

CHAPTER

31

**INDICATING/
RECORDING
SYSTEMS**



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545	Feb 15/2015		401	Feb 15/2015	R	201	Jun 15/2016	
546	Jun 15/2015		402	Oct 15/2014	R	202	Jun 15/2016	
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552	Feb 15/2015		401	Oct 15/2014		403	Jun 15/2015	
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408	Feb 15/2016		407	Oct 15/2015		31-31-52		
409	Jun 15/2015		408	Feb 15/2015		401	Oct 15/2014	
410	Feb 15/2016		409	Oct 15/2014		402	Oct 15/2014	
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401	Oct 15/2014		O 510	Jun 15/2016		404	Oct 15/2015	
402	Oct 15/2015		O 511	Jun 15/2016		405	Oct 15/2015	
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406	Jun 15/2015		R 515	Jun 15/2016		409	Oct 15/2014	
407	Jun 15/2015		O 516	Jun 15/2016		410	BLANK	
408	Jun 15/2015		O 517	Jun 15/2016		31-51-02		
31-33-01			O 518	Jun 15/2016		501	Feb 15/2015	
201	Feb 15/2015		O 519	Jun 15/2016		502	Oct 15/2014	
202	Feb 15/2015		O 520	Jun 15/2016		503	Oct 15/2014	
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302	Jun 15/2015		O 523	Jun 15/2016		506	Feb 15/2016	
303	Oct 15/2015		O 524	Jun 15/2016		507	Jun 15/2015	
304	BLANK		O 525	Jun 15/2016		508	Jun 15/2015	
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401	Oct 15/2014	31-51-01				510	BLANK	
402	Oct 15/2015		401	Oct 15/2014		31-51-03		
403	Jun 15/2015		402	Feb 15/2015		401	Oct 15/2015	
404	Jun 15/2015		403	Feb 15/2015		402	Oct 15/2015	
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502	Oct 15/2014		404	Jun 15/2015		223	Jun 15/2015	
503	Oct 15/2014		405	Jun 15/2015		224	BLANK	
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<u>CLOCKS - REMOVAL/INSTALLATION</u>	31-25-11		401	AKS ALL
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<u>RUDDER PEDAL POSITION SENSOR - REMOVAL/INSTALLATION</u>	31-31-42				401	AKS ALL
Rudder Pedal Position Sensor Removal TASK 31-31-42-000-801					401	AKS ALL
Rudder Pedal Position Sensor Installation TASK 31-31-42-400-801					408	AKS ALL
Rudder Pedal Position Sensor Installation Test TASK 31-31-42-700-801					410	AKS ALL
<u>RUDDER PEDAL FORCE TRANSMITTER ROD - REMOVAL/INSTALLATION</u>	31-31-43				401	AKS ALL
Rudder Pedal Force Transmitter Rod Removal TASK 31-31-43-000-801					401	AKS ALL
Rudder Pedal Force Transmitter Rod Installation TASK 31-31-43-400-801					407	AKS ALL
Rudder Pedal Force Transmitter Installation Test TASK 31-31-43-700-801					408	AKS ALL

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<u>ELEVATOR POSITION TRANSMITTER - REMOVAL/INSTALLATION</u>	31-31-51				401	AKS ALL
Elevator Position Transmitter Removal TASK 31-31-51-000-801					401	AKS ALL
Elevator Position Transmitter Installation TASK 31-31-51-400-801					406	AKS ALL
Elevator Position Transmitter Installation Test TASK 31-31-51-700-801					407	AKS ALL
<u>CONTROL COLUMN POSITION SENSOR - REMOVAL/INSTALLATION</u>	31-31-52				401	AKS ALL
Control Column Position Sensor Removal TASK 31-31-52-000-801					401	AKS ALL
Control Column Position Sensor Installation TASK 31-31-52-400-801					405	AKS ALL
Control Column Position Sensor Installation Test TASK 31-31-52-820-801					406	AKS ALL
<u>BRAKE PRESSURE TRANSMITTER - REMOVAL/INSTALLATION</u>	31-31-61				401	AKS ALL
Brake Pressure Transmitter Removal TASK 31-31-61-000-801					401	AKS ALL
Brake Pressure Transmitter Installation TASK 31-31-61-400-801					405	AKS ALL
Brake Pressure Transmitter Installation Test TASK 31-31-61-820-801					407	AKS ALL
<u>FLIGHT DATA RECORDER ACCELEROMETER - REMOVAL/INSTALLATION</u>	31-31-81				401	AKS ALL
Flight Data Recorder Accelerometer Removal TASK 31-31-81-000-801					401	AKS ALL
Flight Data Recorder Accelerometer Installation TASK 31-31-81-400-801					403	AKS ALL
<u>PRINTER - MAINTENANCE PRACTICES</u>	31-33-01				201	AKS ALL
Printer - Deactivation TASK 31-33-01-040-801					201	AKS ALL

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Printer - Activation TASK 31-33-01-440-801					201	AKS ALL
PRINTER - SERVICING			31-33-01		301	AKS ALL
Printer Paper Installation TASK 31-33-01-400-802					301	AKS ALL
PRINTER - REMOVAL/INSTALLATION			31-33-01		401	AKS ALL
Printer Removal TASK 31-33-01-000-801					401	AKS ALL
Printer Installation TASK 31-33-01-400-801					403	AKS ALL
AURAL WARNING SYSTEM - MAINTENANCE PRACTICES	31-51-00				201	AKS ALL
Aural Warning System - Deactivation TASK 31-51-00-040-801					201	AKS ALL
Aural Warning System - Activation TASK 31-51-00-440-801					204	AKS ALL
AURAL WARNING SYSTEM - ADJUSTMENT/TEST	31-51-00				501	AKS ALL
Aural Warning Module BITE Test TASK 31-51-00-740-801					501	AKS ALL
Aural Warning System - System Test TASK 31-51-00-730-801					502	AKS ALL
Landing Warning System Test TASK 31-51-00-730-802					502	AKS ALL
Takeoff Warning System Test TASK 31-51-00-730-803					513	AKS ALL
Autothrottle Switchpack Test TASK 31-51-00-741-804					523	AKS ALL
FLAP LANDING WARNING SWITCH - REMOVAL/INSTALLATION	31-51-01				401	AKS ALL
Flap Landing Warning Switch Removal TASK 31-51-01-000-801					402	AKS ALL
Flap Landing Warning Switch Installation TASK 31-51-01-400-801					408	AKS ALL

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	<u>SECTION</u>	<u>CHAPTER</u>				
Flap Landing Warning Switch Adjustment and Test TASK 31-51-01-820-801					410	AKS ALL
<u>STABILIZER TAKEOFF WARNING SWITCHES - REMOVAL/INSTALLATION</u>	31-51-02				401	AKS ALL
Stabilizer Takeoff Warning Switch Removal TASK 31-51-02-000-801					401	AKS ALL
Stabilizer Takeoff Warning Switch Installation TASK 31-51-02-400-801					408	AKS ALL
<u>STABILIZER TAKEOFF WARNING SWITCHES - ADJUSTMENT/TEST</u>	31-51-02				501	AKS ALL
Stabilizer Takeoff Warning Switches Adjustment TASK 31-51-02-820-801					501	AKS ALL
Stabilizer Takeoff Warning Switches Test TASK 31-51-02-700-801					506	AKS ALL
<u>SPEEDBRAKE TAKEOFF WARNING SWITCH - REMOVAL/INSTALLATION</u>	31-51-03				401	AKS ALL
Speedbrake Takeoff Warning Switch Removal TASK 31-51-03-000-801					401	AKS ALL
Speedbrake Takeoff Warning Switch Installation TASK 31-51-03-400-801					405	AKS ALL
<u>AURAL WARNING MODULE - REMOVAL/INSTALLATION</u>	31-51-04				401	AKS ALL
Aural Warning Module Removal TASK 31-51-04-000-801					401	AKS ALL
Aural Warning Module Installation TASK 31-51-04-400-801					403	AKS ALL
<u>COMMON DISPLAY SYSTEM - MAINTENANCE PRACTICES</u>	31-62-00				201	AKS ALL
Common Display System - Deactivation TASK 31-62-00-040-801					201	AKS ALL
Common Display System - Activation TASK 31-62-00-440-801					204	AKS ALL

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<u>COMMON DISPLAY SYSTEM - ADJUSTMENT/TEST</u>	31-62-00		Common Display System - Operational Test		501	AKS ALL
			TASK 31-62-00-710-801		501	AKS ALL
			Common Display System - System Test		507	AKS ALL
			TASK 31-62-00-730-801			
<u>DISPLAY UNIT - REMOVAL/INSTALLATION</u>	31-62-11		Display Unit Removal		401	AKS ALL
			TASK 31-62-11-000-801		401	AKS ALL
			Display Unit Installation		404	AKS ALL
			TASK 31-62-11-400-801			
<u>DISPLAY UNIT - CLEANING/PAINTING</u>	31-62-11		How to Clean the Display Surface		701	AKS ALL
			TASK 31-62-11-100-801		701	AKS ALL
			How to Clean the Display Unit Light Sensor		702	AKS ALL
			TASK 31-62-11-100-802			
			How to Clean the Holes on the Rear of the		703	AKS ALL
			Display Unit			
			TASK 31-62-11-100-803			
<u>EFIS CONTROL PANEL - REMOVAL/INSTALLATION</u>	31-62-12		EFIS Control Panel Removal		401	AKS ALL
			TASK 31-62-12-000-801		401	AKS ALL
			EFIS Control Panel Installation		404	AKS ALL
			TASK 31-62-12-400-801			
<u>LIGHTING CONTROL MODULE -</u> <u>REMOVAL/INSTALLATION</u>	31-62-13		Lighting Control Module Removal		401	AKS ALL
			TASK 31-62-13-000-801		401	AKS ALL
			Lighting Control Module Installation		403	AKS ALL
			TASK 31-62-13-400-801			
<u>INSTRUMENT SWITCHING MODULE -</u> <u>REMOVAL/INSTALLATION</u>	31-62-14		Instrument Switching Module Removal		401	AKS ALL
			TASK 31-62-14-000-801		401	AKS ALL

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Instrument Switching Module Installation TASK 31-62-14-400-801				403	AKS ALL
DISPLAY ELECTRONIC UNIT - MAINTENANCE	31-62-21			201	AKS ALL
PRACTICES					
Display Electronic Unit Software Installation with an Airborne Data Loader TASK 31-62-21-470-801				201	AKS ALL
Display Electronic Unit Software Installation with a Portable Data Loader TASK 31-62-21-470-802				204	AKS 002-999
Display Electronic Unit (DEU) Software Installation with an Enhanced Airborne Data Loader (eADL) TASK 31-62-21-470-805				208	AKS ALL
BITE Data Output from the DEUs to an Airborne Data Loader TASK 31-62-21-470-803				212	AKS ALL
BITE Data Output from the DEUs to a Portable Data Loader TASK 31-62-21-470-804				215	AKS 002-999
BITE Data Output from the DEUs to an enhanced Airborne Data Loader (eADL) TASK 31-62-21-470-806				219	AKS ALL
DISPLAY ELECTRONIC UNIT -	31-62-21			401	AKS ALL
REMOVAL/INSTALLATION					
Display Electronic Unit Removal TASK 31-62-21-000-801				401	AKS ALL
Display Electronic Unit Installation TASK 31-62-21-400-801				404	AKS ALL
DISPLAY ELECTRONIC UNIT -	31-62-21			701	AKS ALL
CLEANING/PAINTING					
How to Clean the Cooling Air Inlet Screen for the Display Electronic Unit TASK 31-62-21-100-801				701	AKS ALL
COAXIAL COUPLER - REMOVAL/INSTALLATION	31-62-31			401	AKS ALL
Coaxial Coupler Removal TASK 31-62-31-000-801				401	AKS ALL

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Coaxial Coupler Installation TASK 31-62-31-400-801					406	AKS ALL
<u>REMOTE LIGHT SENSOR - REMOVAL/INSTALLATION</u>			31-62-41		401	AKS ALL
Remote Light Sensor Removal TASK 31-62-41-000-801					401	AKS ALL
Remote Light Sensor Installation TASK 31-62-41-400-801					406	AKS ALL

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CAPTAINS PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Captains Panel.

EFFECTIVITY
AKS ALL

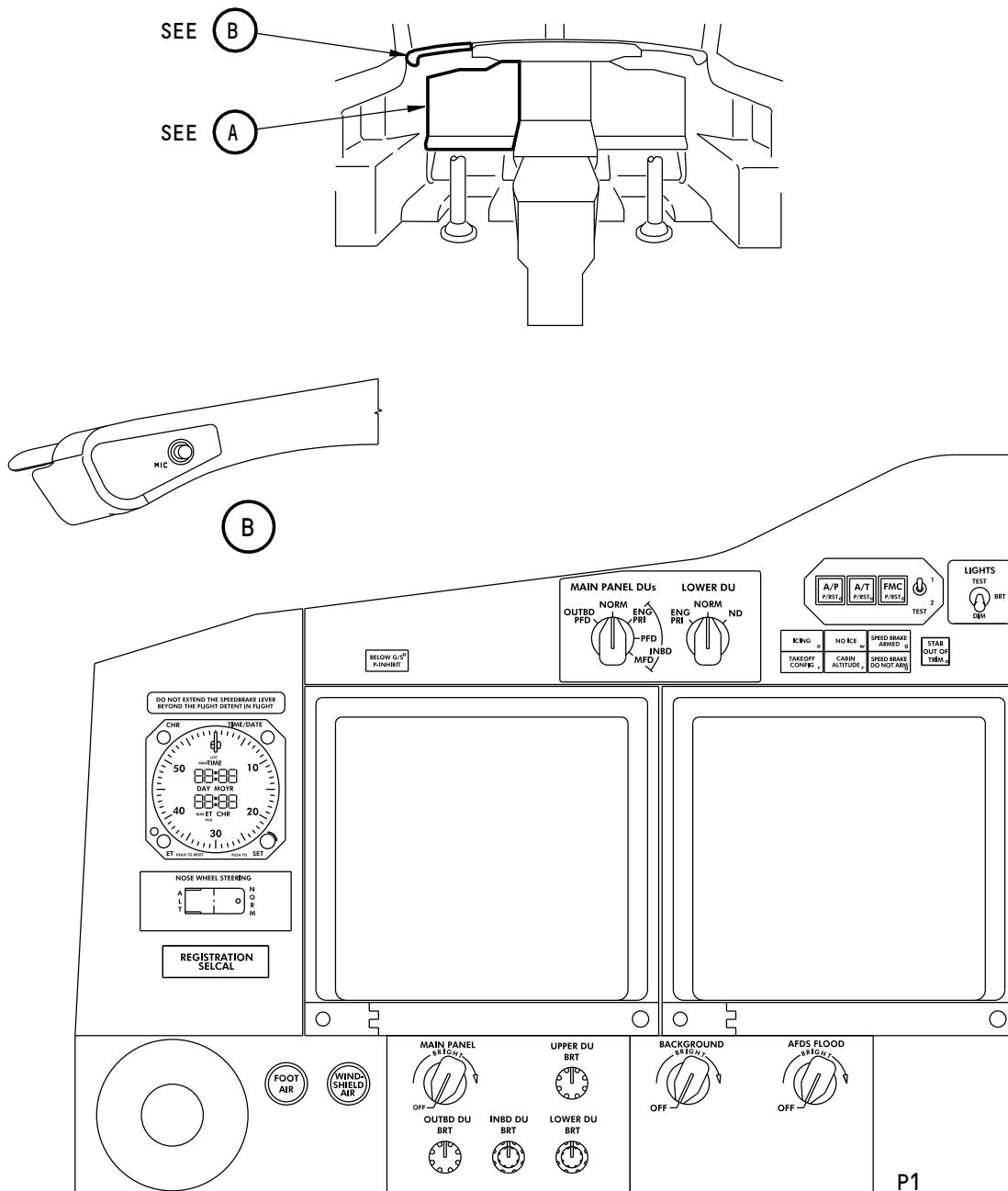
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(A)

2242085 S0000501411_V1

Captain's Panel - Component Location
Figure 101/31-11-21-990-802

EFFECTIVITY
 AKS ALL

31-11-21

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CENTER PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Center Panel.

EFFECTIVITY
AKS ALL

31-11-31

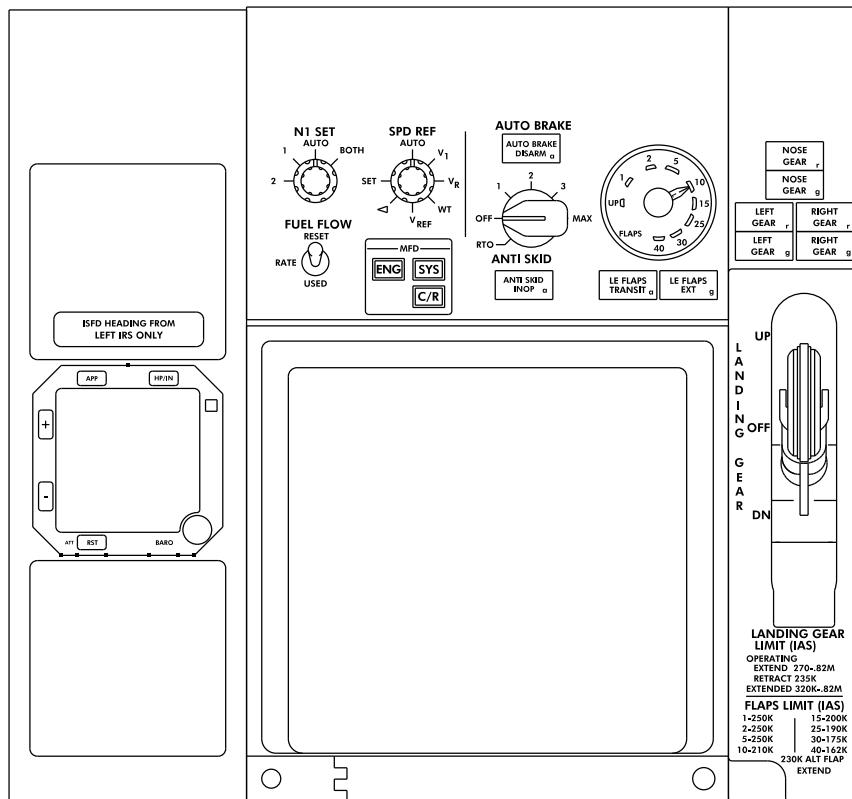
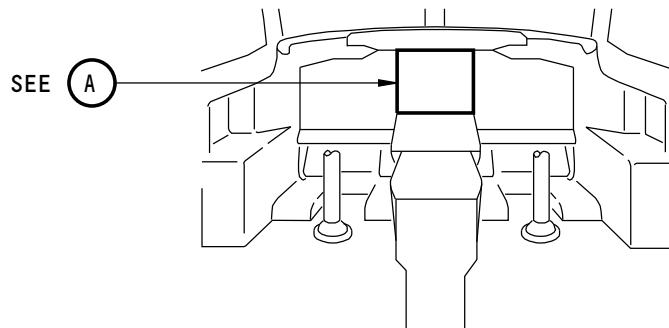
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2242086 S0000501416_V1

Center Panel - Component Location
Figure 101/31-11-31-990-802

EFFECTIVITY
AKS ALL

31-11-31

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PILOTS' GLARESHIELD - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Pilots' Glareshield.

EFFECTIVITY
AKS ALL

31-11-41

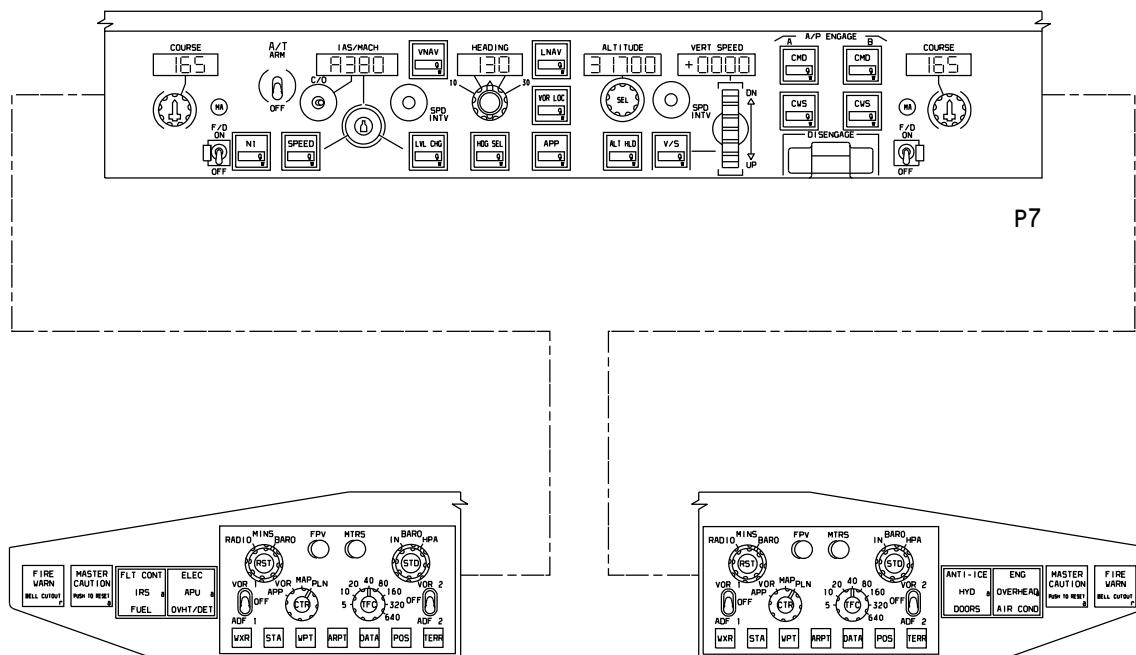
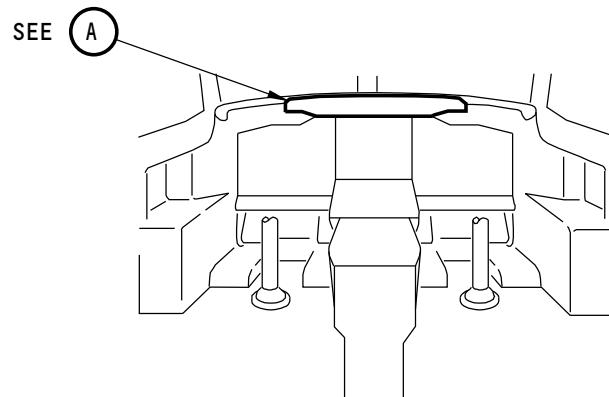
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A

2242087 S0000501420_V1

Pilots' Glareshield - Component Location
Figure 101/31-11-41-990-802

EFFECTIVITY
AKS ALL

31-11-41



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FIRST OFFICER'S PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the First Officer's Panel.

EFFECTIVITY
AKS ALL

31-11-51

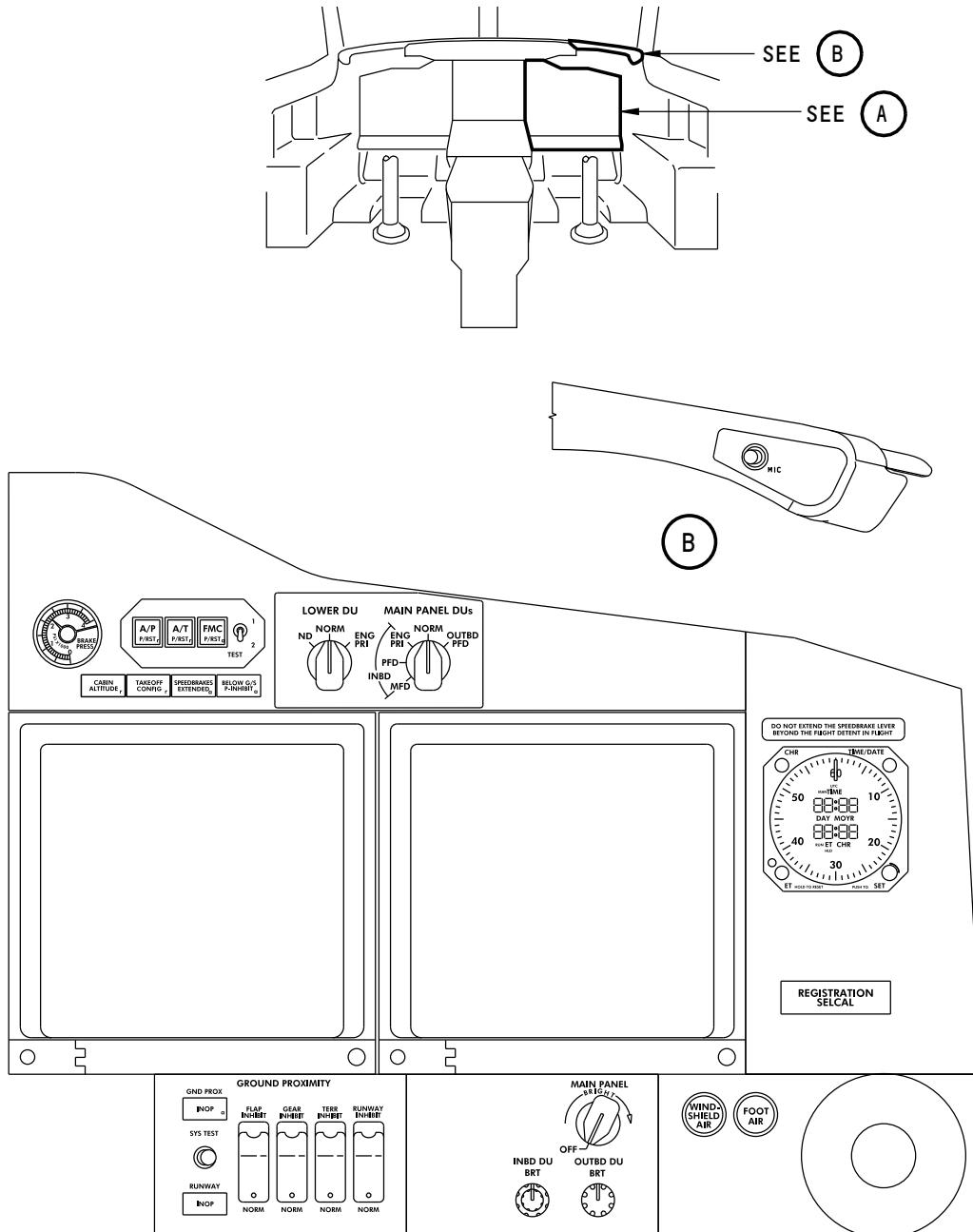
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2242097 S0000501423_V1

First Officer's Panel - Component Location
Figure 101/31-11-51-990-802

EFFECTIVITY
AKS ALL

31-11-51



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PILOTS' CONTROL STAND - COMPONENT LOCATION

1. General

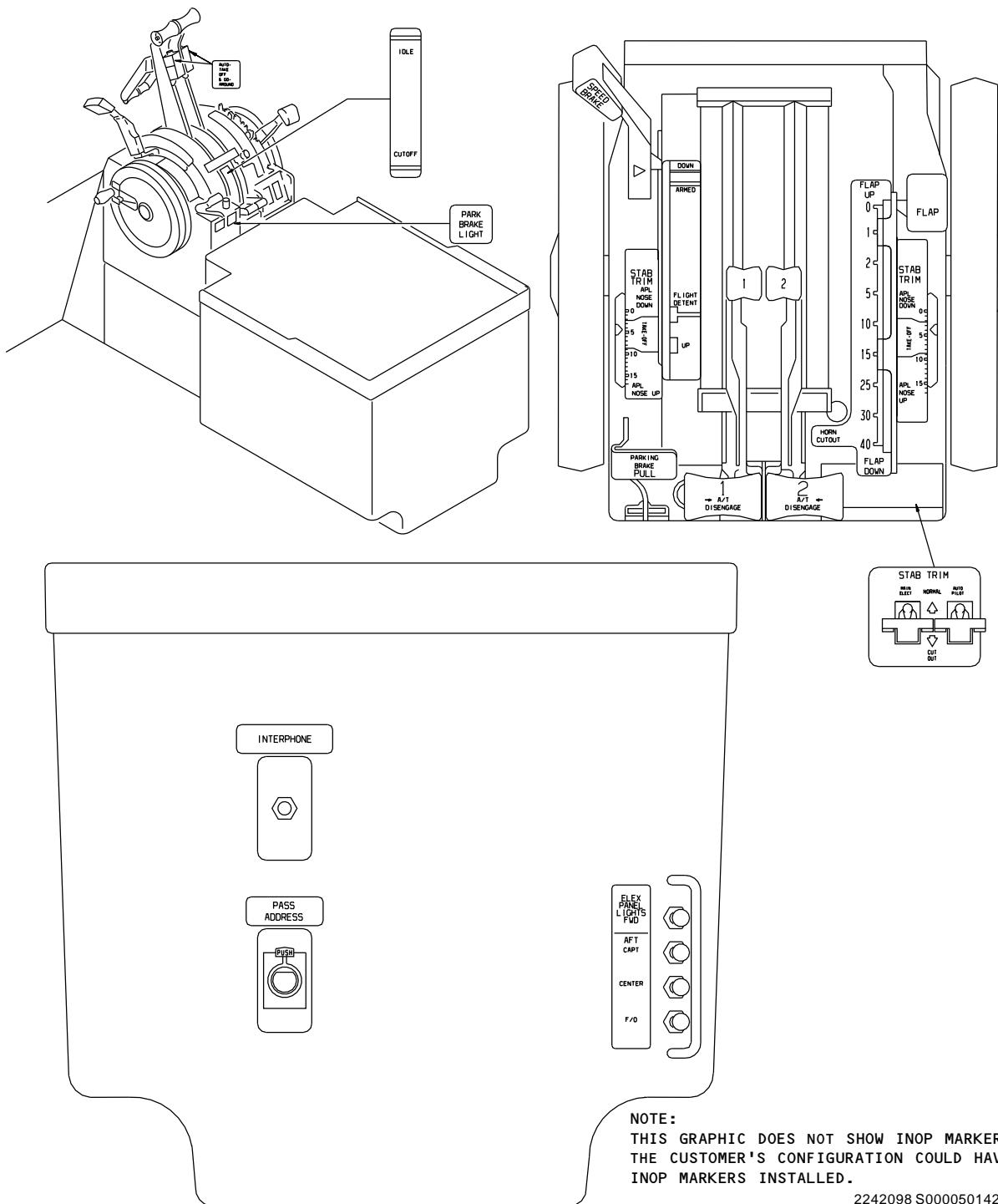
- A. This procedure contains the component location for the Pilots' Control Stand.

EFFECTIVITY	—
AKS ALL	

31-11-71



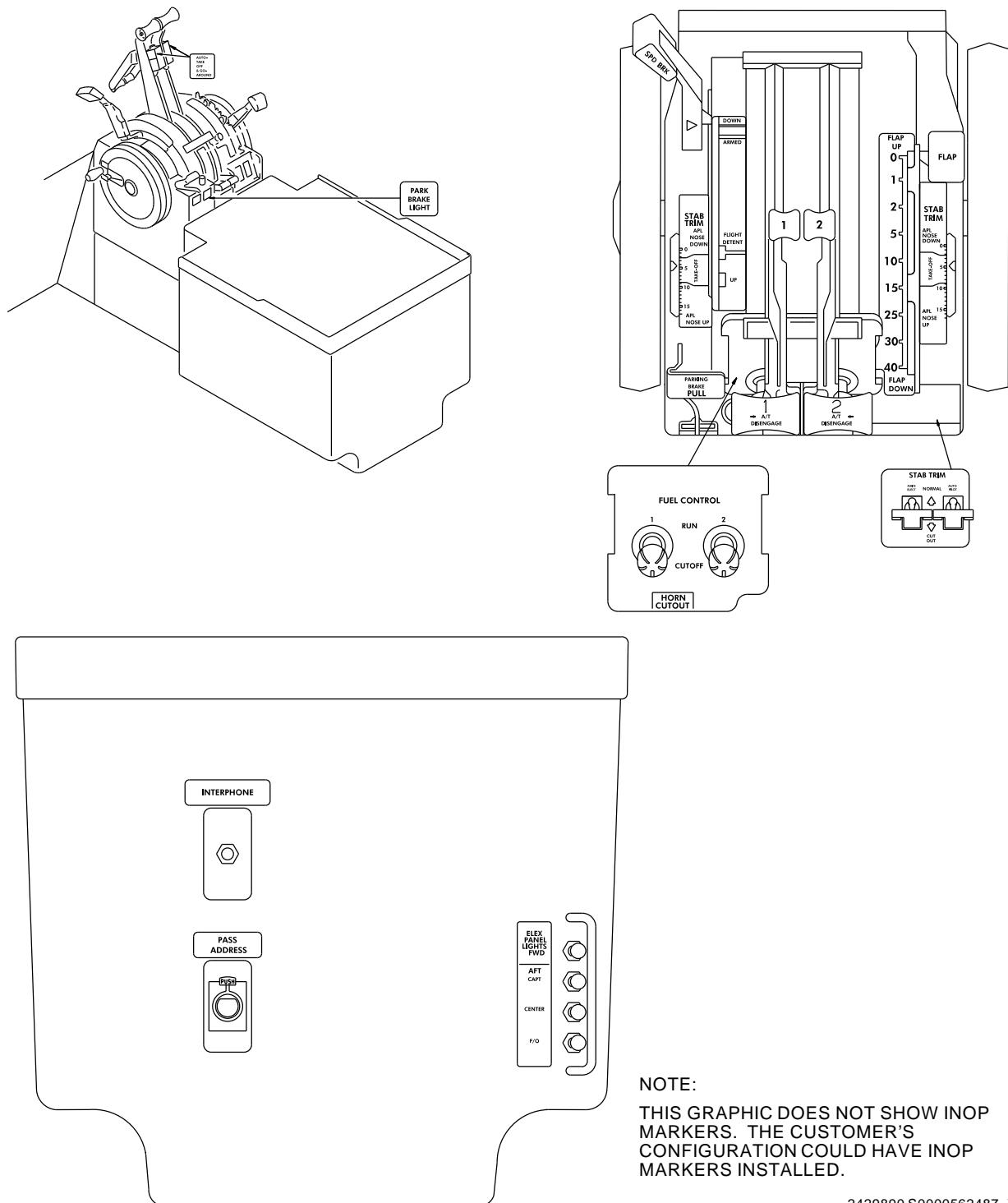
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Pilots' Control Stand - Component Location
Figure 101/31-11-71-990-802 (Sheet 1 of 2)

EFFECTIVITY
AKS 001-017, 019

31-11-71



Pilots' Control Stand - Component Location
Figure 101/31-11-71-990-802 (Sheet 2 of 2)

EFFECTIVITY
AKS 018, 020-999

31-11-71

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FORWARD ELECTRONIC PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Forward Electronic Panel.

EFFECTIVITY
AKS ALL

31-11-81

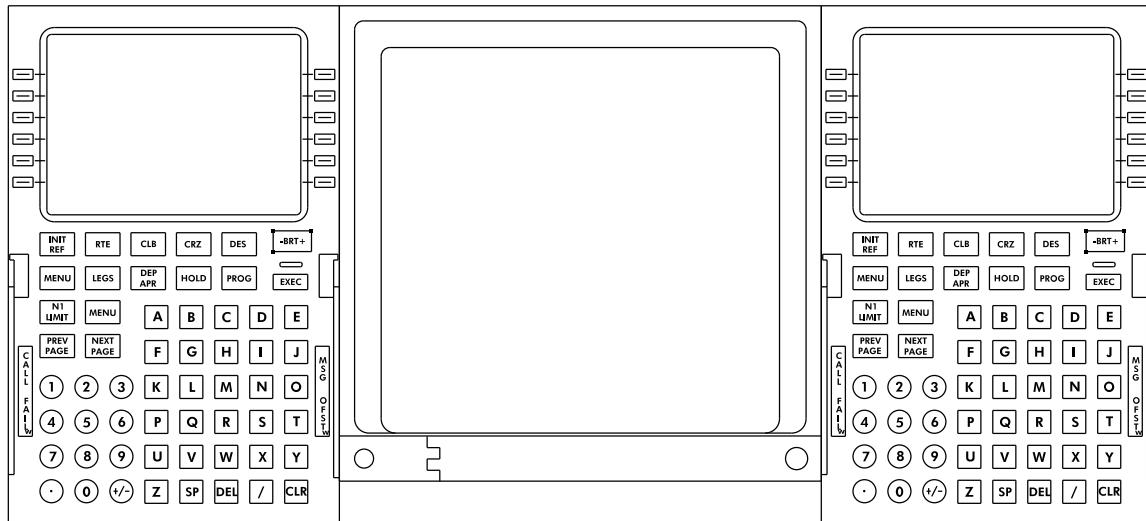
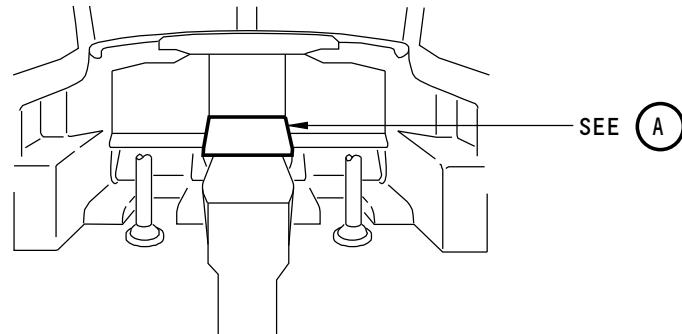
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2242102 S0000501431_V1

Forward Electronic Panel - Component Location
Figure 101/31-11-81-990-802

EFFECTIVITY
AKS ALL

31-11-81

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AFT ELECTRONIC PANEL - COMPONENT LOCATION

1. General

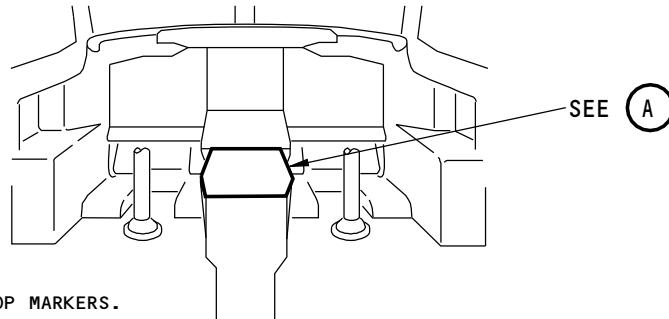
- A. This procedure contains the component location for the Aft Electronic Panel.

EFFECTIVITY	—
AKS ALL	

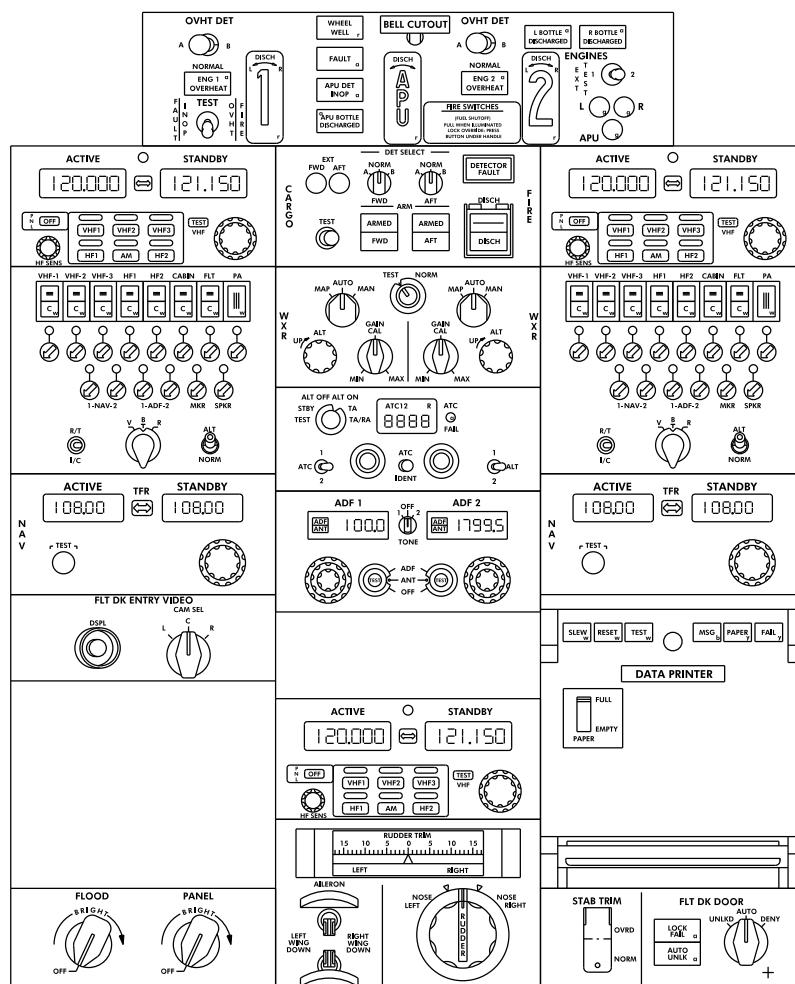
31-11-91

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2242106 S0000501440_V1

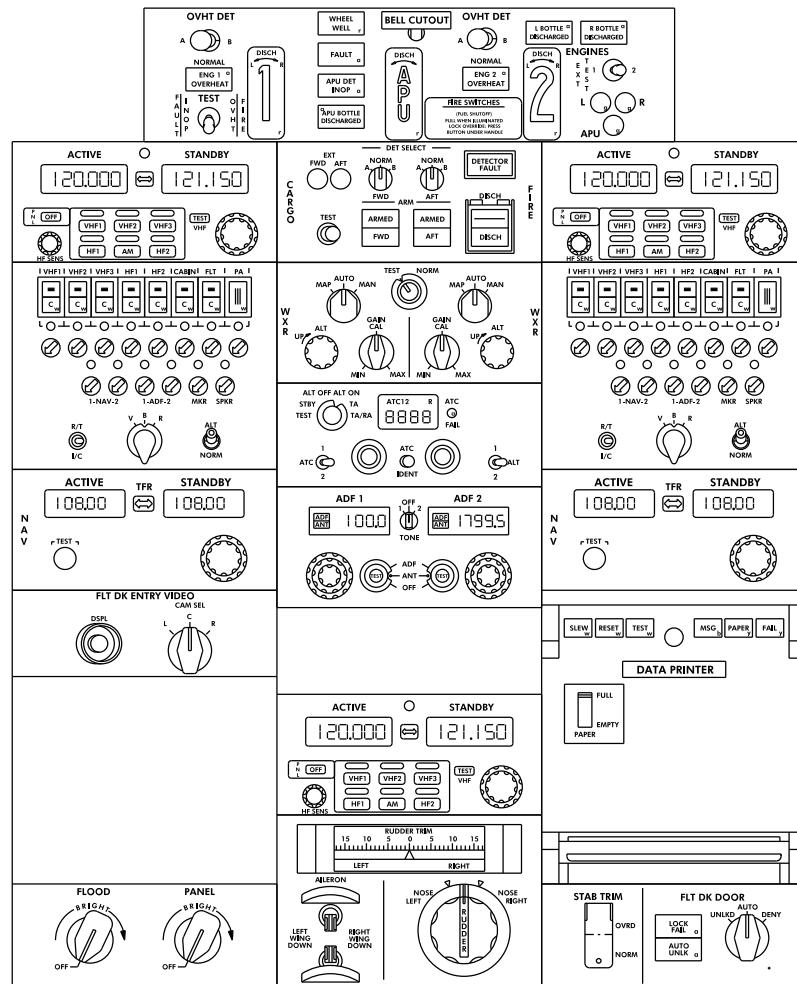
Aft Electronic Panel - Component Location
Figure 101-31-11-91-990-807 (Sheet 1 of 4)

EFFECTIVITY
AKS 001-006, 009, 010, 013, 015-018

31-11-91



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2424781 S0000560913_V1

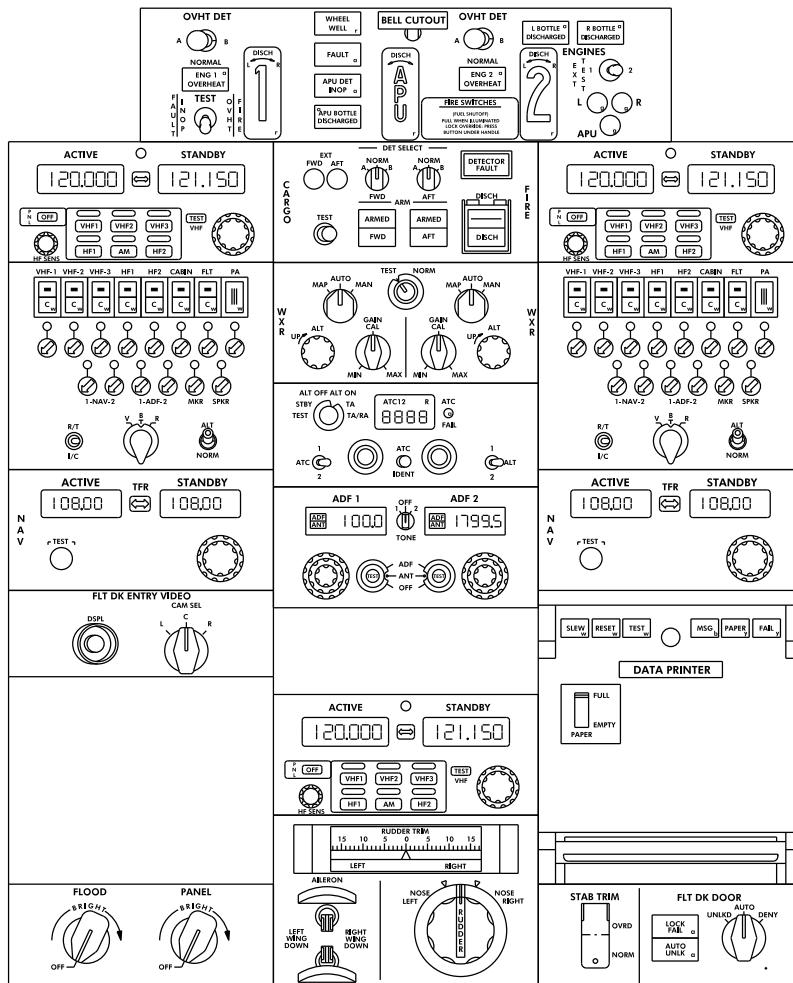
Aft Electronic Panel - Component Location
Figure 101/31-11-91-990-807 (Sheet 2 of 4)

EFFECTIVITY
AKS 026, 028-999

31-11-91



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2424780 S0000560912_V1

Aft Electronic Panel - Component Location
Figure 101/31-11-91-990-807 (Sheet 3 of 4)

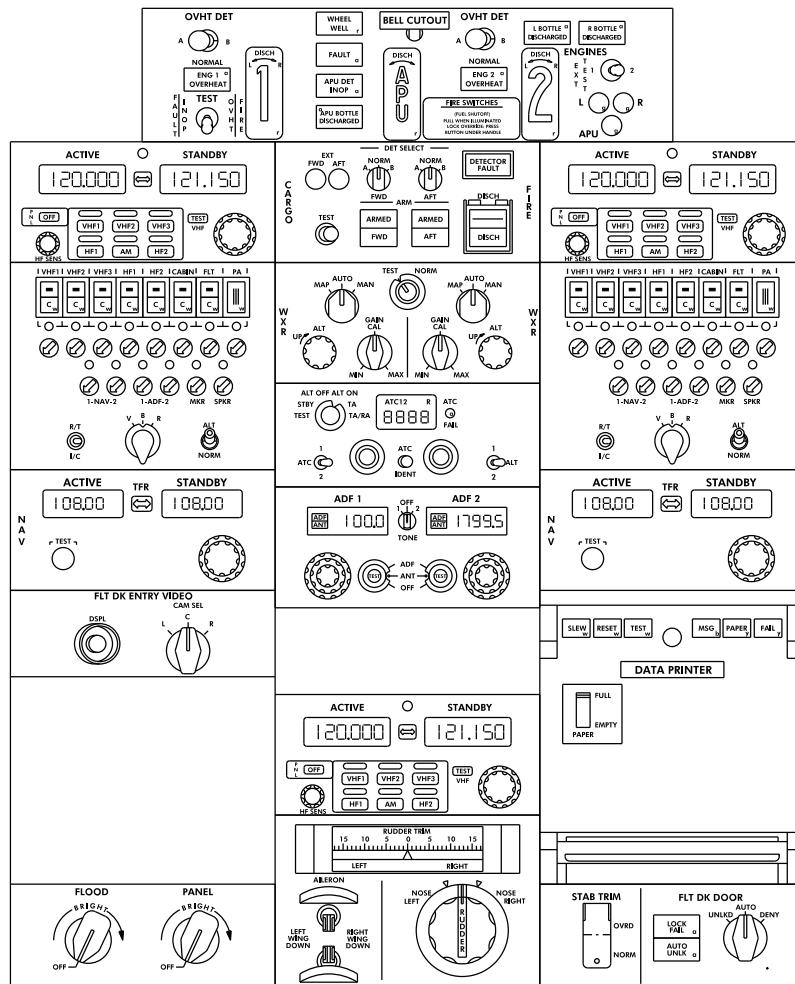
EFFECTIVITY
AKS 014, 019

31-11-91

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2429892 S0000562488_V1

Aft Electronic Panel - Component Location
Figure 101/31-11-91-990-807 (Sheet 4 of 4)

EFFECTIVITY
AKS 020-025, 027

31-11-91



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FORWARD OVERHEAD PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Forward Overhead Panel.

EFFECTIVITY
AKS ALL

31-11-94

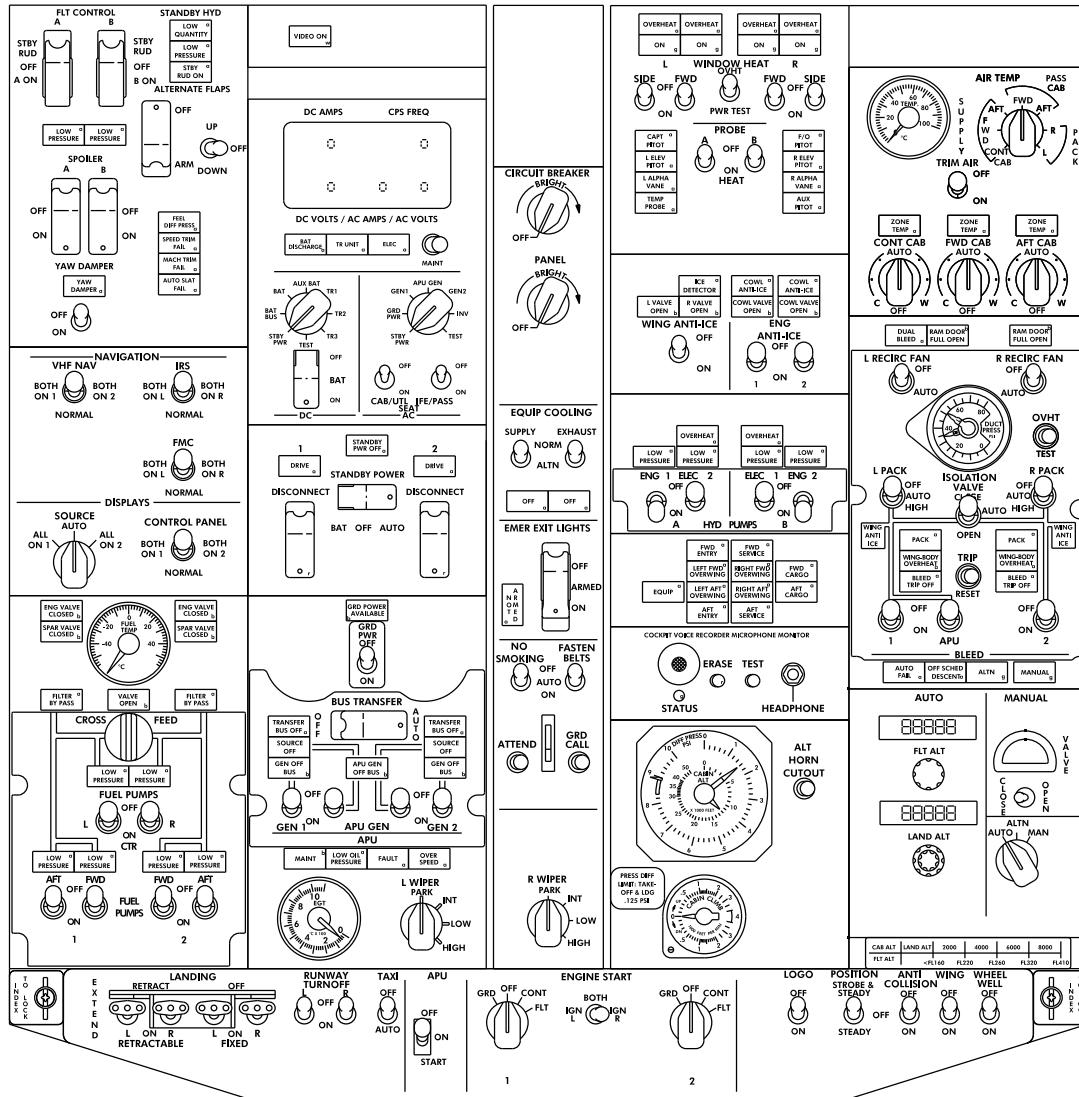
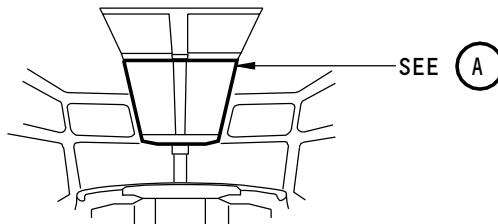
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2242110 S0000501453_V1

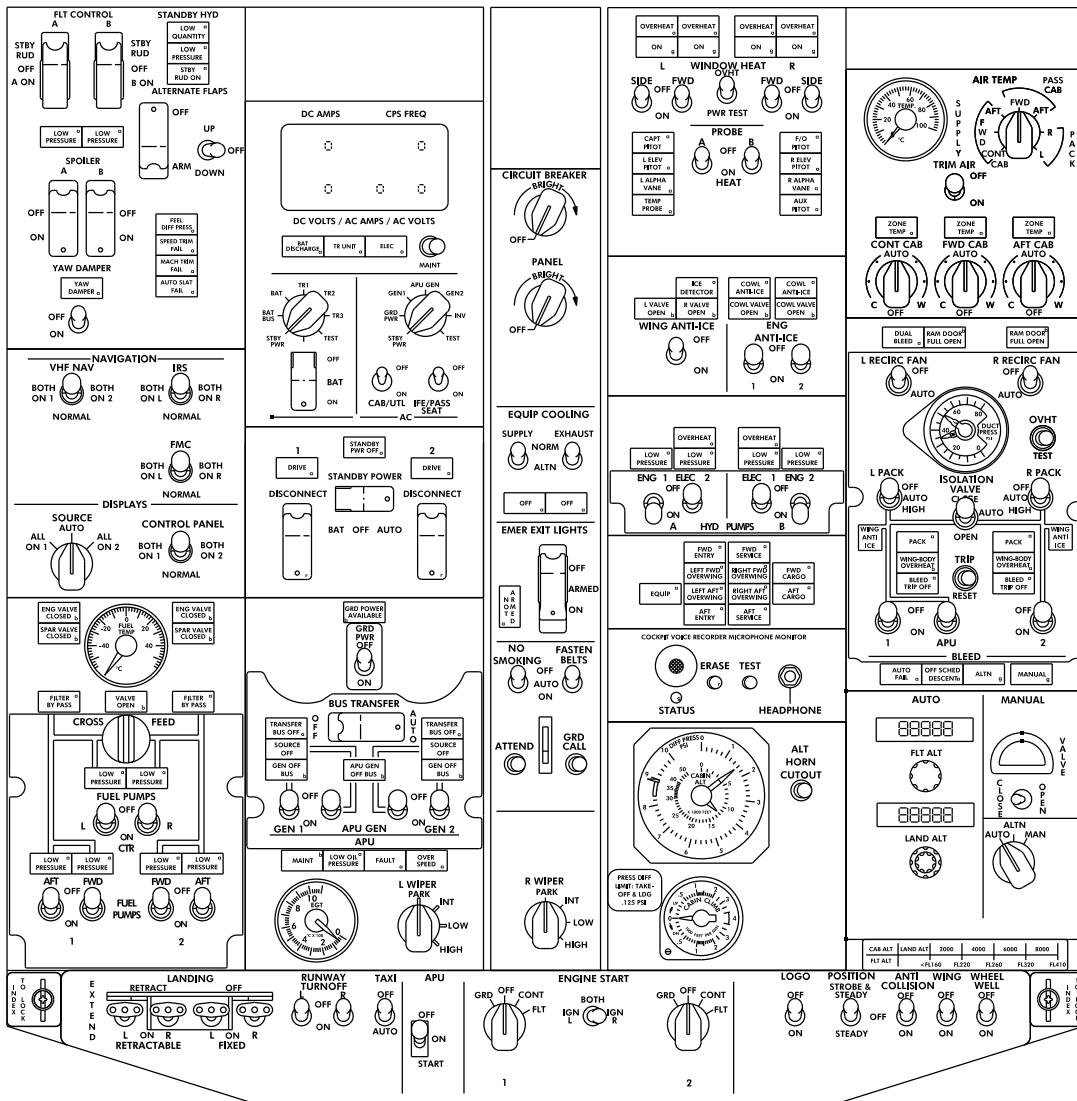
Forward Overhead Panel - Component Location
Figure 101/31-11-94-990-802 (Sheet 1 of 5)

EFFECTIVITY
AKS 001-005

31-11-94

D633A101-AKS

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2370983 S0000542729_V1

A

**Forward Overhead Panel - Component Location
Figure 101/31-11-94-990-802 (Sheet 2 of 5)**

EFFECTIVITY
AKS 007, 008, 011, 012, 014

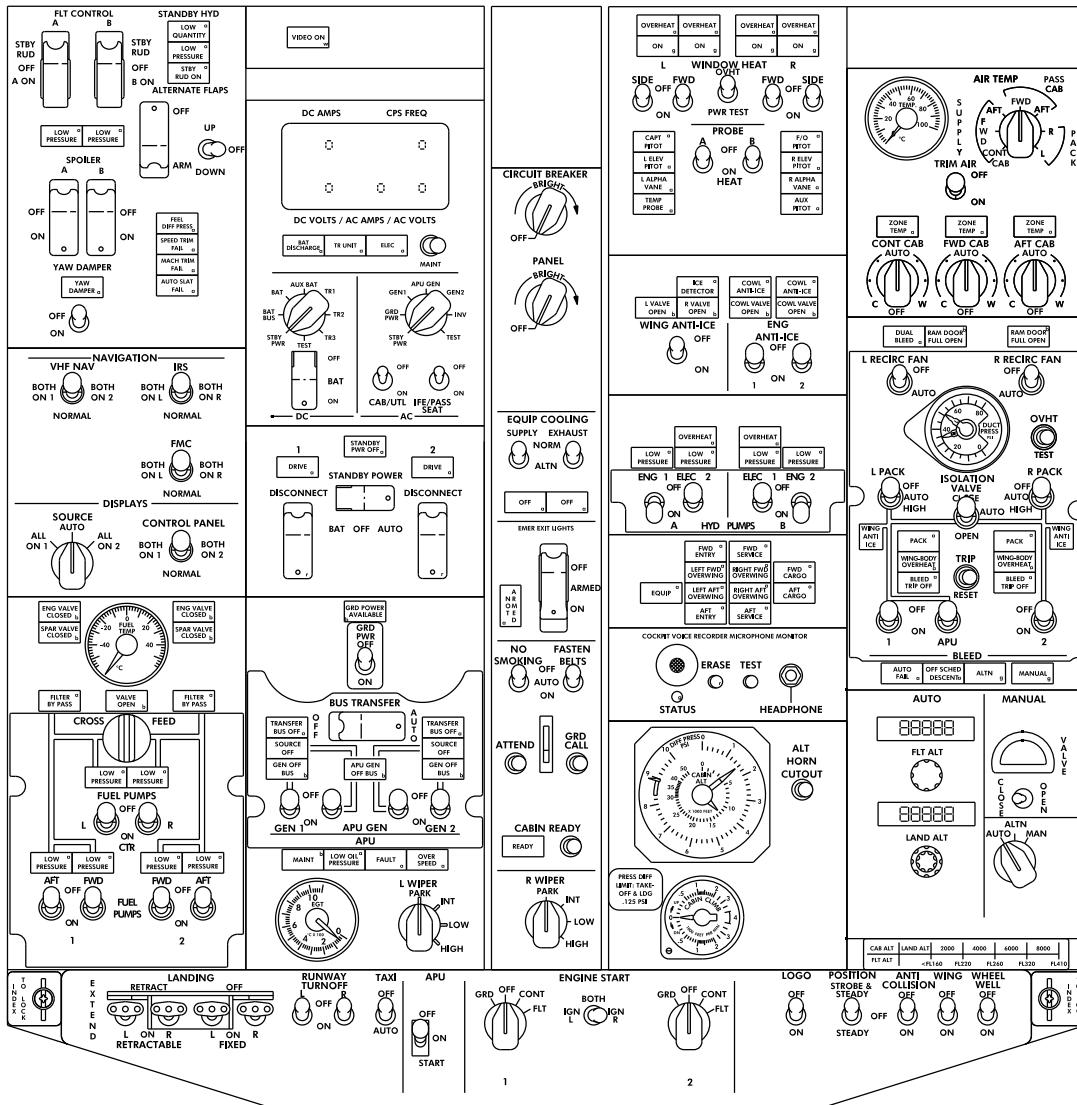
31-11-94

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2395699 S0000553479 V1

Forward Overhead Panel - Component Location

Figure 101/31-11-94-990-802 (Sheet 3 of 5)

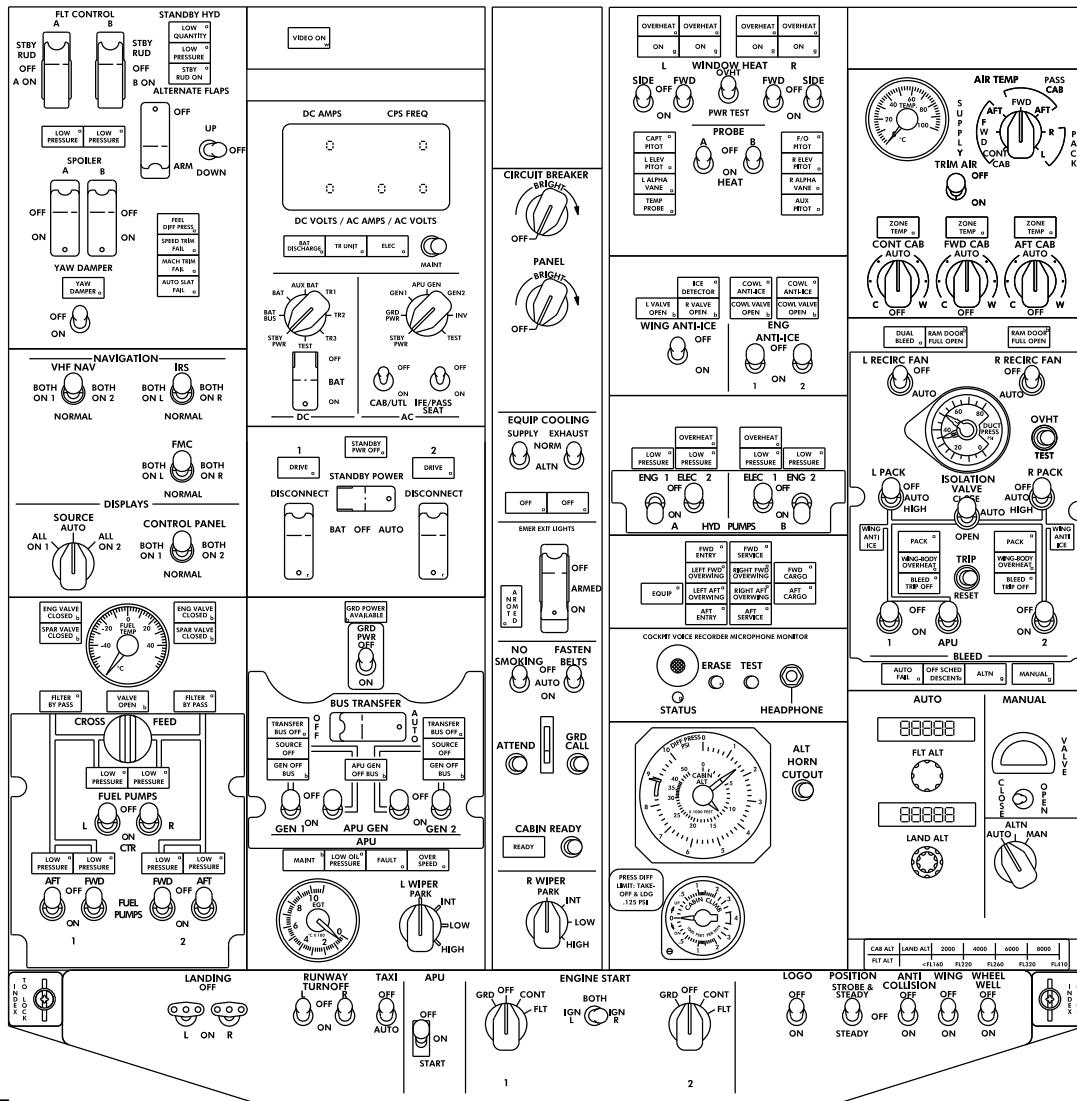
EFFECTIVITY AKS 006, 009, 010, 013, 015-017

31-11-94

D633A101 AKS



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NOTE:

THIS GRAPHIC DOES NOT SHOW INOP MARKERS. THE CUSTOMER'S CONFIGURATION COULD HAVE INOP MARKERS INSTALLED.

