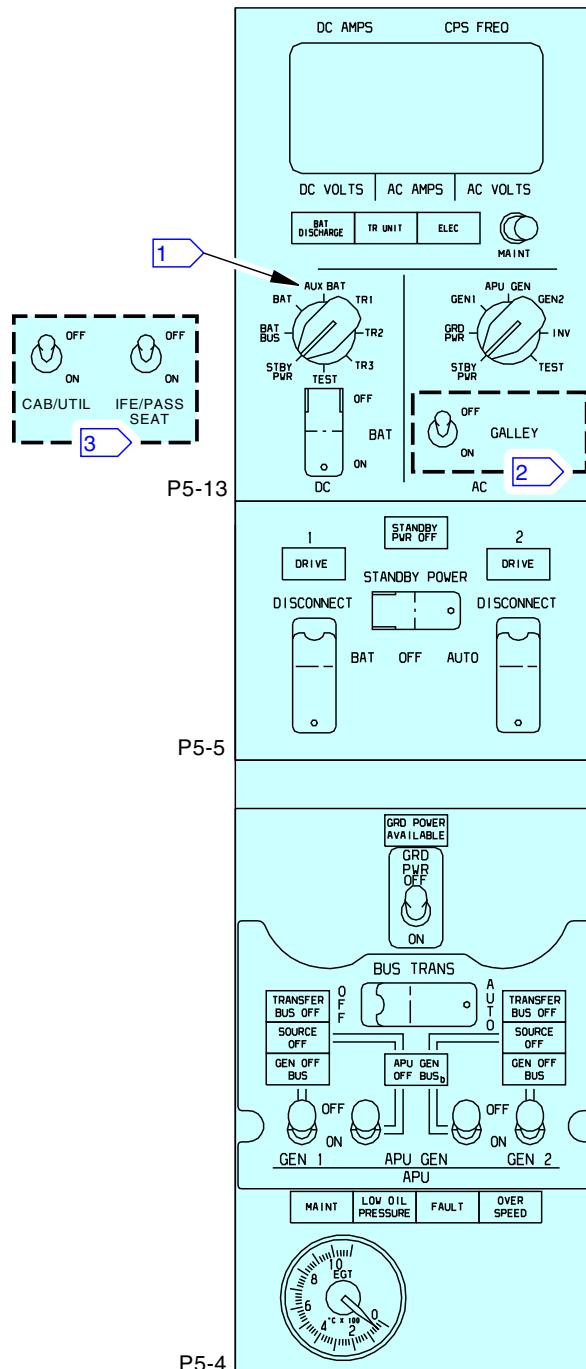
NOTE: A negative DC AMP value indicates that the battery is discharging.
- (t) Set the DC meter selector switch, on the P5-13 panel, to the AUX BAT position.
- (u) Make sure that the DC meter shows these values:
 - 1) DC VOLTS = 22-30
 - 2) DC AMPS = a negative value.

NOTE: A negative DC AMP value indicates that the battery is discharging.
- (v) Make sure that the BAT DISCHARGE light, on the P5-13 panel, comes on.
 - 1) The light will come on when any of these conditions are met:
 - a) The battery current is greater than 5 Amps for more than 95 seconds.
 - b) The battery current is greater than 15 Amps for more than 25 seconds.
 - c) The battery current is greater than 100 Amps for more than 1.2 seconds.
- (w) Set the applicable switch(es), on the P5-4 panel, back to the ON position:
 - 1) GRD POWER control switch
 - 2) APU GEN control switches
 - 3) GEN 1 and GEN 2 control switches.
- (x) Make sure that the BAT DISCHARGE light, on the P5-13 panel, goes off.
- (y) If it is not required for other maintenance purposes, put the BAT switch, on the P5-13 panel, to the OFF position.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-34-00


FLIGHT COMPARTMENT


G08509 S0006566347_V2

AC/DC Power Control and Display Panels
Figure 502/24-34-00-990-803

EFFECTIVITY
**LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465**

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24-34-00

Page 506
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

STANDBY POWER CONTROL UNIT (SPCU) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the Standby Power Control Unit (SPCU)
 - (2) An installation of the SPCU.

TASK 24-34-11-000-801

2. SPCU Removal

(Figure 401)

A. General

- (1) The Standby Power Control Unit (SPCU), M1720 is located on the P6 panel.

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Prepare for the Removal

SUBTASK 24-34-11-860-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 24-34-11-010-002

- (2) Remove the access cover on top of the J39 shield to get access to the circuit breaker.

LOM ALL

SUBTASK 24-34-11-860-005

- (3) Open this circuit breaker and install safety tag:

Battery Shield, J9

Row	Col	Number	Name
A	5	C01340	BATTERY BUS

E. SPCU Removal

SUBTASK 24-34-11-910-001



DO NOT TOUCH THE CONTROL UNIT BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CONTROL UNIT.

- (1) Before the SPCU [1] is touched, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 24-34-11-020-001

- (2) Remove the SPCU [1] from the P6 panel.

EFFECTIVITY
LOM ALL

24-34-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Loosen the captive screws [2] from the front of the SPCU [1] to remove it from the P6 panel.
- (b) Remove the electrical connectors from the back of the SPCU [1].
- (c) Put the protective covers on the electrical connectors.

———— END OF TASK ————

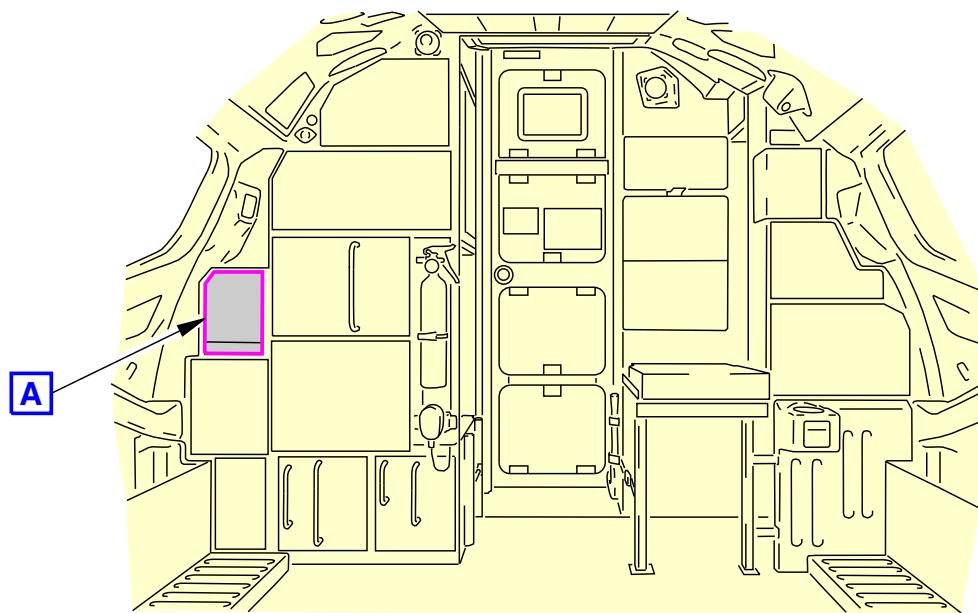
— EFFECTIVITY —
LOM ALL

24-34-11

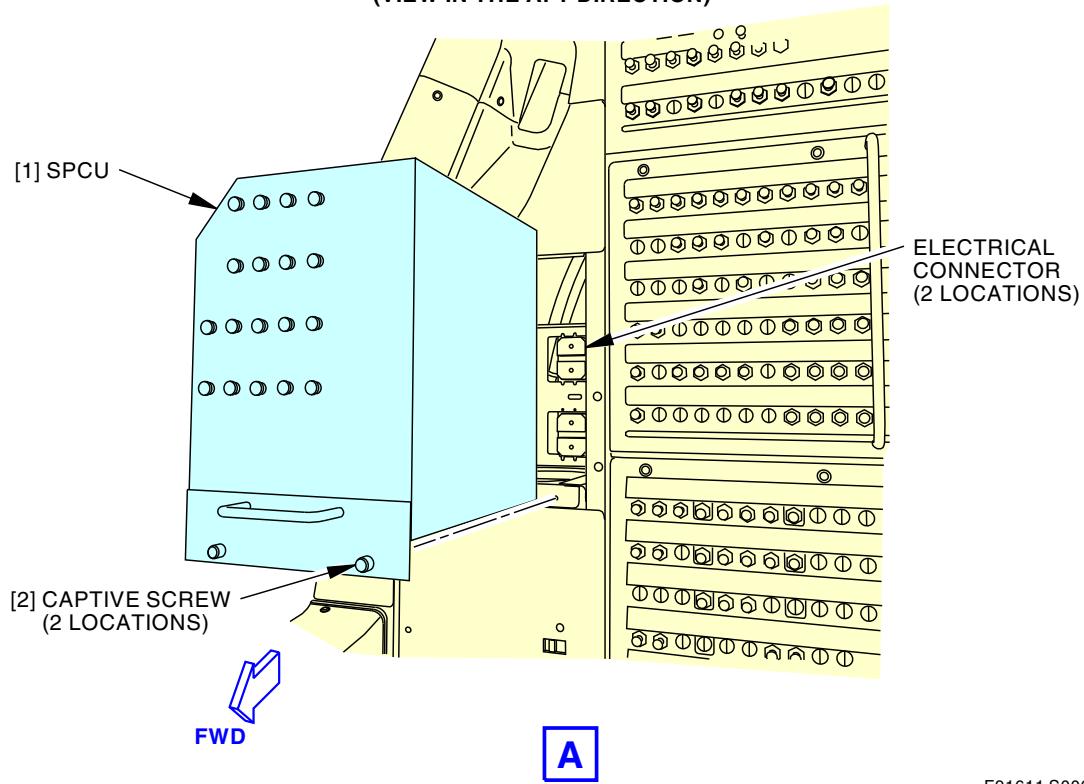
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 402
Jun 15/2021



**FLIGHT COMPARTMENT
(VIEW IN THE AFT DIRECTION)**



F91611 S0006566353_V4

Standby Power Control Unit (SPCU) Installation
Figure 401/24-34-11-990-801

EFFECTIVITY
LOM ALL

24-34-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-34-11-400-801

3. SPCU Installation

(Figure 401)

A. General

- (1) The Standby Power Control Unit (SPCU), M1720 is located on the P6 panel.

B. References

Reference	Title
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
31-25-00 P/B 501	CLOCKS - ADJUSTMENT/TEST
FIM 24-31 TASK 801	P5-13 ELEC Light Message BITE Procedure

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	SPCU	24-34-11-03-005	LOM ALL

D. Location Zones

Zone	Area
212	Flight Compartment - Right

E. SPCU Installation

SUBTASK 24-34-11-910-002



DO NOT TOUCH THE CONTROL UNIT BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CONTROL UNIT.

- (1) Before the SPCU [1] is touched, do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 24-34-11-420-001

- (2) Install the SPCU [1] on the P6 panel.
- Remove the protective covers from the electrical connectors.
 - Install the electrical connectors to the back of the SPCU [1].
 - Tighten the captive screws [2] at the front of the SPCU [1].

SUBTASK 24-34-11-860-006

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

Battery Shield, J9

Row	Col	Number	Name
A	5	C01340	BATTERY BUS

LOM 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

SUBTASK 24-34-11-410-001

- (4) Install the access cover on top of the J39 shield.

LOM ALL



24-34-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. SPCU Installation Test

SUBTASK 24-34-11-860-003

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

SUBTASK 24-34-11-710-002

- (2) Do a test of the SPCU, as follows:

- (a) Make sure that the STANDBY POWER switch, on the P5-5 panel, is in the AUTO position.
- (b) Make sure that the ELEC light, on the P5-13 panel, is off.
 - 1) To clear ELEC light messages, do this task: FIM 24-31 TASK 801.
- (c) Make sure that the STANDBY PWR OFF light, on the P5-5 panel, is off.
- (d) Set both the AC meter selector switch and the DC meter selector switch, on the P5-13 panel, to the STBY PWR position.
- (e) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 110 - 120
 - 2) CPS FREQ = 395 - 405.
- (f) Make sure that the DC meter shows this value:
 - 1) DC VOLTS = 22 - 30.
- (g) Set the STANDBY POWER switch to the OFF position.
- (h) Make sure that the STANDBY POWER OFF light comes on.
- (i) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 0
 - 2) CPS FREQ = BLANK.

NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.

- (j) Make sure that the DC meter shows this value:
 - 1) DC VOLTS = 0.
- (k) Put the GRD PWR and BAT switches to OFF position.
 - 1) Make sure that the electrical power is removed from the airplane.
 - a) Make sure that the STANDBY PWR OFF light is off.
- (l) Set the STANDBY POWER switch to the BAT position.
- (m) Make sure that the STANDBY POWER OFF light goes off.
- (n) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 110 - 120
 - 2) CPS FREQ = 395 - 405.
- (o) Make sure that the DC meter shows these values:
 - 1) DC VOLTS = 22 - 30.
- (p) Set the STANDBY POWER switch to the AUTO position.
- (q) If it is necessary, set the clocks to the correct Universal Time Coordinated (UTC) and date (PAGEBLOCK 31-25-00/501).

— END OF TASK —

EFFECTIVITY
LOM ALL

24-34-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL
STATIC INVERTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Static Inverter Removal.
 - (2) Static Inverter Installation.

TASK 24-34-21-000-801

2. Static Inverter Removal

(Figure 401)

A. General

- (1) The M9 Static Inverter is located on the E2-2 equipment rack in the main equipment center.

B. 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)

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 Removal

SUBTASK 24-34-21-860-001



CAUTION

DO NOT DISCONNECT THE BATTERY CHARGER BEFORE YOU OPEN THE CIRCUIT BREAKERS. WITH THE BATTERY SWITCH IN THE OFF POSITION, THE BATTERY WILL CONTINUE TO ENERGIZE THE POSITIVE TERMINAL OF THE BATTERY CHARGER. IF YOU DISCONNECT THE BATTERY CHARGER BEFORE YOU OPEN THE CIRCUIT BREAKERS, YOU CAN CAUSE DAMAGE TO THE BATTERY CHARGER.

- (1) Open this circuit breaker and install safety tag:

Standby Power Control Unit, M01720

Row	Col	Number	Name
A	5	C01343	INVERTER REMOTE

SUBTASK 24-34-21-860-003

- (2) Open this access panel:

Number Name/Location

117A	Electronic Equipment Access Door
------	----------------------------------

EFFECTIVITY
LOM ALL

24-34-21

Page 401
Oct 15/2020



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. Static Inverter Removal

SUBTASK 24-34-21-910-001



CAUTION

DO NOT TOUCH THE STATIC INVERTER BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE STATIC INVERTER.

- (1) Before you touch the static inverter [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 24-34-21-020-001

- (2) Do these steps to disconnect the static inverter [1]:
 - (a) Remove the electrical connector from the static inverter [1].

LOM ALL; AIRPLANES WITHOUT STATIC INVERTER P/N 1-002-0102-2170

- (b) Remove the screws [8], lockwashers [9], and washers [10] that hold the terminal block covers.

LOM ALL; AIRPLANES WITH STATIC INVERTER P/N 1-002-0102-2170

- (c) Remove the screws [8] that hold the terminal block covers.

LOM ALL

- (d) Remove the terminal block covers [11].
- (e) Put tags on the wires to identify them for installation.
- (f) Do these steps to remove the wires from the terminal studs of the static inverter [1]:

LOM ALL; AIRPLANES WITH STATIC INVERTER WITH LOCKWASHER HARDWARE CONFIGURATION

- 1) Remove the nut [2], lockwasher [3], and washer [4] from the terminal stud.
- 2) Remove the nut [5], lockwasher [6], and washer [7] from the terminal stud.
- 3) Remove the wires.

LOM ALL; AIRPLANES WITH STATIC INVERTER WITH LOCKNUT HARDWARE CONFIGURATION

- 4) Remove the locknut [12] and washer [4] from the terminal stud.
- 5) Remove the locknut [13] and washer [7] from the terminal stud.
- 6) Remove the wires.

LOM ALL

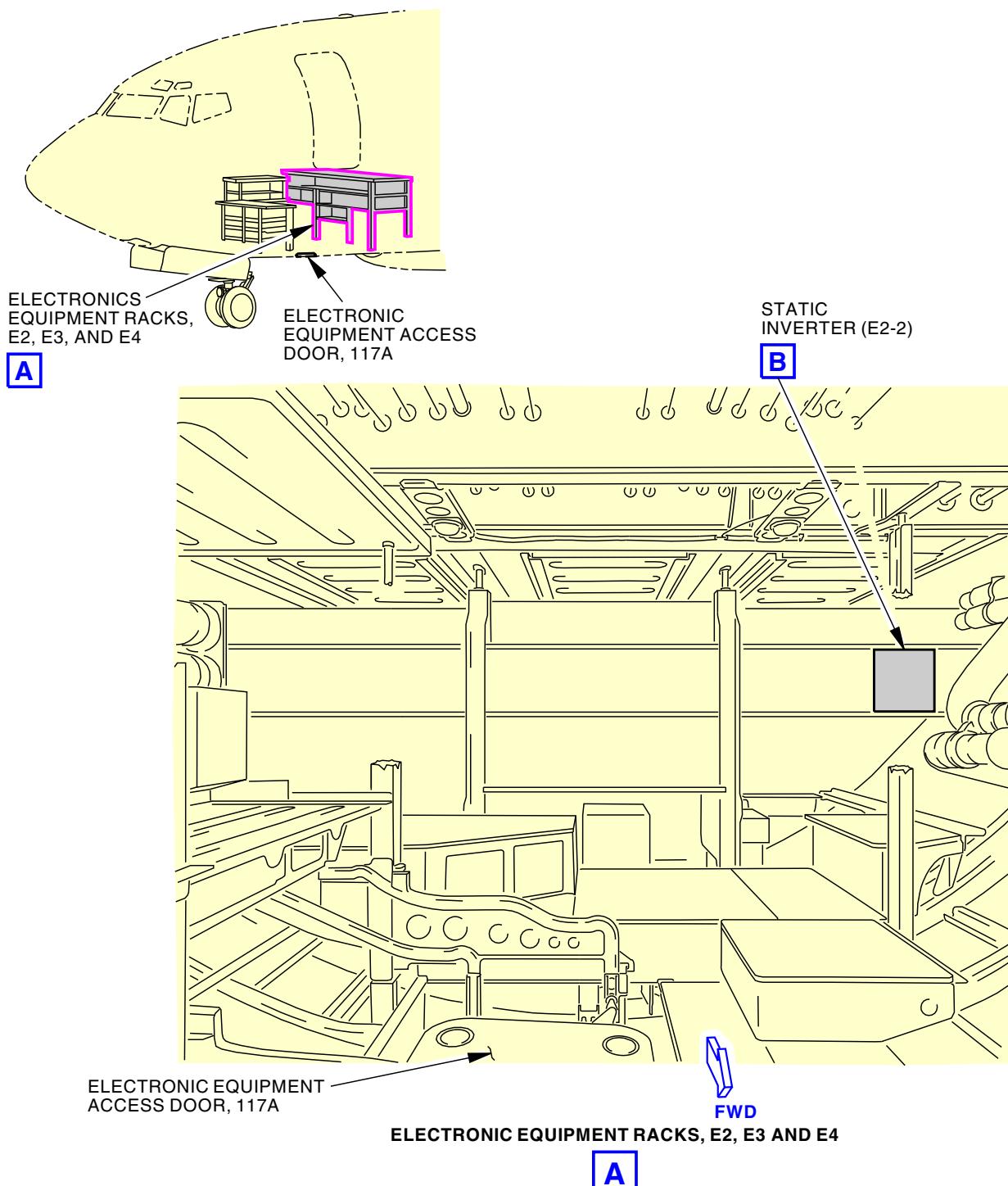
SUBTASK 24-34-21-020-002

- (3) Remove the static inverter [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-34-21

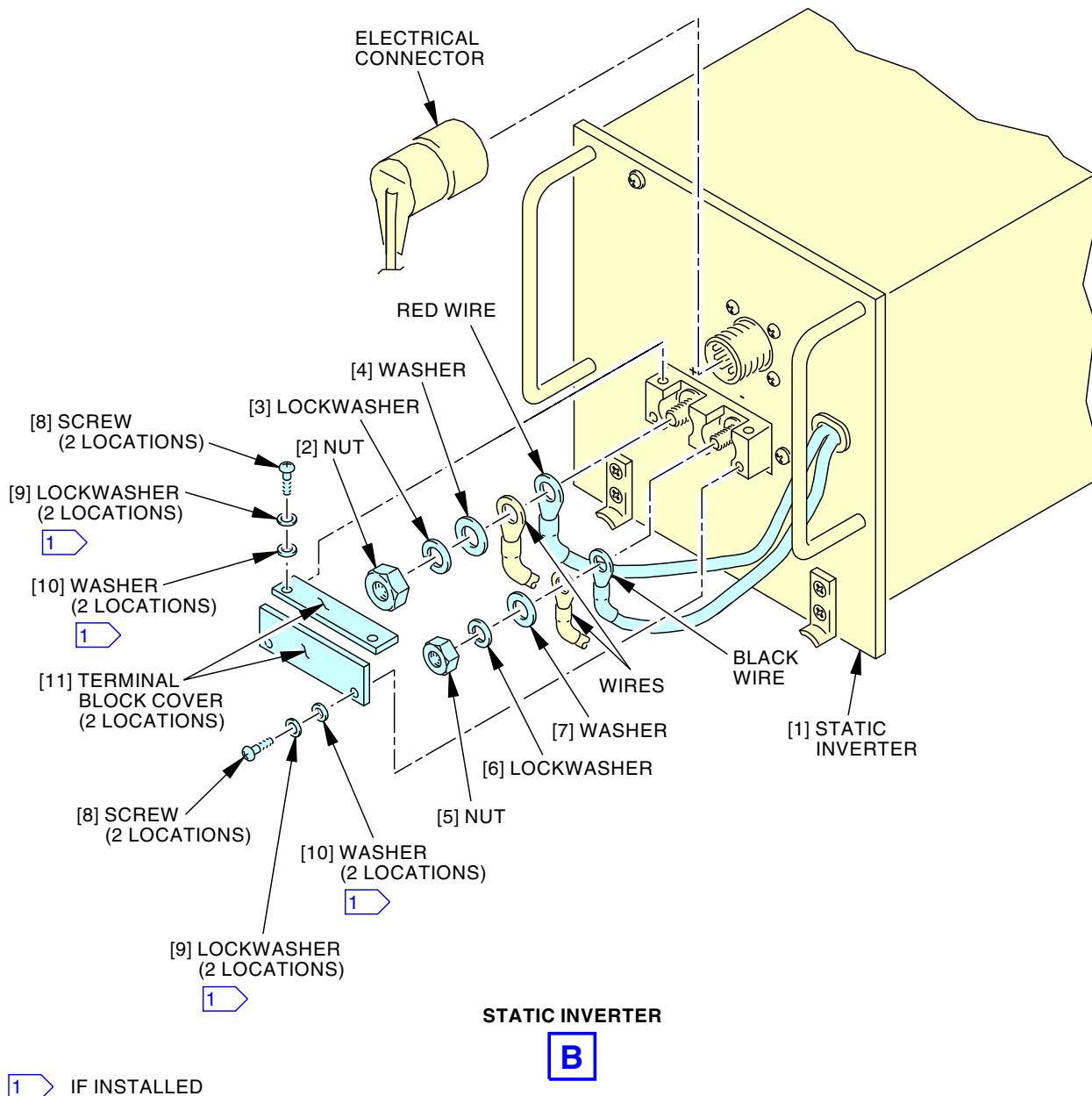


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Static Inverter Installation
Figure 401/24-34-21-990-801 (Sheet 1 of 3)

EFFECTIVITY
LOM ALL

24-34-21



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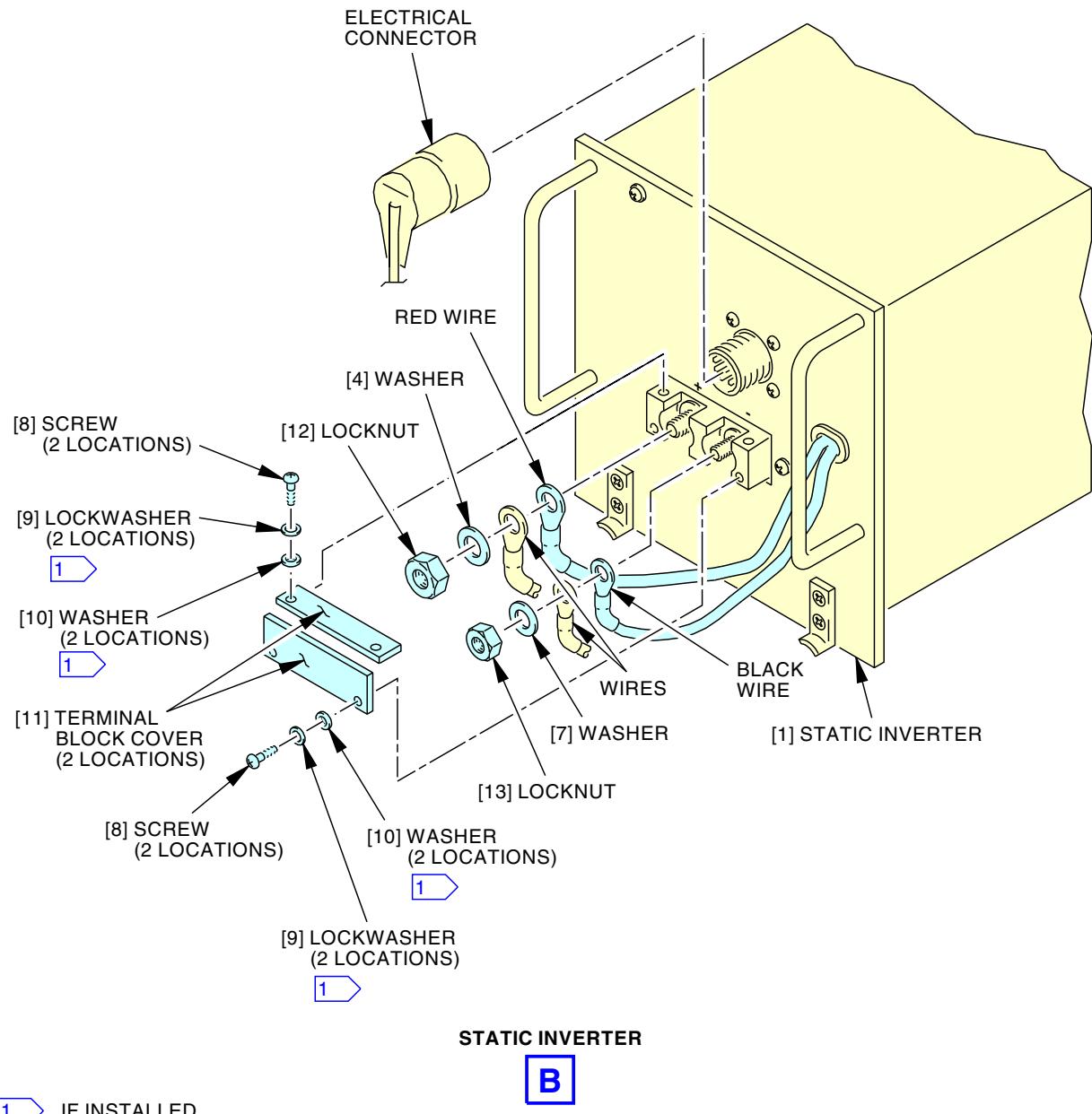
Static Inverter Installation
Figure 401/24-34-21-990-801 (Sheet 2 of 3)

EFFECTIVITY
LOM ALL; AIRPLANES WITH STATIC INVERTER
WITH LOCKWASHER HARDWARE CONFIGURATION

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-34-21Page 404
Jun 15/2024



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Static Inverter Installation
Figure 401/24-34-21-990-801 (Sheet 3 of 3)

24-34-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-34-21-400-801

3. Static Inverter - Installation

(Figure 401)

A. General

- (1) The M9 Static Inverter is located on the E2-2 equipment rack in the main equipment center.

B. 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)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Static inverter	24-34-21-01-005	LOM ALL
		24-34-21-01-100	LOM ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Static Inverter Installation

SUBTASK 24-34-21-480-001



WARNING MAKE SURE THAT YOU REMOVE POWER FROM STATIC-INVERTER WIRE-BUNDLE BEFORE YOU INSTALL STATIC INVERTER. WIRES WITH POWER CAN CAUSE INJURY TO PERSONS.



CAUTION DO NOT TOUCH THE STATIC INVERTER BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE STATIC INVERTER.

- (1) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 24-34-21-420-001

- (2) Install the static inverter [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 24-34-21-420-002

- (3) Do these steps to connect the static inverter [1]:

- (a) Put the wires on the terminal studs of the static inverter [1].

LOM ALL; AIRPLANES WITHOUT STATIC INVERTER P/N 1-002-0102-2170

- (b) Do these steps to install the wires:

LOM ALL; AIRPLANES WITHOUT MOD A STATIC INVERTER, WITH NON-PINNED TERMINAL BLOCK AND WITH LOCKWASHER HARDWARE CONFIGURATION

- 1) Install the nut [2], lockwasher [3], and washer [4] on the terminal stud.
a) Tighten the nut [2] to 135 in-lb (15 N·m) - 155 in-lb (18 N·m).

EFFECTIVITY
LOM ALL

24-34-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOM ALL; AIRPLANES WITHOUT MOD A STATIC INVERTER, WITH NON-PINNED TERMINAL BLOCK AND WITH LOCKWASHER HARDWARE CONFIGURATION (Continued)

- 2) Install the nut [5], lockwasher [6], and washer [7] on the terminal stud.
 - a) Tighten the nut [5] to 65 in-lb (7 N·m) - 85 in-lb (10 N·m).

LOM ALL; AIRPLANES WITH MOD A STATIC INVERTER, WITH PINNED TERMINAL BLOCK AND WITH LOCKWASHER HARDWARE CONFIGURATION

- 3) Install the nut [2], lockwasher [3], and washer [4] on the terminal stud.
 - a) Tighten the nut [2] to 155 ± 10 in-lb (18 ± 1 N·m).
- 4) Install the nut [5], lockwasher [6], and washer [7] on the terminal stud.
 - a) Tighten the nut [5] to 85 ± 10 in-lb (10 ± 1 N·m).

LOM ALL; AIRPLANES WITH STATIC INVERTER WITH LOCKNUT HARDWARE CONFIGURATION

- 5) Install the locknut [12] and washer [4] on the terminal stud.
 - a) Tighten the locknut [12] to 125 ± 4 in-lb (14 ± 0 N·m).
- 6) Install the locknut [13] and washer [7] on the terminal stud.
 - a) Tighten the locknut [13] to 65 ± 2 in-lb (7 ± 0 N·m).

LOM ALL; AIRPLANES WITH STATIC INVERTER P/N 1-002-0102-2170

- (c) Do these steps to install the wires:

LOM ALL; AIRPLANES WITH STATIC INVERTER WITH LOCKWASHER HARDWARE CONFIGURATION

- 1) Install the nut [2], lockwasher [3], and washer [4] on the terminal stud.
 - a) Tighten the nut [2] to 135 in-lb (15 N·m) - 155 in-lb (18 N·m).
- 2) Install the nut [5], lockwasher [6], and washer [7] on the terminal stud.
 - a) Tighten the nut [5] to 65 in-lb (7 N·m) - 85 in-lb (10 N·m).

LOM ALL; AIRPLANES WITH STATIC INVERTER WITH LOCKNUT HARDWARE CONFIGURATION

- 3) Install the locknut [12] and washer [4] on the terminal stud.
 - a) Tighten the locknut [12] to 135 in-lb (15 N·m) - 155 in-lb (18 N·m).
- 4) Install the locknut [13] and washer [7] on the terminal stud.
 - a) Tighten the locknut [13] to 65 in-lb (7 N·m) - 85 in-lb (10 N·m).

LOM ALL

- (d) Do these steps to install the terminal block covers:
 - 1) Hold the two terminal block covers [11] in place.

LOM ALL; AIRPLANES WITHOUT STATIC INVERTER P/N 1-002-0102-2170

- 2) Install the four screws [8], lockwashers [9], and washers [10] that hold the terminal block covers.

LOM ALL; AIRPLANES WITH STATIC INVERTER P/N 1-002-0102-2170

- 3) Install the screws [8] that hold the terminal block covers.

LOM ALL

- (e) Install the electrical connector on the static inverter [1].

EFFECTIVITY	
LOM ALL	

24-34-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

G. Static Inverter Installation Test

SUBTASK 24-34-21-910-002

- (1) Do a check of the static inverter [1] per the steps that follow:
 - (a) Remove the safety tag and close this circuit breaker:

Standby Power Control Unit, M01720

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	5	C01343	INVERTER REMOTE

- (b) Set the AC Meter Selector Switch on the P5-13 panel to the INV position.
- (c) Make sure that the AC meter shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 390-410.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 24-34-21-410-001

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-34-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

STATIC INVERTER REMOTE CONTROL CIRCUIT BREAKER (RCCB) - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
- (1) Static Inverter RCCB Removal
 - (2) Static Inverter RCCB Installation.

TASK 24-34-31-000-801-001

2. **Static Inverter RCCB Removal**

(Figure 401, Figure 402)

A. **General**

- (1) The Static Inverter Remote Controlled Circuit Breaker (RCCB), C1341, is located on the J9 Battery Shield in the Main Equipment Center.

B. **References**

Reference	Title
SWPM 20-83-00	Standard Wiring Practices Manual

C. **Location Zones**

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

D. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

E. **Prepare for the Removal**

SUBTASK 24-34-31-860-001-001

- (1) Set the STANDBY POWER switch on the P5-5 panel to the OFF position and attach a DO-NOT-OPERATE tag to it.

SUBTASK 24-34-31-860-002-001

- (2) Set the BAT switch on the P5-13 panel to the OFF position and attach a DO-NOT-OPERATE tag to it.

SUBTASK 24-34-31-010-001-001

- (3) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door
(a) Remove the access cover on top of the J39 shield to get access to the circuit breakers.	
(b) Open these circuit breakers and install safety tags:	

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-34-31-020-001-001

- (4) Remove the battery connector per the steps that follow:

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Gain access to the forward cargo area.
- (b) Remove the forward bulkhead liner that covers the battery.
- (c) Cut and remove the safety lockwire from the battery connector.
- (d) Remove the battery connector from the battery.

NOTE: Do not let the terminals on the connector rest against the airplane structure.

F. Procedure

SUBTASK 24-34-31-020-002-001

- (1) Do these steps to remove the static inverter RCCB [1]:
 - (a) Remove the access cover on top of the J9 shield to get access to the RCCB.
 - (b) Install identification tags on all wires attached to the RCCB before removing them.
 - (c) Remove the two nuts [2], two lockwashers [3] and two washers [4] from both terminal studs on the static inverter RCCB [1].
 - (d) Remove the wires from the terminal studs.
 - (e) Remove the control wires from the connector on the RCCB SWPM 20-83-00.
NOTE: Be sure to install an identification tag on wire so that you can install the wire into the correct socket later.
 - (f) Remove the two screws [5] that hold the RCCB to the panel.
 - (g) Remove the RCCB.

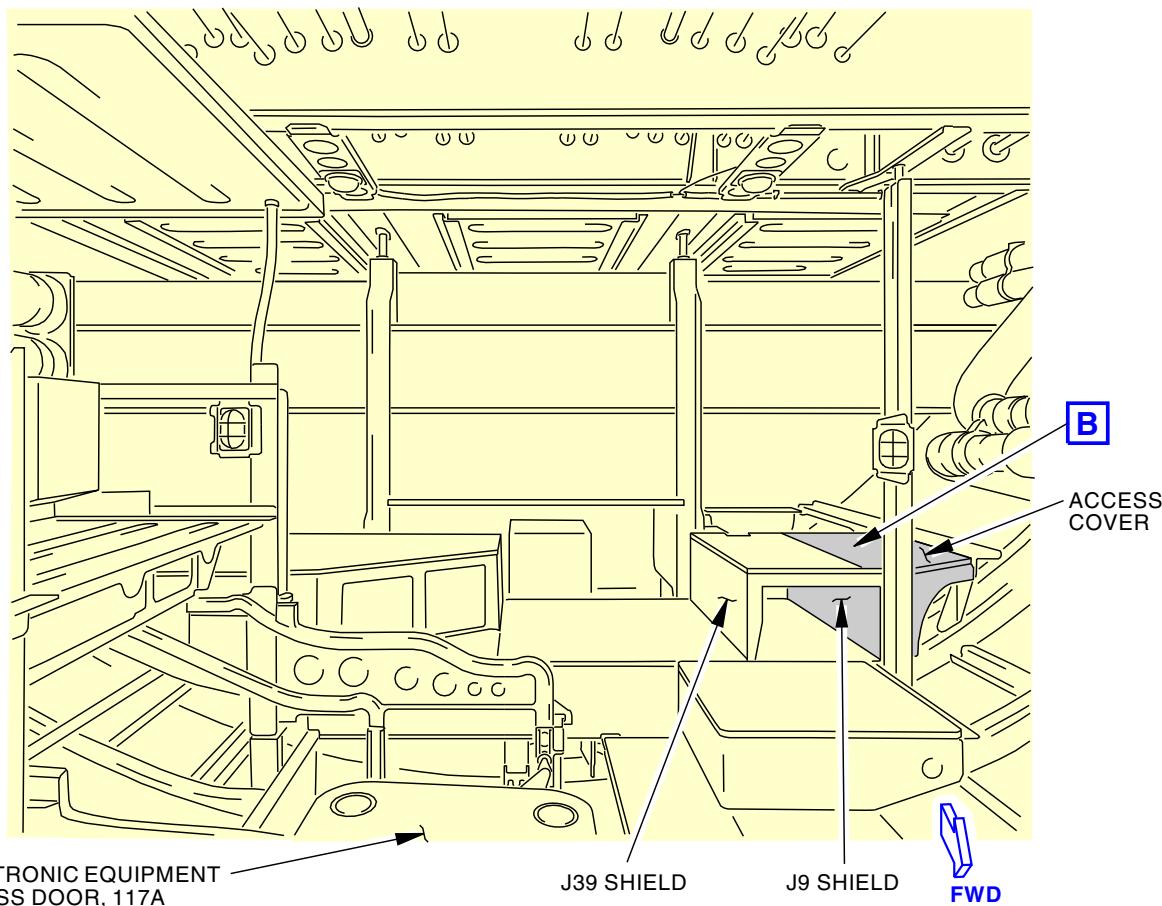
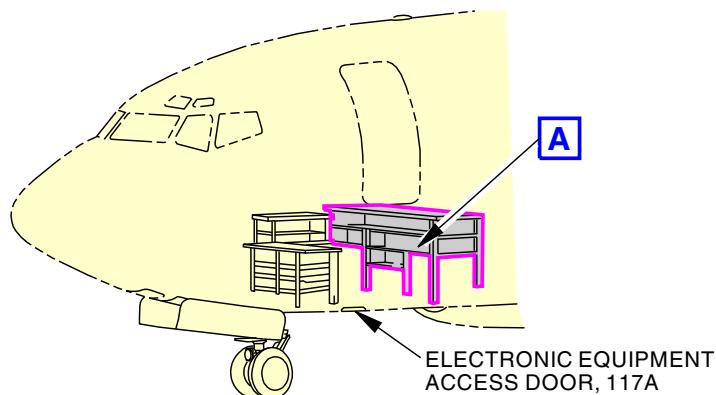
———— END OF TASK ————

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

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24-34-31
Config 1
Page 402
Oct 15/2021



ELECTRICAL AND ELECTRONICS COMPARTMENT

A

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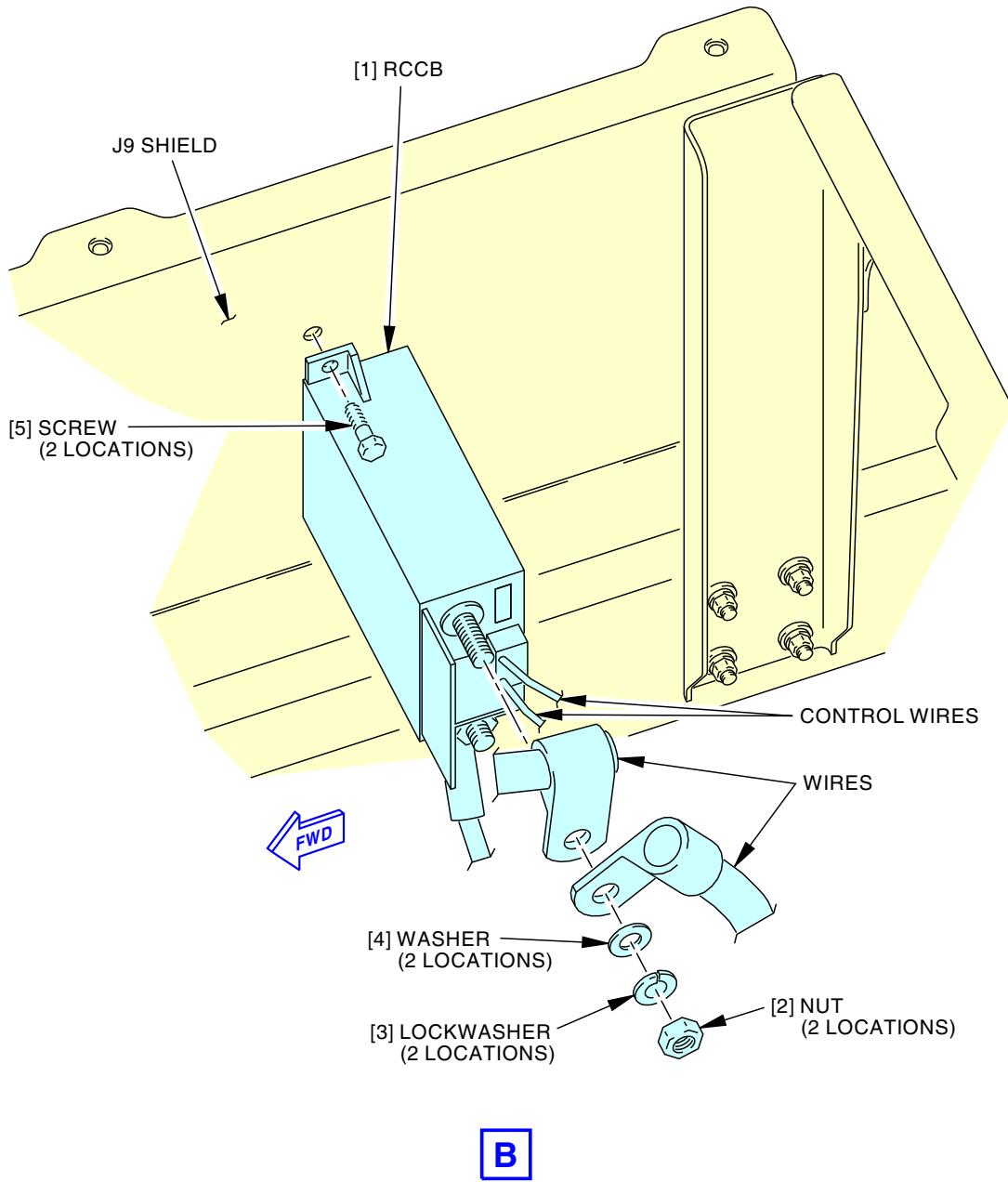
Static Inverter Remote Control Circuit Breaker (RCCB) Installation
Figure 401/24-34-31-990-801-001 (Sheet 1 of 2)

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-34-31
Config 1
Page 403
Jun 15/2018



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Static Inverter Remote Control Circuit Breaker (RCCB) Installation
Figure 401/24-34-31-990-801-001 (Sheet 2 of 2)

EFFECTIVITY
 LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
 466-999

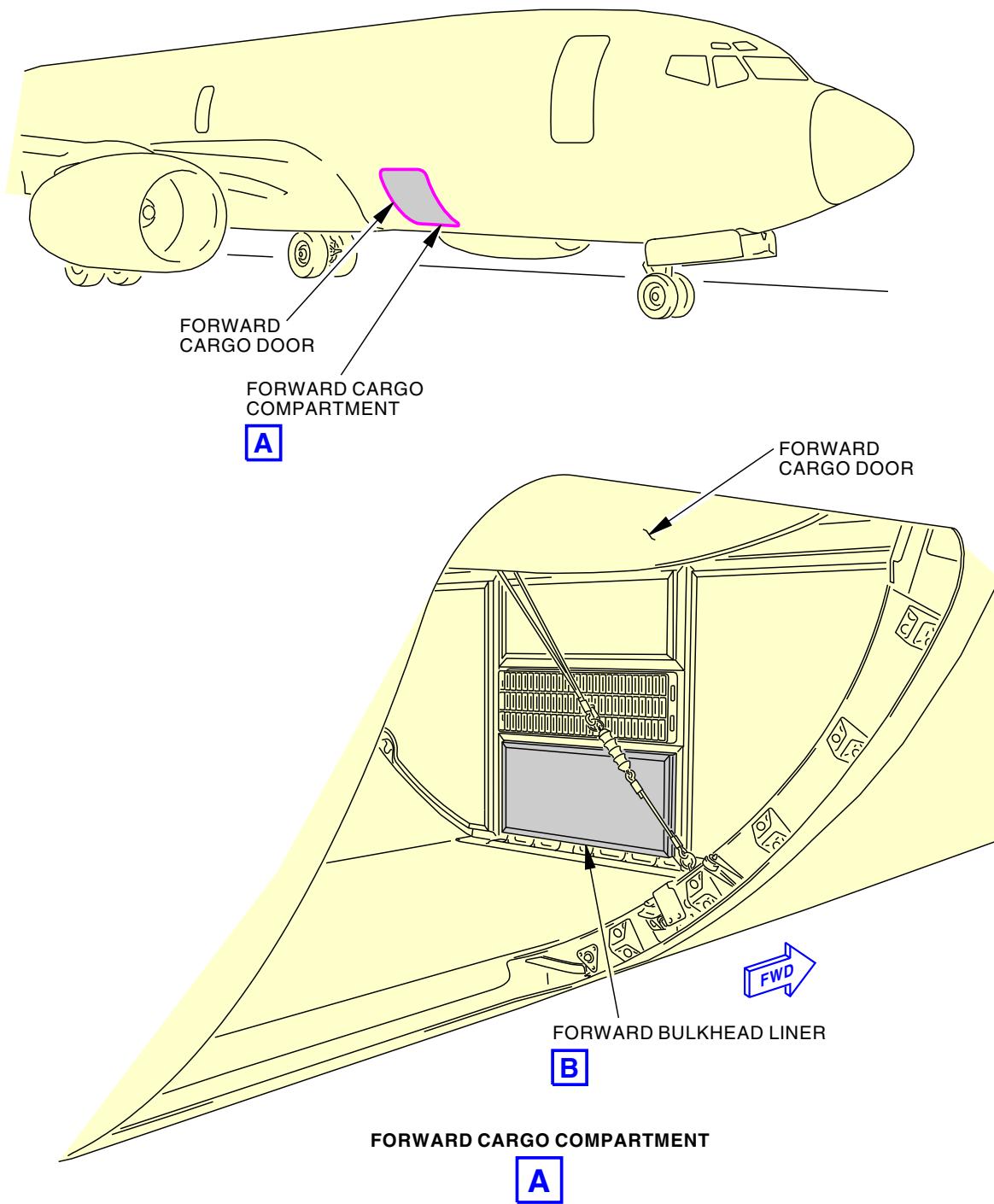
ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-34-31
 Config 1
 Page 404
 Jun 15/2018



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Battery Installation
Figure 402/24-34-31-990-802-001 (Sheet 1 of 2)

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

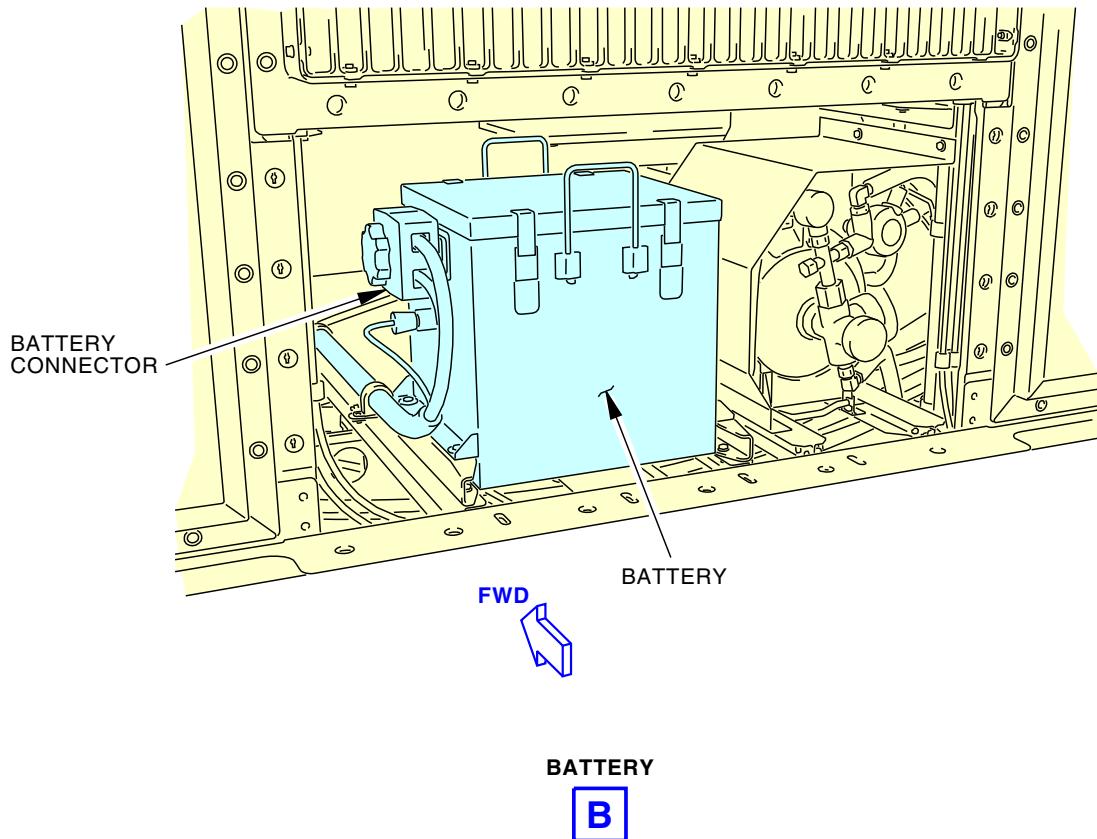
24-34-31
Config 1
Page 405
Jun 15/2018

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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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Battery Installation
Figure 402/24-34-31-990-802-001 (Sheet 2 of 2)

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

24-34-31
Config 1
Page 406
Jun 15/2018

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-34-31-400-801-001

3. Static Inverter RCCB Installation

(Figure 401, Figure 402)

A. General

- (1) The Static Inverter Remote Controlled Circuit Breaker (RCCB), C1341, is located on the J9 Battery Shield in the Main Equipment Center.

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)
24-31-21-710-801	Main Battery Charger Operational Test (P/B 501)
FIM 24-31 TASK 801	P5-13 ELEC Light Message BITE Procedure
SWPM 20-83-00	Standard Wiring Practices Manual

C. Consumable Materials

Reference	Description	Specification
G02479	Lockwire - MS20995CY20, Copper - 0.020 Inch (0.508 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Static inverter RCCB	24-34-31-02-015	LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464, 466-999

E. Location Zones

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

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Procedure

SUBTASK 24-34-31-420-001-001

- (1) Do these steps to install the static inverter RCCB [1]:
- Hold the RCCB in position.
 - Install the two screws [5] that hold the RCCB.
 - Install the wires on the RCCB terminal studs.
 - Install the two nuts [2], two lockwashers [3] and two washers [4] on both terminal studs on the static inverter RCCB [1].
 - Torque the nuts [2]to 40 in-lb (4.5 N·m)-45 in-lb (5.1 N·m).
 - Install the control wires into sockets on RCCB per the identification tags SWPM 20-83-00.
 - Install the access cover on top of the J9 shield.

SUBTASK 24-34-31-420-002-001

- (2) Install the battery connector per the steps that follow:

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Gain access to the forward cargo area.
- (b) Install the battery connector on the battery.
- (c) Safety wire the battery connector with a 0.020 in. (0.508 mm) diameter MS20995CY20 lockwire, G02479 (TASK 20-10-44-400-801).
- (d) Install the forward bulkhead liner.

SUBTASK 24-34-31-860-013

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-34-31-410-005

- (4) Install the access cover on top of the J39 shield.

H. Static Inverter RCCB Installation Test

SUBTASK 24-34-31-710-001-001

- (1) Do a check of the static inverter RCCB [1] per the steps that follow:
 - (a) Do this task to supply external power: Supply External Power, TASK 24-22-00-860-813.
 - (b) Make sure the BAT switch on the P5-13 panel is in the OFF position.
 - (c) Set the STANDBY POWER switch on the P5-5 panel to the AUTO position.
 - (d) Make sure the ELEC light on the P5-13 panel is OFF.
 - 1) To clear ELEC light messages, do this task: FIM 24-31 TASK 801.
 - (e) Set the AC Meter Selector Switch on the P5-13 panel to the INV position.
 - (f) Make sure the AC meter shows these values:
 - 1) AC VOLTS = 0
 - 2) CPS FREQ = BLANK

NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.
 - (g) Set the BAT switch on the P5-13 panel to the ON position.
 - (h) Make sure the AC meter shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 390-410

SUBTASK 24-34-31-710-002-001

- (2) Do a check of the battery charger per the steps that follow:
 - (a) Do this task: Main Battery Charger Operational Test, TASK 24-31-21-710-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-34-31-410-001-001

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

EFFECTIVITY
LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999

24-34-31

Config 1

Page 408

Oct 15/2021

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-34-31-860-005-001

- (2) Set the BAT switch on the P5-13 panel to the OFF position.

———— END OF TASK ——

— EFFECTIVITY —
**LOM 423, 424, 439, 441, 446, 447, 455, 456, 458-464,
466-999**

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-34-31
Config 1
Page 409
Oct 15/2021



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

STATIC INVERTER REMOTE CONTROL CIRCUIT BREAKER (RCCB) - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
- (1) Static Inverter RCCB Removal
 - (2) Static Inverter RCCB Installation.

TASK 24-34-31-000-803-002

2. **Static Inverter RCCB Removal**

(Figure 401, Figure 402)

A. **General**

- (1) The Static Inverter Remote Controlled Circuit Breaker (RCCB), C1341, is located on the J9 Battery Shield in the Main Equipment Center.

B. **References**

Reference	Title
SWPM 20-83-00	Standard Wiring Practices Manual

C. **Location Zones**

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

D. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

E. **Prepare for the Removal**

SUBTASK 24-34-31-860-009-002

- (1) Set the STANDBY POWER switch on the P5-5 panel to the OFF position and attach a DO-NOT-OPERATE tag to it.

SUBTASK 24-34-31-860-010-002

- (2) Set the BAT switch on the P5-13 panel to the OFF position and attach a DO-NOT-OPERATE tag to it.

SUBTASK 24-34-31-010-003-002

- (3) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

- (a) Remove the access cover on top of the J39 shield to get access to the circuit breakers.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (b) Open these circuit breakers and install safety tags:

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

SUBTASK 24-34-31-020-007-002

- (4) Remove the battery connectors from the main and auxiliary batteries per the steps that follow:
- Gain access to the forward cargo area.
 - Remove the forward bulkhead liner that covers the batteries.
 - Cut and remove the safety lockwire from the battery connectors.
 - Remove the battery connectors from both batteries.

NOTE: Do not let the terminals on the connector rest against the airplane structure.

F. Procedure

SUBTASK 24-34-31-020-008-002

- (1) Do these steps to remove the static inverter RCCB [1]:

- Remove the access cover on top of the J9 shield to get access to the RCCB.
- Install identification tags on all wires attached to the RCCB before removing them.
- Remove the two nuts [2], two lockwashers [3] and two washers [4] from both terminal studs on the static inverter RCCB [1].
- Remove the nut [2], lockwasher [3] and washer [4] from the top terminal stud on the Dual Battery RCCB.

NOTE: This step must be done because the terminals are close together on the same wire.

- Remove the wires from the terminal studs.
- Remove the control wires from the connector on the RCCB SWPM 20-83-00.

NOTE: Be sure to install an identification tag on wire so that you can install the wire into the correct socket later.

- Remove the two screws [5] that hold the RCCB to the panel.
- Remove the RCCB.

———— END OF TASK ————

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

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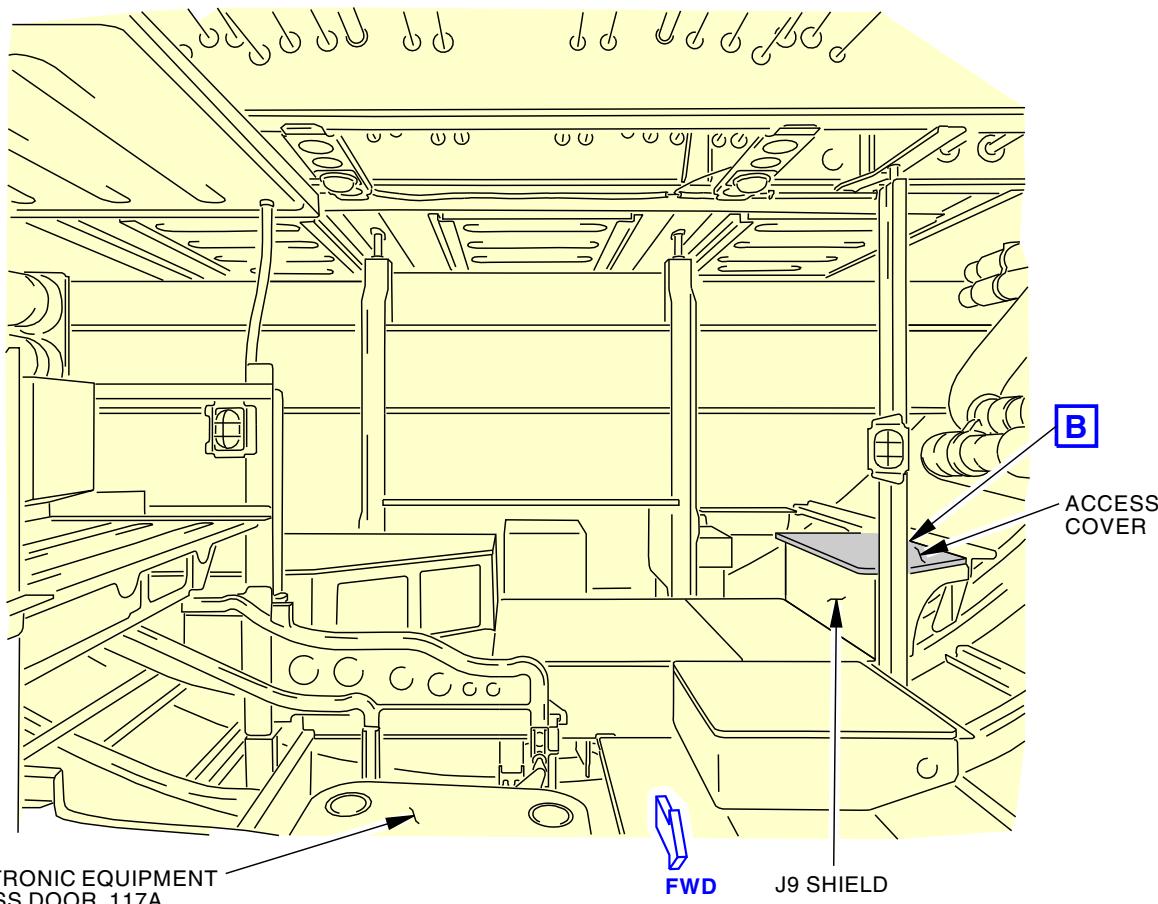
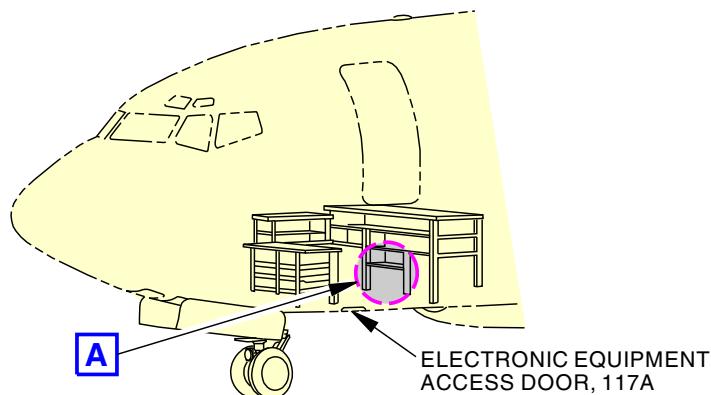
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24-34-31

Config 2

Page 402

Oct 15/2024



A

K31104 S0006566387_V3

Static Inverter Remote Control Circuit Breaker (RCCB) Installation
Figure 401/24-34-31-990-805-002 (Sheet 1 of 3)

EFFECTIVITY
LOM 402, 404, 406

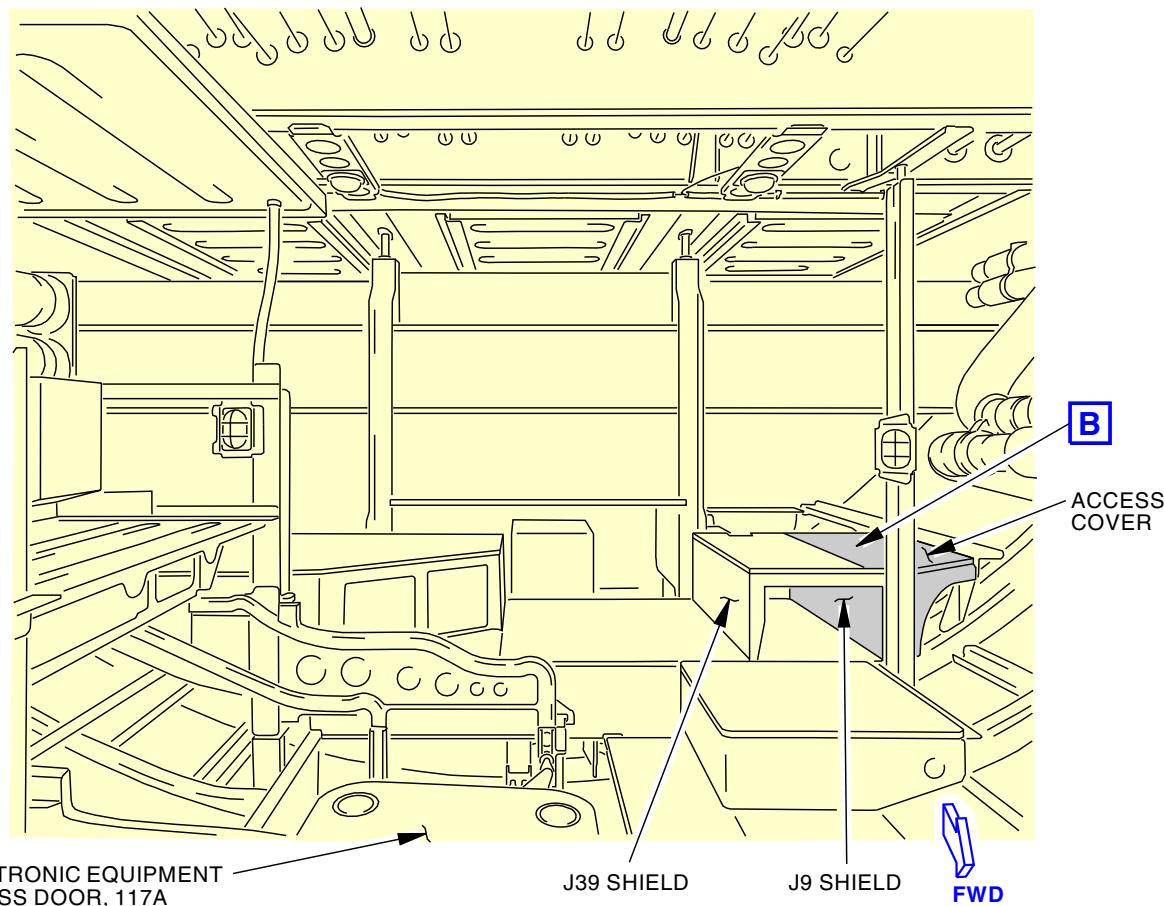
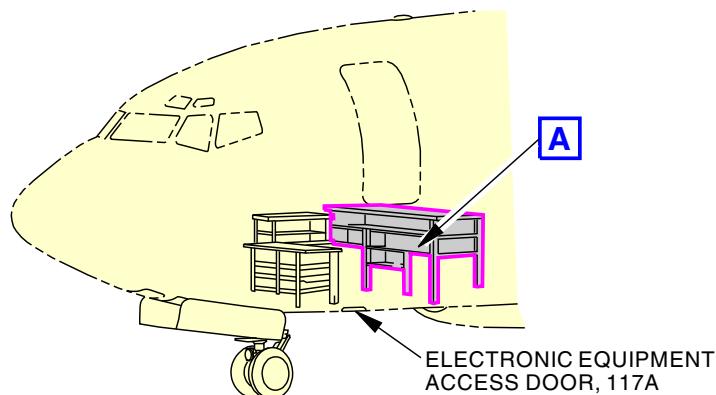
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Config 2

Page 403

Feb 15/2020

D633A101-LOM


ELECTRICAL AND ELECTRONICS COMPARTMENT
A

1494821 S0000271002_V2

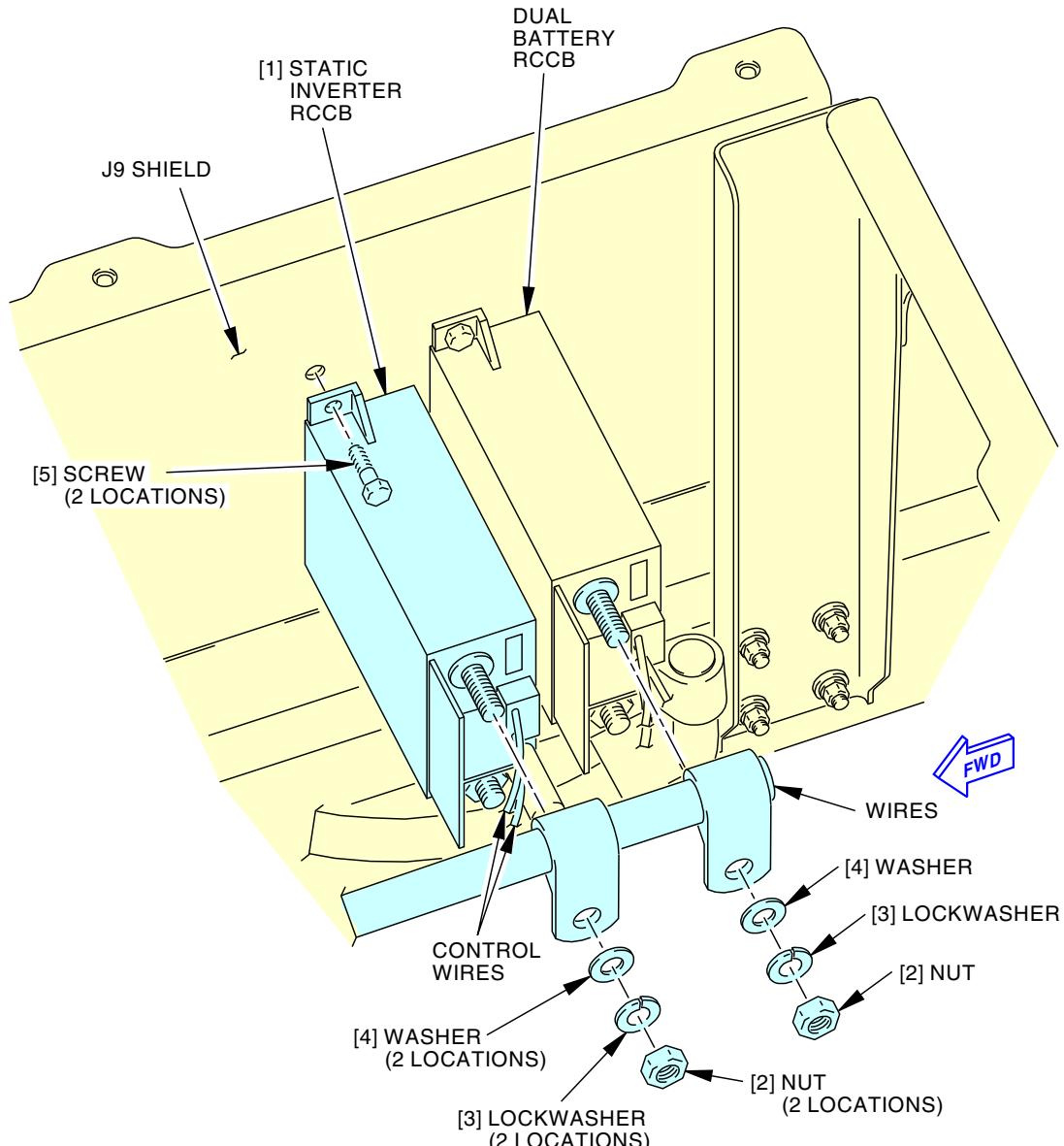
Static Inverter Remote Control Circuit Breaker (RCCB) Installation
Figure 401/24-34-31-990-805-002 (Sheet 2 of 3)

EFFECTIVITY
 LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437,
 438, 440, 442-445, 450-454, 457, 465

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-34-31
 Config 2
 Page 404
 Oct 15/2024



K31108 S0006566388_V3

Static Inverter Remote Control Circuit Breaker (RCCB) Installation
Figure 401/24-34-31-990-805-002 (Sheet 3 of 3)

EFFECTIVITY
 LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

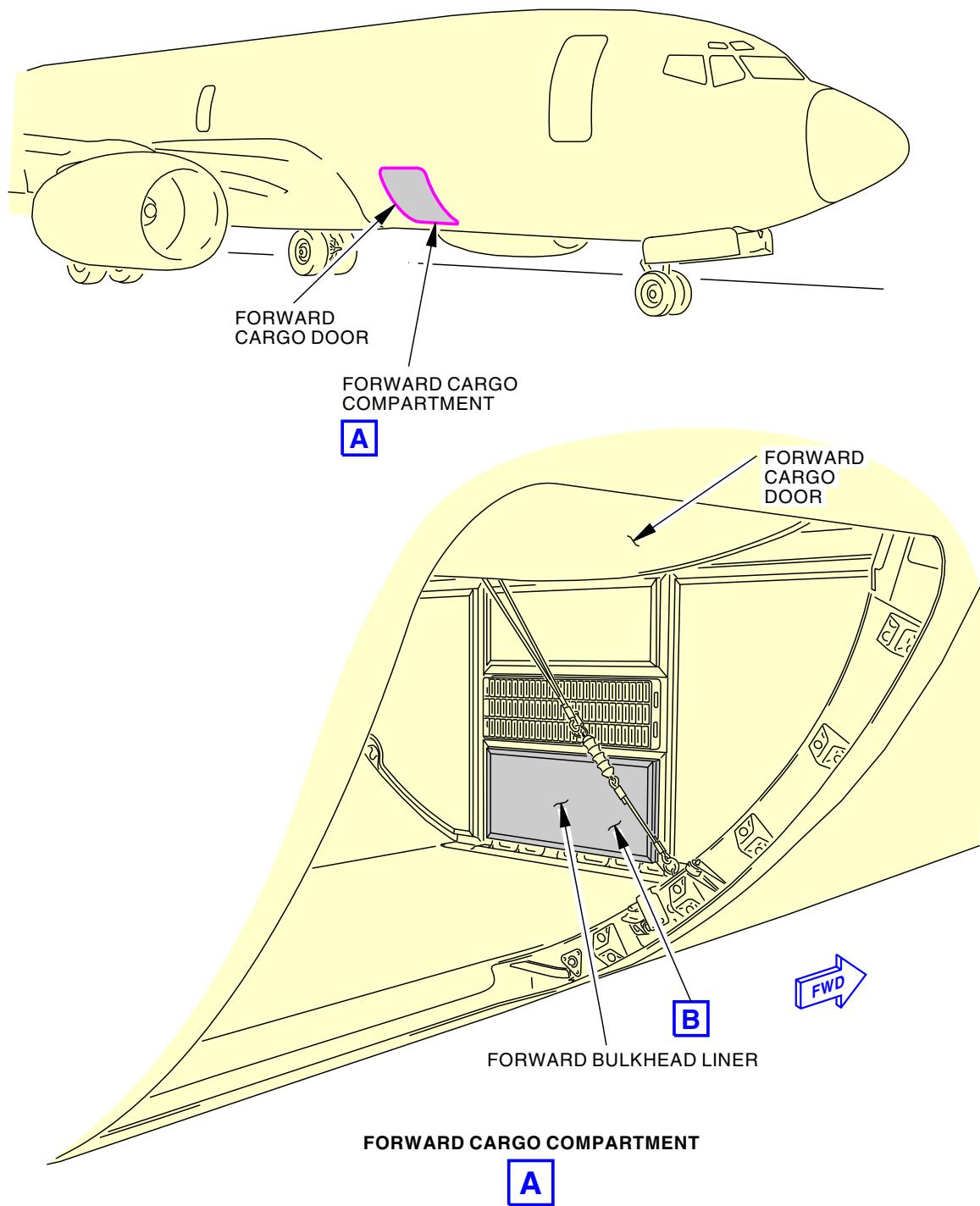
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D633A101-LOM

24-34-31
 Config 2
 Page 405
 Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



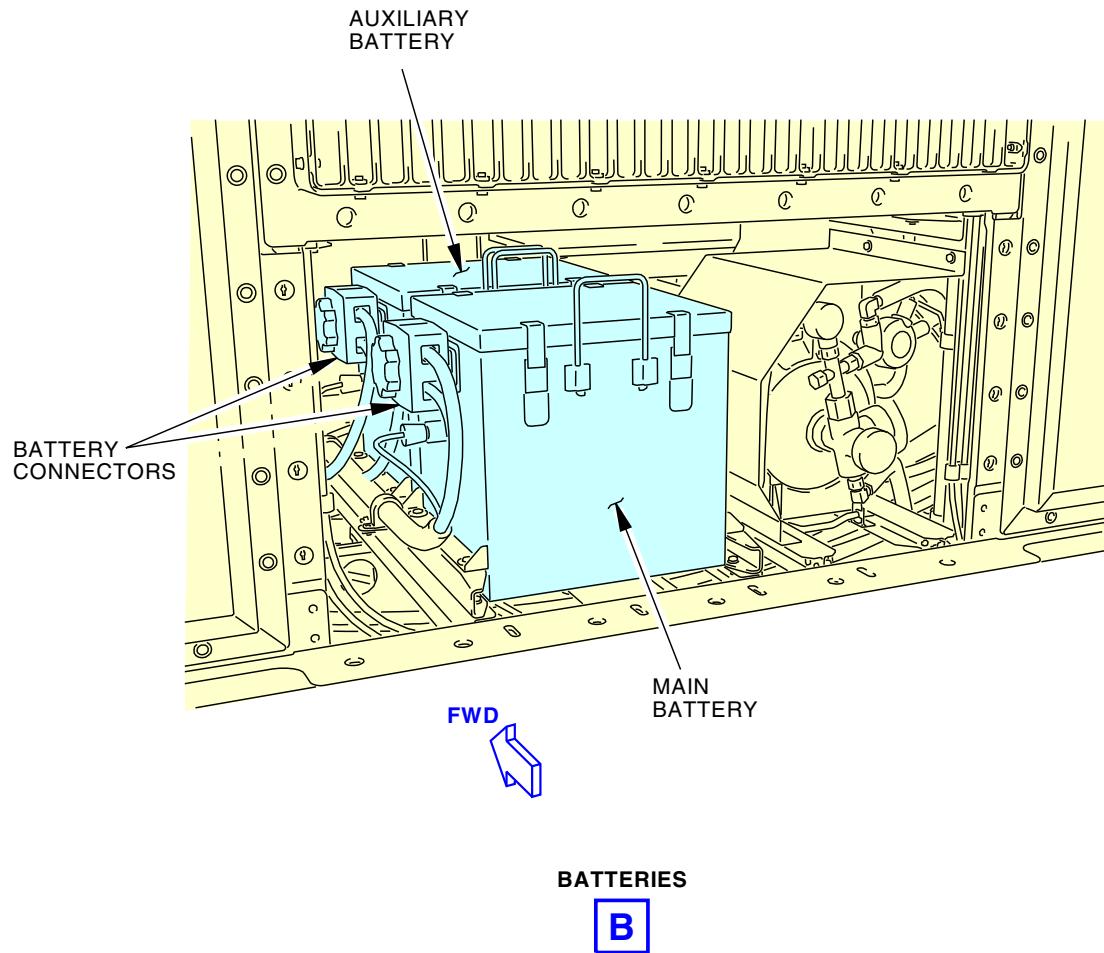
K31115 S0006566389_V2

Battery Installation
Figure 402/24-34-31-990-806-002 (Sheet 1 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-34-31
Config 2
Page 406
Oct 15/2024

D633A101-LOM



K31118 S0006566391_V3

Battery Installation
Figure 402/24-34-31-990-806-002 (Sheet 2 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

24-34-31
Config 2
Page 407
Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-34-31-400-803-002

3. Static Inverter RCCB Installation

(Figure 401, Figure 402)

A. General

- (1) The Static Inverter Remote Controlled Circuit Breaker (RCCB), C1341, is located on the J9 Battery Shield in the Main Equipment Center.