P5

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2452673 S0000570054_V1

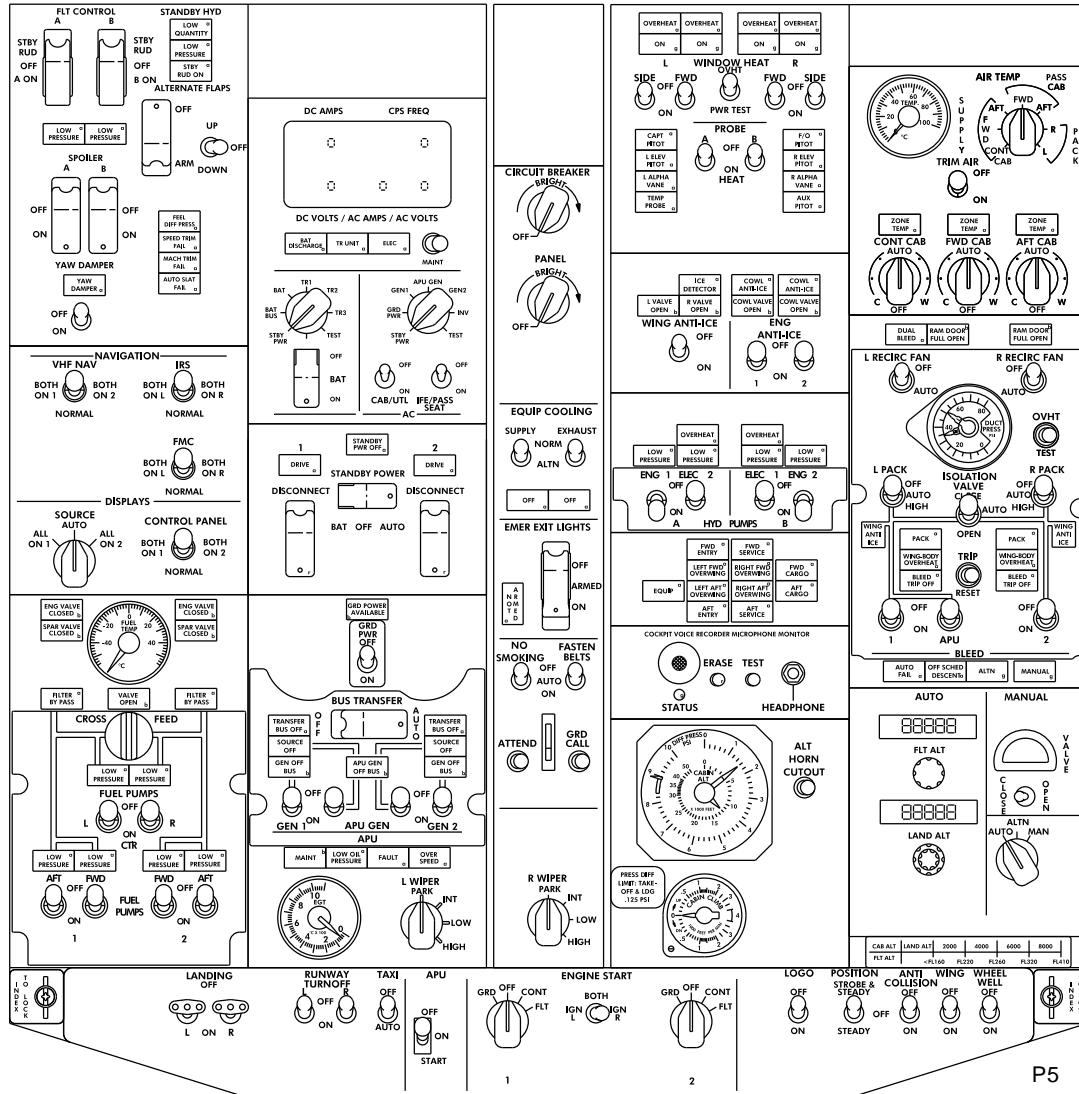
**Forward Overhead Panel - Component Location
Figure 101/31-11-94-990-802 (Sheet 4 of 5)**

EFFECTIVITY
AKS 018, 020-025, 027

31-11-94



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



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2487766 S0000586010_V1

**Forward Overhead Panel - Component Location
Figure 101/31-11-94-990-802 (Sheet 5 of 5)**

EFFECTIVITY
AKS 019, 026, 028-999

31-11-94



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

5AFT OVERHEAD PANEL - COMPONENT LOCATION

1. General

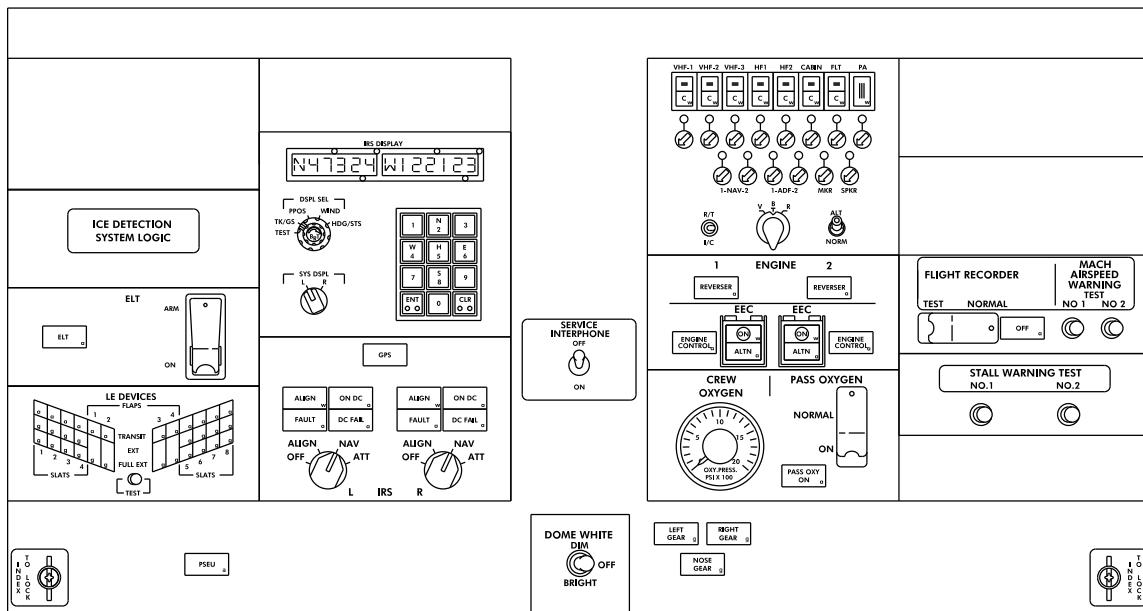
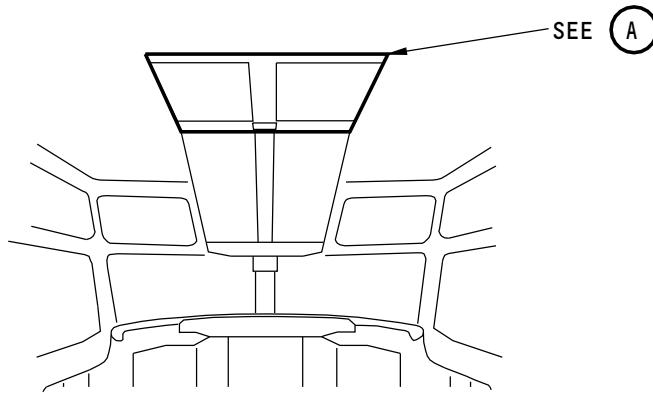
- A. This procedure contains the component location for the Aft Overhead Panel.

EFFECTIVITY	31-11-95
AKS ALL	

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



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2242111 S0000501456_V1

Aft Overhead Panel - Component Location
Figure 101/31-11-95-990-802 (Sheet 1 of 3)

EFFECTIVITY
AKS 001-019

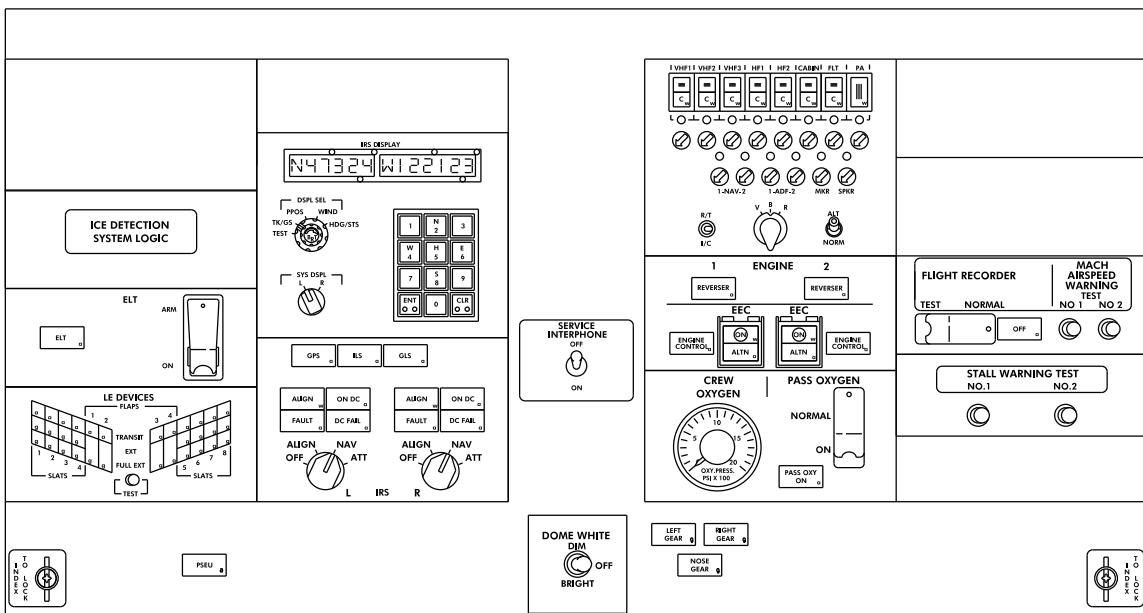
31-11-95

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2424783 S0000560915_V1

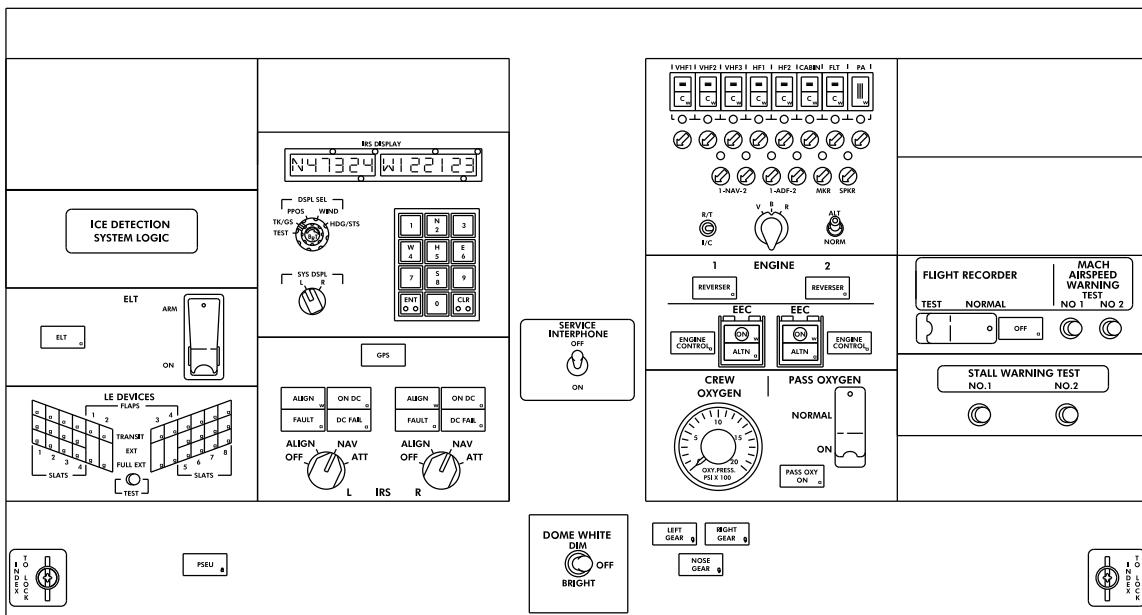
**Aft Overhead Panel - Component Location
Figure 101/31-11-95-990-802 (Sheet 2 of 3)**

EFFECTIVITY
AKS 026, 028-999

31-11-95



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



P5

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NOTE:

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2429894 S0000562489_V1

Aft Overhead Panel - Component Location
Figure 101/31-11-95-990-802 (Sheet 3 of 3)

EFFECTIVITY
AKS 020-025, 027

31-11-95



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AIRCRAFT MAINTENANCE MANUAL

AUXILIARY PANELS - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Auxiliary Panels.

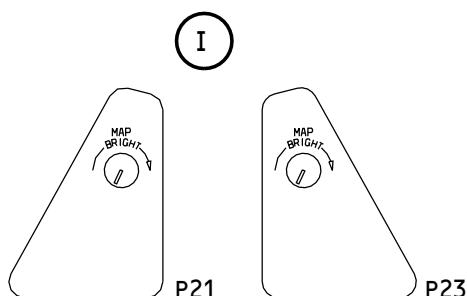
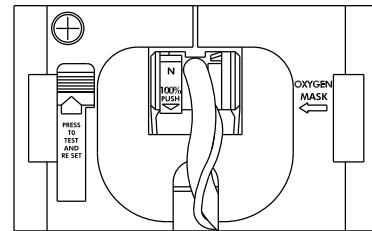
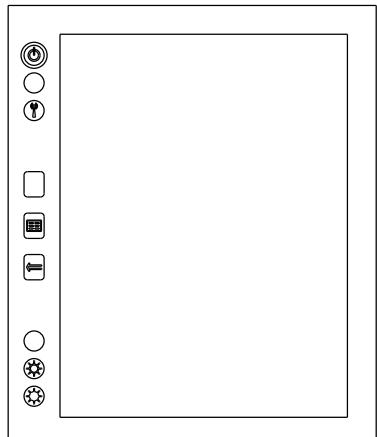
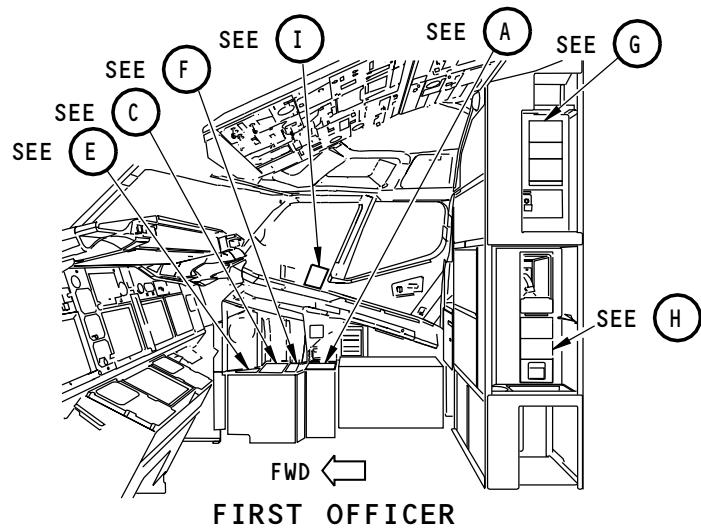
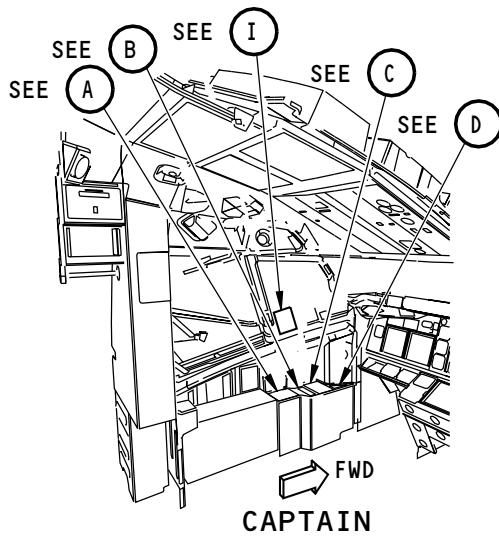
EFFECTIVITY
AKS ALL

31-11-98

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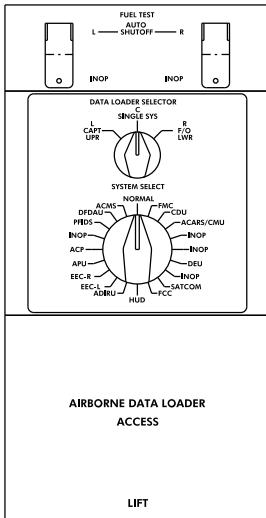
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AIRCRAFT MAINTENANCE MANUAL**


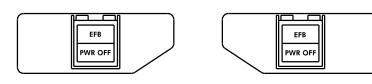
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E

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G



IRS MASTER
CAUTION

2242112 S0000501460_V1

Auxiliary Panels - Component Location
Figure 101/31-11-98-990-806 (Sheet 1 of 4)

EFFECTIVITY
AKS 001

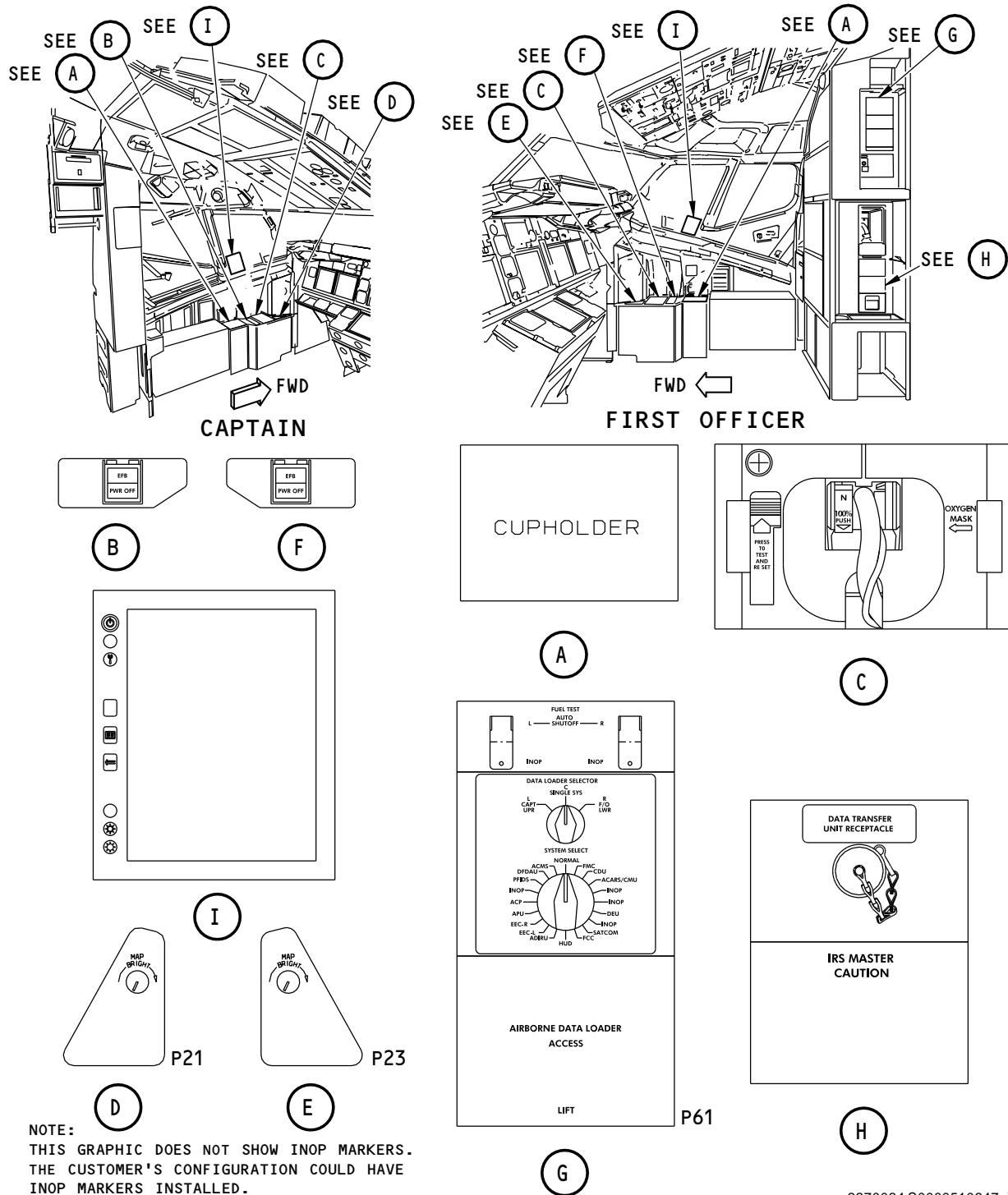
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AIRCRAFT MAINTENANCE MANUAL**



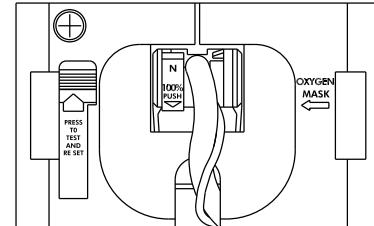
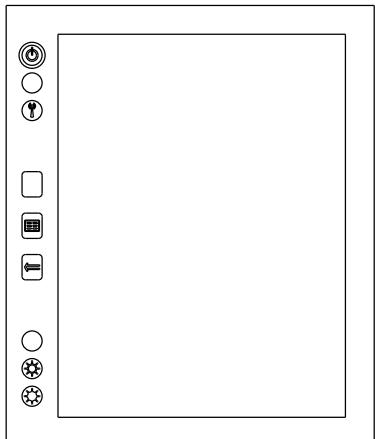
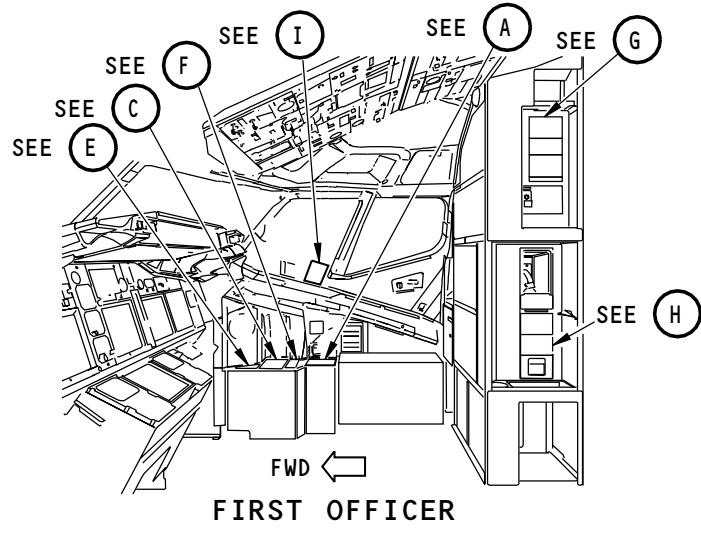
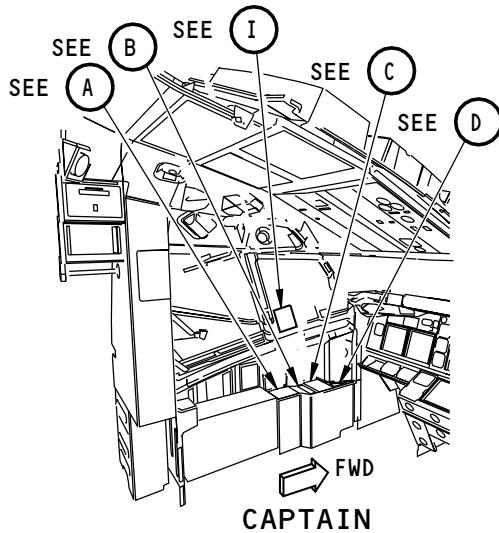
Auxiliary Panels - Component Location
Figure 101/31-11-98-990-806 (Sheet 2 of 4)

EFFECTIVITY
AKS 002-004

D633A101-AKS

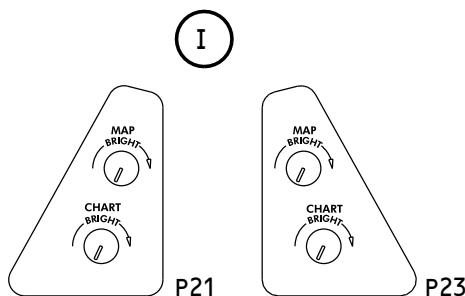
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**737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL**


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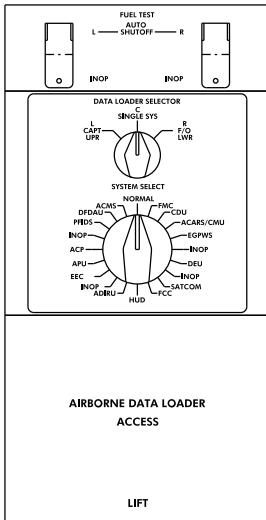
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D

E

NOTE:
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INOP MARKERS INSTALLED.

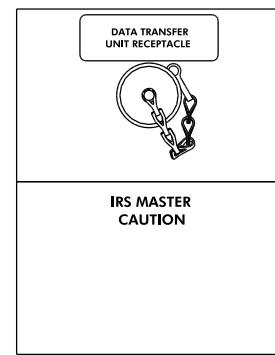


G



B

F



H

2308778 S0000524571_V1

**Auxiliary Panels - Component Location
Figure 101/31-11-98-990-806 (Sheet 3 of 4)**

EFFECTIVITY
AKS 005, 006, 009, 010, 013, 015-018, 020-025, 027

31-11-98

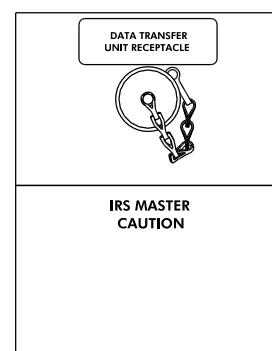
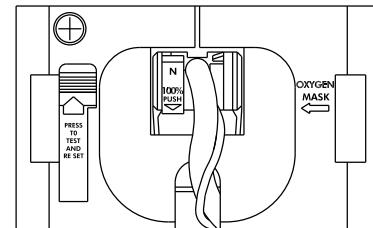
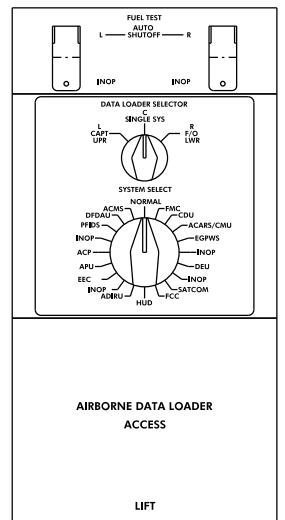
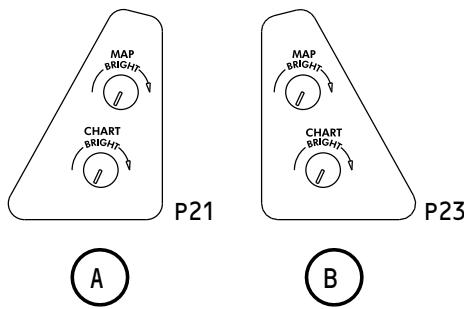
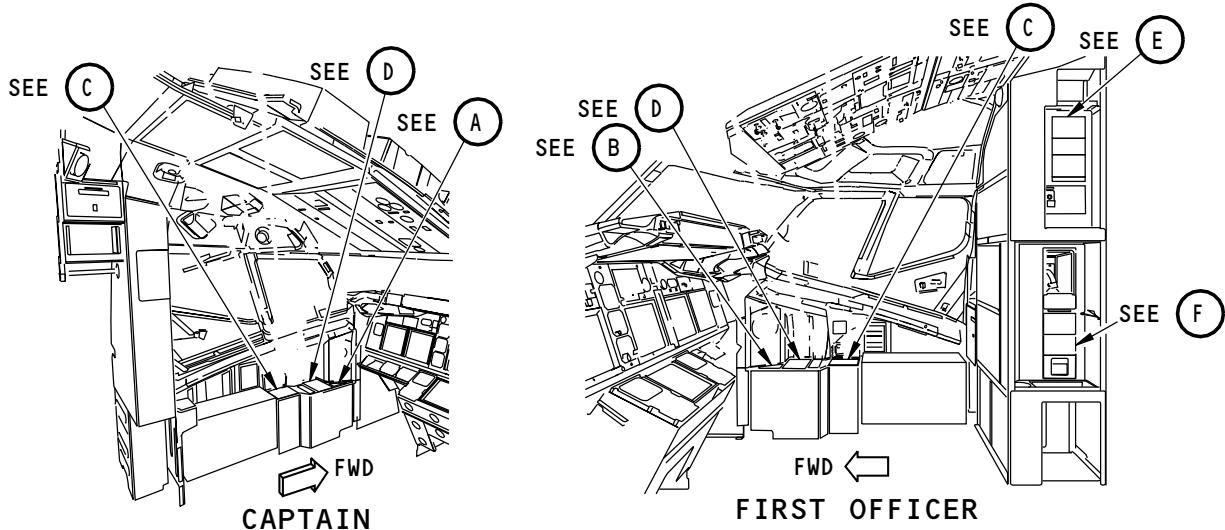
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2370984 S0000542730_V1

Auxiliary Panels - Component Location
Figure 101/31-11-98-990-806 (Sheet 4 of 4)

EFFECTIVITY
AKS 007, 008, 011, 012, 014, 019, 026, 028-999

31-11-98

DC22A101 AKS



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AIRCRAFT MAINTENANCE MANUAL

CLOCKS - ADJUSTMENT/TEST

1. General

- A. There is one task in this procedure. The task is a system test of the clocks. There are two clocks on the airplane; one in the captain's instrument panel P1-1 and one in the first officer's instrument panel P3-3.

TASK 31-25-00-710-804

2. Clocks - System Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

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

C. System Test

SUBTASK 31-25-00-860-059

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-25-00-860-060

- (2) Open these circuit breakers:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	1	C00736	MISC CLOCK DISPLAY
A	2	C00737	MISC CLOCK

SUBTASK 31-25-00-860-061

- (3) Close these circuit breakers:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	1	C00736	MISC CLOCK DISPLAY
A	2	C00737	MISC CLOCK

SUBTASK 31-25-00-860-062

- (4) Make sure the time shows.

SUBTASK 31-25-00-860-063

- (5) Make sure the UTC-TIME indication shows.

SUBTASK 31-25-00-860-064

- (6) Push the TIME/DATE button to show the UTC-DAY MO/YR.

SUBTASK 31-25-00-860-065

- (7) Push the TIME/DATE button to show the MAN-TIME.

SUBTASK 31-25-00-860-066

- (8) Push the TIME/DATE button to show the MAN-DAY and MO/YR.

EFFECTIVITY
AKS ALL

31-25-00



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SUBTASK 31-25-00-860-067

- (9) Push the TIME/DATE button to show the UTC-TIME.

SUBTASK 31-25-00-860-068

- (10) Push the TIME/DATE button to show the UTC-DAY MO/YR.
(a) Make sure the date shows.

SUBTASK 31-25-00-860-069

- (11) Push the TIME/DATE button to show the MAN-TIME.
(a) Make sure the time shows.

SUBTASK 31-25-00-860-070

- (12) Push the TIME/DATE button to show the MAN-DAY MO/YR.
(a) Make sure the date shows.

SUBTASK 31-25-00-860-071

- (13) Push the TIME/DATE button to show the MAN-TIME.

SUBTASK 31-25-00-860-072

- (14) Push the SET control knob to allow for the setting of the hours digits.
(a) Turn the knob clockwise or counterclockwise to adjust the hour digits to 12:00.

SUBTASK 31-25-00-860-073

- (15) Push the SET control knob to allow for the setting of the minute digits.
(a) Turn the knob clockwise or counterclockwise to adjust the minute digits to 12:10.

SUBTASK 31-25-00-860-074

- (16) Push the SET control knob to complete the setting of time.

SUBTASK 31-25-00-860-075

- (17) Open this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00736	MISC CLOCK DISPLAY

SUBTASK 31-25-00-860-076

- (18) Make sure the displays are blank.

NOTE: You should wait at least 2 minutes before you continue with the next step.

SUBTASK 31-25-00-860-077

- (19) Close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00736	MISC CLOCK DISPLAY

SUBTASK 31-25-00-860-078

- (20) Make sure the MAN-TIME has continued to increment the previous time set.

NOTE: The 2 minutes interruption of the clock display does not affect the clock operation.



31-25-00



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SUBTASK 31-25-00-860-099

- (21) Open this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C00737	MISC CLOCK

SUBTASK 31-25-00-860-079

- (22) Make sure the MAN TIME display continues to show time.

SUBTASK 31-25-00-860-080

- (23) Close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C00737	MISC CLOCK

SUBTASK 31-25-00-860-081

- (24) Push the TIME/DATE button to show the MAN-TIME.

SUBTASK 31-25-00-860-082

- (25) Push the TIME/DATE button to show the MAN-DAY and MO/YR.

SUBTASK 31-25-00-860-083

- (26) Push the TIME/DATE button to show the UTC-TIME.

SUBTASK 31-25-00-860-084

- (27) Push the TIME/DATE button to show the UTC-DAY MO/YR.

SUBTASK 31-25-00-860-085

- (28) Push the TIME/DATE button to show the MAN-TIME.

- (a) Make sure the MAN-TIME display continues to show the manually set time.

SUBTASK 31-25-00-860-086

- (29) Push the TIME/DATE button to show the MAN-DAY and MO/YR.

SUBTASK 31-25-00-860-087

- (30) Push the SET control knob to allow for the setting of the DAY digits.

SUBTASK 31-25-00-860-088

- (31) Turn the knob clockwise or counterclockwise to adjust the DAY digits to the current day.

SUBTASK 31-25-00-860-089

- (32) Push the SET control knob for the setting of the MON digits.

SUBTASK 31-25-00-860-090

- (33) Turn the knob clockwise or counterclockwise to adjust the MON digits to the current month.

SUBTASK 31-25-00-860-091

- (34) Push the SET control knob to allow for the setting of the YR digits.

SUBTASK 31-25-00-860-092

- (35) Turn the knob clockwise or counterclockwise to adjust the YR digits to the current year.

SUBTASK 31-25-00-860-093

- (36) Push the SET control knob to complete the setting of the date.

SUBTASK 31-25-00-860-094

- (37) Push the TIME/DATE button to show the MAN-DAY and MO/YR.



31-25-00



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SUBTASK 31-25-00-860-095

- (38) Push the TIME/DATE button to show the UTC-TIME.

SUBTASK 31-25-00-860-096

- (39) Push the TIME/DATE button to show the UTC-DAY MO/YR.

SUBTASK 31-25-00-860-097

- (40) Make sure that the MAN-DAY MO/YR display continues to show manually set date.

SUBTASK 31-25-00-860-098

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

31-25-00

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CLOCKS - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the left (captain's) and the right (first officer's) clocks.
 - (2) An installation of the left and right clocks.
- B. The left clock is on the left instrument panel, P1-1, in the flight compartment. The right clock is on the right instrument panel, P3-3, also in the flight compartment.

TASK 31-25-11-000-801

2. Clock Removal

(Figure 401)

A. General

- (1) There are four screws around each clock. There are two screws that hold the mounting clamp to the instrument panel (small screw pair). There are two screws that hold the clock to the mounting clamp (large screw pair).

B. Location Zones

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

C. Removal Procedure

SUBTASK 31-25-11-860-001

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	1	C00736	MISC CLOCK DISPLAY
A	2	C00737	MISC CLOCK

SUBTASK 31-25-11-020-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE CLOCK. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CLOCK.

- (2) Remove the CLOCK [1]:

- (a) Loosen the screws that hold the CLOCK [1] to the mounting clamp.

NOTE: The clock uses four clamp screws. There are two screws that hold the clock to the mounting clamp (large screw pair). There are two screws that hold the mounting clamp to the instrument panel (small screw pair).

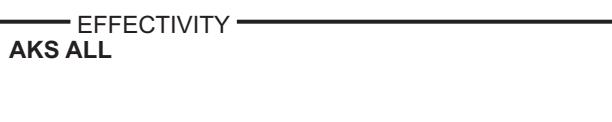
- (b) Pull the CLOCK [1] out of the instrument panel.

- (c) Disconnect the electrical connector.

SUBTASK 31-25-11-860-002

- (3) Put protective covers on the electrical connector.

— END OF TASK —

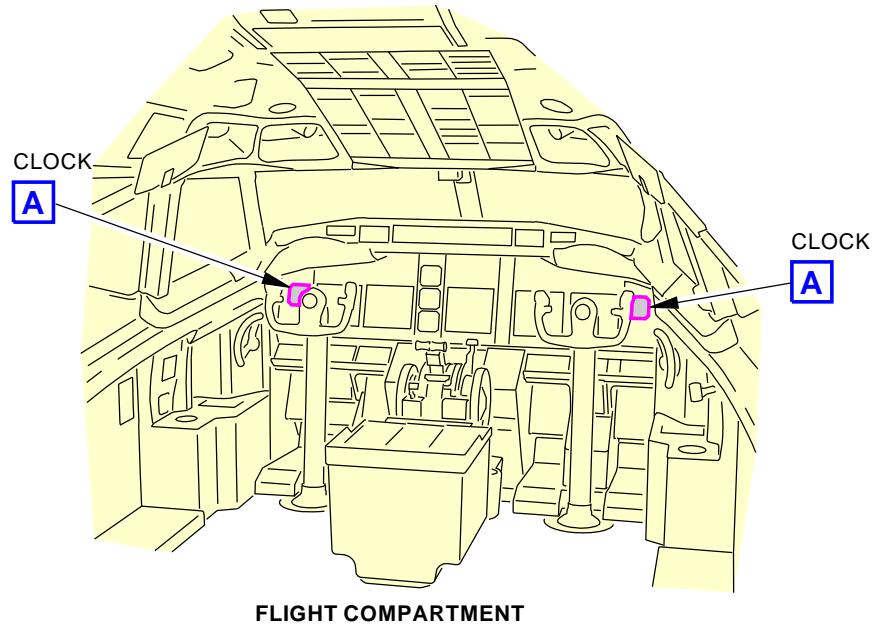


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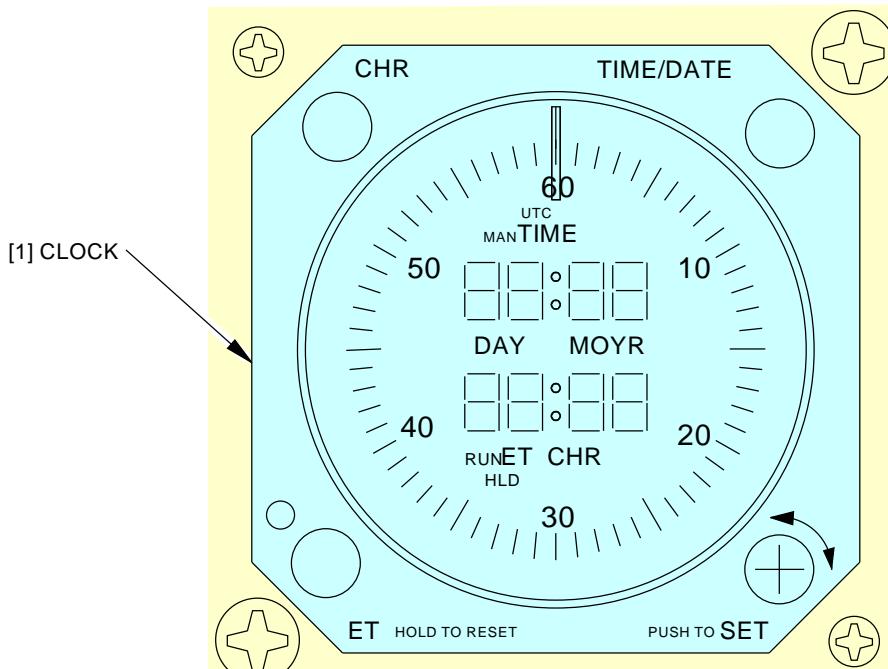


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FLIGHT COMPARTMENT



CLOCK (EXAMPLE)

D66604 S0000163144_V3

Left and Right Clock Installation Figure 401/31-25-11-990-801

EFFECTIVITY
AKS ALL

31-25-11

D633A101 AKS



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TASK 31-25-11-400-801

3. Clock Installation

(Figure 401)

A. General

- (1) There are four screws around each clock. There are two screws that hold the mounting clamp to the instrument panel (small screw pair). There are two screws that hold the clock to the mounting clamp (large screw pair).

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	CLOCK	31-25-11-04-020	AKS ALL

D. Location Zones

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

E. Installation Procedure

SUBTASK 31-25-11-860-003

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	1	C00736	MISC CLOCK DISPLAY
A	2	C00737	MISC CLOCK

SUBTASK 31-25-11-420-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE CLOCK. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CLOCK.

- (2) Install the CLOCK [1]:

- Remove the protective covers from the electrical connector.
- Examine the electrical connector for bent or broken pins, dirt and damage.
- Connect the electrical connector.
- Put the CLOCK [1] into the instrument panel.
- Tighten the screws that hold the CLOCK [1] to the mounting clamp.

NOTE: The clock uses four clamp screws. There are two screws that hold the clock to the mounting clamp (large screw pair). There are two screws that hold the mounting clamp to the instrument panel (small screw pair).

F. Installation Test

SUBTASK 31-25-11-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

EFFECTIVITY
AKS ALL

31-25-11



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SUBTASK 31-25-11-700-001

- (2) Do the installation test:

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00736	MISC CLOCK DISPLAY
A	2	C00737	MISC CLOCK

- (b) Set the CLOCK [1] to the correct GreenWich Mean Time (GMT) and date.
(c) Let the CLOCK [1] operate for not less than two minutes.
(d) Make sure the CLOCK [1] shows the correct time.

SUBTASK 31-25-11-860-005

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

———— END OF TASK ————



31-25-11

D633A101-AKS



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AIRCRAFT MAINTENANCE MANUAL

FLIGHT DATA RECORDER (FDR) - MAINTENANCE PRACTICES

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure contains:
 - (1) Flight Data Recorder System Deactivation
 - (2) Flight Data Recorder System Activation
 - (3) A task to set Flight Data Recorder (FDR) single state analog discrete signals. The signals are set so they are recorded by the FDR.
 - (4) A task to make a copy of the data from the Honeywell HFR5-D SSFDR with the use of a customer owned dedicated portable laptop with the Honeywell HFR5-D SSFDR download software.
 - (5) A task to make a copy of the flight data recorder data (FDR) from the Flight Data Systems hand held multi purpose interface (HHMPI)

TASK 31-31-00-040-801

2. Flight Data Recorder System - Deactivation

A. General

- (1) This procedure removes electrical power to the flight data recorder system.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Procedure

SUBTASK 31-31-00-860-739

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

D. Flight Data Recorder System - Tryout

NOTE: This tryout is to make sure the Flight Data Recorder system is in a zero energy state.

SUBTASK 31-31-00-860-740

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-710-051

- (2) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
 - (a) Make sure the OFF light on the flight recorder panel, P5, is off.
 - (b) Make sure all of the fault lights on the FDAU front panel do not come on.

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SUBTASK 31-31-00-710-052

- (3) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the NORM position.
 - (a) Push one of the MASTER CAUTION lights on the glareshield panel, P7.
 - 1) Make sure the two MASTER CAUTION lights are off.
 - 2) Make sure the OFF light on the flight recorder panel, P5, is off.

———— END OF TASK ————

TASK 31-31-00-440-801

3. Flight Data Recorder System - Activation

A. General

- (1) This procedure adds power to the flight data recorder system.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Procedure

SUBTASK 31-31-00-860-738

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

———— END OF TASK ————

TASK 31-31-00-700-801

4. Flight Data Recorder - Single State Analog Discrete Parameter Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task includes the steps to set parameters recorded by the Flight Data Recorder (FDR) before the data is downloaded.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00



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D. Prepare for the task.

SUBTASK 31-31-00-700-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.
- (2) Put the flight data recorder TEST-NORMAL switch on the P5 panel in the TEST position.

E. Procedure

SUBTASK 31-31-00-700-008

- (1) Do these steps to set the applicable overheat/fire discrete signals:
 - (a) Push the fire test switch on the overheat/fire detection panel , P8, to the OVHT/FIRE position and hold for at least 4 seconds.
 - 1) Make sure these lights on the overheat/fire detection panel, P8, are on:
 - a) ENG 1 fire handle light
 - b) ENG 2 fire handle light
 - c) Wheel Well light
 - d) APU fire light
 - (2) Push and hold the cargo smoke detection and fire suppression test button, P8-75, for at least 4 seconds.
 - (a) Make sure the CARGO light comes on.
 - (3) Do these steps to set the stall warning discrete signal:
 - (a) Push the NO. 1 STALL WARNING TEST switch.
 - 1) Make sure the captains shaker operates.
 - (b) Push the NO. 2 STALL WARNING TEST switch.
 - 1) Make sure the first officers shaker operates.
 - (4) Do these steps to set the applicable hydraulic system low pressure discrete signals:
 - (a) Make sure the A and B hydraulic systems are not pressurized. To remove hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (b) Make sure the STBY hydraulic system is not pressurized. To remove hydraulic pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.
 - (c) Do these steps to set the low hydraulic pressure system A engine 1 discrete signal:
 - 1) Remove connector D2684 from the system A engine 1 low pressure switch, S796.
 - a) Make sure the ENG 1 LOW PRESSURE light of system A on the hydraulic pump panel, P5, is off.
 - 2) Wait at least 4 seconds.
 - 3) Install connector D2684 to the system A engine 1 low pressure switch, S796.
 - a) Make sure the ENG 1 LOW PRESSURE light of system A on the hydraulic pump panel, P5, is on.
 - (d) Do these steps to set the low hydraulic pressure system B engine 2 discrete signal:
 - 1) Remove connector D2686 from the system B engine 2 low pressure switch, S797.
 - a) Make sure the ENG 2 LOW PRESSURE light of system B on the hydraulic pump panel, P5, is off.
 - 2) Wait at least 4 seconds.

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- 3) Install connector D2686 to the system B engine 2 low pressure switch, S797.
 - a) Make sure the ENG 2 LOW PRESSURE light of system B on the hydraulic pump panel, P5, is on.
- (e) Do these steps to set the standby hydraulic pressure transmitter discrete signal:

WARNING: MAKE SURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- 1) Make sure the FLT CONTROL hydraulic pressure system switches A and B on the P5 panel are not in the STBY RUD position.
- 2) Set the FLT CONTROL switch A on the P5 panel to STBY RUD.
 - a) Make sure the STANDBY HYD low pressure light on the P5 panel is off.
NOTE: The STANDBY HYD low pressure light may come on briefly when the FLT CONTROL switch is set to STBY RUD.
- 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>
F	2	C01449	STANDBY HYDRAULIC PUMP

- a) Make sure the STANDBY HYD low pressure light on the P5 panel is on.
- 4) Wait at least 4 seconds.
- 5) Set the FLT CONTROL switch A on the P5 panel to the ON position.
- 6) 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>
F	2	C01449	STANDBY HYDRAULIC PUMP

- (5) Do these steps to set the cabin altitude > 10K discrete signal:
 - (a) Remove connector D776 from the cabin pressure switch (S128).
 - (b) Apply a ground to pin A of D776 connector.
 - 1) Make sure the aural warning horn in the flight compartment comes on.
 - (c) Wait at least 4 seconds.
 - (d) Remove the ground from pin A of D776 connector.
 - (e) Install connector D776 to the cabin pressure switch (S128).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-00-700-009

- (1) Put the flight data recorder TEST-NORMAL switch on the P5 panel in the NORMAL position.
- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

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TASK 31-31-00-970-807

5. Copy of the Data from the Honeyweefl SSFDR with the Flight Data Recorder Download Unit

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task uses a customer owned dedicated portable laptop with the Flight Data Recorder Download Unit, COM-12815, HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750, HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695, HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696, or HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697 to make a copy of the flight data from a Honeywell solid state flight data recorder (SSFDR) while the FDR is in the airplane.
- (2) The copied data then can be analyzed at a different location by the applicable airline personnel or this service can be ordered though Flight Recorder Data Services found on MyBoeingFleet.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
25-21-45-400-803-001	Main Ceiling Panel - Installation (P/B 401)

C. Tools/Equipment

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

Reference	Description
COM-12815	Download Unit - Flight Data Recorder Part #: 69001074-060 Supplier: 97896 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: PL69001074-001 Supplier: 97896
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
STD-1048	Stepladder - 6 foot (1.83m)

D. Location Zones

Zone	Area
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Procedure

SUBTASK 31-31-00-860-703

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811



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SUBTASK 31-31-00-860-704

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-860-705

- (3) To get access to the flight data recorder in the aft passenger compartment, open the lowered ceiling panel Main Ceiling Panel - Installation, TASK 25-21-45-400-803-001.

SUBTASK 31-31-00-860-706

- (4) Use a 6 foot (1.83m) stepladder, STD-1048 to access the flight data recorder [2].

SUBTASK 31-31-00-860-707

- (5) Connect the Flight Data Recorder Download Unit to the Honeywell SSFDR.
- Flight Data Recorder Download Unit, COM-12815
 - HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
 - HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
 - HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
 - HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750

SUBTASK 31-31-00-860-708

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-860-709

- (7) Switch ON the Flight Data Recorder Download Unit, COM-12815.

SUBTASK 31-31-00-860-710

- (8) Put the flight data recorder TEST-NORM switch to the TEST position.

SUBTASK 31-31-00-860-711

- (9) Run the Downloader program.

- (a) Click the Download button.

- 1) Follow the prompts on the Flight Data Recorder Download Unit, COM-12815 to complete data download.

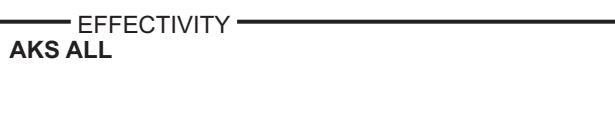
- (b) After the copy procedure is completed, click on the QUIT button.

SUBTASK 31-31-00-860-712

- (10) Put the flight data recorder TEST-NORM switch to the NORM position.

SUBTASK 31-31-00-860-713

- (11) Switch OFF the Flight Data Recorder Download Unit, COM-12815.



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SUBTASK 31-31-00-860-714

- (12) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-860-715

- (13) Disconnect the Flight Data Recorder Download Unit, COM-12815 from the FDR.

SUBTASK 31-31-00-860-716

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-860-717

- (15) Close the lowered ceiling panel Main Ceiling Panel - Installation, TASK 25-21-45-400-803-001

SUBTASK 31-31-00-860-718

- (16) Do this task if necessary: Remove Electrical Power, TASK 24-22-00-860-812

———— END OF TASK ————

TASK 31-31-00-970-808

- 6. Copy the Data from the Solid State Flight Data Recorder (SSFDR) with the Hand Held Multi Purpose Interface (HHMPI)**

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task uses the Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694 with the HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697, HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750, HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695, or HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695 to copy data from the solid state flight data recorder (SSFDR) while the SSFDR is on the airplane.
- (2) The HHMPI can store SSFDR data on the HHMPI internal memory, SD card, compact flash card or a removal PC card, Personal Computer Memory Card International Association (PCMCIA).
- (3) A reasonability assessment of the stored data can then can be done at a different location by the applicable airline personnel or this service can be ordered though Flight Data Recorder Services found on MyBoeingFleet.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
25-21-45-000-803-001	Main Ceiling Panel - Removal (P/B 401)
25-21-45-400-803-001	Main Ceiling Panel - Installation (P/B 401)



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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-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
STD-1048	Stepladder - 6 foot (1.83m)

D. Location Zones

Zone	Area
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Prepare to copy the SSFDR data

SUBTASK 31-31-00-860-719

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 31-31-00-860-720

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-010-009

- (3) To get access to the flight data recorder in the aft passenger compartment, open the lowered ceiling panel Main Ceiling Panel - Removal, TASK 25-21-45-000-803-001.

SUBTASK 31-31-00-800-006

- (4) Use a 6 foot (1.83m) stepladder, STD-1048 to access the flight data recorder.

SUBTASK 31-31-00-840-010

- (5) Make sure the HHMPI is OFF.

SUBTASK 31-31-00-840-011

- (6) Connect the HHMPI cable to the SSFDR.
 - HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
 - HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
 - HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
 - HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750



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SUBTASK 31-31-00-840-012

- (7) Install the removable media into the HHMPI if required.

SUBTASK 31-31-00-860-721

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-840-013

- (9) Put the flight data recorder TEST-NORM switch to the TEST position.

F. Procedure

SUBTASK 31-31-00-970-001

- (1) Select aircraft type, model and tail number if required.
- (2) Select the memory device to store the data.

NOTE: A file download onto the HHMPI's Internal Memory will not appear if an SD memory card is connected. The SD card will override the internal memory function. Remove the SD storage card if access to the internal memory is required.

- (3) Make sure DOWNLOAD ALL DATA initializes.
 - (a) Press the C button to cancel the download.
- (4) Press the OK button when download has completed.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-00-860-722

- (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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-840-014

- (2) Disconnect the HHMPI cable from the SSFDR.
- (3) Remove the media if required.

SUBTASK 31-31-00-860-723

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-00-840-015

- (5) Put the flight data recorder TEST-NORM switch to the NORMAL position.

SUBTASK 31-31-00-410-009

- (6) Close the lowered ceiling panel Main Ceiling Panel - Installation, TASK 25-21-45-400-803-001

———— END OF TASK ————



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FLIGHT DATA RECORDER SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has these tasks:
- (1) An operational test of the flight data recorder system.
 - (2) A system test of the flight data recorder system.

TASK 31-31-00-710-801

2. Flight Data Recorder System - Operational Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
31-31-11-000-802	Flight Data Recorder Removal (P/B 401)
31-31-11-400-802	Flight Data Recorder Installation (P/B 401)
31-31-22-000-801	Digital Flight Data Acquisition Unit (DFDAU) Removal (P/B 401)
31-31-22-400-801	Digital Flight Data Acquisition Unit (DFDAU) Installation (P/B 401)
31-31-22-400-802	Flight Data Acquisition Unit (FDAU) ACMS Application Software Installation with the use of the Teledyne PCMCIA Interface (P/B 201)
31-31-22-470-801	Flight Data Acquisition Unit (FDAU) Software Installation with a Portable Data Loader (P/B 201)

B. Location Zones

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

C. Prepare for the Test

SUBTASK 31-31-00-860-042

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.
 - (a) Make sure the engines are off.

D. Software Verification Test

SUBTASK 31-31-00-020-006

- (1) Do these steps to do a software configuration check of the flight data acquisition unit (FDAU):

NOTE: Make sure you know the correct software part number for the FDAU. For the FDAU to be an approved installation, the correct software part number must be installed.

- (a) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

- (b) Do these steps at the data loader control panel:
 - 1) Set the upper switch to SINGLE SYS.
 - 2) Set the system select switch to the applicable position.
 - a) DFDAU position for the FDAU mandatory software.

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- b) ACMS position for the FDAU non-mandatory software.
- (c) Do these steps at the MCDU.
- 1) Select the MENU key on the MCDU.
 - 2) Select LSK adjacent to the DFDAU prompt on the MCDU.
 - 3) Select the LSK adjacent to the STATUS prompt on the MCDU.
 - 4) Select the LSK adjacent to the VERSIONS prompt on the MCDU.
- NOTE: The Versions Page will be displayed.
- 5) Make sure that the software part number information displayed on the MCDU for the DFDAU Mandatory is correct.
 - 6) Make sure that the software part number information displayed on the MCDU for the DFDAU Non-Mandatory is correct.
 - 7) If the displayed software part number information is not correct install the correct software per any of the following procedures: Flight Data Acquisition Unit (FDAU) Software Installation with a Portable Data Loader, TASK 31-31-22-470-801 or Flight Data Acquisition Unit (FDAU) ACMS Application Software Installation with the use of the Teledyne PCMCIA Interface, TASK 31-31-22-400-802.

E. Flight Data Recorder (FDR) Maintenance Flag and Flight Data Acquisition Unit (FDAU) BITE Test

SUBTASK 31-31-00-710-027

- (1) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
 - (a) Make sure the OFF light on the flight recorder panel, P5, is off.
 - (b) Make sure all of the fault lights on the FDAU front panel are off.

SUBTASK 31-31-00-710-028

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC

SUBTASK 31-31-00-710-029

- (3) Remove the flight data recorder. To remove it, do this task: Flight Data Recorder Removal, TASK 31-31-11-000-802.

SUBTASK 31-31-00-860-338

- (4) Remove safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC

- (a) Make sure the DFDR light on the FDAU front panel comes on.

SUBTASK 31-31-00-710-030

- (5) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC



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SUBTASK 31-31-00-860-339

- (6) Install the flight data recorder. To install it, do this task: Flight Data Recorder Installation, TASK 31-31-11-400-802.

SUBTASK 31-31-00-860-340

- (7) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row Col Number Name

C	8	C00544	FLIGHT RECORDER POSITION SENSOR
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SUBTASK 31-31-00-710-031

- (8) Remove the flight data acquisition unit (FDAU). To remove it, do this task: Digital Flight Data Acquisition Unit (DFDAU) Removal, TASK 31-31-22-000-801.

SUBTASK 31-31-00-710-032

- (9) Remove safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row Col Number Name

C	9	C00109	FLIGHT RECORDER AC
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- (a) Make sure the NORMAL/TEST switch on the flight recorder panel, P5, is in the TEST position.
(b) Make sure the OFF light on the flight recorder panel, P5, comes on.

SUBTASK 31-31-00-860-341

- (10) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row Col Number Name

C	9	C00109	FLIGHT RECORDER AC
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SUBTASK 31-31-00-860-342

- (11) Install the flight data acquisition unit (FDAU). To install it, do this task: Digital Flight Data Acquisition Unit (DFDAU) Installation, TASK 31-31-22-400-801.

SUBTASK 31-31-00-860-343

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

CAPT Electrical System Panel, P18-2

Row Col Number Name

C	8	C00544	FLIGHT RECORDER POSITION SENSOR
---	---	--------	---------------------------------

C	9	C00109	FLIGHT RECORDER AC
---	---	--------	--------------------

- (a) Make sure the OFF light on the flight recorder panel, P5, goes out.

SUBTASK 31-31-00-860-344

- (13) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the NORM position.

F. Flight Data Recorder Activation by the NORMAL/TEST Switch Test

SUBTASK 31-31-00-710-001

- (1) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the NORM position.

SUBTASK 31-31-00-710-002

- (2) Push one of the MASTER CAUTION lights on the glareshield panel, P7.

- (a) Make sure the two MASTER CAUTION lights are off.



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- (b) Make sure the OFF light on the flight recorder panel, P5, is on.

SUBTASK 31-31-00-710-003

- (3) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
(a) Make sure the OFF light on the flight data recorder panel, P5, is off.

SUBTASK 31-31-00-710-048

- (4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the NORMAL position.
(a) Make sure the OFF light on the flight data recorder panel, P5, is on.
(b) Make sure the two MASTER CAUTION lights are on.

SUBTASK 31-31-00-860-432

- (5) Push one of the MASTER CAUTION lights.

G. Flight Data Recorder Activation by the Engine Running Relay (Oil Pressure Switch Test)

SUBTASK 31-31-00-710-034

- (1) Make sure the NORMAI/TEST switch on the Flight Recorder/Mach Airspeed panel is set in the NORMAL position.

SUBTASK 31-31-00-710-004

- (2) Put the engine 1 start lever to the IDLE position.

SUBTASK 31-31-00-710-005

- (3) Wait for a minimum of 5 minutes.
(a) Make sure the OFF light on the flight data recorder panel, P5, is off.
(b) Make sure the two MASTER CAUTION lights are off.

SUBTASK 31-31-00-710-006

- (4) Put the engine 1 start lever to the CUTOFF position.
(a) Make sure the OFF light on the flight data recorder panel, P5, comes on.
(b) Make sure the two MASTER CAUTION lights come on.

SUBTASK 31-31-00-860-044

- (5) Push one of the MASTER CAUTION lights.

SUBTASK 31-31-00-860-045

- (6) Put the engine 2 start lever to the IDLE position.

SUBTASK 31-31-00-710-007

- (7) Wait for a minimum of 5 minutes.
(a) Make sure the OFF light on the flight data recorder panel, P5, is off.
(b) Make sure the two MASTER CAUTION lights are off.