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)
24-31-21-710-801	Main Battery Charger Operational Test (P/B 501)
24-31-31-710-801	Auxiliary Battery Charger Operational Test (P/B 501)
FIM 24-31 TASK 801	P5-13 ELEC Light Message BITE Procedure
SWPM 20-83-00	Standard Wiring Practices Manual

C. Consumable Materials

Reference	Description	Specification
G02479	Lockwire - MS20995CY20, Copper - 0.020 Inch (0.508 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Static inverter RCCB	24-34-31-01-015	LOM 402, 404, 406
		24-34-31-02-015	LOM 407, 411, 416, 420, 426-432, 437, 438, 443-445, 450-452, 457
		24-34-31-03-015	LOM 412, 415, 422, 425, 433, 434, 440, 442, 453, 454, 465

E. Location Zones

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

F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Procedure

SUBTASK 24-34-31-420-007-002

- (1) Do these steps to install the static inverter RCCB [1]:
- Hold the RCCB in position.
 - Install the two screws [5] that hold the RCCB.
 - Install the wires on the RCCB terminal studs.
 - Install the two nuts [2], two lockwashers [3] and two washers [4] on both terminal studs on the static inverter RCCB [1].

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (e) Install the nut [2], lockwasher [3] and washer [4] on the top terminal stud on the Dual Battery RCCB.
- (f) Torque the nuts [2] to 40 in-lb (4.5 N·m)-45 in-lb (5.1 N·m).
- (g) Install the control wires into sockets on RCCB per the identification tags SWPM 20-83-00.
- (h) Install the access cover on top of the J9 shield.

SUBTASK 24-34-31-420-008-002

- (2) Install the battery connectors on the main and auxiliary batteries per the steps that follow:
 - (a) Gain access to the forward cargo area.
 - (b) Install the battery connectors on both batteries.
 - (c) Safety wire the battery connectors with a 0.020 in. (0.508 mm) diameter MS20995CY20 lockwire, G02479 (TASK 20-10-44-400-801).
 - (d) Install the forward bulkhead liner.

SUBTASK 24-34-31-860-012

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

Battery Shield, J9

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01209	AUX BAT CHARGER
A	4	C00142	BATTERY CHARGER
A	5	C01340	BATTERY BUS

LOM 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

SUBTASK 24-34-31-410-004

- (4) Install the access cover on top of the J39 shield.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465

H. Static Inverter RCCB Installation Test

SUBTASK 24-34-31-710-006-002

- (1) Do a check of the static inverter RCCB [1] per the steps that follow:
 - (a) Do this task to supply external power: Supply External Power, TASK 24-22-00-860-813.
 - (b) Make sure the BAT switch on the P5-13 panel is in the OFF position.
 - (c) Set the STANDBY POWER switch on the P5-5 panel to the AUTO position.
 - (d) Make sure the ELEC light on the P5-13 panel is OFF.
 - 1) To clear ELEC light messages, do this task: FIM 24-31 TASK 801.
 - (e) Set the AC Meter Selector Switch on the P5-13 panel to the INV position.
 - (f) Make sure the AC meter shows these values:
 - 1) AC VOLTS = 0
 - 2) CPS FREQ = BLANK

NOTE: When the AC voltage goes below approximately 12 VAC, the CPS FREQ will become blank.
 - (g) Set the BAT switch on the P5-13 panel to the ON position.
 - (h) Make sure the AC meter shows these values:
 - 1) AC VOLTS = 110-120

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422, 425-434, 437, 438, 440, 442-445, 450-454, 457, 465



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

2) CPS FREQ = 390-410

SUBTASK 24-34-31-710-007-002

- (2) Do a check of the battery charger per the steps that follow:
(a) Do this task: Main Battery Charger Operational Test, TASK 24-31-21-710-801.

SUBTASK 24-34-31-710-008-002

- (3) Do a check of the auxiliary battery charger per the steps that follow:
(a) Do this task: Auxiliary Battery Charger Operational Test, TASK 24-31-31-710-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-34-31-410-003-002

- (1) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 24-34-31-860-011-002

- (2) Set the BAT switch on the P5-13 panel to the OFF position.

———— END OF TASK ————

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422,
425-434, 437, 438, 440, 442-445, 450-454, 457, 465

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-34-31
Config 2
Page 410
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

AC EXTERNAL POWER - MAINTENANCE PRACTICES

1. General

- A. This procedure has two tasks:
 - (1) AC External Power Deactivation.
 - (2) AC External Power Activation.

TASK 24-41-00-040-801

2. AC External Power - Deactivation

(Figure 201)

A. General

- (1) This task has these procedures:
 - (a) Remove external power from the ground service buses.
 - (b) Remove external power from the 115V AC transfer buses.

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 24-41-00-010-002

- (1) Do these steps to remove external power from the ground service buses:
 - (a) Push the GROUND SERVICE switch on the FWD ATTENDANT panel, P13.
 - 1) Make sure the light in the GROUND SERVICE switch goes off.
 - (b) Remove power from the external power cable.
 - (c) Make sure these lights on the P19 panel go off:
 - 1) EXTERNAL PWR CONN
 - 2) EXTERNAL PWR NOT IN USE



REMOVE ELECTRICAL POWER FROM THE EXTERNAL POWER SOURCE. IF YOU DO NOT REMOVE ELECTRICAL POWER, YOU CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (d) Remove the external power cable.
- (e) Close the External Power Receptacle Door.

SUBTASK 24-41-00-010-003

- (2) Do these steps to remove external power from the 115V AC transfer buses:
 - (a) Set the GRD PWR switch on the P5-4 panel to the OFF position.
 - (b) Make sure the GRD PWR AVAILABLE light on the P5-4 stays on.
 - (c) Make sure these lights on the P5-4 panel come on:

EFFECTIVITY
LOM ALL

24-41-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) 1 SOURCE OFF
 - 2) 2 SOURCE OFF
 - 3) 1 TRANSFER BUS OFF
 - 4) 2 TRANSFER BUS OFF
- (d) Set the BATTERY switch on the P5-13 Panel to the off position.
- (e) Remove power from the external power cable.
- (f) Make sure these lights on the P19 panel go off:
- 1) EXTERNAL PWR CONN
 - 2) EXTERNAL PWR NOT IN USE



WARNING

REMOVE ELECTRICAL POWER FROM THE EXTERNAL POWER SOURCE. IF YOU DO NOT REMOVE ELECTRICAL POWER, YOU CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (g) Remove the external power cable.
- (h) Close the External Power Receptacle Door.

SUBTASK 24-41-00-480-001



WARNING

PUT A DO-NOT-OPERATE TAG ON THE EXTERNAL POWER RECEPTACLE. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS CAN OCCUR.

- (3) Attach a DO NOT OPERATE tag, STD-858 to the external power receptacle.

E. AC External Power - Tryout

NOTE: This tryout is to make sure the AC External Power system is in a zero energy state.

SUBTASK 24-41-00-211-001

- (1) Make sure the External Power Plug is removed from the receptacle and a DO NOT OPERATE tag, STD-858 is installed.

SUBTASK 24-41-00-211-002

- (2) Make sure the EXTERNAL PWR CONN light on the P19 panel is off.

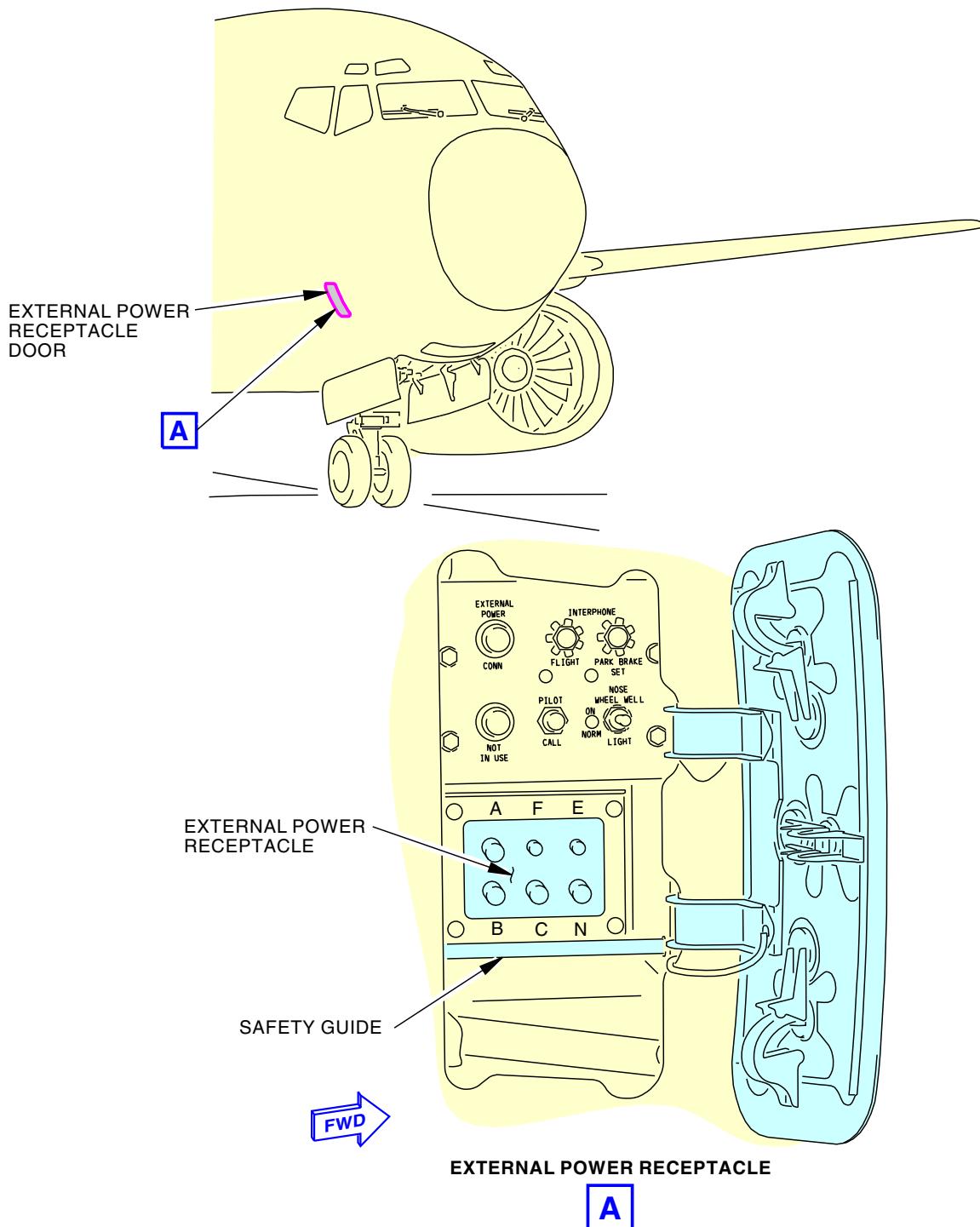
———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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External Power Receptacle
Figure 201/24-41-00-990-803

EFFECTIVITY
LOM ALL

24-41-00

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 203
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-41-00-440-801

3. AC External Power - Activation

(Figure 201)

A. General

- (1) This task has these procedures:
 - (a) Supply external power from the ground service buses.
 - (b) Supply external power from the 115V AC transfer buses.

B. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

C. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 24-41-00-860-010

- (1) Do these steps to supply external power to the ground service and 115V AC transfer buses:
 - (a) Open the External Power Receptacle Door.



MAKE SURE THAT THERE IS NO OPEN OR FLOATING GROUND IN THE NEUTRAL CIRCUIT OF THE POWER SUPPLY OR THE AIRCRAFT. AN OPEN OR FLOATING GROUND CAN CAUSE ELECTRICAL SHOCK TO PERSONNEL WHO TOUCH THE AIRCRAFT.

- (b) Make sure the external power supply operates correctly before you supply external power to the airplane.
- (c) Install external power to the airplane.
- (d) Remove the DO NOT OPERATE tag, STD-858 from the receptacle.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL
AC EXTERNAL POWER - ADJUSTMENT/TEST

1. General

- A. This procedure has this task:
- (1) AC External Power Operational Test.

TASK 24-41-00-700-801

2. AC External Power Operational Test

(Figure 501, Figure 502)

A. References

Reference	Title
20-40-11-910-801	Static Grounding (P/B 201)
24-22-00-860-812	Remove Electrical Power (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. Prepare for the AC External Power Operational Test

SUBTASK 24-41-00-860-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-00-860-002

- (2) Make sure the BAT switch on the P5-13 panel is set to the ON position.

SUBTASK 24-41-00-860-003

- (3) Make sure the STANDBY POWER switch on the P5-5 panel is set to the AUTO position.

SUBTASK 24-41-00-860-004

- (4) Make sure the BUS TRANS switch on the P5-4 panel is set to the AUTO position.

SUBTASK 24-41-00-860-005

- (5) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
E	13	C01328	ELECTRICAL GND SERV CONT
F	13	C01290	GENERATOR BUS PWR CONT UNIT

SUBTASK 24-41-00-010-001

- (6) To get access to the main equipment center, open this access panel:

Number Name/Location

- | | |
|------|----------------------------------|
| 117A | Electronic Equipment Access Door |
|------|----------------------------------|

EFFECTIVITY
LOM ALL

24-41-00



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-41-00-860-006



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (7) Make sure that these circuit breakers are closed:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	10	C01327	BUS PWR CONT UNIT

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C00936	EXT PWR BPCU

E. AC External Power Operational Test

SUBTASK 24-41-00-860-007

- (1) Do a check of the external power system as follows:

- (a) Open the External Power Receptacle Door.



WARNING

IF THE EXTERNAL POWER SUPPLY HAS AN EARTH GROUNDED NEUTRAL, THERE MUST NOT BE AN OPEN OR FLOATING GROUND IN THE NEUTRAL CIRCUIT WIRE OF THE SUPPLY OR THE AIRPLANE. IF AN OPEN OR FLOATING GROUND IS PRESENT, THE AIRPLANE CAN BE PUT AT AN ELECTRICAL POTENTIAL ABOVE EARTH GROUND. THIS ELECTRICAL POTENTIAL CAN CAUSE ELECTRIC SHOCK WITH POSSIBLE DANGEROUS INJURY TO PERSONNEL WHO TOUCH THE AIRPLANE.

- (b) Make sure the external power supply operates correctly before you supply external power to the airplane.

- 1) If the ground return (neutral) circuit on the external power source or the external power receptacle do not operate correctly, do this task: Static Grounding, TASK 20-40-11-910-801.



WARNING

REMOVE THE ELECTRICAL POWER FROM THE EXTERNAL POWER SOURCE BEFORE YOU CONNECT THE CABLE TO THE AIRPLANE. IF YOU DO NOT REMOVE ELECTRICAL POWER, INJURY TO PERSONNEL CAN OCCUR.

- (c) Install the power cable to the external power receptacle.

EFFECTIVITY
LOM ALL

24-41-00



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AIRCRAFT MAINTENANCE MANUAL

- (d) Energize the external power cable.
- (e) Make sure these lights on the external power panel (P19) are on:
 - 1) EXTERNAL PWR CONN
 - 2) EXTERNAL PWR NOT IN USE
- (f) Make sure the GRD POWER AVAILABLE light on the P5-4 panel comes on.
- (g) Set the AC meter selector switch on the P5-13 panel to the GRD PWR position.
- (h) Make sure the AC meter on the P5-13 panel shows these values:
 - 1) AC VOLTS = 110-120
 - 2) CPS FREQ = 390-410
- (i) Push the GROUND SERVICE switch on the FWD ATTENDANT panel, P13.
 - 1) Make sure the ON light in the GROUND SERVICE switch comes on.
NOTE: The ground service buses are energized when external power is supplied to the receptacle and the GROUND SERVICE switch is set to ON. The transfer buses do not need to be powered to supply power ground service busses.
 - 2) Make sure the EXTERNAL PWR NOT IN USE light on the P19 panel goes off.
- (j) Push the GROUND SERVICE switch again.
 - 1) Make sure the ON light in the GROUND SERVICE switch goes off.
 - 2) Make sure the EXTERNAL PWR NOT IN USE light on the P19 panel comes on.
- (k) Set the GRD POWER switch on the P5-4 panel to the ON position.
NOTE: The ground service buses are automatically powered when power is supplied to the transfer buses.
- (l) Make sure the GRD POWER AVAILABLE light on the P5-4 panel stays on.
- (m) Make sure these lights on the P5-4 panel go off:
 - 1) 1 SOURCE OFF
 - 2) 2 SOURCE OFF
 - 3) 1 TRANSFER BUS OFF
 - 4) 2 TRANSFER BUS OFF
- (n) Make sure the EXTERNAL PWR NOT IN USE light on the P19 panel goes off.
- (o) Set the GRD PWR switch on the P5-4 panel to the OFF position.
- (p) Make sure the GRD POWER AVAILABLE light on the P5-4 stays on.
- (q) Make sure these lights on the P5-4 panel come on:
 - 1) 1 SOURCE OFF
 - 2) 2 SOURCE OFF
 - 3) 1 TRANSFER BUS OFF
 - 4) 2 TRANSFER BUS OFF
- (r) Make sure the EXTERNAL POWER NOT IN USE light on the P19 panel comes on.
- (s) Remove power from the external power cable.
- (t) Make sure the EXTERNAL POWER CONN light on the P19 panel goes off.

EFFECTIVITY
LOM ALL

24-41-00



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AIRCRAFT MAINTENANCE MANUAL



WARNING

REMOVE THE ELECTRICAL POWER FROM THE EXTERNAL POWER CABLE BEFORE YOU REMOVE THE CABLE FROM THE AIRPLANE. IF YOU DO NOT OBEY, INJURY TO PERSONNEL CAN OCCUR BY AN ELECTRICAL SHOCK.

- (u) Remove the external power cable.
- (v) Make sure the EXTERNAL POWER NOT IN USE light on the P19 panel goes off.
- (w) Close the External Power Receptacle Door.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 24-41-00-860-009

- (1) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

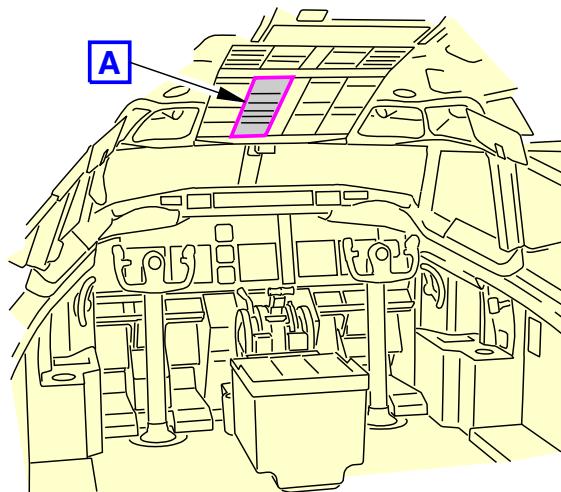
SUBTASK 24-41-00-860-008

- (2) Set the BAT switch on the P5-13 panel to the OFF position.

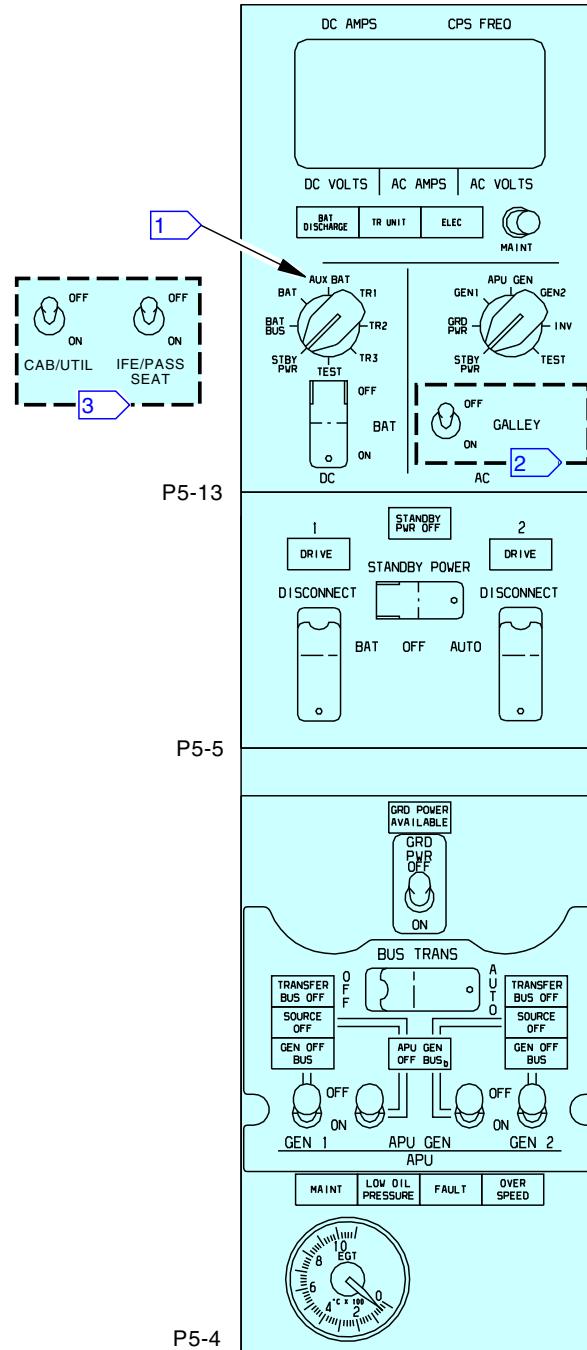
———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-00



FLIGHT COMPARTMENT



- 1 AIRPLANES WITH AUXILIARY BATTERY
- 2 AIRPLANES WITH GALLEY SWITCH
- 3 AIRPLANES WITH CABIN UTILITY AND IFE SWITCHES

G16742 S0006566397_V3

AC Power and Bus Control
Figure 501/24-41-00-990-801

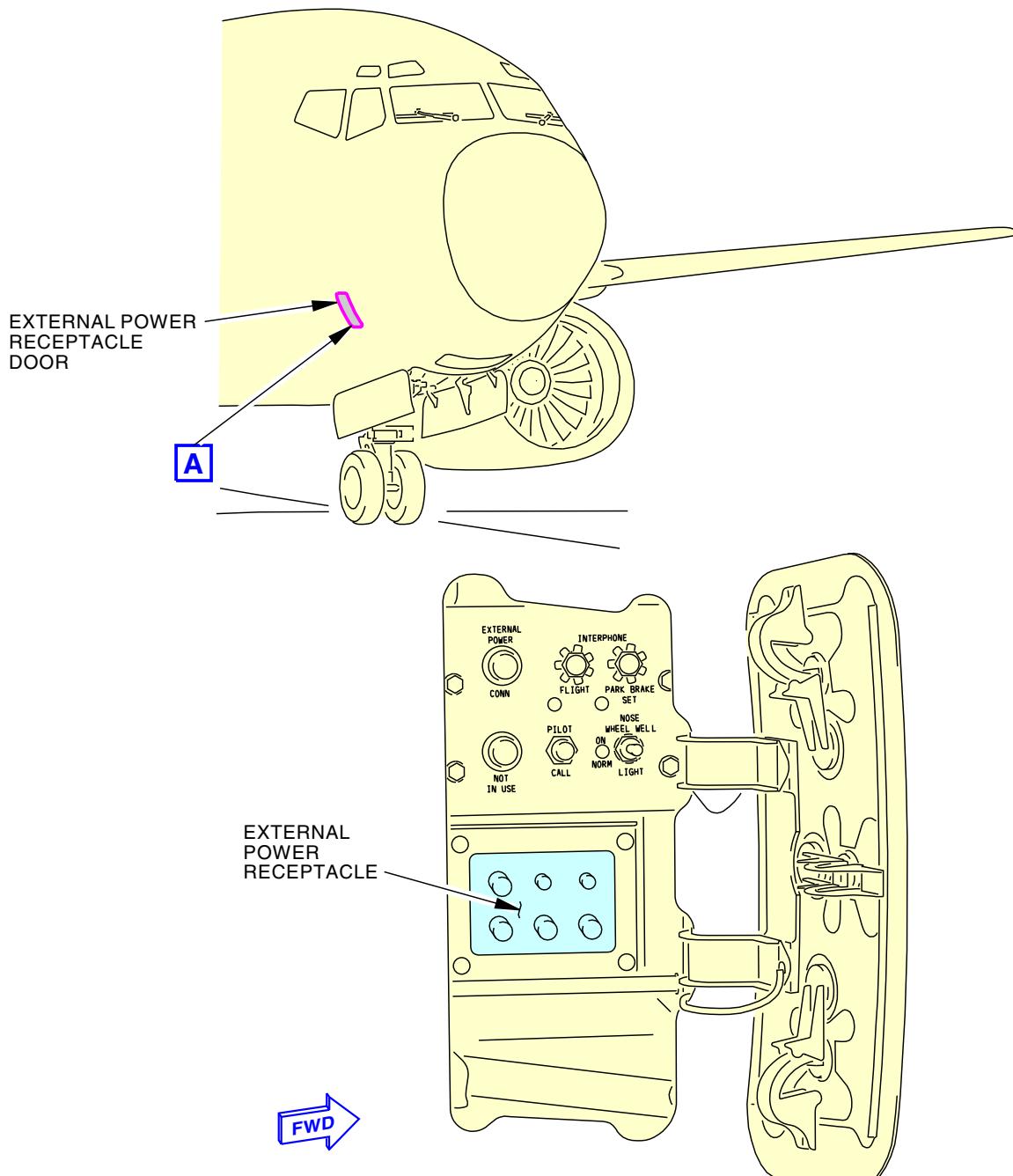
EFFECTIVITY
LOM ALL

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-41-00

Page 505
Oct 15/2015



G16743 S0006566398_V2

External Power Receptacle and Indication
Figure 502/24-41-00-990-802 (Sheet 1 of 2)

EFFECTIVITY
LOM 427-434, 437-447, 450-999; LOM 402, 404, 406,
407, 411, 412, 415, 416, 420 PRE SB 737-24-1198

24-41-00

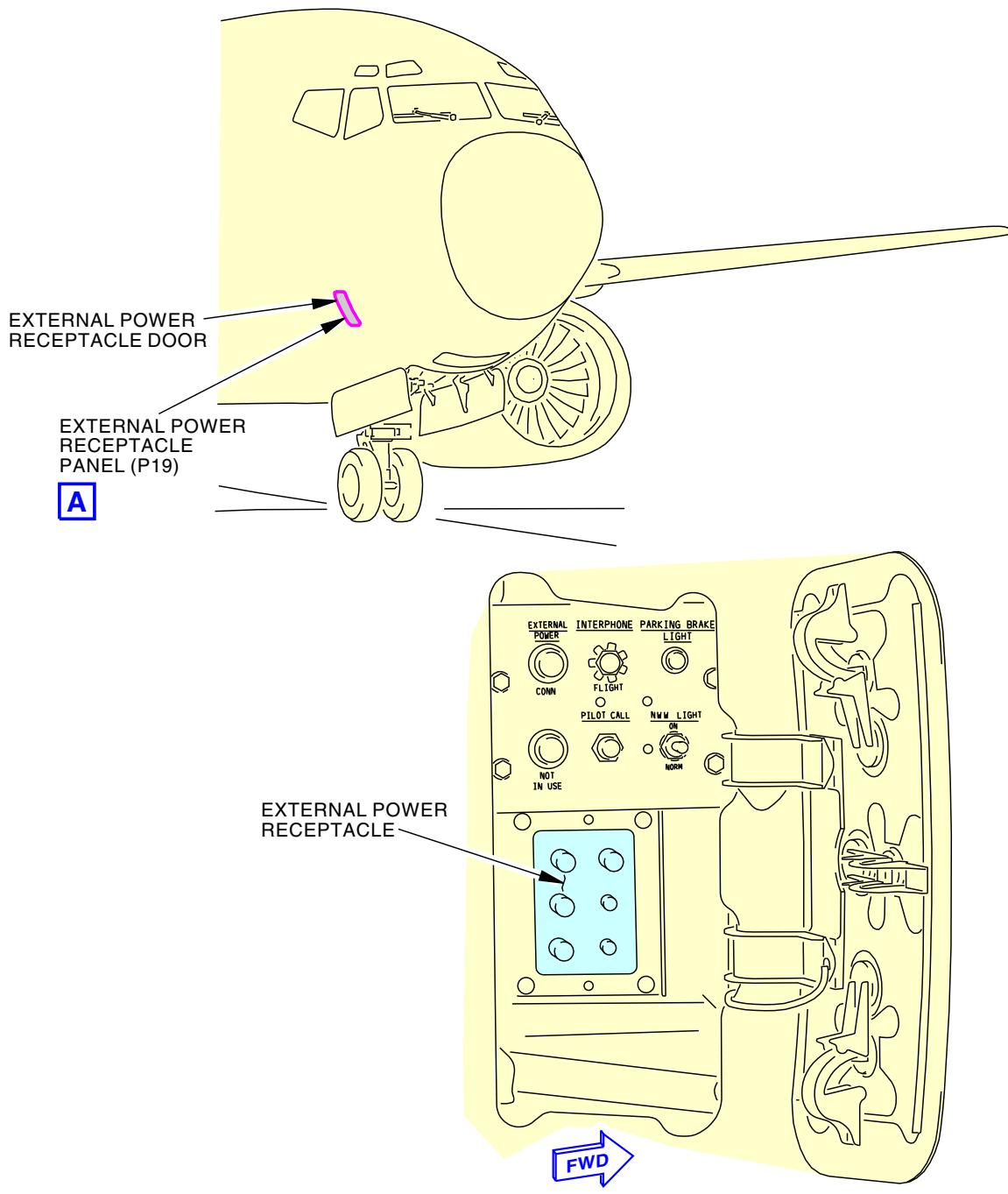
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 506
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



EXTERNAL POWER RECEPTACLE PANEL (P19)

A

2067467 S0000429438_V2

External Power Receptacle and Indication
Figure 502/24-41-00-990-802 (Sheet 2 of 2)

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

24-41-00

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 507
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

EXTERNAL POWER RECEPTACLE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the External Power receptacle.
 - (2) An installation of the External Power Receptacle.

TASK 24-41-11-000-801

2. External Power Receptacle Removal

(Figure 401)

A. General

- (1) The External Power Receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The external power receptacle is referred to as the receptacle in this task.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
53-14-01-020-801	Nose Wheel Well Access Panels - Removal (P/B 401)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

E. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

F. Prepare for the Removal

SUBTASK 24-41-11-860-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-11-010-001

- (2) Open this access panel if it is closed:

Number	Name/Location
114AR	External Power Receptacle Door

SUBTASK 24-41-11-010-002

- (3) Remove External Power Plug from the receptacle [1], if it is installed.

SUBTASK 24-41-11-930-001



PUT A DO-NOT-OPERATE TAG ON THE EXTERNAL POWER RECEPTACLE.
IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS CAN
OCCUR.

- (4) Attach DO NOT OPERATE tag, STD-858, to the receptacle [1].

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11

Page 401
Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-41-11-010-003

- (5) Open access panel on forward right hand side of nose gear wheel well:
 - (a) To get access to the back of the receptacle [1], do this task: Nose Wheel Well Access Panels - Removal, TASK 53-14-01-020-801.

G. External Power Receptacle Removal

SUBTASK 24-41-11-020-001

- (1) Remove the electrical leads from the receptacle [1]:
 - (a) Remove the screw [11], from back of terminal cover.
 - (b) Remove the nuts [9] and washers [8] that hold the terminal cover.
 - (c) Remove the cover assembly [10].
 - (d) Attach an identification tag to each lead.
 - (e) Remove the nuts [7], lockwashers [6], and washers [5] that hold the electrical leads.
 - (f) Remove the electrical leads from the studs.

SUBTASK 24-41-11-020-002

- (2) Remove the receptacle [1] per the steps that follow:
 - (a) Remove the washers [12], jam nuts [13], nuts [4], washers [3], and bolts [2] that hold the receptacle [1] to the pan.

NOTE: This step works best with two people, one outside the airplane and one inside the wheel well access. However if only one person is available, you can put tape over the bolts to prevent them from falling out when the nuts are removed.
 - (b) Remove the receptacle [1] from the outside of the airplane.

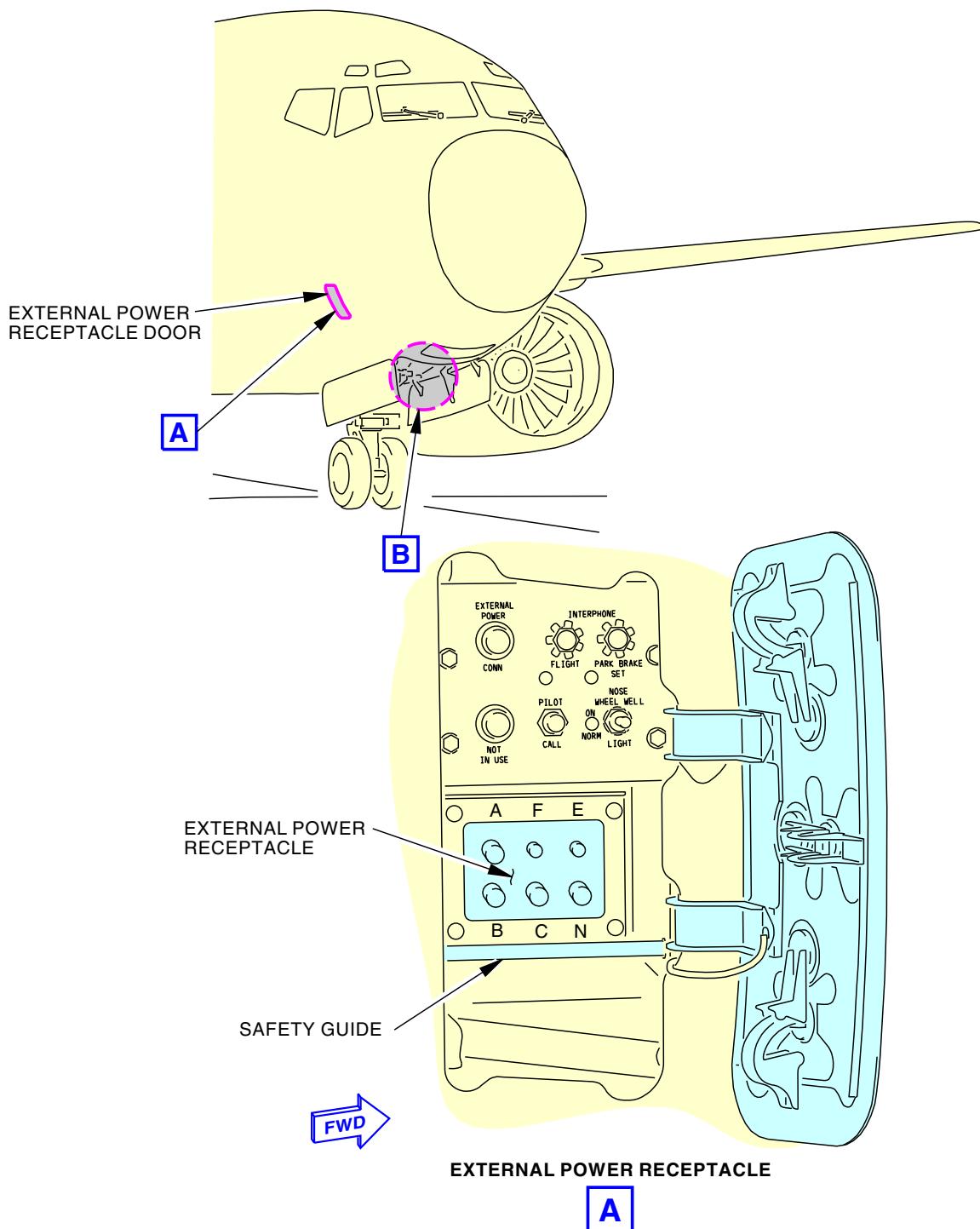
————— END OF TASK ————

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11

Page 402
Oct 15/2024

D633A101-LOM



F71540 S0006566402_V3

External Power Receptacle Installation

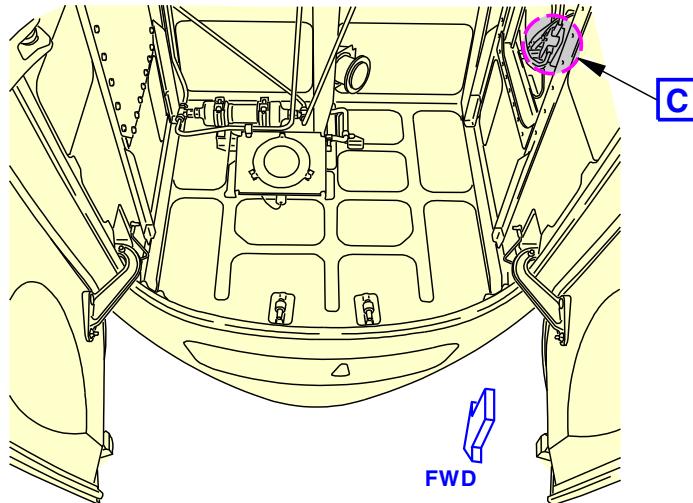
Figure 401/24-41-11-990-801 (Sheet 1 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

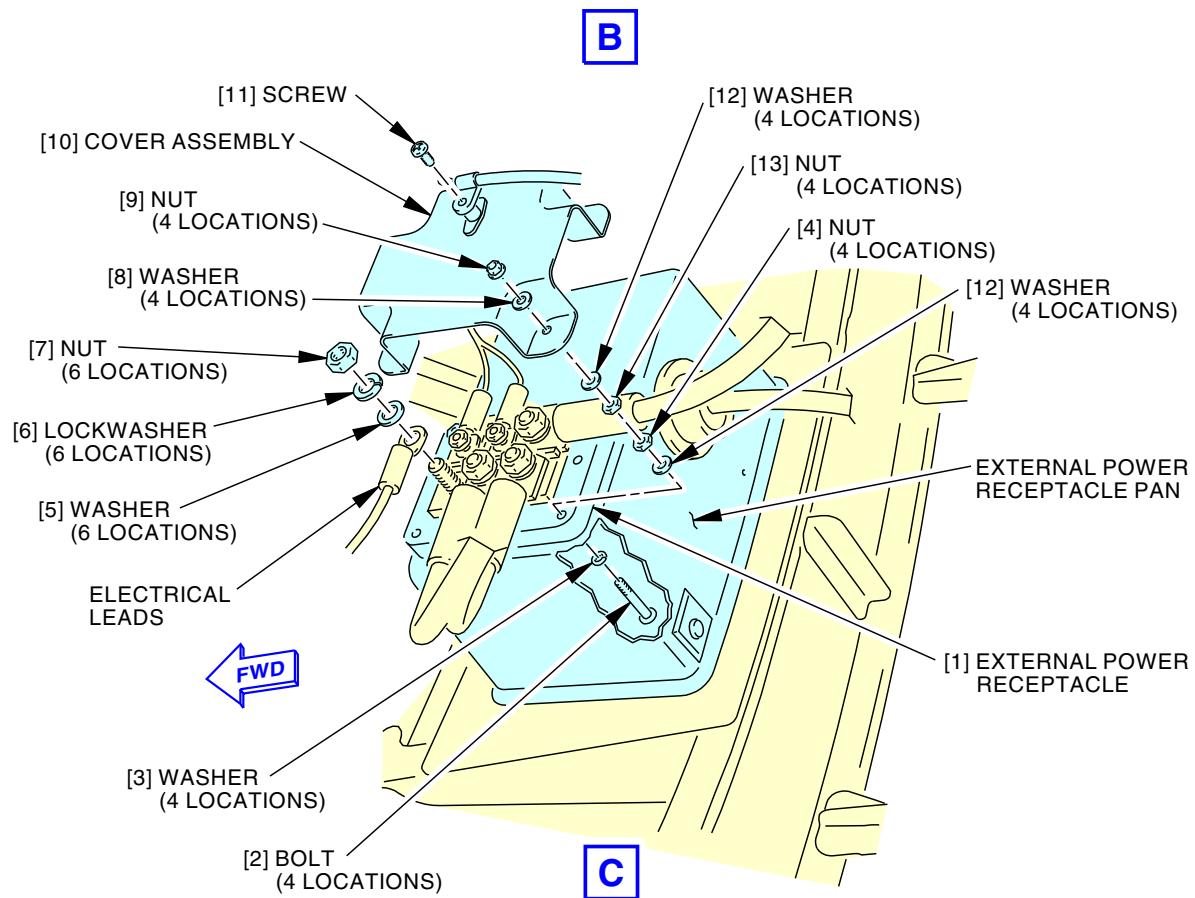
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Page 403
Oct 15/2024

D633A101-LOM



NOSE LANDING GEAR WHEEL WELL



D86509 S0000167231_V2

External Power Receptacle Installation

Figure 401/24-41-11-990-801 (Sheet 2 of 2)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-41-11-400-801

3. External Power Receptacle Installation

(Figure 401)

A. General

- (1) The External Power Receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The External Power Receptacle is part of the pressure seal of the airplane. You must seal the receptacle when installing it.
- (3) The external power receptacle is referred to as the receptacle in this task.

B. References

Reference	Title
05-51-91-790-801	Cabin Pressure Leak Test (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
51-31-00-390-804	Fillet Seal Application (P/B 201)
51-31-00-390-810	Removable Faying (Mated) Surface Seal Application (P/B 201)
53-14-01-420-801	Nose Wheel Well Access Panels - Installation (P/B 401)

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
C50013	Coating - Protective, Strippable, Sprayable - Protectapeel SC-1074B-1 (Use Until Stock Depleted)	
G50365	Agent - Peelable Parting (AC Products - AC962-73C) Production discontinued, use stock until depleted.	BAC5000
G50366	Agent - Parting, Peelable, AZ 534-2B (0A3C8 - Aztec Chemical, Inc., El Monte, CA)	BAC5000, PSD 6-187
G50367	Agent - Peelable Parting (Aztec Chemical AZ 634-2)	MIL-PRF-6799, BAC5000
G50368	Agent - Peelable Parting (Rexco Chemical Company - Partall Coverall Film)	BAC5000
G50369	Coating - Alkaline Removable, Water Resistant	BMS15-12 Type I Class 1

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Receptacle	24-41-11-01B-275	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420

E. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11

Page 405
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. Access Panels

Number Name/Location

114AR External Power Receptacle Door

G. External Power Receptacle Installation

SUBTASK 24-41-11-420-001

- (1) Install the receptacle [1] per the steps that follow:



DO NOT APPLY THE PARTING AGENT TO THE STRUCTURE OR SURFACE THAT WILL HAVE FILLET SEAL. DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Apply one of the parting agents listed to the surface of the receptacle [1] that touches the receptacle pan:
- 1) AC962-73C peelable parting agent, G50365,
 - 2) peelable parting agent, G50366,
 - 3) AZ 634-2 peelable parting agent, G50367,
 - 4) Protectapeel SC-1074B-1 coating, C50013,
 - 5) Rexco Partall Coverall Film peelable parting agent, G50368,
 - 6) temporary coating, G50369.
- (b) When the parting agent is dry to touch, apply sealant, A00247, to the surface of the receptacle [1] that touches the receptacle pan to make a removable faying surface seal (TASK 51-31-00-390-810).
- (c) Put the receptacle [1] in position on the receptacle pan.
- (d) Apply sealant, A00247, to the bolts [2].
- (e) Install the washers [3], and bolts [2] through the receptacle [1] and receptacle pan.
- (f) Install the washers [12], nuts [4], jam nuts [13].
1) Tighten the nuts [4] and jam nuts [13].
- (g) Remove the excessive sealant, A00247.
- (h) Apply sealant, A02315, to the edge of the receptacle [1] to make a fillet seal from inside the airplane (TASK 51-31-00-390-804).

SUBTASK 24-41-11-420-002

- (2) Connect electrical leads to the receptacle [1]:



MAKE SURE THAT YOU CONNECT THE CORRECT ELECTRICAL LEAD TO EACH RECEPTACLE STUD. AN INCORRECT INSTALLATION CAN CAUSE A MALFUNCTION OF THE CIRCUIT AND DAMAGE TO THE EQUIPMENT.

- (a) Install the electrical leads onto receptacle studs.



DO NOT INSTALL THE WASHERS BELOW THE ELECTRICAL LEADS. THIS WILL CAUSE HEAT THAT CAN BURN THE RECEPTACLE STUDS.

- (b) Install the washers [5], lockwashers [6], and nuts [7] on the receptacle studs.

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 406
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (c) Tighten the nuts from receptacle studs A, B, C, and N to 122.5 ± 2.5 in-lb (13.84 ± 0.28 N·m).
- (d) Tighten the nuts from receptacle studs E and F to 21 ± 1 in-lb (2.37 ± 0.12 N·m).
- (e) Remove identification tags.
- (f) Install cover assembly [10] into position.
- (g) Install washers [8] and nuts [9].
- (h) Tighten the nuts [9].
- (i) Install the screw [11] on the back of terminal cover.

SUBTASK 24-41-11-410-001

- (3) Close the access panel on the forward right hand side of the nose gear wheel well, do this task: Nose Wheel Well Access Panels - Installation, TASK 53-14-01-420-801.

SUBTASK 24-41-11-860-002

- (4) Remove the DO-NOT-OPERATE tag from the receptacle, and close this access panel:

Number Name/Location

114AR External Power Receptacle Door

H. External Power Receptacle Installation Test

SUBTASK 24-41-11-860-003

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

SUBTASK 24-41-11-860-004

- (2) Make sure that external power comes on line and operates correctly.

I. Cabin Pressure Leak Test

SUBTASK 24-41-11-700-001

- (1) Do this task to make sure that there are no air leaks: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

———— END OF TASK ————

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11

Page 407
Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

EXTERNAL POWER RECEPTACLE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) External Power Receptacle Removal
 - (2) External Power Receptacle Installation
 - (3) External Power Receptacle Pins Replacement.

TASK 24-41-11-000-802-001

2. External Power Receptacle Removal

(Figure 401)

A. General

- (1) The external power receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The external power receptacle is referred to as the receptacle in this task.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
53-14-01-020-801	Nose Wheel Well Access Panels - Removal (P/B 401)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
A50419	Sealant - Pressure And Environmental-Chromate, Type I, Class B-2	BMS5-95 Type I Class B-2

E. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

F. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

G. Prepare for the Removal

SUBTASK 24-41-11-860-013-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-11-010-014-001

- (2) Open this access panel:

Number	Name/Location
114AR	External Power Receptacle Door

SUBTASK 24-41-11-020-007-001

- (3) If it is installed, remove external power plug from the receptacle [1].

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-41-11
Config 1
Page 401
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-41-11-930-005-001



WARNING

PUT A DO-NOT-OPERATE TAG ON THE EXTERNAL POWER RECEPTACLE.
IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS CAN
OCCUR.

- (4) Attach a DO NOT OPERATE tag, STD-858, to the receptacle [1].

SUBTASK 24-41-11-010-015-001

- (5) Open the access panel on forward right hand side of nose gear wheel well, do this task: Nose Wheel Well Access Panels - Removal, TASK 53-14-01-020-801.

H. External Power Receptacle Removal

SUBTASK 24-41-11-020-008-001

- (1) Do these steps to remove the electrical leads from the receptacle [1]:
- Bend the ears at the two corners of the protective boot [14] away from the cover [9].
 - Pull the protective boot [14] away from the cover [9].
 - Remove the nuts [8] and washers [7] that attach the cover [9] to the receptacle [1].
 - Remove the cover [9].
 - Remove the dielectric separator [6].



CAUTION

PUT AN IDENTIFIER ON THE WIRES ON EACH SIDE OF THE
ELECTRICAL CONNECTION BEFORE YOU DISCONNECT. IF YOU
CONNECT THEM AT AN INCORRECT LOCATION, DAMAGE TO THE
COMPONENTS WILL OCCUR.

- Attach identification tags on the electrical leads [13] and electrical leads [2].
- Remove the bolts [10], lock washers [11], and washers [12] that attach the electrical leads [13] to the receptacle [1].
- Remove the nuts [5], lock washers [4], and washers [3] that attach the electrical leads [2] to the receptacle [1].
- Remove the electrical leads [13] and electrical leads [2] from the receptacle [1].

SUBTASK 24-41-11-020-012-001

- (2) Do these steps to remove the receptacle [1]:
- Remove the nuts [17] and washers [16] that attach the shield [18] to the receptacle [1].
 - Remove the shield [18].
 - Remove sealant, A50419, from the shield [18] (if it is necessary).

LOM 423, 424, 426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198; LOM 422, 425 POST SB 737-24-1203

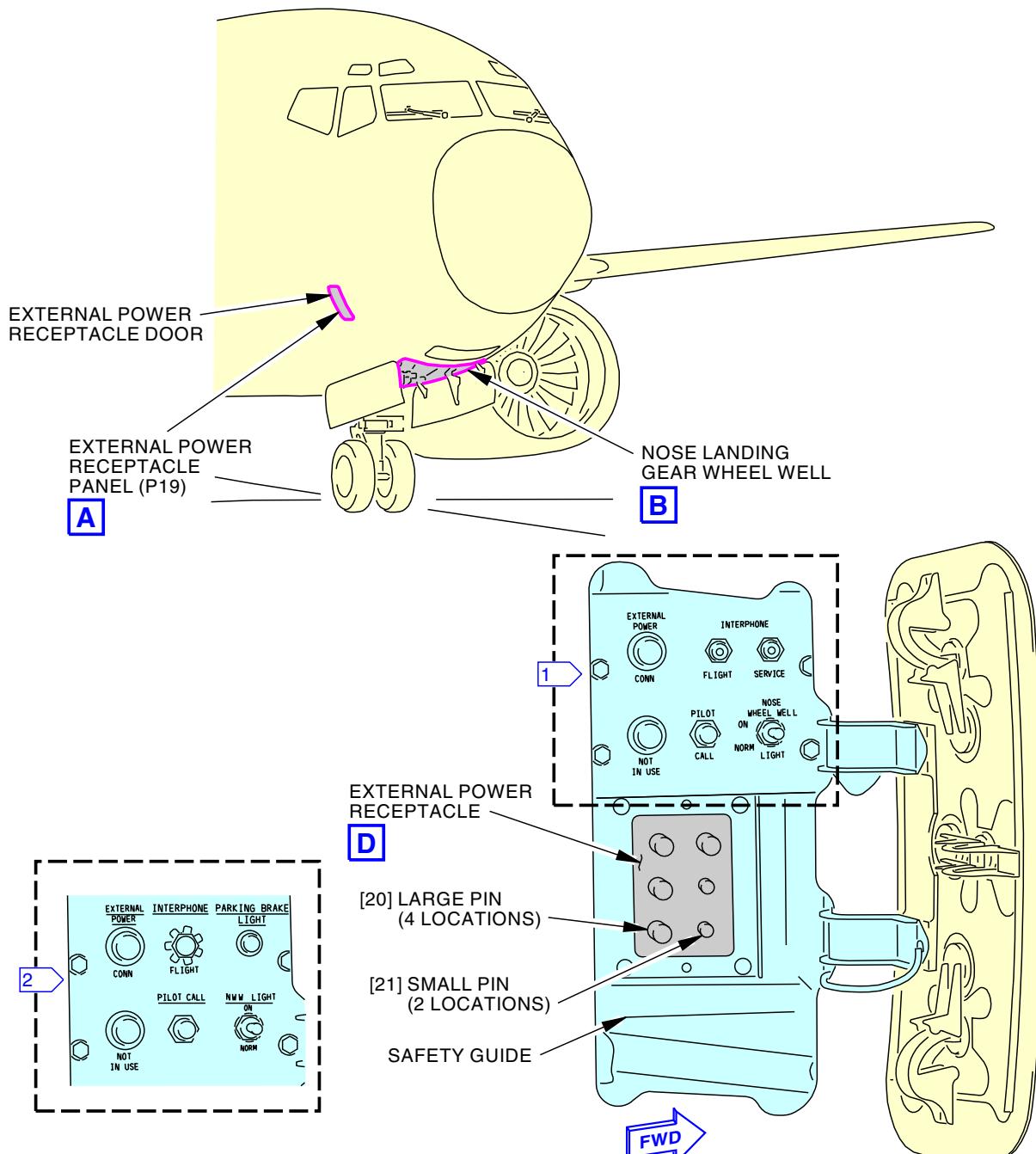
- Remove the doubler [19].
 - Remove sealant, A50419, from surface of the doubler [19].

LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198

- Remove the screw [15].
- Remove the receptacle [1].

———— END OF TASK ————

EFFECTIVITY
**LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198**


EXTERNAL POWER RECEPTACLE PANEL (P19)

- 1 AIRPLANES WITHOUT PARKING BRAKE LIGHT (EXAMPLE).
 2 AIRPLANES WITH PARKING BRAKE LIGHT (EXAMPLE).

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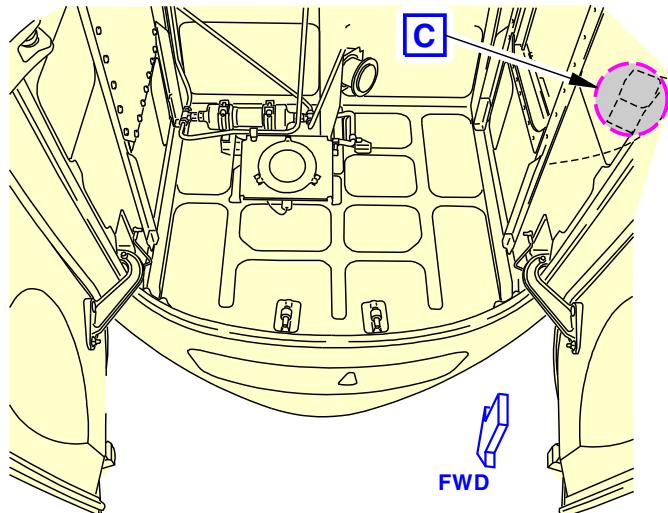
External Power Receptacle Installation
Figure 401/24-41-11-990-804 (Sheet 1 of 4)

EFFECTIVITY
 LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
 416, 420 POST SB 737-24-1198

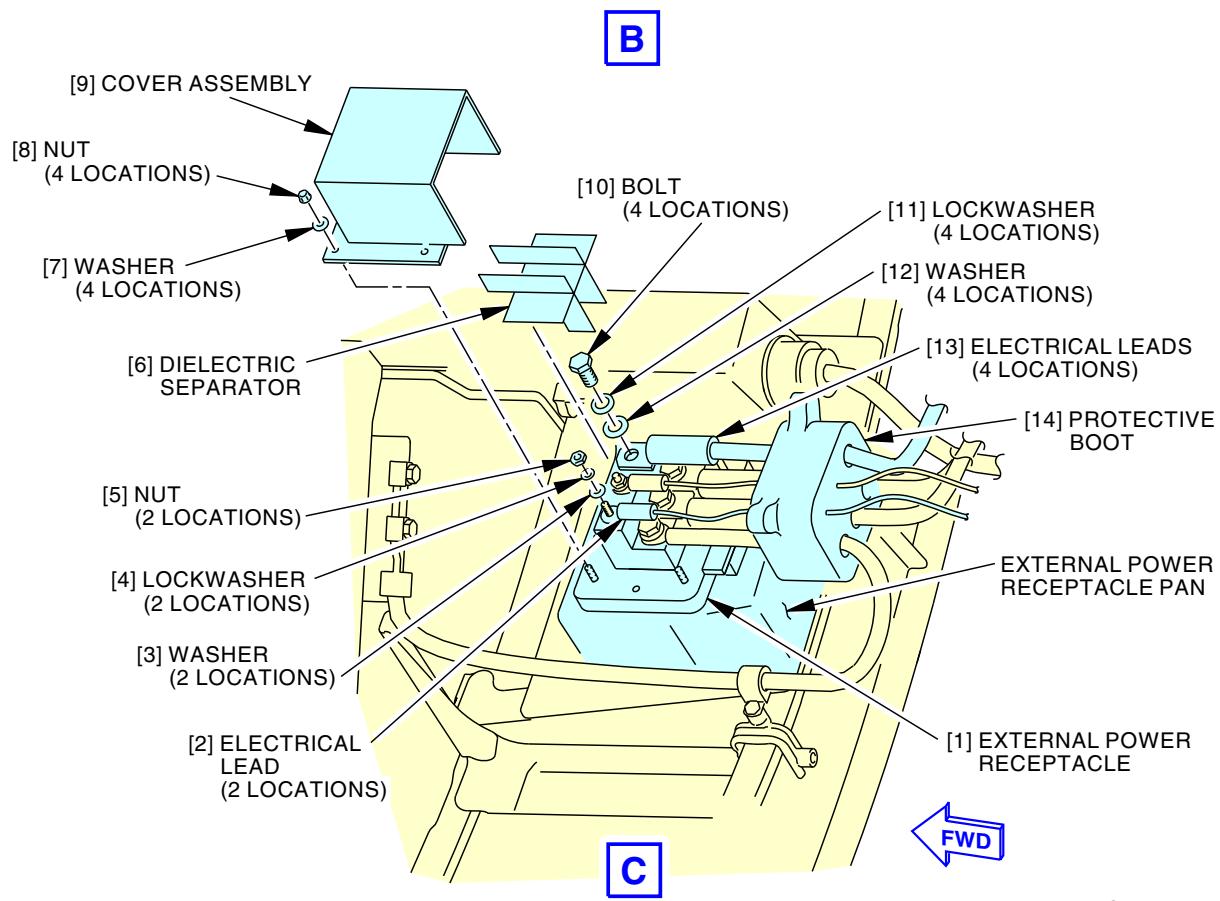
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24-41-11
 Config 1
 Page 403
 Oct 15/2024



NOSE LANDING GEAR WHEEL WELL



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External Power Receptacle Installation
Figure 401/24-41-11-990-804 (Sheet 2 of 4)

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

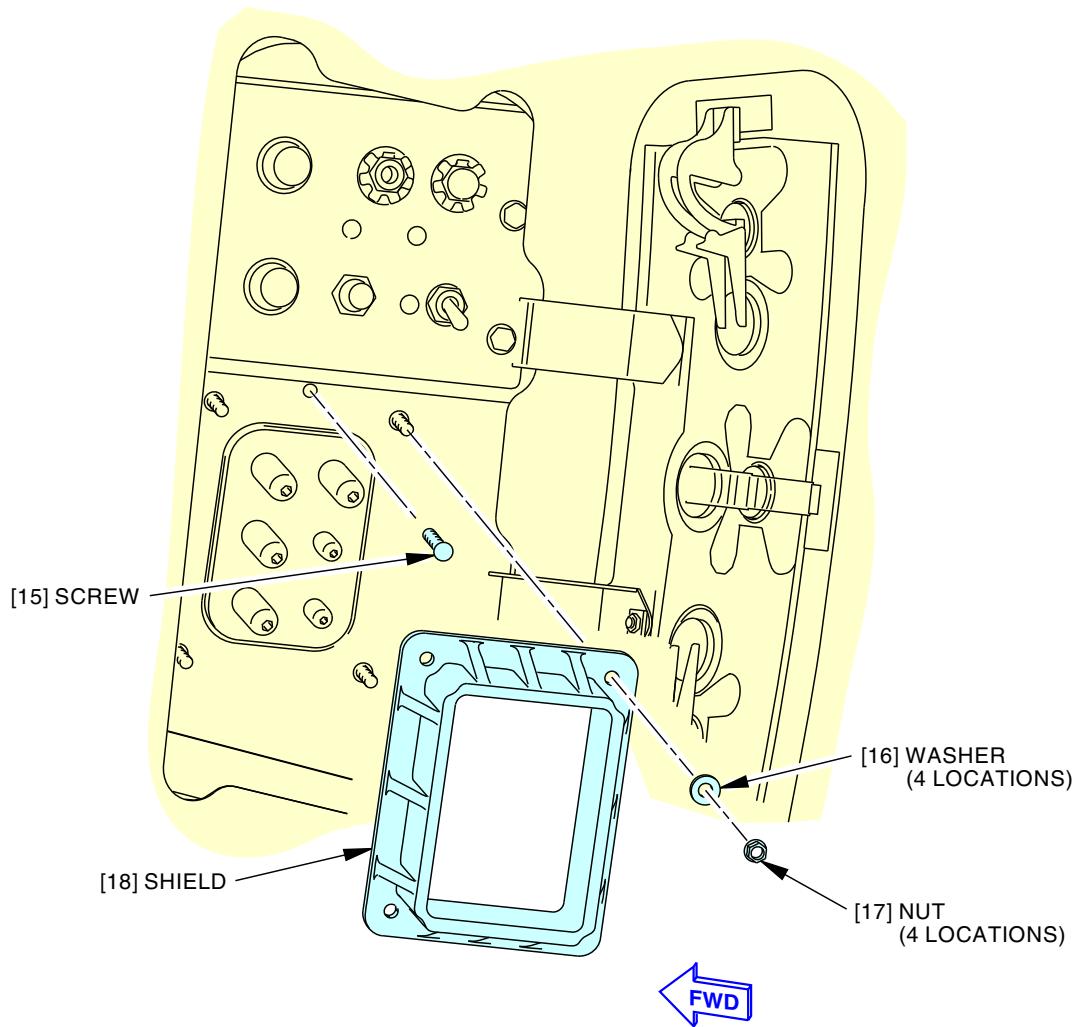
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D633A101-LOM

24-41-11
Config 1
Page 404
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



EXTERNAL POWER RECEPTACLE

D

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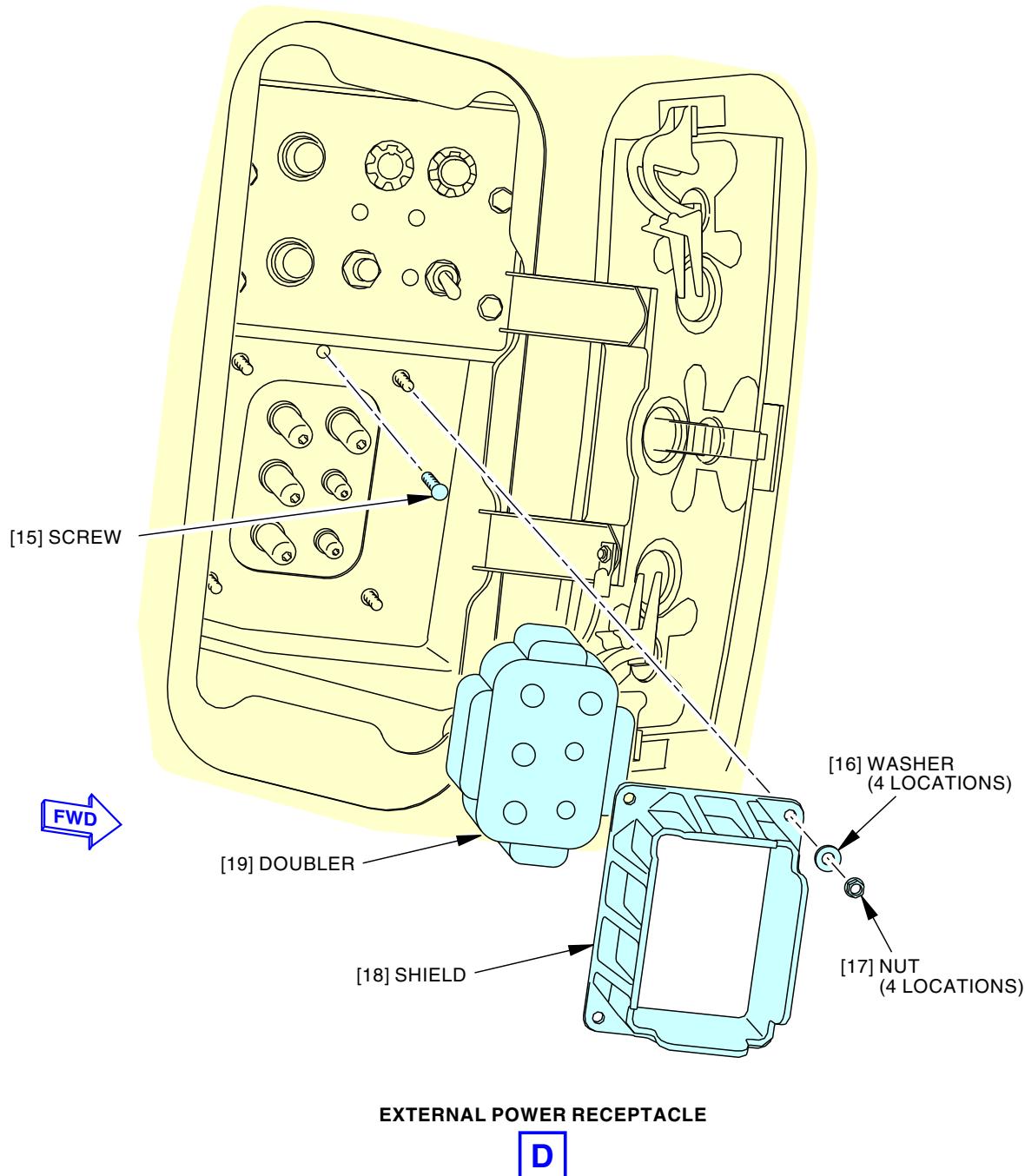
External Power Receptacle Installation
Figure 401/24-41-11-990-804 (Sheet 3 of 4)

EFFECTIVITY
LOM 422, 425 PRE SB 737-24-1203

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-41-11
Config 1
Page 405
Feb 15/2019



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External Power Receptacle Installation
Figure 401/24-41-11-990-804 (Sheet 4 of 4)

EFFECTIVITY
 LOM 423, 424, 426; LOM 402, 404, 406, 407, 411, 412,
 415, 416, 420 POST SB 737-24-1198; LOM 422, 425
 POST SB 737-24-1203

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-41-11
 Config 1
 Page 406
 Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-41-11-400-802-001

3. External Power Receptacle Installation

(Figure 401)

A. General

- (1) The external power receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The external power receptacle is part of the pressure seal of the airplane. You must seal the receptacle when installing it.
- (3) The external power receptacle is referred to as the receptacle in this task.

B. References

Reference	Title
05-51-91-790-801	Cabin Pressure Leak Test (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
51-31-00-390-804	Fillet Seal Application (P/B 201)
51-31-00-390-810	Removable Faying (Mated) Surface Seal Application (P/B 201)
53-14-01-420-801	Nose Wheel Well Access Panels - Installation (P/B 401)

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
A50419	Sealant - Pressure And Environmental-Chromate, Type I, Class B-2	BMS5-95 Type I Class B-2
C50013	Coating - Protective, Strippable, Sprayable - Protectapeel SC-1074B-1 (Use Until Stock Depleted)	
G50365	Agent - Peelable Parting (AC Products - AC962-73C) Production discontinued, use stock until depleted.	BAC5000
G50366	Agent - Parting, Peelable, AZ 534-2B (0A3C8 - BAC5000, PSD 6-187 Aztec Chemical, Inc., El Monte, CA)	
G50367	Agent - Peelable Parting (Aztec Chemical AZ 634-2)	MIL-PRF-6799, BAC5000
G50368	Agent - Peelable Parting (Rexco Chemical Company - Partall Coverall Film)	BAC5000
G50369	Coating - Alkaline Removable, Water Resistant	BMS15-12 Type I Class 1

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Receptacle	24-41-11-01A-039 24-41-11-01B-275	LOM 422-426 LOM 402, 404, 406, 407, 411, 412, 415, 416, 420

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

E. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

F. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

G. External Power Receptacle Installation

SUBTASK 24-41-11-420-003-001

- (1) Do these steps to install the receptacle [1]:

NOTE: Discard the gasket and the attaching hardware kit (washers and nuts) that is provided with the external power connector. Retain the lug attaching hardware kit that is used to attach the electrical feeder cables.



DO NOT APPLY THE PARTING AGENT TO THE STRUCTURE OR SURFACE THAT WILL HAVE FILLET SEAL. DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Apply one of the parting agents listed to the surface of the receptacle [1] that touches the receptacle pan:
 - 1) AC962-73C peelable parting agent, G50365,
 - 2) peelable parting agent, G50366,
 - 3) AZ 634-2 peelable parting agent, G50367,
 - 4) Protectapeel SC-1074B-1 coating, C50013,
 - 5) Rexco Partall Coverall Film peelable parting agent, G50368,
 - 6) temporary coating, G50369.
- (b) When the parting agent is dry to touch, apply sealant, A00247, to the surface of the receptacle [1] that touches the receptacle pan to make a removable faying surface seal (TASK 51-31-00-390-810).
- (c) Put the receptacle [1] in its position on the receptacle pan.

LOM 423, 424, 426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198; LOM 422, 425 POST SB 737-24-1203

- 1) Make sure that long receptacle pins are installed (TASK 24-41-11-960-802-001).

LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198

- (d) Do these steps from out of the airplane:
 - 1) Install the screw [15] from out of the airplane.
 - a) Tighten the screw [15] to 27.5 ± 2.5 in-lb (3.11 ± 0.29 N·m).

LOM 423, 424, 426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198; LOM 422, 425 POST SB 737-24-1203

- 2) Put the doubler [19] in its position.
 - a) Apply sealant, A50419, to the surface of the doubler [19].

LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198

- 3) Put the shield [18] in its position.
- 4) Install the washers [16] and nuts [17].

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- a) Tighten the nuts [17] to 30 ± 5 in-lb (3.4 ± 0.6 N·m).
- (e) Remove the excessive sealant, A00247.
- (f) Apply sealant, A02315, to the edge of the receptacle [1] to make a fillet seal from inside the airplane (TASK 51-31-00-390-804).



PUT AN IDENTIFIER ON THE WIRES ON EACH SIDE OF THE ELECTRICAL CONNECTION BEFORE YOU DISCONNECT. IF YOU CONNECT THEM AT AN INCORRECT LOCATION, DAMAGE TO THE COMPONENTS WILL OCCUR.



DO NOT INSTALL WASHERS BELOW THE ELECTRICAL LEAD TERMINAL LUGS. THIS WILL CAUSE HEAT AND DAMAGE TO THE TERMINAL STUDS.

- (g) Do these steps to install the electrical leads from in the airplane:
 - 1) Put the electrical leads [13] in their positions.
 - a) Use the identification tags for the correct electrical leads [13] position.
 - 2) Install the electrical leads [13] to the receptacle [1] with the washers [12], lock washers [11], and bolts [10].
 - a) Tighten the bolts [10] to 270 ± 30 in-lb (31 ± 4 N·m).
 - 3) Put the electrical leads [2] in their positions.
 - a) Use the identification tags for the correct electrical leads [2] position.
 - 4) Install the electrical leads [2] to the receptacle [1] with the washers [3], lock washers [4], and nuts [5].
 - a) Tighten the nuts [5] to 17.5 ± 2.5 in-lb (1.98 ± 0.29 N·m).
- (h) Remove the identification tags from the electrical leads.
- (i) Put the dielectric separator [6] in its position.
- (j) Put the cover [9] in its position.
- (k) Install the cover [9] to the receptacle [1] with the washers [7] and nuts [8].
 - 1) Tighten the nuts [8] to 27.5 ± 2.5 in-lb (3.11 ± 0.29 N·m).
- (l) Push the protective boot [14] to the cover [9] until it latches to the cover [9].

SUBTASK 24-41-11-410-015-001

- (2) Close the access panel on the forward right hand side of the nose gear wheel well, do this task: Nose Wheel Well Access Panels - Installation, TASK 53-14-01-420-801.

SUBTASK 24-41-11-410-016-001

- (3) Remove the DO NOT OPERATE tag from the receptacle [1].
 - (a) Close this access panel:

Number	Name/Location
114AR	External Power Receptacle Door

H. External Power Receptacle Post-Installation Test

SUBTASK 24-41-11-860-014-001

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

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-41-11-860-015-001

- (2) Make sure that external power comes on line and operates correctly.

I. Cabin Pressure Leak Test

SUBTASK 24-41-11-700-002-001

- (1) Make sure that there are no air leaks, do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

———— END OF TASK ————

TASK 24-41-11-960-802-001

4. External Power Receptacle Pins Replacement

(Figure 401)

A. General

- (1) The external power receptacle pins are located in the external power receptacle that is on the lower right hand side of the airplane. There are four large pins and two small pins on each external power receptacle.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-813	Supply 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.

Reference	Description
SPL-1625	Wear Gage Set - Ground Power Plug and Receptacle Part #: F70284-1 Supplier: 81205
STD-858	Tag - DO NOT OPERATE
STD-7012	Wrench - Hex, 1/8-inch
STD-7895	Wrench - Allen, 3/16 inch

D. Consumable Materials

Reference	Description	Specification
A50419	Sealant - Pressure And Environmental-Chromate, Type I, Class B-2	BMS5-95 Type I Class B-2

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
20	Large pin	24-41-11-01A-045	LOM 422-426
21	Small pin	24-41-11-01A-065	LOM 422-426

F. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

G. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

24-41-11

Config 1

Page 410

Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

H. Prepare for the Replacement

SUBTASK 24-41-11-860-012-001

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-11-010-013-001

- (2) Open this access panel:

Number Name/Location

114AR External Power Receptacle Door

SUBTASK 24-41-11-020-006-001

- (3) If it is installed, remove external power plug from the receptacle.

SUBTASK 24-41-11-930-004-001



**PUT A DO-NOT-OPERATE TAG ON THE EXTERNAL POWER RECEPTACLE.
IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS CAN
OCCUR.**

- (4) Attach a DO NOT OPERATE tag, STD-858, to the external power receptacle.

I. External Power Receptacle Pins Replacement

SUBTASK 24-41-11-020-014-001

- (1) Do these steps to remove the shield [18] and doubler [19] from the receptacle [1]:
(a) Remove the nuts [17] and washers [16] that attach the shield [18] to the receptacle [1].
(b) Remove the shield [18].
 1) Remove the sealant, A50419, from the shield [18] (if it is necessary).
(c) Remove the doubler [19].
 1) Remove the sealant, A50419, from surface of the doubler [19].

SUBTASK 24-41-11-960-002-001

- (2) Do these steps to replace the pins:

- (a) For broken pins, use sharp tool to remove the broken external power receptacle pins and use allen wrench, STD-7895, for large pins [20] and hex wrench, STD-7012, for small pins [21] to install them.
(b) For worn out pins, try to slide the wear gage set, SPL-1625, over the external power receptacle pins.
 1) Make sure that the gage does not slide over the pins.
 2) If the gage slides over the pins, use allen wrench, STD-7895, for large pins [20] and hex wrench, STD-7012, for small pins [21] to replace these pins.
(c) Tighten the large pins [20] to 96.00 ± 6.00 in-lb (10.85 ± 0.68 N·m).
(d) Tighten the small pins [21] to 24 ± 4 in-lb (2.71 ± 0.45 N·m).

SUBTASK 24-41-11-420-007-001

- (3) Do these steps to install the doubler [19] and shield [18] to the receptacle [1]:
(a) Put the doubler [19] in its position.
 1) Apply sealant, A50419, to the surface of the doubler [19].
(b) Put the shield [18] in its position.
(c) Install the washers [16] and nuts [17].

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-41-11
Config 1
Page 411
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) Tighten the nuts [17] to 30 ± 5 in-lb (3.4 ± 0.6 N·m).

J. Put the Airplane Back to Its Usual Condition

SUBTASK 24-41-11-930-009-001

- (1) Remove the DO NOT OPERATE tag from the external power receptacle.

SUBTASK 24-41-11-410-009-001

- (2) Close this access panel:

Number Name/Location

114AR External Power Receptacle Door

SUBTASK 24-41-11-860-022-001

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

———— END OF TASK ————

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-41-11
Config 1
Page 412
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

EXTERNAL POWER RECEPTACLE - REMOVAL/INSTALLATION

1. General

- A. This procedure contains these tasks:
- (1) External Power Receptacle Removal
 - (2) External Power Receptacle Installation.

TASK 24-41-11-000-803-002

2. External Power Receptacle Removal

(Figure 401)

A. General

- (1) The External Power Receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The external power receptacle is referred to as the receptacle in this task.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
53-14-01-020-801	Nose Wheel Well Access Panels - Removal (P/B 401)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
A50419	Sealant - Pressure And Environmental-Chromate, Type I, Class B-2	BMS5-95 Type I Class B-2

E. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

F. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

G. Prepare for the Removal

SUBTASK 24-41-11-860-017-002

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-11-010-016-002

- (2) Open this access panel if it is closed:

Number	Name/Location
114AR	External Power Receptacle Door

SUBTASK 24-41-11-010-017-002

- (3) Remove External Power Plug from the receptacle [1], if it is installed.

EFFECTIVITY
LOM 427-434, 437-447, 450-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-41-11
Config 2
Page 401
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-41-11-930-006-002



WARNING

PUT A DO-NOT-OPERATE TAG ON THE EXTERNAL POWER RECEPTACLE.
IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS CAN
OCCUR.

- (4) Attach DO NOT OPERATE tag, STD-858, to the receptacle [1].

SUBTASK 24-41-11-010-018-002

- (5) Open the access panel on forward right hand side of nose gear wheel well:

- (a) To get access to the back of the receptacle [1], do this task: Nose Wheel Well Access Panels - Removal, TASK 53-14-01-020-801.

H. External Power Receptacle Removal

SUBTASK 24-41-11-020-010-002



CAUTION

PUT AN IDENTIFIER ON THE WIRES ON EACH SIDE OF THE ELECTRICAL CONNECTION BEFORE YOU DISCONNECT. IF YOU CONNECT THEM AT AN INCORRECT LOCATION, DAMAGE TO THE COMPONENTS WILL OCCUR.



CAUTION

DO NOT INSTALL WASHERS BELOW THE ELECTRICAL LEAD TERMINAL LUGS. THIS WILL CAUSE HEAT AND DAMAGE TO THE TERMINAL STUDS.