SUBTASK 31-31-00-710-008

- (8) Put the engine 2 start lever to the CUTOFF position.
(a) Make sure the OFF light on the flight data recorder panel, P5, comes on.
(b) Make sure the two MASTER CAUTION lights come on.

SUBTASK 31-31-00-860-046

- (9) Push one of the MASTER CAUTION lights.

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H. Flight Data Recorder Activation by the AIR Switch Test

SUBTASK 31-31-00-710-009

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES AND LANDING DOOR AREAS. CONTROL SURFACES AND LANDING GEAR DOORS CAN MOVE WHEN YOU DO THE AIR MODE SIMULATION. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Push the ON/OFF key to turn on the proximity switch electronics unit (PSEU) in the forward electronics equipment bay.

SUBTASK 31-31-00-710-035

- (2) Push the ARROW DOWN key until AIR/GND OVRD? shows on the PSEU display.

SUBTASK 31-31-00-710-036

- (3) Push the YES key on the PSEU.

SUBTASK 31-31-00-710-037

- (4) Push the ARROW DOWN key until SET SYS 2 IN AIR? shows on the PSEU display.

SUBTASK 31-31-00-710-038

- (5) Push the YES key on the PSEU.

SUBTASK 31-31-00-710-039

- (6) Push the YES key when the PSEU display shows ARE YOU SURE?.

(a) Make sure the SYS #2 IN AIR? light on the PSEU comes on.

(b) Make sure the OFF light on the flight data recorder panel, P5, is off.

SUBTASK 31-31-00-710-040

- (7) Push the YES key when the PSEU display shows SET SYS 2 ON GND?

SUBTASK 31-31-00-710-041

- (8) Push the YES key when the PSEU display shows ARE YOU SURE?

(a) Make sure the SYS #2 IN AIR? light on the PSEU is off.

(b) Make sure the OFF light on the flight data recorder panel, P5, comes on.

SUBTASK 31-31-00-710-042

- (9) Push the ON/OFF key to turn off the PSEU.

SUBTASK 31-31-00-710-043

- (10) Push the YES key when the PSEU display shows TURN OFF DISPLAY?

———— END OF TASK ————

TASK 31-31-00-730-801

3. Flight Data Recorder System - System Test

A. General

- (1) The system test has procedures to do a check of the inputs to the flight data recorder system. You can do the tests out of sequence and you can do each test independently.
- (2) The tests in this procedure are written to the standard Boeing application software. If customized software is installed, part of the test may not look the same. Installation of the Boeing application software may be necessary.



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B. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
31-31-81-000-801	Flight Data Recorder Accelerometer Removal (P/B 401)
31-31-81-400-801	Flight Data Recorder Accelerometer Installation (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
77-31-03-000-801-F00	Airborne Vibration Monitor (AVM) Signal Conditioner Removal (P/B 401)
77-31-03-400-801-F00	Airborne Vibration Monitor (AVM) Signal Conditioner Installation (P/B 401)

C. Tools/Equipment

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

Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-920	Test Set - ATC (Modes A, C, & S) Part #: IFR 6000 Supplier: 51190 Part #: TR-210 Supplier: 92606 Part #: TR-220 Supplier: 92606 Opt Part #: ATC-601 Supplier: 51190 Opt Part #: ATC-601-2 Supplier: 51190 Opt Part #: T-48D Supplier: 92606 Opt Part #: T-49C Supplier: 92606 Opt Part #: TR-211 Supplier: 92606
COM-1562	Analyzer - Data Bus, ARINC 429 Part #: 01-1001-05 Supplier: 0Z3C6 Part #: 01-1001-12 Supplier: 0Z3C6 Part #: 403557 Supplier: \$1272 Part #: 800-0630 Supplier: 1JSZ6 Part #: DT400H Supplier: 0Z3C6 Part #: TYPE 030/026 Supplier: \$0494 Part #: UA1410 Supplier: 0H231 Opt Part #: 01-1001-10 Supplier: 0Z3C6 Opt Part #: 01-1404-00 Supplier: 41364 Opt Part #: 429EBP Supplier: 41364 Opt Part #: 429EX Supplier: 41364 Opt Part #: 702125-01 Supplier: \$1272 Opt Part #: MODEL 429HBA Supplier: 5J927



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Reference	Description
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: OH231
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205
SPL-1680	Protractor - Assembly, Control Column Part #: 4MIT65B80307-1 Supplier: 81205 Part #: A27021-29 Supplier: 81205 Part #: G76002-19 Supplier: 81205
SPL-1690	Actuators/Deactuators Set - Proximity Sensor Part #: 8-758-01 Supplier: 08748 Part #: A27092-106 Supplier: 81205 Opt Part #: A27092-84 Supplier: 81205
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205
SPL-1917	Fixture - Test, Angle of Attack Sensor, ROSEMOUNT AOA's Part #: J34002-19 Supplier: 81205 Opt Part #: A34012-19 Supplier: 81205 Opt Part #: A34012-24 Supplier: 81205 Opt Part #: J34002-18 Supplier: 81205

D. Location Zones

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

E. Prepare for the System Test

SUBTASK 31-31-00-860-345

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.
 - (a) Make sure the engines are off.

SUBTASK 31-31-00-710-033

- (2) Do this task: Flight Data Recorder System - Operational Test, TASK 31-31-00-710-801.



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SUBTASK 31-31-00-710-049

- (3) Use one of the Portable Testers listed below to perform the test:
- Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694
 - 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- Connect the HHMPI cable to the SSFDR:
 - HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
 - HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
 - HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
 - HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750
- Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- Put the TEST-NORMAL switch in the TEST position.
- Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- Do these steps to prepare the Teledyne portable tester, COM-1807.
 - Remove the shorting plug from the system test plug on the P18 panel.
 - 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- Use the portable tester adapter cable, SPL-1808, to connect the portable tester, COM-1807, to the system test plug.
- Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.
- Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.

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- 7) Set the portable tester, COM-1807, to read 512 WPS.
- (c) Do the steps below to prepare the handheld download unit, COM-913 for the system test.

NOTE: These steps are only applicable to airplanes with AlliedSignal Solid State Flight Data Recorder (FDR).

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the button that energizes the handheld download unit, COM-913.
- 6) Set the DSDU switch on the handheld download unit, COM-913.
- 7) Set the BASE switch handheld download unit, COM-913.
- 8) Set the WORD and SUBFRAME as specified.

F. Printer Interface Test

SUBTASK 31-31-00-860-473

- (1) Select the MENU key from the left and the right MCDUs.

SUBTASK 31-31-00-860-474

- (2) Select the ACMS prompt from the left or the right MCDU.

SUBTASK 31-31-00-860-475

- (3) Select the DEVICE INTERFACE prompt from the MCDU.

SUBTASK 31-31-00-860-476

- (4) Select the PRINTER prompt from the MCDU.

SUBTASK 31-31-00-860-477

- (5) Select the PRINT prompt from the MCDU.

- (a) Make sure that the printer prints a message.

NOTE: The content of the message is not important.

G. AIR/GROUND Logic Discrete Signal Test

SUBTASK 31-31-00-710-018

- (1) Set the tester to subframe 0, word 7.



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SUBTASK 31-31-00-730-002

WARNING: MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES AND LANDING GEAR DOOR AREAS. THE CONTROL SURFACES, THE LANDING GEAR, AND THE LANDING GEAR DOORS CAN MOVE WHEN YOU DO THE AIR MODE SIMULATION. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do these steps to do air mode simulation:

- (a) Push the ON/OFF key on the PSEU.
(b) Select the following commands:

NOTE: Use the ARROW DOWN and ARROW UP keys to move up and the menu, then push the YES key to select the command.

- 1) AIR/GND OVRD?
 - 2) SET SYS #2 IN AIR?
 - 3) ARE YOU SURE?
- (c) Make sure the SYS #2 IN AIR light on the PSEU comes on.
(d) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-003

- (3) Do these steps to return the airplane to the ground mode:

- (a) Select the following commands:

NOTE: Use the ARROW DOWN and ARROW UP keys to move up and the menu, then push the YES key to select the command.

- 1) SET SYS #2 ON GROUND?
 - 2) ARE YOU SURE?
- (b) Make sure the SYS #2 IN AIR light on the PSEU goes out.
(c) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-004

- (4) Set the tester to subframe 0, word 7.

SUBTASK 31-31-00-710-021

- (5) Put a deactuator from the proximity sensor test set, SPL-1690, between the face and the steel target of the nose gear air/ground sensors, S1014 and S1015.

- (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-710-022

- (6) Remove the deactuator.

- (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-710-044

- (7) Set the tester to subframe 0, word 5.

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SUBTASK 31-31-00-730-071

WARNING: MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES AND LANDING GEAR DOOR AREAS. THE CONTROL SURFACES, THE LANDING GEAR, AND THE LANDING GEAR DOORS CAN MOVE WHEN YOU DO THE AIR MODE SIMULATION. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Do these steps to do air mode simulation:

- (a) Push the ON/OFF key on the PSEU.
- (b) Select the following commands:

NOTE: Use the ARROW DOWN and ARROW UP keys to move up and the menu, then push the YES key to select the command.

- 1) AIR/GND OVRD?
- 2) SET SYS #1 IN AIR?
- 3) ARE YOU SURE?

(c) Make sure the SYS #1 IN AIR light on the PSEU comes on.

(d) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-072

(9) Do these steps to return the airplane to the ground mode:

(a) Select the following commands:

NOTE: Use the ARROW DOWN and ARROW UP keys to move up and the menu, then push the YES key to select the command.

- 1) SET SYS #1 ON GROUND?
- 2) ARE YOU SURE?

(b) Make sure the SYS #1 IN AIR light on the PSEU goes out.

(c) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-005

(10) Set the tester to subframe 0, word 5.

SUBTASK 31-31-00-710-023

(11) Put a deactuator from the proximity sensor test set, SPL-1690, between the face and the steel target of the main gear air/ground sensors, S1010 and S1011.

(a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-710-024

(12) Remove the deactuator.

(a) Make sure bit 1 on the tester is a 1.

H. Autothrottle Digital Data Bus Signal Test

SUBTASK 31-31-00-860-592

(1) Do the following steps from the FMC CDU:

- (a) Push the LSK next to FMC.
 - 1) Make sure the display shows the IDENT 1/2 PAGES.
- (b) Push the LSK next to INDEX.
 - 1) Make sure the display shows the INIT/REF INDEX 1/1 PAGE.



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- (c) Push the LSK next to TAKEOFF.
 - 1) Make sure the display shows the TAKEOFF REF 1/2 PAGES.
- (d) Push the NEXT PAGE page key.
- (e) Enter into the scratchpad a forward slash symbol (/) and the outside air temperature (OAT).

NOTE: The total air temperature (TAT) value that is shown on the Primary Engine Display can be used as the OAT value.
- (f) Push the LSK next to the OAT.
 - 1) Make sure the display shows the OAT value that was entered.
- (g) Push the MENU key to return to the main menu.

SUBTASK 31-31-00-860-054

- (2) Set the tester to subframe 0, word 158.

SUBTASK 31-31-00-860-055

- (3) Put the A/T switch on the mode control panel, P7, to the ARM position.
 - (a) Make sure the A/T warning light, P1, is off.
 - (b) Make sure the bit 10 on the tester is a 1.

SUBTASK 31-31-00-860-056

- (4) Push the A/T disconnect switch on the thrust reverser lever.
 - (a) Make sure the A/T warning light, P1, flashes.
 - (b) Make sure the bit 10 on the tester is a 0.

I. Autothrottle Warning Discrete Signal Test

SUBTASK 31-31-00-860-593

- (1) Do the following steps from the FMC CDU:
 - (a) Push the LSK next to FMC.
 - 1) Make sure the display shows the IDENT 1/2 PAGES.
 - (b) Push the LSK next to INDEX.
 - 1) Make sure the display shows the INIT/REF INDEX 1/1 PAGE.
 - (c) Push the LSK next to TAKEOFF.
 - 1) Make sure the display shows the TAKEOFF REF 1/2 PAGES.
 - (d) Push the NEXT PAGE page key.
 - (e) Enter into the scratchpad a forward slash symbol (/) and the outside air temperature (OAT).

NOTE: The total air temperature (TAT) value that is shown on the Primary Engine Display can be used as the OAT value.
 - (f) Push the LSK next to the OAT.
 - 1) Make sure the display shows the OAT value that was entered.
 - (g) Push the MENU key to return to the main menu.

SUBTASK 31-31-00-860-057

- (2) Set the tester to subframe 0, word 222.

SUBTASK 31-31-00-860-058

- (3) Put the A/T switch on the mode control panel, P7, to the ARM position.

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- (a) Make sure the A/T Warning light, P1, is off.
- (b) Make sure the bit 10 on the tester is a 1.

SUBTASK 31-31-00-860-059

- (4) Push the A/T disconnect switch on the thrust reverser lever.
 - (a) Make sure the A/T warning light, P1, flashes.
 - (b) Make sure the bit 10 on the tester is a 0.

J. Cabin Altitude > 10K ft Discrete Signal Test

SUBTASK 31-31-00-860-060

- (1) Set the tester to subframe 0, word 304.

SUBTASK 31-31-00-710-025

- (2) Remove connector D776 from the cabin pressure switch (S128).

SUBTASK 31-31-00-730-006

- (3) Apply a ground to pin A of D776 connector.
 - (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-007

- (4) Remove the ground from pin A of D776 connector.
 - (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-420-008

- (5) Install connector D776 to the cabin pressure switch, S128.

K. Fire Warning Discrete Signal Test

SUBTASK 31-31-00-730-008

- (1) Do these steps to do a check of the wheel well fire discrete:
 - (a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	22	C00407	FIRE PROTECTION DETECTION ENG 2
A	23	C00403	FIRE PROTECTION DETECTION APU
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

- (b) Set the tester to subframe 0, word 222.
- (c) Put the fire test switch on the overheat/fire detection panel, P8, to the OVHT/FIRE position.
 - 1) Make sure the wheel well light on the overheat/fire detection panel, P8, is on.
 - 2) Make sure the bit 5 on the tester is a 1.
- (d) Release the fire test switch.
 - 1) Make sure the wheel well light on the overheat/fire detection panel, P8, is off.
 - 2) Make sure the bit 5 on the tester is a 0.
- (e) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	19	C00388	FIRE PROTECTION DET OVHT WW WING BODY



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- (f) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	23	C00403	FIRE PROTECTION DETECTION APU

SUBTASK 31-31-00-860-061

- (2) Do these steps to do a check of the APU fire discrete:
- (a) Make sure the tester is set to subframe 0, word 222.
 - (b) Put the fire test switch on the overheat/fire detection panel, P8, to the OVHT/FIRE position.
 - 1) Make sure the APU fire light on the overheat/fire detection panel, P8, is on.
 - 2) Make sure the bit 6 on the tester is a 1.
 - (c) Release the fire test switch.
 - 1) Make sure the APU fire light on the overheat/fire detection panel, P8, is off.
 - 2) Make sure the bit 6 on the tester is a 0.
 - (d) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	23	C00403	FIRE PROTECTION DETECTION APU

- (e) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

SUBTASK 31-31-00-860-062

- (3) Do these steps to do a check of the engine 1 fire discrete:
- (a) Make sure the tester is set to subframe 0, word 222.
 - (b) Push the fire test switch on the overheat/fire detection panel, P8, to the OVHT/FIRE position.
 - 1) Make sure the ENG 1 fire handle light on the overheat/fire detection panel, P8, is on.
 - 2) Make sure the bit 8 on the tester is a 1.
 - (c) Release the fire test switch.
 - 1) Make sure the ENG 1 fire handle light on the overheat/fire detection panel, P8, is off.
 - 2) Make sure the bit 8 on the tester is a 0.
 - (d) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

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- (e) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	22	C00407	FIRE PROTECTION DETECTION ENG 2

SUBTASK 31-31-00-730-009

- (4) Do these steps to do a check of the engine 2 fire discrete:
- Make sure the tester is set to subframe 0, word 222.
 - Push the fire test switch on the overheat/fire detection panel, P8, to the OVHT/FIRE position.
 - Make sure the ENG 2 fire handle light on the overheat/fire detection panel, P8, is on.
 - Make sure the bit 7 on the tester is a 1.
 - Release the fire test switch.
 - Make sure the ENG 2 fire light on the overheat/fire detection panel, P8, is off.
 - Make sure the bit 7 on the tester is a 0.
- (d) Remove 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>
A	19	C00388	FIRE PROTECTION DET OVHT WW WING BODY
A	23	C00403	FIRE PROTECTION DETECTION APU
A	24	C00405	FIRE PROTECTION DETECTION ENG 1

L. Fuel Cutoff Discrete Signal Test

SUBTASK 31-31-00-860-063

- (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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 31-31-00-860-064

- (2) Make sure pneumatic pressure is off for both engines.

SUBTASK 31-31-00-860-065

- (3) Make sure the fire handles are in the NORMAL position.

SUBTASK 31-31-00-730-010

- (4) Do these steps to do a check of the engine 1 fuel cutoff discrete:
- Set the tester to subframe 0, word 301.
 - Put the engine 1 start lever to the IDLE position.
 - Make sure the bit 1 on the tester is a 0.

EFFECTIVITY
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- (c) Put the engine 1 start lever to the CUTOFF position.
 - 1) Make sure the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-066

- (5) Do these steps to do a check of the engine 2 fuel cutoff discrete:
 - (a) Set the tester to subframe 0, word 301.
 - (b) Put the engine 2 start lever to the IDLE position.
 - 1) Make sure the bit 2 on the tester is a 0.
 - (c) Put the engine 2 start lever to the CUTOFF position.
 - 1) Make sure the bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-067

- (6) Remove safety tags and 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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

M. Hydraulic System Low Pressure Discretes Signal Test

SUBTASK 31-31-00-860-068

- (1) Make sure the A and B hydraulic systems are not pressurized. To remove hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-31-00-860-069

- (2) Make sure the STBY hydraulic system is not pressurized. To remove hydraulic pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 31-31-00-730-011

- (3) Do these steps to do a check of the low hydraulic pressure discrete of system A engine 1:
 - (a) Set the tester to subframe 0, word 190 (Dataframe 7).
 - (b) Remove connector D2684 from the system A engine 1 low pressure switch, S796.
 - 1) Make sure the ENG 1 LOW PRESSURE light of system A on the hydraulic pump panel, P5, is off.
 - 2) Make sure bit 1 on the tester is a 1.
 - (c) Install connector D2684 to the system A engine 1 low pressure switch, S796.
 - 1) Make sure the ENG 1 LOW PRESSURE light of system A on the hydraulic pump panel, P5, is on.
 - 2) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-070

- (4) Do these steps to do a check of the low hydraulic pressure discrete for system B engine 2:
 - (a) Set the tester to subframe 0, word 191 (Dataframe 7).
 - (b) Remove connector D2686 from the system B engine 2 low pressure switch, S797.



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- 1) Make sure the ENG 2 LOW PRESSURE light of system B on the hydraulic pump panel, P5, is off.
 - 2) Make sure the bit 1 on the tester is a 1.
- (c) Install connector D2686 to the system B engine 2 low pressure switch, S797.
- 1) Make sure the ENG 2 LOW PRESSURE light of system B on the hydraulic pump panel, P5, is on.
 - 2) Make sure the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-071

- (5) Do these steps to do a check of the low hydraulic pressure discrete signal of system B electric 1:
- (a) Set the tester to subframe 0, word 191 (Dataframe 7).

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (b) Put the system B ELEC 1 switch on the hydraulic pump panel, P5, to the ON position.
 - 1) Make sure the ELEC 1 LOW PRESSURE light of system B on the hydraulic pump panel, P5, is off.
 - 2) Make sure the bit 2 on the tester is a 1.
- (c) Put the system B ELEC 1 switch on the hydraulic pump panel, P5, to the OFF position.
 - 1) Make sure the ELEC 1 LOW PRESSURE light of system B on the hydraulic pump panel, P5, is on.
 - 2) Make sure the bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-073

- (6) Do these steps to do a check of the low hydraulic pressure discrete signal of the system A electric 2:
- (a) Set the tester to subframe 0, word 190 (Dataframe 7).

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WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (b) Put the system A ELEC 2 switch on the hydraulic pump panel, P5, to the ON position.
 - 1) Make sure the ELEC 2 LOW PRESSURE light of system A on the hydraulic pump panel, P5, is off.
 - 2) Make sure the bit 2 on the tester is a 1.
- (c) Put the system A ELEC 2 switch on the hydraulic pump panel, P5, to the OFF position.
 - 1) Make sure the ELEC 2 LOW PRESSURE light of system A on the hydraulic pump panel, P5, is on.
 - 2) Make sure the bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-012

- (7) Do these steps to do a check of the low hydraulic pressure discrete signal of the standby hydraulic system:

- (a) Set the tester to subframe 0, word 192 (Dataframe 7).
- (b) Make sure that this circuit breaker is closed:

Power Distribution Panel Number 2, P92

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	2	C01449	STANDBY HYDRAULIC PUMP

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WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (c) Put the system A FLT CONTROL switch on the flight control panel, P5, to the STBY RUD position.
 - 1) Make sure the LOW PRESSURE light of the standby hydraulic system on the flight control panel, P5, is off.
 - 2) Make sure the bit 1 on the tester is a 1.
- (d) 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>
F	2	C01449	STANDBY HYDRAULIC PUMP

- 1) Make sure the LOW PRESSURE light of the standby hydraulic system on the flight control panel, P5, is on.
- 2) Make sure the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-519

- (8) Put the system A FLT CONTROL switch on the flight control panel, P5, to the ON position.

SUBTASK 31-31-00-860-317

- (9) 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>
F	2	C01449	STANDBY HYDRAULIC PUMP

N. IRS Switch Discrete Signal Test

SUBTASK 31-31-00-730-013

- (1) Set the tester to subframe 0, word 178.

SUBTASK 31-31-00-860-074

- (2) Put the IRS switch on the instrument switching panel, P5, to the Both-On-R position.
 - (a) Make sure BIT 2 on the tester is a 1.

SUBTASK 31-31-00-860-075

- (3) Put the IRS switch on the instrument switching panel, P5, to the NORMAL position.
 - (a) Make sure BIT 2 on the tester is a 0.

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O. Landing Gear Position Discrete Signal Test

SUBTASK 31-31-00-860-076

- (1) Make sure the airplane is in the ground mode.

SUBTASK 31-31-00-860-077

- (2) Make sure the three landing gears are down and locked.

SUBTASK 31-31-00-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Make sure the downlock pins are installed on the nose and main landing gear. If the downlock pins are not installed, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 31-31-00-730-014

- (4) Make sure all the green landing gear lights on the center main panel, P2, are on.

SUBTASK 31-31-00-730-073

- (5) Make sure all the red landing gear lights on the center main panel, P2, are off.

SUBTASK 31-31-00-860-080

- (6) Set the tester to subframe 0, word 77.
 - (a) Make sure the RH green light is on.
 - (b) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-433

- (7) Set the tester to subframe 0, word 222.
 - (a) Make sure the RH red light is off.
 - (b) Make sure bit 3 on the tester is a 1.

SUBTASK 31-31-00-860-434

- (8) Put deactuators from proximity sensor test set, SPL-1690, between the face of the lock sensor and its steel target for the No. 1 and No. 2 right gear sensors, S73 and S301.
 - (a) Make sure the green light of the right landing gear is off.
 - (b) Make sure the red light of the right landing gear is on.

SUBTASK 31-31-00-860-081

- (9) Set the tester to subframe 0, word 222.
 - (a) Make sure the red light of the right landing gear is on.
 - (b) Make sure the bit 3 on the tester is a 0.

SUBTASK 31-31-00-860-435

- (10) Set the tester to subframe 0, word 77.
 - (a) Make sure the green light of the right landing gear is off.
 - (b) Make sure the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-436

- (11) Remove the deactuators.

SUBTASK 31-31-00-860-082

- (12) Set the tester to subframe 0, word 77.
 - (a) Make sure the green light of the left landing gear is on.

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- (b) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-437

- (13) Set the tester to subframe 0, word 222.
(a) Make sure the red light of the left landing gear is off.
(b) Make sure bit 4 on the tester is a 1.

SUBTASK 31-31-00-860-438

- (14) Put deactuators from proximity sensor test set, SPL-1690, between the face of the lock sensor and its steel target for the No. 1 and No. 2 left gear sensors, S71 and S302.
(a) Make sure the green light of the left landing gear is off.
(b) Make sure the red light of the left landing gear is on.

SUBTASK 31-31-00-860-084

- (15) Set the tester to subframe 0, word 77.
(a) Make sure the bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-085

- (16) Set the tester to subframe 0, word 222.
(a) Make sure the bit 4 on the tester is a 0.

SUBTASK 31-31-00-860-087

- (17) Remove the deactuators.

SUBTASK 31-31-00-860-088

- (18) Set the tester to subframe 0, word 76.
(a) Make sure the green light of the nose landing gear is on.
(b) Make sure the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-439

- (19) Set the tester to subframe 0, word 222.
(a) Make sure the red light of the nose landing gear is off.
(b) Make sure the bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-089

- (20) Put deactuators from proximity sensor test set, SPL-1690, between the face of the lock sensor and the steel targets for the No. 1 and No. 2 nose gear sensors, S846 and S854.
(a) Make sure the green light of the nose landing gear is off.
(b) Make sure the red light of the nose landing gear is on.

SUBTASK 31-31-00-860-090

- (21) Set the tester to subframe 0, word 76.
(a) Make sure the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-091

- (22) Set the tester to subframe 0, word 222.
(a) Make sure the bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-588

- (23) Remove the deactuators.



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P. FSEU Digital Bus Test

SUBTASK 31-31-00-730-015

- (1) Set the tester to subframe 0, word 444.

SUBTASK 31-31-00-730-016

- (2) Put the ALTERNATE FLAP master arming switch on the flight control panel, P5, to the ARM position.
 - (a) Make sure the bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-017

- (3) Put the ALTERNATE FLAP master arming switch on the flight control panel, P5, to the OFF position.
 - (a) Make sure the bit 1 on the tester is a 0.

Q. Main/Alt Brake Select Discrete Signal Test

SUBTASK 31-31-00-730-074

- (1) Make sure the parking brakes are not set.

SUBTASK 31-31-00-730-018

- (2) Set the tester to subframe 0, word 122 (Dataframe 7).

SUBTASK 31-31-00-730-019

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (3) Put the ELEC 1 system B switch on the hydraulic pump panel, P5, to the ON position.
 - (a) Make sure hydraulic systems A and Standby are off.
 - (b) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-020

- (4) Put the ELEC 1 system B switch on the hydraulic pump panel, P5, to the OFF position.



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SUBTASK 31-31-00-730-021

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (5) Put the ELEC 2 system A switch on the hydraulic pump panel, P5, to the ON position.
 - (a) Make sure hydraulic systems B and Standby are off.
 - (b) Push the captain's brake pedals to remove pressure from the main brake lines.
 - (c) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-022

- (6) Put the system A ELEC 2 switch on the hydraulic pump panel, P5, to the OFF position.

R. AC and DC Bus Indication Discrete Signal Test

SUBTASK 31-31-00-730-023

- (1) Set the tester to subframe 0, word 108 (Dataframe 3C or 7).

SUBTASK 31-31-00-730-024

- (2) 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>
D	13	C01467	AC BUS XFR BUS 2 115V AC IND

- (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-025

- (3) Remove 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>
D	13	C01467	AC BUS XFR BUS 2 115V AC IND

- (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-157

- (4) Set the tester to subframe 0, word 236 (Dataframe 3C or 7).



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SUBTASK 31-31-00-730-026

- (5) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row Col Number Name

D 16 C00072 AC BUS STBY BUS 115V AC IND

- (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-027

- (6) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row Col Number Name

D 16 C00072 AC BUS STBY BUS 115V AC IND

- (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-028

- (7) Set the tester to subframe 0, word 89.

SUBTASK 31-31-00-730-029

- (8) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row Col Number Name

F 16 C00023 DC BUS INDICATION BUS 1

- (a) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-030

- (9) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row Col Number Name

F 16 C00023 DC BUS INDICATION BUS 1

- (a) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-031

- (10) Set the tester to subframe 0, word 406.

SUBTASK 31-31-00-730-032

- (11) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row Col Number Name

F 14 C00026 DC BUS INDICATION BAT

- (a) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-033

- (12) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row Col Number Name

F 14 C00026 DC BUS INDICATION BAT

- (a) Make sure bit 2 on the tester is a 1.

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SUBTASK 31-31-00-730-034

- (13) Set the tester to subframe 0, word 90.

SUBTASK 31-31-00-730-035

- (14) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row Col Number Name

E	15	C00134	DC BUS INDICATION HOT BAT
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- (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-036

- (15) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row Col Number Name

E	15	C00134	DC BUS INDICATION HOT BAT
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- (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-037

- (16) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row Col Number Name

E	16	C01466	DC BUS INDICATION SW HOT BAT
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- (a) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-730-038

- (17) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row Col Number Name

E	16	C01466	DC BUS INDICATION SW HOT BAT
---	----	--------	------------------------------

- (a) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-730-039

- (18) Set the tester to subframe 0, word 406.

SUBTASK 31-31-00-730-040

- (19) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-4

Row Col Number Name

E	18	C00136	DC BUS INDICATION STBY
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- (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-041

- (20) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row Col Number Name

E	18	C00136	DC BUS INDICATION STBY
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- (a) Make sure bit 1 on the tester is a 1.

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SUBTASK 31-31-00-730-042

- (21) Set the tester to subframe 0, word 89.

SUBTASK 31-31-00-730-043

- (22) 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	18	C01338	DC BUS INDICATION BUS 2

- (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-044

- (23) Remove 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	18	C01338	DC BUS INDICATION BUS 2

- (a) Make sure bit 1 on the tester is a 1.

S. Master Caution Annunciation Discrete Signal Test

SUBTASK 31-31-00-730-045

- (1) Set the tester to subframe 0, word 231.

SUBTASK 31-31-00-730-100

- (2) 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	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4

SUBTASK 31-31-00-730-101

- (3) Make sure the IRS SW is in the NORMAL position.

SUBTASK 31-31-00-730-046

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	7	C01007	ADIRU LEFT AC

- (a) Make sure the bit 1 on the tester is a 0.

NOTE: There may be a 2 to 10 second delay before bit 1 changes to a 0.

SUBTASK 31-31-00-730-047

- (5) Remove safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	7	C01007	ADIRU LEFT AC

- (a) Make sure bit 1 on the tester is a 1.

T. A/P Warning and Stabilizer Trim Discrete Signal Test

SUBTASK 31-31-00-730-050

- (1) Push the INT/REF prompt on the CDU keyboard.



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SUBTASK 31-31-00-730-068

- (2) Push the capt autopilot warn light on the instrument panel.
 - (a) Make sure the captain's and F/O warn lights on the instrument panels, P1 and P3, are off.

SUBTASK 31-31-00-730-051

- (3) Set the tester to subframe 0, word 222.
 - (a) Make sure bit 11 and 12 on the tester are 1.

SUBTASK 31-31-00-730-052

- (4) Make these selections from the CDU display:
 - (a) INDEX
 - (b) MAINT
 - (c) DFCS
 - (d) Make sure the captain's and F/O warn lights on the instrument panels, P1 and P3, are on.

SUBTASK 31-31-00-730-055

- (5) Set the tester to subframe 0, word 222.
 - (a) Make sure bit 11 and 12 on the tester are 0.

SUBTASK 31-31-00-730-056

- (6) Make these selections from the CDU display:
 - (a) EXTENDED MAINTENANCE
 - (b) RIGGING
 - (c) STABILIZER
 - (d) CONTINUE

SUBTASK 31-31-00-730-057

- (7) Select NO to the message 'Do you want to check the nose up/nose down limit switch again'.

SUBTASK 31-31-00-730-058

- (8) Set the tester to subframe 0, word 39.

SUBTASK 31-31-00-730-059

- (9) Select Test 54.01 from the CDU display.
 - (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-730-060

- (10) Select line-select-key next to the continue prompt for test 54.02.
 - (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-730-062

- (11) Set the tester to subframe 0, word 167.
- (12) Select Test 54.03 from the CDU display.
 - (a) Make sure bit 1 on the tester is a 0.
- (13) Select line-select-key next to the CONTINUE prompt on test 54.04.
 - (a) Make sure bit 1 on the tester is a 1.
- (14) Select line-select-key next to the CONTINUE prompt on test 54.05.
 - (a) Make sure bit 1 on the tester is a 0.

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SUBTASK 31-31-00-860-092

- (15) Make these selections from the CDU display:
 - (a) PREV MENU from the END OF STAB RIG screen.
 - (b) CONTINUE from the RIGGING INDEX screen.
 - (c) EXIT from the TEST COMPLETE screen.
 - (d) EXIT after you comply with the instructions on the END OF DFCS BITE screen.

U. Manual Stab Trim Switch Discrete Signal Test

SUBTASK 31-31-00-860-093

- (1) Set the tester to subframe 0, word 137.

SUBTASK 31-31-00-860-094

- (2) Push and hold the trim switch on the control wheel to the TRIM NOSE UP position.
 - (a) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-095

- (3) Release the trim switch.
 - (a) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-096

- (4) Push and hold the trim switch on the control wheel to the TRIM NOSE DOWN position.
 - (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-097

- (5) Release the trim switch.
 - (a) Make sure bit 1 on the tester is a 0.

V. Aileron Trim Command Discrete Signal Test

SUBTASK 31-31-00-860-098

- (1) Set the tester to subframe 0, word 22.

SUBTASK 31-31-00-860-099

- (2) Push and hold the aileron trim control switches on the Aileron and Rudder Trim Module, P8, to the RIGHT WING DOWN position.
 - (a) Make sure bit 1 on the tester is 1.
 - (b) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-100

- (3) Release the aileron trim control switches.
 - (a) Make sure bit 1 and 2 on the tester is a 0.

SUBTASK 31-31-00-860-583

- (4) Push and hold the aileron trim control switches on the Aileron and Rudder Trim Module, P8, to the LEFT WING DOWN position.
 - (a) Make sure bit 1 on the tester is a 0.
 - (b) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-584

- (5) Release the aileron trim control switches.
 - (a) Make sure bit 1 and 2 on the tester is a 0.



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W. Autobrake Application Discrete Signal Test

SUBTASK 31-31-00-860-103

WARNING: MAKE SURE YOU INSTALL CHOCKS AT THE WHEEL, AND THE AREA AROUND THE MAIN LANDING GEAR AND BRAKES IS CLEAR. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR IF YOU DO NOT PUT CHOCKS AT THE WHEELS.

- (1) Install chocks at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).
- (2) Make sure parking brakes are released.

SUBTASK 31-31-00-860-104

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (3) Put the system B ELEC 1 hydraulic pump switch on the hydraulic pump panel, P5, to the ON position.

SUBTASK 31-31-00-860-105

- (4) Put the rotary switch on the ANTISKID/AUTOBRAKE CONTROL module, M162, in the electronic equipment rack, E1, to the A/B position.

SUBTASK 31-31-00-860-106

- (5) Put the autobrake selector switch on the center main panel, P2, to the 1 position.

SUBTASK 31-31-00-860-107

- (6) Set the tester to subframe 0, word 214 (Dataframe 7).
 - (a) Make sure the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-109

- (7) Push and hold the ENABLE/VERIFY switch on the Antiskid/Autobrake Control Unit.
- (8) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the Antiskid/Autobrake Control Unit.
- (9) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.
 - (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-111

- (10) Put the rotary switch on the antiskid/autobrake control module, M162, to the NORM position.

SUBTASK 31-31-00-860-112

- (11) Push and release the RESET button on the antiskid/autobrake control module, M162.

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- (a) Make sure the front panel of the antiskid/autobrake control module, M162, shows MEM CLR.

X. VHF Radio Keying Discrete Signal Test

SUBTASK 31-31-00-860-113

- (1) Do these steps to check VHF-1 signal:
- (a) Use the radio control panel, P8, to tune the VHF-1 transceiver to an authorized test frequency.
 - (b) Set the tester to subframe 0, word 210.
 - (c) Push the captain's PTT button.
 - 1) Make sure bit 1 on the tester is a 0.
 - (d) Release the captain's PTT button.
 - 1) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-114

- (2) Do these steps to check VHF-2 signal:
- (a) Use the radio control panel, P8, to set the VHF-2 transceiver to an authorized frequency.
 - (b) Set the tester to subframe 0, word 210.
 - (c) Push the captain's PTT button.
 - 1) Make sure bit 2 on the tester is a 0.
 - (d) Release the captain's PTT button.
 - 1) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-351

- (3) Do these steps to check VHF-3 signal (if installed):
- (a) Use the radio control panel, P8, to set the VHF-3 transceiver to an authorized test frequency.
 - (b) Set the tester to subframe 0, word 272.
 - (c) Push the captain's PTT button.
 - 1) Make sure bit 1 on the tester is a 0.
 - (d) Release the captain's PTT button.
 - 1) Make sure bit 1 on the tester is a 1.

Y. HF Radio Keying Discrete Signal Test

SUBTASK 31-31-00-860-370

- (1) Do these steps to do a check of the HF-1 signal (if installed):
- (a) Use the radio control panel, P8, to tune the HF-1 transceiver to an authorized test frequency.
 - (b) Set the tester to subframe 0, word 211.
 - (c) Push the captain's PTT button.
 - 1) Make sure bit 1 on the tester is a 0.
 - (d) Release the captain's PTT button.
 - 1) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-371

- (2) Do these steps to do a check of the HF-2 signal (if installed):

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- (a) Use the radio control panel, P8, to tune the HF-2 transceiver to an authorized test frequency.
- (b) Set the tester to subframe 0, word 211.
- (c) Push the captain's PTT button.
 - 1) Make sure bit 2 on the tester is a 0.
- (d) Release the captain's PTT button.
 - 1) Make sure bit 2 on the tester is a 1.

Z. Flight Management Computer (FMC) Switch Position Discrete Signal Test

SUBTASK 31-31-00-860-115

- (1) Set the tester to subframe 0, word 178.

SUBTASK 31-31-00-860-514

- (2) Set the captain's FMC select switch to the BOTH-ON-R position.
 - (a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-634

- (3) Set the captain's FMC select switch to the BOTH-ON-L position.
 - (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-736

- (4) Set the captain's FMC select switch to the NORMAL position.

AA. Speedbrake Commands Discrete Signal Test

SUBTASK 31-31-00-860-119

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (1) Supply hydraulic pressure for system A and B. To supply hydraulic pressure for system A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-860-575

- (2) Make sure the FCCs are serviceable.

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SUBTASK 31-31-00-860-576

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1
D	2	C01045	AFCS SYS A FCC DC
D	3	C01048	AFCS SYS A ENGAGE INTLK

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC
B	4	C00716	AFCS SYS B ENGAGE INTLK
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B

SUBTASK 31-31-00-860-577

- (5) Make sure the ADL selector switch is set in the NORM position.

SUBTASK 31-31-00-860-578

- (6) Push the throttle levers forward until a horn sounds.

SUBTASK 31-31-00-860-579

- (7) Pull the throttle levers back to the idle position.

SUBTASK 31-31-00-860-120

- (8) Put the speedbrake handle to the DOWN position.

SUBTASK 31-31-00-860-121

- (9) Set the tester to subframe 0, word 205.

- (a) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-318

- (10) Set the tester to subframe 0, word 281.

- (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-319

- (11) Put the speedbrake handle to the ARMED position.

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SUBTASK 31-31-00-860-320

- (12) Set the tester to subframe 0, word 205.
(a) Make sure bit 2 on the tester is a 0.

NOTE: If you do not get the correct result, cycle one of the thrust lever from idle to full position then to idle again to allow the system to reset and arm.

SUBTASK 31-31-00-860-440

- (13) Do these steps to do air mode simulation:
(a) Push the ON/OFF key on the PSEU.
(b) Select the following commands:

NOTE: Push the ARROW DOWN key until the appropriate command shows on the PSEU display, then push the YES key to select the command.

- 1) AIR/GND OVRD?
- 2) SET SYS #2 IN AIR?
- 3) ARE YOU SURE?

SUBTASK 31-31-00-860-580

- (14) Make sure the SYS #2 IN AIR light on the PSEU is on.

SUBTASK 31-31-00-860-441

- (15) Make sure the bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-442

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU RETURN THE AIRPLANE FROM THE AIR TO THE GROUND MODE. THE SPEEDBRAKES WILL AUTOMATICALLY DEPLOY WHEN THE AIRPLANE TRANSITIONS FROM AIR TO THE GROUND MODE. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (16) Do these steps to return the airplane to the ground mode:

- (a) Push the ON/OFF key on the PSEU.
(b) Select the following commands:

NOTE: Push the ARROW DOWN key until the appropriate command shows on the PSEU display, then push the YES key to select the command.

- 1) AIR/GND OVRD?
- 2) SET SYS #2 ON GROUND?
- 3) ARE YOU SURE?

SUBTASK 31-31-00-860-581

- (17) Make sure the SYS #2 IN AIR light on the PSEU is off.

SUBTASK 31-31-00-860-443

- (18) Make sure the bit 1 on the tester is a 1 momentarily, then change to a 0.

SUBTASK 31-31-00-860-325

- (19) Set the tester to subframe 0, word 281.
(a) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-327

- (20) Set the speedbrake lever to the DOWN position.

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SUBTASK 31-31-00-860-582

- (21) Set the tester to subframe 0, word 204.
 - (a) Make sure the speedbrake Do Not Arm light is off.
 - (b) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-328

- (22) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

SUBTASK 31-31-00-860-329

- (23) Set the speedbrake lever to the ARMED position.
 - (a) Make sure the Do Not Arm light comes on after approximately 10 seconds.
 - (b) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-330

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1

- (25) 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>
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B

SUBTASK 31-31-00-860-331

- (26) Remove hydraulic pressure from system A and B. To remove hydraulic pressure, do this task:
Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

AB. Aileron Position Analog Signal Test

SUBTASK 31-31-00-860-122

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (1) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 31-31-00-860-123

- (2) Set the tester to subframe 0, word 17.

SUBTASK 31-31-00-860-124

- (3) Put the captain's control wheel in the center position.
 - (a) Make sure the tester display shows octal value of 7741 to 0037.

SUBTASK 31-31-00-860-125

- (4) Rotate the captain's control wheel fully to the left position.
 - (a) Make sure the tester shows 7172 to 7314.

SUBTASK 31-31-00-860-126

- (5) Rotate the captain's control wheel fully to the right position.
 - (a) Make sure the tester shows 0466 to 0610.

SUBTASK 31-31-00-860-127

- (6) Set the tester to subframe 0, word 23.

SUBTASK 31-31-00-860-128

- (7) Put the captain's control wheel in the center position.
 - (a) Make sure the tester shows 7741 to 0037.

SUBTASK 31-31-00-860-129

- (8) Rotate the captain's control wheel fully to the left position.
 - (a) Make sure the tester shows 7167 to 7311.

SUBTASK 31-31-00-860-130

- (9) Rotate the captain's control wheel fully to the right position.
 - (a) Make sure the tester shows 0463 to 0605.

SUBTASK 31-31-00-860-360

- (10) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

AC. Brake Pressure Analog Signal Test

SUBTASK 31-31-00-860-131

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (1) Supply hydraulic pressure for system B. To supply hydraulic pressure for system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.



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- (a) Make sure system A does not have hydraulic pressure. If system A has hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
- (b) Make sure the standby hydraulic system does not have hydraulic pressure. If the standby hydraulic system has pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.
- (c) Make sure the parking brakes are not set.

SUBTASK 31-31-00-860-132

- (2) Push and hold the captain's left brake pedal fully against the stop.

SUBTASK 31-31-00-860-133

- (3) Set the tester to subframe 0, word 58 (Dataframe 7).

SUBTASK 31-31-00-860-134

- (4) Find a value in the (Table 501) that best agrees with the value for the hydraulic system pressure.
 - (a) Make sure the octal value that shows on the tester agrees with the octal value shown in the (Table 501).

Table 501/31-31-00-993-802

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

SUBTASK 31-31-00-860-135

- (5) Release the captain's left brake pedal.

SUBTASK 31-31-00-860-136

- (6) Push and hold the captain's right brake pedal fully against the stop.

SUBTASK 31-31-00-860-137

- (7) Set the tester to subframe 0, word 186 (Dataframe 7).

SUBTASK 31-31-00-860-352

- (8) Find a value in the (Table 502) that best agrees with the value for the hydraulic system pressure.
 - (a) Make sure the octal value that shows on the tester agrees with the octal value shown in the (Table 502).

EFFECTIVITY
AKS ALL

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Table 502/31-31-00-993-803

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

SUBTASK 31-31-00-860-139

- (9) Release the captain's right brake pedal.

SUBTASK 31-31-00-860-140

- (10) Remove hydraulic pressure from system B. To remove hydraulic pressure from system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-31-00-860-141

- (11) Push the brake pedals at least 6 times to fully deplete the accumulator.

SUBTASK 31-31-00-860-142

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN AND WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (12) Supply hydraulic pressure for system A. To supply hydraulic pressure for system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-860-143

- (13) Push and hold the captain's left brake pedal fully against the stop.

SUBTASK 31-31-00-860-144

- (14) Set the tester to subframe 0, word 122 (Dataframe 7).

EFFECTIVITY
AKS ALL

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SUBTASK 31-31-00-860-353

- (15) Find a value in the (Table 503) that best agrees with the value for the hydraulic system pressure.
 - (a) Make sure the octal value that shows on the tester agrees with the octal value shown in the (Table 503).

Table 503/31-31-00-993-804

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

SUBTASK 31-31-00-860-146

- (16) Release the captain's left brake pedal.

SUBTASK 31-31-00-860-147

- (17) Push and hold the captain's right brake pedal fully against the stop.

SUBTASK 31-31-00-860-148

- (18) Set the tester to subframe 0, word 250 (Dataframe 7).

SUBTASK 31-31-00-860-354

- (19) Find a value in the (Table 504) that best agrees with the value for the hydraulic system pressure.
 - (a) Make sure the octal value that shows on the tester agrees with the octal value shown in the (Table 504).

Table 504/31-31-00-993-805

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)

EFFECTIVITY
AKS ALL

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Table 504/31-31-00-993-805 (Continued)

Hydraulic Pressure	Tester Display (octal)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

SUBTASK 31-31-00-860-150

- (20) Release the captain's right brake pedal.

SUBTASK 31-31-00-860-151

- (21) Remove hydraulic pressure from system A. To remove hydraulic pressure from system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

AD. Control Column Position Analog Signal Test

SUBTASK 31-31-00-860-152

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN AND WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (1) Supply hydraulic pressure for system A. To supply hydraulic for system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-860-153

- (2) Install E1 rig pin kit, SPL-1585, into the captain's control column to set the control column in the neutral position.

SUBTASK 31-31-00-860-154

- (3) Set the tester to subframe 0, word 6.
(a) Make sure the tester shows 7765 to 0013.

SUBTASK 31-31-00-860-155

- (4) Set the tester to subframe 0, word 12.
(a) Make sure the tester shows 7765 to 0013.

SUBTASK 31-31-00-860-156

- (5) Remove rig pin E1.

SUBTASK 31-31-00-860-157

- (6) Set the tester to subframe 0, word 6.

SUBTASK 31-31-00-860-158

- (7) Pull the captain's control column full forward against stop.
(a) Make sure the tester shows 1625 to 2422.

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SUBTASK 31-31-00-860-159

- (8) Push the captain's control column full aft against stop.
 - (a) Make sure the tester shows 5006 to 5603.

SUBTASK 31-31-00-860-160

- (9) Set the tester to subframe 0, word 12.

SUBTASK 31-31-00-860-161

- (10) Push the first officer's control column full forward against the stop.
 - (a) Make sure the tester shows 5330 to 6125.

SUBTASK 31-31-00-860-162

- (11) Push the first officer's control column full aft against the stop.
 - (a) Make sure the tester shows 2122 to 2716.

SUBTASK 31-31-00-860-163

- (12) Remove hydraulic pressure from system A. To remove hydraulic pressure from system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

AE. Control Wheel Position Analog Signal Test

SUBTASK 31-31-00-860-444

- (1) Install A/S-1 and A/S-1A rig pin kit, SPL-1585, into the aileron transfer mechanism.

SUBTASK 31-31-00-860-164

- (2) Install a control column assembly protractor, SPL-1680, on the captain's control wheel.

SUBTASK 31-31-00-860-445

- (3) Adjust the control column assembly protractor, SPL-1680 to read 0°.

SUBTASK 31-31-00-860-166

- (4) Set the tester to subframe 0, word 19.

- (a) Make sure the tester shows 7771-0007.

SUBTASK 31-31-00-860-167

- (5) Remove the rig pins A/S-1 and A/S-1A rig pin kit, SPL-1585, from the aileron transfer mechanism.

SUBTASK 31-31-00-860-168

- (6) Rotate the captain's control wheel 50° clockwise.

- (a) Make sure the tester shows 6654 to 6741.

SUBTASK 31-31-00-860-169

- (7) Rotate the captain's control wheel 50° counterclockwise.

- (a) Make sure the tester shows 1036 to 1123.

SUBTASK 31-31-00-860-170

- (8) Install a control column assembly protractor, SPL-1680, to the first officer's control wheel.

SUBTASK 31-31-00-860-171

- (9) Install the rig pins A/S-1 and A/S-1A rig pin kit, SPL-1585, into the aileron transfer mechanism.

SUBTASK 31-31-00-860-172

- (10) Set the tester to subframe 0, word 25.

- (a) Make sure the tester shows 7771-0007.

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SUBTASK 31-31-00-860-173

- (11) Remove the rig pins A/S-1 and A/S-1A rig pin kit, SPL-1585, from the aileron transfer mechanism.

SUBTASK 31-31-00-860-174

- (12) Rotate the first officer's control wheel 50° clockwise.
 - (a) Make sure the tester shows 6654 to 6741.

SUBTASK 31-31-00-860-175

- (13) Rotate the first officer's control wheel 50° counterclockwise.
 - (a) Make sure the tester shows 1036 to 1123.

AF. Elevator Position Analog Signal Test

SUBTASK 31-31-00-860-361

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (1) Supply hydraulic pressure for system A or B. To supply hydraulic pressure, do this task:
Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-860-176

- (2) Use the stabilizer trim control switch on the control wheel to set the horizontal stabilizer to 4 units of trim.

SUBTASK 31-31-00-860-178

- (3) Set the tester to subframe 0, word 4.

SUBTASK 31-31-00-860-179

- (4) Move the control column full aft against stop.
 - (a) Make sure the tester shows 6710 to 7056.

SUBTASK 31-31-00-860-180

- (5) Move the control column full forward against stop.
 - (a) Make sure the tester shows 0500 to 0646.

SUBTASK 31-31-00-860-181

- (6) Set the tester to subframe 0, word 10.

SUBTASK 31-31-00-860-182

- (7) Move the control column full aft against stop.
 - (a) Make sure the tester shows 0730 to 1056.

SUBTASK 31-31-00-860-183

- (8) Move the control column full forward against stop.
 - (a) Make sure the tester shows 7140 to 7266.

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SUBTASK 31-31-00-860-362

- (9) Remove hydraulic pressure for system A or B. To remove hydraulic pressure, do this task:
Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

AG. Rudder Pedal Position Analog Signal Test

SUBTASK 31-31-00-860-184

- (1) Install rig pin R2 from rig pin kit, SPL-1585, into the first officer's rudder pedal.

SUBTASK 31-31-00-860-185

- (2) Set the tester to subframe 0, word 39.
 - (a) Make sure the tester shows 7751 to 0027.

SUBTASK 31-31-00-860-186

- (3) Remove rig pin R2 from the first officer's rudder pedal.

SUBTASK 31-31-00-860-187

- (4) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801
- (5) Push the captain's right rudder pedal full forward against stop.
 - (a) Make sure the tester shows 5763 to 6423.

SUBTASK 31-31-00-860-188

- (6) Push the captain's left rudder pedal full forward against stop.
 - (a) Make sure the tester shows 1354 to 2014.
- (7) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

AH. Rudder Position Analog Signal Test

SUBTASK 31-31-00-860-189

- (1) Set the tester to subframe 0, word 37.

SUBTASK 31-31-00-860-190

- (2) Put the rudder at the index mark.
 - (a) Make sure the tester shows 7745 to 0034.

SUBTASK 31-31-00-860-191

- (3) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801
- (4) Put the rudder to the full left position.
 - (a) Make sure the tester shows 7032 to 7121.

SUBTASK 31-31-00-860-192

- (5) Put the rudder to the full right position.
 - (a) Make sure the tester shows 0656 to 0745.
- (6) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

AI. Speedbrake Handle Position Analog Signal Test

SUBTASK 31-31-00-860-193

- (1) Set the tester to subframe 0, word 72 (Dataframe 7).

SUBTASK 31-31-00-860-194

- (2) Put the speedbrake handle to the DOWN position.
 - (a) Make sure the tester shows 7763 to 0015.

SUBTASK 31-31-00-860-195

- (3) Put the speedbrake handle to the ARMED DETENT position.



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- (a) Make sure the tester shows 7666 to 7772.

SUBTASK 31-31-00-860-196

- (4) Put the speedbrake handle to the INFLIGHT DETENT position.
(a) Make sure the tester shows 7105 to 7241.

AJ. Spoilers Position Analog Signal Test

SUBTASK 31-31-00-860-735

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B

SUBTASK 31-31-00-860-726

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER AND NOSE GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-860-732

- (3) Extend the trailing edge flaps to the 1-unit or greater position (TASK 27-51-00-860-803).

SUBTASK 31-31-00-700-001

- (4) Make sure the captain's control wheel is in the neutral position.

SUBTASK 31-31-00-700-005

- (5) Move the speed brake lever to the full UP position.

SUBTASK 31-31-00-700-002

- (6) If you are testing the sensor on spoiler No. 3, do these steps:

- (a) Set the tester to subframe 0, word 91.
(b) Make sure the tester shows 0525 to 0631.

SUBTASK 31-31-00-700-003

- (7) If you are testing the sensor on spoiler No. 10, do these steps:

- (a) Set the tester to subframe 0, word 96.
(b) Make sure the tester shows 7146 to 7253.

SUBTASK 31-31-00-700-004

- (8) Move the speed brake lever to the DOWN position.

- (a) Make sure the tester shows 7735 to 0042.

SUBTASK 31-31-00-860-733

- (9) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 31-31-00-860-727

- (10) If hydraulic power is not needed, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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SUBTASK 31-31-00-860-734

- (11) 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>
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B

AK. AVM Digital Data Bus Signal Test

SUBTASK 31-31-00-860-205

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01076	ENGINE VIB MON

SUBTASK 31-31-00-860-206

- (2) Remove the AVM signal conditioner, M1240 (TASK 77-31-03-000-801-F00).

SUBTASK 31-31-00-860-207

- (3) Connect an analyzer, COM-1562 to pin C6 and D6 of connector D3228A.

SUBTASK 31-31-00-860-208

- (4) Set the analyzer, COM-1562 to label 354, UPDATE data rate 200ms, and LOW data rate 12.5 KHz.

SUBTASK 31-31-00-860-209

- (5) Select and transmit bits 31-9 on the test set as follows:

Table 505/31-31-00-993-815

FLS	31	30	29	28	27	26...11	10	9	
L	1	1	0	1	1	0...0	0	1	

SUBTASK 31-31-00-860-210

- (6) Set the tester to subframe 0, word 62.

- (a) Make sure the tester shows 600X.

NOTE: Ignore the number on the tester display where the X shows.

SUBTASK 31-31-00-860-211

- (7) Install the AVM signal conditioner, M1240 (TASK 77-31-03-400-801-F00).

SUBTASK 31-31-00-860-212

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01076	ENGINE VIB MON

AL. Air Data Inertia Reference Unit (ADIRU) Data Bus Signal Test

SUBTASK 31-31-00-860-333

- (1) Set the SYS DSPL switch on the overhead panel, P5, to the L position.

SUBTASK 31-31-00-860-213

- (2) Set the tester to subframe 0, word 172.

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SUBTASK 31-31-00-860-214

- (3) Push and hold the inertial system display unit switch on the aft overhead panel, P5, to the TEST position for greater than 7 seconds.
 - (a) Make sure the tester shows 2110.

SUBTASK 31-31-00-860-215

- (4) Release the inertial system display unit switch.

AM. Rudder Trim Command Discrete Signal Test

SUBTASK 31-31-00-860-216

- (1) Set the tester to subframe 0, word 100 (Dataframe 7).

SUBTASK 31-31-00-860-217

- (2) Turn and hold the rudder trim control switch on the aileron and rudder trim module, P8, to the NOSE RIGHT position.
 - (a) Make sure bit 1 on the tester is a 0 and bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-218

- (3) Release the rudder trim control switch.
 - (a) Make sure bit 1 & 2 on the tester is a 1.

SUBTASK 31-31-00-860-699

- (4) Turn and hold the rudder trim control switch on the aileron and rudder trim module, P8, to the NOSE LEFT position.
 - (a) Make sure bit 1 on the tester is a 1 and bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-700

- (5) Release the rudder trim control switch.
 - (a) Make sure bit 1 & 2 on the tester is a 1.

AN. Stabilizer Position Analog Signal Test

SUBTASK 31-31-00-860-220

- (1) Set the tester to subframe 0, word 136.

SUBTASK 31-31-00-860-221

- (2) Set the B dimension to 39.89 inch (4 units of trim).
 - (a) Make sure the tester shows 7705 to 0074.

SUBTASK 31-31-00-860-222

- (3) Set the B dimension to 25.53 inch (14 units of trim).
 - (a) Make sure the tester shows 0437 to 0660.

AO. IR-3 Digital Data Bus Signal Test

SUBTASK 31-31-00-860-223

- (1) Set the tester to subframe 0, word 244.

SUBTASK 31-31-00-860-224

- (2) Put the DSPL SEL switch on the inertial system display unit (ISDU) to the TEST position for more than 7 seconds.
 - (a) Make sure the tester shows 310X.

NOTE: The X can be equal to a number from 0 to 7. Ignore the number on the tester display where the X shows.



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SUBTASK 31-31-00-860-225

- (3) Release the inertial system display unit switch.

AP. FCC Digital Data Bus Signal Test

SUBTASK 31-31-00-860-226

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Supply hydraulic pressure for system A and B. To supply hydraulic pressure for system A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-00-860-355

- (2) Push the CMD switch for channel A on the mode select panel.
 - (a) Make sure autopilot system A is engaged.
 - (b) Make sure autopilot system B is not engaged.

SUBTASK 31-31-00-860-227

- (3) Set the tester to subframe 0, word 28 (Dataframe 7).
 - (a) Make sure bit 1 on the tester is 0 and bit 2 on the tester is 1.

SUBTASK 31-31-00-860-231

- (4) Set the tester to subframe 0, word 15.

SUBTASK 31-31-00-860-232

- (5) Put the captain's control column fully to the aft position.
 - (a) Make sure the octal value that shows on the display of the tester increases.

SUBTASK 31-31-00-860-233

- (6) Put the captain's control column forward.
 - (a) Make sure the value on the tester decreases.

SUBTASK 31-31-00-860-446

- (7) Push the DISENGAGE switch on the mode select panel.
 - (a) Make sure autopilot system A is disengaged.

SUBTASK 31-31-00-860-357

- (8) Push the CMD switch for channel B on the mode select panel.
 - (a) Make sure autopilot system B is engaged.

SUBTASK 31-31-00-860-235

- (9) Set the tester to subframe 0, word 28.
 - (a) Make sure bit 1 on the tester is 1 and bit 2 on the tester is 0.

SUBTASK 31-31-00-860-239

- (10) Set the tester to subframe 0, word 14.

SUBTASK 31-31-00-860-240

- (11) Put the first officer's control column fully to the aft position.
 - (a) Make sure the octal value that shows on the display of the tester increases.

SUBTASK 31-31-00-860-241

- (12) Put the first officer's control column forward.

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- (a) Make sure the value on the tester decreases.

SUBTASK 31-31-00-860-447

- (13) Push the DISENGAGE switch on the mode select panel.

AQ. Flight Management Computer (FMC) Digital Data Bus Signal Test

SUBTASK 31-31-00-860-242

- (1) Set the tester to subframe 1, word 456, superframe 6.

SUBTASK 31-31-00-860-243

- (2) Push the INIT/REF mode key from the CDU.

- (a) Make sure the PERF INIT page shows on the CDU display.

SUBTASK 31-31-00-860-244

- (3) Enter 63.5K (in Kg) or 140.0K (in lbs) from the CDU keyboard.

SUBTASK 31-31-00-860-245

- (4) Push the line-select-key next to the gross weight field.

- (a) Make sure the tester shows 3236 to 3416.

NOTE: This is a superframe. The portable tester will show the data for 4 seconds and will show it again in 64 seconds. When you are waiting for the next 64 second cycle, the portable tester display may show a blank screen or "DFDR Running".

SUBTASK 31-31-00-860-246

- (5) Set the tester to subframe 2, word 61, superframe 0.

SUBTASK 31-31-00-860-247

- (6) Push the line-select-key next to the TAKEOFF prompt on the CDU display.

- (a) Make sure the TAKEOFF REF page shows on the CDU display.

SUBTASK 31-31-00-860-248

- (7) Enter 125 knots from the CDU keyboard.

SUBTASK 31-31-00-860-249

- (8) Push the line-select-key next to the V2 field.

- (a) Make sure the tester shows 1740 to 1760.

NOTE: This is a superframe. The portable tester will show the data for 4 seconds and will show it again in 64 seconds. When you are waiting for the next 64 second cycle, the portable tester display may show a blank screen or "DFDR Running".

AR. Captain's Clock Digital Data Bus Signal Test

SUBTASK 31-31-00-860-494

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2



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SUBTASK 31-31-00-860-495

- (2) Open and close these circuit breakers:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00736	MISC CLOCK DISPLAY
A	2	C00737	MISC CLOCK

SUBTASK 31-31-00-860-496

- (3) Set the tester to subframe 1, word 256.

SUBTASK 31-31-00-860-585

- (4) Do these steps to set the captain's clock to 13 hrs, 42 min:

- Push the SET button until MAN shows on the clock display.
- Use the (-) and (+) button to set the time.
- Push the SET button to run the clock.
- Make sure the tester shows 3324 or 3325.

SUBTASK 31-31-00-860-499

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	2	C01479	RADIO NAVIGATION MMR 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	13	C01480	RADIO NAVIGATION MMR 2

AS. GPWC Digital Data Bus Signal Test

SUBTASK 31-31-00-860-253

- (1) Set the tester to subframe 0, word 265.
- Make sure the ground proximity warning system SYS TEST switch is not activated.
 - Make sure the PULL UP message is not heard on the flight deck speakers.
 - Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-254

- (2) Push the SYS TEST switch on the ground proximity panel, P3.
- Make sure the PULL UP message is heard on the flight deck speakers.
 - Make sure bit 1 on the tester is a 1.

AT. APU Digital Data Bus Signal Test

SUBTASK 31-31-00-860-255

- (1) Set the tester to subframe 0, word 50.

SUBTASK 31-31-00-860-256

- (2) Put the APU master switch, S248, on the APU panel, P5, to the ON position.
- Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-257

- (3) Put the APU master switch, S248, on the APU panel, P5, to the OFF position.