- (1) Do these steps to remove the electrical leads from the receptacle [1]:

- (a) Remove the nuts [11] and washers [12].
- (b) Remove the cover assembly [10].
- (c) Remove the washers [13].
- (d) Attach an identification tag to each electrical lead.
- (e) Remove the nuts [6], lockwashers [5], and washers [4].
- (f) Remove the nuts [9], lockwashers [8], and washers [7].
- (g) Remove the electrical leads from the studs.

SUBTASK 24-41-11-020-011-002

- (2) Do these steps to remove the receptacle [1]:

NOTE: This step works best with two people, one outside the airplane and one inside the wheel well access. However if only one person is available, you can put tape over the bolts to prevent them from falling out when the nuts are removed.

- (a) Remove the nuts [14], nuts [15], and washers [16].
- (b) Remove the bolts [2] and washers [3].
- (c) Remove the shield [17].

- 1) Remove sealant, A50419, from the shield [17] (if necessary).

———— END OF TASK ————

EFFECTIVITY
LOM 427-434, 437-447, 450-999

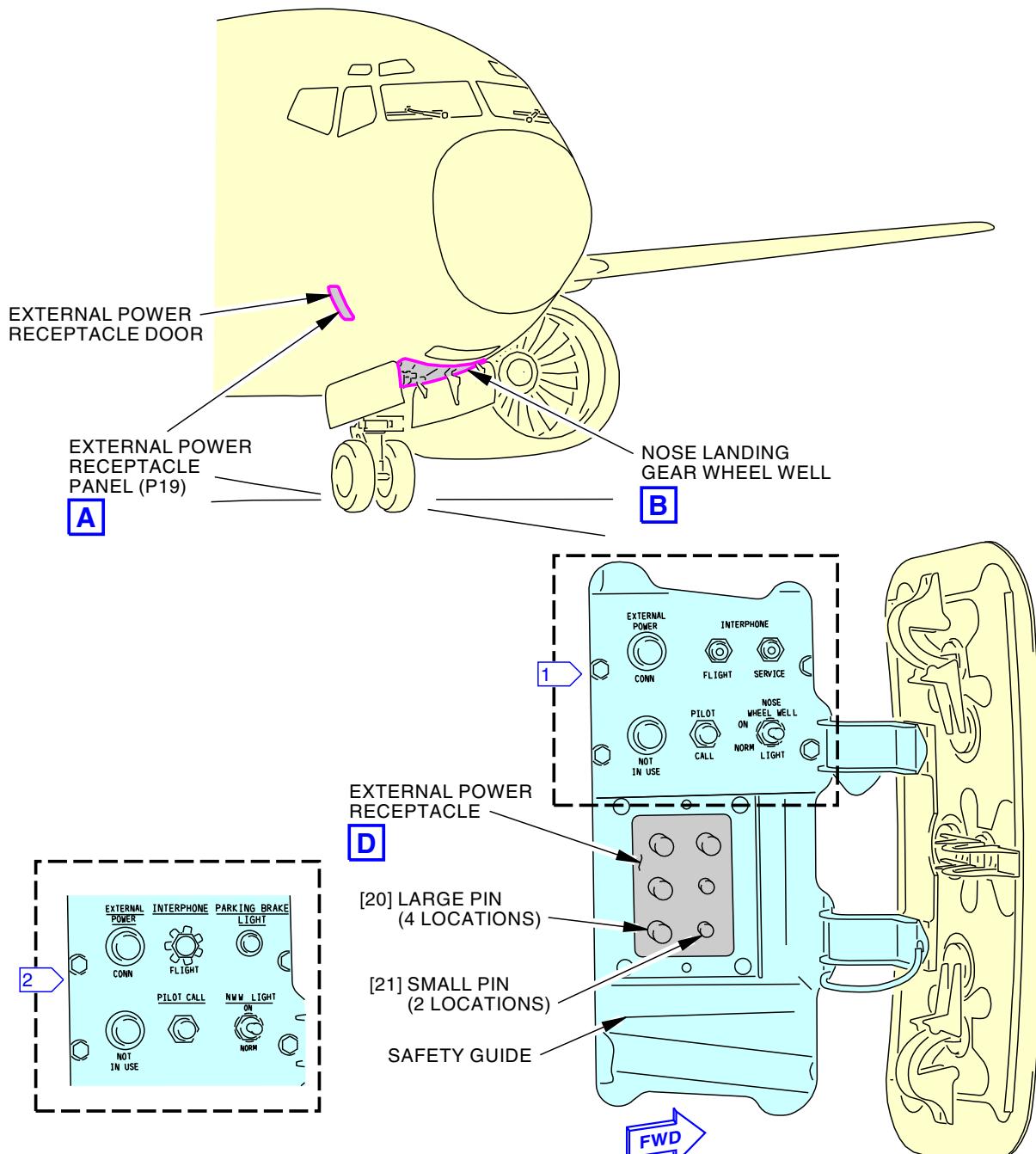
24-41-11

Config 2

Page 402

Oct 15/2024

D633A101-LOM



EXTERNAL POWER RECEPTACLE PANEL (P19)

1 AIRPLANES WITHOUT PARKING BRAKE LIGHT (EXAMPLE).

2 AIRPLANES WITH PARKING BRAKE LIGHT (EXAMPLE).

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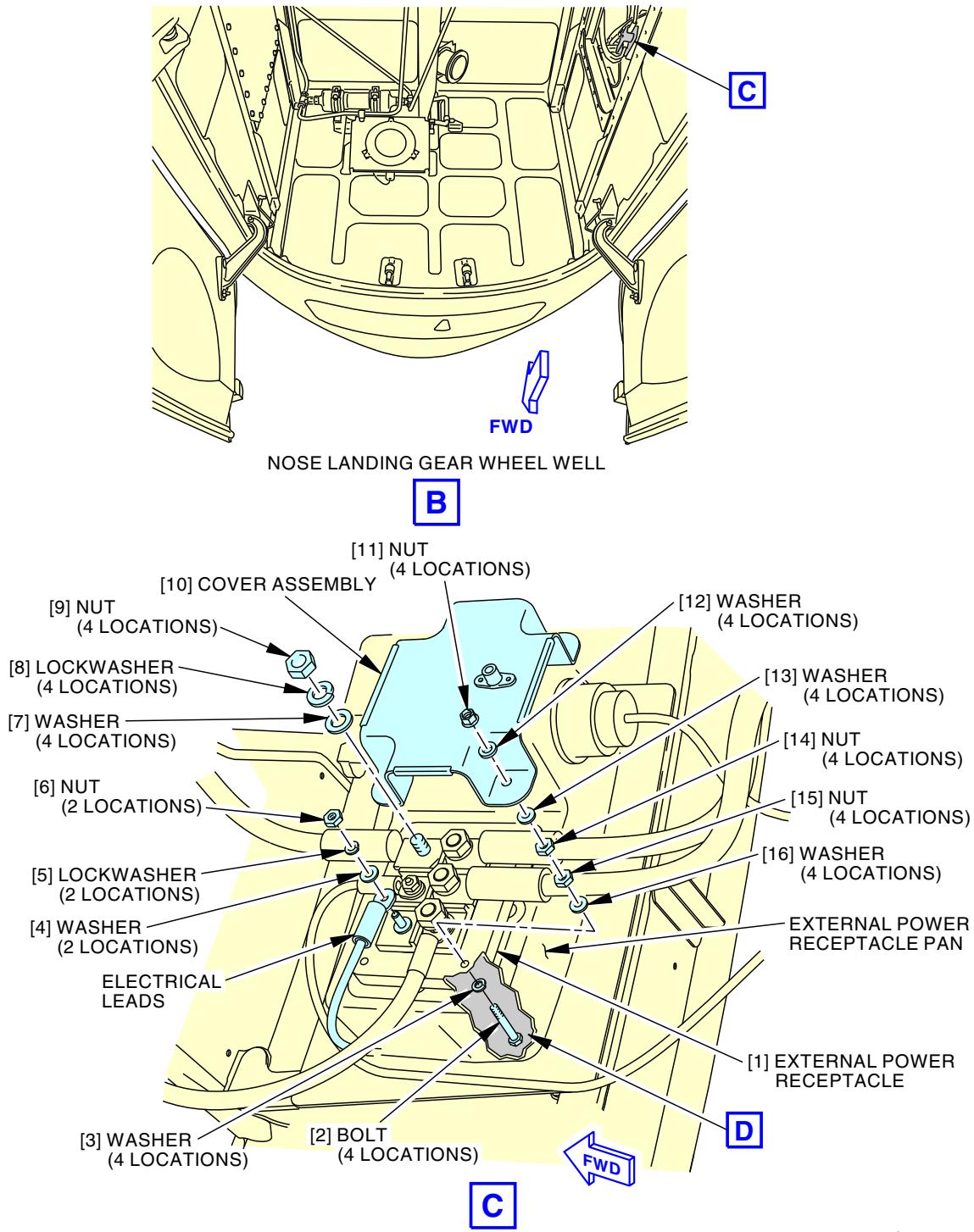
External Power Receptacle Installation
Figure 401/24-41-11-990-805-002 (Sheet 1 of 3)

EFFECTIVITY
 LOM 427-434, 437-447, 450-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-41-11
 Config 2
 Page 403
 Oct 15/2024



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External Power Receptacle Installation
Figure 401/24-41-11-990-805-002 (Sheet 2 of 3)

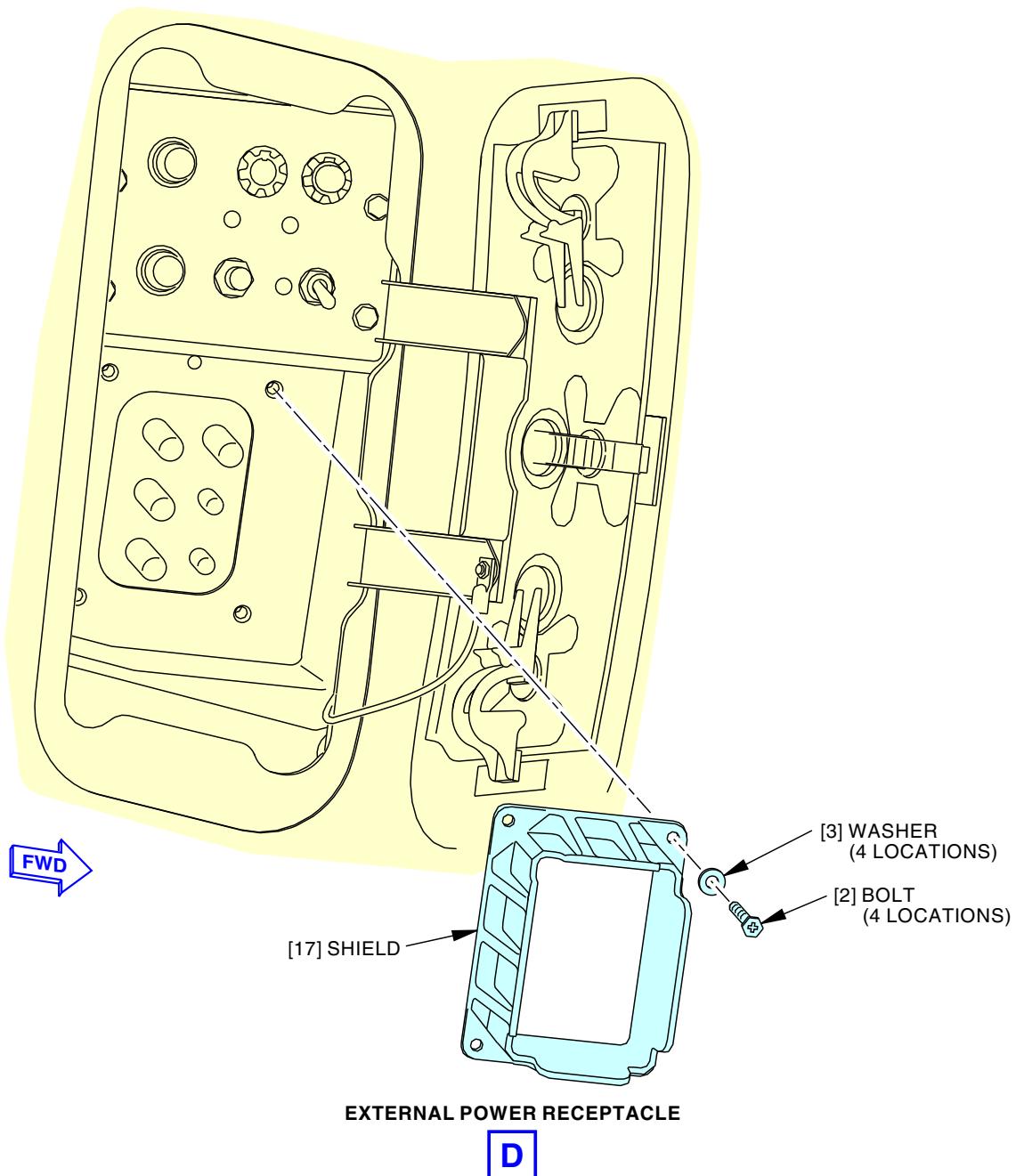
EFFECTIVITY
LOM 427-434, 437-447, 450-999

24-41-11
 Config 2
 Page 404
 Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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External Power Receptacle Installation
Figure 401/24-41-11-990-805-002 (Sheet 3 of 3)

EFFECTIVITY
LOM 427-434, 437-447, 450-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-41-11
Config 2
Page 405
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-41-11-400-803-002

3. External Power Receptacle Installation

(Figure 401)

A. General

- (1) The External Power Receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The External Power Receptacle is part of the pressure seal of the airplane. You must seal the receptacle when installing it.
- (3) The external power receptacle is referred to as the receptacle in this task.

B. References

Reference	Title
05-51-91-790-801	Cabin Pressure Leak Test (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
51-31-00-390-804	Fillet Seal Application (P/B 201)
51-31-00-390-810	Removable Faying (Mated) Surface Seal Application (P/B 201)
53-14-01-420-801	Nose Wheel Well Access Panels - Installation (P/B 401)

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
C50013	Coating - Protective, Strippable, Sprayable - Protectapeel SC-1074B-1 (Use Until Stock Depleted)	
G50365	Agent - Peelable Parting (AC Products - AC962-73C) Production discontinued, use stock until depleted.	BAC5000
G50366	Agent - Parting, Peelable, AZ 534-2B (0A3C8 - Aztec Chemical, Inc., El Monte, CA)	BAC5000, PSD 6-187
G50367	Agent - Peelable Parting (Aztec Chemical AZ 634-2)	MIL-PRF-6799, BAC5000
G50368	Agent - Peelable Parting (Rexco Chemical Company - Partall Coverall Film)	BAC5000
G50369	Coating - Alkaline Removable, Water Resistant	BMS15-12 Type I Class 1

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Receptacle	24-41-11-01C-080	LOM 427-434, 437-447, 450-999

E. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

EFFECTIVITY
LOM 427-434, 437-447, 450-999

24-41-11

Config 2

Page 406

Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

G. External Power Receptacle Installation

SUBTASK 24-41-11-420-004-002

- (1) Do these steps to install the receptacle [1]:



DO NOT APPLY THE PARTING AGENT TO THE STRUCTURE OR SURFACE THAT WILL HAVE FILLET SEAL. DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Apply one of the parting agents listed to the surface of the receptacle [1] that touches the receptacle pan:
 - 1) AC962-73C peelable parting agent, G50365,
 - 2) peelable parting agent, G50366,
 - 3) AZ 634-2 peelable parting agent, G50367,
 - 4) Protectapeel SC-1074B-1 coating, C50013,
 - 5) Rexco Partall Coverall Film peelable parting agent, G50368,
 - 6) temporary coating, G50369.
- (b) When the parting agent is dry to touch, apply sealant, A00247, to the surface of the receptacle [1] that touches the receptacle pan to make a removable faying surface seal (TASK 51-31-00-390-810).
- (c) Put the receptacle [1] in its position on the receptacle pan.
- (d) Apply sealant, A00247, to the bolts [2].
- (e) Put the shield [17] in its position.
- (f) Install the bolts [2], washers [3], and washers [16] through receptacle [1], shield [17], and receptacle pan.
- (g) Install the nuts [15].
 - 1) Tighten the nuts [15].
- (h) Install the nuts [14].
 - 1) Tighten the nuts [14].
- (i) Remove the excessive sealant, A00247.
- (j) Apply sealant, A02315, to the edge of the receptacle [1] to make a fillet seal (TASK 51-31-00-390-804).

SUBTASK 24-41-11-420-005-002



PUT AN IDENTIFIER ON THE WIRES ON EACH SIDE OF THE ELECTRICAL CONNECTION BEFORE YOU DISCONNECT. IF YOU CONNECT THEM AT AN INCORRECT LOCATION, DAMAGE TO THE COMPONENTS WILL OCCUR.

EFFECTIVITY
LOM 427-434, 437-447, 450-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-41-11
Config 2
Page 407
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(CAUTION PRECEDES)



CAUTION

DO NOT INSTALL WASHERS BELOW THE ELECTRICAL LEAD TERMINAL LUGS. THIS WILL CAUSE HEAT AND DAMAGE TO THE TERMINAL STUDS.

- (2) Do these steps to connect the electrical leads to the receptacle [1]:
 - (a) Install the electrical leads onto receptacle studs.
 - (b) Install the washers [4], lockwashers [5], and nuts [6].
 - 1) Tighten the nuts [6] to 21 ± 1 in-lb (2.37 ± 0.12 N·m).
 - (c) Install the washers [7], lockwashers [8], and nuts [9].
 - 1) Tighten the nuts [9] to 122.5 ± 2.5 in-lb (13.84 ± 0.28 N·m).
 - (d) Remove the identification tags from the electrical leads.
 - (e) Install the washers [13].
 - (f) Put the cover assembly [10] in its position.
 - (g) Install the washers [12] and nuts [11].
 - 1) Tighten the nuts [11].

SUBTASK 24-41-11-420-006-002

- (3) Close the access panel on the forward right hand side of the nose gear wheel well, do this task: Nose Wheel Well Access Panels - Installation, TASK 53-14-01-420-801.

SUBTASK 24-41-11-410-014-002

- (4) Remove the DO-NOT-OPERATE tag from the receptacle, and close this access panel:

Number Name/Location

114AR External Power Receptacle Door

H. External Power Receptacle Installation Test

SUBTASK 24-41-11-860-018-002

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

SUBTASK 24-41-11-860-019-002

- (2) Make sure that external power comes on line and operates correctly.

I. Cabin Pressure Leak Test

SUBTASK 24-41-11-700-003-002

- (1) Do this task to make sure that there are no air leaks: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

———— END OF TASK ————

EFFECTIVITY
LOM 427-434, 437-447, 450-999

ECCN 9E991 BOEING PROPRIETARY - See title page for details

D633A101-LOM

24-41-11
Config 2
Page 408
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

EXTERNAL POWER RECEPTACLE - INSPECTION/CHECK

1. General

- A. This procedure has these tasks:
- (1) External Power Receptacle - Internal Inspection.
 - (2) External Power Receptacle - External Inspection.
 - (3) External Power Receptacle Pin Inspection.
 - (4) External Power Receptacle Neutral Pin To Ground Continuity Check.

TASK 24-41-11-200-801

2. External Power Receptacle - Internal Inspection

(Figure 601 or Figure 602 or Figure 603)

A. General

- (1) The external power receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The external power receptacle inspection looks for visual wear such as cracks in the base and corroded and pitted pins. This inspection also makes sure that the terminals are correctly installed on the studs and that the torque is correct.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
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)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

E. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

F. Prepare for Inspection

SUBTASK 24-41-11-860-006

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-11-010-004

- (2) Open this access panel:

Number	Name/Location
114AR	External Power Receptacle Door

SUBTASK 24-41-11-010-005

- (3) Remove the external power plug from receptacle, if it is installed.

EFFECTIVITY
LOM ALL

24-41-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-41-11-930-002



WARNING

PUT A DO-NOT-OPERATE TAG ON THE EXTERNAL POWER RECEPTACLE.
IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS CAN
OCCUR.

- (4) Attach a DO NOT OPERATE tag, STD-858, to the external power receptacle.

SUBTASK 24-41-11-010-006

- (5) Remove the access panel on forward right hand side of nose gear wheel well:
(a) To get access to the back of the receptacle, do this task: Nose Wheel Well Access Panels - Removal, TASK 53-14-01-020-801.

SUBTASK 24-41-11-010-007

- (6) Remove the cover assembly [1] as follows:

LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198

- (a) Bend the ears at the two corners of the protective boot away from the cover assembly [1].
(b) Pull the protective boot away from the cover assembly [1].

LOM ALL

- (c) Remove the four nuts [2] and washers [3] that hold the cover assembly [1].
(d) Remove cover assembly [1] for access to receptacle.

G. External Power Receptacle Internal Inspection

SUBTASK 24-41-11-210-005

- (1) Make sure that the contacts and matting surface of external power receptacle are clean from contamination.

SUBTASK 24-41-11-210-001

- (2) Inspect the external power receptacle from the outside of airplane as follows:
(a) Look for cracks or other damage on the receptacle base.
(b) Look for loose, bent or cracked pins.
(c) Look for discolored, corroded or pitted pins.

NOTE: Discoloration of pins is due to excessive heat, which is caused by excessive corrosion and poor contact between pin and socket. The receptacle should be replaced if this is found.

LOM 427-434, 437-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE SB 737-24-1198

SUBTASK 24-41-11-210-002

- (3) Inspect the external power receptacle from the inside of airplane as follows:
(a) Look for discoloration of the receptacle studs and electrical leads.



CAUTION

DO NOT INSTALL WASHERS BELOW THE ELECTRICAL LEAD TERMINAL LUGS. THIS WILL CAUSE HEAT AND SUBSEQUENT DAMAGE TO RECEPTACLE STUDS.

- (b) Make sure that the electrical leads are correctly installed onto receptacle studs.
(c) Look for loose nuts on receptacle studs.

EFFECTIVITY
LOM ALL

24-41-11



**737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL**

**LOM 427-434, 437-447, 450-999; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE SB 737-24-1198
(Continued)**

- 1) Torque the nuts from the receptacle studs A, B, C, and N to 122.5 ± 2.5 in-lb (13.84 ± 0.28 N·m).
- 2) Torque the nuts from the receptacle studs E and F to 21 ± 1 in-lb (2.37 ± 0.12 N·m).

LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198

SUBTASK 24-41-11-210-004

- 4) Inspect the external power receptacle from the inside of airplane as follows:
 - (a) Remove the dielectric separator.
 - (b) Look for discoloration of the receptacle terminals and electrical leads.



DO NOT INSTALL WASHERS BELOW THE ELECTRICAL LEAD TERMINAL LUGS. THIS WILL CAUSE HEAT AND DAMAGE TO THE TERMINAL STUDS.

- (c) Make sure that the electrical leads are correctly installed onto receptacle.
- (d) Look for loose nuts and bolts at the receptacle terminals. If you find loose nuts or bolts, do these steps:
 - 1) Tighten the bolts to 270 ± 30 in-lb (30.5 ± 3.4 N·m).
 - 2) Tighten the nuts to 17.5 ± 2.5 in-lb (1.98 ± 0.29 N·m).
- (e) Install the dielectric separator.

LOM ALL

SUBTASK 24-41-11-410-002

- 5) Install the cover assembly [1] as follows:
 - (a) Put the cover assembly [1] in its position.
 - (b) Install the washers [3] and nuts [2].
 - (c) Tighten the nuts.

LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198

- (d) Push the protective boot to the cover assembly [1] until it latches to the cover assembly [1].

LOM ALL

SUBTASK 24-41-11-410-003

- 6) Do this task to close the access panel on the forward right hand side of the nose gear wheel well: Nose Wheel Well Access Panels - Installation, TASK 53-14-01-420-801.

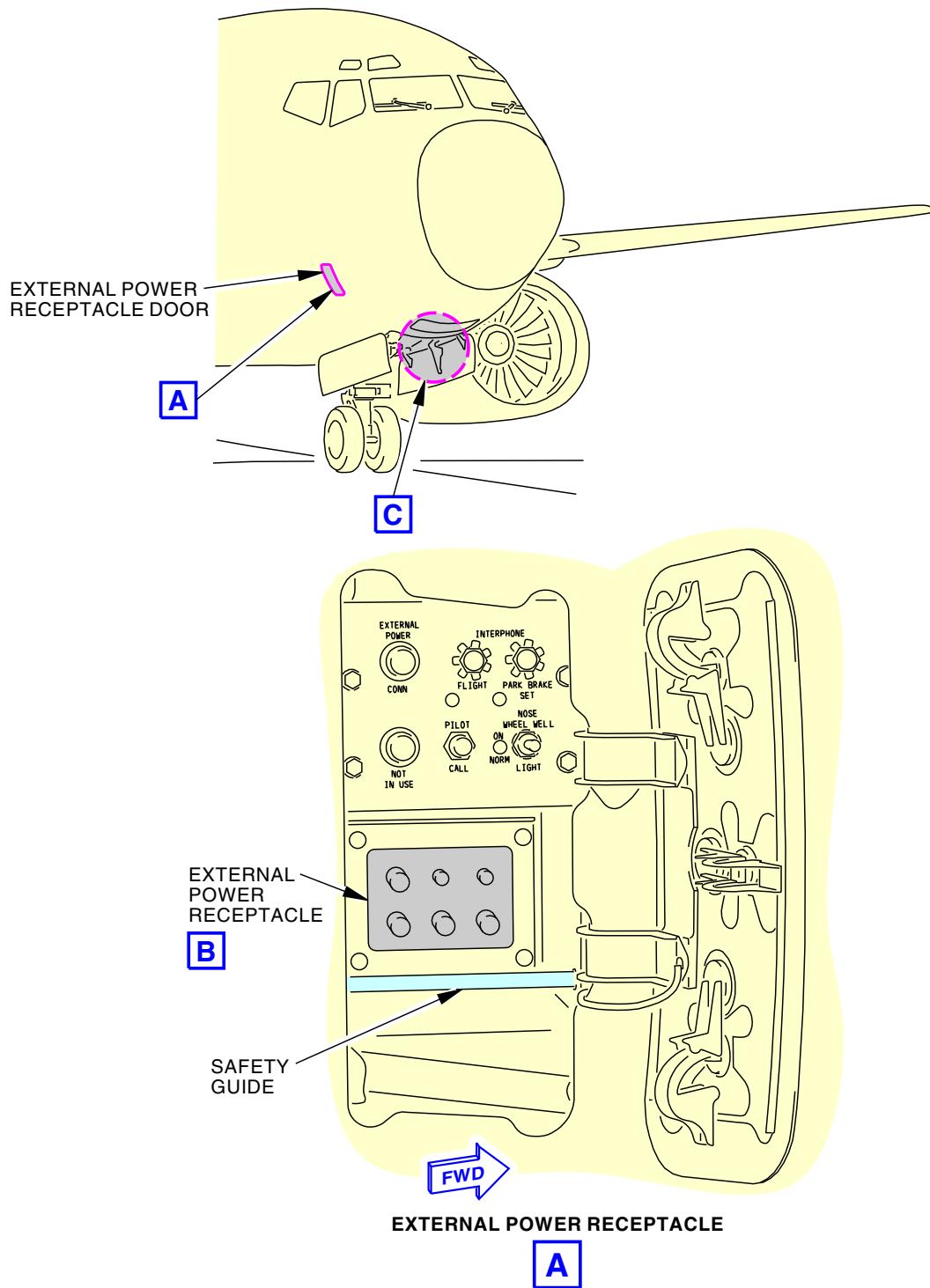
SUBTASK 24-41-11-410-004

- 7) Remove the DO NOT OPERATE tag, STD-858, from the external power receptacle and do this step:
 - (a) Close this access panel:
- | | |
|---------------|--------------------------------|
| Number | Name/Location |
| 114AR | External Power Receptacle Door |

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-11



F90501 S0006566407_V3

External Power Receptacle Inspection
Figure 601/24-41-11-990-802 (Sheet 1 of 4)

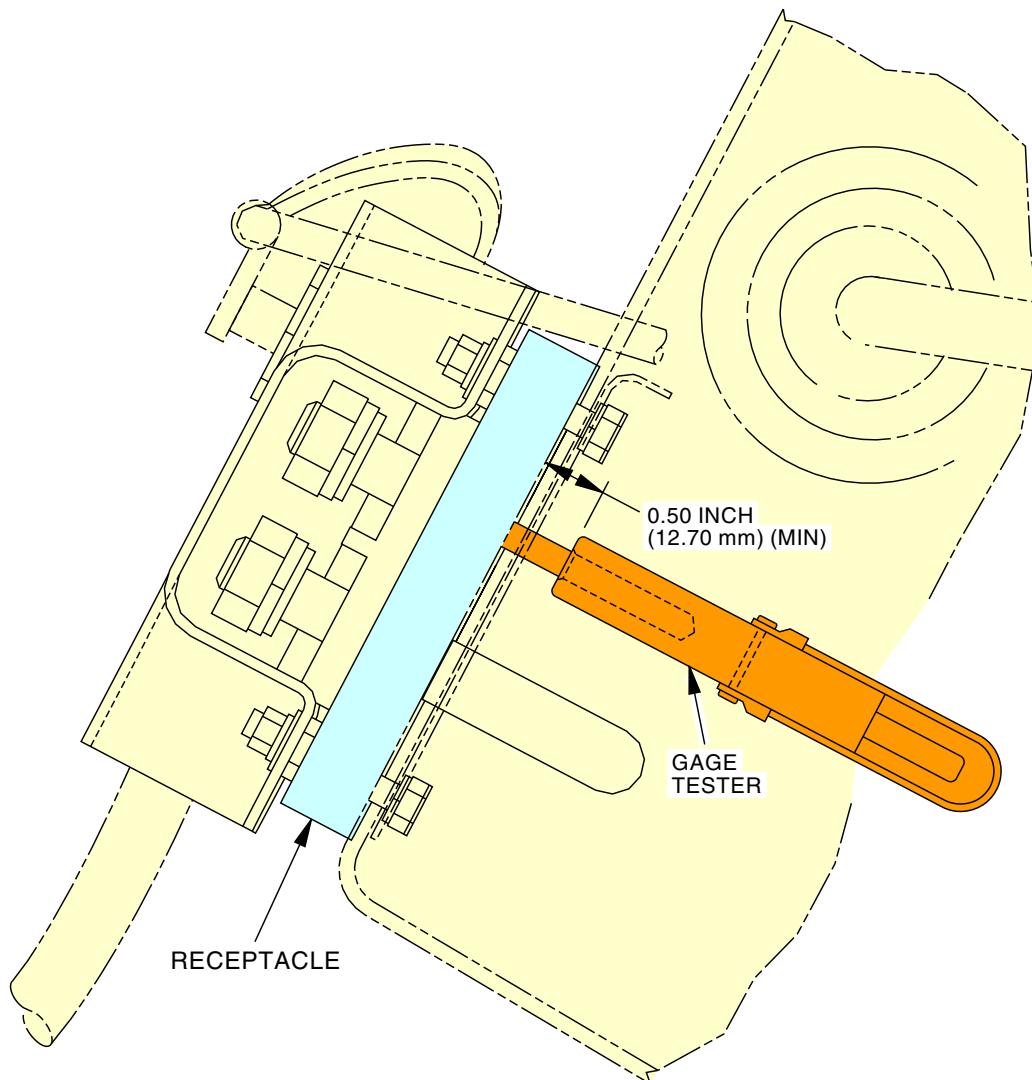
EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11Page 604
Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



PIN WEAR GAGE

B

2367090 S0000541841_V2

External Power Receptacle Inspection
Figure 601/24-41-11-990-802 (Sheet 2 of 4)

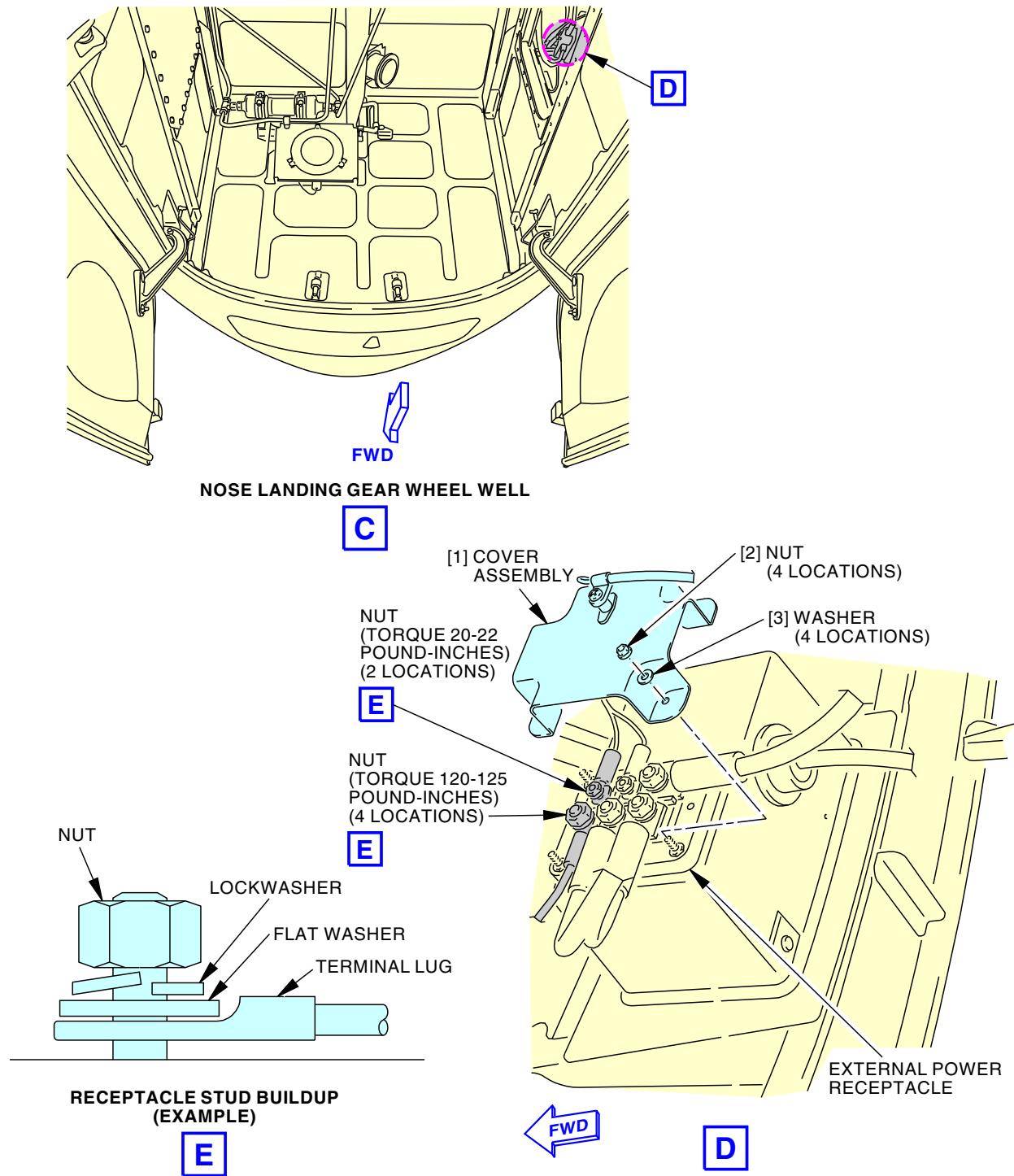
EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 605
Oct 15/2024



F90537 S0006566408_V3

External Power Receptacle Inspection
Figure 601/24-41-11-990-802 (Sheet 3 of 4)

EFFECTIVITY
 LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
 SB 737-24-1198

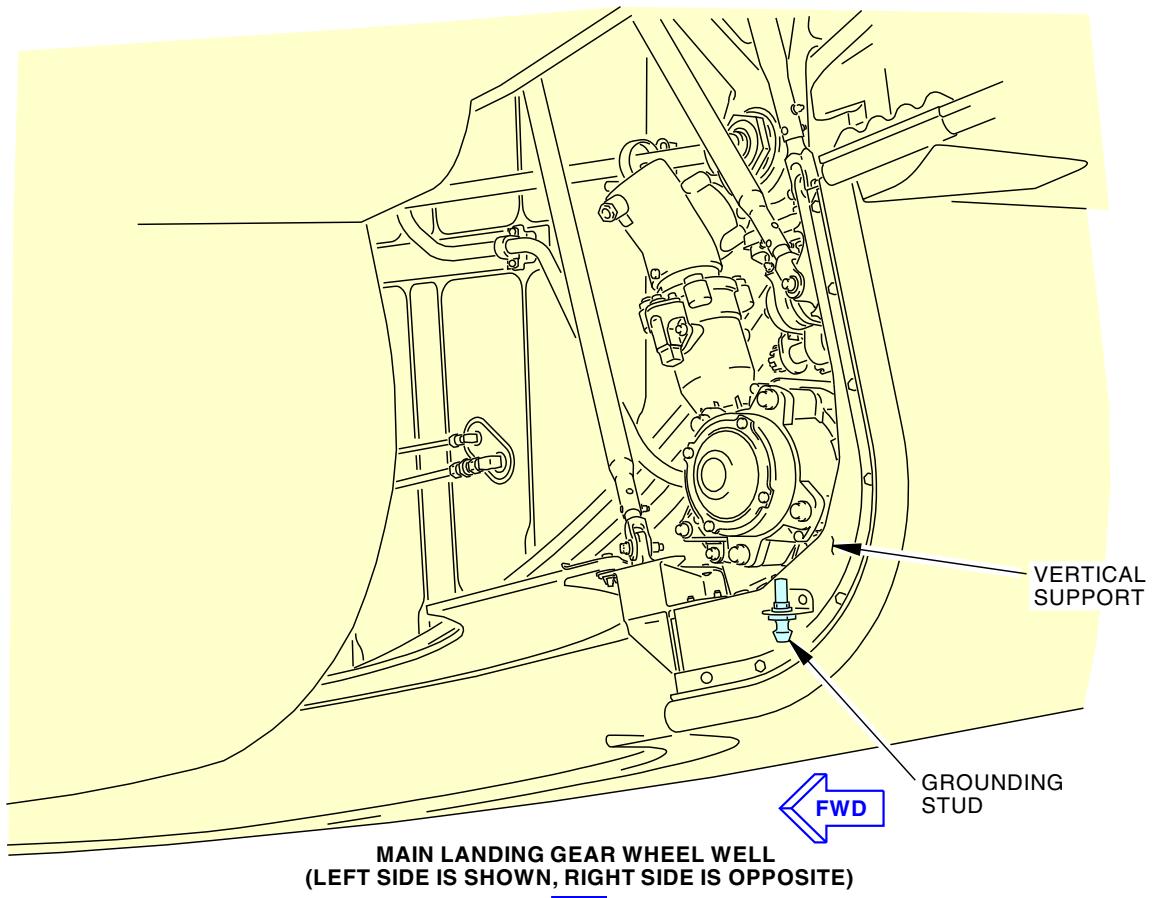
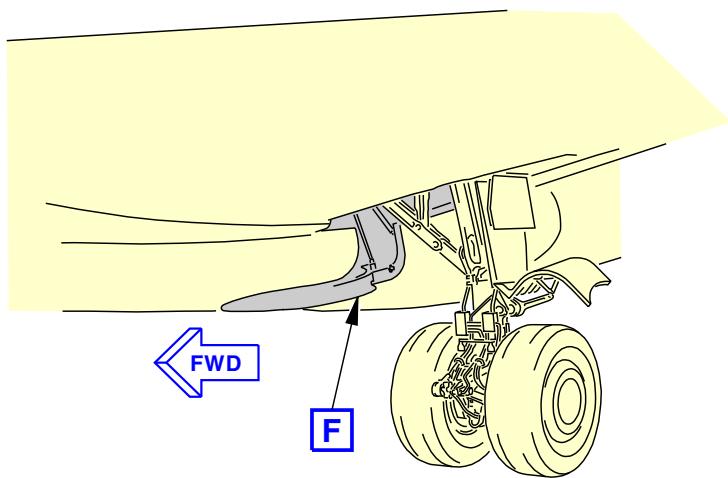
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 Page 606
 Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



F90574 S0006566409_V3

External Power Receptacle Inspection
Figure 601/24-41-11-990-802 (Sheet 4 of 4)

EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

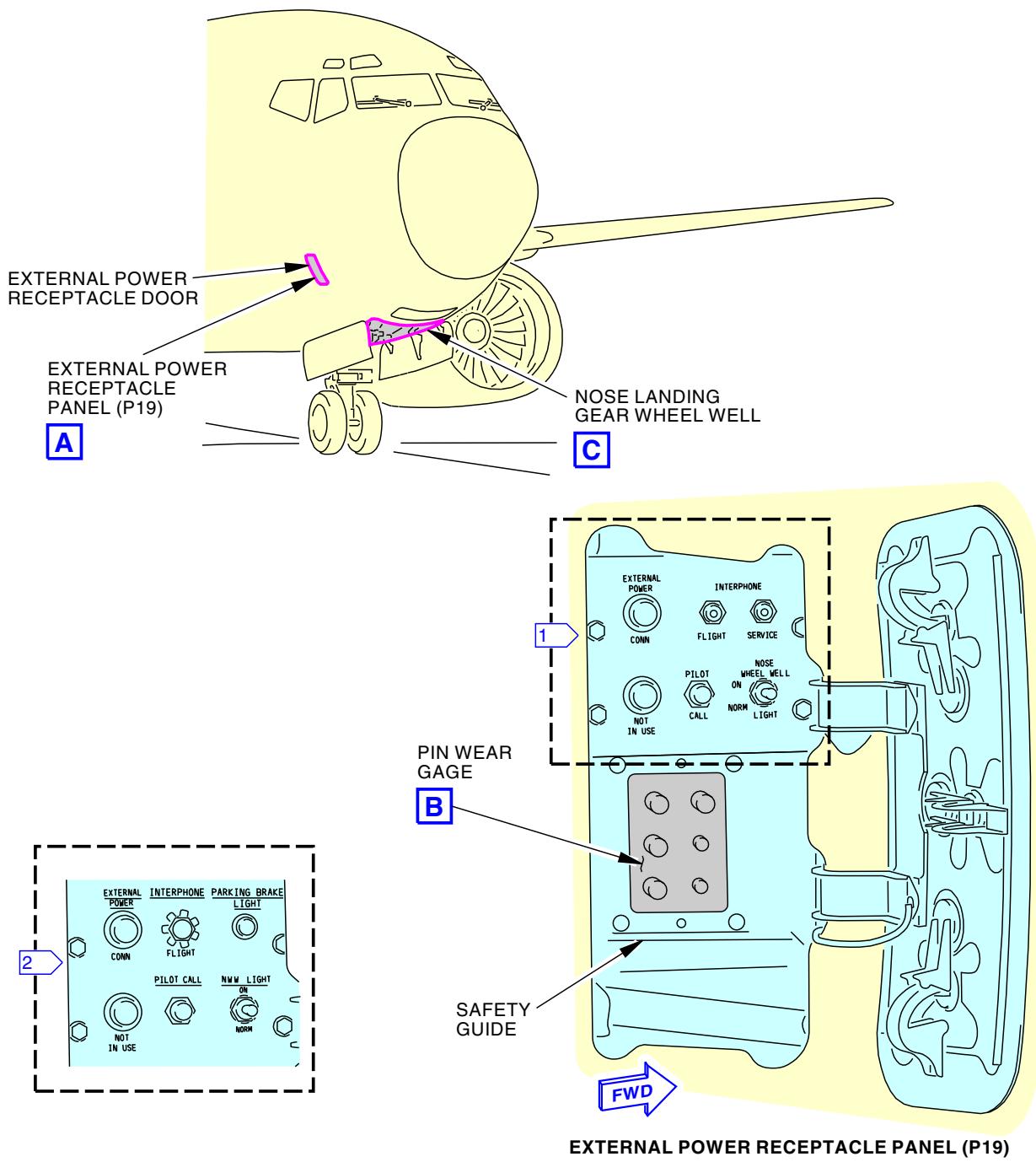
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Page 607
Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



- 1 AIRPLANES WITHOUT PARKING BRAKE LIGHT (EXAMPLE).
2 AIRPLANES WITH PARKING BRAKE LIGHT (EXAMPLE).

2067477 S0000429813_V4

External Power Receptacle Inspection
Figure 602/24-41-11-990-803 (Sheet 1 of 4)

EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

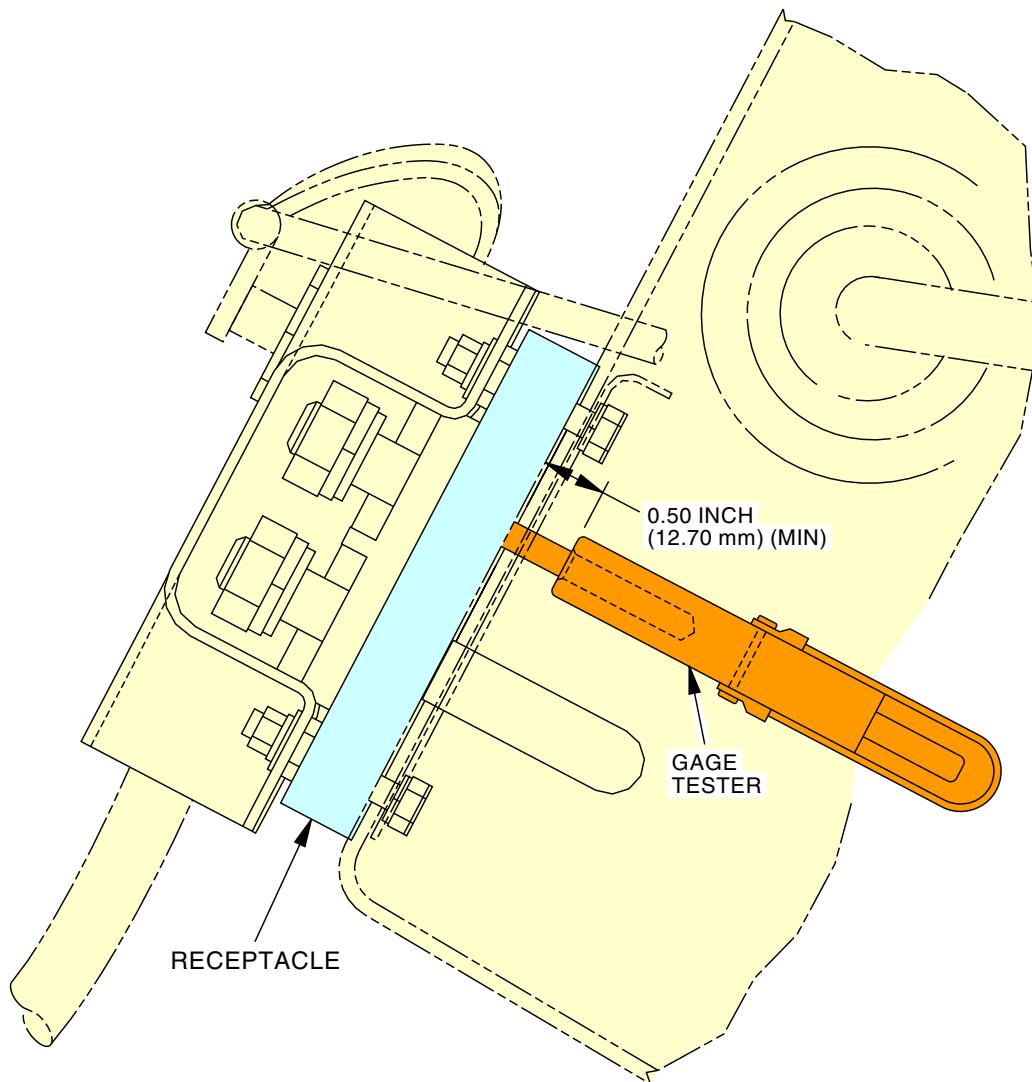
24-41-11

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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



PIN WEAR GAGE

B

2367090 S0000541841_V2

External Power Receptacle Inspection
Figure 602/24-41-11-990-803 (Sheet 2 of 4)

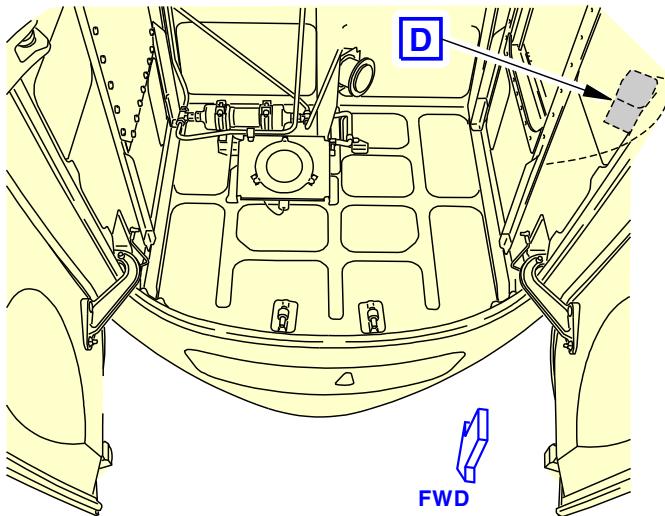
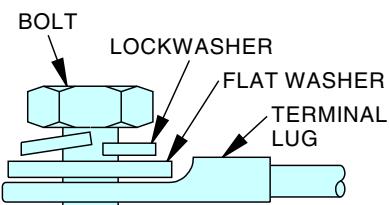
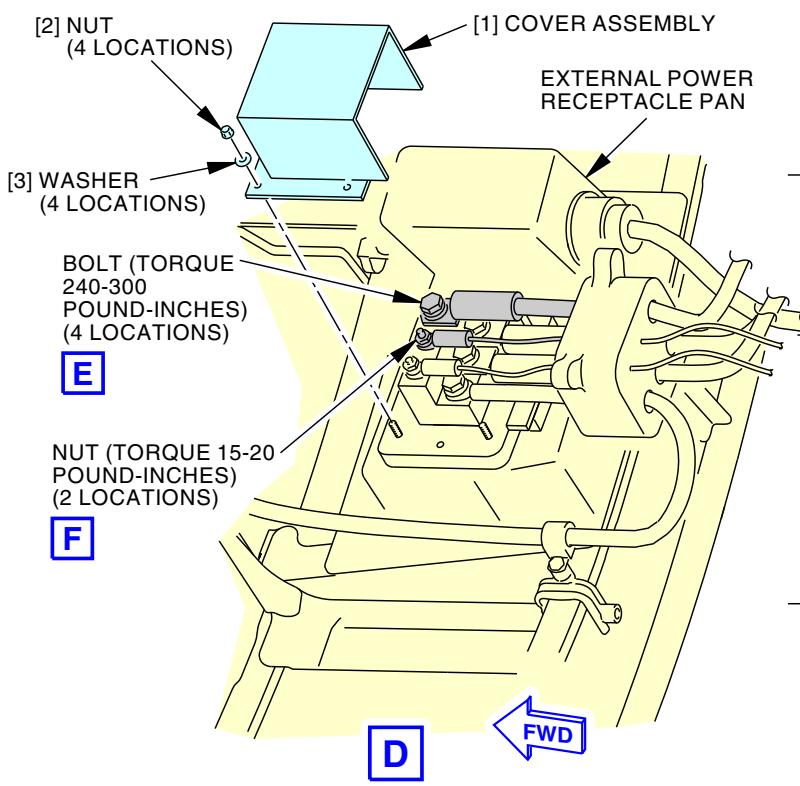
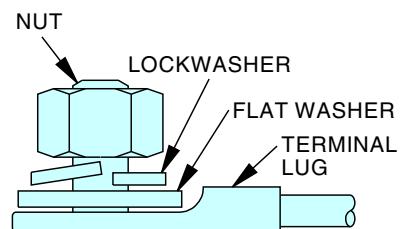
EFFECTIVITY
LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
416, 420 POST SB 737-24-1198

24-41-11

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 609
Oct 15/2024


NOSE LANDING GEAR WHEEL WELL
C

**RECEPTACLE BUILDUP
(EXAMPLE)**
E

**RECEPTACLE STUD BUILDUP
(EXAMPLE)**
F

2067953 S0000429814_V2

External Power Receptacle Inspection
Figure 602/24-41-11-990-803 (Sheet 3 of 4)

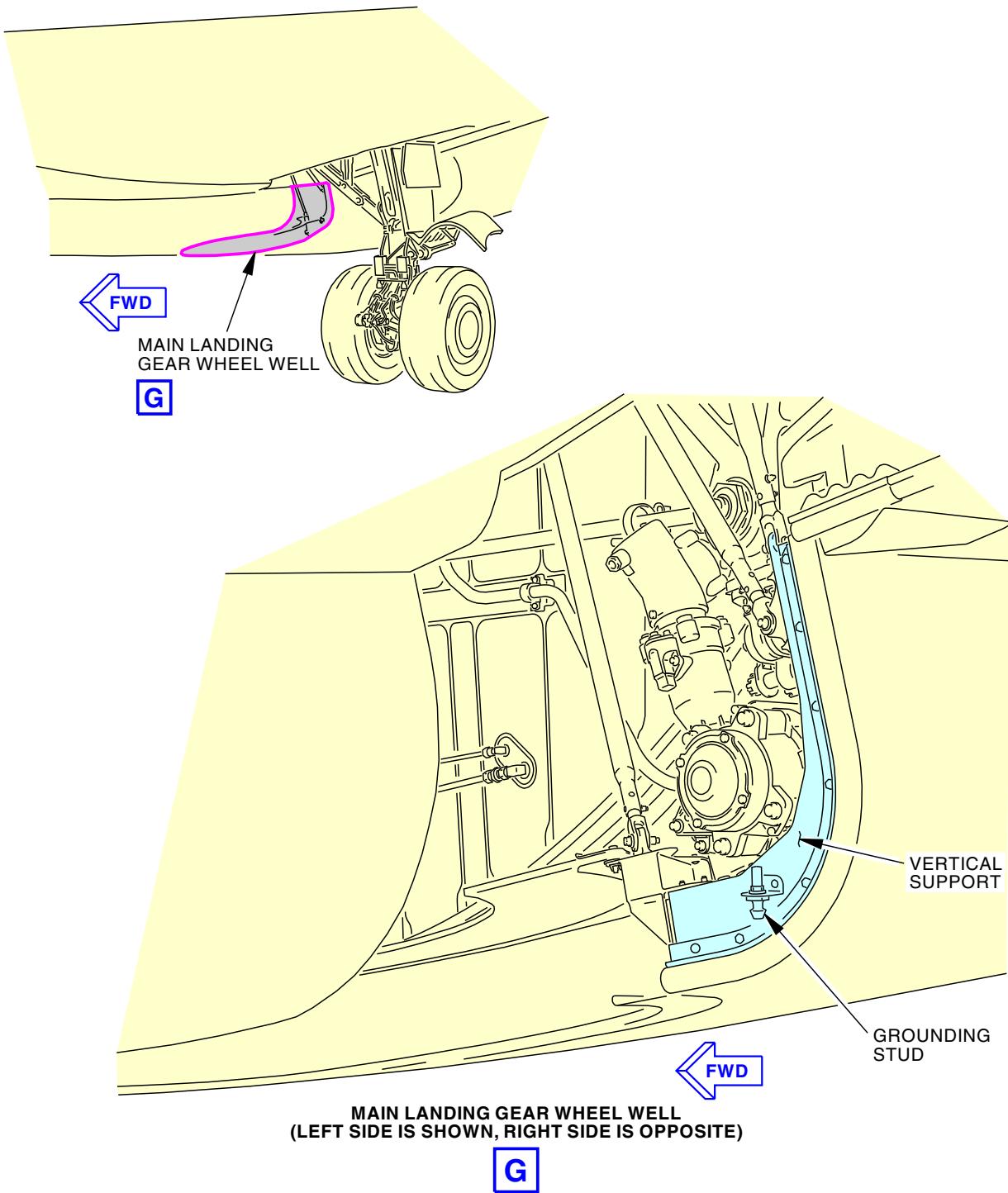
EFFECTIVITY
 LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
 416, 420 POST SB 737-24-1198

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-41-11

 Page 610
 Oct 15/2024



2067917 S0000429815_V2

External Power Receptacle Inspection
Figure 602/24-41-11-990-803 (Sheet 4 of 4)

EFFECTIVITY
 LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415,
 416, 420 POST SB 737-24-1198

24-41-11

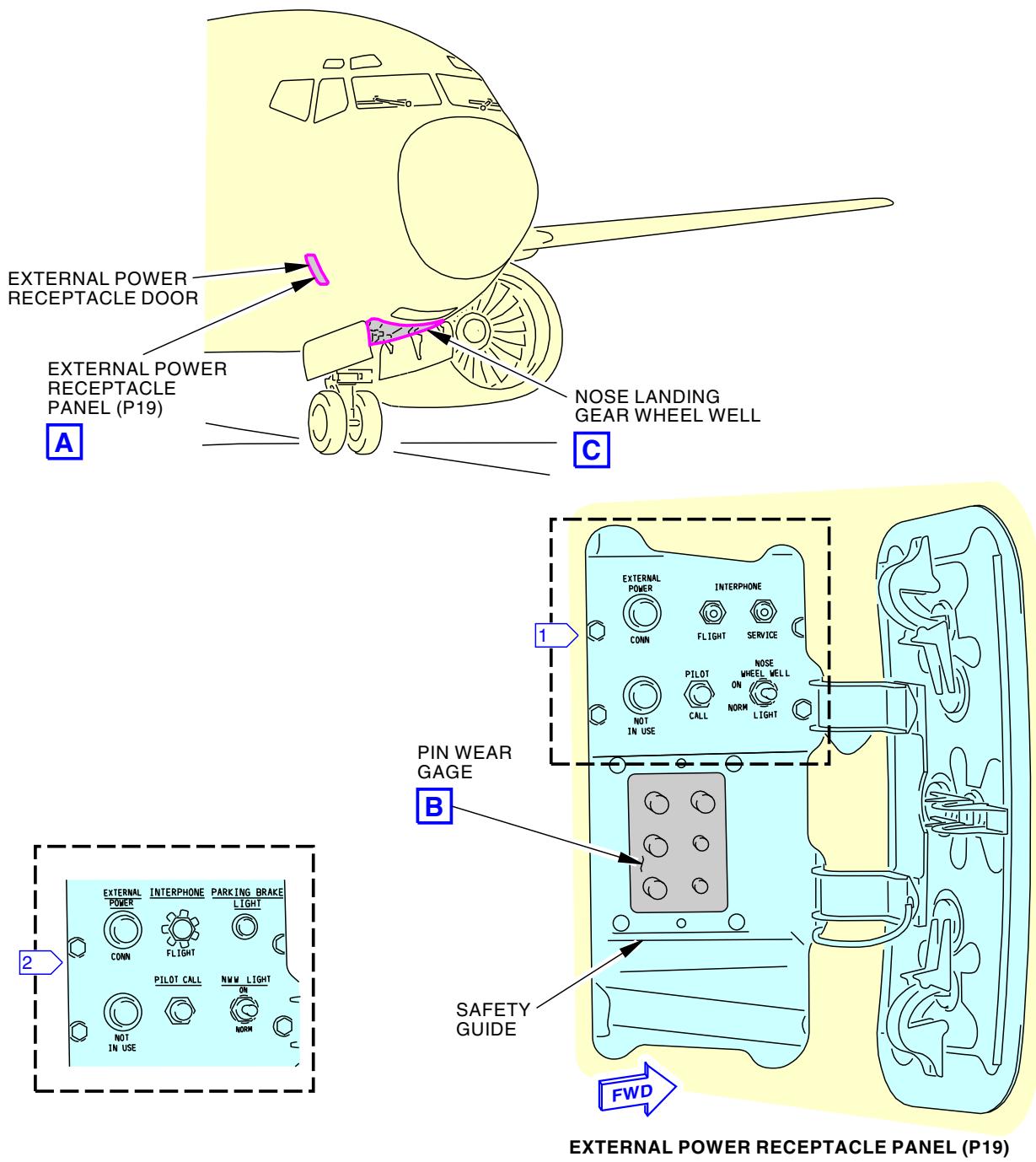
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

 Page 611
 Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



- 1 AIRPLANES WITHOUT PARKING BRAKE LIGHT (EXAMPLE).
2 AIRPLANES WITH PARKING BRAKE LIGHT (EXAMPLE).

2067477 S0000429813_V4

External Power Receptacle Inspection
Figure 603/24-41-11-990-806 (Sheet 1 of 4)

EFFECTIVITY
LOM 427-434, 437-447, 450-999

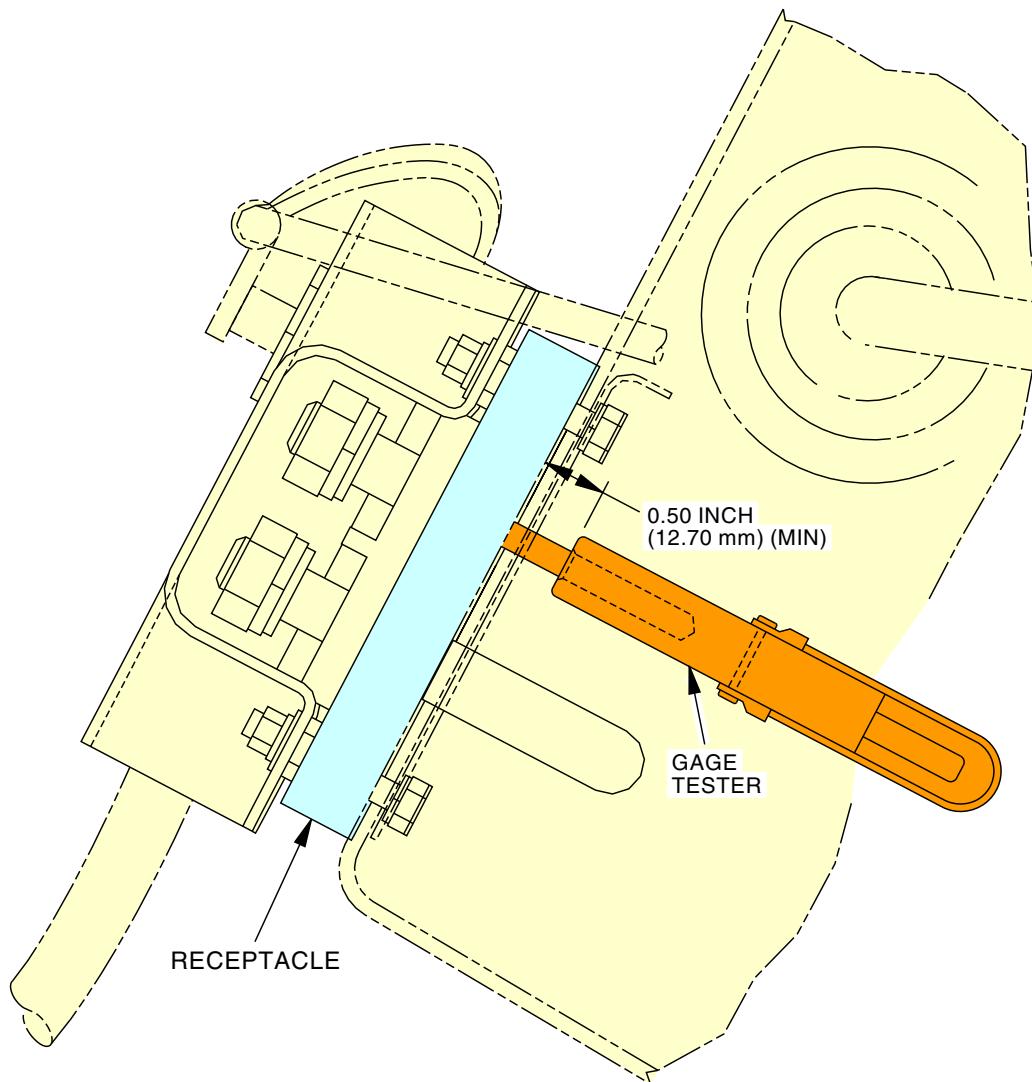
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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



PIN WEAR GAGE

B

2367090 S0000541841_V2

External Power Receptacle Inspection
Figure 603/24-41-11-990-806 (Sheet 2 of 4)

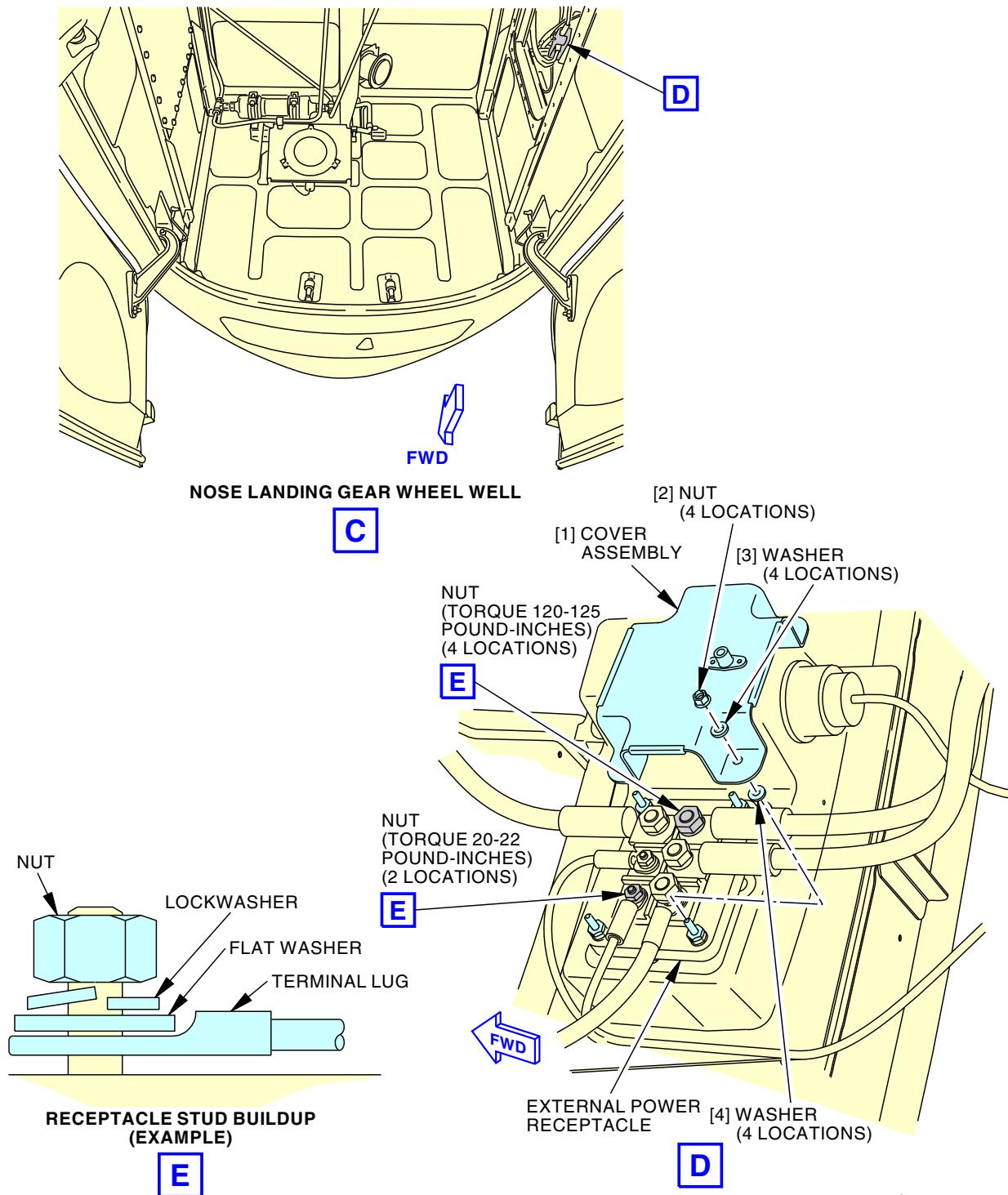
EFFECTIVITY
LOM 427-434, 437-447, 450-999

24-41-11

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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 613
Oct 15/2024



2103460 S0000447875_V3

External Power Receptacle Inspection
Figure 603/24-41-11-990-806 (Sheet 3 of 4)

EFFECTIVITY
LOM 427-434, 437-447, 450-999

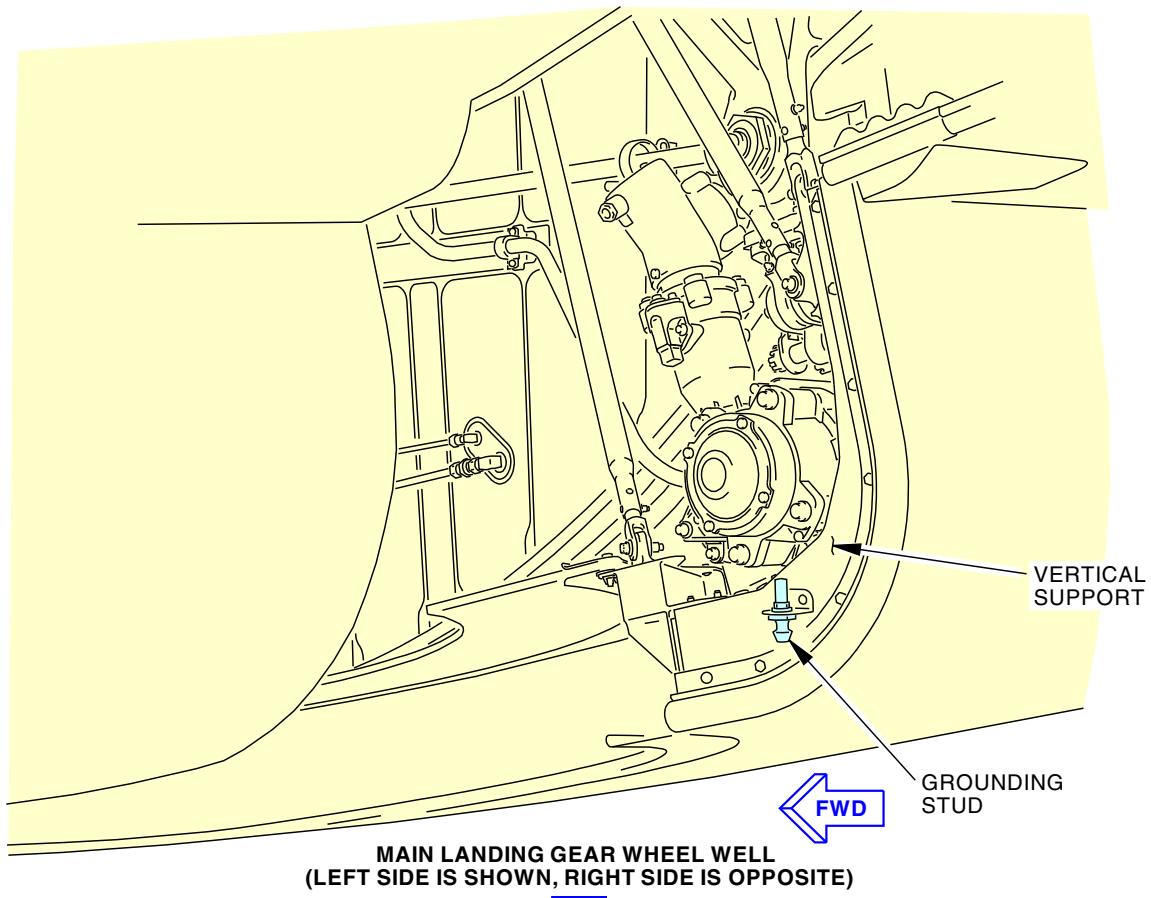
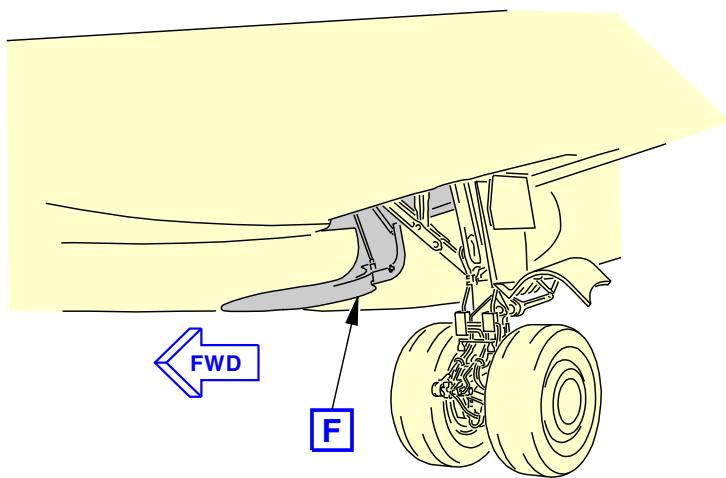
24-41-11

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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



F90574 S0006566409_V3

External Power Receptacle Inspection
Figure 603/24-41-11-990-806 (Sheet 4 of 4)

EFFECTIVITY
LOM 427-434, 437-447, 450-999

24-41-11

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 615
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-41-11-200-804

3. External Power Receptacle External Inspection

(Figure 604)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The external power receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-41-11-000-801	External Power Receptacle Removal (P/B 401)
24-41-11-000-802-001	External Power Receptacle Removal (P/B 401)
24-41-11-000-803-002	External Power Receptacle Removal (P/B 401)
24-41-11-400-801	External Power Receptacle Installation (P/B 401)
24-41-11-400-802-001	External Power Receptacle Installation (P/B 401)
24-41-11-400-803-002	External Power Receptacle Installation (P/B 401)
24-41-11-960-802-001	External Power Receptacle Pins Replacement (P/B 401)

C. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

D. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

E. External Power Receptacle External Inspection

SUBTASK 24-41-11-860-009

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-11-010-012

- (2) Open this access panel:

Number	Name/Location
114AR	External Power Receptacle Door

SUBTASK 24-41-11-860-010

- (3) If it is installed, remove external power plug from receptacle.

SUBTASK 24-41-11-210-003

- (4) Do these steps to examine the receptacles from the outer side of the airplane:

- Make sure that the pins are not loose.
- Look for pins that are bent or have a crack.
- Look for damage or cracks on the base insulation.
- Look for discolored, burned, or pitted pins.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE SB 737-24-1198

- (e) If the pins are loosed or damaged, replace the external power receptacle, do these tasks:
- External Power Receptacle Removal, TASK 24-41-11-000-801

EFFECTIVITY	
LOM ALL	

24-41-11



**737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL**

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE SB 737-24-1198 (Continued)

- External Power Receptacle Installation, TASK 24-41-11-400-801.

LOM 427-434, 437-447, 450-999

- (f) If the pins are loosed or damaged, replace the external power receptacle, do these tasks:
- External Power Receptacle Removal, TASK 24-41-11-000-803-002
 - External Power Receptacle Installation, TASK 24-41-11-400-803-002.

LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198

- (g) If the pins are loosed or damaged, replace the external power receptacle or receptacle pins, do these tasks:
- External Power Receptacle Removal, TASK 24-41-11-000-802-001
 - External Power Receptacle Installation, TASK 24-41-11-400-802-001
 - External Power Receptacle Pins Replacement, TASK 24-41-11-960-802-001.