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- (a) Make sure bit 1 on the tester is a 0.

AU. SMYDC #1 and #2 Digital Data Bus Signal Test

SUBTASK 31-31-00-860-258

- (1) Set the tester to subframe 0, word 73.

SUBTASK 31-31-00-860-259

- (2) Use the angle of attack probe test fixture, SPL-1917, to put the AOA Vane #1 to 11° UP.
(a) Make sure tester shows 0343 to 0421.

SUBTASK 31-31-00-860-260

- (3) 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>
E	4	C01392	STICK SHAKER LEFT
E	5	C01204	SMYD-1 CMPTR DC
E	6	C01205	SMYD-1 SNSR EXC AC
E	7	C01208	STALL WARN ASYM MODE

SUBTASK 31-31-00-860-261

- (4) Set the tester to subframe 0, word 75.

SUBTASK 31-31-00-860-262

- (5) Use the angle of attack probe test fixture, SPL-1917, to put the AOA Vane #2 to 11° UP.
(a) Make sure tester shows 0343 to 0421.

SUBTASK 31-31-00-860-263

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C01392	STICK SHAKER LEFT
E	5	C01204	SMYD-1 CMPTR DC
E	6	C01205	SMYD-1 SNSR EXC AC
E	7	C01208	STALL WARN ASYM MODE

AV. LRRA Digital Data Bus Signal Test

SUBTASK 31-31-00-860-532

- (1) Set the tester to subframe 0, word 124 (Dataframe 7).
(a) Make sure the tester shows 7776 to 7772.

SUBTASK 31-31-00-860-533

- (2) Set the tester to subframe 0, word 126.
(a) Make sure the tester shows 7776 to 7772.

SUBTASK 31-31-00-860-534

- (3) Push and hold the self test on the radio altimeter 1 for about 5 seconds.

SUBTASK 31-31-00-860-535

- (4) Release the self test button on the radio altimeter 1.

SUBTASK 31-31-00-860-536

- (5) Set the tester to subframe 0, word 124.
(a) Make sure the radio altimeter shows 40 ±2 ft.



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- (b) Make sure the tester shows 0052 to 0046.

SUBTASK 31-31-00-860-537

- (6) Push and hold the self test switch on the radio altimeter 2 for about 5 seconds.

SUBTASK 31-31-00-860-538

- (7) Release the self test switch.

SUBTASK 31-31-00-860-539

- (8) Set the tester to subframe 0, word 126.
(a) Make sure the radio altimeter shows 40 ± 2 ft.
(b) Make sure the tester shows 0052 to 0046.

AW. TCAS Digital Data Bus Signal Test

SUBTASK 31-31-00-860-334

- (1) Make sure that TCAS is not in self-test mode.

SUBTASK 31-31-00-860-271

- (2) Make sure resolution advisories do not show on the captain's and F/O's display units.

SUBTASK 31-31-00-860-272

- (3) Set the tester to subframe 0, word 235.
(a) Make sure bit 12 on the tester is a 0.

SUBTASK 31-31-00-860-273

- (4) Push and release the switch on the TCAS/ATC control panel, P8, to the TEST position.
(a) Make sure bit 12 on the tester is a 1.
(b) Make sure you hear 'TCAS test ---- TCAS test pass'.

AX. Common Display System (CDS) Digital Data Bus Signal Test

SUBTASK 31-31-00-860-274

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

SUBTASK 31-31-00-860-384

- (2) Use the mode switch to select MAP on the CAPT EFIS control panel.

SUBTASK 31-31-00-860-275

- (3) Set the tester to subframe 3, word 225.
(a) Make sure bit 2 on the tester shows 1.

SUBTASK 31-31-00-860-385

- (4) Use the mode switch to deselect MAP on the CAPT EFIS control panel.
(a) Make sure bit 2 on the tester shows 0.

SUBTASK 31-31-00-860-335

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP



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F/O Electrical System Panel, P6-1

Row Col Number Name

D 11 C01360 DISPLAY DEU 2 PRI

NOTE: Wait for about 3 minutes for the CDS display unit to come back on line.

SUBTASK 31-31-00-860-386

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

CAPT Electrical System Panel, P18-2

Row Col Number Name

D 5 C01359 DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

Row Col Number Name

D 10 C01361 DISPLAY DEU 1 HOLDUP

SUBTASK 31-31-00-860-387

- (7) Use the mode switch to select MAP on the CAPT EFIS control panel.

SUBTASK 31-31-00-860-388

- (8) Set the tester to subframe 3, word 225.

- (a) Make sure bit 2 on the tester shows 1.

SUBTASK 31-31-00-860-389

- (9) Use the mode switch to deselect MAP on the CAPT EFIS control panel.

- (a) Make sure bit 2 on the tester shows 0.

SUBTASK 31-31-00-860-280

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

CAPT Electrical System Panel, P18-2

Row Col Number Name

D 5 C01359 DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

Row Col Number Name

D 10 C01361 DISPLAY DEU 1 HOLDUP

AY. Distance Measuring Equipment (DME) Digital Data Bus Signal Test

SUBTASK 31-31-00-860-286

- (1) Set a frequency of 108.00 MHz on the captain's navigation control panel, P8.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY window. Then push the TFR button. The frequency will show in the ACTIVE display window.

SUBTASK 31-31-00-860-287

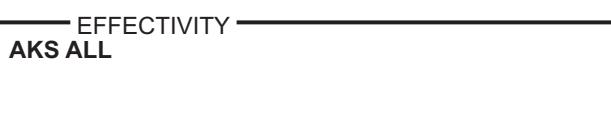
- (2) Set a frequency of 108.00 MHz on the ATC (Modes A, C, & S) test set, COM-920.

SUBTASK 31-31-00-860-288

- (3) Set the DME distance to 50 miles on the ATC (Modes A, C, & S) test set, COM-920.

SUBTASK 31-31-00-860-289

- (4) Set the tester to subframe 0, word 187.



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- (a) Make sure the tester shows 1277 to 1533.

SUBTASK 31-31-00-860-290

- (5) Set a VOR frequency of 108.00 MHz on the first officer's navigation control panel, P8.

SUBTASK 31-31-00-860-292

- (6) Set a DME distance of 100 miles on the test ATC (Modes A, C, & S) test set, COM-920.

SUBTASK 31-31-00-860-293

- (7) Set the tester to subframe 0, word 443.

- (a) Make sure the tester shows 2714 to 3150.

AZ. Instrument Landing System (ILS) Digital Data Bus Signal Test

SUBTASK 31-31-00-860-294

- (1) Set a frequency of 108.1 MHz on the captain's navigation control panel, P8.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY window. Then push the TFR button. The frequency will show in the ACTIVE display window.

SUBTASK 31-31-00-860-295

- (2) Set the tester to subframe 1, word 247.

- (a) Make sure the tester shows 040X.

SUBTASK 31-31-00-860-296

- (3) Set a frequency of 110.3 MHz on the first officer's navigation control panel, P8.

SUBTASK 31-31-00-860-297

- (4) Set the tester to subframe 0, word 503.

- (a) Make sure the tester shows 100X.

BA. VOR Digital Data Bus Signal Test

SUBTASK 31-31-00-860-298

- (1) Set a frequency of 109.60 MHz on the captain's navigation control panel, P8.

NOTE: To set the frequency, turn the frequency selector until the frequency shows in the STANDBY window. Then push the TFR button. The frequency will show in the ACTIVE display window.

SUBTASK 31-31-00-860-299

- (2) Set the tester to subframe 0, word 248.

- (a) Make sure the tester shows 226X.

SUBTASK 31-31-00-860-300

- (3) Set a frequency of 110.00 MHz on the first officer's navigation control panel, P8.

SUBTASK 31-31-00-860-301

- (4) Set the tester to subframe 0, word 504.

- (a) Make sure the tester shows 400X.

BB. CDS Engine/EEC Digital Data Bus Signal Test

SUBTASK 31-31-00-860-420

- (1) Set the engine start lever on the aft electronics panel, P8, to the CUTOFF position.

SUBTASK 31-31-00-860-421

- (2) Set the engine start switch on the aft overhead panel, P5, to the CONT position.

NOTE: This will energize the EECs without enabling ignition.



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SUBTASK 31-31-00-860-422

- (3) Push the MENU key on the left MCDU.

SUBTASK 31-31-00-840-016

- (4) Do these steps to make sure that the DFDAU ARINC 429 receive ports 42, 43, 44, and 45 are set to high speed "H."
- (a) Make these selections on the left MCDU.
 - 1) ACMS or DFDMU.
 - 2) DMP TEST
 - 3) DITS PORT SPEED
 - 4) 41-46
 - (b) Make sure that ports 42, 43, 44, and 45 are all set to "H." If not, press the appropriate LSK until "H" is displayed.
 - (c) Select RETURN until the main menu is displayed.

SUBTASK 31-31-00-860-520

- (5) Make these selections on the left MCDU.
- (a) ACMS or DFDMU
 - (b) DMP TEST
 - (c) DIT ACQUISITION

SUBTASK 31-31-00-860-424

- (6) Enter PORT 42, LAB 030, SDI 00 into the left MCDU scratchpad.

SUBTASK 31-31-00-860-425

- (7) Push the LSK 1L key on the left MCDU.

SUBTASK 31-31-00-860-426

- (8) Enter PORT 43, LAB 030, SDI 01 into the left MCDU scratchpad.

SUBTASK 31-31-00-860-427

- (9) Push the LSK 4L key on the left MCDU.

- (a) Make sure the valid data for port 42 and 43 is present in hexadecimal and binary.

NOTE: When valid data is not present, the hexadecimal and binary data field will shows all Xs.

SUBTASK 31-31-00-860-428

- (10) Enter PORT 44, LAB 030, SDI 10 into the left MCDU scratchpad.

SUBTASK 31-31-00-860-429

- (11) Push the LSK 1L on the left MCDU.

SUBTASK 31-31-00-860-430

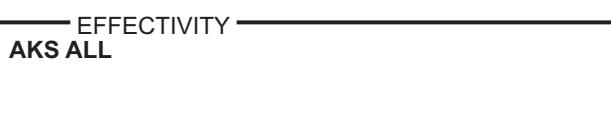
- (12) Enter PORT 45, LAB 030, SDI 11 into the left MCDU scratchpad.

SUBTASK 31-31-00-860-431

- (13) Push the LSK 4L key on the left MCDU.

- (a) Make sure the valid data for port 44 and 45 is present in hexadecimal and binary.

NOTE: When valid data is not present, the hexadecimal and binary data field will shows all Xs.



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SUBTASK 31-31-00-760-001

- (14) Open and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

BC. Accelerometer Analog Signal and DFDR Playback Test

SUBTASK 31-31-00-860-589

- (1) Make sure the NORM/TEST switch on the flight data recorder panel, P5, is in the TEST position.

SUBTASK 31-31-00-860-590

- (2) Make sure the flight recorder OFF light is OFF.

SUBTASK 31-31-00-860-728

- (3) Loosen the accelerometer, but do not disconnect the electrical connector (TASK 31-31-81-000-801).

SUBTASK 31-31-00-860-729

- (4) Use an inclinometer to put the accelerometer in the inverted position.
(a) Set the tester to subframe 0, word 34.
(b) Make sure on the tester shows 1737 to 2061.

SUBTASK 31-31-00-860-730

- (5) Use an inclinometer to put the accelerometer in the L Face Up position.
(a) Set the tester to subframe 0, word 21.
(b) Make sure the tester shows 0153 - 0335.

SUBTASK 31-31-00-860-731

- (6) Use an inclinometer to put the accelerometer in the Fwd Face Up position.
(a) Set the tester to subframe 0, word 45.
(b) Make sure on the tester shows 7707 - 7777.

SUBTASK 31-31-00-420-017

- (7) Install the accelerometer (TASK 31-31-81-400-801).

SUBTASK 31-31-00-860-304

- (8) Set the tester to subframe 0, word 34.
(a) Make sure on the tester shows 3514 to 3636.

SUBTASK 31-31-00-860-307

- (9) Set the tester to subframe 0, word 21.
(a) Make sure the tester shows 4030 to 4213.

SUBTASK 31-31-00-860-310

- (10) Set the tester to subframe 0, word 45.
(a) Make sure the tester shows 4031 to 4213.

BD. Rudder Pedal Force Analog Signal Test

SUBTASK 31-31-00-840-003

- (1) Make sure the hydraulic systems A, B and STBY are off.



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SUBTASK 31-31-00-860-481

- (2) Set the tester to subframe 0, word 40.

SUBTASK 31-31-00-860-482

- (3) With no pressure to the left or right rudder pedals, make sure the tester shows 3012 to 4112.

SUBTASK 31-31-00-840-004

- (4) Put pressure to the left rudder pedal.

- (a) Make sure the tester octal value increases.

NOTE: It may take 1 to 4 seconds to update. Hold the rudder pedal until a reading is shown.

SUBTASK 31-31-00-840-005

- (5) Release pressure from the left rudder pedal.

SUBTASK 31-31-00-860-483

- (6) Put firm pressure to the right rudder pedal.

- (a) Make sure the tester octal value decreases.

BE. Forward Cargo Smoke Detection Signal Test

SUBTASK 31-31-00-860-562

- (1) Set the tester to subframe 0, word 412.

- (a) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-563

- (2) Push and hold the cargo smoke detection and fire suppression test button, P8-75, for at least 4 seconds.

- (a) Make sure bit 1 on the tester is 0.

BF. Aft Cargo Smoke Detection Signal Test

SUBTASK 31-31-00-860-486

- (1) Set the tester to subframe 0, word 156.

- (a) Make sure the bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-487

- (2) Push and hold the cargo smoke detection and fire suppression test button, P8-75, for at least 4 seconds.

- (a) Make sure the bit 1 on the tester is a 0.

BG. Standby Hydraulic System Low Pressure Discretes Signal Test

SUBTASK 31-31-00-860-564

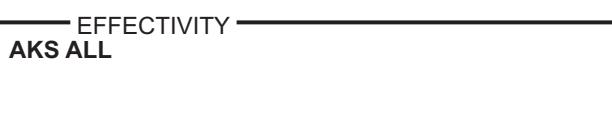
WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE FLIGHT CONTROLS SURFACES CAN MOVE WHEN THE HYDRAULIC SYSTEM IS PRESSURIZE.

CAUTION: MAKE SURE THE THRUST REVERSER COWLS (C-DUCTS) MUST BE IN THE CLOSED POSITION. YOU CAN DAMAGE THE THRUST REVERSER COWL IF IT IS NOT CLOSED PRIOR TO PERFORMING THIS TEST.

- (1) Make sure hydraulic system A & B ELEC pump are ON.

SUBTASK 31-31-00-860-565

- (2) Set the portable tester to subframe 0, word 180.



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SUBTASK 31-31-00-860-566

- (3) Set the FLT CONT SYS A (S3) switch on the flight control panel, P5, to the ON position.

SUBTASK 31-31-00-860-567

- (4) Set the FLT CONT SYS B (S4) switch on the flight control panel, P5, to the ON position.
(a) Make sure the FLT CONT SYS A low pressure light is off.
(b) Make sure bit 1 on the tester is a 0.

SUBTASK 31-31-00-860-568

- (5) Set the FLT CONT SYS A (S3) switch on the flight control panel, P5, to the OFF position.
(a) Make sure the FLT CONT SYS A low pressure light comes on.
(b) Make sure bit 1 on the tester is a 1.

SUBTASK 31-31-00-860-569

- (6) Set the FLT CONT SYS A (S3) switch on the flight control panel, P5, to the ON position.
(a) Make sure the FLT CONT SYS B low pressure light is off.
(b) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-570

- (7) Set the FLT CONT SYS B (S4) switch on the flight control panel, P5, to the OFF position.
(a) Make sure the FLT CONT SYS B low pressure light comes on.
(b) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-571

- (8) Set the portable tester to subframe 0, word 99.

SUBTASK 31-31-00-860-573

- (9) Set the FLT CONT SYS B (S4) switch on the flight control panel, P5, to the ON position.
(a) Make sure the FLT CONT SYS A low pressure light is off.
(b) Make sure bit 2 on the tester is a 0.

SUBTASK 31-31-00-860-574

- (10) Set the FLT CONT SYS A (S3) switch on the flight control panel, P5, to the STBY RUD position and FLT CONT SYS B (S4) switch to ON.
(a) Make sure the FLT CONT SYS A low pressure light is off.
(b) Make sure bit 2 on the tester is a 1.

SUBTASK 31-31-00-860-737

- (11) Set the FLT CONT SYS A (S3) switch on the flight control panel, P5, to OFF and FLT CONT SYS B (S4) switch to OFF.

BH. Standby Hydraulic Pressure Transmitter Analog Signal Test

SUBTASK 31-31-00-860-686

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Make sure that the FLT CONTROL hydraulic pressure system switches A and B on the P5 panel are not in standby position (STBY RUD).

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SUBTASK 31-31-00-860-687

- (2) Set the tester to subframe 0, word 200.

SUBTASK 31-31-00-860-688

- (3) Make sure the tester display is 6265 to 6336.

SUBTASK 31-31-00-860-689

- (4) Set FLT CONTROL switch A on the P5 panel to STBY RUD.

SUBTASK 31-31-00-860-690

- (5) Verify STANDBY HYD low pressure light on the P5 panel is extinguished.

NOTE: May illuminate briefly when switched to standby.

SUBTASK 31-31-00-860-691

- (6) Make sure the tester display is 5577 to 5717.

SUBTASK 31-31-00-860-692

- (7) Set FLT CONTROL switch A on the P5 panel to OFF.

BI. Put the Airplane Back to Its Initial Condition

SUBTASK 31-31-00-840-002

- (1) Put the flight data recorder TEST-NORMAL switch to the NORM position.

SUBTASK 31-31-00-860-314

- (2) Remove power from the tester.

SUBTASK 31-31-00-860-315

- (3) Disconnect the tester.

SUBTASK 31-31-00-420-018

- (4) Install the shorting plug on the system test plug on the P18 panel.

SUBTASK 31-31-00-860-316

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

———— END OF TASK ————



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UNDERWATER LOCATOR BEACON - MAINTENANCE PRACTICES

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) A removal of the underwater locator beacon (ULB).
 - (2) A replacement of the ULB battery.
 - (3) A test of the ULB.
 - (4) An installation of the ULB.
- C. The underwater locator beacon (ULB) is attached to the front of the flight data recorder. The flight data recorder is above the ceiling panel station 947.

TASK 31-31-09-000-801

2. Underwater Locator Beacon Removal

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The underwater locator beacon (ULB) has a battery as the power source. The ULB has no external electrical connections.

B. References

<u>Reference</u>	<u>Title</u>
31-31-11-000-802	Flight Data Recorder Removal (P/B 401)

C. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-1048	Stepladder - 6 foot (1.83m)

D. Location Zones

<u>Zone</u>	<u>Area</u>
140	Subzone - Body Station 727.00 to Body Station 1016.00
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Removal Procedure

SUBTASK 31-31-09-010-002

- (1) To get access to the flight data recorder [2] in the aft passenger compartment, open the lowered ceiling panel.

SUBTASK 31-31-09-010-003

- (2) Use a 6 foot (1.83m) stepladder, STD-1048 to access the flight data recorder [2].

SUBTASK 31-31-09-020-001

- (3) Do this task: Flight Data Recorder Removal, TASK 31-31-11-000-802.

SUBTASK 31-31-09-020-003

- (4) Do these steps to remove the ULB [6] from the AlliedSignal solid state flight data recorder [2]:
 - (a) Loosen the screws [3] that hold the ULB [6] on the flight data recorder [2].
 - (b) Remove the screw(s) [3] and the clamp on one end of the ULB [6].
 - (c) Remove the ULB [6].

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AKS ALL

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AIRCRAFT MAINTENANCE MANUAL

(d) Keep the screw(s) [3] and the clamp.

———— END OF TASK ————

———— EFFECTIVITY ————
AKS ALL

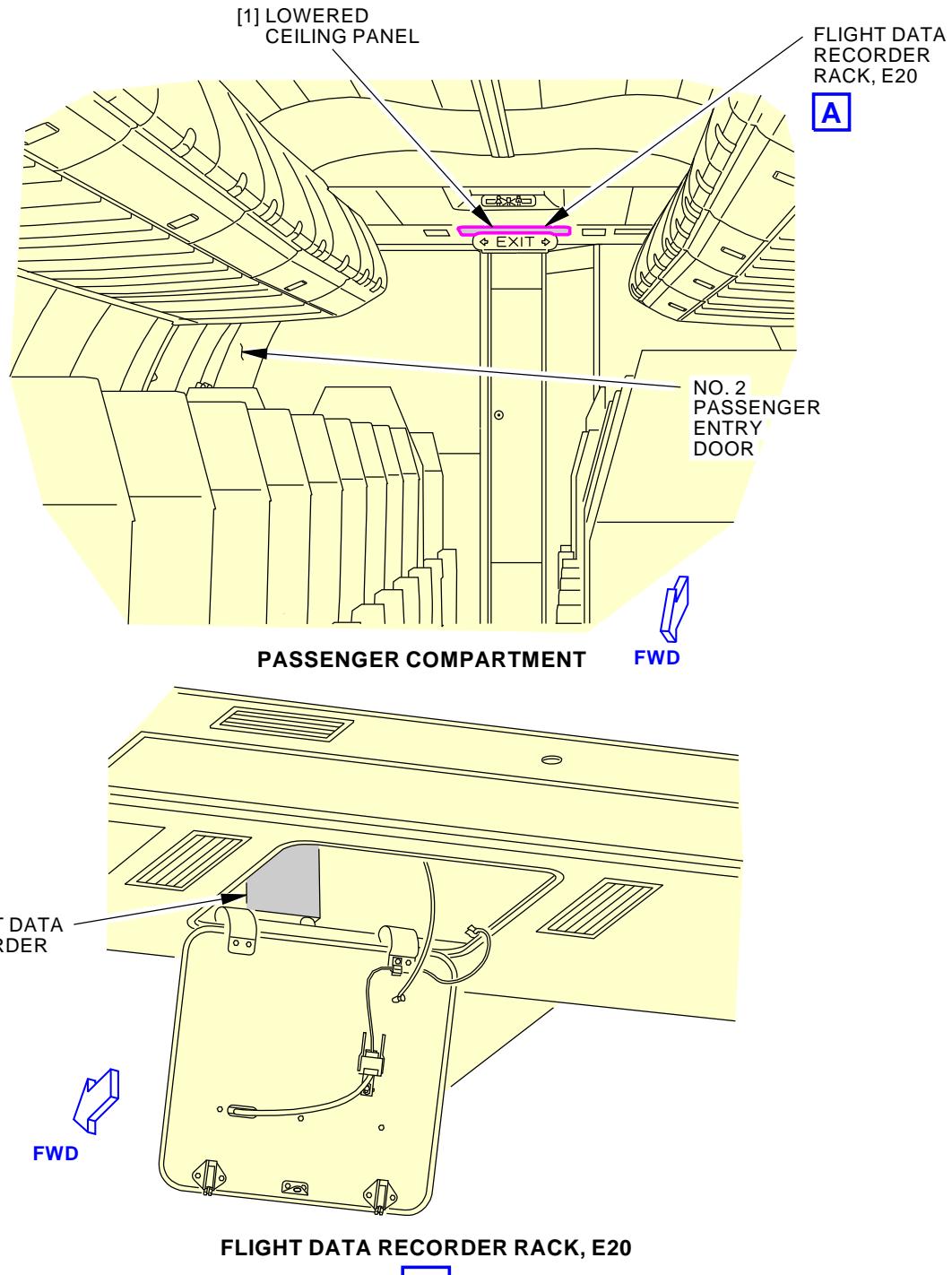
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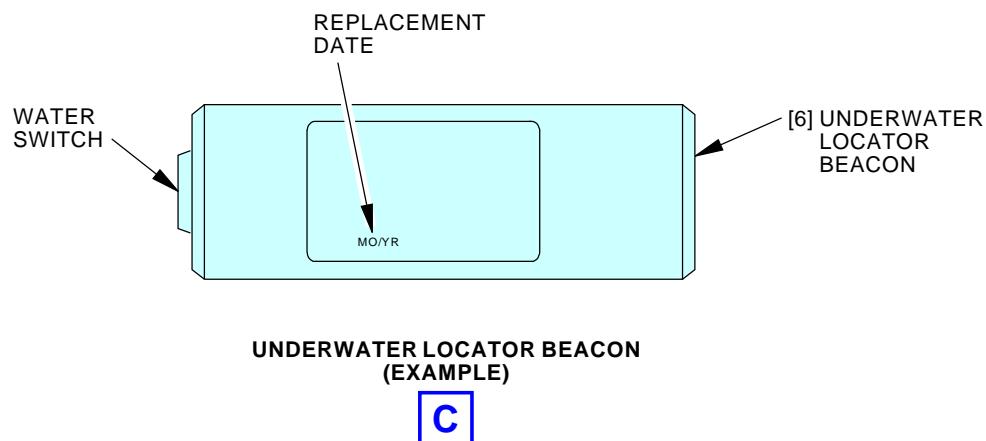
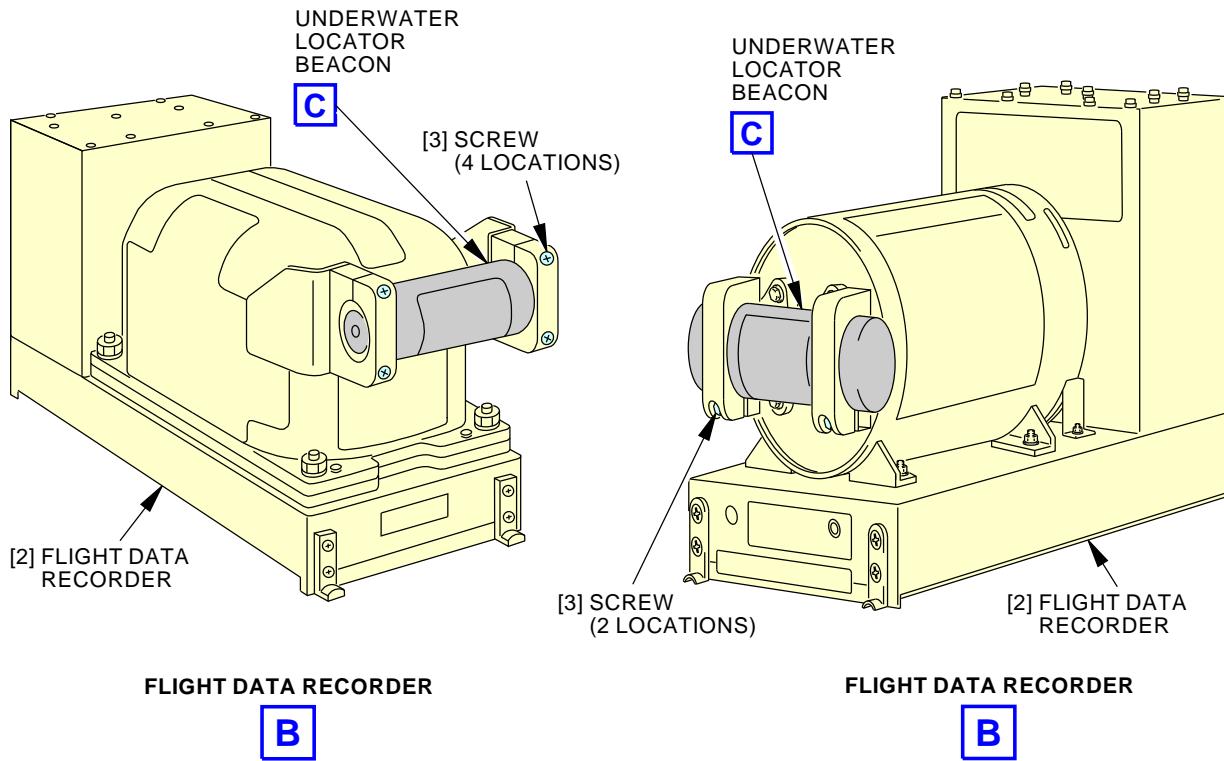
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Underwater Locator Beacon Installation
Figure 201/31-31-09-990-801 (Sheet 1 of 2)

EFFECTIVITY
AKS ALL

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D633A101-AKS



F69975 S0006574379_V3

Underwater Locator Beacon Installation
Figure 201/31-31-09-990-801 (Sheet 2 of 2)

 EFFECTIVITY
 AKS ALL

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AIRCRAFT MAINTENANCE MANUAL

AKS ALL; FLIGHT DATA RECORDERS WITH DUKANE ULBS

TASK 31-31-09-960-801

3. Dukane Underwater Locator Beacon Battery - Replacement

(Figure 202 or Figure 203)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure contains the steps to replace the Dukane ULB battery.

B. Tools/Equipment

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

Reference	Description
COM-1619	Wrench - Spanner, Used on Underwater Locator Beacon Part #: 008407 Supplier: 26858 Part #: 810-2007/KVS Supplier: 94970 Part #: 810-325 Supplier: 94970 Opt Part #: B362-04180A Supplier: 26858 Opt Part #: B362-09111 Supplier: 26858
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 260-8XPI Supplier: 88277 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 #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536
STD-1066	Hose - Radiator, Split, 1-1/4 Inch Diameter, 5 Inch Length

C. Consumable Materials

Reference	Description	Specification
D50082	Lubricant - 810-346	
G02440	Battery - Lithium Battery	MIL-I-45208A
G50275	O-ring	

EFFECTIVITY
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AIRCRAFT MAINTENANCE MANUAL

AKS ALL; FLIGHT DATA RECORDERS WITH DUKANE ULBS (Continued)

D. Removal Procedure

SUBTASK 31-31-09-800-004

WARNING: DO NOT REMOVE THE BATTERY FROM THE DK100/DK130 ULB. DO NOT CAUSE DAMAGE TO THE DK100/DK130 ULB. DO NOT DISCARD THE DK100/DK130 ULB. THE MANUFACTURER HAS A REPLACEMENT PROGRAM FOR EXPIRED ULBS. ON OR BEFORE THE EXPIRED DATE, SEND THE DK100/DK130 ULB TO THE MANUFACTURER FOR SERVICING. THE BATTERY CONTAINS DANGEROUS CHEMICAL MATERIALS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (1) If you have a DK100/DK130 ULB [4], send it to the manufacturer for servicing.

SUBTASK 31-31-09-020-008

- (2) If you do not have a DK100/DK130 ULB [4], remove the ULB battery [28]:

CAUTION: DO NOT HOLD THE UNDERWATER LOCATOR BEACON IN A VISE. THIS CAN CAUSE DAMAGE TO THE BEACON BODY.

- (a) Hold the ULB [4] body with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066 [22].
- (b) Use the spanner wrench, COM-1619 [21] to remove the end cap [25] that is identified BATTERY ACCESS.
- (c) Remove the rubber shock cushion [27] from the battery end if it is not removed with the end cap [25].
- (d) Hit the ULB [4] lightly to remove the battery [28].

E. Installation Procedure

SUBTASK 31-31-09-420-008

- (1) Make sure that the new battery is the same as the battery code on the ULB label. See the table below.

NOTE: It is necessary to replace the removed Battery Code C with a new Battery Code C. Battery Codes B and D are interchangeable.

BATTERY CODE	REQUIRED BATTERY KIT
B	810-2007/K
C	810-2008/K
D	810-2007/K

- (2) Install the ULB battery, G02440 [28].

NOTE: The Dukane 810-2007/K battery or the Dukane 810-2008/K are 6 year lithium batteries used in the Dukane model DK120 and DK140 ULB.

NOTE: Battery, O-ring and lubricant are provided in battery replacement kit.

- (a) Put a new battery replacement label [23] on the ULB [4] body.
- (b) On the date label [23], write the next scheduled replacement date for the new ULB battery that you installed.

NOTE: The date label [23] is blank so you can write in a replacement date based on your maintenance schedule.

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AKS ALL; FLIGHT DATA RECORDERS WITH DUKANE ULBS (Continued)

CAUTION: REMOVE ALL OF THE CONTAMINATION FROM THE THREADS AND THE O-RING GROOVES. CONTAMINATION CAN CAUSE DAMAGE TO THE THREADS. THREAD DAMAGE CAN CAUSE LEAKS.

- (c) Clean the threads and the O-ring contact area in the ULB [4] body.

CAUTION: MAKE SURE THE POLARITY IS CORRECT. INCORRECT POLARITY CAN CAUSE PERMANENT DAMAGE TO THE BEACON.

- (d) Put the new battery, G02440 [28] in the ULB [4] with the end identified INSERT THIS END in first.

- (e) Do these steps to test the beacon off-current:

- 1) Put the positive probe of a digital/analog multimeter, COM-1793 on the positive end of the battery [28].
- 2) Put the negative probe on the outer surface of the ULB [4].
- 3) Make sure that the multimeter shows an electrical current of 3 microamperes or less.

a) If the current is more than 3 microamperes, then replace the ULB.

- (f) Remove and discard the used O-ring [26] from the end cap [25].

CAUTION: REMOVE ALL OF THE CONTAMINATION FROM THE THREADS AND THE O-RING GROOVES. CONTAMINATION CAN CAUSE DAMAGE TO THE THREADS. THREAD DAMAGE CAN CAUSE LEAKS.

- (g) Clean the threads and the O-ring groove in the ULB [4] body.

- (h) Apply a thin layer of lubricant, D50082 to the new o-ring, G50275 [26], O-ring groove, and threads.

- (i) Install the new o-ring, G50275 [26] on the end cap [25].

- (j) Put the rubber shock cushion [27] smoothly on the end cap [25].

- (k) Put the end cap [25] into the ULB [4] body.

- (l) Use the spanner wrench, COM-1619 [21] to tighten the end cap [25] until the cap flange touches the ULB [4] body.

NOTE: Only use hand force on the spanner wrench, COM-1619 [21].

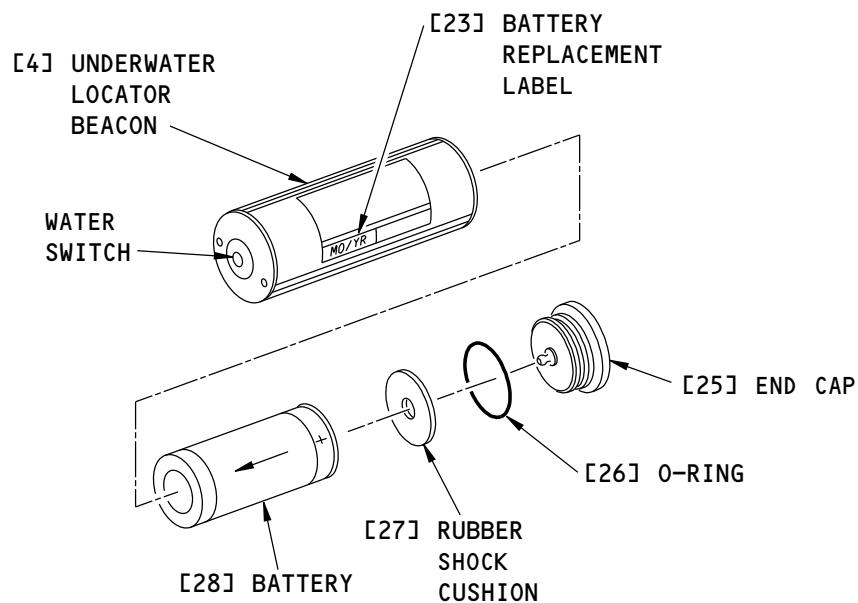
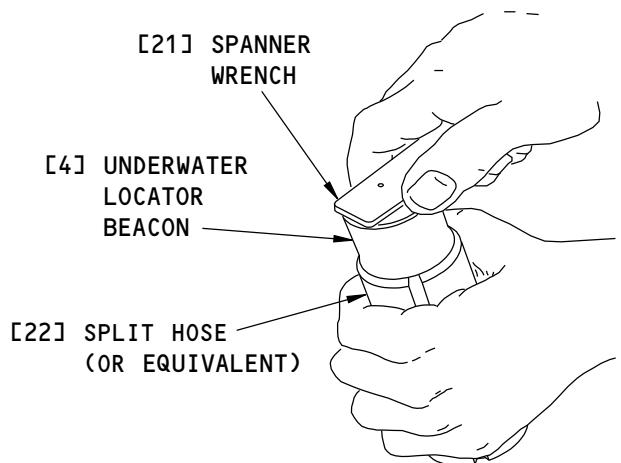
———— END OF TASK ————

EFFECTIVITY
AKS ALL

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AIRCRAFT MAINTENANCE MANUAL



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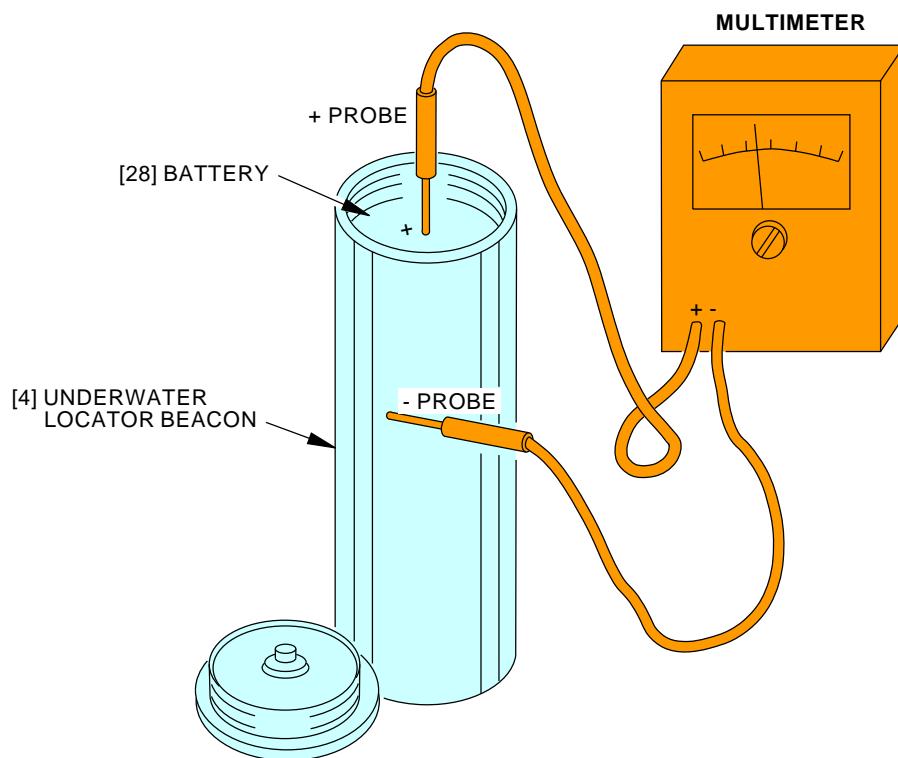
Underwater Locator Beacon Battery Replacement
Figure 202/31-31-09-990-802

EFFECTIVITY
AKS ALL; FLIGHT DATA RECORDERS WITH
DUKANE ULBS

31-31-09



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AIRCRAFT MAINTENANCE MANUAL



2279078 S0000514233_V2

Beacon Off-Current Test
Figure 203/31-31-09-990-804

EFFECTIVITY
AKS ALL; FLIGHT DATA RECORDERS WITH
DUKANE ULBS

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AIRCRAFT MAINTENANCE MANUAL

AKS ALL; FLIGHT DATA RECORDERS WITH DATASONIC ULBS

TASK 31-31-09-960-802

4. Teledyne Benthos Underwater Locator Beacon Battery - Replacement

(Figure 204)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure contains the steps to replace the Teledyne Benthos ULB battery.

B. Tools/Equipment

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

Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 260-8XPI Supplier: 88277 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 #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536
COM-2543	Torque - Adapter, Used on Underwater Locator Beacon Part #: 008407 Supplier: 26858 Opt Part #: B362-04180A Supplier: 26858 Opt Part #: B362-09111 Supplier: 26858
STD-1066	Hose - Radiator, Split, 1-1/4 Inch Diameter, 5 Inch Length

C. Consumable Materials

Reference	Description	Specification
D50082	Lubricant - 810-346	
G50272	Battery - Teledyne Benthos (P/N C362-04270-2)	
G50273	O-ring - Lubricated, Teledyne Benthos (P/N 2-022)	

D. Prepare for the Removal

SUBTASK 31-31-09-860-001

- (1) Measure the battery voltage of the ELP-362D ULB [4]. Use a high-impedance digital voltmeter with a minimum input impedance of 10 Megohms.
(a) Put the negative meter lead on the water switch.
(b) Put the positive meter lead on the bare aluminum surface of the beacon housing.

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AKS ALL; FLIGHT DATA RECORDERS WITH DATASONIC ULBS (Continued)

- (c) Read the voltmeter.

E. Removal Procedure

SUBTASK 31-31-09-800-002

- (1) If the measured voltage is less than 6.0 Volts, send the ELP-362D ULB [4] to the manufacturer for servicing.

SUBTASK 31-31-09-020-006

- (2) If the measured voltage is 6.0 Volts or more, remove the battery, G50272 [28] from the ELP-362D ULB [4]:

CAUTION: DO NOT HOLD THE ULB WITH A VISE. THIS CAN CAUSE DAMAGE TO THE ULB.

- (a) Hold the ULB [4] body with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066.
- (b) Use the underwater locator beacon torque adapter, COM-2543 to remove the end-cap [25] identified as "BATTERY ACCESS".
- (c) Turn the housing up to remove the battery from the unit.
- (d) Discard the battery [28].

NOTE: Refer to local instructions when you discard the battery [28].

F. Installation Procedure

SUBTASK 31-31-09-420-002

- (1) Install the ULB battery, G50272 [28]:

- (a) Set the battery [28] until the arrow points to the top end of the unit.

NOTE: The battery label has an arrow mark.

- (b) On the date label [23], write the next scheduled replacement date for the new ULB battery that you installed.

NOTE: The date label [23] is blank so you can write in a replacement date based on your maintenance schedule.

CAUTION: REMOVE ALL OF THE CONTAMINATION FROM THE THREADS AND THE O-RING GROOVES. CONTAMINATION CAN CAUSE DAMAGE TO THE THREADS. THREAD DAMAGE CAN CAUSE LEAKS.

- (c) Clean the threads and the O-ring contact area in the ULB [4] body.

CAUTION: INSTALL THE ULB BATTERY [28] CORRECTLY. INCORRECT POLARITY WILL CAUSE PERMANENT DAMAGE TO THE ULB.

- (d) Put the new battery, G50272 [28] in the ULB [4] with the end identified INSERT THIS END in first.

- (e) Do these steps to test the beacon off-current:

- 1) Put the positive probe of a digital/analog multimeter, COM-1793 on the positive end of the battery [28].
- 2) Put the negative probe on the outer surface of the ULB [4].
- 3) Make sure that the multimeter shows an electrical current of 3 microamperes or less.



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AKS ALL; FLIGHT DATA RECORDERS WITH DATASONIC ULBS (Continued)

- 4) If the current is more than 3 microamperes, then replace the ULB [4].
- (f) Remove and discard the O-ring [26] from its groove in the end-cap [25].

CAUTION: REMOVE ALL OF THE CONTAMINATION FROM THE THREADS AND THE O-RING GROOVES. CONTAMINATION CAN CAUSE DAMAGE TO THE THREADS. THREAD DAMAGE CAN CAUSE LEAKS.

- (g) Clean the threads and the O-ring groove in the end cap.

NOTE: Lubricant and O-ring are supplied in the battery replacement kit.

- (h) Apply a thin layer of lubricant, D50082 to the new o-ring, G50273 [26], O-ring groove, and threads.

- (i) Put the lubricated o-ring, G50273 [26] in the end-cap groove.

- (j) Attach the end-cap [25] to the housing.

- (k) Use the underwater locator beacon torque adapter, COM-2543 to install the end-cap [25] tightly.

NOTE: Only use hand force on the underwater locator beacon torque adapter, COM-2543.

- (l) Torque the end-cap [25] to 25 to 30 inch pounds.

———— END OF TASK ————

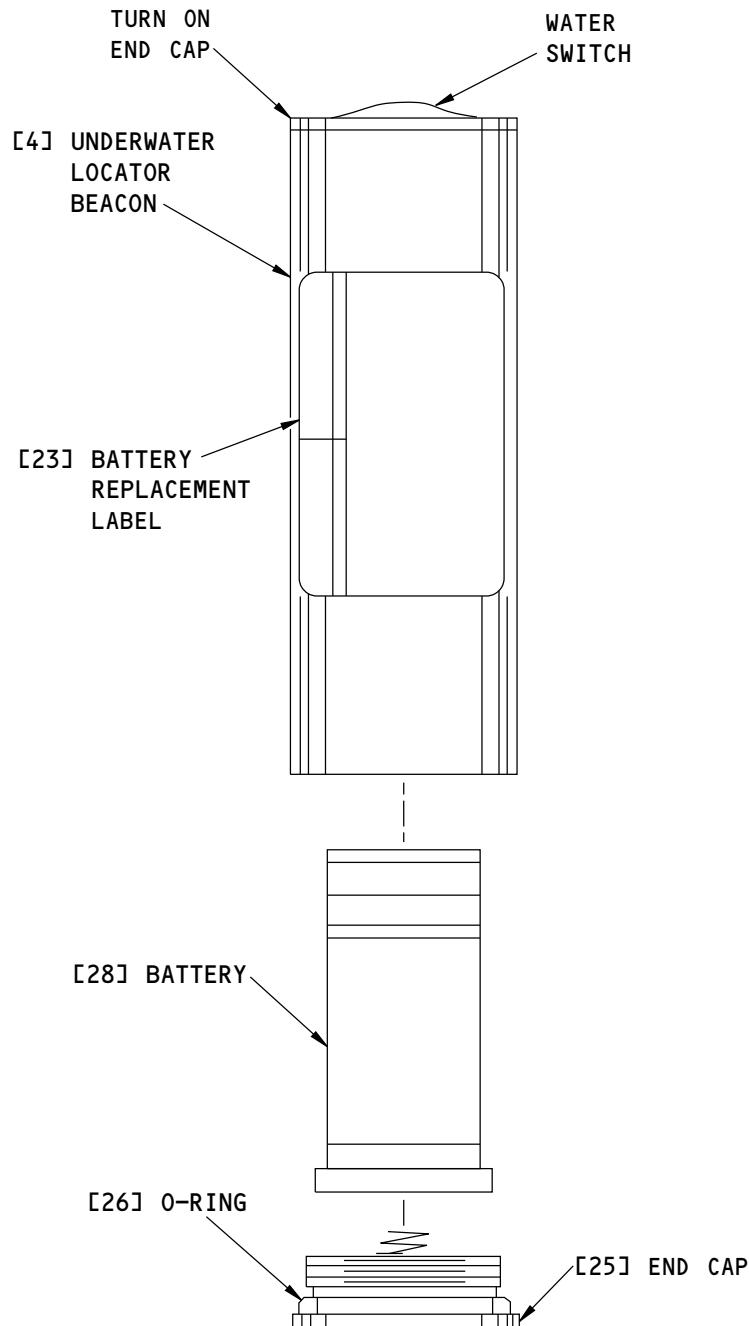
EFFECTIVITY
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Underwater Locator Beacon Battery Replacement
Figure 204/31-31-09-990-803

EFFECTIVITY
AKS ALL; FLIGHT DATA RECORDERS WITH
DATASONIC ULBS

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TASK 31-31-09-960-803

5. Underwater Locator Beacon Test with a 42A12 Series Test Set

NOTE: This procedure is a scheduled maintenance task.

A. Tools/Equipment

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

Reference	Description
COM-10768	Test Set - 42A12, Underwater Locator Beacon (ULB) Part #: 42A12-1 Supplier: 94970

B. Procedure

SUBTASK 31-31-09-700-007

- (1) If you have a 42A12 ULB Test Set, COM-10768, do this test of the ULB:

NOTE: 42A12 can do a test for all ULBs.

- (a) Put the 42A12 ULB Test Set, COM-10768 as close as possible to the ULB.
- (b) Set the GAIN control switch on the 42A12 ULB Test Set, COM-10768 to the maximum clockwise position.

NOTE: A background noise is heard. If you do not hear noise from the test set, replace the test set battery.

- (c) Set the TUNING control switch to the middle position.
- (d) Make sure that the 42A12 ULB Test Set, COM-10768 operates correctly.
 - 1) Rub your thumb and fingers together in front of the microphone to make sure that it operates.

NOTE: This will produce a rushing noise from the speaker.

- a) Make sure that you hear sounds through the speaker.

- (e) Use tape to attach a piece of wire, a shorting tab, or other conductive material to the ULB case and to the center of the water switch.

NOTE: This will make a short circuit from the center of the water switch to the outer part of the ULB.

- (f) Set the GAIN control switch to a comfortable listening level.
- (g) Point the microphone of the test set towards the water switch end of the beacon for best results.
 - 1) Make sure you hear a pulse tone.
- (h) Remove the wire, shorting tab, or other conducting material from the ULB case and the center of the water switch.
- (i) Set the GAIN control switch to the OFF position.
- (j) Make sure that the water switch on the ULB has no grease or dirt.
- (k) If necessary, do the steps that follow:
 - 1) Clean the switch with water and detergent.



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- 2) Dry the switch with a clean cloth.

———— END OF TASK ————

TASK 31-31-09-960-804

6. Underwater Locator Beacon Test with a PL1 Test Set

NOTE: This procedure is a scheduled maintenance task.

A. Tools/Equipment

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

Reference	Description
COM-10771	Test Set - Underwater Locator Beacon (ULB) Part #: 42A12-1 Supplier: 94970 Opt Part #: PL1 Supplier: 94970

B. Consumable Materials

Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

C. Procedure

SUBTASK 31-31-09-700-006

- (1) If you have a ULB Test Set, COM-10771, do this test of the ULB:

NOTE: PL1 can only do a test for the DK100 ULB.

- (a) Use Scotch Flatback Masking Tape 250, G00270 to attach a piece of wire or other conductive material to the ULB case and the center of the water switch.

NOTE: This will make a short circuit from the center of the water switch to the outer part of the ULB.

- (b) Put the end of the ULB Test Set, COM-10771 against the ULB, approximately one inch from the water switch.

- (c) Push and hold the operation switch on the ULB Test Set, COM-10771.

- 1) Make sure that the BEACON ACTIVE WHEN FLASHING light flashes.

- 2) Remove the piece of wire or other conductive material from the ULB case and the center of the water switch.

- 3) Make sure that the BEACON ACTIVE WHEN FLASHING light does not flash.

- (d) Release the operation switch on the ULB Test Set, COM-10771.

- (e) Remove the ULB Test Set, COM-10771.

- (f) Make sure that the water switch end of the ULB has no grease or dirt.

- (g) If necessary, do the steps that follow:

- 1) Clean the switch with water and detergent.

- 2) Dry the switch with a clean cloth.

———— END OF TASK ————

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TASK 31-31-09-700-801

7. Underwater Locator Beacon Test with a PL3 Test Set

NOTE: This procedure is a scheduled maintenance task.

A. Tools/Equipment

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

Reference	Description
COM-10772	Test Set - Underwater Locator Beacon (ULB) Part #: 42A12-1 Supplier: 94970 Opt Part #: PL3 Supplier: 94970

B. Procedure

SUBTASK 31-31-09-720-003

- (1) If you have a ULB test set, COM-10772, do this test of the ULB [4]:

NOTE: PL3 can only do a test for the DK100 and DK120 ULBs.

- (a) Put the end of the ULB test set, COM-10772 against the water switch of the ULB [4].
 - 1) Make sure that you hear a tone.
 - 2) Make sure that the LED light flashes.
- (b) Remove the ULB test set, COM-10772.
- (c) Make sure that the water switch on the ULB [4] has no grease or dirt.
- (d) If necessary, do these steps:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

———— END OF TASK ————

TASK 31-31-09-700-802

8. Underwater Locator Beacon Test with a ATS-260 Test Set

NOTE: This procedure is a scheduled maintenance task.

A. Tools/Equipment

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

Reference	Description
COM-978	Test Set - ATS-260, Underwater Locator Beacon (ULB) Part #: ATS-260 Supplier: 26858

B. Procedure

SUBTASK 31-31-09-720-004

- (1) If you have an ATS-260 ULB test set, COM-978, do this test of the ULB [4]:

NOTE: ATS-260 can only do a test for the ELP-362D ULB.

- (a) Put the ATS-260 ULB test set, COM-978 clip on the ULB [4].
- (b) Push and hold the PUSH TO TEST button.
- (c) Put the ATS-260 ULB test set, COM-978 probe on the ULB water switch.

EFFECTIVITY
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- 1) Make sure that a green LED shows.
- 2) Make sure that you can hear sounds from the ATS-260 ULB test set, COM-978.
- 3) Make sure that the amber LED flashes.
- (d) Release the PUSH TO TEST button.
- (e) Remove the ATS-260 ULB test set, COM-978.
- (f) Make sure that the water switch on the ULB has no grease or dirt.
- (g) If necessary, do these steps:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

———— END OF TASK ————

TASK 31-31-09-700-803

9. Underwater Locator Beacon Test with a Seacom TS100 Test Set

A. Tools/Equipment

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

Reference	Description
COM-10769	Test Set - TS100, Underwater Locator Beacon (ULB) Part #: TS200 Supplier: 94970 Opt Part #: TS100 Supplier: 94970

B. Procedure

SUBTASK 31-31-09-720-005

- (1) If you have a TS100 ULB Test Set, COM-10769, do this test of the ULB [4]:

NOTE: TS100 can only do a test for the DK100 and DK120 ULBs.

- (a) Connect the probe head of the TS100 ULB Test Set, COM-10769 to the ULB [6] in its mount.
- (b) Slide the switch on the side of the test set housing to ON.
 - 1) Make sure that the LCD display shows "TESTING".
- (c) Press the button in the center of the test set to start a retest.
 - 1) Make sure that the LCD display shows "TESTING".
- (d) Within a few seconds, the LCD will change to show one of the following Pass / Fault messages:

LCD Message	Explanation
Beacon Passed	Beacon is operating properly.
Battery Fault	Beacon is NOT operating properly.
No Pulse Output	Beacon is NOT operating properly.
Pulse Fault	Beacon is NOT operating properly.
Free-Run Fault	Beacon is NOT operating properly.
Test Set Fault	Test Set batteries must be replaced.

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(Continued)

LCD Message	Explanation
Need Service	Beacon is NOT operating properly.
Open Probe/Batt.	Probe head is not properly attached or the beacon battery is dead.

- (e) Make sure that the LCD shows "Beacon Passed".

NOTE: THE PASS / FAULT MESSAGE WILL BE DISPLAYED FOR APPROXIMATELY 10 SECONDS BEFORE RETURNING TO "READY FOR TEST".

- (f) Remove the TS100 ULB Test Set, COM-10769.
(g) Make sure that the water switch end of the ULB [4] has no grease or dirt.
1) If necessary, clean the water switch with a weak general purpose household detergent cleaner.

———— END OF TASK ————

TASK 31-31-09-700-804

10. Underwater Locator Beacon Test with a TS200 Test Set

A. Tools/Equipment

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

Reference	Description
COM-10770	Test Set - TS200, Underwater Locator Beacon (ULB) Part #: TS200 Supplier: 94970

B. Procedure

SUBTASK 31-31-09-700-005

- (1) If you have a TS200 ULB test set, COM-10770, do this test of the ULB:

NOTE: TS200 can do a test for all Dukane ULBs.

- (a) Attach the test probe clip of the TS200 ULB test set, COM-10770 to the beacon in its mount.
(b) Put the tip of the probe on the silver pad of the water switch at the end of the beacon.
1) The LCD display will show the battery voltage of the beacon.
(c) Refer to the applicable battery code for the minimum permitted range of the beacon battery voltage:

NOTE: Examine the battery replacement label to find the battery code.

- 1) Code A – 3.55 Volts
- 2) Code B – 2.97 Volts
- 3) Code C – 2.97 Volts
- 4) Code D – 2.97 Volts

- (d) Push the red button on the TS200 ULB test set, COM-10770.
1) The beacon starts and you hear a pinging noise from the TS200 ULB test set, COM-10770.
(e) Remove the test probe clip of the TS200 ULB test set, COM-10770.

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- (f) Replace the ULB if necessary.
- (g) Make sure that the water switch end of the ULB has no grease or dirt.
- (h) If necessary, do the steps that follow:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

———— END OF TASK ————

TASK 31-31-09-400-801

11. Underwater Locator Beacon Installation

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
31-31-11-400-802	Flight Data Recorder Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

C. Location Zones

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. Installation Procedure

SUBTASK 31-31-09-420-004

- (1) Do these steps to install the ULB [4] on the AlliedSignal solid state flight data recorder [2]:
 - (a) Make sure that the water switch end of the ULB [4] has no grease or dirt.
 - (b) Clean the water switch on the ULB [4] with a weak general purpose household detergent cleaner, B00541.
 - (c) Put the ULB [4] in the cradle on the flight data recorder [2].
 - (d) Make sure you can read the replacement date on the ULB [4].
 - (e) Install the screw(s) [3] that hold the clamp on the end of the ULB.
 - (f) Tighten the screws [3] to 23 ± 3 in-lb (3 ± 1 N·m).

SUBTASK 31-31-09-700-004

- (2) Do one of these tasks to test the ULB:

Underwater Locator Beacon Test with a 42A12 Series Test Set, TASK 31-31-09-960-803 or Underwater Locator Beacon Test with a PL1 Test Set, TASK 31-31-09-960-804 or Underwater Locator Beacon Test with a ATS-260 Test Set, TASK 31-31-09-700-802 or Underwater Locator Beacon Test with a PL3 Test Set, TASK 31-31-09-700-801 or Underwater Locator Beacon Test with a Seacom TS100 Test Set, TASK 31-31-09-700-803 or Underwater Locator Beacon Test with a TS200 Test Set, TASK 31-31-09-700-804

SUBTASK 31-31-09-420-006

- (3) Do this task: Flight Data Recorder Installation, TASK 31-31-11-400-802.

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SUBTASK 31-31-09-410-002

- (4) Close the lowered ceiling panel.

———— END OF TASK ——

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FLIGHT DATA RECORDER (FDR) - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the flight data recorder.
 - (2) An installation of the flight data recorder.
- B. The flight data recorder is above the aft lowered ceiling panel No. 2 in the passenger compartment.

TASK 31-31-11-000-802

2. Flight Data Recorder Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)
31-31-09-000-801	Underwater Locator Beacon Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1048	Stepladder - 6 foot (1.83m)

C. Location Zones

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. Removal Procedure

SUBTASK 31-31-11-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-11-010-001

- (2) To get access to the flight data RECORDER [2] in the aft passenger compartment, open the lowered ceiling panel.

SUBTASK 31-31-11-800-001

- (3) Use a 6 foot (1.83m) stepladder, STD-1048 to access the flight data RECORDER [2].

SUBTASK 31-31-11-020-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE FLIGHT DATA RECORDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FLIGHT DATA RECORDER.

- (4) To remove the flight data RECORDER [2], do this task: E/E Box Removal, TASK 20-10-07-000-801.



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SUBTASK 31-31-11-020-002

- (5) Remove the underwater locator beacon (ULB) from the flight data RECORDER [2] if the replacement flight data RECORDER [2] does not have an underwater locator beacon (ULB) installed. To remove it, do this task: Underwater Locator Beacon Removal, TASK 31-31-09-000-801.

———— END OF TASK ————

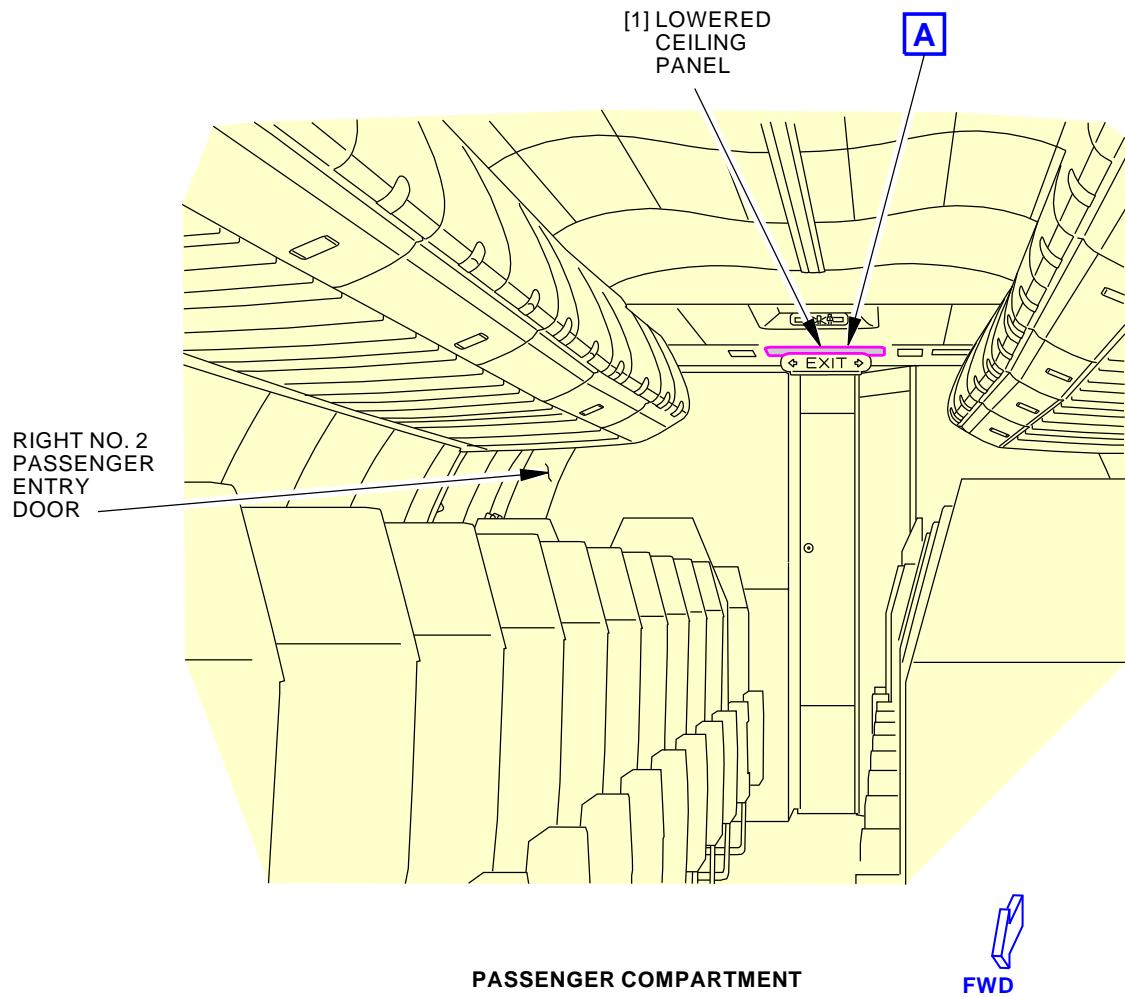
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F53011 S0006574395_V2

Flight Data Recorder Installation
Figure 401/31-31-11-990-801 (Sheet 1 of 2)

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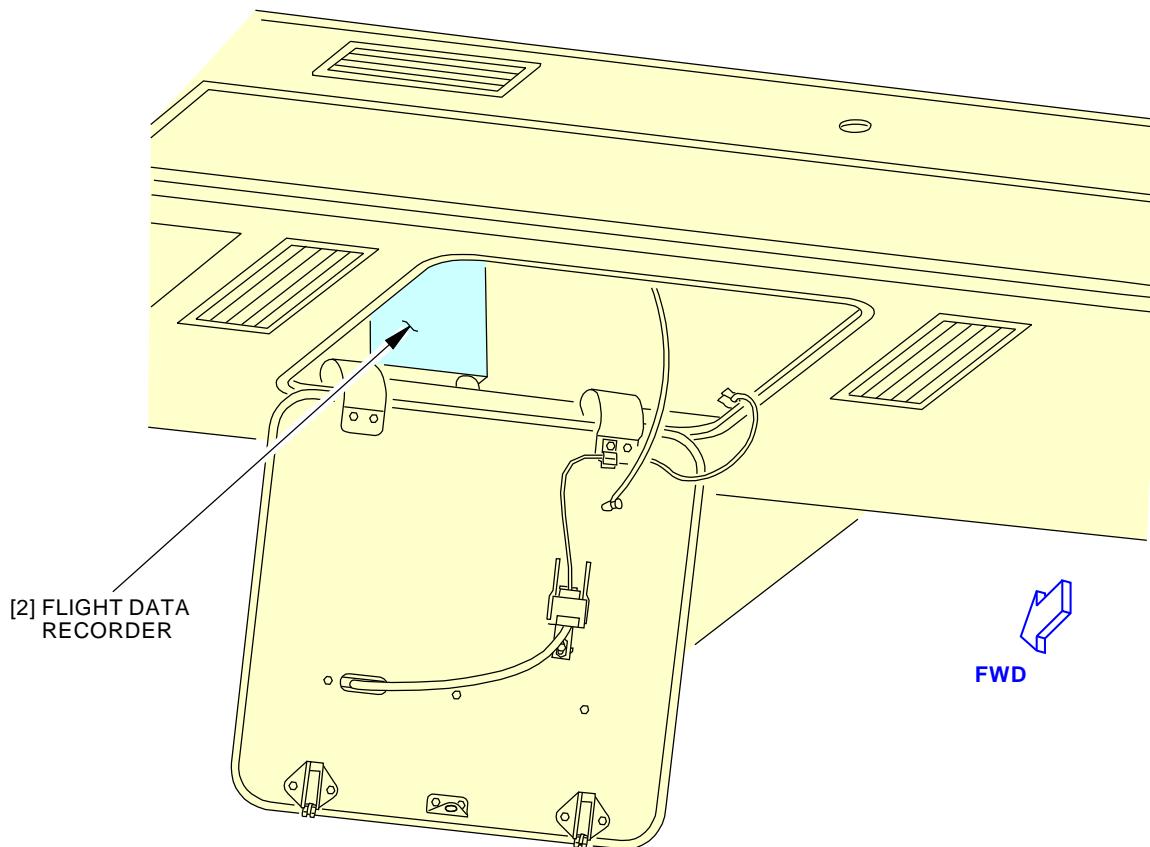
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FLIGHT DATA RECORDER RACK, E20

A

F53012 S0006574396_V2

Flight Data Recorder Installation
Figure 401/31-31-11-990-801 (Sheet 2 of 2)

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TASK 31-31-11-400-802

3. Flight Data Recorder Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box 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)
31-31-09-400-801	Underwater Locator Beacon Installation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	RECORDER	31-31-11-09-105	AKS ALL

C. Location Zones

Zone	Area
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. Installation Procedure

SUBTASK 31-31-11-010-002

- (1) Make sure the lowered ceiling panel [1] is open.