LOM ALL

SUBTASK 24-41-11-410-007

- (5) Close this access panel:

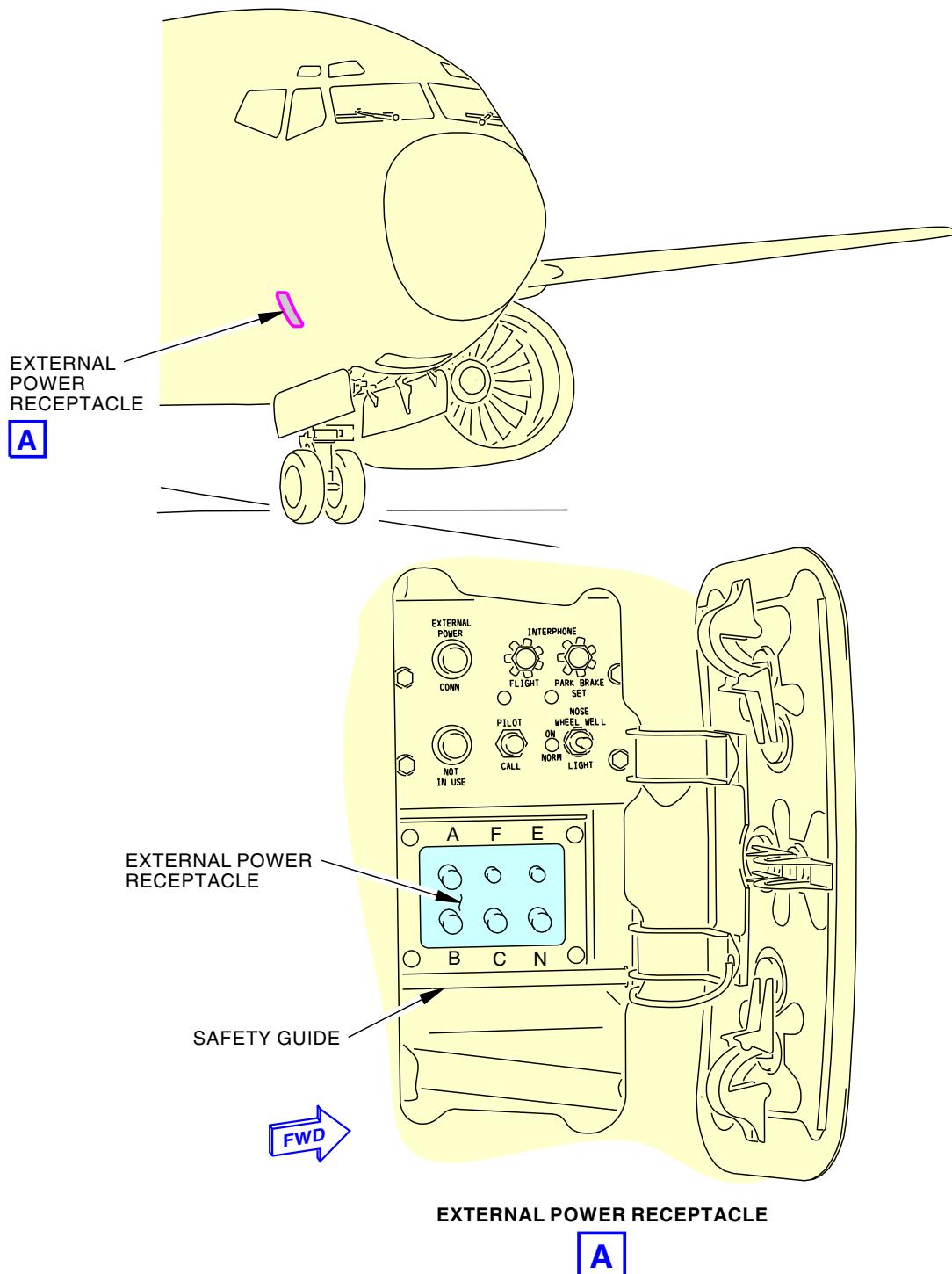
Number Name/Location

114AR External Power Receptacle Door

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-11



2963105 S0000741392_V1

External Power Receptacle Inspection
Figure 604/24-41-11-990-807 (Sheet 1 of 2)

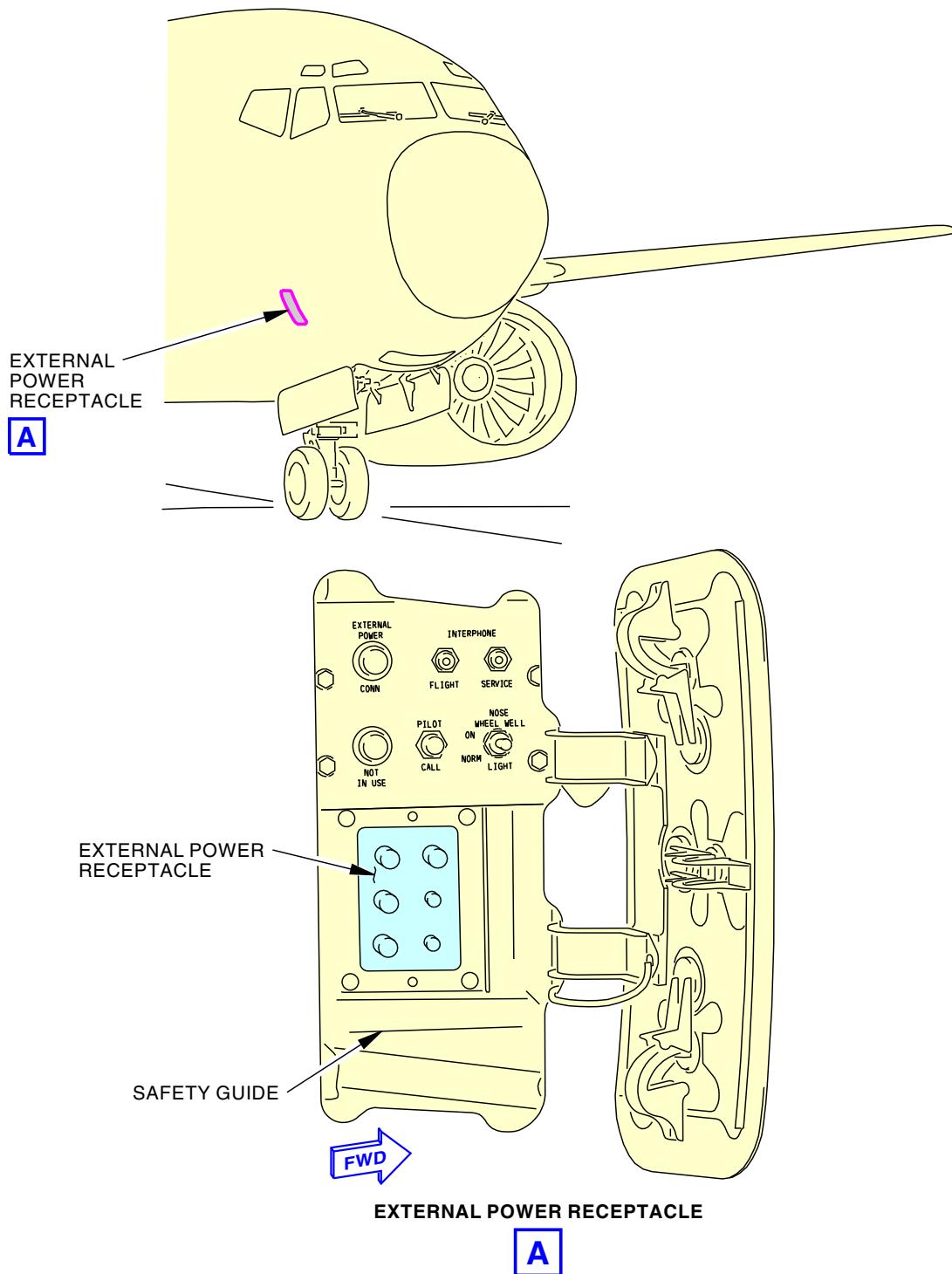
EFFECTIVITY
LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE
SB 737-24-1198

24-41-11Page 618
Oct 15/2024

D633A101-LOM



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



2963106 S0000741393_V1

External Power Receptacle Inspection
Figure 604/24-41-11-990-807 (Sheet 2 of 2)

EFFECTIVITY
LOM 422-434, 437-447, 450-999; LOM 402, 404, 406,
407, 411, 412, 415, 416, 420 POST SB 737-24-1198

24-41-11

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 619
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-41-11-200-802

4. External Power Receptacle Pin Inspection

(Figure 601 or Figure 602 or Figure 603)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The external power receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The external power receptacle pin inspection uses a GO/NO-GO gauge to make sure that the pins are not worn. If the pins are worn, the external power receptacle should be replaced.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-41-11-000-801	External Power Receptacle Removal (P/B 401)
24-41-11-000-802-001	External Power Receptacle Removal (P/B 401)
24-41-11-000-803-002	External Power Receptacle Removal (P/B 401)
24-41-11-400-801	External Power Receptacle Installation (P/B 401)
24-41-11-400-802-001	External Power Receptacle Installation (P/B 401)
24-41-11-400-803-002	External Power Receptacle Installation (P/B 401)
24-41-11-960-802-001	External Power Receptacle Pins Replacement (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
SPL-1625	Wear Gage Set - Ground Power Plug and Receptacle Part #: F70284-1 Supplier: 81205

D. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

E. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

F. External Power Receptacle Pin Inspection

SUBTASK 24-41-11-860-023

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-11-010-023

- (2) Open this access panel:

Number	Name/Location
114AR	External Power Receptacle Door

SUBTASK 24-41-11-010-024

- (3) If it is installed, remove the external power plug from receptacle.

SUBTASK 24-41-11-220-002

- (4) Inspect the external power receptacle pins for wear as follows:

EFFECTIVITY
LOM ALL

24-41-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



CAUTION
DO NOT USE EXCESSIVE FORCE TO PUSH THE WEAR GAGE OVER THE PINS. THE GAGE IS A GO/NO GO GAGE AND SHOULD NOT FIT ON THE PIN. TOO MUCH FORCE WILL DAMAGE THE PIN AND/OR THE GAGE.

- (a) Try to slide the wear gage set, SPL-1625, over the external power receptacle pins.

NOTE: The F70284-1 is a gage set. Use the -2 on the four large pins A, B, C and N. Use the -3 on the two small pins E and F.

- (b) Make sure that the gage does not slide over the pins.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 PRE SB 737-24-1198

- (c) If the gage slides over the pins to within 0.5 in. (12.7 mm) of the face of the receptacle, replace the external power receptacle, do these tasks:
- External Power Receptacle Removal, TASK 24-41-11-000-801
 - External Power Receptacle Installation, TASK 24-41-11-400-801.

LOM 427-434, 437-447, 450-999

- (d) If the gage slides over the pins to within 0.5 in. (12.7 mm) of the face of the receptacle, replace the external power receptacle, do these tasks:
- External Power Receptacle Removal, TASK 24-41-11-000-803-002
 - External Power Receptacle Installation, TASK 24-41-11-400-803-002.

LOM 422-426; LOM 402, 404, 406, 407, 411, 412, 415, 416, 420 POST SB 737-24-1198

- (e) If the gage slides over the pins to within 0.5 in. (12.7 mm) of the face of the receptacle, replace the external power receptacle or receptacle pins, do these tasks:
- External Power Receptacle Removal, TASK 24-41-11-000-802-001
 - External Power Receptacle Installation, TASK 24-41-11-400-802-001
 - External Power Receptacle Pins Replacement, TASK 24-41-11-960-802-001.

LOM ALL

SUBTASK 24-41-11-410-017

- (5) Close this access panel:

Number Name/Location

114AR External Power Receptacle Door

———— END OF TASK ————

TASK 24-41-11-200-803

5. External Power Receptacle Neutral Pin to Ground Continuity Check

(Figure 601 or Figure 602 or Figure 603)

A. General

- (1) The External Power Receptacle is located on the lower right hand side of the airplane. It is installed forward of the nose gear wheel well.
- (2) The External Power Receptacle Neutral Pin to Ground Continuity Check uses a low resistance ohm meter to measure the resistance between the neutral pin and a ground stud located on the main landing gear wheel well.

EFFECTIVITY
LOM ALL

24-41-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

B. References

Reference	Title
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.

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-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

D. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right

E. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door

F. Procedure

SUBTASK 24-41-11-860-008

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-41-11-010-010

- (2) Open this access panel if it is closed:

Number	Name/Location
114AR	External Power Receptacle Door

SUBTASK 24-41-11-010-011

- (3) Remove External Power Plug from receptacle, if it is installed.

EFFECTIVITY
LOM ALL

24-41-11



737-600/700/800/900
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SUBTASK 24-41-11-760-001

- (4) Do the Neutral Pin to Ground Continuity Check as follows:
- (a) Use a low resistance digital/analog multimeter, COM-1793 or intrinsically safe approved bonding meter, COM-1550, to measure the resistance between the neutral pin on the external power receptacle and the ground stud located on the main landing gear wheel well.
 - (b) Make sure that the resistance does not exceed 0.1 ohms.
 - (c) If the Resistance measurement exceeds 0.1 ohms, do the steps that follow:
 - 1) Do this task: External Power Receptacle - Internal Inspection, TASK 24-41-11-200-801.
 - 2) Do this task: External Power Receptacle Pin Inspection, TASK 24-41-11-200-802.
 - 3) If the problem continues repair the wiring between the external power receptacle neutral pin and airplane ground.

G. Put airplane back to its usual condition.

SUBTASK 24-41-11-410-006

- (1) Close this access panel:

Number Name/Location

114AR External Power Receptacle Door

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-11



737-600/700/800/900
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EXTERNAL POWER CONTACTOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) A removal of the External Power Contactor.
 - (2) An installation of the External Power Contactor.

TASK 24-41-12-000-801

2. External Power Contactor Removal

(Figure 401)

A. General

- (1) The external power contactor, C937 is located in the P92 power distribution panel.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

E. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door
117A	Electronic Equipment Access Door

F. Prepare for the Removal

SUBTASK 24-41-12-860-001



REMOVE ELECTRICAL POWER BEFORE YOU REPLACE THE CIRCUIT BREAKERS IN THE POWER DISTRIBUTION PANELS. HIGH VOLTAGES CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

- (a) Make sure that all of the power warning lights, on the P92 panel, are off.

SUBTASK 24-41-12-930-002

- (2) Open this access panel:

Number	Name/Location
114AR	External Power Receptacle Door

SUBTASK 24-41-12-420-002

- (3) Attach a DO NOT OPERATE tag, STD-858, to external power receptacle.

EFFECTIVITY
LOM ALL

24-41-12



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-41-12-010-002

- (4) Open this access panel to get access to the main equipment center:

Number Name/Location

117A Electronic Equipment Access Door

G. External Power Contactor Removal

SUBTASK 24-41-12-020-001



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.



WARNING

MAKE SURE THAT ALL OF THE POWER WARNING LIGHTS ON THE POWER DISTRIBUTION PANEL ARE OFF. THERE ARE HIGH VOLTAGES IN THE POWER DISTRIBUTION PANEL THAT CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do these steps to remove the external power contactor [1]:

- (a) Open the P92 panel for access to the contactor [1].
- (b) Loosen the two screws and remove the electrical connector from the contactor [1].
- (c) Remove the bolts [2] and washers [3] that hold the contactor [1].
- (d) Remove the contactor [1].

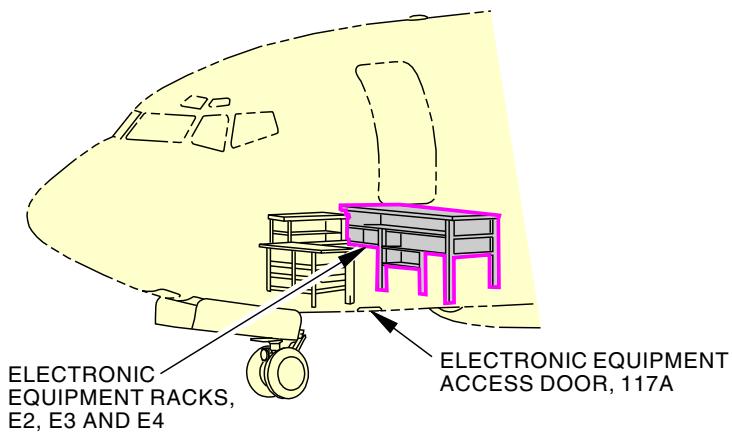
———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-12



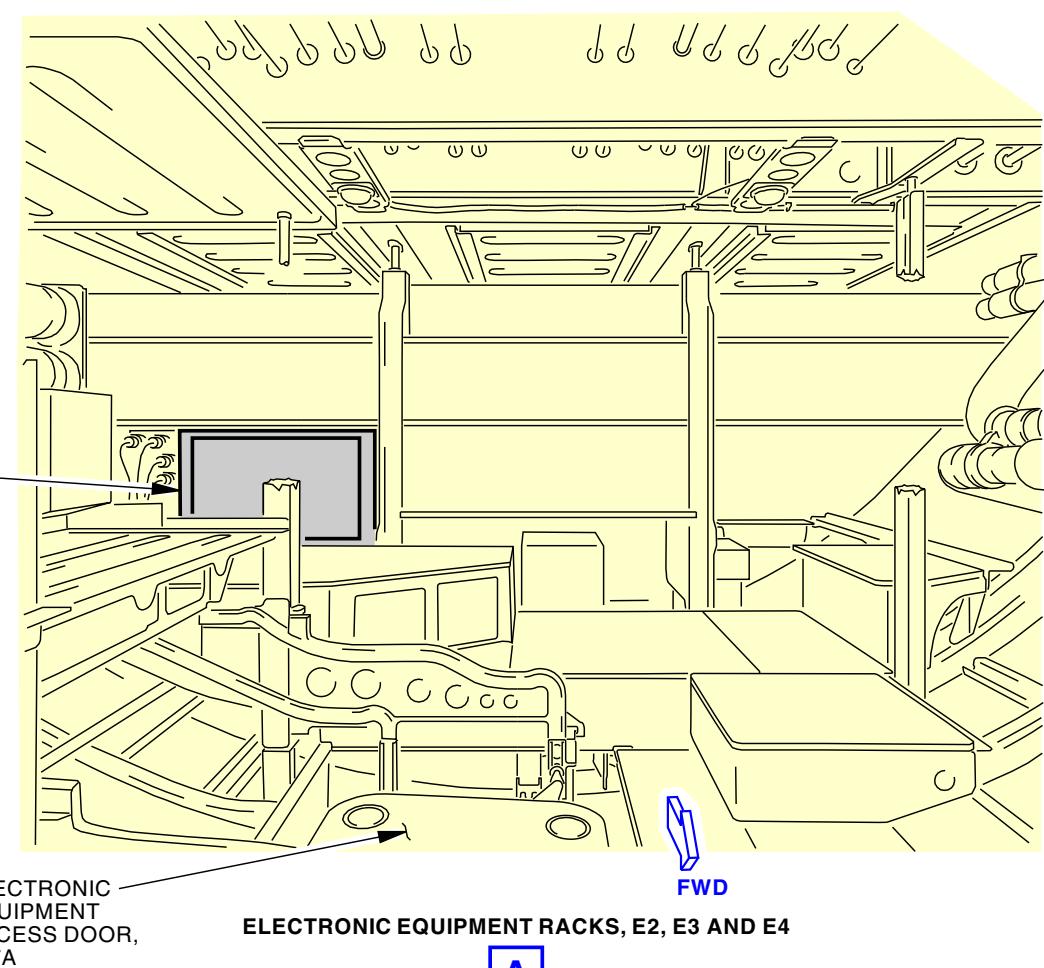
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A

POWER DISTRIBUTION PANEL 2, P92

B



A

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External Power Contactor Installation
Figure 401/24-41-12-990-801 (Sheet 1 of 2)

EFFECTIVITY
LOM ALL

24-41-12

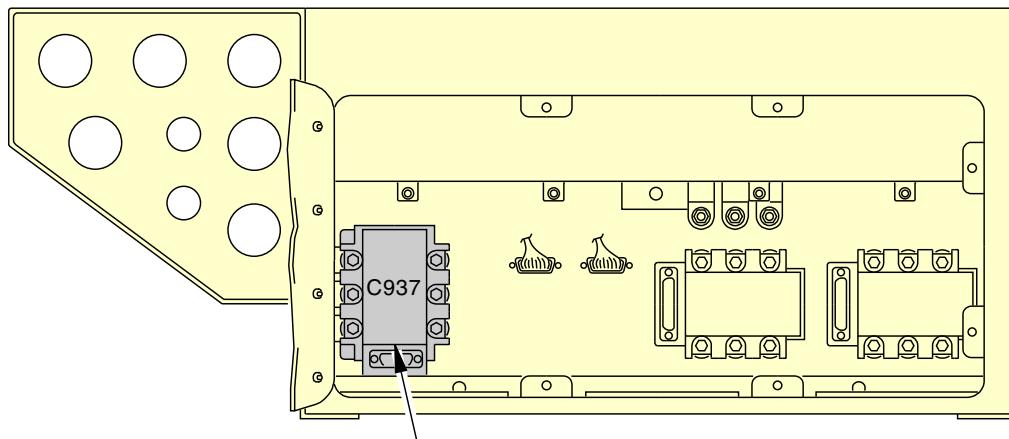
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ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 403
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



[1] EXTERNAL POWER
CONTACTOR

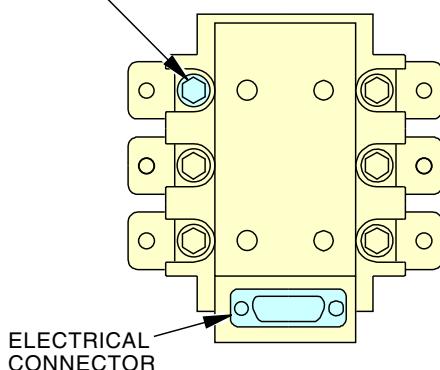
C

INBD

POWER DISTRIBUTION PANEL 2, P92

B

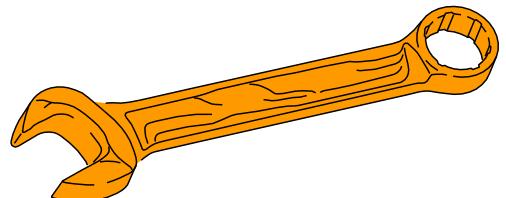
[2] BOLT
[3] WASHER
(6 LOCATIONS)



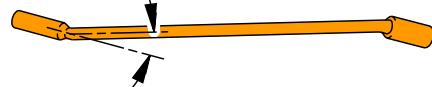
ELECTRICAL
CONNECTOR

INBD

C



APPROXIMATE 15°



5mm-WRENCH 1

- 1 USE 5mm-WRENCH TO HOLD THE SPACER NUTS IN PLACE WHILE
LOOSENING THE SCREWS ON THE ELECTRICAL CONNECTOR.
FAILURE TO USE WRENCH COULD RESULT IN DAMAGE TO HARDWARE.

F90313 S0006566416_V3

External Power Contactor Installation
Figure 401/24-41-12-990-801 (Sheet 2 of 2)

EFFECTIVITY
LOM ALL

24-41-12

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-41-12-400-801

3. External Power Contactor Installation

(Figure 401)

A. General

- (1) The External Power Contactor, C937 is located in the P92 power distribution panel.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Contactor	24-21-21-40-330	LOM 404, 406
		24-21-21-44D-546	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422
		24-21-21-44M-860	LOM 402, 404, 406
		24-21-21-47A-195	LOM 404, 407, 411, 412, 415, 416, 420, 422-425, 429, 433, 434, 437-447, 450-465
		24-21-21-48C-255	LOM ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

E. Access Panels

Number	Name/Location
114AR	External Power Receptacle Door
117A	Electronic Equipment Access Door

F. Prepare for the Installation

SUBTASK 24-41-12-860-002



WARNING REMOVE ELECTRICAL POWER BEFORE YOU REPLACE THE CIRCUIT BREAKERS IN THE POWER DISTRIBUTION PANELS. HIGH VOLTAGES CAN CAUSE INJURIES TO PERSONNEL.

- (1) Make sure that the electrical power is removed from airplane.

- (a) Make sure that all of the power warning lights, on the P92 panel, are off.

G. External Power Contactor Installation

SUBTASK 24-41-12-420-001



WARNING WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-41-12



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.



WARNING

MAKE SURE THAT ALL OF THE POWER WARNING LIGHTS ON THE POWER DISTRIBUTION PANEL ARE OFF. THERE ARE HIGH VOLTAGES IN THE POWER DISTRIBUTION PANEL THAT CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do these steps to install the external power contactor [1]:
 - (a) Hold the contactor [1] in place and install the bolts [2] and washers [3].
 - (b) Tighten the bolts [2] to 48 ± 4 in-lb (5 ± 1 N·m).
 - (c) Install the electrical connector on the contactor [1] and tighten the two screws on the connector.
 - (d) Close the access door on P92 panel.

SUBTASK 24-41-12-930-003

- (2) Remove the DO NOT OPERATE tag from the external power receptacle.

SUBTASK 24-41-12-010-001

- (3) Close this access panel:

Number Name/Location

114AR External Power Receptacle Door

H. External Power Contactor Installation Test

SUBTASK 24-41-12-700-001

- (1) Do a check of the external power contactor as follows:
 - (a) Connect an external power source to the external power receptacle on the P19 panel.
 - (b) Make sure that the EXTERNAL POWER CONNECTED and the NOT IN USE lights, on the P19 panel, come on.
 - (c) Make sure that the BAT switch, on the P5-13 panel, is in the ON position.
 - (d) Make sure that the GRD POWER AVAILABLE light, on the P5-4 panel, is on.
 - (e) Set the GRD PWR switch, on the P5-4 panel, to the ON position.
 - (f) Make sure that the GRD POWER AVAILABLE light remains on and that both TRANSFER BUS OFF lights, on the P5-4 panel, go off.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-41-12-410-001

- (1) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

EFFECTIVITY

LOM ALL

24-41-12



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 24-41-12-860-003

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

———— END OF TASK ————

— EFFECTIVITY —
LOM ALL

24-41-12



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AIRCRAFT MAINTENANCE MANUAL

BUS POWER CONTROL UNIT (BPCU) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the BPCU.
 - (2) An installation of the BPCU.

TASK 24-41-21-000-801

2. BPCU Removal

(Figure 401)

A. General

- (1) The BPCU, G15 is on the E4-2 equipment rack in the main equipment center.

B. 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)

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Removal

SUBTASK 24-41-21-010-001

- (1) Open this access panel to get access to the main equipment center:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-41-21-860-002

- (2) Make sure that the BAT switch on the P5-13 panel is set to the OFF position.

SUBTASK 24-41-21-860-003



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-41-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (3) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C00936	EXT PWR BPCU

F. Bus Power Control Unit Removal

SUBTASK 24-41-21-910-001



CAUTION

DO NOT TOUCH THE CONTROL UNIT BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CONTROL UNIT.

- (1) Before you touch the BPCU [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

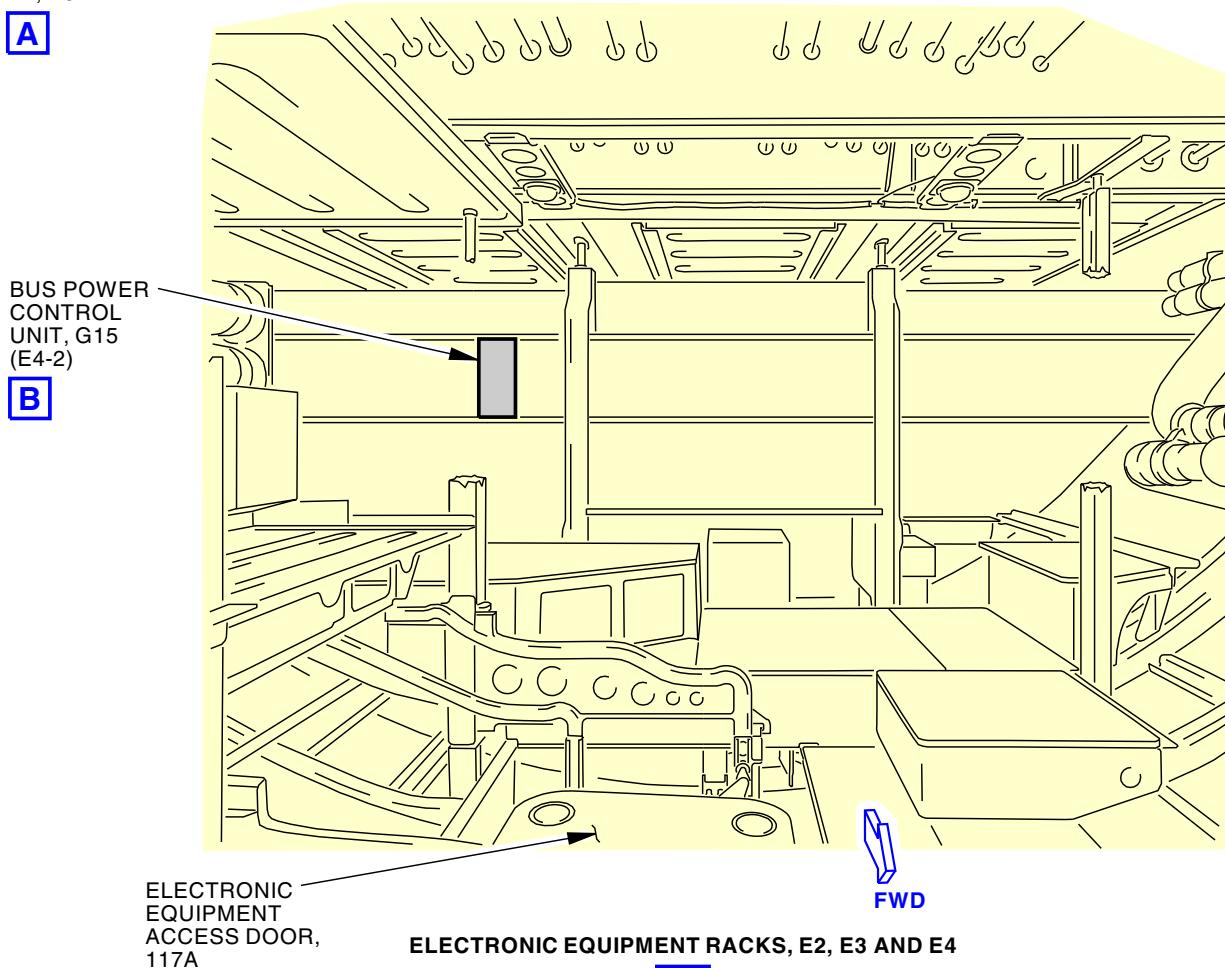
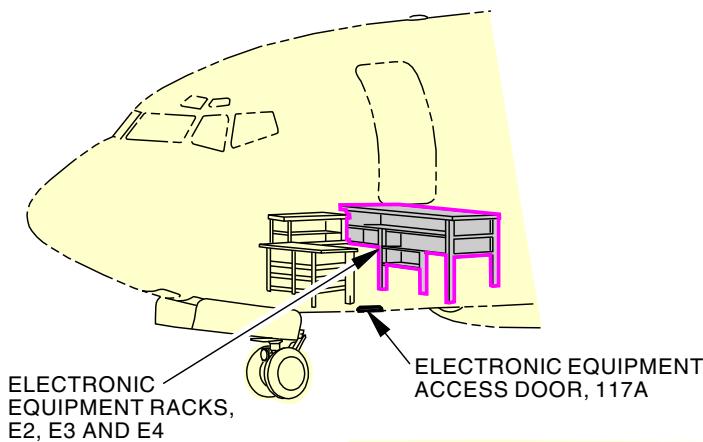
SUBTASK 24-41-21-020-001

- (2) To remove the BPCU [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-21



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Bus Power Control Unit (BPCU) Installation
Figure 401/24-41-21-990-801 (Sheet 1 of 2)

EFFECTIVITY
LOM ALL

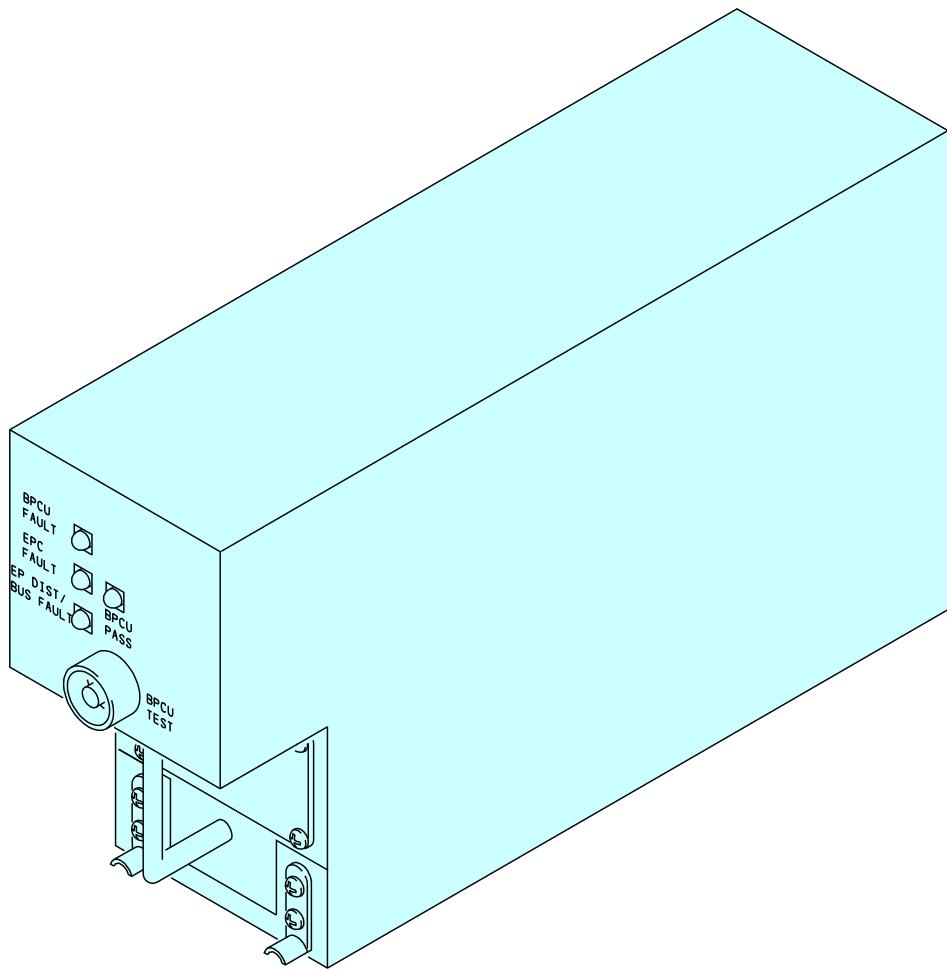
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737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



[1] BUS POWER CONTROL UNIT

B

F67237 S0006566422_V2

Bus Power Control Unit (BPCU) Installation
Figure 401/24-41-21-990-801 (Sheet 2 of 2)

EFFECTIVITY
LOM ALL

24-41-21

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

Page 404
Oct 15/2015



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-41-21-400-801

3. BPCU Installation

(Figure 401)

A. General

- (1) The BPCU, G15 is on the E4-2 equipment rack in the main equipment center.

B. 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)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	BPCU	24-41-21-02-005	LOM ALL

D. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. BPCU Installation

SUBTASK 24-41-21-010-002

- (1) Open this access panel if it is closed:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 24-41-21-910-002



DO NOT TOUCH THE CONTROL UNIT BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CONTROL UNIT.

- (2) Before you touch the BPCU [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 24-41-21-420-001

- (3) To install the BPCU [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 24-41-21-860-004



WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-41-21

Page 405
Feb 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

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

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	12	C00936	EXT PWR BPCU

G. BPCU Installation Test

SUBTASK 24-41-21-700-001

- (1) Do a test of the BPCU [1] as follows:

- Make sure that the STANDBY POWER switch on the P5-5 panel is set to the AUTO position.
- Set the BAT switch on the P5-13 panel to the ON position.
- Push the BPCU TEST switch on the BPCU [1] front panel for at least one second.
- Make sure that all four of the indicator lights on the BPCU [1] come on for approximately three seconds.
- Make sure that all four of the indicator lights on the BPCU [1] go off for approximately three seconds.
- Make sure that the green BPCU PASS light comes on for approximately seven seconds.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 24-41-21-410-002

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117A	Electronic Equipment Access Door

SUBTASK 24-41-21-860-006

- (2) Set the BAT switch on the P5-13 panel to the OFF position.

———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-41-21



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

LOAD SHED RELAY - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) A removal of the Load Shed Relay.
 - (2) An installation of the Load Shed Relay.

TASK 24-51-11-000-801

2. Load Shed Relay Removal

(Figure 401)

A. General

- (1) The load shed relays are installed in the rear part of the P91 and P92 panels. The relays are removed and installed through the forward bulkhead liners in the forward cargo area that provide access to the back of the P91 and P92 panels.
- (2) There is a minimum of one or a maximum of three, (depending on airplane configuration), load shed relays installed in each of the power distribution panels (P91 and P92). Refer to Wiring Diagrams WDM 24-51-11, WDM 24-51-21, and WDM 24-28-41.
- (3) Below is a list of the maximum number of load shed relays that could be installed in the P91 panel, there may be fewer:
 - (a) R561 - MAIN BUS 1
 - (b) R605 - GALLEY D
 - (c) R606 - GALLEY C
- (4) Below is a list of the maximum number of load shed relays that could be installed in the P92 panel, there may be fewer:
 - (a) R562 - MAIN BUS 2
 - (b) R603 - GALLEY A
 - (c) R604 - GALLEY B

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
WDM 24-28-41	Wiring Diagram Manual
WDM 24-51-11	Wiring Diagram Manual
WDM 24-51-21	Wiring Diagram Manual

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

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door



24-51-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

E. Prepare for the Removal

SUBTASK 24-51-11-860-001



WARNING

REMOVE ELECTRICAL POWER BEFORE YOU REMOVE OR INSTALL COMPONENTS IN THE POWER DISTRIBUTION PANELS. THERE ARE HIGH VOLTAGES THAT CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-51-11-010-001

- (2) Get access to the forward cargo area through the forward cargo door.
 - (a) Remove the applicable forward bulkhead liner to get access to the back of the power distribution panel.

SUBTASK 24-51-11-010-002

- (3) To get access to the P91 and P92 panels, open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

F. Load Shed Relay Removal

SUBTASK 24-51-11-020-001



WARNING

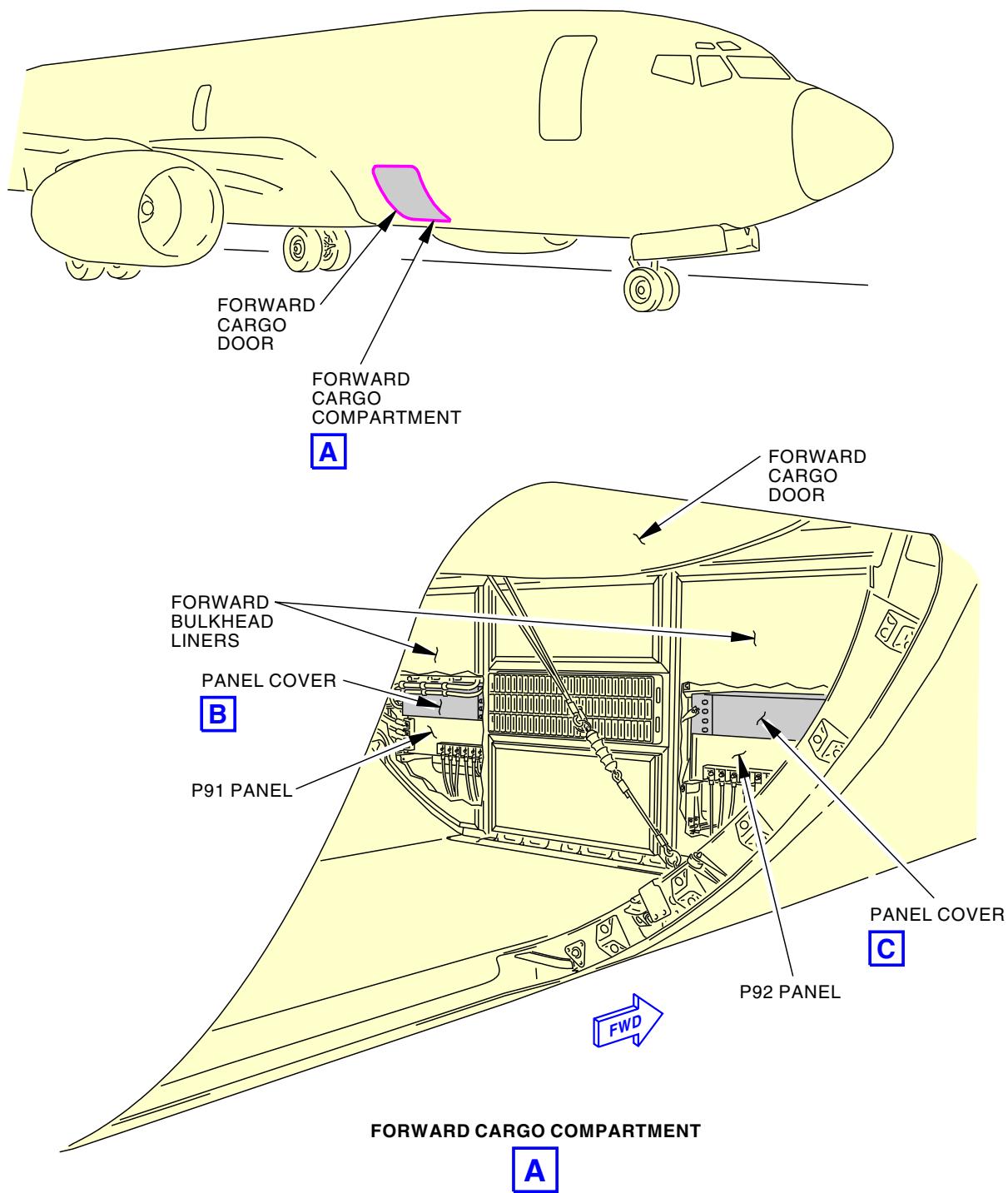
MAKE SURE THAT ALL OF THE POWER WARNING LIGHTS ON THE POWER DISTRIBUTION PANEL ARE OFF. THERE ARE HIGH VOLTAGES IN THE POWER DISTRIBUTION PANEL THAT CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do these steps to remove the relay [1]:
 - (a) Make sure that all of the power warning lights on the power distribution panel are off.
 - (b) Remove the panel cover on the rear of the power distribution panel to get access to the load shed relay.
 - (c) Remove the two screws [2] that hold the terminal cover [3].
 - (d) Remove the terminal cover [3].
 - (e) Identify and tag the wires before removing them.
 - (f) Remove the nut [6] and lockwasher [7] from each electrical wire.
 - (g) Remove the electrical wires.
 - (h) Remove the four nuts [4] and washers [5] that hold the relay to the power distribution panel.
 - (i) Remove the relay [1].

———— END OF TASK ————

———— EFFECTIVITY ————
LOM ALL

24-51-11



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**Load Shed Relay Installation
Figure 401/24-51-11-990-801 (Sheet 1 of 3)**

 EFFECTIVITY
LOM ALL

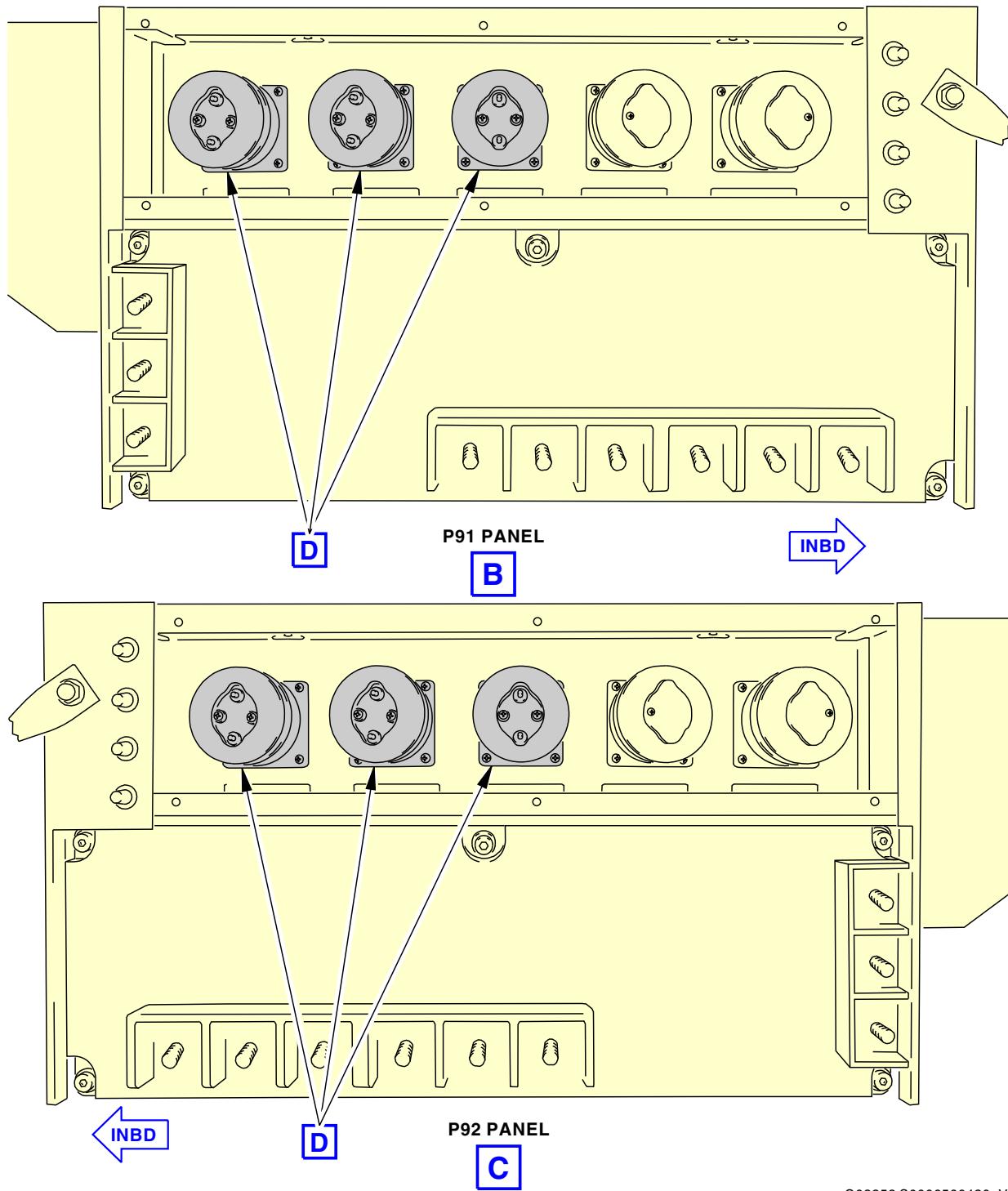
24-51-11

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ECCN 9E991 BOEING PROPRIETARY - See title page for details



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL



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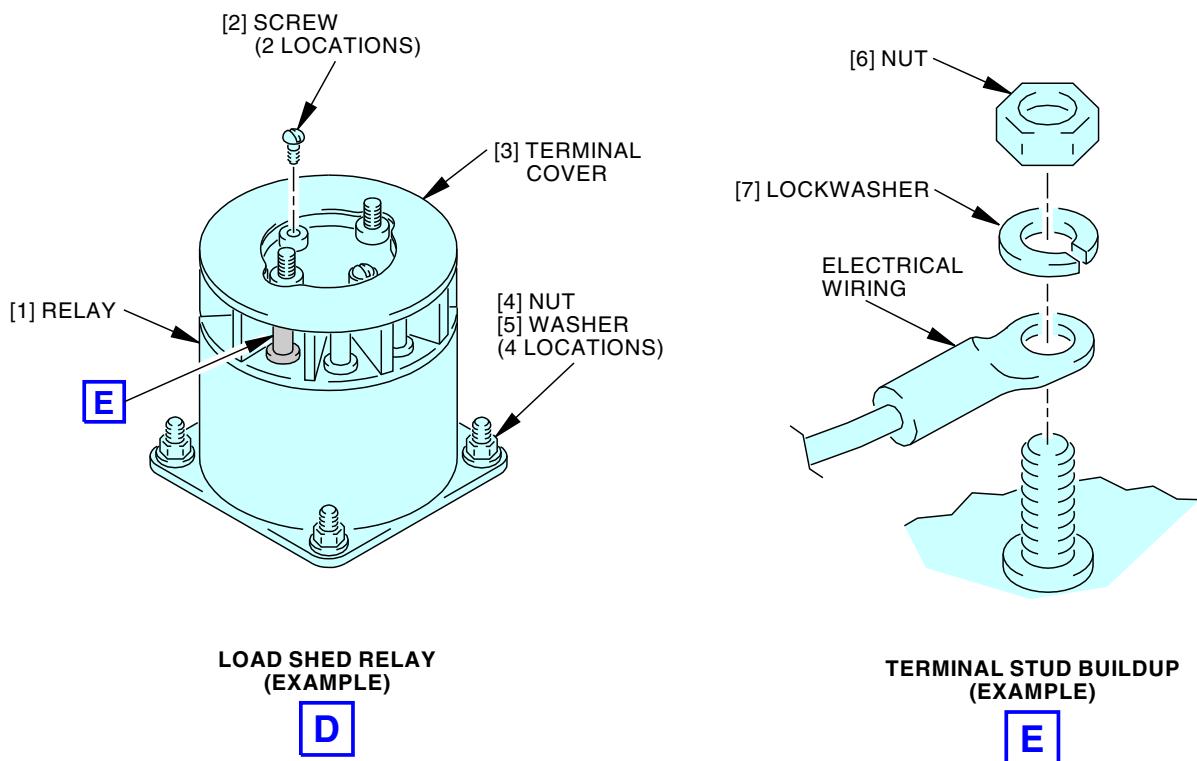
Load Shed Relay Installation
Figure 401/24-51-11-990-801 (Sheet 2 of 3)

EFFECTIVITY
LOM ALL

24-51-11

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ECCN 9E991 BOEING PROPRIETARY - See title page for details



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Load Shed Relay Installation
Figure 401/24-51-11-990-801 (Sheet 3 of 3)

EFFECTIVITY
 LOM ALL

D633A101-LOM

24-51-11

 Page 405
 Jun 15/2021



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-51-11-400-801

3. Load Shed Relay Installation

(Figure 401)

A. General

- (1) The load shed relays are installed in the rear part of the P91 and P92 panels. The relays are removed and installed through the forward bulkhead liners in the forward cargo area that provide access to the back of the P91 and P92 panels.
- (2) There is a minimum of one or a maximum of three, (depending on airplane configuration), load shed relays installed in each of the power distribution panels (P91 and P92). Refer to Wiring Diagrams WDM 24-51-11, WDM 24-51-21, and WDM 24-28-41.
- (3) Below is a list of the maximum number of load shed relays that could be installed in the P91 panel, there may be fewer:
 - (a) R561 - MAIN BUS 1
 - (b) R605 - GALLEY D
 - (c) R606 - GALLEY C
- (4) Below is a list of the maximum number of load shed relays that could be installed in the P92 panel, there may be fewer:
 - (a) R562 - MAIN BUS 2
 - (b) R603 - GALLEY A
 - (c) R604 - GALLEY B

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
WDM 24-28-41	Wiring Diagram Manual
WDM 24-51-11	Wiring Diagram Manual
WDM 24-51-21	Wiring Diagram Manual

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Relay	24-21-21-20A-005	LOM 404
		24-21-21-20A-230	LOM 404
		24-21-21-20A-235	LOM 404
		24-21-21-40-040	LOM 404, 406
		24-21-21-40-515	LOM 404, 406
		24-21-21-41B-035	LOM 407
		24-21-21-41B-345	LOM 407
		24-21-21-41C-065	LOM 404, 407, 411, 412, 415, 416, 420, 422
		24-21-21-41C-214	LOM 404, 407, 411, 412, 415, 416, 420, 422
		24-21-21-41G-015	LOM 402, 406
		24-21-21-41G-270	LOM 402, 406



24-51-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
1 (cont.)		24-21-21-44D-019	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422
		24-21-21-44D-196	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422
		24-21-21-44M-010	LOM 402, 404, 406
		24-21-21-44M-275	LOM 402, 404, 406
		24-21-21-47A-035	LOM 404, 407, 411, 412, 415, 416, 420, 422-425, 429, 433, 434, 437-447, 450-465
		24-21-21-47A-390	LOM 404, 407, 411, 412, 415, 416, 420, 422-425, 429, 433, 434, 437-447, 450-465
		24-21-21-47B-025	LOM 426-428, 430-432, 466-999
		24-21-21-47B-415	LOM 426-428, 430-432, 466-999
		24-21-21-48C-035	LOM ALL
		24-21-21-48C-470	LOM ALL

D. 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

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Installation

SUBTASK 24-51-11-860-002



REMOVE ELECTRICAL POWER BEFORE YOU REMOVE OR INSTALL COMPONENTS IN THE POWER DISTRIBUTION PANELS. THERE ARE HIGH VOLTAGES THAT CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Make sure that electrical power is removed.

SUBTASK 24-51-11-010-003

- (2) To get access to the P91 and P92 panels, open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

EFFECTIVITY
LOM ALL

24-51-11

Page 407
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

G. Load Shed Relay Installation

SUBTASK 24-51-11-420-001



WARNING

MAKE SURE THAT ALL OF THE POWER WARNING LIGHTS ON THE POWER DISTRIBUTION PANEL ARE OFF. THERE ARE HIGH VOLTAGES IN THE POWER DISTRIBUTION PANEL THAT CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do these steps to install the relay [1]:

- (a) Make sure that all of the power warning lights on the power distribution panel are off.
- (b) Put the relay [1] in position.
- (c) Install the four nuts [4] and washers [5] that hold the relay to the power distribution panel.
- (d) Install the electrical wires on lower terminal studs as specified by the identification tags.
- (e) Install the nut [6] and lockwasher [7] on each electrical wire.
- (f) Remove the identification tags from the wires.
- (g) Install the terminal cover [3].
- (h) Install the two screws [2] that hold the terminal cover.
- (i) Install the top panel on the rear of the power distribution panel.

H. Load Shed Relay Installation Test

SUBTASK 24-51-11-710-001



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (1) If the MAIN BUS 1 or MAIN BUS 2 load shed relay was replaced, test the relay per the steps that follow:
- (a) Do this task: Supply External Power, TASK 24-22-00-860-813.
 - (b) Reference the wiring diagram listed below to find an electrical load for the load shed relay that was replaced:
NOTE: Choose a load that is easy to verify if power is being supplied or removed.
 - 1) WDM 24-51-11
 - 2) WDM 24-51-21
 - (c) Make sure that the applicable load is being supplied power.
 - (d) If the MAIN BUS 1 load shed relay was replaced in the P91 panel.

EFFECTIVITY
LOM ALL

24-51-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- 1) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01288	GEN 1 LOAD SHED

- (e) If the MAIN BUS 2 load shed relay was replaced in the P92 panel.

- 1) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01289	GEN 2 LOAD SHED

- (f) Make sure that power is removed from the applicable load.

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01288	GEN 1 LOAD SHED

- 2) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	7	C01289	GEN 2 LOAD SHED

SUBTASK 24-51-11-410-002

- (2) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 24-51-11-710-002

- (3) If a GALLEY BUS load shed relay was replaced, test the relay per the steps that follow:

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

- (b) Set the GALLEY switch on the P5-13 panel to the ON position.

NOTE: On some airplanes, the switch name is CAB/UTIL.

- (c) Make sure that the applicable galley is being supplied power.

NOTE: There may be a power switch on the galley module that needs to be set to the ON position also.

- (d) Set the GALLEY switch on the P5-13 panel to the OFF position.

NOTE: On some airplanes, the switch name is CAB/UTIL.

- (e) Make sure that power is removed from the applicable galley.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-51-11-410-001

- (1) Install the forward bulkhead liner.

SUBTASK 24-51-11-860-003

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————



24-51-11



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

28-VOLT AC TRANSFORMER - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) A removal of the 28-Volt AC Transformer.
 - (2) An installation of the 28-Volt AC Transformer.

TASK 24-52-01-000-801

2. 28-Volt AC Transformer Removal

Figure 401

A. General

- (1) The 28-Volt AC Transformer is installed in the P18 Circuit Breaker Panel. Refer to WDM 24-53-11.

B. References

Reference	Title
WDM 24-53-11	Wiring Diagram Manual

C. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left

D. Prepare for Removal

SUBTASK 24-52-01-860-001

- (1) Before you remove the transformer [1], do this step:
 - (a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	5	C02046	28V AC XFR BUS 1 SECT 2

SUBTASK 24-52-01-010-001

- (2) Open the P18 Circuit Breaker Panel to access the transformer [1].

E. 28-Volt AC Transformer Removal

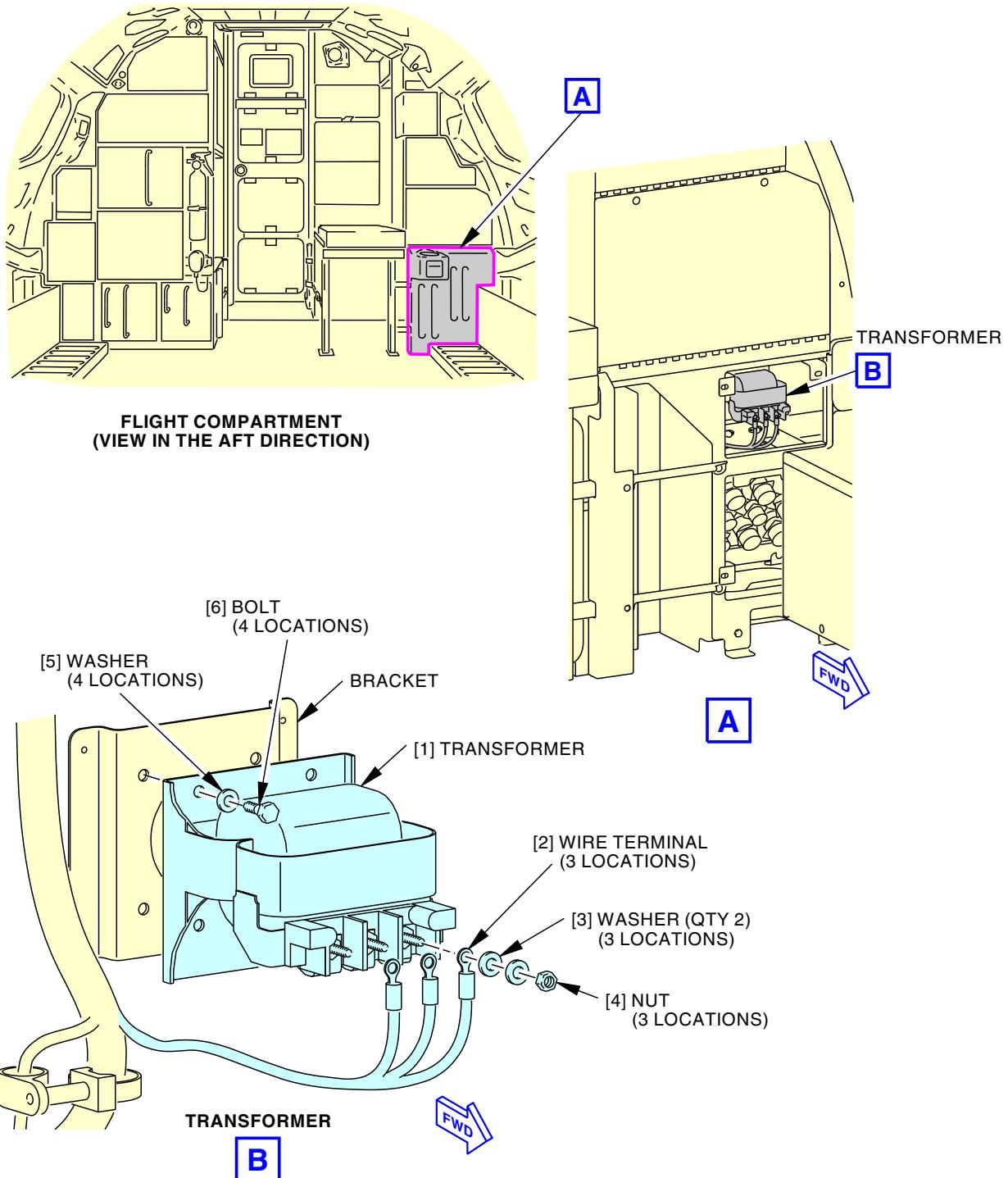
SUBTASK 24-52-01-020-001

- (1) Do these steps to disconnect the electrical leads from the transformer [1]:
 - (a) Remove the nuts [4] and the washers [3] that attach the electrical leads to the transformer [1].
 - (b) Attach an identification tag to each electrical lead.
 - (c) Remove the electrical leads from the transformer [1].
 - (d) Remove the four bolts [6] and the washers [5] that attach the transformer [1] to the panel.
 - (e) Remove the transformer [1].

———— END OF TASK ————

— EFFECTIVITY —
LOM ALL

24-52-01



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28-Volt AC Transformer Installation
Figure 401/24-52-01-990-801

 EFFECTIVITY
 LOM ALL

24-52-01



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-52-01-400-801

3. 28-Volt AC Transformer Installation

Figure 401

A. General

- (1) The 28-Volt AC Transformer is installed in the P18 Circuit Breaker Panel. Refer to WDM 24-53-11.

B. References

Reference	Title
WDM 24-53-11	Wiring Diagram Manual

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Transformer	24-52-00-11A-005 31-11-98-11A-065	LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-434, 437-447, 450-464 LOM ALL

D. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left

E. Install the 28-Volt AC Transformer

SUBTASK 24-52-01-420-001

- (1) Install the transformer [1]:
- Put the transformer [1] in its position on the panel.
 - Install the four bolts [6] and the washers [5] that attach the transformer to the panel.
 - Tighten the bolts [6].

SUBTASK 24-52-01-420-002

- (2) Connect the electrical leads:
- Remove the nuts [4] and the washers [3] from the terminal studs on the transformer [1].
 - Connect the electrical leads to the terminal studs on the terminal.
 - Install the washers [3] and nuts [4] on the terminal studs.
 - Tighten the nuts [4].
 - Remove the identification tags from the electrical leads.

SUBTASK 24-52-01-410-001

- (3) Close the P18 circuit breaker panel.

SUBTASK 24-52-01-860-002

- (4) Close the applicable circuit breaker:

Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	5	C02046	28V AC XFR BUS 1 SECT 2

EFFECTIVITY			
LOM ALL			

24-52-01



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

F. Installation Test of the 28-Volt AC Transformer

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426

SUBTASK 24-52-01-710-002

- (1) Do a test of the Passenger Cabin Signs:

- (a) Make sure the no-smoking symbol comes on when electrical power is supplied.
- (b) At the pilots overhead panel, P5, set the switch for the seat belts to the on mode.
NOTE: The switch for the no-smoking signs does not operate.
 - 1) Make sure the fasten-seat-belt symbol comes on.
- (c) Set the fasten-seat-belt switch to the off mode.
 - 1) Make sure the fasten-seat-belt symbol goes off.
- (d) Make sure the no-smoking symbol stays on.

LOM 427-434, 437-447, 450-999

SUBTASK 24-52-01-710-003

- (2) Do a test of each lavatory-occupied sign:

NOTE: Use two people to do this part of the test.

- (a) Make sure the lights behind the occupied symbol are off.
- (b) Go in the lavatory and lock the door.

NOTE: For airplane with multiple lavatories in the aft cabin, the lavatory-occupied sign comes on when all lavatories in the aft cabin are locked.

- 1) Make sure the lights behind the occupied symbol come on.
- (c) Leave the lavatory and close the lavatory door.
 - 1) Make sure the lights behind the occupied symbol go off.

LOM 402, 404, 406, 407, 411, 412, 415, 416, 420, 422-426

SUBTASK 24-52-01-710-004

- (3) Do a test of each lavatory-occupied sign:

NOTE: Use two people to do this part of the test.

- (a) Make sure lamps behind the lavatory symbol are on.

NOTE: The lamps come on when electrical power is supplied to the airplane.

- (b) Make sure the lamps behind the occupied symbol are off.
- (c) Go in the lavatory and lock the door.
 - 1) Make sure the lamps behind the occupied symbol come on.
- (d) Leave the lavatory and close the lavatory door.
 - 1) Make sure the lamps behind the occupied symbol go off.
 - 2) Make sure the lamps behind the lavatory symbol stay on.

LOM ALL

SUBTASK 24-52-01-860-003

- (4) Put the airplane back to its usual condition.

— END OF TASK —

EFFECTIVITY
LOM ALL

24-52-01



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CROSS BUS TIE RELAY - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) A removal of the Cross Bus Tie Relay.
 - (2) An installation of the Cross Bus Tie Relay.

TASK 24-61-01-000-801

2. Cross Bus Tie Relay Removal

(Figure 401)

A. General

- (1) The cross bus tie relay is installed in the rear part of the P91 panel. The rear access of the P91 panel is through the forward bulkhead liner in the forward cargo area. Refer to Wire Diagram: WDM 24-61-11.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
25-52-16-000-801	Forward Cargo Compartment Forward Bulkhead Liner - Removal (P/B 401)
WDM 24-61-11	Wiring Diagram Manual

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
121	Forward Cargo Compartment - Left

D. Access Panels

Number	Name/Location
821	Forward Cargo Door

E. Prepare for Removal

SUBTASK 24-61-01-860-001



REMOVE ELECTRICAL POWER BEFORE YOU REMOVE OR INSTALL COMPONENTS IN THE POWER DISTRIBUTION PANELS. THERE ARE HIGH VOLTAGES THAT CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 24-61-01-860-005

- (2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
E	11	C01397	ELECTRICAL TR3 XFR RELAY CONT

SUBTASK 24-61-01-010-001

- (3) Open this access panel:

Number **Name/Location**

821 Forward Cargo Door

EFFECTIVITY
LOM ALL

24-61-01

Page 401
Jun 15/2021



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

- (a) Remove the applicable forward bulkhead liner to get access to the P91 panel rear (TASK 25-52-16-000-801).

F. Removal of the Cross Bus Tie Relay

SUBTASK 24-61-01-020-001

- (1) Do these steps to remove the relay [1]:



WARNING MAKE SURE THAT ALL OF THE POWER WARNING LIGHTS ON THE POWER DISTRIBUTION PANEL ARE OFF. THERE ARE HIGH VOLTAGES IN THE POWER DISTRIBUTION PANEL THAT CAN CAUSE INJURIES TO PERSONNEL.

- (a) Make sure that all of the power warning lights on the power distribution panel are off.
- (b) Remove the panel cover on the rear of the power distribution panel to get access to the cross bus tie relay.
- (c) Remove the two screws [2] that hold the terminal cover [3].
- (d) If the terminal cover [3] is installed, remove it.
- (e) Identify and tag the wires before the removal.
- (f) Remove the nut [6] and lock washer [7] from each electrical wire.
- (g) Remove the electrical wires.
- (h) Remove the four nuts [4] and washers [5] that hold the relay to the power distribution panel.
- (i) Remove the relay [1].

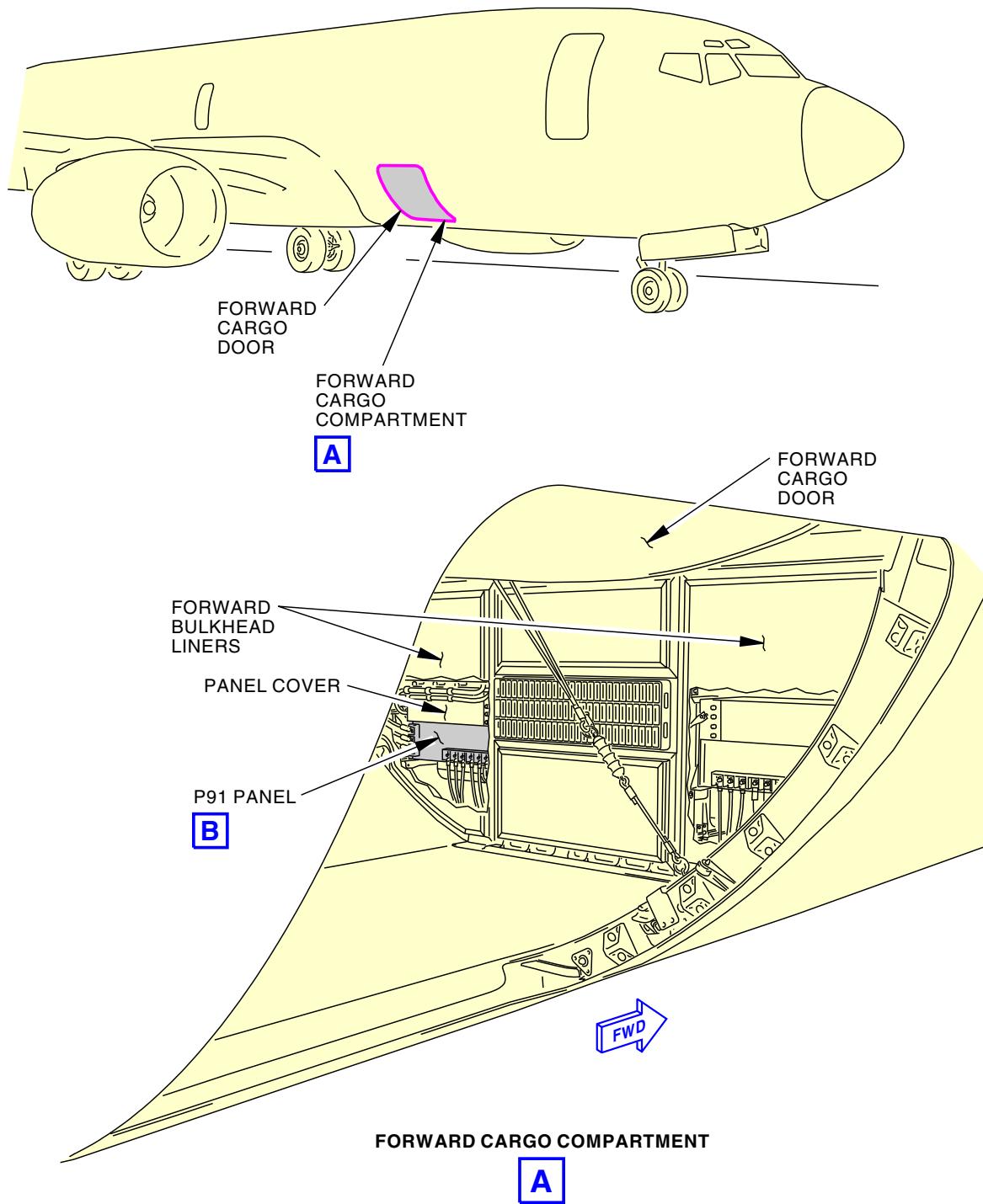
———— END OF TASK ————

EFFECTIVITY
LOM ALL

24-61-01

BOEING

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AIRCRAFT MAINTENANCE MANUAL**



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**Cross Bus Tie Relay Installation
Figure 401/24-61-01-990-801 (Sheet 1 of 2)**

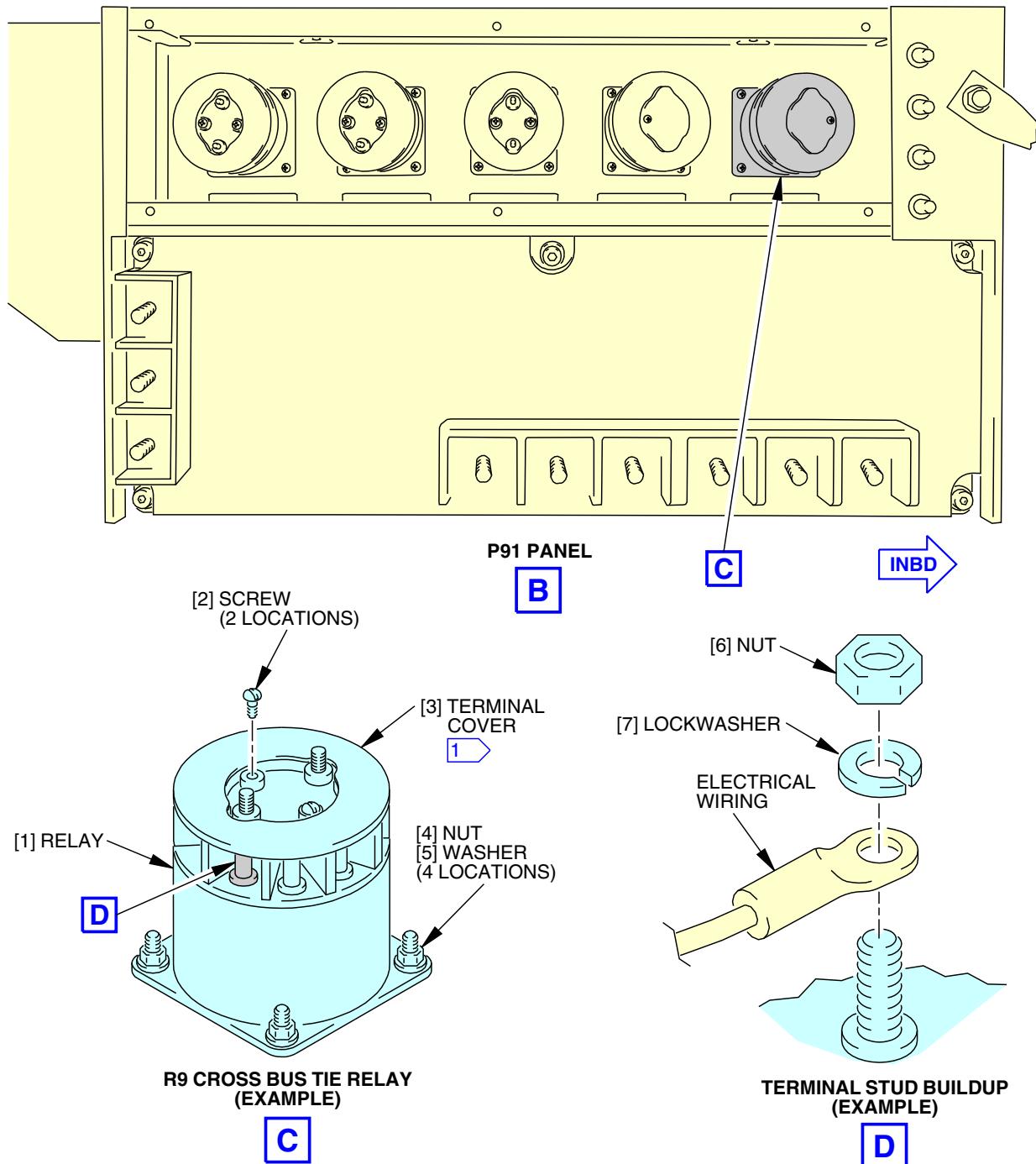
EFFECTIVITY
LOM ALL

24-61-01

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Page 403
Oct 15/2015



1 TERMINAL COVER IS NOT REQUIRED TO BE INSTALLED ON THE RELAY P/N SD167A.

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Cross Bus Tie Relay Installation
Figure 401/24-61-01-990-801 (Sheet 2 of 2)

EFFECTIVITY
LOM ALL

D633A101-LOM

ECCN 9E991 BOEING PROPRIETARY - See title page for details

24-61-01

Page 404
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

TASK 24-61-01-400-801

3. Cross Bus Tie Relay Installation

(Figure 401)

A. General

- (1) The cross bus tie relay is installed in the rear part of the P91 panel. The rear access of the P91 panel is through the forward bulkhead liner in the forward cargo area. Refer to Wire Diagram: WDM 24-32-11.

B. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
24-22-00-860-813	Supply External Power (P/B 201)
25-52-16-400-801	Forward Cargo Compartment Forward Bulkhead Liner - Installation (P/B 401)
WDM 24-32-11	Wiring Diagram Manual

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Relay	24-21-21-20A-240	LOM 404
		24-21-21-41B-355	LOM 407
		24-21-21-41C-217	LOM 404, 407, 411, 412, 415, 416, 420, 422
		24-21-21-41G-280	LOM 402, 406
		24-21-21-47A-400	LOM 404, 407, 411, 412, 415, 416, 420, 422-425, 429, 433, 434, 437-447, 450-465
		24-21-21-47B-425	LOM 426-428, 430-432, 466-999

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
121	Forward Cargo Compartment - Left

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for Installation

SUBTASK 24-61-01-860-002



REMOVE ELECTRICAL POWER BEFORE YOU REMOVE OR INSTALL COMPONENTS IN THE POWER DISTRIBUTION PANELS. THERE ARE HIGH VOLTAGES THAT CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (1) Make sure that electrical power is removed (TASK 24-22-00-860-812).

EFFECTIVITY
LOM ALL

24-61-01

Page 405
Oct 15/2024



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

G. Installation of the Cross Bus Tie Relay

SUBTASK 24-61-01-420-001

- (1) Do these steps to install the relay [1]:



WARNING MAKE SURE THAT ALL OF THE POWER WARNING LIGHTS ON THE POWER DISTRIBUTION PANEL ARE OFF. THERE ARE HIGH VOLTAGES IN THE POWER DISTRIBUTION PANEL THAT CAN CAUSE INJURIES TO PERSONNEL.

- (a) Make sure that all of the power warning lights, on the power distribution panel, are off.
- (b) Put the relay [1] in its position.
- (c) Install the nuts [4] and washers [5] that hold the relay to the power distribution panel.
- (d) Install the electrical wires on lower terminal studs as specified by the identification tags.
- (e) Install the nut [6] and lock washer [7] on each electrical wire.
- (f) Remove the identification tags from the wires.
- (g) If the terminal cover [3] was removed, install it.
- (h) Install the screws [2] that hold the terminal cover.
- (i) Install the top panel on the rear of the power distribution panel.

H. Cross Bus Tie Relay Installation Test

SUBTASK 24-61-01-860-006

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

F/O Electrical System Panel, P6-4

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	11	C01397	ELECTRICAL TR3 XFR RELAY CONT

SUBTASK 24-61-01-860-003

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

SUBTASK 24-61-01-710-002

- (3) Do a check of the DC Bus Tie Relay as follows:

- (a) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.
- (b) Make sure that the BUS TRANS switch, on the P5-4 panel, is set to the AUTO position.
- (c) Set the DC meter selector switch, on the P5-13 panel, to the TR 1 position.
- (d) Make sure that the DC meter, on the P5-13 panel, shows this value:
 - 1) DC VOLTS = 22-30.

- (e) Open this access panel:

Number Name/Location

117A Electronic Equipment Access Door



WARNING WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

EFFECTIVITY
LOM ALL

24-61-01



737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

(WARNING PRECEDES)



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

- (f) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00806	TRU 1

- (g) Make sure that the DC meter, on the P5-13 panel, shows these values:

- 1) DC VOLTS = 22-30
- 2) DC AMPS = 0.

- (h) Make sure that the TR UNIT light, on the P5-13 panel, comes on.

- (i) Set the BUS TRANS switch, on the P5-4 panel, to the OFF position.

- (j) Make sure that the DC meter, on the P5-13 panel, shows these values:

- 1) DC VOLTS = 0
- 2) DC AMPS = 0.

- (k) Set the BUS TRANS switch, on the P5-4 panel, to the AUTO position.

- (l) Make sure that the DC meter, on the P5-13 panel, shows these values:

- 1) DC VOLTS = 22-30
- 2) DC AMPS = 0.



WARNING

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



WARNING

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

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

Power Distribution Panel Number 1, P91

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	6	C00806	TRU 1

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24-61-01



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- (n) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

- (o) Make sure that the TR UNIT light, on the P5-13 panel, goes off.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 24-61-01-410-001

- (1) Install the forward bulkhead liner (TASK 25-52-16-400-801).

———— END OF TASK ————

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24-61-01

Page 408
Oct 15/2023

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