SUBTASK 31-31-11-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-11-420-001

- (3) If the flight data RECORDER [2] does not have an underwater locator beacon (ULB) installed, do this task: Underwater Locator Beacon Installation, TASK 31-31-09-400-801.

SUBTASK 31-31-11-420-002

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE FLIGHT DATA RECORDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FLIGHT DATA RECORDER.

- (4) To install the flight data RECORDER [2], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 31-31-11-410-001

- (5) Close the lowered ceiling panel.

E. Installation Test

SUBTASK 31-31-11-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.



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SUBTASK 31-31-11-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-11-740-001

- (3) Do this test of the flight data recorder:

- (a) Put the TEST-NORMAL switch on the flight recorder panel, P5, to the TEST position.
 - 1) Make sure the flight recorder OFF light goes out.
 - 2) Make sure the DFDR FAIL light on the FDAU is off.
- (b) Put the TEST--NORMAL switch on the flight recorder panel, P5, to the NORMAL position.
 - 1) Make sure the flight recorder OFF light comes on.

SUBTASK 31-31-11-860-005

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

———— END OF TASK ————

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FLIGHT RECORDER/MACH AIRSPEED WARNING TEST MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the flight recorder/mach airspeed warning test module.
 - (2) An installation of the flight recorder/mach airspeed warning test module.
- B. The flight recorder/mach airspeed warning test module is installed on the P5, aft overhead panel.

TASK 31-31-12-000-801

2. Flight Recorder/Mach Airspeed Warning Test Module Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left

B. Procedure

SUBTASK 31-31-12-860-001

- (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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4

SUBTASK 31-31-12-020-001

- (2) Loosen the four quarter-turn fasteners [3] on the flight recorder/mach airspeed warning test module [1].

SUBTASK 31-31-12-010-001

- (3) Remove the flight recorder/mach airspeed warning test module [1] from of the P5, aft overhead panel.

SUBTASK 31-31-12-020-002

- (4) Disconnect the electrical connector [2] from the rear of the flight recorder/mach airspeed warning test module [1].

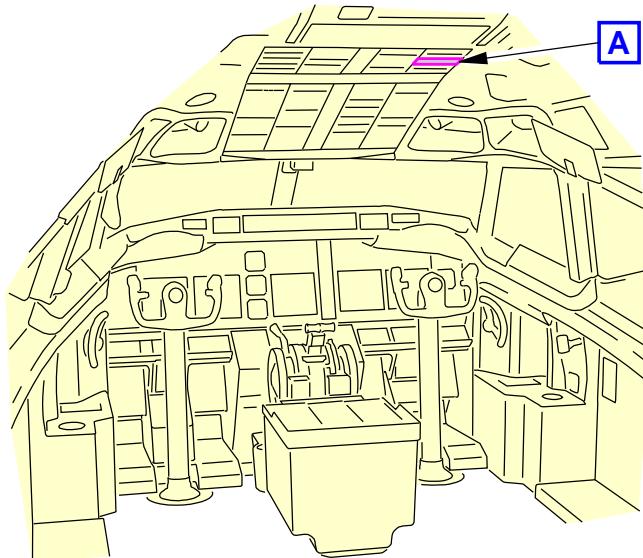
———— END OF TASK ————

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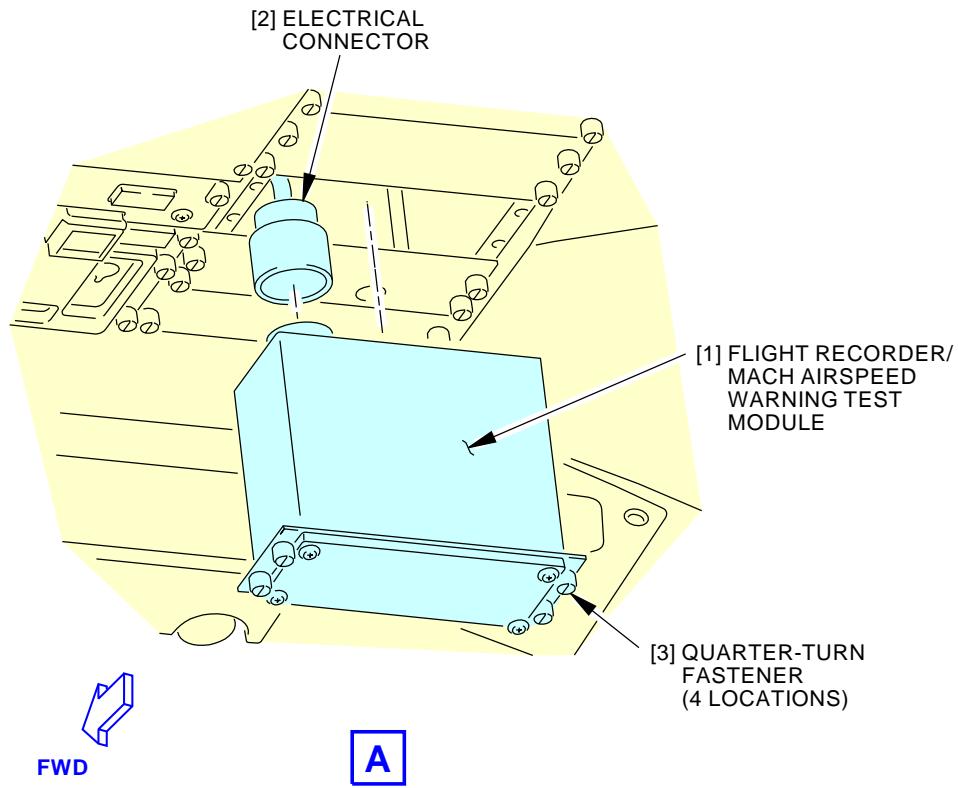
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FLIGHT COMPARTMENT



F94578 S0006574401_V2

Flight Data Recorder Installation
Figure 401/31-31-12-990-801

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TASK 31-31-12-400-801

3. Flight Recorder/Mach Airspeed Warning Test Module Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
34-16-00-730-801	Mach Airspeed Warning System - Aural Warning Discrete Output Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module	31-11-95-05S-040	AKS 007, 008, 011, 012, 014, 019, 026, 028-999
		31-11-95-13G-040	AKS 001-006, 009, 010, 013, 015-018, 020-025, 027
		31-31-12-05-020	AKS ALL

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Procedure

SUBTASK 31-31-12-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4

SUBTASK 31-31-12-420-001

- (2) Connect the electrical connector [2] to the rear of the flight recorder/mach airspeed warning test module [1].

SUBTASK 31-31-12-410-001

- (3) Install the flight recorder/mach airspeed warning test module [1] into the P5, aft overhead panel.

SUBTASK 31-31-12-420-002

- (4) Tighten the four quarter-turn fasteners [3] on the flight recorder/mach airspeed warning test module [1].

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SUBTASK 31-31-12-860-003

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4

E. Installation Test

SUBTASK 31-31-12-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-12-710-001

- (2) Do this test of the flight recorder/mach airspeed warning test module [1]:

- (a) Put the TEST-NORMAL switch for the flight data recorder to the TEST position.
 - 1) Make sure the flight recorder OFF light is off.
- (b) Put the TEST-NORMAL switch for the flight data recorder to the NORMAL position.
 - 1) Make sure the flight recorder OFF light is on.

SUBTASK 31-31-12-730-001

- (3) Do this task: Mach Airspeed Warning System - Aural Warning Discrete Output Test, TASK 34-16-00-730-801

———— END OF TASK ————



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DIGITAL FLIGHT DATA ACQUISITION UNIT (DFDAU) - MAINTENANCE PRACTICES

1. **General**

- A. The Digital Flight Data Acquisition Unit (DFDAU) can also be referred to as the FDAU, DFDMU, or DF DAMU. However, for consistency, this procedure will use the term DFDAU when referring to the digital flight data acquisition unit.
- B. This procedure contains these tasks:
 - (1) An installation of the DFDAU mandatory or ACMS application software with an enhanced airborne data loader (eADL).
 - (2) A task to make a copy of ACMS data from the DFDAU to an enhanced airborne data loader (eADL).
 - (3) A task to install software into DFDAU with the use of the Personal Computer Memory Card Interface Adapter (PCMCIA) interface.
 - (4) A task to make a copy of ACMS data from the DFDAU.

TASK 31-31-22-470-808

2. **Flight Data Acquisition Unit (FDAU) Software Installation with an Enhanced Airborne Data Loader (eADL)**

A. **General**

- (1) This provides the instructions on how to install software in the flight data acquisition unit (FDAU).
 - (a) The FDAU must contain these pieces of software:
 - 1) Mandatory FDAU software
 - 2) ACMS non-mandatory FDAU software
- (2) An enhanced airborne data loader (eADL) and a control display unit (CDU) are necessary for this procedure. A data loader control panel is also necessary. The data loader control panel is installed above the enhanced airborne data loader on the P61 panel.
- (3) The eADL has two procedures for software installation:
 - (a) Floppy Disk Software Installation
 - (b) USB Flash Drive Software Installation
 - 1) This procedure uses the USB port on the front panel of the eADL to install software from a valid USB flash drive to the Mass Storage Device (MSD). Once the software is installed on the MSD, the software is loaded to the CMU LRU.
 - 2) The USB flash drive must be configured correctly using the USB stick creator tool defined in the eADL Operations Guide.
- (4) The airplane must be on the ground with the engines shutdown before you can install software.
- (5) To read about software installation times and data loaders, reference this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (6) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.
- (7) The word "media" defines a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.

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B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Prepare for the Installation

SUBTASK 31-31-22-860-098

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-22-860-100

- (2) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

SUBTASK 31-31-22-860-101

- (3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-470-006

- (4) Make sure you know the correct software part number for the FDAU.

NOTE: For the FDAU to be an approved installation, the correct software part number must be installed.

- (5) Make sure the system select switch on the data loader control panel (P61) is set to NORM or NORMAL.

- (6) Do these steps at the data loader control panel:

- (a) Set the upper switch to SINGLE SYS.
- (b) Set the system select switch to the applicable position.
 - 1) DFDAU position to install the mandatory FDAU software.
 - 2) ACMS position to install the non-mandatory FDAU software.

SUBTASK 31-31-22-860-103

- (7) Open the eADL front cover by releasing the two screws and lifting up on the cover.

D. Floppy Disk Software Installation

SUBTASK 31-31-22-470-011

- (1) Do these steps to install software from a floppy disk:

- (a) Wait until the display shows the eADL Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

- (b) Select "Target Page."

- 1) The eADL will show the Select Target System screen.



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- (c) Select "Floppy Drive."
 - 1) The eADL will show a Load Confirmation screen.
- (d) Carefully push the first disk (label up) into the disk drive.
- (e) Select "CONFIRM."
 - 1) The eADL will show "LOADING" on the Transfer In Progress screen.
NOTE: It may take one to two minutes for the installation to start.
NOTE: If the disk set has more than one disk and the data of the current disk is completely transferred, the eADL will prompt you to insert the next diskette. Eject the current diskette, insert the next diskette and select "CONTINUE."
- (f) In the Transfer In Progress screen, wait for the eADL to show "LOAD COMPLETE."
- (g) Select "MAIN" to go back to the main menu.
- (h) Eject the disk from the disk drive when the software installation is completed.

E. USB Flash Drive Software Installation

SUBTASK 31-31-22-470-012

- (1) Do these steps to install software from a USB flash drive to the eADL MSD:
 - (a) Put the USB flash drive into the eADL USB port.
NOTE: The USB flash drive must be configured correctly by the USB stick creator tool as specified in the eADL Operations Guide.
 - (b) Make sure that the "eADL Main Menu" is shown.
NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.
NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.
 - (c) Select "Maintenance Page."
 - 1) This will show the "Maintenance Menu" screen.
 - (d) Select "Transfer Parts From USB."
NOTE: If the error message "USB Is Not Mounted Or Is Not A Valid USB" is shown, select "GO BACK" and do the steps again.
NOTE: Make sure the USB flash drive is configured correctly by the USB stick creator tool as specified in the eADL Operations Guide.
 - 1) The eADL screen will show "CONFIRM TO BEGIN TRANSFERRING."
 - 2) Select "CONFIRM."
NOTE: The USB and MSD annunciators will turn yellow during the transfer procedure.
NOTE: If the software is already on the eADL MSD, this message will show: "Skipping, the software part number already exists."
 - (e) When the software transfer is complete, the USB and MSD annunciators will turn green and this message will show:
"Part Transfer Complete"
NOTE: The annunciators will turn red if the transfer procedure is aborted or if there is a failure.
 - (f) Select "GO BACK" two times to go back to the main menu.



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SUBTASK 31-31-22-470-013

- (2) Do these steps to install the software from the eADL MSD to the LRU:

- (a) Make sure that the “eADL Main Menu” is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

- (b) Select “Target Page.”

- 1) This will show the “Select Target System” screen.

- (c) Select the LRU to receive the software.

- 1) This will show the “Select Software Part” screen.

- (d) Push the “SELECT” button for the desired software.

NOTE: The listed software will appear as it was originally configured in the USB stick creator tool.

- (e) Make sure that the “Load Confirmation” screen shows.

- (f) Select “CONFIRM.”

- 1) This will show the “Transfer In Progress” screen.

- 2) The “TRANSFER” annunciator will change to “LOADING” and turn yellow during the installation procedure.

- 3) The “LOADING” annunciator will change to “COMPLETE” and turn green when the installation procedure is completed.

- (g) Select “MAIN” to go back to the main menu.

F. Software Installation Configuration Check

SUBTASK 31-31-22-470-010

- (1) Do these steps to do a software configuration check of the FDAU:

- (a) Make sure the upper switch on the data loader control panel is set to SINGLE SYS.

- (b) Set the system select switch on the data loader control panel to the applicable position.

- 1) DFDAU position for the FDAU mandatory software.

- 2) ACMS position for the FDAU non-mandatory software.

- (c) If you are not at the MAINT BITE INDEX menu on the CDU, select the line select key adjacent to the INDEX prompt.

- (d) If you are at the MAINT BITE INDEX menu, select INIT REF key from the left CDU.

- (e) Select the line select key adjacent to the INDEX prompt from the left CDU.

- (f) Select the line select key adjacent to the SEL CONFIG prompt from the left CDU.

- 1) Make sure the correct software part number shows on the CDU.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-22-860-104

- (1) Close the eADL cover and tighten screws.

SUBTASK 31-31-22-860-105

- (2) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

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SUBTASK 31-31-22-860-102

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

———— END OF TASK ——

TASK 31-31-22-400-822

3. ACMS Data Output from the FDAU to an Enhanced Airborne Data Loader (eADL)

A. General

- (1) This procedure tells you how to download ACMS data from the flight data acquisition unit (FDAU) with an eADL.
- (2) An enhanced airborne data loader (eADL) is necessary for this procedure.
- (3) The airplane must be on the ground with the engines shutdown before you can download ACMS data.
- (4) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.
- (5) The word "media" defines a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.
- (6) You must format the media with your applicable download instructions before you can make a copy of the ACMS data. Refer to your FDAU vendor's manual on how to format the recording media.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Procedure

SUBTASK 31-31-22-860-111

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-22-860-112

- (2) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 31-31-22-860-113

- (3) Close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-860-115

- (4) Do these steps at the data loader control panel (P61):

- (a) Set the upper switch to SINGLE SYS.

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- (b) Set the system select switch to the ACMS position.

SUBTASK 31-31-22-010-026

- (5) Open the eADL front cover by releasing the two screws and lifting up the cover.

SUBTASK 31-31-22-470-014

- (6) Do these steps to download ACMS data using the eADL floppy drive:

- (a) Wait until the eADL display shows the Main Menu.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the applicable buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.

- (b) Select "Target Page."

- 1) The eADL will show the Select Target menu.

- (c) Carefully push the formatted data disk (label up) into the disk drive.

- (d) Select "Floppy Drive."

- 1) The eADL will show a Confirm Transfer page:

CONFIRM TO START

SELECTED SOURCE IS

<Floppy Drive>

- (e) Select "CONFIRM."

NOTE: The TRANSFER annunciator will change to LOADING and turn yellow during the download process. The download can take several minutes. The LOADING annunciator will change to COMPLETE and turn green if the download is successful.

- (f) Select "Main."

SUBTASK 31-31-22-020-049

- (7) Remove the media from the drive when the download is complete.

SUBTASK 31-31-22-410-032

- (8) Close the eADL front cover and tighten the two screws.

SUBTASK 31-31-22-860-116

- (9) Set the system select switch to the NORM or NORMAL position on the data loader control panel (P61) when the download is complete.

SUBTASK 31-31-22-860-117

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

———— END OF TASK ————

AKS 002-999

TASK 31-31-22-470-801

4. Flight Data Acquisition Unit (FDAU) Software Installation with a Portable Data Loader

A. General

- (1) This procedure tells you how to install software into the flight data acquisition unit (FDAU).

- (a) The FDAU must contain these pieces of software:

- 1) mandatory FDAU software

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AKS 002-999 (Continued)

- 2) ACMS non-mandatory FDAU software
- (2) A portable data loader (PDL) and a control display unit (CDU) are necessary for this procedure. A data loader control panel and a PDL interface connector are also necessary. The data loader control panel is installed above the DATA TRANSFER UNIT RECEPTACLE connector on the P61 panel.
- (3) A PDL is not a Boeing supplied part. Refer to the PDL supplier for instructions for operations. PDLs have a disk drive for software installation from disks. Some PDLs have an internal mass storage device. If the software is stored in the PDL, then disks are not necessary.
- (4) To read about software installation times and data loaders, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (5) The airplane must be on the ground with the engines shutdown before you can install software.
- (6) The word "media" defines a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

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

Reference	Description
COM-1915	Data Loader - ARINC 615 Part #: 11615-50 Supplier: 0D4J3 Part #: 2231560-1-B Supplier: 98571 Part #: 30100 Supplier: 0BAW0 Part #: 465130-01-01 Supplier: 30782 Part #: 800-0631 Supplier: 1JSZ6 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: P2K-615A-06 Supplier: 0BAW0 Part #: YV68A110 Supplier: FAQ15 Opt Part #: 11615-02 Supplier: 0D4J3 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 18000-02 Supplier: 0D4J3 Opt Part #: 80000-03-01010203 Supplier: 0BAW0 Opt Part #: 80000-04-01020301 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896

D. Location Zones

Zone	Area
212	Flight Compartment - Right



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AKS 002-999 (Continued)

E. Procedure

SUBTASK 31-31-22-860-008

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-22-410-004

- (2) Do these steps to prepare for the software installation:

- (a) Make sure you know the correct software part number for the FDAU. For the FDAU to be an approved installation, the correct software part number must be installed.
- (b) Make sure the system select switch on the data loader control panel (P61) is set to NORM or NORMAL.

CAUTION: MAKE SURE THE DATA LOADER CIRCUIT BREAKER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- (c) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

CAUTION: MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

- (d) Connect the interface cable of the ARINC 615 data loader, COM-1915, to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.
- (e) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

AKS 002-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (f) Do these steps at the data loader control panel:
 - 1) Set the upper switch to SINGLE SYS.
 - 2) Set the system select switch to the applicable position.
 - a) DFDAU position to install the mandatory FDAU software.
 - b) ACMS position to install the non-mandatory FDAU software.

AKS 002-999; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE

SUBTASK 31-31-22-020-029

- (3) Do these steps at the portable data loader to install the software:
 - (a) Set the power switch on the data loader to the on position.
 - (b) Follow the PDL supplier instructions to install the software.

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AKS 002-999; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE (Continued)

- (c) Set the power switch on the data loader to the off position when the software installation is complete.

AKS 002-999

SUBTASK 31-31-22-860-011

- (4) Set the system select switch on the data loader control panel to NORM or NORMAL.

SUBTASK 31-31-22-020-006

- (5) Do these steps to do a software configuration check of the FDAU:

AKS 002-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (a) Make sure the upper switch on the data loader control panel is set to SINGLE SYS.

AKS 002-999

- (b) Set the system select switch on the data loader control panel to the applicable position.
 - 1) DFDAU position for the mandatory FDAU software.
 - 2) ACMS position for non-mandatory FDAU software.
- (c) Select the INIT REF key from the left CDU.
- (d) Select the line-select-key adjacent to the INDEX prompt from the left CDU.
- (e) Select the line-select-key adjacent to the SEL CONFIG prompt from the left CDU.
 - 1) Make sure the correct software part number shows on the CDU.

SUBTASK 31-31-22-020-007

- (6) Do these steps to put the airplane back to its usual condition:

- (a) Set the system select switch on the data loader control panel to NORM or NORMAL.

CAUTION: MAKE SURE THE DATA LOADER CIRCUIT BREAKER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

- (c) Remove the interface cable from the DATA TRANSFER UNIT RECEPTACLE.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

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

———— END OF TASK ————

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AKS 002-999 (Continued)

TASK 31-31-22-470-803

5. ACMS Data Output from the FDAU with the use of the Portable Data Loader

A. General

- (1) This procedure tells you how to download ACMS data from the flight data acquisition unit (FDAU) with the use of the PDL.
- (2) A portable data loader (PDL) and a control display unit (CDU) are necessary for this procedure.
- (3) The airplane must be on the ground with the engines shutdown before you can download ACMS data.
- (4) The word "media" defines a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.
- (5) You must format the media with your applicable download instructions before you can make a copy of the ACMS data. Please refer to your FDAU vendor's manual on how to format the recording media.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

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

Reference	Description
COM-1915	Data Loader - ARINC 615 Part #: 11615-50 Supplier: 0D4J3 Part #: 2231560-1-B Supplier: 98571 Part #: 30100 Supplier: 0BAW0 Part #: 465130-01-01 Supplier: 30782 Part #: 800-0631 Supplier: 1JSZ6 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: P2K-615A-06 Supplier: 0BAW0 Part #: YV68A110 Supplier: FAQ15 Opt Part #: 11615-02 Supplier: 0D4J3 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 18000-02 Supplier: 0D4J3 Opt Part #: 80000-03-01010203 Supplier: 0BAW0 Opt Part #: 80000-04-01020301 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896

D. Location Zones

Zone	Area
212	Flight Compartment - Right



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AKS 002-999 (Continued)

E. Procedure

SUBTASK 31-31-22-860-037

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-22-410-013

- (2) Do these steps to prepare for the software download:

- (a) Make sure the system select switch on the data loader control panel (P61) is set to NORM or NORMAL.

CAUTION: MAKE SURE THE DATA LOADER CIRCUIT BREAKER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

CAUTION: MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

- (c) Connect the interface cable of the ARINC 615 data loader, COM-1915, to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.
(d) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

AKS 002-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (e) Do these steps at the data loader control panel:
1) Set the upper switch to SINGLE SYS.
2) Set the system select switch to the ACMS position.

AKS 002-999

SUBTASK 31-31-22-020-025

- (3) Do these steps to make a copy of ACMS data:

NOTE: For more information on how to use the data loader, refer to the supplier's instructions for the data loader.

- (a) Set the power switch on the data loader to the on position.
(b) Put the correct media in the drive.
(c) Follow the prompts on the data loader to complete the installation.
1) If there is more than one piece of media to install, wait 10 seconds after each load is completed before you remove and install the subsequent media.
(d) Remove the media from the drive when the a copy of the ACMS data is complete.
(e) Set the power switch on the data loader to the off position.

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AKS 002-999 (Continued)

SUBTASK 31-31-22-860-038

- (4) Set the system select switch on the data loader control panel to NORM or NORMAL.

SUBTASK 31-31-22-020-026

- (5) Do these steps to put the airplane back to its usual condition:

- (a) Set the system select switch on the data loader control panel to NORM or NORMAL.

CAUTION: MAKE SURE THE DATA LOADER CIRCUIT BREAKER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

- (c) Remove the interface cable from the DATA TRANSFER UNIT RECEPTACLE.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

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

———— END OF TASK ————

AKS ALL

TASK 31-31-22-400-802

6. Flight Data Acquisition Unit (FDAU) ACMS Application Software Installation with the use of the Teledyne PCMCIA Interface

A. General

- (1) This procedure tells you how to install ACMS application software in the flight data acquisition unit (FDAU) with the use of a personal computer memory card international association (PCMCIA) interface, P/N 2233000-816, -816-1, -826, or -916. The FDAU PCMCIA drive can only be used to load ACMS application software. To load the FDAU mandatory software you must use the Airborne Data Loader (ADL) or a Portable Data Loader (PDL).
- (2) The FDAU must contain these pieces of software:
 - (a) mandatory FDAU software
 - (b) ACMS non-mandatory FDAU software
- (3) A PCMCIA data card is required for this procedure.
- (4) The airplane must be on the ground with the engines shutdown before you can install software.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)



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C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Procedure

SUBTASK 31-31-22-860-006

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-22-010-003

- (2) Do these steps to prepare for the software installation:
- Make sure you know the correct software part number for the FDAU. For the FDAU to be an approved installation, the correct software part number must be installed.
 - Do these steps at the data loader control panel:
 - Set the upper switch to SINGLE SYS.
 - Set the system select switch to the applicable position:
 - DFDAU position to install the mandatory FDAU software.
 - ACMS position to install the non-mandatory FDAU software.

SUBTASK 31-31-22-200-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-410-002

- (4) Do these steps to install the software.
- Put the PCMCIA card into the FDAU PCMCIA slot.
 - Make sure that the indentions on the edges of the PCMCIA card correctly align with the PCMCIA slot. Inserting a PCMCIA card incorrectly can damage the FDAU.
 - Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

NOTE: The FDAU will take 1 to 2 minutes to recognize the PCMCIA card. With the correct upload PCMCIA card in the FDAU, the software loading will take approximately 5 minutes.

- (c) Do these steps on the FDAU to monitor the loading process:
- Push ESC key until TELEDYNE CNTRLS show on the FDAU display.
 - Push ENT key to show MANDATORY MENU.
 - Push (+) to show NON-MANDATORY MENU.
 - Push ENT to show VERSION.
 - Push (+) two times to show LOAD STATUS.



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- 6) Push ENT.

NOTE: The date when the software was last loaded will show as the default.

- 7) Make sure Erasing, Programming, Complete and Remove PC-Card messages show as the software loading proceeds through different stages of the loading.

SUBTASK 31-31-22-020-001

- (5) Remove the PCMCIA card when the upload is completed.

NOTE: When the PCMCIA card is removed, the FDAU will start the execution of the new application.

NOTE: You must re-enter necessary documentary data manually on the front panel of the unit after an ACMS software load.

SUBTASK 31-31-22-860-018

- (6) Make sure the system select switch on the data loader control panel (P61) is set to NORM or NORMAL.

SUBTASK 31-31-22-020-010

- (7) Do these steps to do a software configuration check of the FDAU:

AKS ALL; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (a) Do these steps at the data loader control panel:

- 1) Set the upper switch to SINGLE SYS.
- 2) Set the system select switch to the applicable position.
 - a) DFDAU position to install the mandatory FDAU software.
 - b) ACMS position to install the non-mandatory FDAU software.

AKS ALL

- (b) If you are not at the MAINT BITE INDEX menu on the CDU, select the line select key adjacent to the INDEX prompt.
- (c) If you are at the MAINT BITE INDEX menu, select INIT REF key from the left CDU.
- (d) Select the line-select-key adjacent to the INDEX prompt from the left CDU.
- (e) Select the line-select-key adjacent to the SEL CONFIG prompt from the left CDU.
 - 1) Make sure the correct software part number shows on the CDU.

SUBTASK 31-31-22-860-048

- (8) Set the NORMAL/TEST switch on the flight data recorder panel to the NORMAL position.

SUBTASK 31-31-22-860-009

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

———— END OF TASK ————

TASK 31-31-22-400-813

7. ACMS Data Output with the Use of the Teledyne FDAU

A. General

- (1) This procedure tells you how to make a copy of ACMS data using the PCMCIA, optical or disk drive on the FDAU.
- (2) You must format the PCMCIA card, optical disk or diskette with your applicable downloading instructions before you can make a copy of the ACMS data. Please refer to your FDAU vendor's manual on how to format the recording media.

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B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Procedure

SUBTASK 31-31-22-860-049

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-22-970-001

- (2) Do these steps to make a copy of the ACMS data onto a PCMCIA card.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- (b) Open the disk drive door in front of the FDAU.

- 1) Make sure the disk drive is empty.

- a) If the disk drive is not empty, push the EJECT button located at the bottom of the PCMCIA.

- b) Remove the PCMCIA card.

- (c) Install the PCMCIA card into the FDAU PCMCIA slot.

- 1) Make sure that the indentions on the edges of the PCMCIA card correctly align with the PCMCIA slot. Inserting a PCMCIA card incorrectly can damage the FDAU.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- (e) Push the EJECT button located at the bottom of the PCMCIA slot when "Remove-PC-Card" message shows on the LCD panel on the front of the FDAU.

NOTE: Do not use the EJECT button on the front of the FDAU panel. This button does not function.

- (f) Remove the PMCI card.

SUBTASK 31-31-22-970-002

- (3) Do these steps to make a copy of the ACMS data onto an optical disk:

- (a) Open the disk drive door in front of the FDAU.

- (b) Make sure the disk drive is empty.

- 1) Do these steps if the disk drive is not empty:

- a) Make sure the disk drive light is off.

- b) Push the EJECT button on the front of the FDAU panel.



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- c) Remove the optical disk.
- (c) Install the formatted optical disk into the disk drive.
- (d) Remove the optical disk when the downloading is complete as required.

SUBTASK 31-31-22-970-003

- (4) Do these steps to make a copy of the ACMS data onto a diskette:
 - (a) Open the disk drive door in front of the FDAU.
 - (b) Make sure the disk drive is empty.
 - 1) Do these steps if the disk drive is not empty:
 - a) Make sure the disk drive light is off.
 - b) Push the EJECT button on the front of the FDAU panel.
 - c) Remove the diskette.
 - (c) Install the formatted diskette into the disk drive.
 - (d) Remove the diskette when the downloading is complete.

SUBTASK 31-31-22-860-052

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

———— END OF TASK ————

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DIGITAL FLIGHT DATA ACQUISITION UNIT (DFDAU) - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
 - (1) Removal of the digital flight data acquisition unit (DFDAU).
 - (2) Installation of the FDAU.
- B. The DFDAU is installed in the E3 electronics equipment rack, shelf No. 2, in the main equipment center.
- C. The acquisition units are called many names by different suppliers. In this procedure the DFDAU, DFDMU, DFDAMU, FDAU and etc. will be referred to as the DFDAU.

TASK 31-31-22-000-801

2. **Digital Flight Data Acquisition Unit (DFDAU) Removal**

(Figure 401)

A. **References**

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left

C. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

D. **Removal Procedure**

SUBTASK 31-31-22-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-010-001

- (2) Open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 31-31-22-000-002

- (3) Remove the Personal Computer Memory Card Interface Adapter (PCMCIA) or diskette from the Digital Flight Data Acquisition Unit (DFDAU) if one is installed.

SUBTASK 31-31-22-000-001

CAUTION: DO NOT TOUCH THE CONNECTORS PINS OR OTHER CONDUCTORS ON THE FDAU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FDAU.

- (4) To remove the DFDAU [1], do this task: E/E Box Removal, TASK 20-10-07-000-801

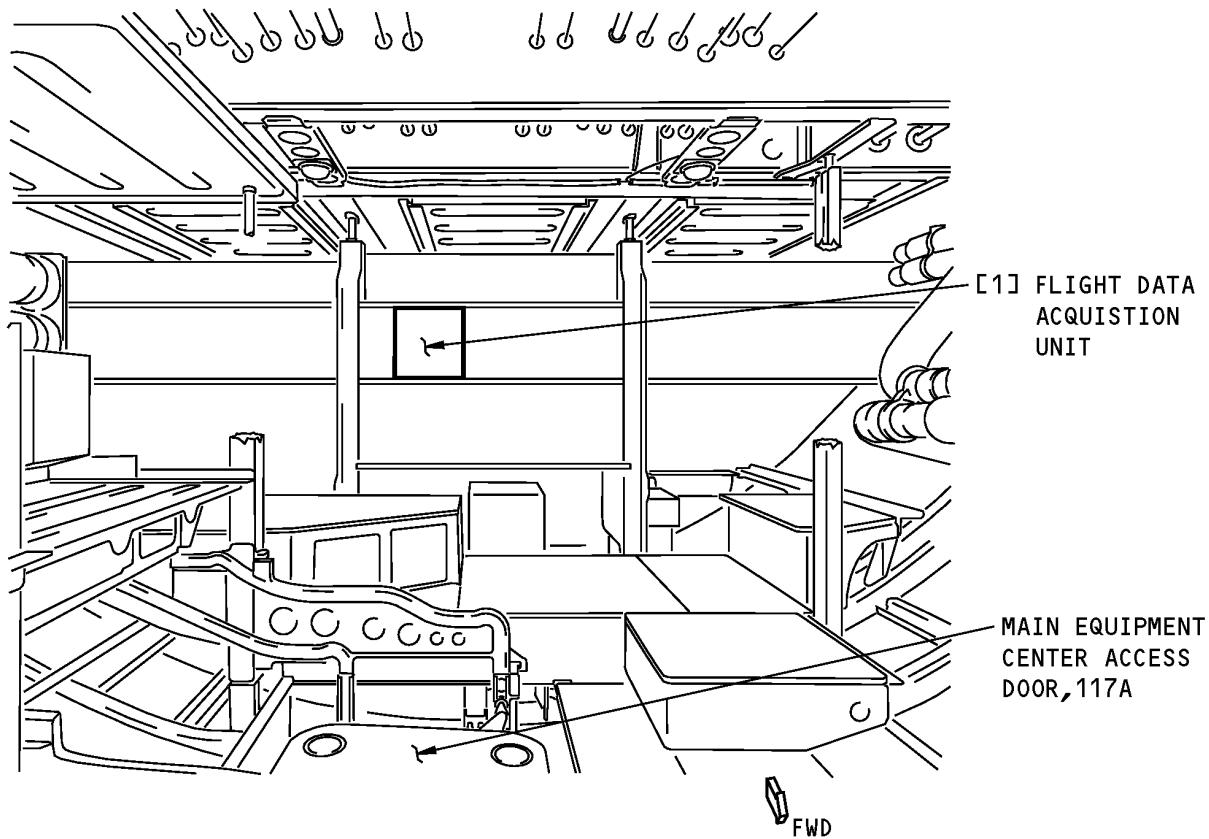
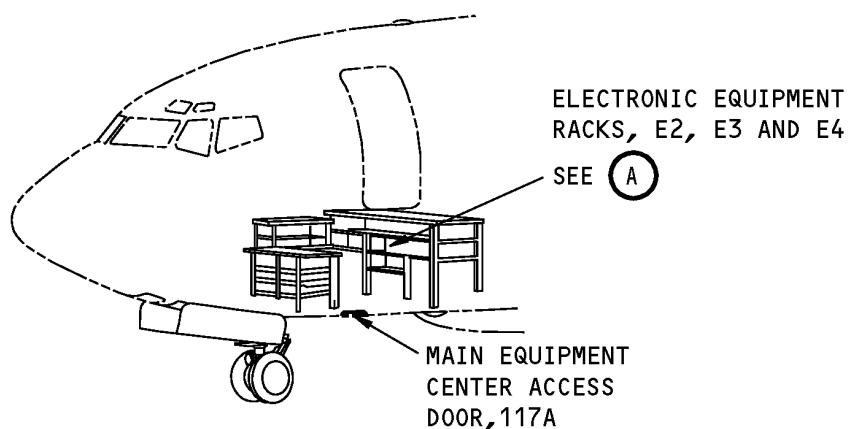
———— END OF TASK ————

EFFECTIVITY
AKS ALL

31-31-22



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



ELECTRONIC EQUIPMENT RACKS, E2, E3 AND E4

Flight Data Acquisition Unit Installation
Figure 401/31-31-22-990-801

EFFECTIVITY
AKS ALL

31-31-22

D633A101-AKS

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AIRCRAFT MAINTENANCE MANUAL

TASK 31-31-22-400-801

3. Digital Flight Data Acquisition Unit (DFDAU) Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box 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)
31-31-11-000-802	Flight Data Recorder Removal (P/B 401)
31-31-11-400-802	Flight Data Recorder Installation (P/B 401)
31-31-22-400-802	Flight Data Acquisition Unit (FDAU) ACMS Application Software Installation with the use of the Teledyne PCMCIA Interface (P/B 201)
31-31-22-470-801	Flight Data Acquisition Unit (FDAU) Software Installation with a Portable Data Loader (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	DFDAU	31-31-22-05-005	AKS ALL

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Installation Procedure

SUBTASK 31-31-22-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-400-001

CAUTION: DO NOT TOUCH THE CONNECTORS PINS OR OTHER CONDUCTORS ON THE FDAU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FDAU.

- (2) To install the DFDAU [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.
(3) Install the Personal Computer Memory Card Interface Adapter (PCMCIA) or diskette to the Digital Flight Data Acquisition Unit (DFDAU) if one is provided.
(a) Make sure that the indentions on the edges of the PCMCIA card correctly align with the PCMCIA slot. Inserting a PCMCIA card incorrectly can damage the DFDAU.

F. Installation Test

SUBTASK 31-31-22-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

EFFECTIVITY
AKS ALL

31-31-22



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

SUBTASK 31-31-22-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-22-710-001

- (3) Do these steps to do a software configuration check of the DFDAU:

NOTE: The software configuration check is written with Boeing test software installed in the DFDAU. If customized software is installed, the Airplane Condition And Monitoring System (ACMS) menu and functions can operate differently.

- (a) Make sure you know the correct software part number for the DFDAU. For the DFDAU to be an approved installation, the correct software part number must be installed.
- (b) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

AKS ALL; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (c) For airplanes with two switches on the data loader control panel, do these steps at the data loader control panel:

- 1) Set the upper switch to SINGLE SYS.
- 2) Set the system select switch to the applicable position.
 - a) DFDAU position for the DFDAU mandatory software.
 - b) ACMS position for the DFDAU non-mandatory software.

NOTE: The ACMS non-mandatory software is not displayed for SAGEM DFDAUs.

- (d) On the MCDU, do these steps:

- 1) Set the Line select key (LSK) labeled ACMS.
- 2) Set the Line select key (LSK) labeled IDENT.
- a) Make sure the ACMS software part number in Line Labeled Disk P/N appears.

NOTE: If the ACMS software part number is not correct, then install the correct ACMS software or replace the DFDAU (Flight Data Acquisition Unit (FDAU) Software Installation with a Portable Data Loader, TASK 31-31-22-470-801 or Flight Data Acquisition Unit (FDAU) ACMS Application Software Installation with the use of the Teledyne PCMCIA Interface, TASK 31-31-22-400-802).

AKS ALL

SUBTASK 31-31-22-740-001

- (4) Do this test of the DFDAU [1]:

- (a) Put the TEST/NORMAL switch on the FLIGHT RECORDER/MACH AIRSPEED WARNING PANEL, P5, to the TEST position.
 - 1) Make sure the OFF light on the FLIGHT RECORDER/MACH AIRSPEED WARNING PANEL, P5, is OFF.

EFFECTIVITY	AKS ALL
-------------	---------

31-31-22



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- 2) Make sure the fault lights on the DFDAU are OFF.
(b) 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>
------------	------------	---------------	-------------

C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- (c) Remove the Solid-State Flight Data Recorder (SSFDR) (M00096). To remove it, do this task: Flight Data Recorder Removal, TASK 31-31-11-000-802.
(d) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 1) Make sure the DFDR light on the DFDAU comes ON.

- (e) Install the SSFDR (M00096). To install it, do this task: Flight Data Recorder Installation, TASK 31-31-11-400-802.

SUBTASK 31-31-22-410-001

- (5) Close this access panel:

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

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

SUBTASK 31-31-22-860-005

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

———— END OF TASK ————

EFFECTIVITY

AKS ALL

31-31-22



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AIRCRAFT MAINTENANCE MANUAL

QUICK ACCESS RECORDER - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) A removal of the recording media from the wireless groundlink quick access recorder (WQAR).
- (2) An installation of the recording media in the WQAR.

TASK 31-31-24-000-802

2. WQAR Recording Media Removal

A. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-811	Supply Electrical Power (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left

C. Procedure

SUBTASK 31-31-24-860-008

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 31-31-24-860-009

- (2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C01196	ACMS

SUBTASK 31-31-24-710-009

- (3) Push the - or + keys to get to CARTRIDGE EJECT menu.

SUBTASK 31-31-24-710-010

- (4) Push the SEL key to change message to display TO CONTINUE PRESS +.

SUBTASK 31-31-24-710-011

- (5) Push the + key to continue.

AKS ALL; AIRPLANES WITH 2243800-71, 2243800-73 OR 2243800-81 WQAR

SUBTASK 31-31-24-212-001

- (6) Make sure that the WQAR displays the message WAITING FOR CLEANUP for several seconds, followed by the message EJECT CARTRIDGE NOW.

AKS ALL; AIRPLANES WITH 2243800-362 OR 2243800-364 WQAR

SUBTASK 31-31-24-210-001

- (7) Make sure that the WQAR displays the message WAITING FOR CLEANUP, followed by the message REMOVE CF.

AKS ALL

SUBTASK 31-31-24-010-003

- (8) Open the access door of the WQAR.

NOTE: One of the RF antennas may need to be removed to allow the door to open.

EFFECTIVITY
AKS ALL

31-31-24



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SUBTASK 31-31-24-710-012

- (9) Push the EJECT key on the WQAR.

SUBTASK 31-31-24-905-001

- (10) Remove the recording media and put it in a container.

SUBTASK 31-31-24-410-002

- (11) Close the access door of the WQAR.

———— END OF TASK ————

TASK 31-31-24-400-802

3. WQAR Recording Media Installation

A. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-811	Supply Electrical Power (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left

C. Procedure

SUBTASK 31-31-24-860-010

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 31-31-24-860-011

- (2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C01196	ACMS

AKS ALL; AIRPLANES WITH 2243800-71, 2243800-73 OR 2243800-81 WQAR

SUBTASK 31-31-24-212-002

- (3) Make sure the WQAR displays the message INSERT NEW CARTRIDGE NOW.

AKS ALL; AIRPLANES WITH 2243800-362 OR 2243800-364 WQAR

SUBTASK 31-31-24-210-002

- (4) Make sure the WQAR displays the message INSERT NEW CF.

AKS ALL; AIRPLANES WITH 2243800-71, 2243800-73 OR 2243800-81 WQAR

SUBTASK 31-31-24-212-003

- (5) Make sure the FAIL light is on.

AKS ALL

SUBTASK 31-31-24-010-004

- (6) Open the access door of the WQAR.

NOTE: One of the RF antennas may need to be removed to allow the door to open.

SUBTASK 31-31-24-400-002

- (7) Push the reording media into the WQAR.

SUBTASK 31-31-24-010-005

- (8) Close the access door of the WQAR.

———— EFFECTIVITY ————
AKS ALL

31-31-24



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AKS ALL; AIRPLANES WITH 2243800-362 OR 2243800-364 WQAR

NOTE: The WQAR will automatically reboot.

AKS ALL; AIRPLANES WITH 2243800-71, 2243800-73 OR 2243800-81 WQAR

SUBTASK 31-31-24-212-004

- (9) Make sure the WQAR displays the message SYSTEM WILL NOW REBOOT.

NOTE: The WQAR will automatically reboot.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

31-31-24



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AIRCRAFT MAINTENANCE MANUAL

QUICK ACCESS RECORDER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the quick access recorder (QAR).
 - (2) An installation of the QAR.
- B. The QAR is on the E3 electronic equipment rack, shelf No. 3, in the main equipment center.

TASK 31-31-24-000-801

2. Quick Access Recorder (QAR) Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)
31-31-24-000-802	WQAR Recording Media Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Removal

SUBTASK 31-31-24-010-001

- (1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. Removal Procedure

SUBTASK 31-31-24-710-013

- (1) If necessary, remove the recording media from the QAR (TASK 31-31-24-000-802).

SUBTASK 31-31-24-860-001

- (2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	4	C01196	ACMS

SUBTASK 31-31-24-000-001

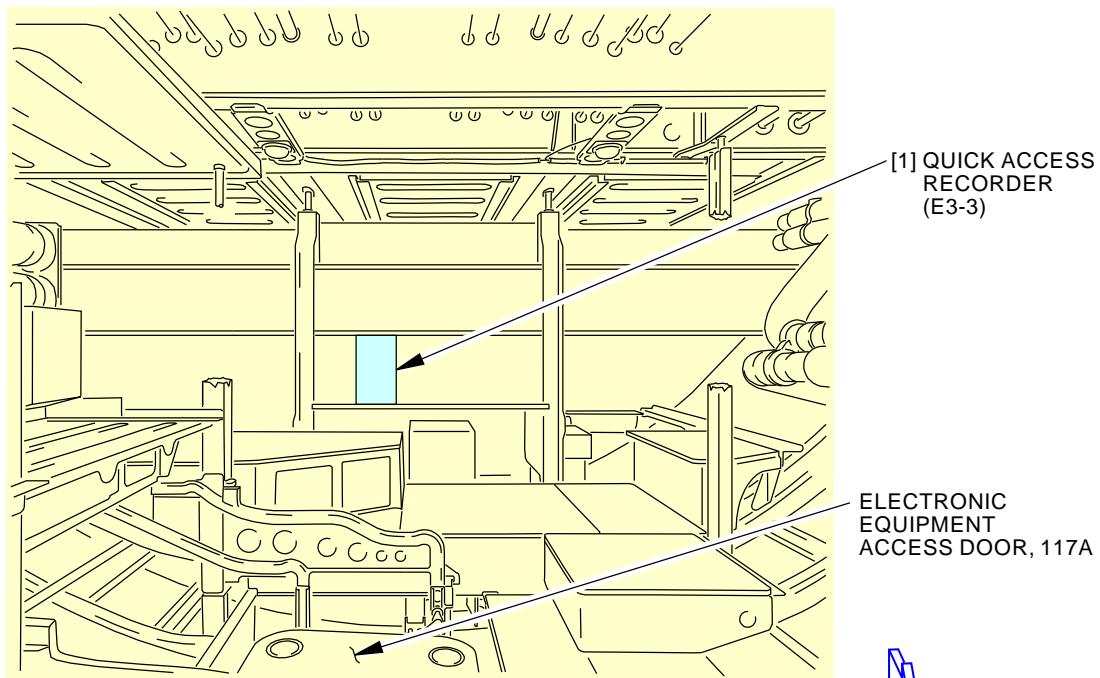
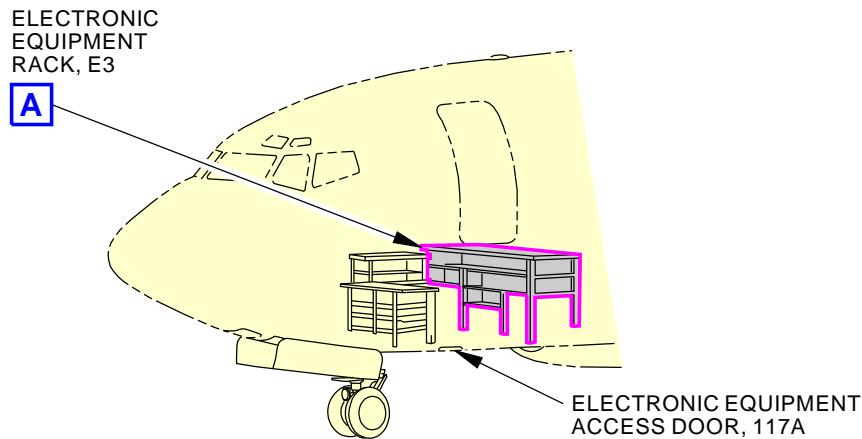
CAUTION: DO NOT TOUCH THE CONNECTORS PINS OR OTHER CONDUCTORS ON THE QAR. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE QAR.

- (3) To remove the QAR [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

31-31-24


FWD
ELECTRONIC EQUIPMENT RACKS E2, E3 AND E4

A

H58125 S0006574428_V2

**Quick Access Recorder Installation
Figure 401/31-31-24-990-801**

EFFECTIVITY
AKS ALL

31-31-24

D633A101-AKS



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TASK 31-31-24-400-801

3. Quick Access Recorder (QAR) Installation

(Figure 401)

- A. This task provides the instructions on how to install the Quick Access Recorder (QAR) and how to set the basic operator configuration parameters.**

NOTE: Reference the QAR supplier operations guide for instructions on how to set operator specific configuration parameters.

B. References

Reference	Title
20-10-07-400-801	E/E Box 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)
31-31-24-400-802	WQAR Recording Media Installation (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	QAR	31-31-24-06C-010	AKS ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Installation Procedure

SUBTASK 31-31-24-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-24-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	4	C01196	ACMS

SUBTASK 31-31-24-710-014

- (3) If necessary, install the recording media in the WQAR (TASK 31-31-24-400-802).

SUBTASK 31-31-24-400-001

CAUTION: DO NOT TOUCH THE CONNECTORS PINS OR OTHER CONDUCTORS ON THE QAR. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE QAR.

- (4) To install the QAR [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.



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G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-24-860-004

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	4	C01196	ACMS

H. Installation Test

AKS ALL; AIRPLANES WITH 2243800-71, 2243800-73 OR 2243800-81 WQAR

SUBTASK 31-31-24-860-012

- (1) Do this to set the time and date on the WQAR:
 - (a) Push the MODE key to display WQAR MENU.
 - (b) Push the + or - keys until the DATE | TIME shows on the display.
 - (c) When DATE | TIME shows, push the SEL key.
 - (d) When DISPLAY shows, push SEL key.
 - (e) When the current system date display shows, push SEL key.

NOTE: The DATE|TIME will show on the display.
 - (f) Push the + key to show SET on the display.
 - 1) Use the SEL key to allow the calendar year to be modified.
 - 2) When the year field on the display is flashing, use the + or - keys to select the year.
 - (g) Push the SEL key to allow the calendar month to be modified.
 - 1) Use the + or - keys to select the month.
 - (h) Push the SEL key to allow the calendar day to be modified.
 - 1) Use the + or - keys to select the day.
 - (i) Push the SEL key to allow the hour to be modified.
 - 1) Use the + or - keys to select the hour.
 - (j) Push the SEL key to allow the minutes to be modified.
 - 1) Use the + or - keys to select the minutes.
 - (k) Push the SEL key to allow the seconds to be modified.
 - 1) Use the + or - keys to select the seconds.
 - (l) Push the SEL key to complete the entry of date and time.

NOTE: The WQAR will automatically reboot and display the new date and time.

AKS ALL; AIRPLANES WITH 2243800-362 OR 2243800-364 WQAR

SUBTASK 31-31-24-860-015

- (2) Do this to set the time and date on the WQAR.
 - (a) Push the MODE key to display SYSTEM STATE.
 - (b) Push the + or - keys until UNIT INFO shows on the display.
 - (c) Push the SEL key to display DATE | TIME.
 - (d) Push SEL key to display DISPLAY.
 - (e) Push the + key to show SET on the display.

EFFECTIVITY
AKS ALL

31-31-24



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AKS ALL; AIRPLANES WITH 2243800-362 OR 2243800-364 WQAR (Continued)

- 1) Push the SEL key to move the underscore cursor location as required.
 - a) Push the + or - keys to make changes.
- (f) Push the MODE key to complete changes.
 - 1) Push the + key to confirm changes.

NOTE: The WQAR will automatically reboot and display the new date and time.

AKS ALL; AIRPLANES WITH 2243800-71, 2243800-73 OR 2243800-81 WQAR

SUBTASK 31-31-24-943-001

- (3) Do this to enter the aircraft tail number into the QAR:
 - (a) Push the MODE key to display WQAR MENU.
 - (b) Push the + or - keys until the CONFIG Menu shows on the display.
 - (c) When CONFIG Menu shows, push the SEL key.
 - (d) Push the + or - keys until SET is shows on the display and press the SEL key.
 - (e) Push the + or - keys until AircraftTailNum shows.
- NOTE: The WQAR will display the first modifiable parameter with the parameter name on the top line and the current parameter value on the bottom line with the first character space blinking as a cursor.
- (f) Push the SEL key to allow the AircraftTailNum to be modified.
 - (g) Do this to enter the aircraft tail number one character at a time:
 - 1) Push the + or - until the applicable alphanumeric character is displayed.
 - 2) Push the SEL key to select the character and move the cursor to the next character.
 - 3) Continue until all the aircraft tail number characters have been entered.
 - (h) Press the SEL key.
 - 1) Press the + key to accept the changes.
 - (i) Push the MODE key once to exit edit mode.
 - (j) Push + to apply the changes.
- NOTE: The WGL-QAR will automatically reboot and the new AircraftTailNum value will be in effect.

AKS ALL; AIRPLANES WITH 2243800-362 OR 2243800-364 WQAR

SUBTASK 31-31-24-860-016

- (4) Do this to enter the aircraft tail number into the WQAR:
 - (a) Push the MODE key to display SYSTEM STATE.
 - (b) Push the + or - keys until the display shows UNIT INFO.
 - (c) Push the SEL key to display DATE | TIME.
 - (d) Push the + or - keys until UPDATE TAIL NUMBER shows.
 - (e) Push the SEL key to allow the aircraft tail number to be modified.
 - (f) Do this to enter the aircraft tail number one character at a time:
 - 1) Push the + or - until the applicable alphanumeric character is displayed.
 - 2) Push the SEL key to select the character and move the cursor to the next character.

EFFECTIVITY
AKS ALL

31-31-24



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AKS ALL; AIRPLANES WITH 2243800-362 OR 2243800-364 WQAR (Continued)

- 3) Continue until all the aircraft tail number characters have been entered.
 - (g) Press the SEL key.
 - 1) Press the + key to accept the changes.
 - (h) Push + to confirm the tail number changes.
- NOTE: The WQAR will automatically reboot and the new aircraft tail number value will be in effect.

AKS ALL; AIRPLANES WITH 2243800-71, 2243800-73 OR 2243800-81 WQAR

SUBTASK 31-31-24-860-014

- (5) Do this to enter the read_recen configuration parameter (Run Control Enable parameter) into the QAR.
 - (a) Push the MODE key to display WQAR MENU.
 - (b) Push the + or - key until the CONFIG Menu shows on the display.
 - (c) When CONFIG Menu shows, push the SEL key.
 - (d) Push the + or - key until SET shows on the display and press the SEL key.
 - (e) Push the + or - key until read_recen shows on the display and press the SEL key.

NOTE: The WQAR will display the first modifiable parameter with the parameter name on the top line and the current parameter value on the bottom line with the first character space blinking as a cursor.

 - (f) The current value of read_recen (the Run Control Enable parameter) will flash.
 - (g) Press the + or - key to set the airline modifiable read_recen configuration parameter (Run Control Enable parameter) to "0".
 - (h) Push the SEL key until Accept Change displays and press the + key.
 - (i) Push the MODE key until Apply Changes displays and press the + key.

NOTE: The WGL-QAR will automatically reboot and the new read_recen value will be in effect.

 - (j) Do this to verify read_recen parameter change after system reboot.
 - 1) Push the MODE key to display WQAR MENU.
 - 2) Push the + or - key until the CONFIG Menu shows on the display and press the SEL key.
 - 3) Push the + or - key until SET shows on the display and press the SEL key.
 - 4) Push the + or - key until read_recen shows on the display and press the SEL key.
 - 5) Verify value is the appropriate airline modifiable parameter.
 - 6) Push the MODE key until WQAR MENU is displayed.

AKS ALL

SUBTASK 31-31-24-710-002

- (6) Make sure the FAIL light does not show on the QAR [1].

EFFECTIVITY
AKS ALL

31-31-24



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SUBTASK 31-31-24-410-001

- (7) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 31-31-24-860-005

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

31-31-24



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AIRCRAFT MAINTENANCE MANUAL

AILERON POSITION TRANSMITTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the aileron position transmitter.
 - (2) An installation of the aileron position transmitter.
 - (3) An installation test of the aileron position transmitter.

TASK 31-31-31-000-801

2. Aileron Position Transmitter Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
572	Left Wing - Aileron
672	Right Wing - Aileron

C. Access Panels

<u>Number</u>	<u>Name/Location</u>
571BB	Lower Outboard Fixed Trailing Edge Access Panel

D. Removal Procedure

SUBTASK 31-31-31-840-001

- (1) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-31-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-31-020-001

- (3) Remove the screws [2] and [3] from this access panel:

Number Name/Location

571BB Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 31-31-31-010-001

- (4) Remove this access panel:

Number Name/Location

571BB Lower Outboard Fixed Trailing Edge Access Panel

EFFECTIVITY _____
AKS ALL

31-31-31



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SUBTASK 31-31-31-020-002

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (5) Remove the aileron position transmitter [9]:
 - (a) Disconnect the electrical connector [4] from the aileron position transmitter [9].
 - (b) Loosen the crank clamping screw [6] and the support bracket clamping screw [8].
 - (c) Remove the aileron position transmitter [9] from the airplane.

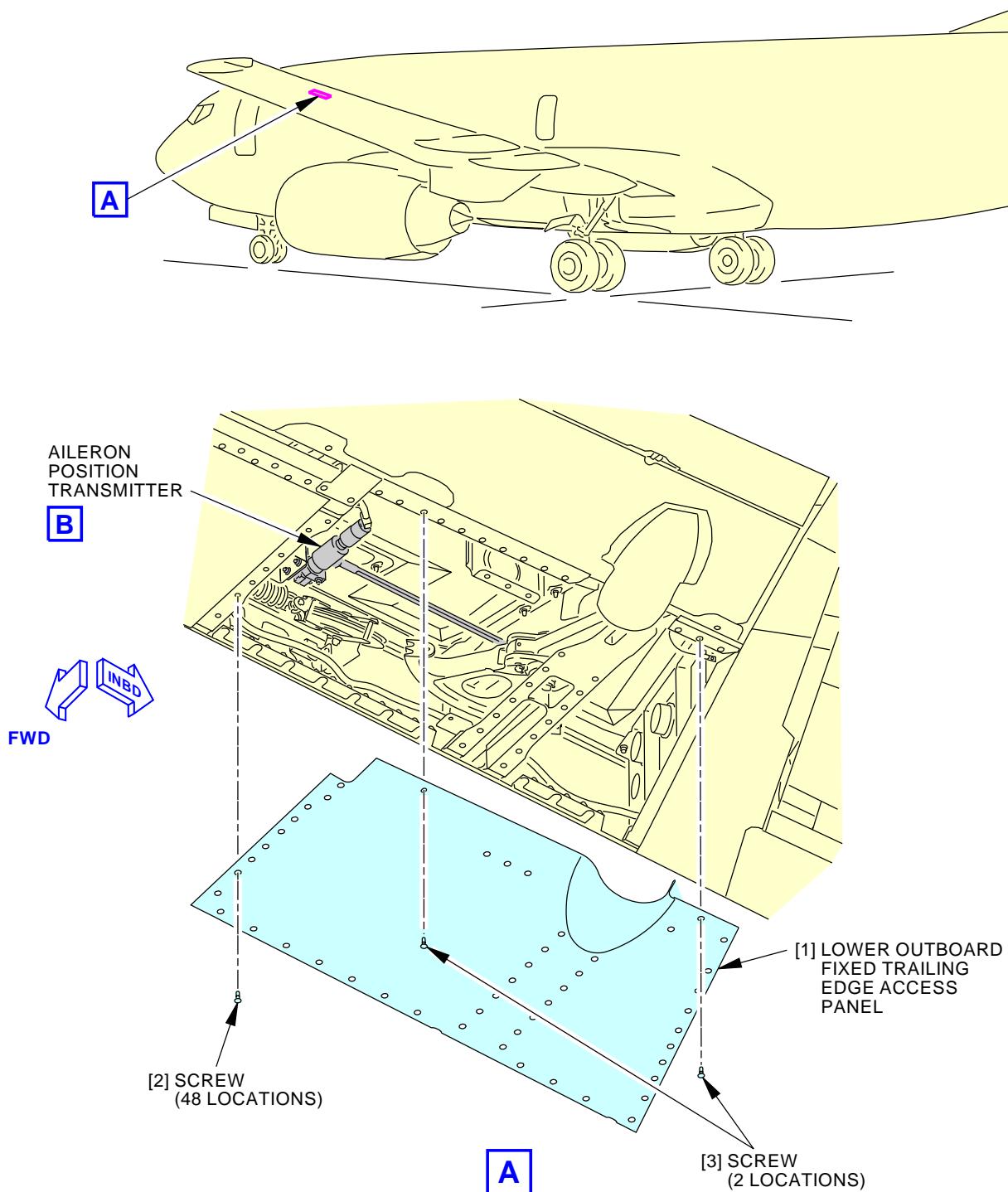
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EFFECTIVITY
AKS ALL

31-31-31



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



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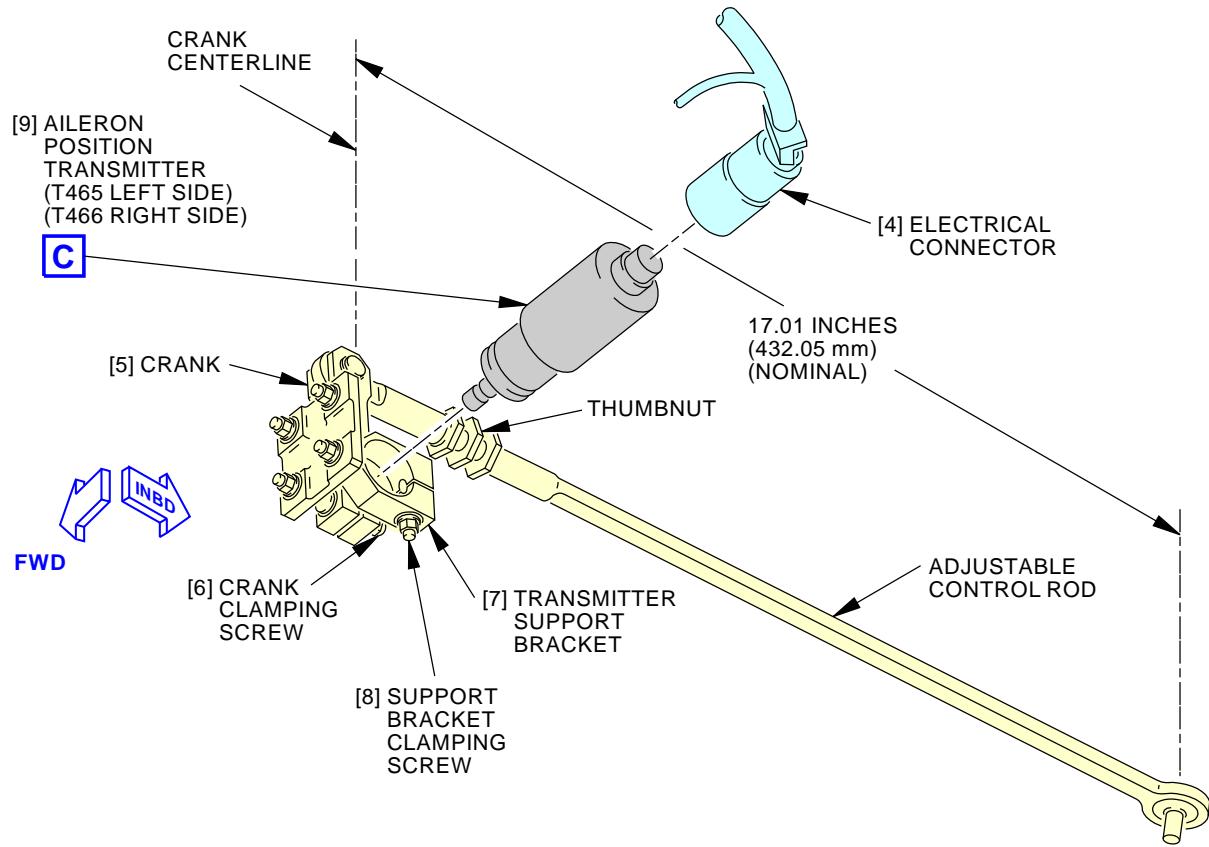
Aileron Position Transmitter Installation
Figure 401/31-31-31-990-801 (Sheet 1 of 3)

EFFECTIVITY
AKS ALL

31-31-31

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LEFT TRANSMITTER SHOWN
(RIGHT TRANSMITTER EQUIVALENT)

B

F98526 S0006574449_V2

Aileron Position Transmitter Installation
Figure 401/31-31-31-990-801 (Sheet 2 of 3)

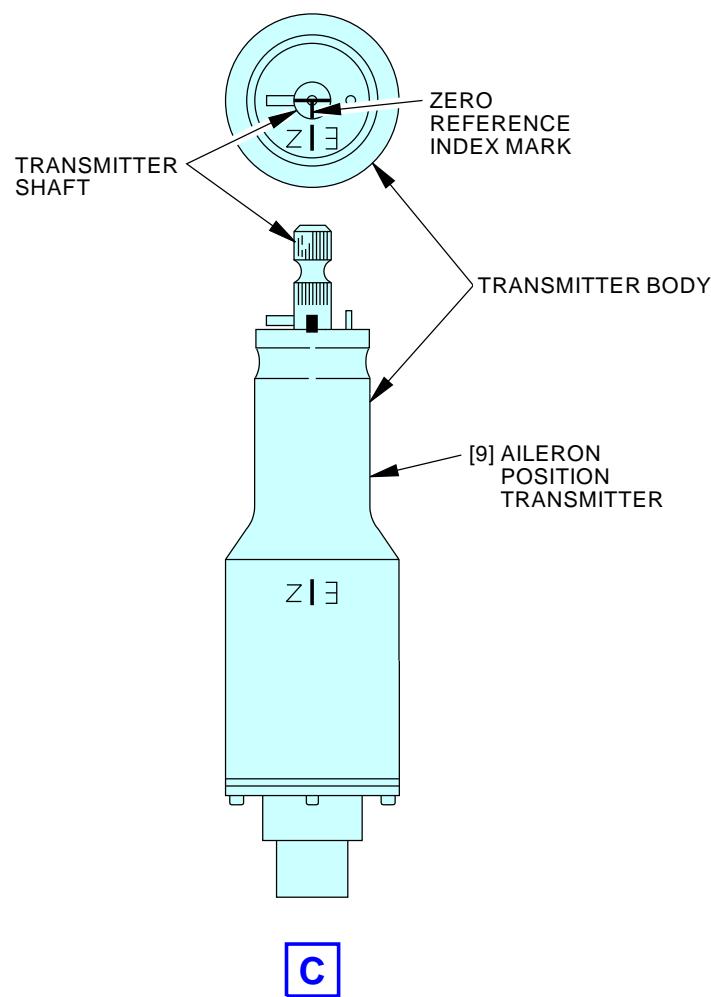
EFFECTIVITY
AKS ALL

31-31-31

D633A101-AKS



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



C

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Aileron Position Transmitter Installation
Figure 401/31-31-31-990-801 (Sheet 3 of 3)

EFFECTIVITY
AKS ALL

D633A101-AKS

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TASK 31-31-31-400-801

3. Aileron Position Transmitter Installation

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)
27-11-00-860-802	Pressure to the Aileron Hydraulic Systems A and B - Activation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Transmitter	31-31-31-01-135	AKS ALL

C. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Installation Procedure

SUBTASK 31-31-31-860-002

- (1) Make sure that this circuit breaker is open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-31-860-003

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) If the Ailerons Hydraulic Systems are not depressurized, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-31-020-003

- (3) Install the aileron position transmitter [9]:

- (a) Make sure that the adjustable rod is set at 17.01 inches (432.05 mm).
- (b) Install the aileron position transmitter [9] into the transmitter support bracket [7] and crank [5].
- (c) Align the EZ marks on the aileron position transmitter [9] body and the index mark on the transmitter shaft with the centerline of the crank [5].
- (d) Tighten the crank clamping screw [6] and the transmitter support bracket clamping screw [8] to 30-35 pound-inches (3.39-3.95 newton-meter).
- (e) Install the electrical connector [4] onto the aileron position transmitter [9].

- (4) Do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802.

EFFECTIVITY
AKS ALL

31-31-31

D633A101-AKS



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SUBTASK 31-31-31-700-001

- (5) Do this task: Aileron Position Transmitter Installation Test, TASK 31-31-31-700-801.

———— END OF TASK ——

TASK 31-31-31-700-801

4. Aileron Position Transmitter Installation Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: OH231
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0065 Supplier: 06141 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: 17TES0043 Supplier: 06141
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95

EFFECTIVITY
AKS ALL

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(Continued)

Reference	Description	Specification
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III

D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Access Panels

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel

F. Installation Test

SUBTASK 31-31-31-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-31-710-001

- (2) Use one of the tester listed below to perform the system test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 through 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Select LIVE DATA VIEW.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553

EFFECTIVITY
AKS ALL

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- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the FDR.
- 3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
- 6) Set the WORD and SUBFRAME as specified.

- (c) Do these steps to prepare the Teledyne portable tester, COM-1807.

- 1) Remove the shorting plug from the system test plug on the P18 panel.
- 2) Use the portable tester adapter cable, SPL-1808, to connect the tester to the system test plug.
- 3) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.
- 4) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.
- 5) Set the portable tester, COM-1807, to read 256 WPS.

- (d) Do the steps below to prepare the handheld download unit, COM-913 for the system test.

NOTE: The Handheld Download unit can only be used on airplane with
AlliedSignal/Honeywell solid state flight data recorder (FDR) installed.

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the red button on the tester.
- 6) Set the DSDU switch.



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- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

NOTE: The HHDLU do not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 through 4 when a task uses subframe 0.

SUBTASK 31-31-31-860-005

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-31-860-006

- (4) Make sure the flight data recorder TEST-NORM switch on the P5 panel is in the TEST position.

SUBTASK 31-31-31-860-007

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-31-31-860-011

- (6) Make sure the aileron is set at the zero unit of trim.

SUBTASK 31-31-31-820-001

- (7) Do these steps to test the aileron position transmitter:
 - (a) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - (b) Set the FLT CONTROL A and B switches on the forward overhead panel, P5, to the OFF position.
 - (c) Loosen the screw [8] on the transmitter support brackets [7].
 - (d) Set the tester to the following subframe and word:
 - 1) For the left aileron, set to subframe 0, word 17.
 - 2) For the right aileron, set to subframe 0, word 23.
 - (e) Rotate the aileron position transmitter [9] slowly in each direction until you get an octal value of between 0000-0031 or 7777-7741 on the portable tester.
 - (f) Tighten the support bracket clamping screw [8] to 30 in-lb (3.4 N·m) - 35 in-lb (4.0 N·m).
 - (g) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.
 - (h) Set the FLT CONTROL A and B switches on the forward overhead panel, P5, to the ON position.
 - (i) Do these steps to test a left aileron position transmitter [9] installation:
 - 1) Rotate the Captain's control wheel to the full left position.
 - 2) Make sure you get an octal value between 7172 - 7314.
 - 3) Rotate the Captain's control wheel to the full right position.
 - 4) Make sure you get an octal value between 0466 - 0610.
 - (j) Do these steps to test a right aileron position transmitter [9] installation:
 - 1) Rotate the Captain's control wheel to the full left position.



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- 2) Make sure you get an octal value between 7167 - 7311.
- 3) Rotate the Captain's control wheel to the full right position.
- 4) Make sure you get an octal value between 0463 - 0605.
- (k) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

SUBTASK 31-31-31-410-001

- (8) Do these steps to install this access panel:

Number Name/Location

571BB Lower Outboard Fixed Trailing Edge Access Panel

- (a) Apply sealant, A00247, to the surfaces of the panel that will come in contact with the skin surfaces of the lower wing.
- (b) Put the access panel into position in the lower wing.
- (c) Apply primer, C00259, to the holes of the access panel.
- (d) Apply compound, C00528, to the screws [2] and [3].
- (e) Install the screws [2] and [3].
- (f) Tighten the screws [2] and [3] to 30-35 pound-inches (3.4-4 newton-meters).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-31-860-008

- (1) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the NORM position.

SUBTASK 31-31-31-840-004

- (2) Remove power from the tester.

SUBTASK 31-31-31-860-009

- (3) Remove the tester from the flight data recorder system.

SUBTASK 31-31-31-860-010

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

———— END OF TASK ————





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CONTROL WHEEL POSITION SENSOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the control wheel position sensor.
 - (2) An installation of the control wheel position sensor.
 - (3) An installation test of the control wheel position sensor.

TASK 31-31-32-000-801

2. Control Wheel Position Sensor Removal

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Prepare for the Control Wheel Position Sensor Removal

SUBTASK 31-31-32-840-001

- (1) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-32-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-32-010-001

- (3) Open this access panel:

Number Name/Location

112A Forward Access Door

E. Procedure

SUBTASK 31-31-32-020-004

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (1) Remove the control wheel position sensor [5]:
 - (a) Disconnect the electrical connector [1].
 - (b) Remove the screws [6], washers [7] and clamps [8].

EFFECTIVITY

AKS ALL

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- (c) Loosen the flex coupling screw [4] and the mounting bolts [2] and washers [3].
- (d) Remove the control wheel position sensor [5].

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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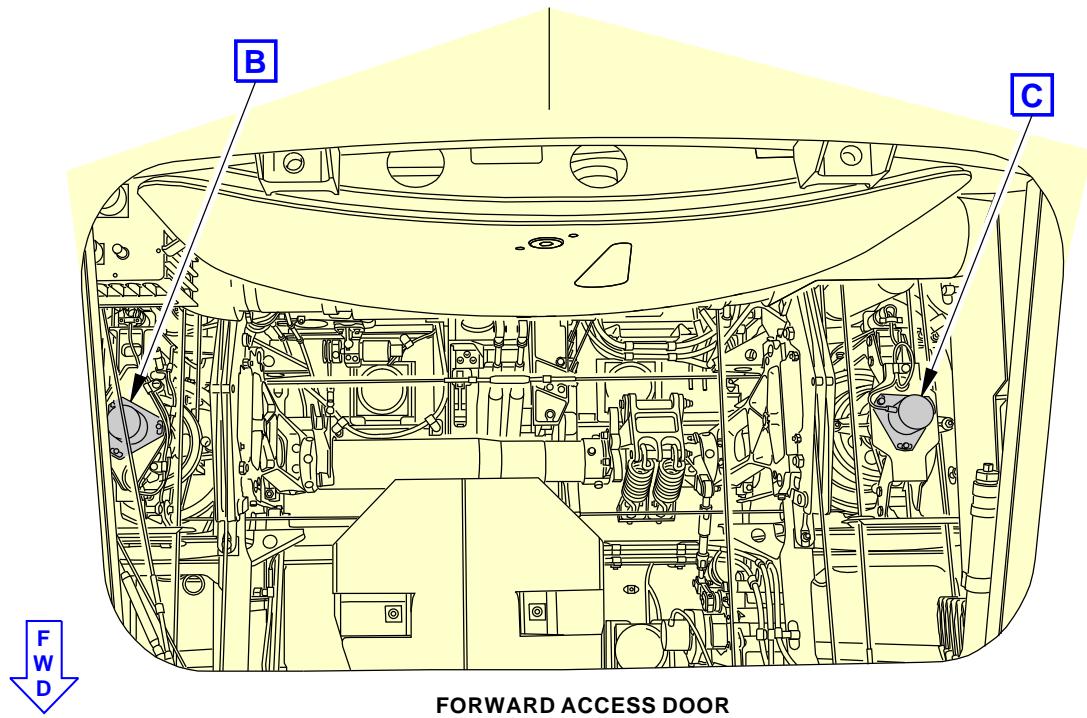
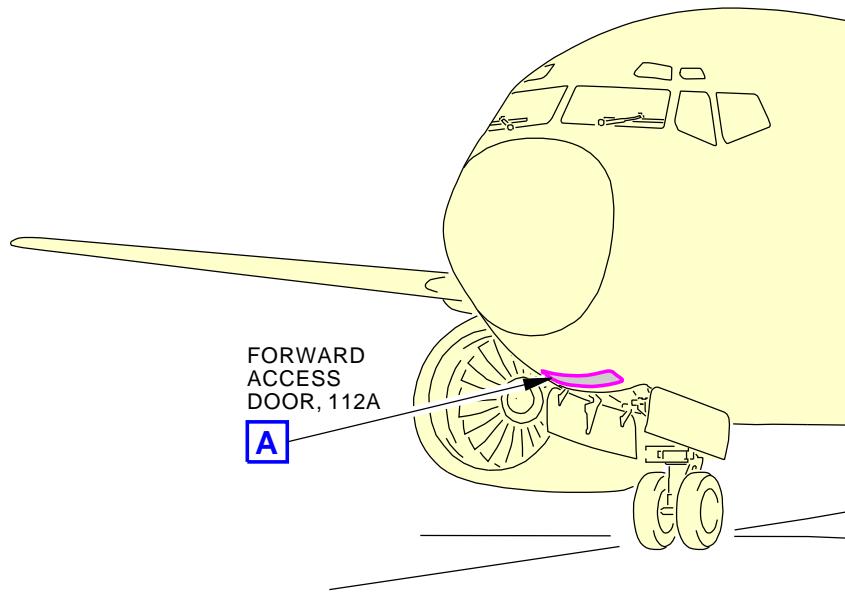
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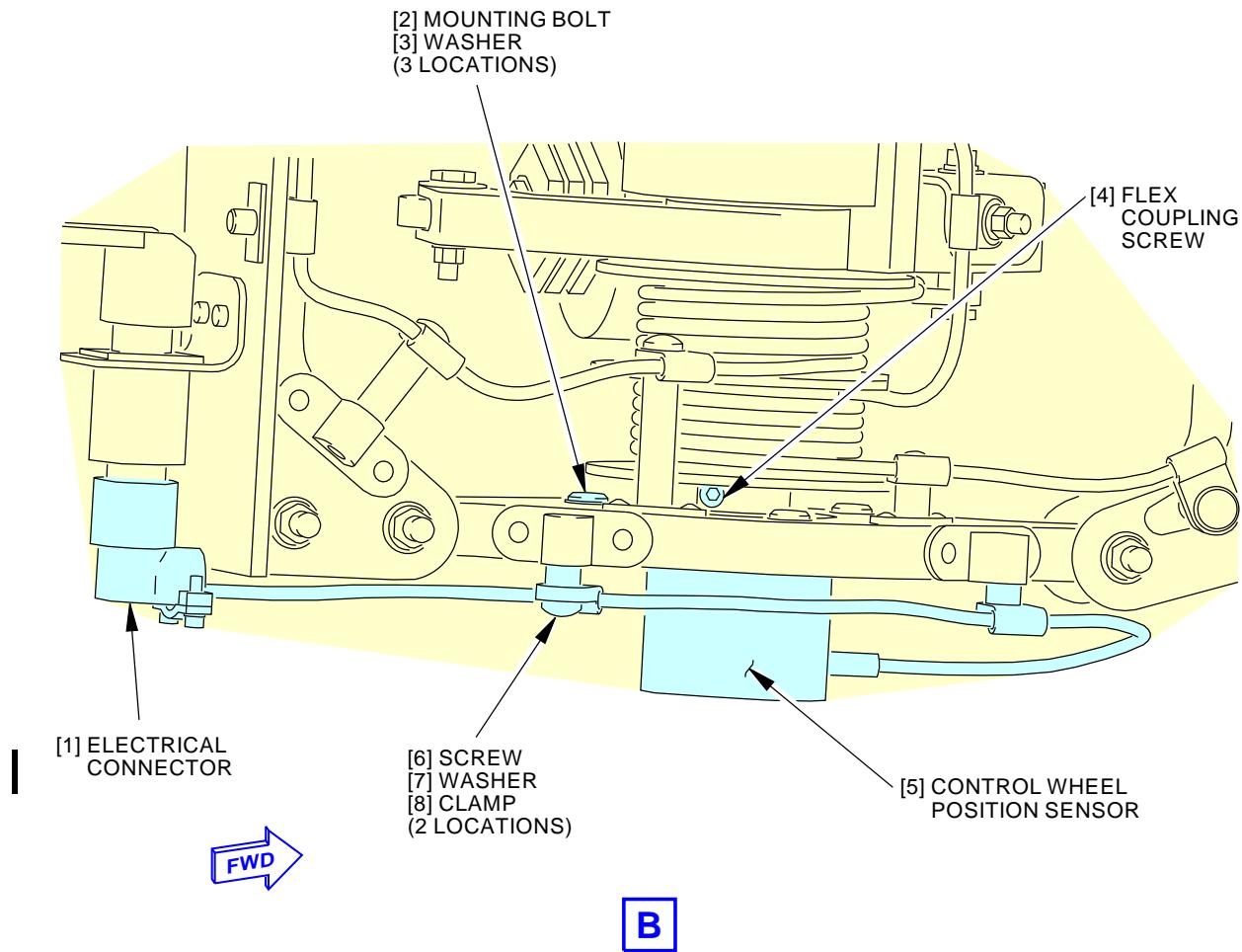
Control Wheel Position Sensor Installation
Figure 401/31-31-32-990-801 (Sheet 1 of 3)

EFFECTIVITY	AKS ALL
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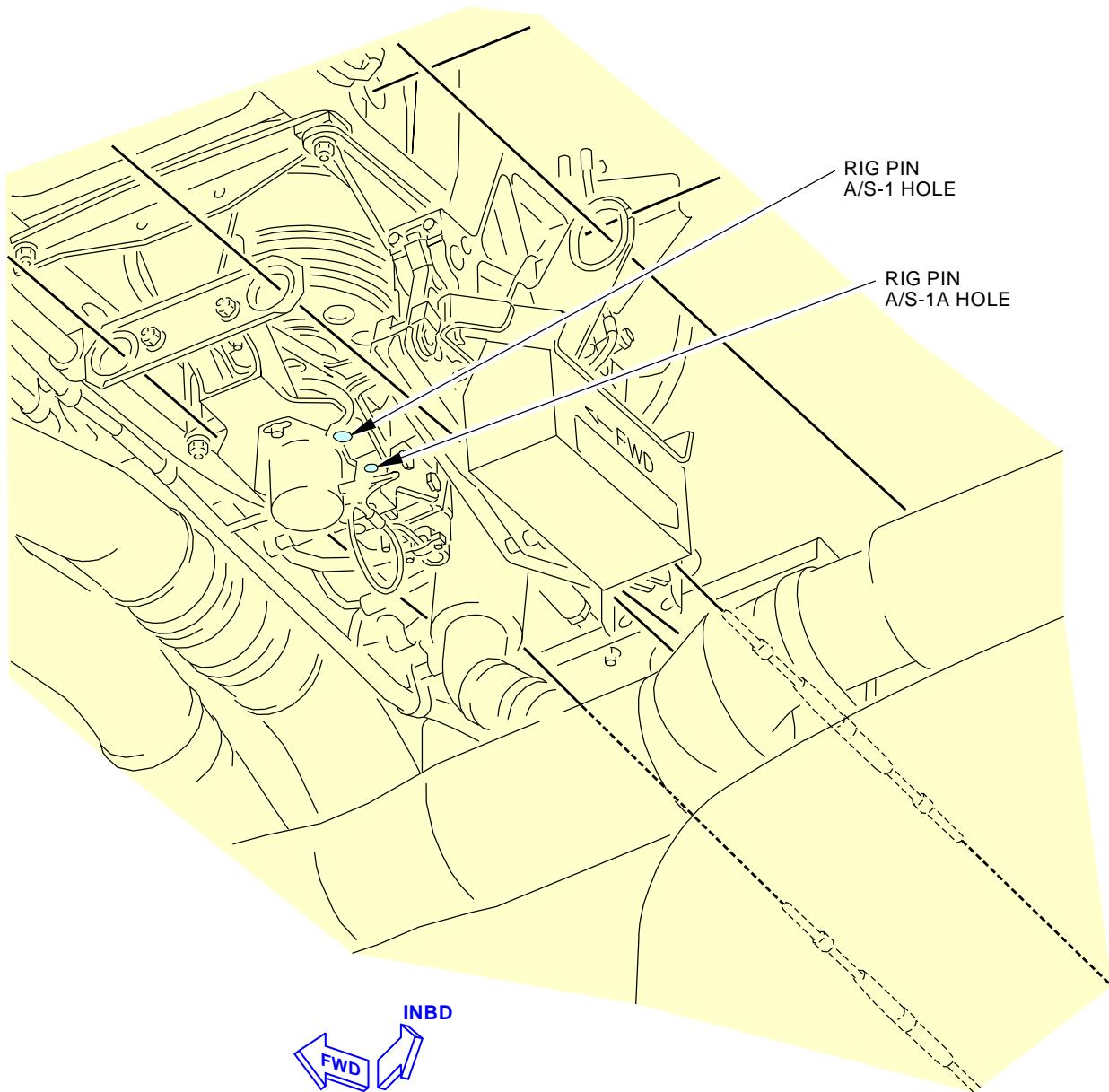
Control Wheel Position Sensor Installation
Figure 401/31-31-32-990-801 (Sheet 2 of 3)

EFFECTIVITY
AKS ALL

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FIRST OFFICER'S AILERON TRANSFER MECHANISM

C

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Control Wheel Position Sensor Installation
Figure 401/31-31-32-990-801 (Sheet 3 of 3)

EFFECTIVITY
AKS ALL

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TASK 31-31-32-400-801

3. Control Wheel Position Sensor Installation

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. Tools/Equipment

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

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
G50136	Compound - Corrosion Inhibiting, Non-drying	BMS3-38
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38, NSN 6850-01-469-7645

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Sensor	27-11-61-01-180	AKS ALL
		27-41-51-01-135	AKS ALL
		27-41-51-02-150	AKS ALL
		31-31-32-01-055	AKS ALL

E. Location Zones

Zone	Area
110	Subzone - Body Station 130 to Station 396
112	Area Forward of Nose Landing Gear Wheel Well

F. Prepare for the Control Wheel Position Sensor Installation

SUBTASK 31-31-32-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-32-860-003

- (2) If the hydraulic system are not depressurized, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.



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G. Procedure

SUBTASK 31-31-32-020-005

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (1) Install the control wheel position sensor [5]:

WARNING: USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (a) Apply Cor-Ban 27L Compound, G50237 (preferred) or corrosion inhibiting compound, G50136 (alternate) to the shaft of the sensor.
NOTE: Make sure the compound does not get on the sensor bearing. This can cause friction on the bearing.
- (b) Install the rig pins A/S-1 and A/S-1A from the test set rig pin kit, SPL-1585 into the aileron transfer mechanism.
 - 1) Make sure the rig pin A/S-1 is fully in the aileron transfer mechanism.
 - 2) Hold the two rig pins to make sure they do not fall out.
- (c) Make a pencil line on the sensor mounting bracket so that the line is center and perpendicular to the flat side of the flex coupling hole.
NOTE: This will help to align the index mark on the sensor body to the center line of the sensor shaft.
- (d) Insert the shaft of the sensor into the hole of the flex coupling.
- (e) Install the mounting bolts [2] and washers [3].
- (f) Thread the mounting bolts [2] until it clamp down on the sensor body.
- (g) Align the index mark on the sensor body to the pencil line on the sensor mounting bracket.
- (h) Tighten the 3 sensor mounting bolts [2] to 25 - 30 pound-inches (2.8 - 3.4 newton-meters).
- (i) Tighten the flex coupling screw [4] to 12 - 15 pound-inches (1.4 - 1.7 newton-meters).
- (j) Install the cable and the cable clamp screws [6].
- (k) Install the sensor [5].
- (l) Install the electrical connector [1].

H. Control Wheel Position Sensor Installation Test

SUBTASK 31-31-32-710-002

- (1) Do this task: Control Wheel Position Sensor Installation Test, TASK 31-31-32-820-801.

— END OF TASK —

EFFECTIVITY
AKS ALL

31-31-32



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TASK 31-31-32-820-801

4. Control Wheel Position Sensor Installation Test

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-11-00-860-802	Pressure to the Aileron Hydraulic Systems A and B - Activation (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: 0H231
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0065 Supplier: 06141 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: 17TES0043 Supplier: 06141
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1670	Mount - Control Wheel Protractor Part #: F72790 Supplier: 81205
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205

C. Location Zones

Zone	Area
110	Subzone - Body Station 130 to Station 396
112	Area Forward of Nose Landing Gear Wheel Well



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D. Access Panels

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

E. Installation Test

SUBTASK 31-31-32-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 31-31-32-710-001

- (2) Use one of the testers listed below to perform the system test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch to the TEST

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the FDR.



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- 3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
- 6) Set the WORD and SUBFRAME as specified.
- (c) Do these steps to prepare the Teledyne portable tester, COM-1807.
- 1) Remove the shorting plug from the system test plug on the P18 panel.
 - 2) Use the portable tester adapter cable, SPL-1808, to connect the portable tester to the system test plug.
 - 3) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.
 - 4) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.
 - 5) Set the portable tester, COM-1807, to read 256 WPS.
- (d) Do the steps below to prepare the handheld download unit, COM-913 for the system test.

NOTE: The handheld download unit, COM-913 can only be used on airplane with
AlliedSignal Solid State Flight Data Recorder (FDR) installed.

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the red button on the handheld download unit, COM-913.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

NOTE: The HHDLU do not have a selection for subframe 0. Make a selection of
subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

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SUBTASK 31-31-32-860-005

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-32-860-006

- (4) Make sure the flight data recorder TEST-NORMAL switch on the P5 panel to the TEST position.

SUBTASK 31-31-32-860-007

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) Do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802.

SUBTASK 31-31-32-200-001

- (6) Make sure the rigging pins A/S-1 and A/S-1A are installed in the aileron transfer mechanism.

SUBTASK 31-31-32-490-001

- (7) Make sure that the control wheel protractor mount, SPL-1670 is installed.

NOTE: The intent is to make sure that the control wheel is in the neutral position prior to adjustment of the control wheel position sensor.

SUBTASK 31-31-32-820-001

- (8) Do these steps to adjust the control wheel position sensor:

- Loosen the sensor mounting bracket bolts [4].
- Do this step to adjust the left control wheel position transmitter:
 - Set the tester to subframe 0, word 19.
- Do this step to adjust the right control wheel position sensor:
 - Set the tester to subframe 0, word 25.
- Rotate the body of the control wheel position sensor [7] slowly in each direction until you get an octal value between 7771 to 0007 on the tester.
- Tighten the sensor mounting bracket bolts [4] to 30-35 pound-inches (3.4-4 newton-meters).

SUBTASK 31-31-32-090-001

- (9) Remove the control wheel protractor mount, SPL-1670 from the control wheel.

SUBTASK 31-31-32-020-003

- (10) Remove the rig pins A/S-1 and A/S-1A from the aileron transfer mechanism.

SUBTASK 31-31-32-410-001

- (11) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door



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F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-32-860-008

- (1) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the NORMAL position.

SUBTASK 31-31-32-840-003

- (2) Remove power from the tester.

SUBTASK 31-31-32-860-009

- (3) Remove the tester from the flight data recorder system.

SUBTASK 31-31-32-860-010

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

———— END OF TASK ————



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RUDDER POSITION TRANSMITTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the rudder position transmitter.
 - (2) An installation of the rudder position transmitter.
 - (3) An installation test of the rudder position transmitter.

TASK 31-31-41-000-801

2. Rudder Position Transmitter Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
325	Vertical Fin - Rudder

C. Access Panels

<u>Number</u>	<u>Name/Location</u>
324HL	Vertical Fin, Access

D. Removal Procedure

SUBTASK 31-31-41-840-001

- (1) Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-41-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-41-010-001

- (3) Open this access panel:

Number Name/Location

324HL Vertical Fin, Access

SUBTASK 31-31-41-020-001

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (4) Remove the rudder position transmitter [1]:

- (a) Disconnect the electrical connector [2] from the rudder position transmitter [1].
- (b) Loosen the support bracket screw [3].
- (c) Remove the crank screw [6].

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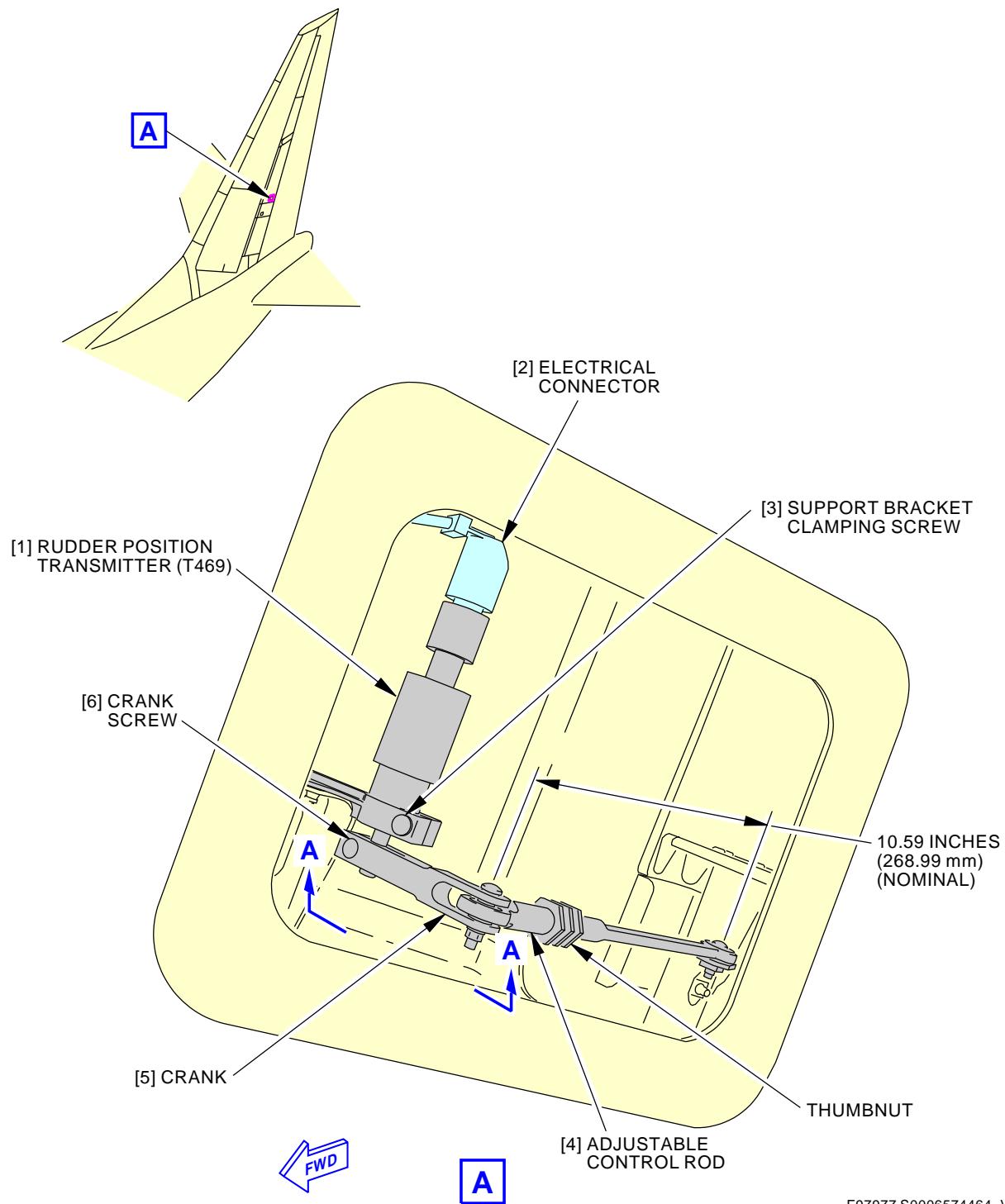
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- (d) Remove the rudder position transmitter [1] from the airplane.

———— END OF TASK ——

———— EFFECTIVITY ——
AKS ALL

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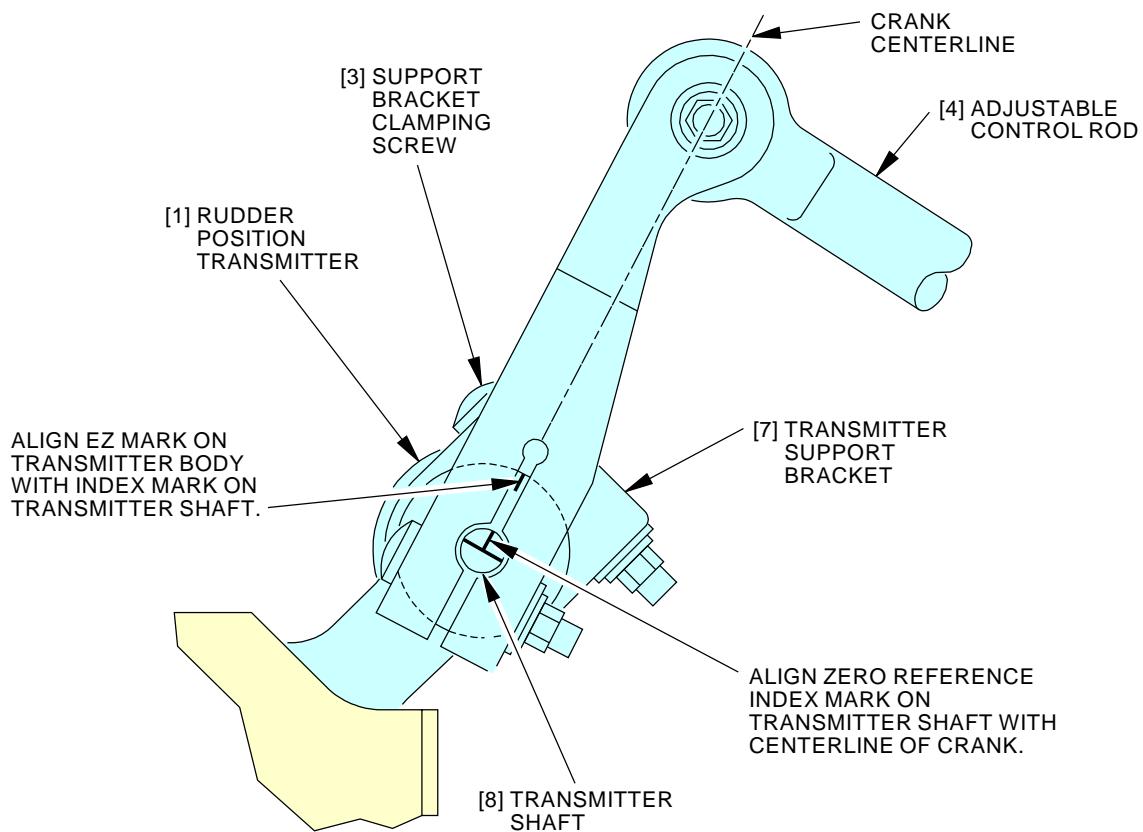


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Rudder Position Transmitter Installation
Figure 401/31-31-41-990-801 (Sheet 1 of 2)

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AKS ALL

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A-A

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Rudder Position Transmitter Installation
Figure 401/31-31-41-990-801 (Sheet 2 of 2)EFFECTIVITY
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TASK 31-31-41-400-801

3. Rudder Position Transmitter Installation

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Transmitter	31-31-41-01-020	AKS ALL

C. Location Zones

Zone	Area
325	Vertical Fin - Rudder

D. Installation Procedure

SUBTASK 31-31-41-860-002

- (1) Make sure that this circuit breaker is open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-41-860-003

- (2) If the rudder hydraulic systems are not depressurized, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-41-020-002

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (3) Install the rudder position transmitter [1]:

- Make sure that the adjustable control rod [4] is set at 10.59 inches (268.97 mm).
- Install the rudder position transmitter [1] into the support bracket [7] and crank [5] with the transmitter shaft pointing downward.
- Align the EZ marks on the rudder position transmitter [1] body and the index mark on the transmitter shaft [8] with the centerline of the crank [5].
- Install the crank screw [6].
- Tighten the transmitter support bracket screw [3] and the crank screw [6] to 30-35 pound-inches (3.39-3.95 newton-meters).
- Install the electrical connector [2] to the rudder position transmitter.

SUBTASK 31-31-41-860-014

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

EFFECTIVITY	AKS ALL
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SUBTASK 31-31-41-700-002

- (5) Do this task: Rudder Position Transmitter Installation Test, TASK 31-31-41-700-801.

———— END OF TASK ——

TASK 31-31-41-700-801

4. Rudder Position Transmitter Installation Test

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: 0H231
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0065 Supplier: 06141 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: 17TES0043 Supplier: 06141
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205



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C. Location Zones

Zone	Area
325	Vertical Fin - Rudder

D. Access Panels

Number	Name/Location
324HL	Vertical Fin, Access

E. Installation Test

SUBTASK 31-31-41-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 31-31-41-710-001

- (2) Use one of the testers listed below to perform the system test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch to the TEST position.

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC



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- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the FDR.
- 3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
 - 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
 - 6) Set the WORD and SUBFRAME as specified.
- (c) Do these steps to prepare the Teledyne portable tester, COM-1807.
- 1) Remove the shorting plug from the system test plug on the P18 panel.
 - 2) Use the portable tester adapter cable, SPL-1808, to connect the portable tester to the system test plug.
 - 3) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.
 - 4) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.
 - 5) Set the portable tester, COM-1807, to read 256 WPS.
 - 6) Set the WORD and SUBFRAME as specified.
- (d) Do the steps below to prepare the handheld download unit, COM-913 for the system test.

NOTE: These steps are only applicable to airplanes with AlliedSignal Solid State Flight Data Recorder (FDR).

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the red button on the tester.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

NOTE: The HHDLU do not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

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SUBTASK 31-31-41-860-006

- (3) Make sure the flight data recorder TEST-NORM switch on the P5 panel to the TEST position.

SUBTASK 31-31-41-860-007

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OFF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEARS AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (4) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 31-31-41-860-011

- (5) Make sure the rudder is set to zero unit of trim position.

SUBTASK 31-31-41-860-012

- (6) Move the rudder pedal to make sure the system is at the center.

SUBTASK 31-31-41-860-013

- (7) Make sure the trailing edge of the rudder is in neutral position.

SUBTASK 31-31-41-820-001

- (8) Do these steps to adjust the rudder position sensor:

- (a) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
- (b) Loosen the screw [3] on the transmitter support brackets.
- (c) Set the tester to subframe 0, word 37.
- (d) Rotate the body of the rudder position transmitter slowly in each direction until you get an octal value between 7745 to 0034 on the tester.
- (e) Tighten the transmitter support bracket screw [3] to 30-35 pound-inches (3.39-3.95 newton-meters).
- (f) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801
- (g) Put the rudder to the full left position.
 - 1) Make sure the tester shows 7032 to 7121.
- (h) Put the rudder to the full right position.
 - 1) Make sure the tester shows 0656 to 0745.
- (i) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

SUBTASK 31-31-41-410-001

- (9) Close this access panel:

Number Name/Location

324HL Vertical Fin, Access

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-41-860-008

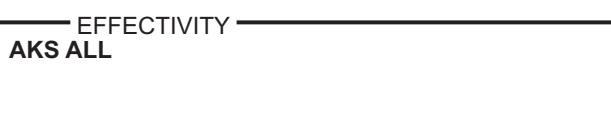
- (1) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the NORM position.

SUBTASK 31-31-41-840-003

- (2) Remove power from the tester.

SUBTASK 31-31-41-860-009

- (3) Remove the tester from the flight data recorder system.



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SUBTASK 31-31-41-860-010

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

———— END OF TASK ——

— EFFECTIVITY —
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RUDDER PEDAL POSITION SENSOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the rudder pedal position sensor.
 - (2) An installation of the rudder pedal position sensor.
 - (3) An installation test of the rudder pedal position sensor.

TASK 31-31-42-000-801

2. Rudder Pedal Position Sensor Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

D. Removal Procedure

SUBTASK 31-31-42-840-001

- (1) Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-42-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-42-010-001

- (3) Open this access panel:

Number Name/Location

112A Forward Access Door

SUBTASK 31-31-42-020-001

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (4) Remove the rudder pedal position sensor [2]:

- (a) Disconnect the electrical connector [1] from the rudder pedal position sensor [2].
- (b) Remove the screw [4], washer [12] and nut [13].
- (c) Remove the sensor clamp screws [3], and washer [11].

EFFECTIVITY
AKS ALL

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- (d) Remove the cable drum [6] from the sensor shaft.
- (e) Remove cotter pins [9] and [10].
- (f) Remove the cables.
- (g) Remove the rudder pedal position sensor [2] from the airplane.

———— END OF TASK ————

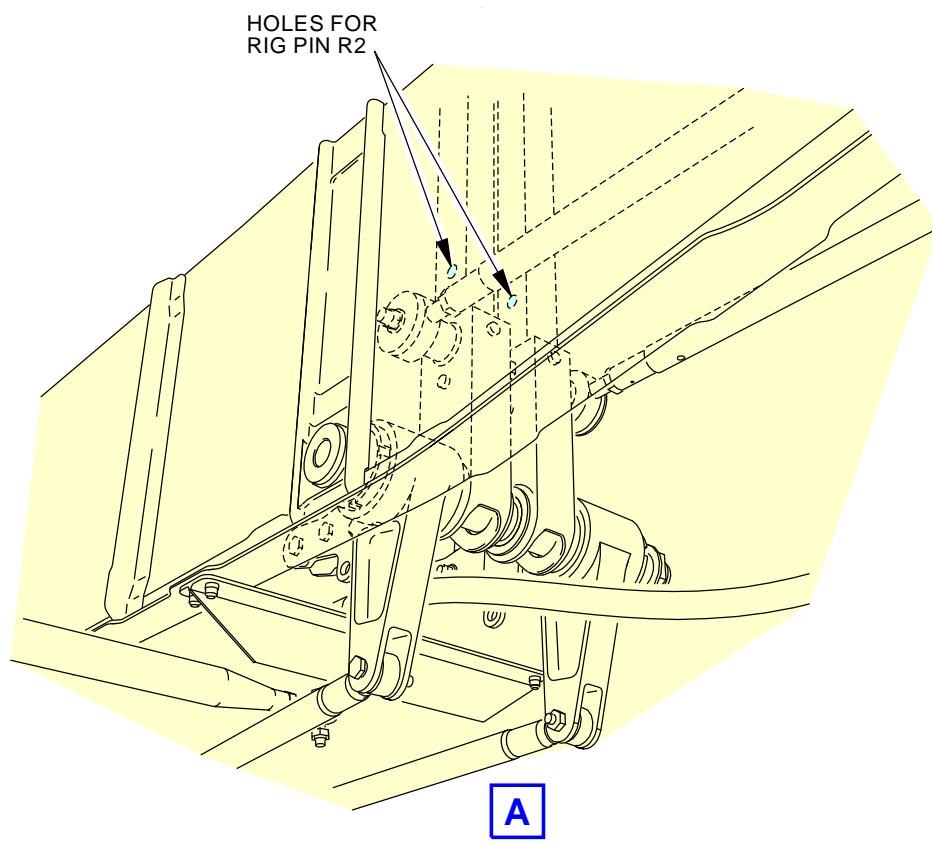
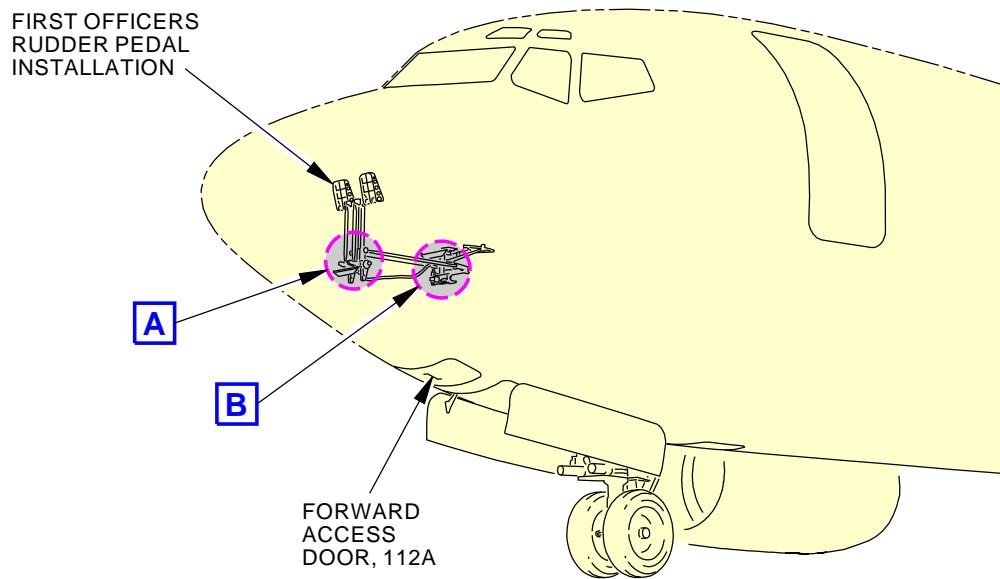
EFFECTIVITY
AKS ALL

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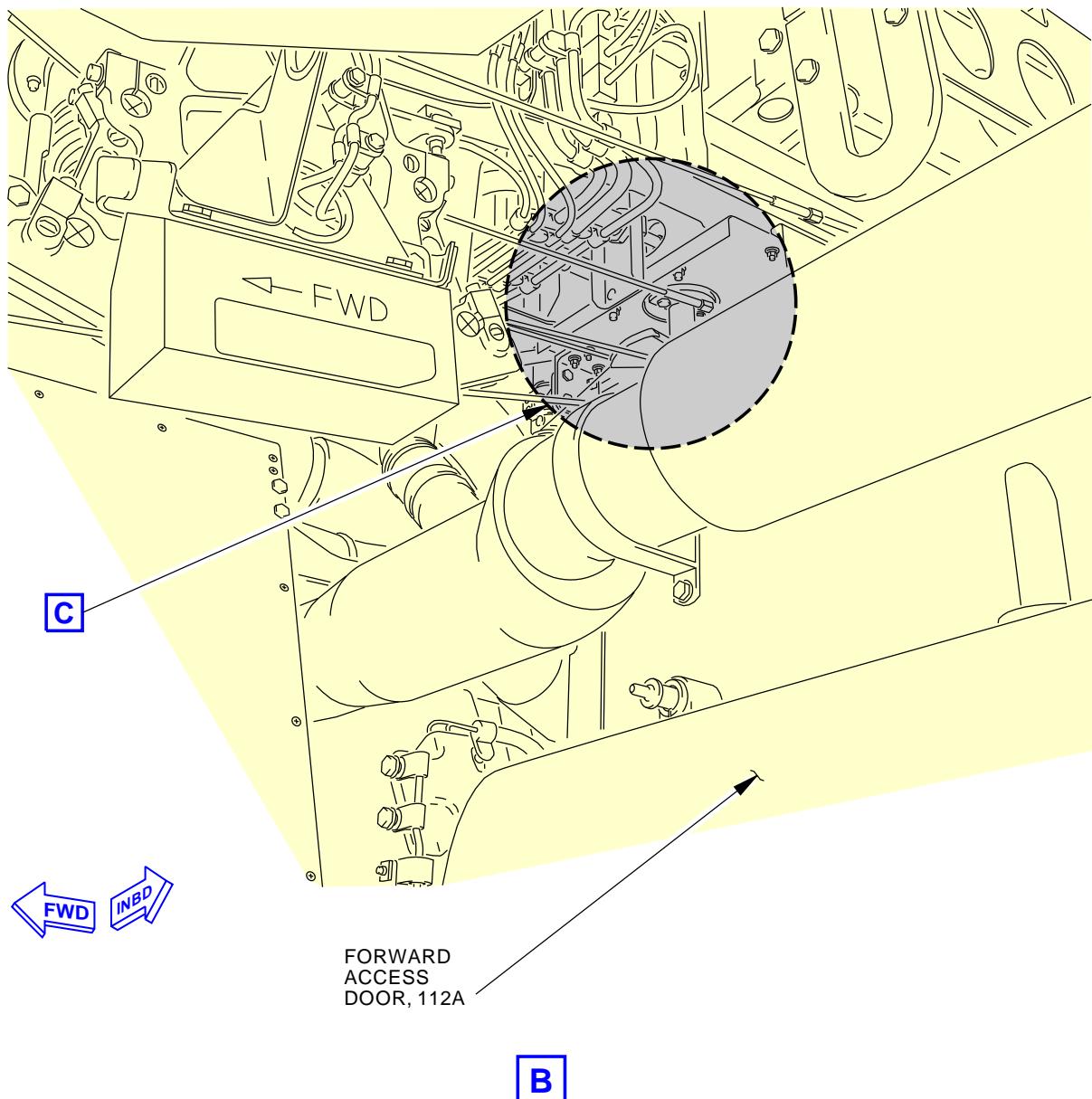
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Rudder Pedal Position Sensor Installation
Figure 401/31-31-42-990-801 (Sheet 1 of 5)

EFFECTIVITY
AKS ALL

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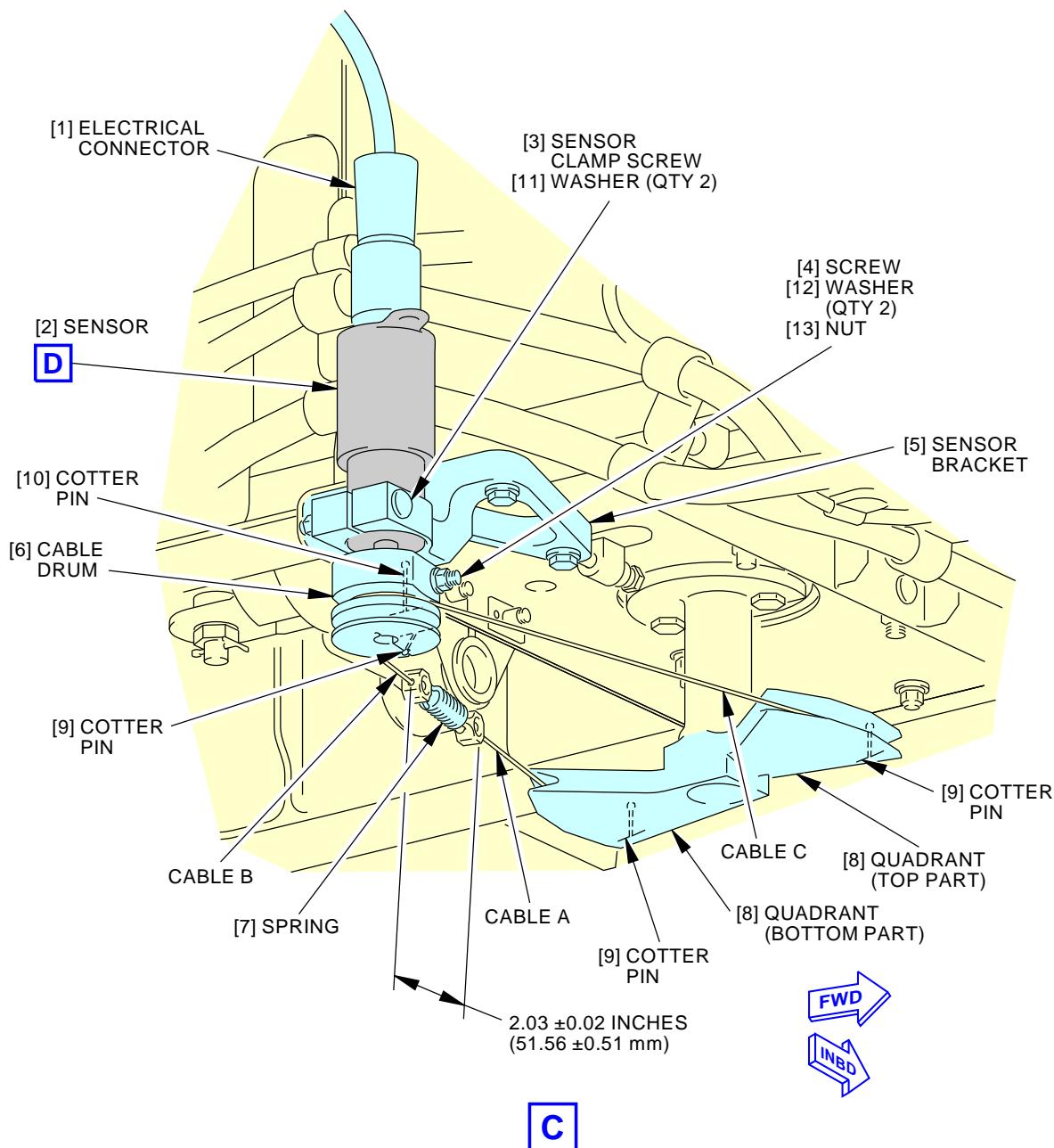
Rudder Pedal Position Sensor Installation
Figure 401/31-31-42-990-801 (Sheet 2 of 5)

EFFECTIVITY
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Rudder Pedal Position Sensor Installation
Figure 401/31-31-42-990-801 (Sheet 3 of 5)

EFFECTIVITY
AKS ALL

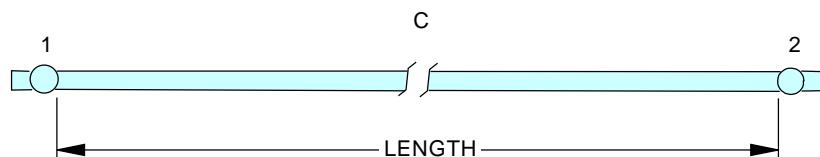
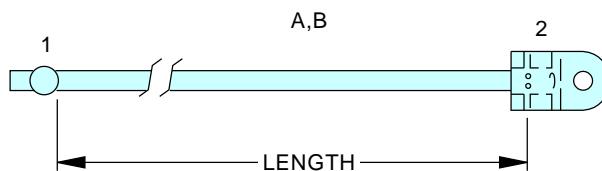
31-31-42



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CABLE REF	DRAWING NUMBER	NO. REQ	LENGTH	CABLE SIZE	FITTINGS	
					1	2
A	69-40951-31	1	3.97 in (100.84mm)	3/64 7 X 7	RA2487-047	RA2487-047 and 69-40947-1
B	69-40951-31	1	3.97 in (100.84mm)	3/64 7 X 7	RA2487-047	RA2487-047 and 69-40947-1
C	69-40951-35	1	9.77 in (248.16mm)	3/64 7 X 7	RA2487-047	RA2487-047

MATERIAL - CABLE STAINLESS STEEL CABLE, AIRCRAFT QUALITY, CAROLINA STEEL & WIRE CORP., LEXINGTON, CA, OR EQUIV TERMINALS AMERICAN CHAIN AND CABLE CO., BRIDGEPORT, CT



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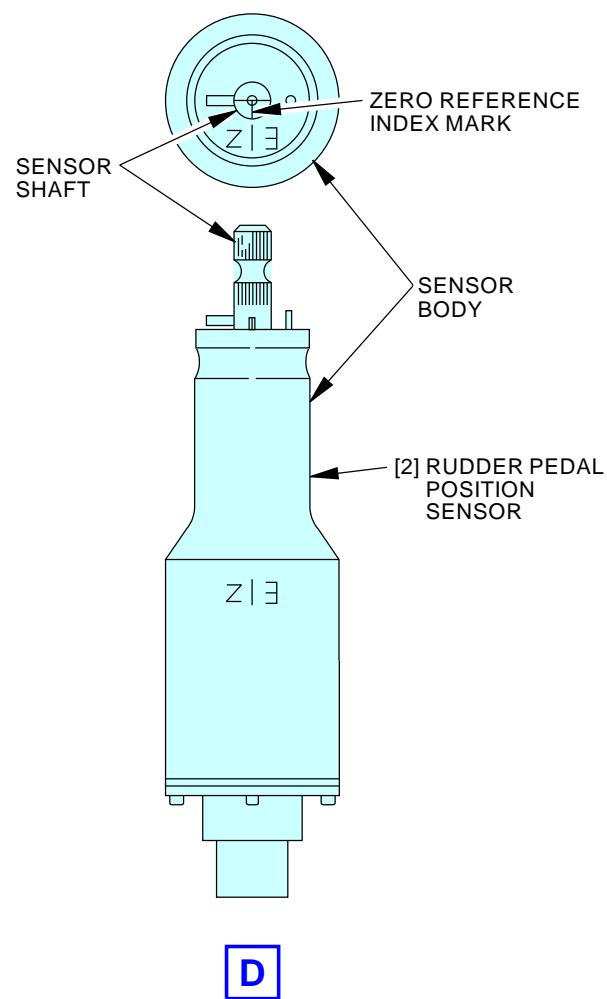
Rudder Pedal Position Sensor Installation
Figure 401/31-31-42-990-801 (Sheet 4 of 5)

EFFECTIVITY
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Rudder Pedal Position Sensor Installation
Figure 401/31-31-42-990-801 (Sheet 5 of 5)

EFFECTIVITY
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AIRCRAFT MAINTENANCE MANUAL

TASK 31-31-42-400-801

3. Rudder Pedal Position Sensor Installation

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Tools/Equipment

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

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
D00016	Grease - Aircraft, General Purpose, Wide Temperature Range	MIL-PRF-81322

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Sensor	31-31-42-02-130	AKS ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

F. Access Panels

Number	Name/Location
112A	Forward Access Door

G. Installation Procedure

SUBTASK 31-31-42-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-42-860-003

- (2) If the rudder hydraulic systems are not depressurized, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.



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SUBTASK 31-31-42-020-002

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (3) Install the rudder pedal position sensor [2]:
 - (a) Set the rudder pedals to the neutral position.
 - (b) Install R2 rig pin kit, SPL-1585, into the first officer rudder pedal.
 - (c) Turn the sensor until the mark on the shaft of the sensor aligns with the EZ mark on the sensor body.
 - (d) Install the rudder pedal position sensor [2] into the sensor bracket [5].
 - (e) Apply a thin layer of compound, C00174, on the internal and external surfaces of the thread on the sensor clamp screws [3].
 - (f) Install the sensor clamp screws [3], washers [11].
 - (g) Tighten the screws [3] to 30-35 pound-inches (3-4 newton-meters).
 - (h) Install the cable drum [6] to the sensor shaft.
 - (i) Install screw [4], washer [12] and nut [13].
 - (j) Tighten the screw [4] to 30-35 pound-inches (3-4 newton-meters).
 - (k) Do these steps to install the cable C:
 - 1) Install cable C between the top part of the quadrant [8] and the top spool on the cable drum [6].
 - 2) Install the cotter pins [9] to the top part of quadrant [8].
 - 3) Install cotter pin [10] to the top spool on the cable drum [6].
 - (l) Do these steps to install cable A and B:
 - 1) Install the ball terminal of cable A and the cotter pin [9] to the lower part of the quadrant [8].
 - (m) Install the electrical connector [1] onto the rudder pedal position sensor [2].

CAUTION: MAKE SURE YOU INSTALL COTTER PIN [9] CORRECTLY. THE HEAD OF THE COTTER PIN SHOULD BE VISIBLE ON THE LOWER, OUTER SURFACE OF THE CABLE DRUM AS SHOWN IN FIGURE 401, SHEET 3. IF THE COTTER PIN IS NOT INSTALL CORRECTLY, DAMAGE TO THE RUDDER PEDAL POSITION SENSOR CABLE CAN OCCUR.

- 2) Install the ball terminal cable B and the cotter pin [9] to the lower spool of the cable drum [6].
- 3) Install the spring [8] between the loose ends of cable A and B.
- 4) Lubricate the cables with grease, D00016.
- 5) Make sure the dimension across the spring [7] between the cable terminal is 2.03 ± 0.02 inches (51.56 ± 0.51 mm).
- 6) Tighten the two sensor clamp screws [3] to 30-35 pound-inches (3-4 newton-meters).

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SUBTASK 31-31-42-410-001

- (4) If you do not accomplish the installation test immediately, close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 31-31-42-410-003

- (5) Do this task: Rudder Pedal Position Sensor Installation Test, TASK 31-31-42-700-801.

———— END OF TASK ————

TASK 31-31-42-700-801

4. Rudder Pedal Position Sensor Installation Test

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: 0H231
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205



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(Continued)

<u>Reference</u>	<u>Description</u>
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205

C. Location Zones

<u>Zone</u>	<u>Area</u>
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

E. Installation Test

SUBTASK 31-31-42-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 31-31-42-010-002

- (2) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 31-31-42-710-001

- (3) Use one of the testers listed below to perform the system test:

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694
 - 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch in the TEST position.



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- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the Teledyne portable tester, COM-1807.

- 1) Remove the shorting plug from the system test plug on the P18 panel.
- 2) Use the portable tester adapter cable, SPL-1808, to connect the portable tester to the system test plug.
- 3) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.
- 4) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.
- 5) Set the portable tester, to read 256 WPS.

- (c) Do the steps below to prepare the handheld download unit, COM-913 for the system test.

NOTE: The handheld download unit, COM-913 can only be used on airplane with AlliedSignal Solid State Flight Data Recorder (FDR) installed.

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the red button on the handheld download unit, COM-913.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

SUBTASK 31-31-42-860-005

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-42-860-006

- (5) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the TEST position.

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SUBTASK 31-31-42-860-007

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (6) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 31-31-42-820-001

- (7) Do these steps to adjust the rudder pedal position sensor [2]:
- Make sure the rudder pedal is set in the neutral position.
 - Loosen the sensor clamp screw [3].
 - Set the portable tester to subframe 0, word 39.
 - Hold the cable drum and rotate the rudder pedal position sensor [2] body slowly in each direction until you get an octal value between 7751 to 0027 on the tester.
 - Tighten the sensor clamp screw [3] to 30-35 pound-inches (3-4 newton-meters).
 - Remove R2 rig pin kit, SPL-1585, from the first officer rudder pedal.
 - Push the captain's right rudder pedal full forward against stop.
 - Make sure the tester shows 5763 to 6423.
 - Push the captain's left rudder pedal full forward against stop.
 - Make sure the tester shows 1354 to 2014.
 - Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-42-410-002

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 31-31-42-860-008

- (2) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the NORMAL position.

SUBTASK 31-31-42-840-003

- (3) Remove power from the tester.

SUBTASK 31-31-42-860-009

- (4) Remove the tester from the flight data recorder system.

SUBTASK 31-31-42-860-010

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

———— END OF TASK ————



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RUDDER PEDAL FORCE TRANSMITTER ROD - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the rudder pedal force transmitter rod.
 - (2) An installation of the rudder pedal force transmitter rod.
 - (3) An installation test of the rudder pedal force transmitter.

TASK 31-31-43-000-801

2. Rudder Pedal Force Transmitter Rod Removal

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Tools/Equipment

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

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205
SPL-9118	Equipment - Kit, Rigging Tool Assy (required for line number 1376 and on to rig the brake metering valve, F70207-128 is used with F70207-109 kit) Part #: F70207-128 Supplier: 81205

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324EL	Vertical Fin, Access

E. Removal Procedure

SUBTASK 31-31-43-840-001

- (1) Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-43-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

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SUBTASK 31-31-43-010-001

- (3) Open these access panels:

<u>Number</u>	<u>Name/Location</u>
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324EL	Vertical Fin, Access

SUBTASK 31-31-43-410-001

- (4) Install the rig pins A/S-3 and A/S-4 from the test set rig pin kit, SPL-1585 into the R3 and R4 rig pin holes in the rudder forward quadrant.

SUBTASK 31-31-43-410-002

- (5) Install the rig pins R5 from the test set rig pin kit, SPL-1585 into the R-5 rig pin hole in the feel and centering unit.

NOTE: The rigging tool assembly, SPL-9118 is required to use with the test set rig pin kit, SPL-1585.

SUBTASK 31-31-43-020-001

WARNING: BEFORE YOU MOVE THE RUDDER PEDALS, MAKE SURE THE AREA AROUND THE RUDDER IS CLEAR OF ALL PERSONS AND EQUIPMENT. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

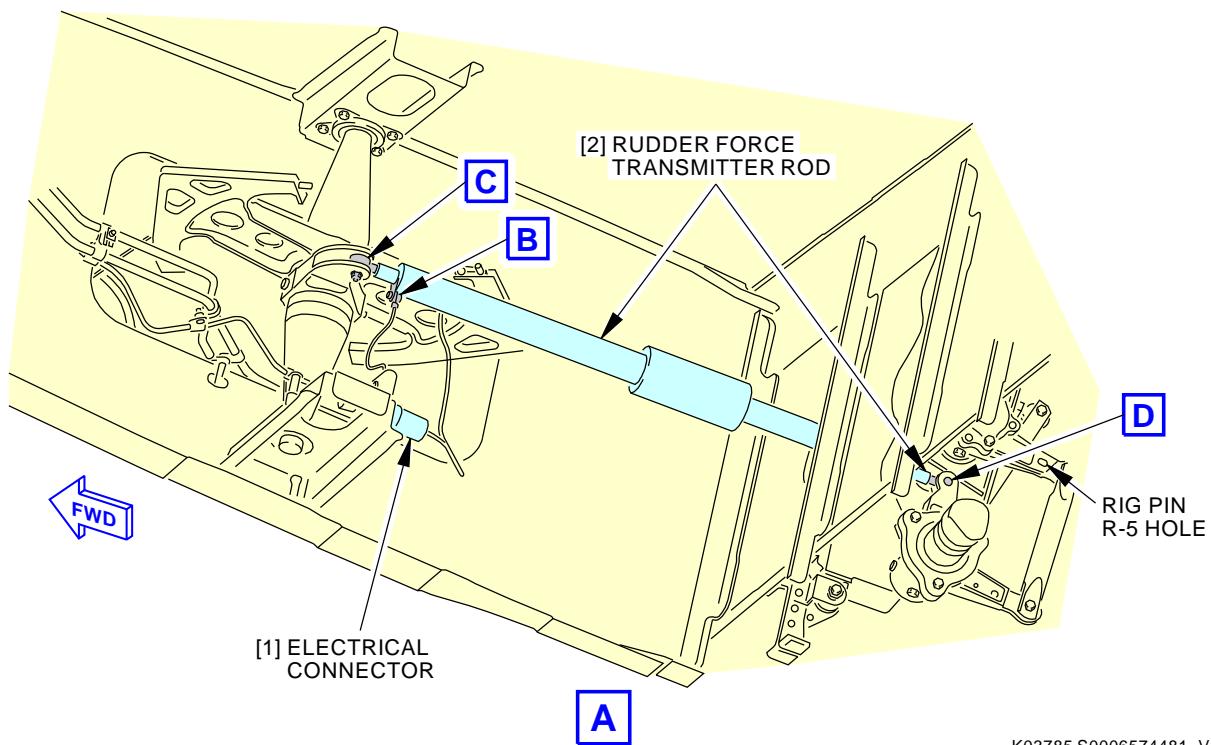
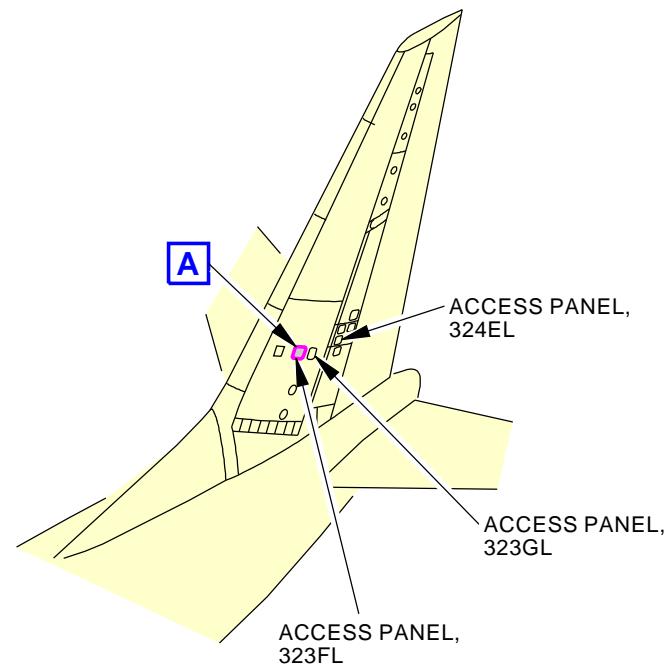
- (6) Do these steps to remove the rudder pedal force transmitter [2]:

- (a) Disconnect the electrical connector [1] from the rudder pedal force transmitter [2].
- (b) Do these steps to disconnect electrical ground [6]:
 - 1) Remove bolt [3].
 - 2) Remove washers [4], [5] and [7].
 - 3) Remove nut [8].
- (c) Remove bolt [9], washer [10] and nut [11].
- (d) Remove bolt [12], washer [13] and nut [14].
- (e) Remove the rudder pedal force transmitter [2].

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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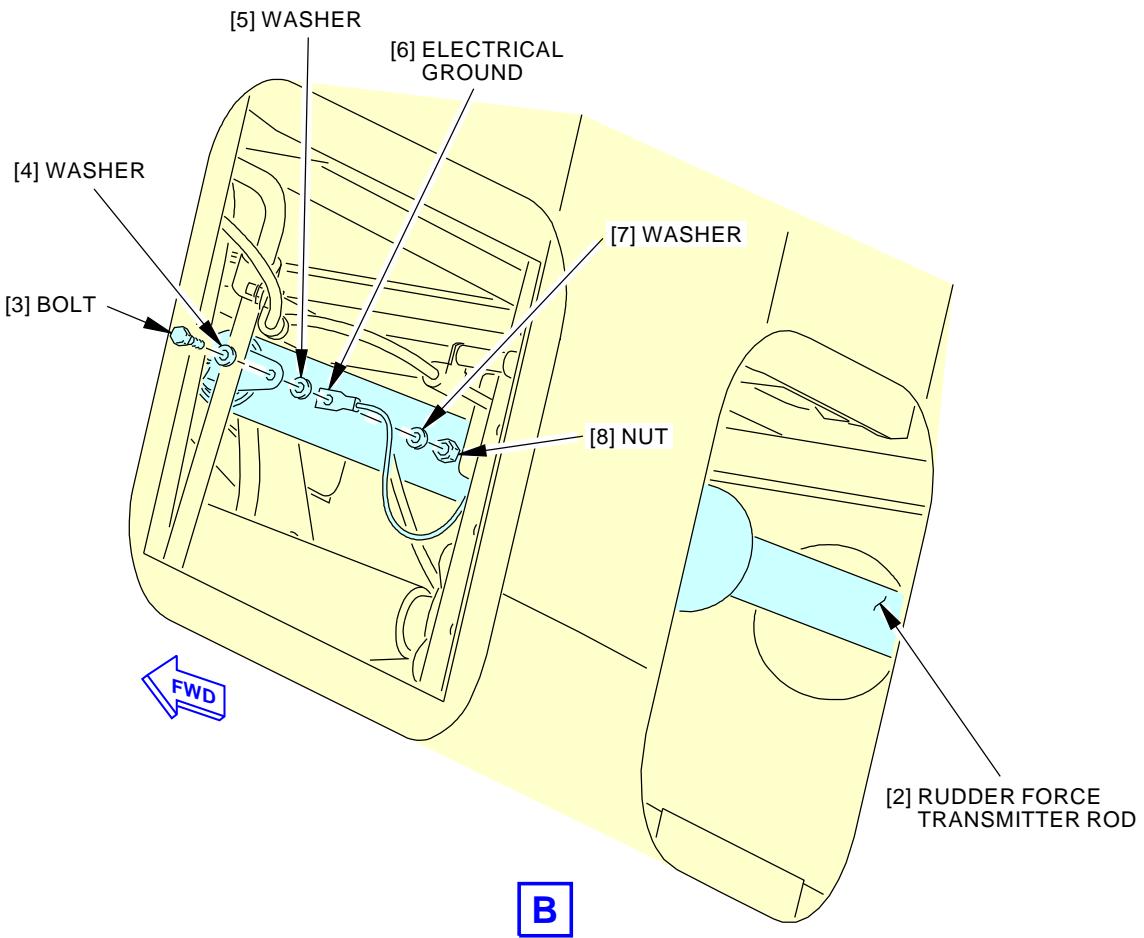


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**Rudder Force Transmitter Rod Installation
Figure 401/31-31-43-990-801 (Sheet 1 of 4)**

EFFECTIVITY
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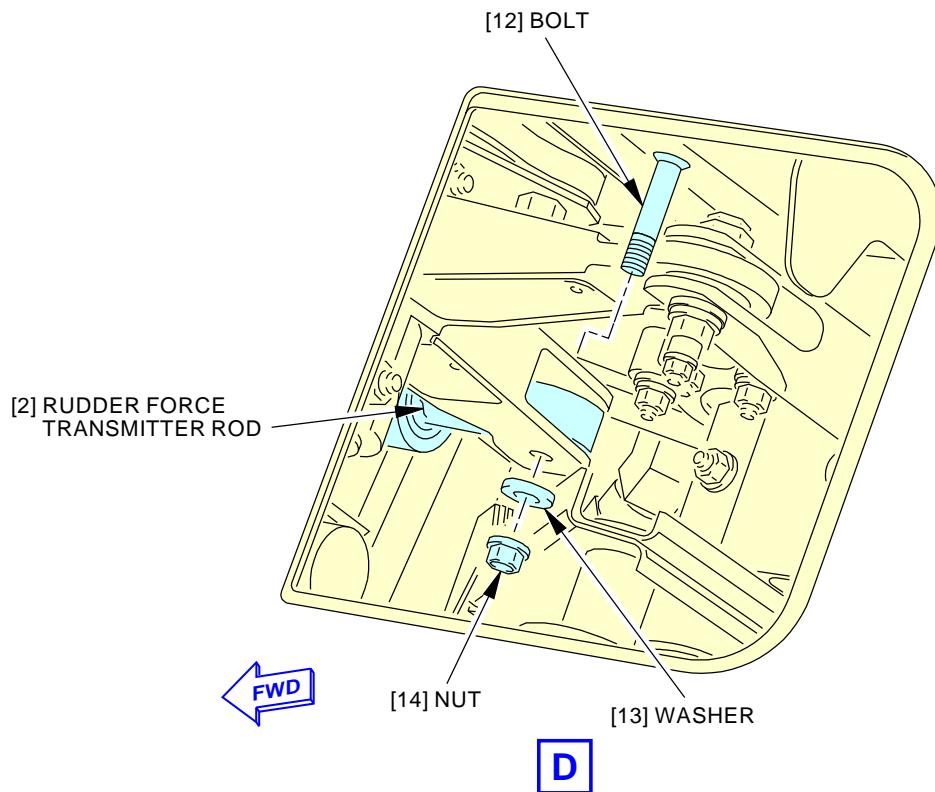
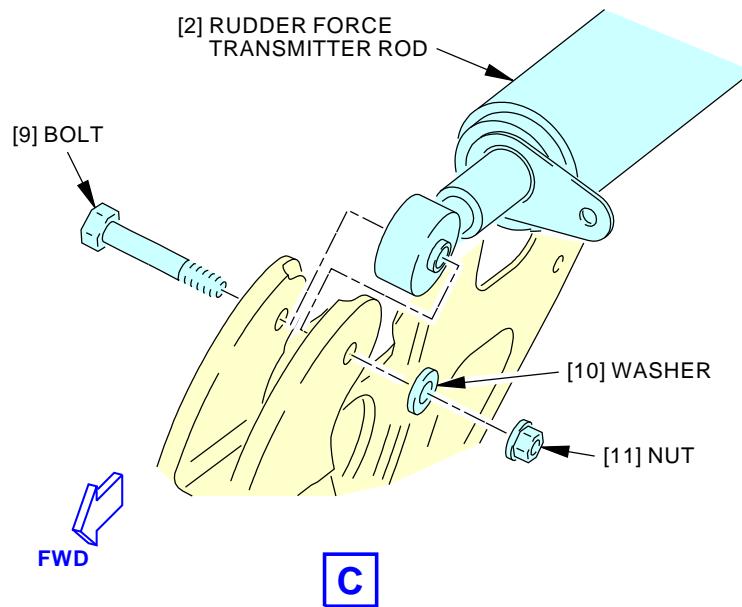


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Rudder Force Transmitter Rod Installation
Figure 401/31-31-43-990-801 (Sheet 2 of 4)EFFECTIVITY
AKS ALL**31-31-43**

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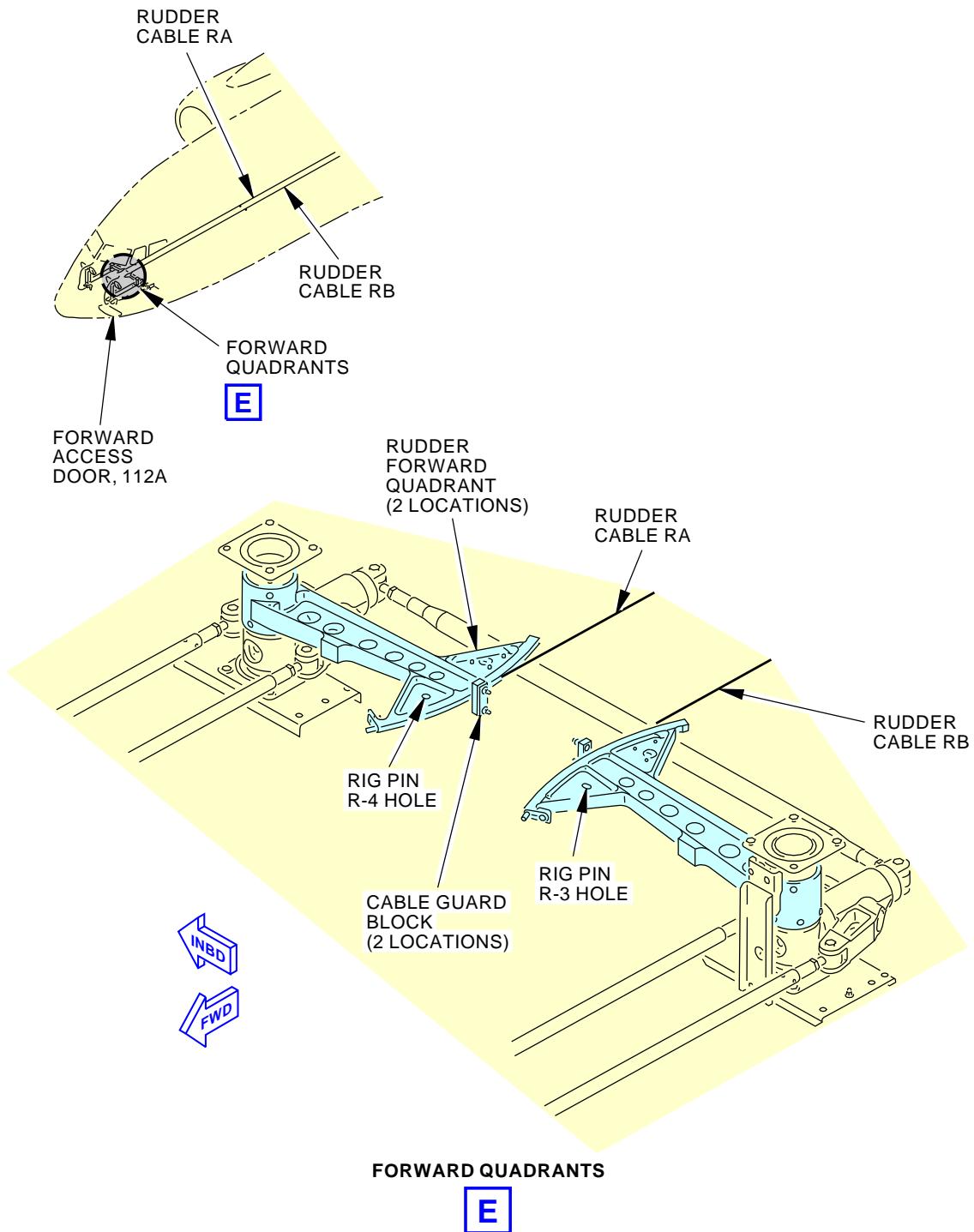
Rudder Force Transmitter Rod Installation
Figure 401/31-31-43-990-801 (Sheet 3 of 4)

EFFECTIVITY

 AKS ALL

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Rudder Force Transmitter Rod Installation
Figure 401/31-31-43-990-801 (Sheet 4 of 4)

EFFECTIVITY
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TASK 31-31-43-400-801

3. Rudder Pedal Force Transmitter Rod Installation

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324EL	Vertical Fin, Access

D. Installation Procedure

SUBTASK 31-31-43-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-43-860-003

- (2) If the rudder hydraulic systems are not depressurized, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

SUBTASK 31-31-43-020-002

WARNING: BEFORE YOU MOVE THE RUDDER PEDALS, MAKE SURE THE AREA AROUND THE RUDDER IS CLEAR OF ALL PERSONS AND EQUIPMENT. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do these steps to install the rudder pedal force transmitter [2]:
- Install the rudder pedal force transmitter [2].
 - Install bolt [12], washer [13] and nut [14].
 - Install bolt [9], washer [10] and nut [11].
 - Tighten nut [11] to 30-35 pound-inches (3.4-4 newton-meters).
 - Do these steps to install the electrical ground [6]:
 - Install bolt [3], washers [4], [5].
 - Install electrical ground [6].
 - Install washer [7], and nut [8].
 - Tighten nut [8] to 30-35 pound-inches.
 - Install electrical connector [1].



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SUBTASK 31-31-43-410-003

- (4) Close these panels:

<u>Number</u>	<u>Name/Location</u>
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324EL	Vertical Fin, Access

SUBTASK 31-31-43-010-002

- (5) Remove the rig pins A/S-3 and A/S-4 from the rig pin hole R3 and R4 in rudder forward quadrant.

SUBTASK 31-31-43-010-003

- (6) Remove the rig pins A/S-5 from the feel and centering unit.

SUBTASK 31-31-43-860-014

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-43-410-004

- (8) Do this task: Rudder Pedal Force Transmitter Installation Test, TASK 31-31-43-700-801.

————— END OF TASK ————

TASK 31-31-43-700-801

4. Rudder Pedal Force Transmitter Installation Test

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)

B. Tools/Equipment

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

<u>Reference</u>	<u>Description</u>
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: 0H231



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(Continued)

<u>Reference</u>	<u>Description</u>
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0065 Supplier: 06141 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: 17TES0043 Supplier: 06141
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205

C. Location Zones

<u>Zone</u>	<u>Area</u>
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

E. Installation Test

SUBTASK 31-31-43-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 31-31-43-710-001

- (2) Use one of the testers listed below to perform the system test:

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694
- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750



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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch to the TEST position.

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the FDR.

- 3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.

- 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.

- 6) Set the WORD and SUBFRAME as specified.

- (c) Do these steps to prepare the Teledyne portable tester, COM-1807.

- 1) Remove the shorting plug from the system test plug on the P18 panel.

- 2) Use the portable tester adapter cable, SPL-1808, to connect the portable tester to the system test plug.

- 3) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.

- 4) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.

- 5) Set the portable tester to read 256 WPS.

- (d) Do the steps below to prepare the handheld download unit, COM-913.

NOTE: The handheld download unit, COM-913 can only be used on airplane installed with AlliedSignal Solid State Flight Data Recorder (FDR).

- 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>
C	9	C00109	FLIGHT RECORDER AC



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CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the Handheld Download unit to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the red button on the handheld download unit, COM-913.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

SUBTASK 31-31-43-860-005

- (3) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-43-860-006

- (4) Make sure the flight data recorder TEST-NORMAL switch on the P5 panel to the TEST position.

SUBTASK 31-31-43-860-007

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (5) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 31-31-43-840-003

- (6) Make sure the hydraulic systems A, B and STBY are off.

SUBTASK 31-31-43-860-009

- (7) With no pressure to the left or right rudder pedals, make sure the tester shows an octal value between 3012 to 4112.

SUBTASK 31-31-43-840-004

- (8) Put pressure to the left rudder pedal.

- (a) Make sure the octal value increases.

NOTE: It may take 1 to 4 seconds to update. Hold the rudder pedal until an octal value shows on the display.

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SUBTASK 31-31-43-840-006

- (9) Put pressure to the right rudder pedal.
 - (a) Make sure the octal value decreases.

NOTE: It may take 1-4 seconds to update. Hold the rudder pedal until an octal value shows on the display.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-43-410-005

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 31-31-43-860-010

- (2) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the NORMAL position.

SUBTASK 31-31-43-840-005

- (3) Remove power from the tester..

SUBTASK 31-31-43-860-011

- (4) Remove the tester from the flight data recorder system.

SUBTASK 31-31-43-860-012

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

———— END OF TASK ————

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ELEVATOR POSITION TRANSMITTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the elevator position transmitter.
 - (2) An installation of the elevator position transmitter.
 - (3) An installation test of the elevator position transmitter.

TASK 31-31-51-000-801

2. Elevator Position Transmitter Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

C. Access Panels

<u>Number</u>	<u>Name/Location</u>
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343CB	Horizontal Stabilizer, Access Panel - T.E. Area

D. Removal Procedure

SUBTASK 31-31-51-840-001

- (1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B,
TASK 27-31-00-800-802.

SUBTASK 31-31-51-860-001

- (2) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-51-010-001

- (3) For the right elevator position, open this panel:

Number Name/Location

343CB Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 31-31-51-010-002

- (4) For the left elevator position, open this panel:

Number Name/Location

333BB Horizontal Stabilizer, Access Panel, Trailing Edge



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SUBTASK 31-31-51-020-001

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (5) Remove the elevator position transmitter [1]:
 - (a) Disconnect the electrical connector [2] from the elevator position transmitter [1].
 - (b) Put protective cover on the electrical connector [2].
 - (c) Loosen the screws [3] and [4].
 - (d) Remove the elevator position transmitter [1].

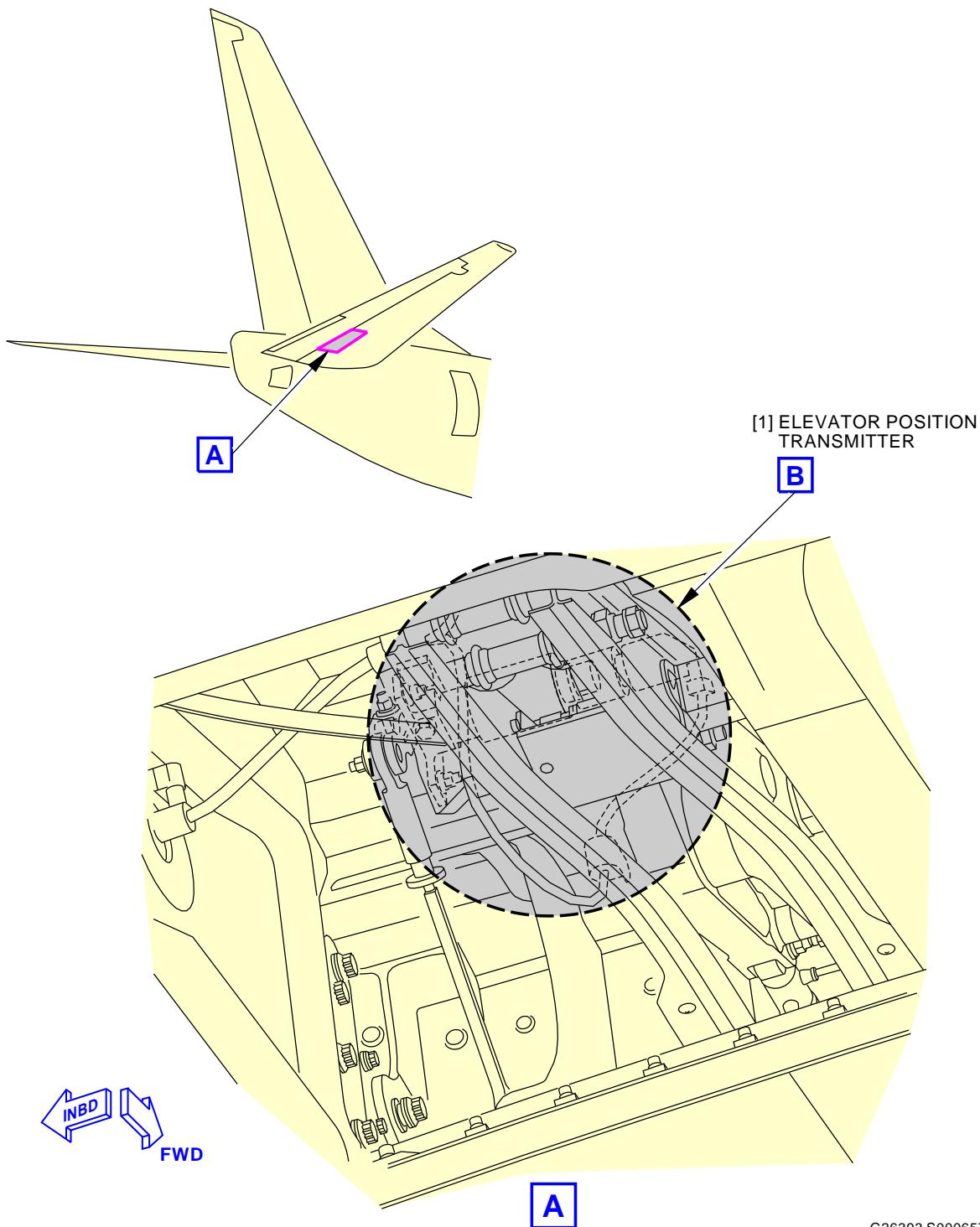
———— END OF TASK ————

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Elevator Position Transmitter Installation
Figure 401/31-31-51-990-801 (Sheet 1 of 3)

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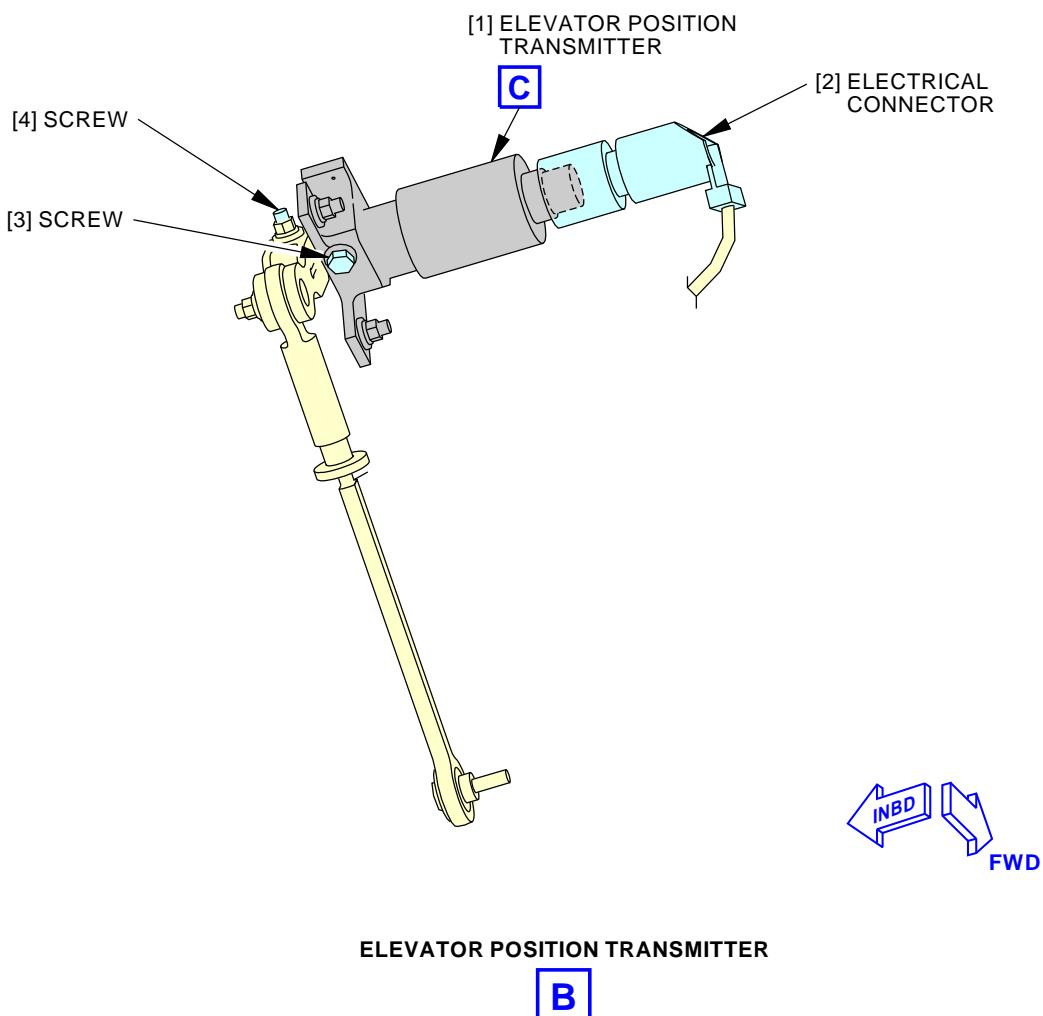
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ELEVATOR POSITION TRANSMITTER

B

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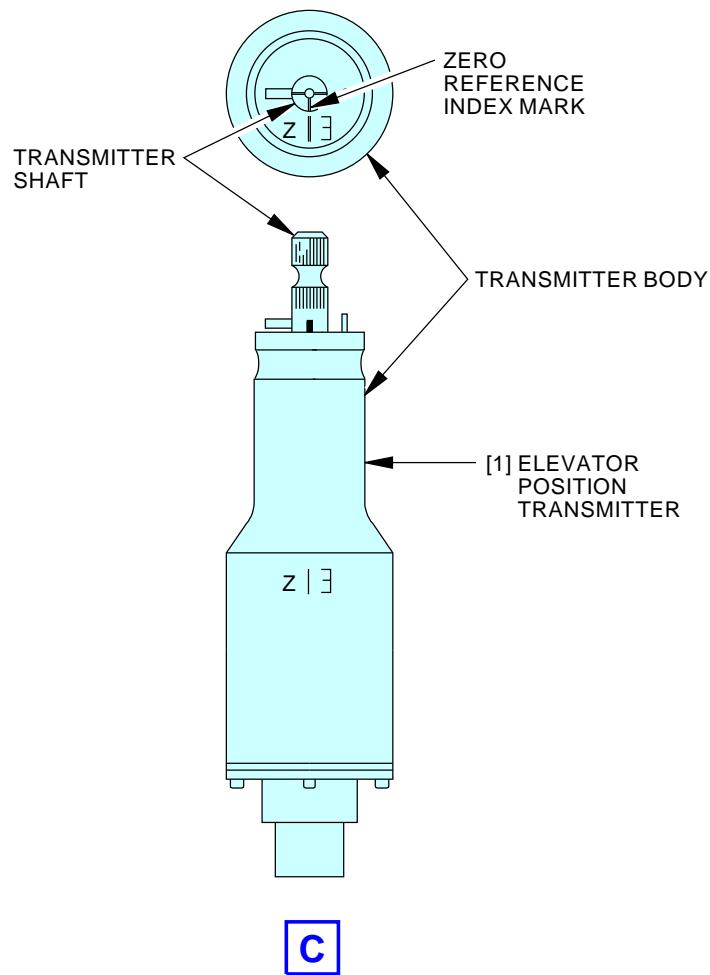
Elevator Position Transmitter Installation
Figure 401/31-31-51-990-801 (Sheet 2 of 3)

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Elevator Position Transmitter Installation
Figure 401/31-31-51-990-801 (Sheet 3 of 3)

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TASK 31-31-51-400-801

3. Elevator Position Transmitter Installation

Figure 401

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Transmitter	31-31-51-03-115	AKS ALL

C. Location Zones

Zone	Area
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

D. Installation Procedure

SUBTASK 31-31-51-860-002

- (1) If the elevator hydraulic systems are not depressurized, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 31-31-51-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-51-020-002

WARNING: PRIOR AND DURING REMOVAL/INSTALLATION PROCEDURES OF THE SURFACE POSITION SENSORS, DO NOT ATTEMPT TO OPERATE ANY FLIGHT CONTROL SYSTEM OR DAMAGE TO CONTROL MECHANISMS AND INJURY TO PERSONNEL MAY RESULT.

- (3) Install the elevator position transmitter [1]:
 - (a) Install the shaft of the elevator position transmitter [1] into the support bracket.
 - (b) Align the EZ marks on the elevator position transmitter [1] body and the index mark on the shaft of the transmitter.
 - (c) Tighten the screws [3] and [4].
 - (d) Remove protective cover from the electrical connector [2].
 - (e) Install the electrical connector [2] onto the elevator position transmitter [1].

SUBTASK 31-31-51-860-012

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR



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SUBTASK 31-31-51-860-004

- (5) Do this task: Elevator Position Transmitter Installation Test, TASK 31-31-51-700-801.

———— END OF TASK ——

TASK 31-31-51-700-801

4. Elevator Position Transmitter Installation Test

(Figure 402)

A. General

- (1) This task includes the steps to do a test of the elevator position transmitter.

B. References

Reference	Title
22-11-30-400-801	Elevator Position Sensor Installation (P/B 401)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (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-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: 0H231
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0065 Supplier: 06141 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: 17TES0043 Supplier: 06141
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70

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Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator Part #: F80055-10 Supplier: 81205 Opt Part #: F80055-1 Supplier: 81205
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343CB	Horizontal Stabilizer, Access Panel - T.E. Area

E. Prepare for the Test

SUBTASK 31-31-51-860-005

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-51-710-001

- (2) Use one of the testers listed below to perform the system test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694:

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC



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- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553:
- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the FDR.
- 3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
- 6) Set the WORD and SUBFRAME as specified.

- (c) Do these steps to prepare the Teledyne portable tester, COM-1807:

- 1) Remove the shorting plug from the system test plug on the P18 panel.
- 2) Use the portable tester adapter cable, SPL-1808, to connect the tester to the system test plug.
- 3) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.
- 4) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.
- 5) Set the portable tester, COM-1807, to read 256 WPS.

- (d) Do the steps below to prepare the handheld download unit, COM-913 (HHDLU) for the system test.

NOTE: These steps are only applicable to airplanes with a Honeywell Solid State Flight Data Recorder (FDR) installed.

- 1) Connect the HHDLU to the connector on the FDR.
- 2) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 3) Push the red button on the HHDLU.
- 4) Set the DSDU switch.
- 5) Set the BASE switch.



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- 6) Set the WORD and SUBFRAME as specified.

NOTE: The HHDLU do not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

SUBTASK 31-31-51-860-006

- (3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-51-860-007

- (4) If the elevator hydraulic systems are not depressurized, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 31-31-51-010-003

- (5) To get access to the stabilizer trim jackscrew, do this step:

Remove this access panel:

Number Name/Location

311BL Stabilizer Trim Access Door

F. Installation Test

SUBTASK 31-31-51-980-001

- (1) Do these steps to set the B dimension (Figure 402):

NOTE: The B dimension measures the distance between the center of the upper and lower Gimbal pins on the stabilizer trim jackscrew. To do this, one person must be in the tail of the airplane with a headset and the other person in the flight compartment.

- (a) Turn the stab trim wheel handle on the control stand to set the horizontal stabilizer to 4 units of trim.

NOTE: This B dimension is equivalent to the horizontal stabilizer at 4 units of trim (zero degree).

- (b) Use the trammel bar, SPL-1677 to measure the B dimension.

- 1) Make sure that the B dimension is 39.89 ± 0.01 in (1013.21 ± 0.25 mm).

SUBTASK 31-31-51-820-001

- (2) Make sure the mach trim actuator is at the null position (TASK 22-11-30-400-801).

SUBTASK 31-31-51-860-008

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-51-860-009

- (4) Make sure the flight data recorder TEST-NORMAL switch to the TEST position.

SUBTASK 31-31-51-700-001

- (5) Do these steps to adjust the elevator position transmitter.

- (a) Make sure that the elevator trailing edge is positioned in line with index on tailcone within ± 0.06 inch.
- (b) Make sure the length of the linkage rod from center to center is 7.23 to 7.27 inch.
- (c) Loosen the screw.
- (d) Set the tester subframe and word:

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- 1) For the left elevator position transmitter, set the tester to subframe 0, word 4.
- 2) For the right elevator position transmitter, set the tester to subframe 0, word 10.
- (e) Rotate the elevator position transmitter slowly in each direction until you get an octal value between 7733 to 0044 on the tester.
- (f) Tighten the screw.
- (g) Rotate the thumb wheel on the linkage rod slowly in each direction until you get an octal value between 7733 to 0044 on the tester.
- (h) Lockwire the thumb wheel.

NOTE: After final adjustments are made, the tester should read between 7733 to 0044 octal when stabilizer is set to 39.89 and elevators are faired to neutral within .06 inch of the index on the tailcone.

SUBTASK 31-31-51-700-002

- (6) Do these steps to test the elevator position transmitter signal:

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: DO NOT OPERATE THE HYDRAULIC SYSTEM IF THERE IS LESS THAN A SUFFICIENT QUANTITY OF FUEL IN THE APPLICABLE TANK. DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.
- (b) Make sure the horizontal stabilizer is at 4 units of trim.
- (c) Set the tester to subframe 0, word 4.
- (d) Move the control column full aft against stop.
 - 1) Make sure the tester shows 6710 to 7056.
- (e) Move the control column full forward against stop.
 - 1) Make sure the tester shows 0500 to 0646.
- (f) Set the tester to subframe 0, word 10.
- (g) Move the control column full aft against stop.
 - 1) Make sure the tester shows 0730 to 1056.
- (h) Move the control column full forward against stop.
 - 1) Make sure the tester shows 7140 to 7266.
- (i) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-51-010-004

- (1) For the left elevator position, close this panel:

<u>Number</u>	<u>Name/Location</u>
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge



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For the right elevator position, close this panel:

Number Name/Location

343CB Horizontal Stabilizer, Access Panel - T.E. Area

Close this panel:

Number Name/Location

311BL Stabilizer Trim Access Door

SUBTASK 31-31-51-840-003

- (2) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the NORMAL position.

SUBTASK 31-31-51-860-010

- (3) Remove power from the tester.

SUBTASK 31-31-51-860-011

- (4) Remove the tester from the flight data recorder system.

SUBTASK 31-31-51-010-007

- (5) Close this access panel:

Number Name/Location

318BR Tailcone Access Door

———— END OF TASK ————

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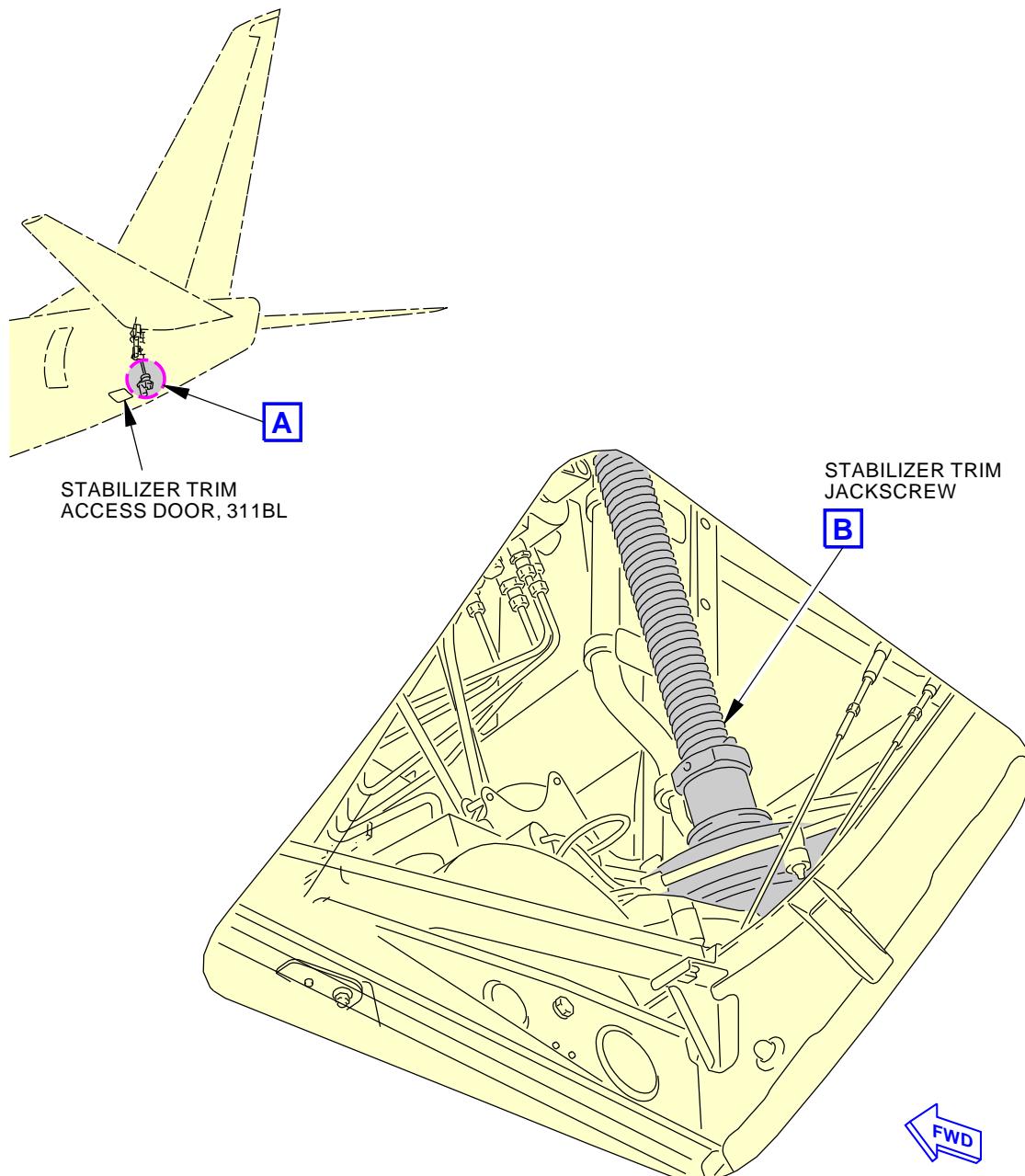
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VIEW WHEN YOU LOOK UP THROUGH THE
STABILIZER TRIM ACCESS DOOR



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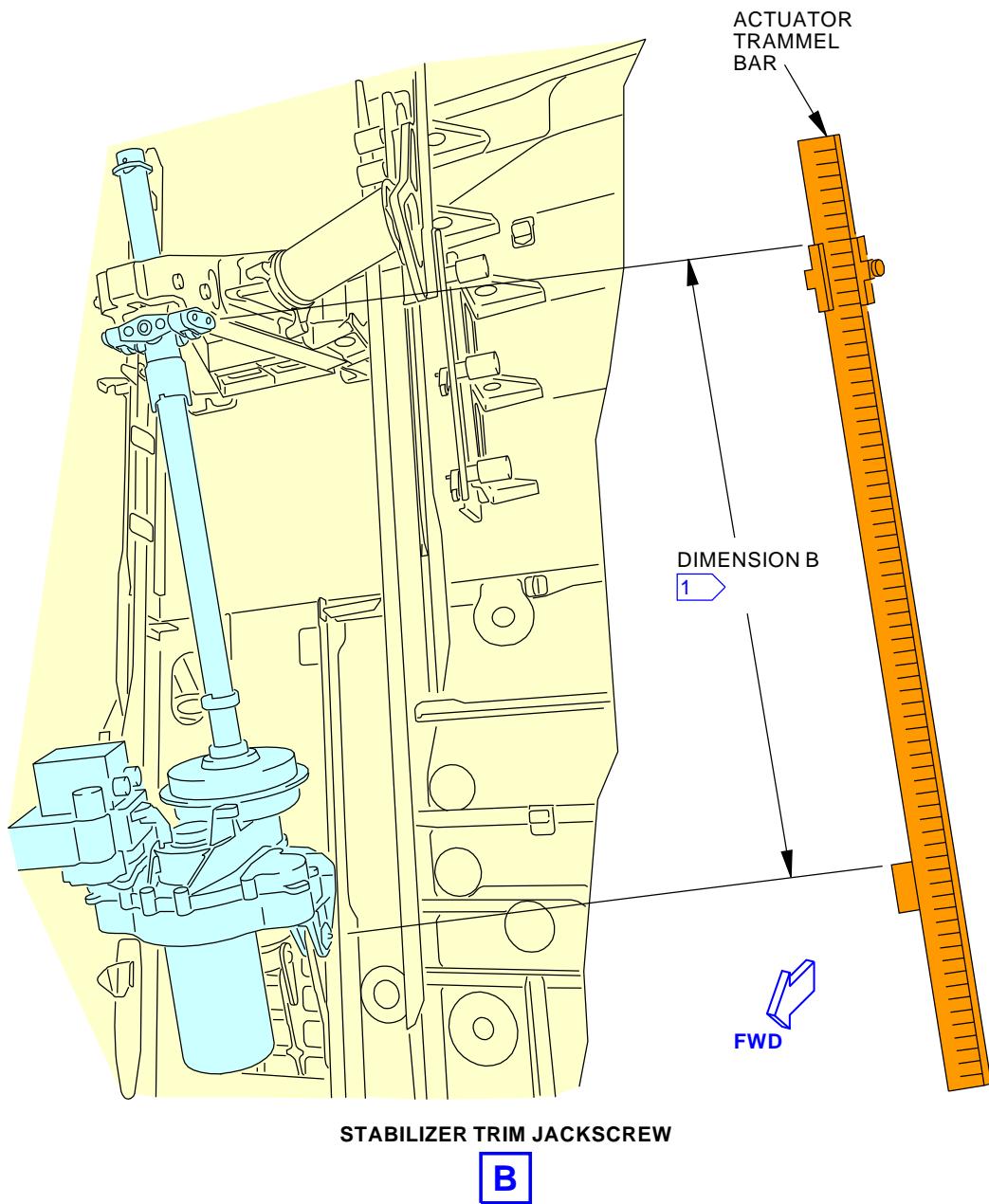
Stabilizer Trim Jackscrew Setting
Figure 402/31-31-51-990-802 (Sheet 1 of 2)

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**NOTE:**

THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREE.

- 1** THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS.

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Stabilizer Trim Jackscrew Setting
Figure 402/31-31-51-990-802 (Sheet 2 of 2)

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CONTROL COLUMN POSITION SENSOR - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
- (1) A removal of the control column position sensor.
 - (2) An installation of the control column position sensor.
 - (3) An installation test of the control column position sensor.

TASK 31-31-52-000-801

2. **Control Column Position Sensor Removal**

(Figure 401)

A. **References**

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)
27-41-51-000-801	Column Cutout Switch Removal (P/B 401)

B. **Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. **Access Panels**

Number	Name/Location
112A	Forward Access Door

D. **Removal Procedure**

SUBTASK 31-31-52-860-001

- (1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-52-860-002

- (2) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-52-010-001

- (3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 31-31-52-020-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE AREAS AROUND THE CONTROL SURFACES. IF POWER IS SUPPLIED TO THE CADC, THE AIRCRAFT CONTROL SURFACES CAN MOVE. SUDDEN MOVEMENT OF THE CONTROL SURFACES CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Column Cutout Switch Removal, TASK 27-41-51-000-801.

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SUBTASK 31-31-52-020-002

- (5) Remove the control column position sensor [1] from the Control Cutoff Switch Module:
 - (a) Turn the electrical connector [6] counterclockwise to remove the connector.
 - (b) Loosen the flex coupling screw.
 - (c) Remove the bolts [2] and washers [3].
 - (d) Remove the bolt [4] and clamp [5] to remove the cable from its mounting.
 - (e) Remove the control column position sensor [1] from the control cutoff switch module.

———— END OF TASK ————

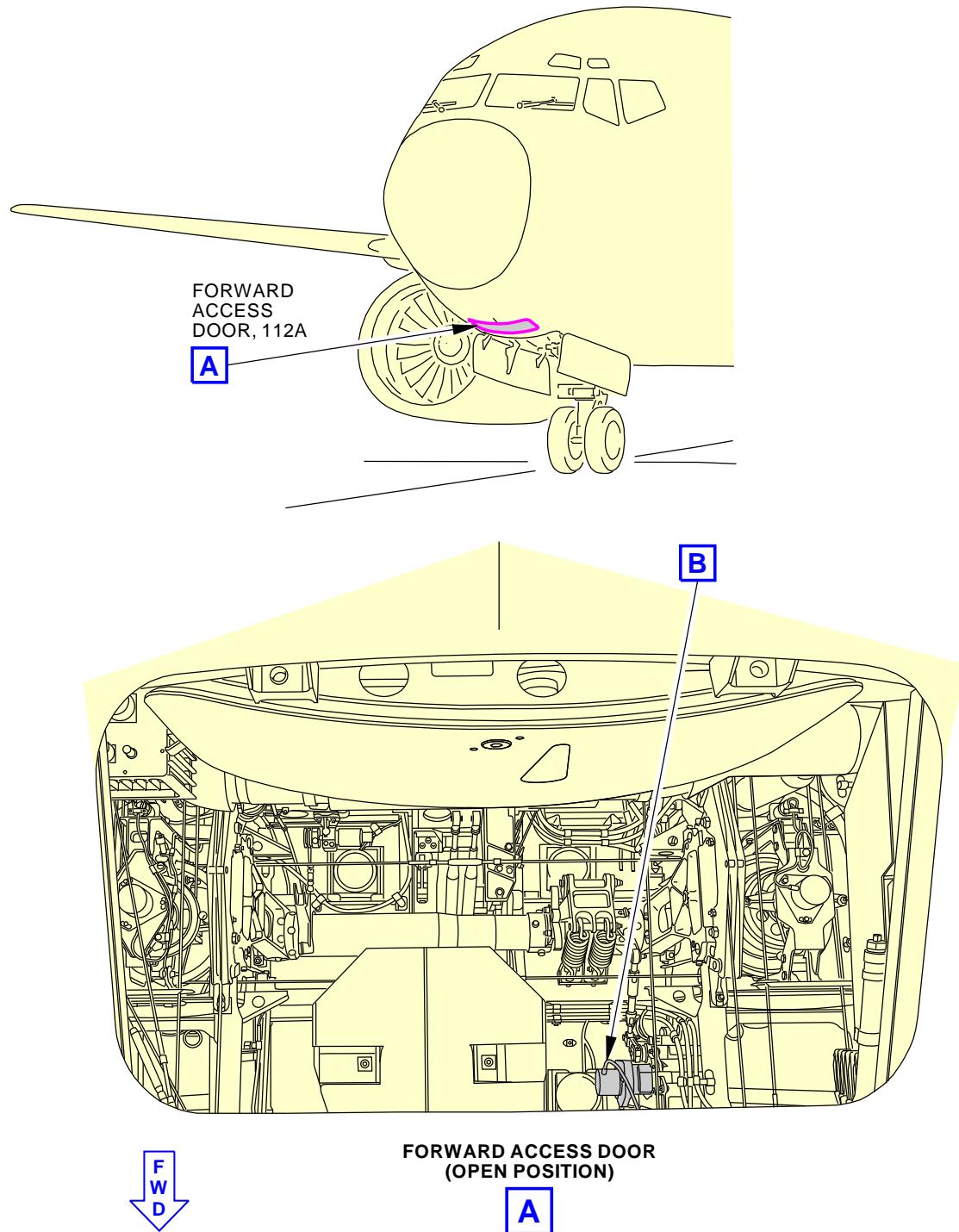
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Control Column Position Sensor Installation
Figure 401/31-31-52-990-801 (Sheet 1 of 2)

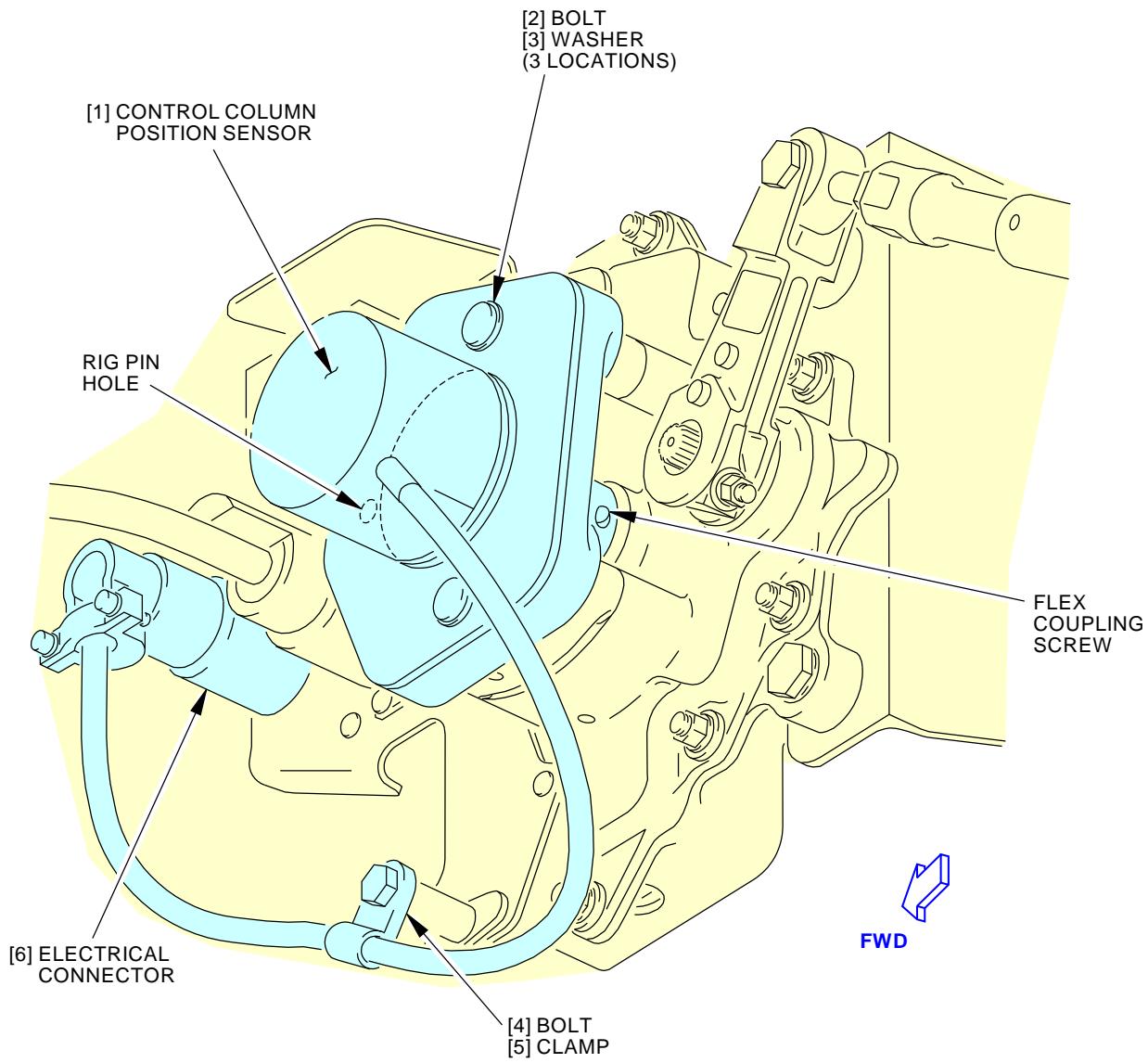
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CONTROL CUTOUT SWITCH (EXAMPLE)

B

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Control Column Position Sensor Installation
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TASK 31-31-52-400-801

3. Control Column Position Sensor Installation

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)
27-41-51-400-801	Column Cutout Switch Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G50136	Compound - Corrosion Inhibiting, Non-drying	BMS3-38
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38, NSN 6850-01-469-7645

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Sensor	27-41-51-02-160	AKS ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Installation Procedure

SUBTASK 31-31-52-860-003

- (1) If hydraulic systems are not depressurized, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-52-860-004

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-52-020-003

- (3) Install the control column position sensor [1]:

WARNING: USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (a) Apply Cor-Ban 27L Compound, G50237 (preferred) or corrosion inhibiting compound, G50136 (alternate) to the shaft of the sensor [1].

NOTE: Make sure the compound does not get on the sensor bearing. This can cause friction on the bearing.

- (b) Insert the shaft of the sensor [1] into the flex coupling.

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- (c) Install the bolts [2] and washers [3].
- (d) Tighten the flex coupling screw to 12-15 pound-inches (1.13-1.70 newton-meter).
- (e) Install the cable, bolt [4] and clamp [5].
- (f) Install the sensor electrical connector [6].

SUBTASK 31-31-52-420-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE AREAS AROUND THE CONTROL SURFACES. IF POWER IS SUPPLIED TO THE CADC, THE AIRCRAFT CONTROL SURFACES CAN MOVE. SUDDEN MOVEMENT OF THE CONTROL SURFACES CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Do this task: Column Cutout Switch Installation, TASK 27-41-51-400-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-52-840-001

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-52-410-001

- (2) If you do not accomplish the installation test immediately, close this access panel:

Number Name/Location

112A	Forward Access Door
------	---------------------

H. Control Column Position Sensor Installation Test

SUBTASK 31-31-52-410-004

- (1) Do this task: Control Column Position Sensor Installation Test, TASK 31-31-52-820-801.

———— END OF TASK ————

TASK 31-31-52-820-801

4. Control Column Position Sensor Installation Test

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)
27-11-00-860-802	Pressure to the Aileron Hydraulic Systems A and B - Activation (P/B 201)

B. Tools/Equipment

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



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Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: 0H231
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0065 Supplier: 06141 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: 17TES0043 Supplier: 06141
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Installation Test

SUBTASK 31-31-52-410-002

- (1) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 31-31-52-860-005

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.



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AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-31-52-860-006

- (3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-52-710-001

- (4) Use one of the testers listed below to perform the system test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch to the TEST position.

- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the FDR.



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- 3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
- 6) Set the WORD and SUBFRAME as specified.
- (c) Do these steps to prepare the Teledyne portable tester, COM-1807.
- 1) Remove the shorting plug from the system test plug on the P18 panel.
 - 2) Use the portable tester adapter cable, SPL-1808, to connect the portable tester to the system test plug.
 - 3) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.
 - 4) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.
 - 5) Set the portable tester to read 256 WPS.
- (d) Do the steps below to prepare the handheld download unit, COM-913 (HHDLU) for the system test.

NOTE: These steps are only applicable to airplanes with AlliedSignal Solid State Flight Data Recorder (FDR) installed.

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHDLU to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the red button on the HHDLU.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

NOTE: The HHDLU do not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

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SUBTASK 31-31-52-860-007

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-52-860-008

- (6) Make sure the flight data recorder TEST-NORMAL switch on the P5 panel to the TEST position.

SUBTASK 31-31-52-420-002

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE AREAS AROUND THE CONTROL SURFACES. IF POWER IS SUPPLIED TO THE CADC, THE AIRCRAFT CONTROL SURFACES CAN MOVE. SUDDEN MOVEMENT OF THE CONTROL SURFACES CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (7) Make sure the captain's control column is in the neutral position.
- Install rig pin kit, SPL-1585, rigging pin E-1 in the elevator forward quadrant, on the captains side Figure 402.
 - Install rig pin kit, SPL-1585, rigging pin ST-4 in the captains column, actuated cutout switch module Figure 402.

SUBTASK 31-31-52-863-001

WARNING: BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEM, MAKE SURE THAT THE REVERSERS, FLAPS, SPOILERS, NOSEWHEEL, ELEVATORS, RUDDER, SLATS, RUDDER PEDALS, AND CONTROL COLUMNS ARE CLEAR OF PERSONS AND EQUIPMENT. THIS WILL HELP PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (8) Do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802

SUBTASK 31-31-52-820-001

- (9) Do these steps to adjust the captain's control column position sensor [1]:
- Loosen the bolts [2].
 - Set the tester to subframe 0, word 6.
 - Rotate the body of the control column position sensor [1] slowly in each direction until you get an octal value between 7765 to 0013 on the tester.
 - Tighten the bolts [2] to 30-35 pound-inches (3.4-4 newton-meters).

SUBTASK 31-31-52-020-004

- (10) Remove rig pin kit, SPL-1585, rigging pin ST-4 from the captain's control column, actuated cutout switch module.



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SUBTASK 31-31-52-420-003

WARNING: BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEM, MAKE SURE THAT THE REVERSERS, FLAPS, SPOILERS, NOSEWHEEL, ELEVATORS, RUDDER, SLATS, RUDDER PEDALS, AND CONTROL COLUMNS ARE CLEAR OF PERSONS AND EQUIPMENT. THIS WILL HELP PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (11) Make sure the first officer's control column is in the neutral position.
 - (a) Ensure rig pin kit, SPL-1585, rigging pin E-1 is in the elevator forward quadrant, on the captains side Figure 402.
 - (b) Install rig pin kit, SPL-1585, rigging pin ST-4 in the first officers column, actuated cutout switch module Figure 403.

SUBTASK 31-31-52-820-002

- (12) Do this step for the first officer's control column position sensor [1]:
 - (a) Set the tester to subframe 0, word 12.
 - (b) Rotate the body of the control column position sensor [1] slowly in each direction until you get an octal value between 7765 to 0013 on the tester.
 - (c) Tighten the bolts [2] to 30-35 pound-inches (3.4-4 newton-meters).

SUBTASK 31-31-52-030-001

- (13) Remove the rigging pins.

SUBTASK 31-31-52-864-001

WARNING: MAKE SURE YOU REMOVE HYDRAULIC PRESSURE FROM ALL HYDRAULIC SYSTEMS BEFORE YOU DO THIS PROCEDURE. THIS WILL HELP PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (14) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801

SUBTASK 31-31-52-410-003

- (15) Close this access panel:

Number Name/Location

112A Forward Access Door

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-52-860-009

- (1) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the NORMAL position.

SUBTASK 31-31-52-840-003

- (2) Remove power from the tester.

SUBTASK 31-31-52-860-010

- (3) Remove the tester.

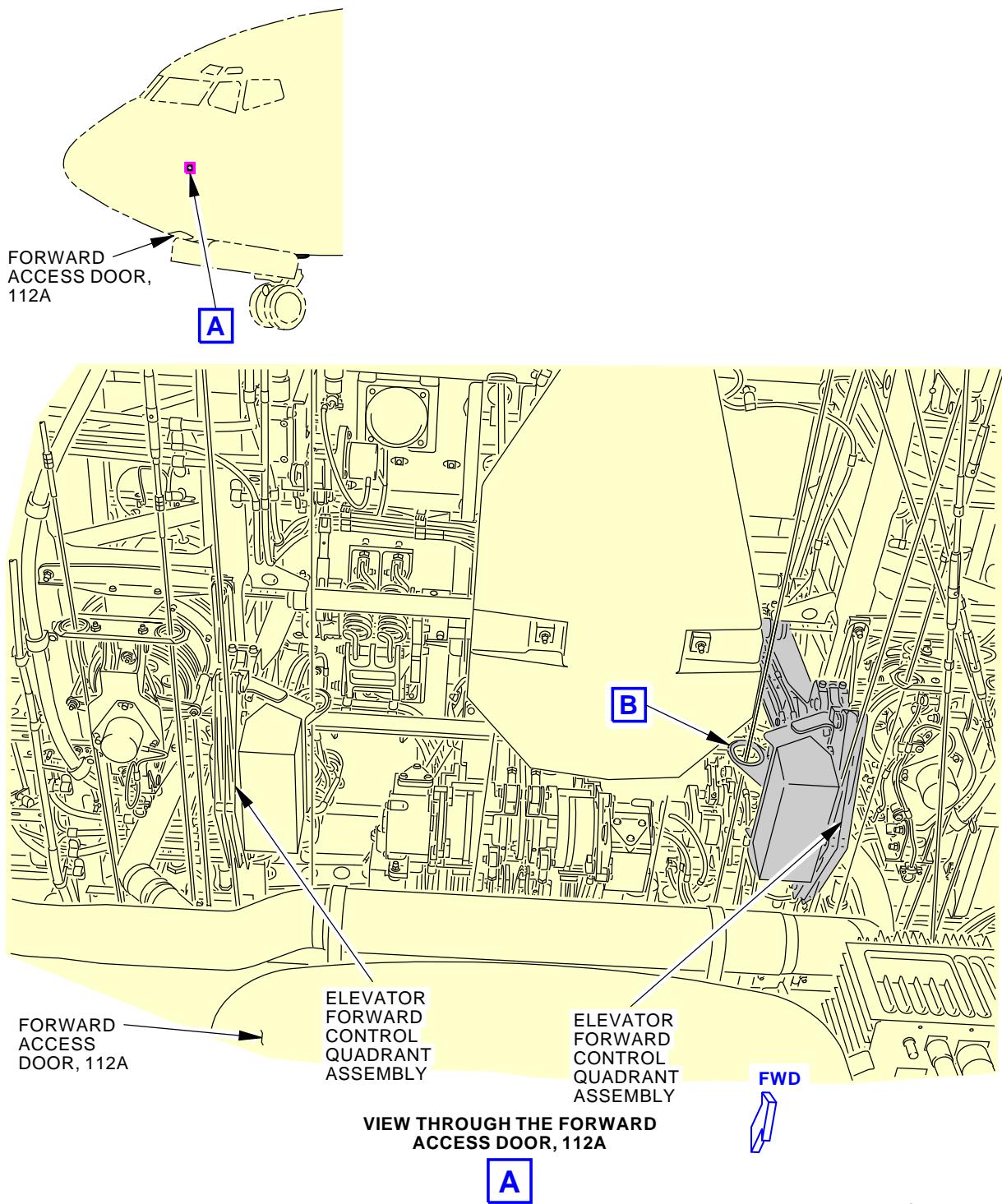
SUBTASK 31-31-52-860-011

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

———— END OF TASK ————



31-31-52



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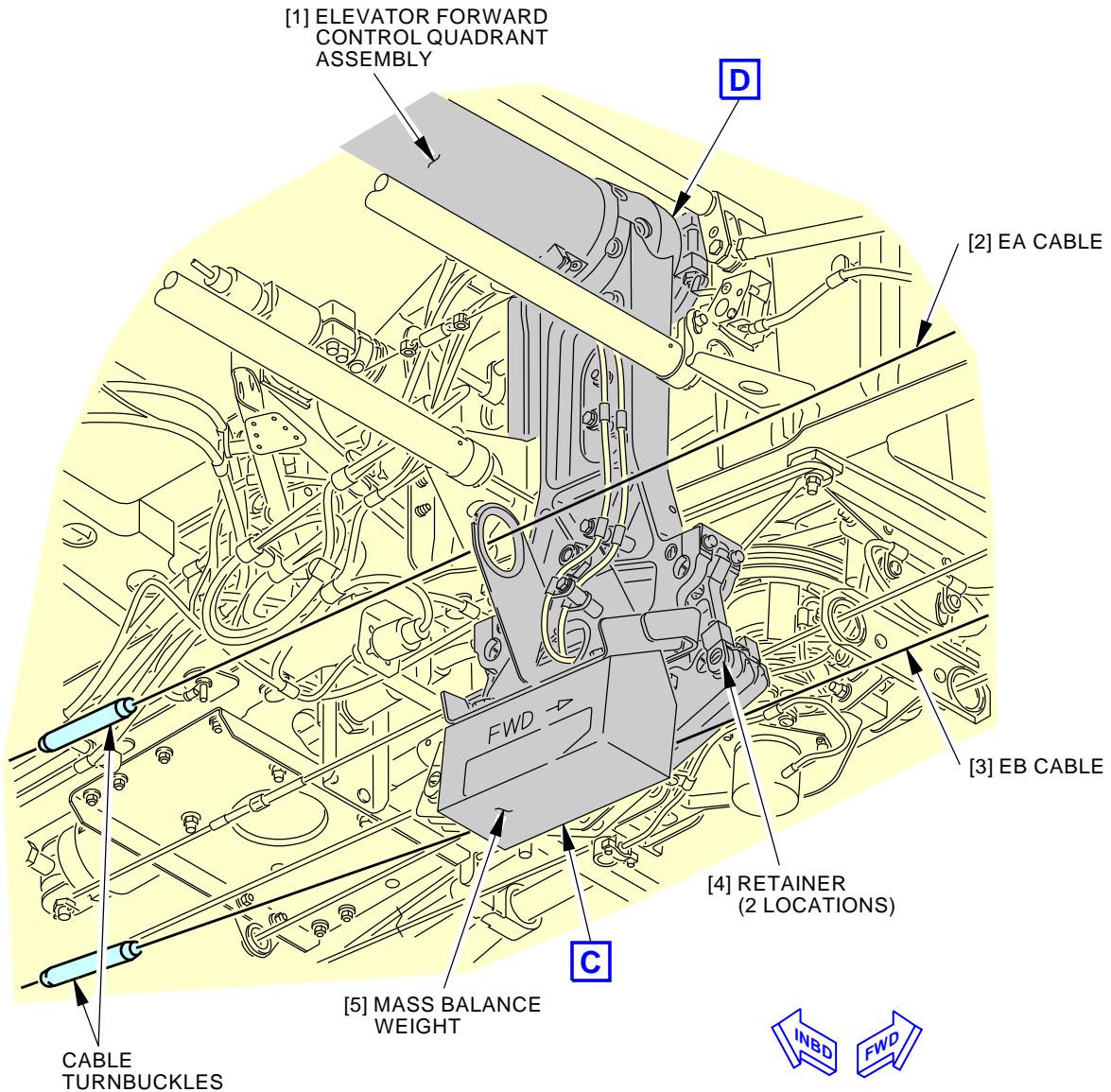
Elevator Forward Control Quadrant - Rig Pin Location - E-5 and E-1
Figure 402/31-31-52-990-802 (Sheet 1 of 4)

EFFECTIVITY
AKS ALL

31-31-52

D633A101-AKS

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(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

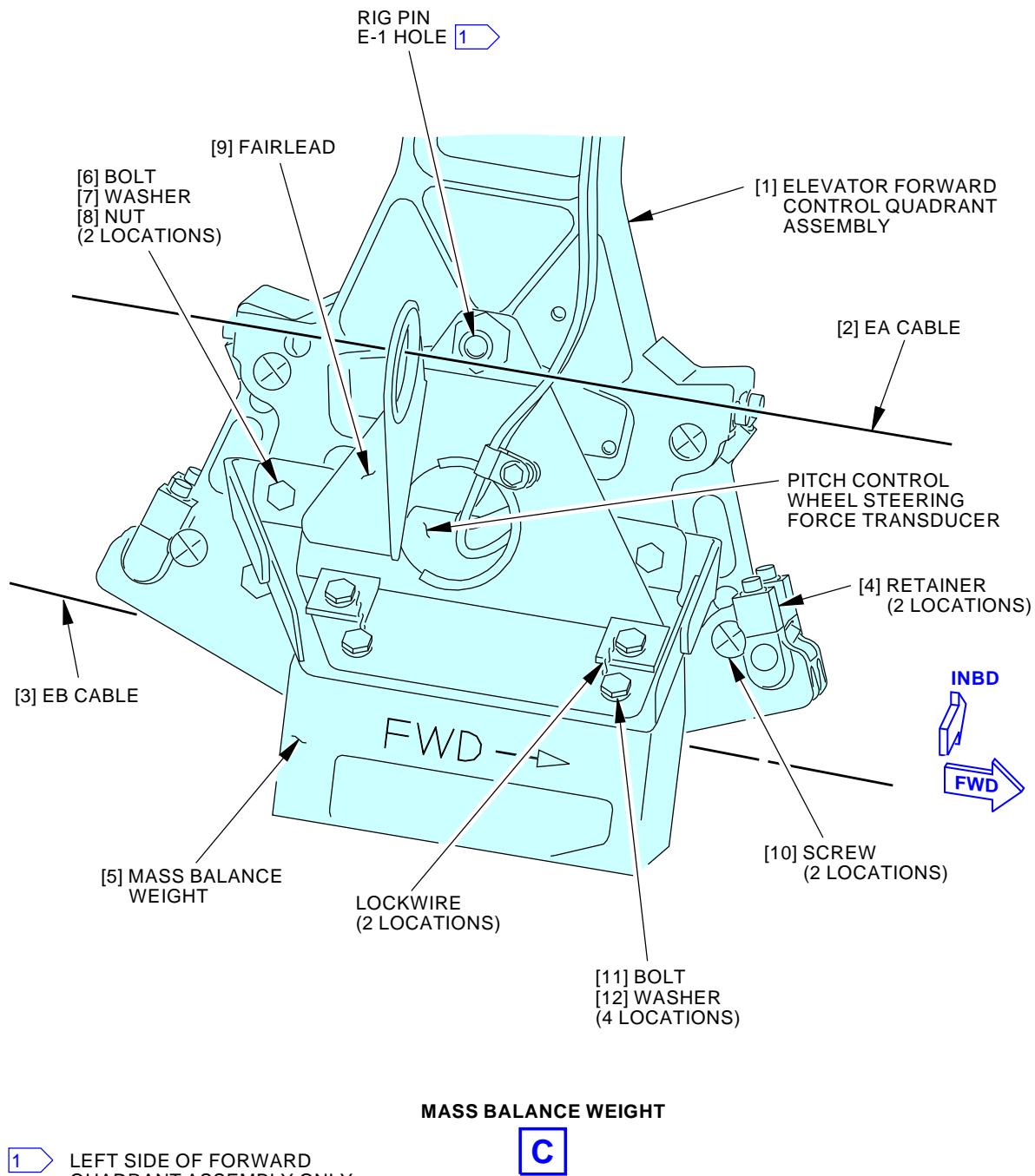
B

F67101 S0006569534_V2

Elevator Forward Control Quadrant - Rig Pin Location - E-5 and E-1
Figure 402/31-31-52-990-802 (Sheet 2 of 4)

EFFECTIVITY
AKS ALL

31-31-52



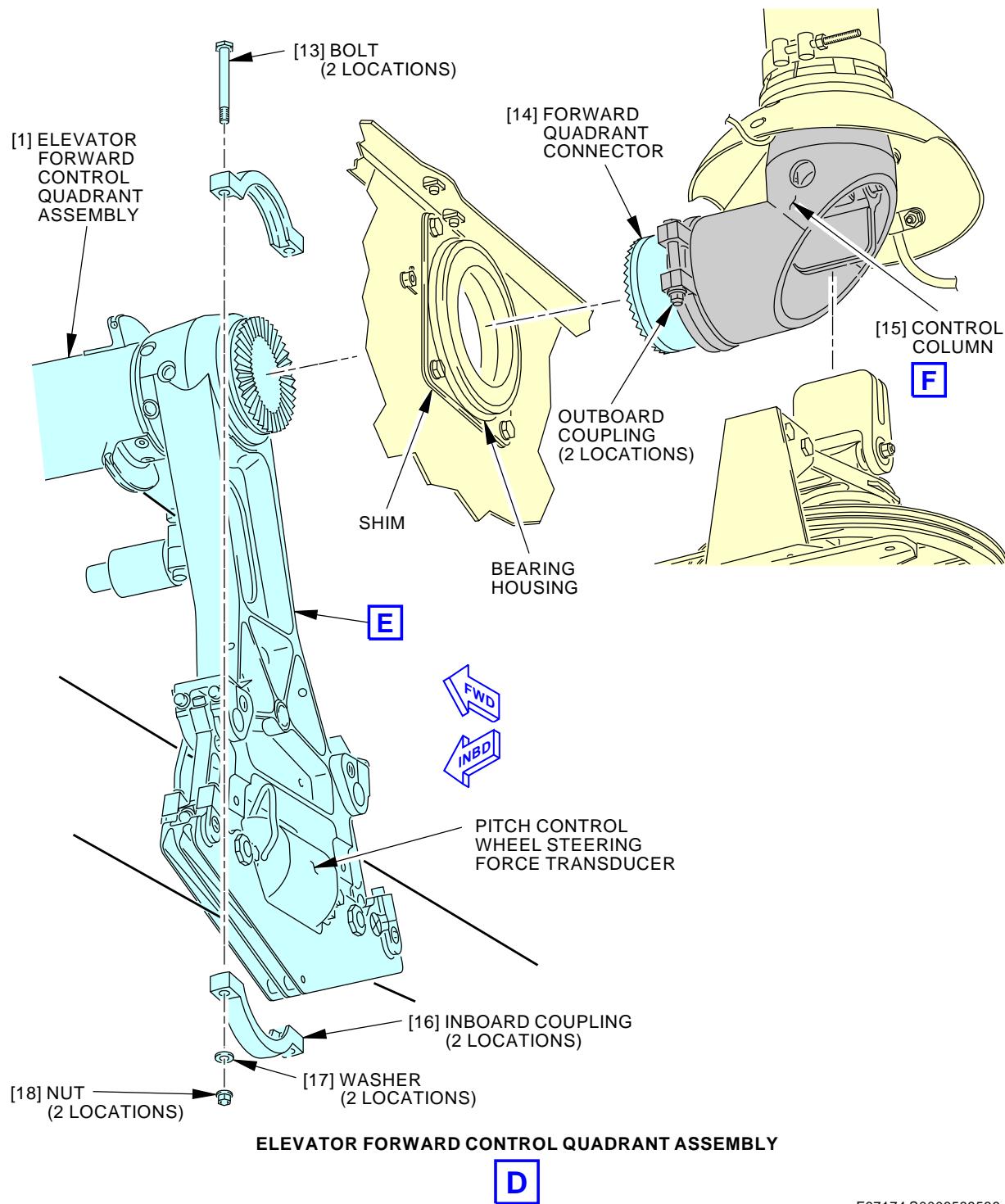
F67167 S0006569535_V2

Elevator Forward Control Quadrant - Rig Pin Location - E-5 and E-1
Figure 402/31-31-52-990-802 (Sheet 3 of 4)

EFFECTIVITY
 AKS ALL

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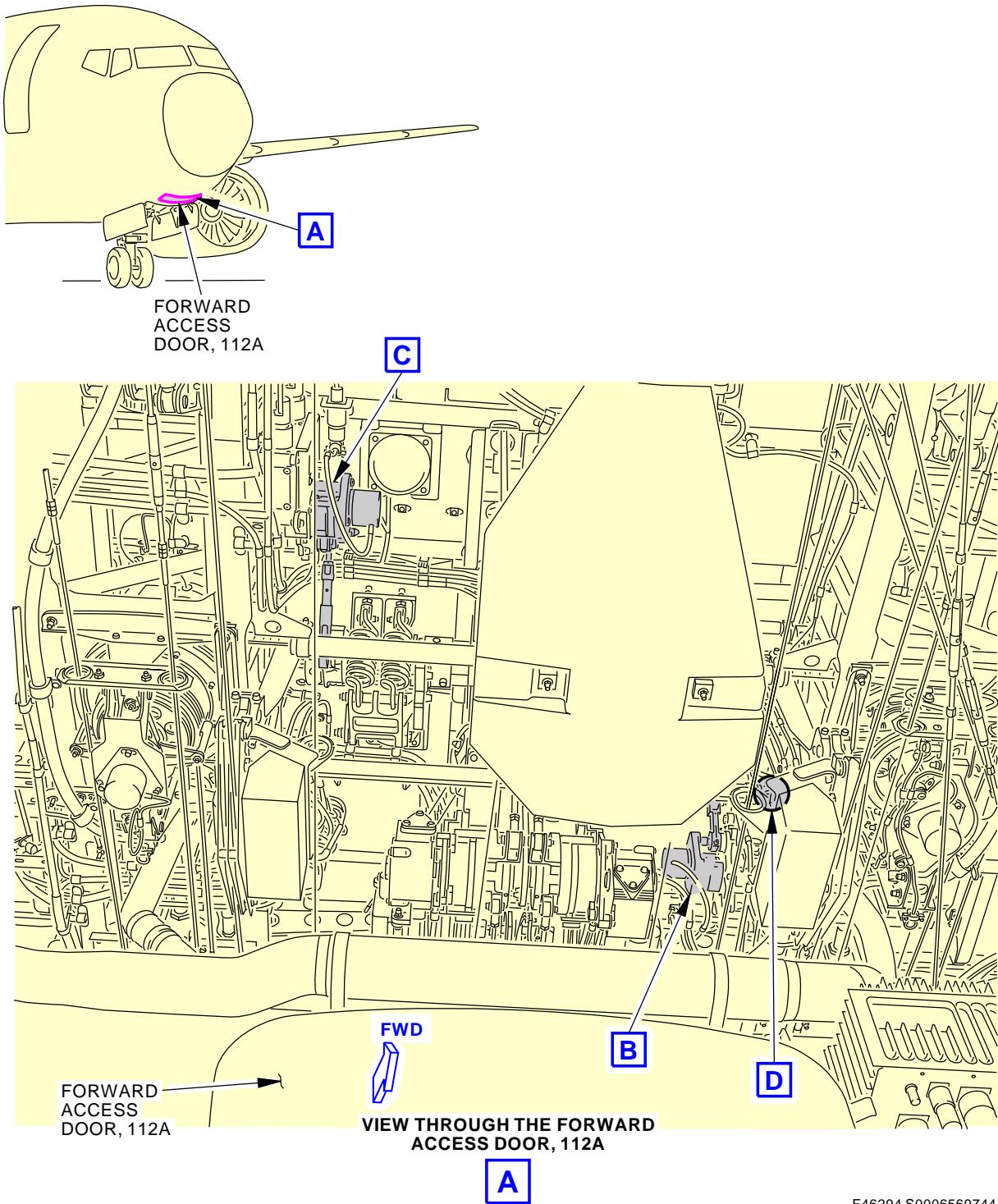


F67174 S0006569536_V2

Elevator Forward Control Quadrant - Rig Pin Location - E-5 and E-1
Figure 402/31-31-52-990-802 (Sheet 4 of 4)

EFFECTIVITY
AKS ALL

31-31-52



F46294 S0006569744_V2

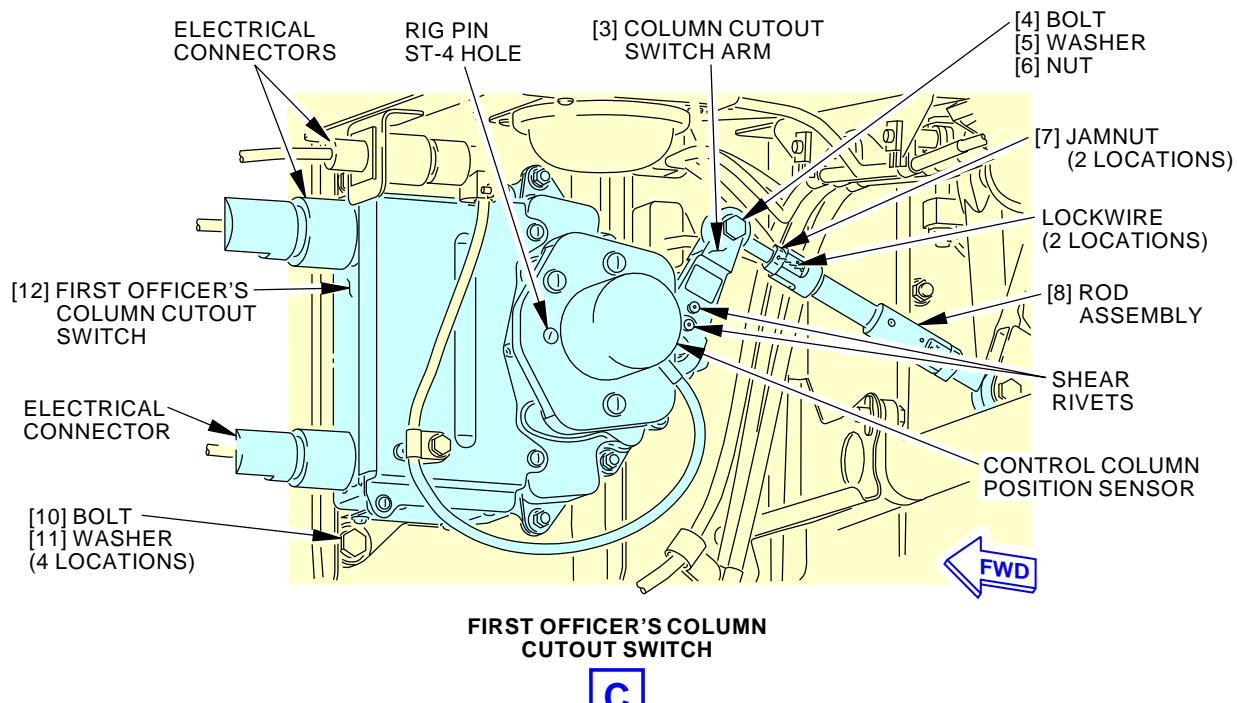
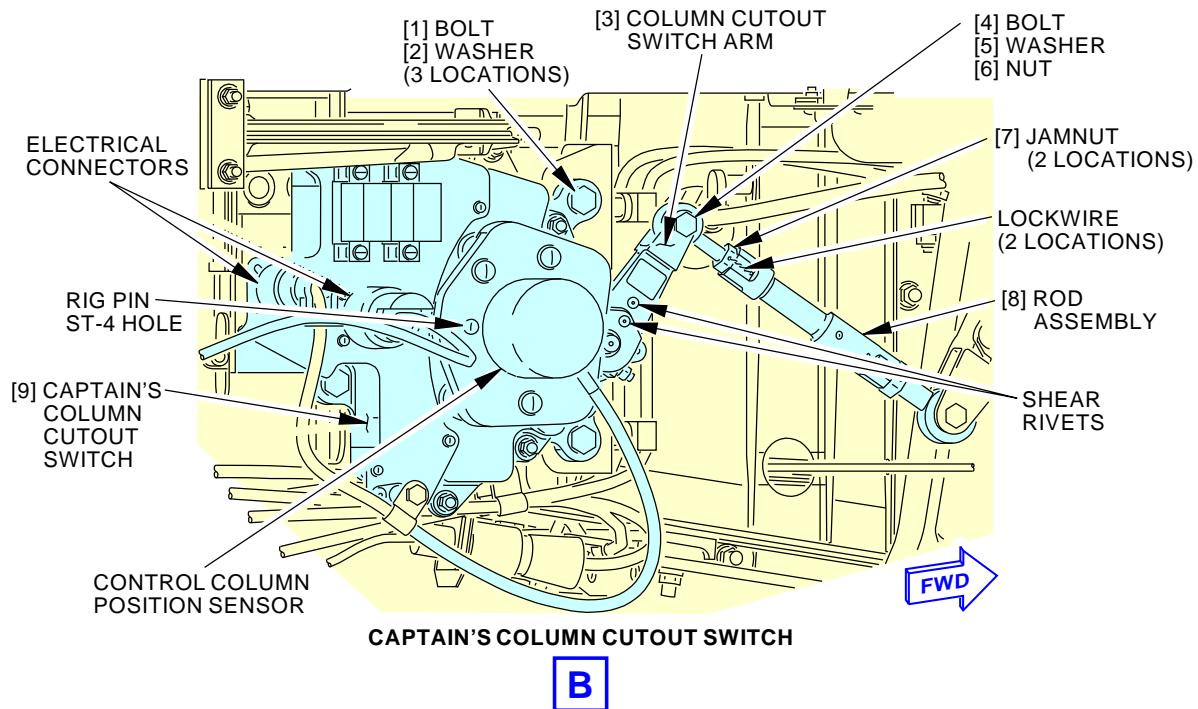
Column Cutout Switch - Rig Pin Location - ST-4
Figure 403/31-31-52-990-803 (Sheet 1 of 2)

EFFECTIVITY
AKS ALL

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F46298 S0006569745_V3

Column Cutout Switch - Rig Pin Location - ST-4
Figure 403/31-31-52-990-803 (Sheet 2 of 2)

EFFECTIVITY
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31-31-52



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BRAKE PRESSURE TRANSMITTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the brake pressure transmitters (T492, T493, T494, T495).
 - (2) An installation of the brake pressure transmitters (T492, T493, T494, T495).
 - (3) An installation test of the main and alternate brake pressure transmitters.

TASK 31-31-61-000-801

2. Brake Pressure Transmitter Removal

(Figure 401)

A. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Removal Procedure

SUBTASK 31-31-61-860-001

- (1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-61-020-001

WARNING: MAKE SURE THE DOWNLOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR.
WITHOUT THE DOWNLOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE
INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure the downlocks for the main landing gear are installed in the nose and the main landing gear.

SUBTASK 31-31-61-020-002

- (3) Make sure to put chocks on the wheels (CHOCK INSTALLATION,
PAGEBLOCK 10-11-05/201).

SUBTASK 31-31-61-020-004

- (4) Remove pressure from the left, right and center hydraulic system and the hydraulic reservoirs.
To remove hydraulic pressure, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.

SUBTASK 31-31-61-020-005

- (5) Pump the brake pedal fully seven to eight times to let out the hydraulic pressure from the brake accumulator.

SUBTASK 31-31-61-020-006

- (6) Do these steps to remove the alternate brake transmitter (T494 or T495):
 - (a) Disconnect the electrical connector [3] from the brake pressure transmitter [1].

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- (b) Loosen the nut [2].
- (c) Pull the hydraulic tube [4] away from the transmitter [1].
- (d) Install a plug to the hydraulic tube [4].
- (e) Remove the lockwire [7] from the transmitter [1].
- (f) Remove nut [2] and washer [5].
- (g) Remove the transmitter [1].

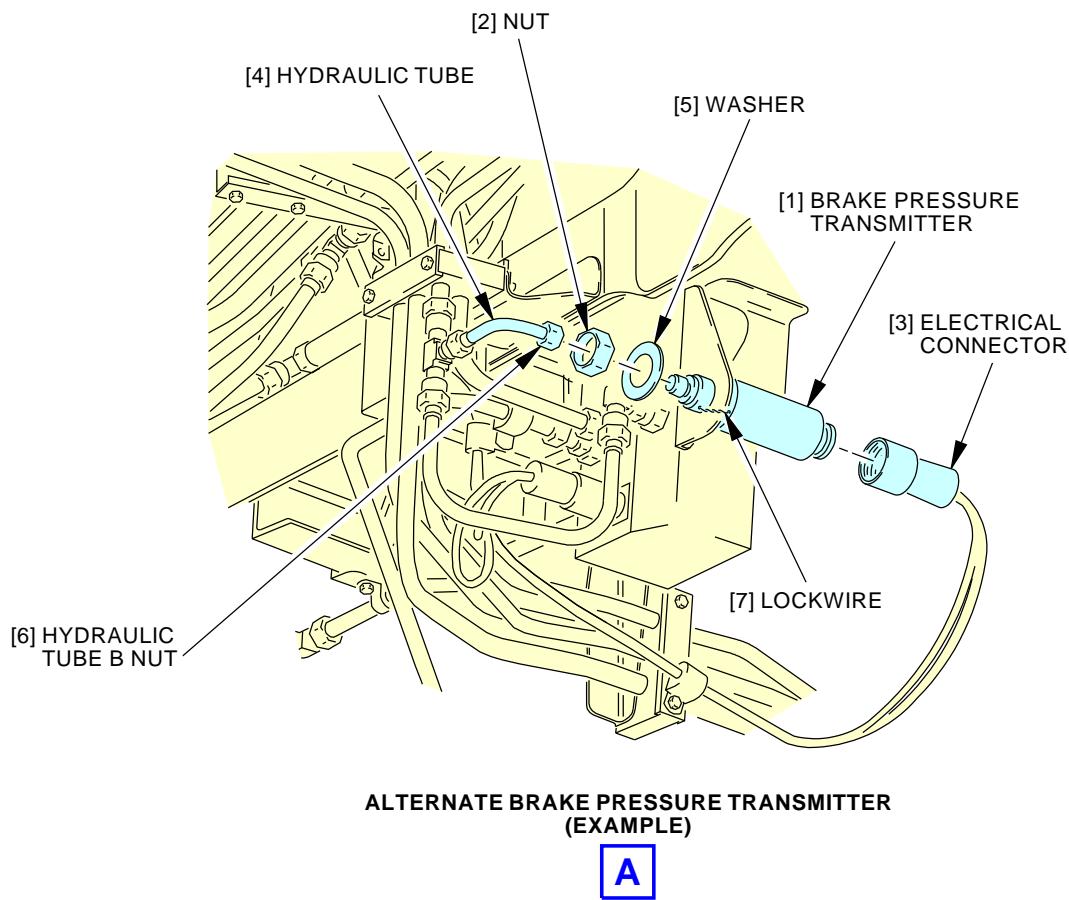
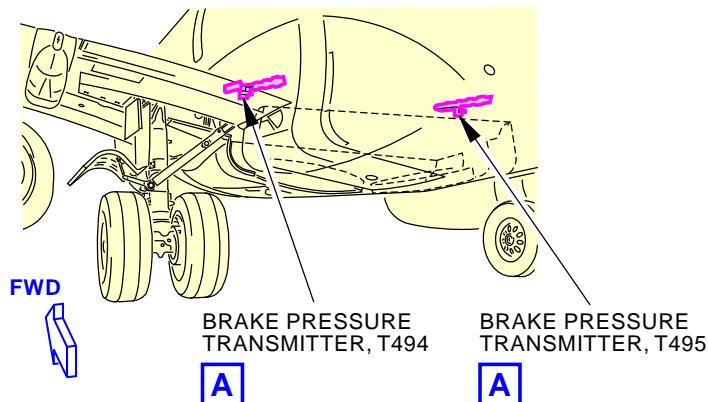
SUBTASK 31-31-61-020-007

- (7) Do these steps to remove the main brake pressure transmitter (T492 or T493):
 - (a) Disconnect the electrical connector [8] from the transmitter [1].
 - (b) Loosen the nut [11].
 - (c) Pull the hydraulic tube [9] away from the transmitter [1].
 - (d) Install a plug to the hydraulic tube [9].
 - (e) Remove the lockwire [13] from the transmitter [1].
 - (f) Remove nut [11] and washer [10].
 - (g) Remove the transmitter [1].

———— END OF TASK ————

EFFECTIVITY
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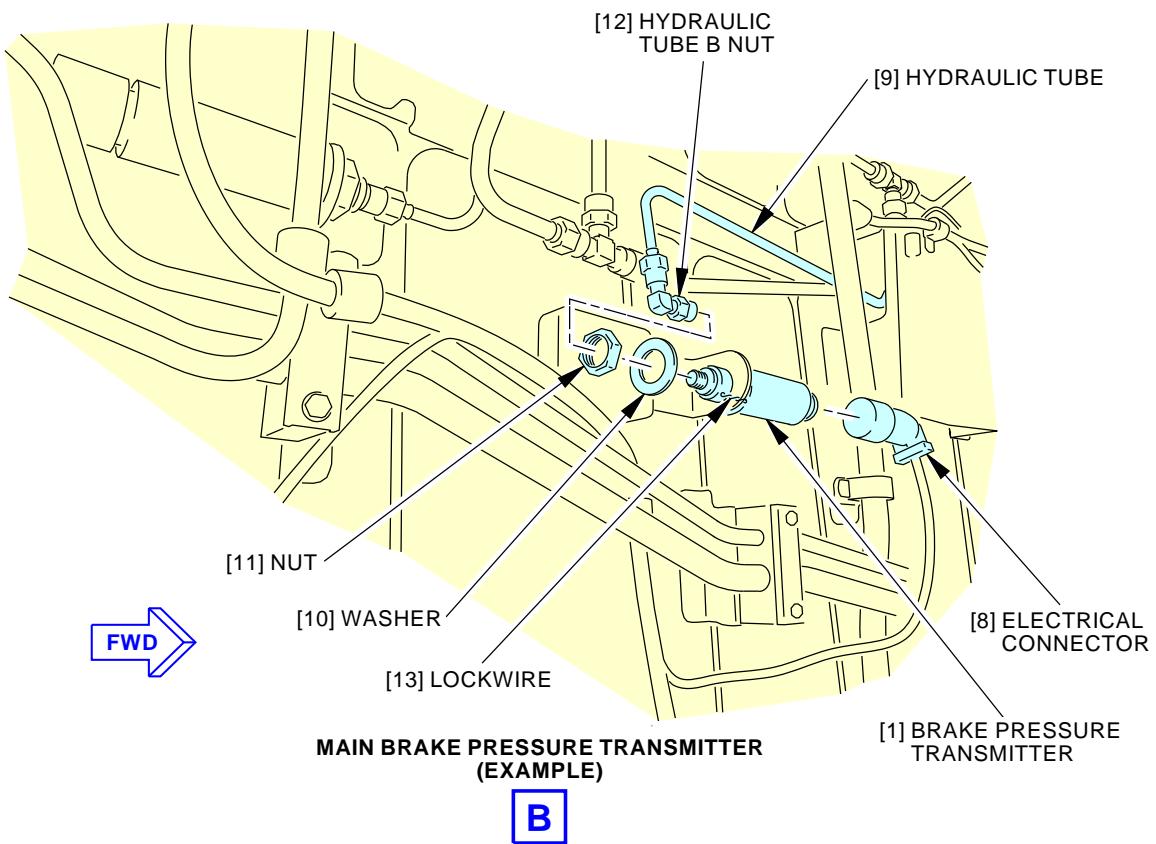
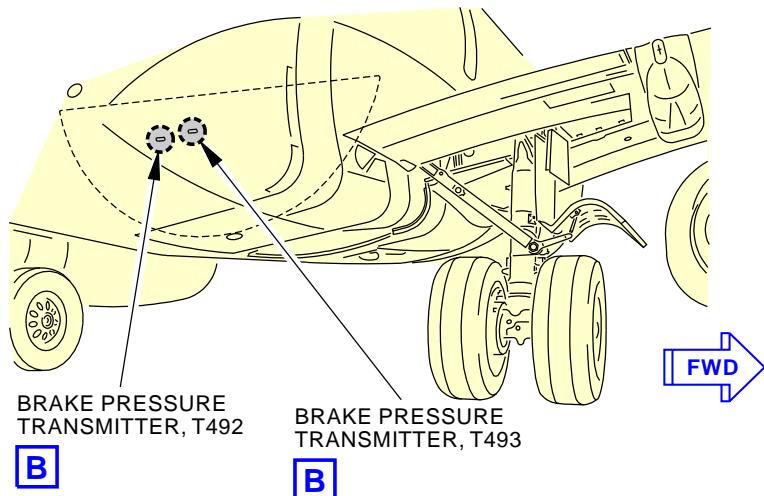
L68751 S0006574508_V2

Brake Pressure Transducer Installation
Figure 401/31-31-61-990-801 (Sheet 1 of 2)

EFFECTIVITY
AKS ALL

31-31-61

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M34078 S0006574509_V2

**Brake Pressure Transducer Installation
Figure 401/31-31-61-990-801 (Sheet 2 of 2)**

 EFFECTIVITY
AKS ALL

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AIRCRAFT MAINTENANCE MANUAL

TASK 31-31-61-400-801

3. Brake Pressure Transmitter Installation

(Figure 401)

A. References

Reference	Title
20-10-34-110-801	Remove Paint from Metal Surfaces with Lacquer Thinner or Solvent (P/B 701)
27-11-00-860-801	Pressure from the Aileron Hydraulic Systems A and B - Deactivation (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meters - 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 #: C15292 (MODEL T477W) Supplier: 01014 Part #: M1 Supplier: 3AD17 Opt Part #: M1B Supplier: 3AD17

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Transmitter	31-31-60-01-015	AKS ALL
		31-31-60-02-015	AKS ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

F. Installation Procedure

SUBTASK 31-31-61-860-002

- (1) If hydraulic systems are not depressurized, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.



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SUBTASK 31-31-61-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-61-100-001

WARNING: MAKE SURE THE GROUND LOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE GROUND LOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Do these steps to prepare the bonding areas for installation:

- (a) Clean the bonding surfaces to remove paint or alodine from metal surfaces. To remove paint or alodine, do this task: Remove Paint from Metal Surfaces with Lacquer Thinner or Solvent, TASK 20-10-34-110-801.
- (b) Apply solvent, B00083 to bonding surfaces with a cotton wiper, G00034.
- (c) Rub the necessary force to remove contamination you can see.
- (d) Immediately dry the surfaces with a cotton wiper, G00034.

SUBTASK 31-31-61-020-010

- (4) Do these steps to install the alternate brake pressure transmitter [1]:

- (a) Install the transmitter [1] to the bracket.
- (b) Install washer [5] and nut [2].
- (c) Tighten the nut [2] to 144-159 in-lbs.
- (d) Apply sealant, A00247 along the edges of the joint between the electrical faying surface to form a fillet seal.
- (e) Apply chemical conversion coating manually to the bare aluminum surfaces that is not covered by electrical faying surfaces.
- (f) Apply primer, C00259 to the bonding surfaces.
- (g) Measure the resistance between the structure and the bracket with a intrinsically safe approved bonding meter, COM-1550.
 - 1) Make sure the resistance value is less than 0.025 ohms.
- (h) Install lock wires [7].
- (i) Remove the plug from the hydraulic tube [4].
- (j) Install hydraulic tube to the transmitter [1].
- (k) Tighten the hydraulic tube B nut [6].
- (l) Install electrical connector [3] to the transmitter [1].

SUBTASK 31-31-61-020-011

- (5) Do these steps to install the main brake pressure transmitter [1] (T492, T493):

- (a) Install the main brake pressure transmitter [1] to the bracket.
- (b) Install washer [10] and nut [11].
- (c) Tighten the nut [11] to 144-159 in-lbs.
- (d) Apply sealant, A00247 along the edges of the joint between the electrical faying surface to form a fillet seal.

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- (e) Apply chemical conversion coating manually to the bare aluminum surfaces that is not covered by electrical faying surfaces.
- (f) Apply primer, C00259 to the bonding surfaces.
- (g) Measure the resistance between the structure and the bracket with a intrinsically safe approved bonding meter, COM-1550.
 - 1) Make sure the resistance value is less than 0.025 ohms.
- (h) Install lock wires [13].
- (i) Remove the plug from the hydraulic tube [9].
- (j) Install hydraulic tube to the transmitter [1].
- (k) Tighten the hydraulic tube B nut [12].
- (l) Install electrical connector [8] to the transmitter [1].

SUBTASK 31-31-61-840-001

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 31-31-61-410-001

- (7) Do this task: Brake Pressure Transmitter Installation Test, TASK 31-31-61-820-801.

———— END OF TASK ———

TASK 31-31-61-820-801

4. Brake Pressure Transmitter Installation Test

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: 0H231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: 0H231

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(Continued)

Reference	Description
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0065 Supplier: 06141 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: 17TES0043 Supplier: 06141
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Installation Test

SUBTASK 31-31-61-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-61-710-001

- (2) Use one of the testers listed below to perform the installation test:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes.

Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 thru 4 when a task uses subframe 0.

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750



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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch in the TEST position.
- 5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553
 - 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the FDR.
- 3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
- 6) Set the WORD and SUBFRAME as specified.

- (c) Do these steps to prepare the Teledyne portable tester, COM-1807.

- 1) Remove the shorting plug from the system test plug on the P18 panel.
- 2) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 3) Use the portable tester adapter cable, SPL-1808, to connect the portable tester, COM-1807, to the system test plug.
- 4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 5) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.



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- 6) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.
 - 7) Set the portable tester, COM-1807, to read 256 WPS.
- (d) Do these steps to prepare the handheld download unit, COM-913.

NOTE: These steps are only applicable to airplanes with AlliedSignal Solid State Flight Data Recorder (FDR).

- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Push the red button on the handheld download unit, COM-913.
- 5) Set the DSDU switch.
- 6) Set the BASE switch.
- 7) Set the WORD and SUBFRAME as specified.

NOTE: The HHDLU do not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

SUBTASK 31-31-61-860-007

- (3) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the TEST position.

SUBTASK 31-31-61-860-008

- (4) Make sure the parking brake is off.

SUBTASK 31-31-61-860-009

- (5) Do these steps to do an installation test of the alternate brake pressure transmitters, T494 or T495:

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WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (a) Supply hydraulic pressure for system A. To supply hydraulic pressure for system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.
 - 1) Make sure system B does not have hydraulic pressure. If system B has hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - 2) Make sure the standby hydraulic system does not have hydraulic pressure. If the standby hydraulic system has pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.
- (b) For T494, left alternate brake pressure transmitter, do these steps:
 - 1) Set the tester to subframe 0, word 122 (Dataframe 7).
 - 2) Push and hold the captain's left brake pedal fully against the stop.
- (c) For T495, right alternate brake pressure transmitter, do these steps:
 - 1) Set the tester to subframe 0, word 250 (Dataframe 7).
 - 2) Push and hold the captain's right brake pedal fully against the stop.
- (d) Find a value in the table below that best agrees with the value for the hydraulic system pressure.
 - 1) Make sure the octal value that shows on the tester agrees with the octal value shown in the table below:

Table 401/31-31-61-993-801

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)

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Table 401/31-31-61-993-801 (Continued)

Hydraulic Pressure	Tester Display (octal)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

- (e) Release the captain's brake pedal.

SUBTASK 31-31-61-860-010

- (6) Do these steps to do an installation test of the main brake transmitters (T492 or T493):

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES, CABLES, LANDING GEAR AND LANDING GEAR DOORS. THE CONTROL SURFACES, LANDING GEAR AND LANDING GEAR DOORS CAN MOVE WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEMS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD AND OUTBOARD THRUST REVERSER COWLS ARE IN THE CLOSED POSITION BEFORE YOU DO THIS TEST. YOU CAN CAUSE DAMAGE TO THE FLAPS AND COWLS IF THE COWLS ARE OPEN WHEN THE FLAPS EXTEND.

CAUTION: DO NOT OPERATE THE ELECTRIC MOTOR-DRIVEN PUMP (EMDP) MORE THAN TWO MINUTES UNLESS THE FUEL TANKS CONTAIN MORE THAN 1675 LBS (761 KG) OF FUEL. IF THE PUMP OPERATES FOR TWO MINUTES WITHOUT THE REQUIRED FUEL IN THE TANK, ALLOW THE RESERVOIR TO RETURN TO AMBIENT TEMPERATURE BEFORE YOU OPERATE THE PUMP AGAIN.

- (a) Supply hydraulic pressure for system B. To supply hydraulic pressure for system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.
- 1) Make sure system A does not have hydraulic pressure. If system A has hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.
 - 2) Make sure the standby hydraulic system does not have hydraulic pressure. If the standby hydraulic system has pressure, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.
- (b) Do these steps for the left main brake transmitter, T492;
- 1) Set the tester to subframe 0, word 58 (Dataframe 7).
 - 2) Push and hold the captain's left brake pedal fully against the stop.
- (c) Do these steps for the right main brake transmitter, T493;
- 1) Set the tester to subframe 0, word 186 (Dataframe 7).
 - 2) Push and hold the captain's right pedal fully against the stop.
- (d) Find a value in the table below that best agrees with the value for the hydraulic system pressure.
- 1) Make sure the octal value that shows on the tester agrees with the octal value shown in the table below:

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Table 402/31-31-61-993-802

Hydraulic Pressure	Tester Display (octal)
2400	5525 to 6131 (nominal 5727)
2500	5713 to 6317 (nominal 6115)
2600	6101 to 6505 (nominal 6303)
2700	6267 to 6673 (nominal 6471)
2800	6456 to 7062 (nominal 6660)
2900	6644 to 7250 (nominal 7046)
3000	7032 to 7436 (nominal 7234)
3100	7220 to 7624 (nominal 7422)
3200	7406 to 7777 (nominal 7610)
3300	7574 to 7777 (nominal 7777)

(e) Release the captain's brake pedal.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-61-860-011

- (1) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the NORMAL position.

SUBTASK 31-31-61-840-002

- (2) Remove power from the tester.

SUBTASK 31-31-61-860-012

- (3) Remove the tester.

SUBTASK 31-31-61-860-013

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

———— END OF TASK ————

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FLIGHT DATA RECORDER ACCELEROMETER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the flight data recorder accelerometer.
 - (2) An installation of the flight data recorder accelerometer.

TASK 31-31-81-000-801

2. Flight Data Recorder Accelerometer Removal

(Figure 401)

A. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

B. Removal Procedure

SUBTASK 31-31-81-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

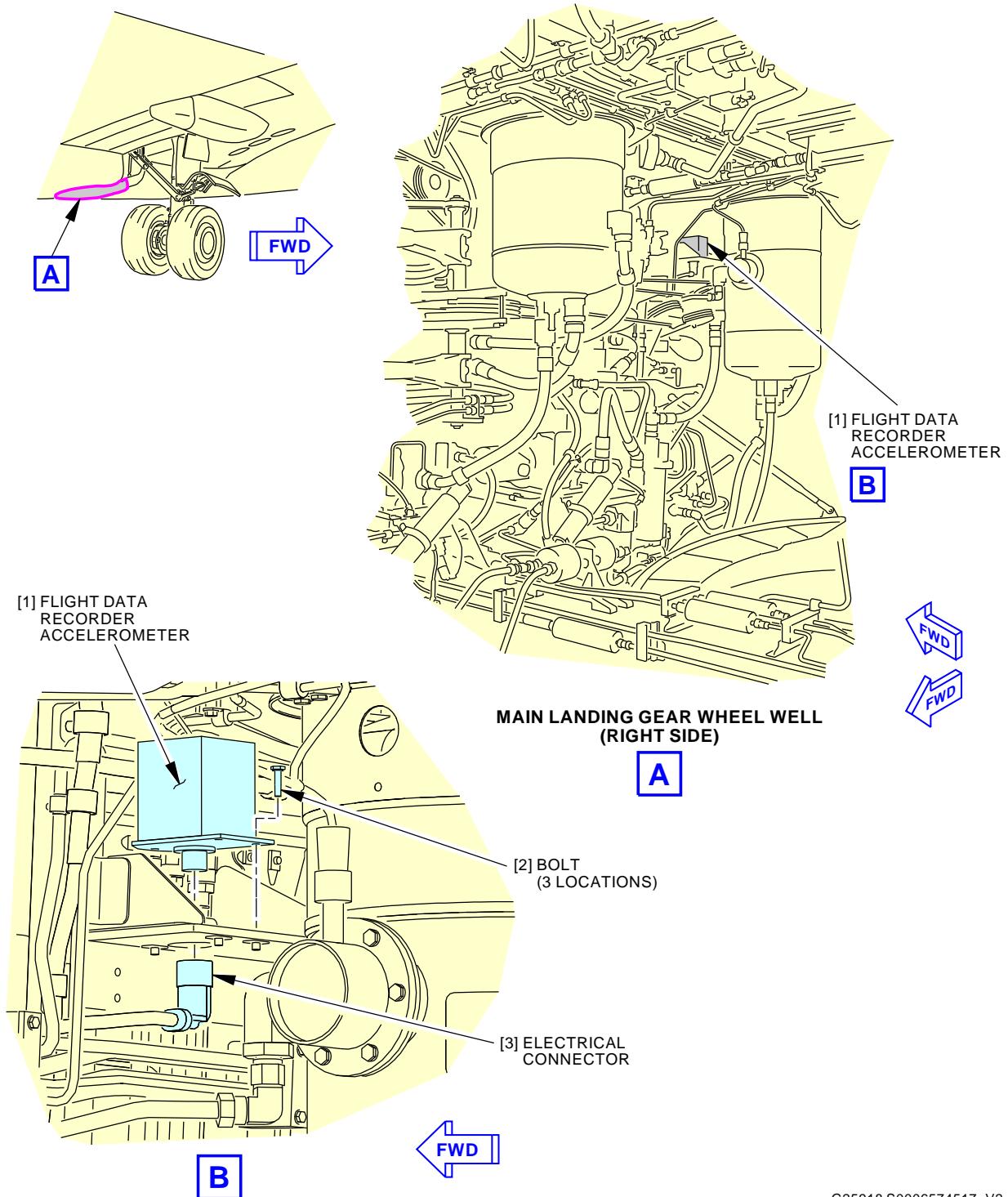
SUBTASK 31-31-81-020-001

- (2) Remove the flight data recorder accelerometer [1]:
 - (a) Disconnect the electrical connector [3] from the flight data recorder accelerometer [1].
 - (b) Remove the bolts [2].
 - (c) Remove the flight data recorder accelerometer [1].

———— END OF TASK ————

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Flight Data Recorder Accelerometer Installation
Figure 401/31-31-81-990-801

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TASK 31-31-81-400-801

3. Flight Data Recorder Accelerometer Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
31-31-00-730-801	Flight Data Recorder System - System Test (P/B 501)

B. Tools/Equipment

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

Reference	Description
COM-913	Download Unit - Handheld Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-1807	Tester - DFDAU Part #: 2229738-7 Supplier: 98571 Part #: TS-UA1401-01 Supplier: OH231 Opt Part #: 2229738-8 Supplier: 98571 Opt Part #: HT717-1 Supplier: OH231
COM-2550	Unit - Download, Hand-Held (Solid State DFDR only) Part #: 69001074-060 Supplier: 97896 Opt Part #: 964-0446-001 Supplier: 97896
COM-2553	Unit - Interface, Portable (PI) Part #: 17TES0065 Supplier: 06141 Part #: FDS400-301 Supplier: Z7C70 Opt Part #: 17TES0043 Supplier: 06141
COM-4132	Multi-Purpose AIDS Display Unit (MADU) Part #: FAA-0032-005 Supplier: 4Z487
COM-10631	Display Unit - Digital, Signal Part #: TS-UA1401-01 Supplier: OH231 Opt Part #: HT717-1 Supplier: OH231
COM-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Adapter, HHMPI (Honeywell SSDFDR only) Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Adapter, HHMPI (Honeywell HFR5-D only) Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Adapter, HHMPI (L-3 Comm FA2100 DFDR only) Part #: FDS40-0202 Supplier: Z7C70
COM-13750	Cable - Adapter, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS400-201 Supplier: Z7C70
SPL-1808	Cable - Adapter (Use with Teledyne DFDAU Flight Line Tester P/N 2229738) Part #: A31007-59 Supplier: 81205

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C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Accelerometer	31-31-81-01-020	AKS ALL
		31-31-81-01-050	AKS ALL

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Installation Procedure

SUBTASK 31-31-81-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-81-200-001

- (2) Make sure the flight data recorder accelerometer [1] does not have external damage.

SUBTASK 31-31-81-020-002

- (3) Install the flight data recorder accelerometer [1]:

- (a) Install the flight data recorder accelerometer [1] onto the mounting bracket.
- (b) Install the bolts [2].
- (c) Install the electrical connector [3].

F. Installation Test

NOTE: This is not a full system test. If you think that a full test is necessary, do the system test (TASK 31-31-00-730-801).

SUBTASK 31-31-81-710-001

- (1) Use one of the testers listed below to perform the system test:

- (a) Do these steps to prepare the Flight Data Systems Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694
 - 1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the HHMPI cable to the SSFDR:

- HHMPI Adapter Cable (L-3 Comm FA2100 DFDR), COM-13697
- HHMPI Adapter Cable (Honeywell SSDFDR), COM-13695
- HHMPI Adapter Cable (Honeywell HFR5-D), COM-13696
- HHMPI Adapter Cable (L-3 Comm F1000 DFDR), COM-13750



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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the TEST-NORMAL switch to the TEST position.
5) Select LIVE DATA VIEW on the HHMPI.

NOTE: Once the parameters start loading scroll through each data sub frame using the up and down arrows. Use the left and right arrows to view through the word numbers.

- (b) Do these steps to prepare the L3 portable interface unit, COM-2553
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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the L3 portable interface unit, COM-2553 to the connector on the FDR.
3) 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
5) Put the cursor on FDR: Word Monitor in the Main Menu and push SELECT.
6) Set the WORD and SUBFRAME as specified.

- (c) Do these steps to prepare the Teledyne portable tester, COM-1807.
1) Remove the shorting plug from the system test plug on the P18 panel.
2) Use the portable tester adapter cable, SPL-1808, to connect the portable tester, COM-1807, to the system test plug.
3) Make sure the DFDAU switch on portable tester adapter cable, SPL-1808, is in the OUTPUT TO DFDR position.
4) Make sure the FDEP switch on the portable tester adapter cable, SPL-1808, is in the DISCONNECT position.
5) Set the portable tester, COM-1807, to read 256 WPS.
6) Set the control switches as follows:
a) Set the POWER switch to the ON position.
b) Set the READOUT switch to the ACFT DATA position.
c) Set the UPDATE switch to the AUTO position.
d) Set the DFDAU/DFDR DATA SELECTOR switch to the DFDAU position.
e) Set the DATA switch to the 12 BIT position.
f) Push the CLR switch two or three times to clear all inputs.



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- g) Push the DFDR switch and then the ENT key.
- h) Set the SUBFRAME and WORD as specified.
- (d) If you use the STP tester, set the control switches as follows:
 - 1) Set the ON/OFF power switch to the ON position.
 - 2) Push the STP TEST switch and make sure there is no failure message on the tester.
 - 3) Push the CLR switch.
 - 4) Push the FDAU switch.
 - 5) Set the UPDATE switch to the AUTO position.
 - 6) Set the SUBFRAME and WORD as specified.
- (e) If you use the digital signal display unit, COM-10631, set the control switches as follows:
 - 1) Set the ON/OFF power switch to the on Position.
 - 2) Set the SYNC switch to SYNC B.
 - 3) Set the INPUT switch to the ARINC INPUT DATA position.
 - 4) Set the OCTAL DISPLAY switch to 12 BITS.
 - 5) Set the PARAMETER DATA/DOC DATA switch to the PARAMETER DATA position.
 - 6) Set the SUBFRAME and WORD as specified.
- (f) If you use the handheld download unit, COM-2550, do the steps that follow:

NOTE: These steps are for airplanes equipped with Alliedsignal FDR only.

 - 1) Set the function switch on the flight recorder control panel to the ON position.
 - 2) Push the red button on top of the handheld download unit, COM-2550.
 - 3) Set the DSDU switch.
 - 4) Set the BASE switch.
 - 5) In the BASE SELECT menu, set OCT for octal values.
 - 6) Set the SUBFRAME and WORD as specified.

NOTE: For SUBFRAME 0, select ALL.
- (g) If you use the MADU, COM-4132, set the control switches as follow:
 - 1) Set the ON/OFF power switch to the ON position.
 - 2) Push the FUN switch, then enter numeric 5 on the MADU.
 - 3) Push the DATA switch, then numeric 03.
 - 4) Push the FUN switch, then numeric 03 for SUBFRAME.
 - 5) Push the DATA switch, then numeric 4 for WORD.
 - 6) Set the SUBFRAME and WORD as specified.
- (h) Do the steps below to prepare the handheld download unit, COM-913 for the system test.

NOTE: These steps are only applicable to airplanes with AlliedSignal Solid State Flight Data Recorder (FDR).

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- 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>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 2) Connect the handheld download unit, COM-913 to the connector on the FDR.
- 3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

- 4) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.
- 5) Push the red button on the handheld download unit, COM-913.
- 6) Set the DSDU switch.
- 7) Set the BASE switch.
- 8) Set the WORD and SUBFRAME as specified.

SUBTASK 31-31-81-860-003

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-31-81-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

SUBTASK 31-31-81-700-001

- (4) Do this test of the flight data recorder accelerometer [1].
 - (a) For Vertical Acceleration, set the portable tester to subframe 0, word 34.
 - 1) Make sure octal value 3514 to 3636 shows on the tester.
 - (b) Set the tester to subframe 0, word 21.
 - 1) Make sure the tester shows 4030 to 4213.
 - (c) For Longitudinal Acceleration, set the portable tester to subframe 0, word 45.
 - 1) Make sure octal value 4031 to 4213 shows on the tester.

G. Put the Airplane Back to its Initial Condition

SUBTASK 31-31-81-840-002

- (1) Put the flight data recorder TEST-NORMAL switch to the NORM position.

SUBTASK 31-31-81-860-005

- (2) Remove power from the tester.

SUBTASK 31-31-81-860-006

- (3) Remove the tester from the airplane.

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SUBTASK 31-31-81-860-007

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

———— END OF TASK ——

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PRINTER - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Printer Deactivation
 - (2) Printer Activation

TASK 31-33-01-040-801

2. Printer - Deactivation

A. General

- (1) This procedure removes electrical power to the Printer.

B. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 31-33-01-860-045

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

D. Printer - Tryout

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

SUBTASK 31-33-01-860-046

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

SUBTASK 31-33-01-860-049

- (2) Make sure the power on light on the front of the printer is off.

———— END OF TASK ————

TASK 31-33-01-440-801

3. Printer - Activation

A. General

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

B. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right



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C. Procedure

SUBTASK 31-33-01-860-048

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

———— END OF TASK ————

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PRINTER - SERVICING

1. General

- A. This procedure has this task:
 - (1) An installation of paper in the printer.
- B. The printer is on the aisle stand, P8.

TASK 31-33-01-400-802

2. Printer Paper Installation

(Figure 301)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

C. Installation Procedure

SUBTASK 31-33-01-860-007

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	5	C01216	PRINTER

SUBTASK 31-33-01-860-042

- (2) Do these steps to install the printer paper:

- (a) Open the printer door by turning the latch [2] counterclockwise.
- (b) Release the paper spindle [3] from the right side of the printer door [1].
- (c) Move the paper spool [4] to the left until the right spindle disengages from the door bracket.
- (d) Pull out the paper spindle [3].
- (e) Remove and discard the cardboard tube.
- (f) Insert the new roll of paper onto the spindle.
- (g) Latch the paper spindle into position.
- (h) Thread the end of the paper through the guide bar and out of the paper cutter slot.
- (i) Close the printer door.
- (j) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.
- (k) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	5	C01216	PRINTER

- (l) Push and hold the SLEW switch [6] on the front of the printer until paper comes out of the slot.

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SUBTASK 31-33-01-400-012

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

———— END OF TASK ——

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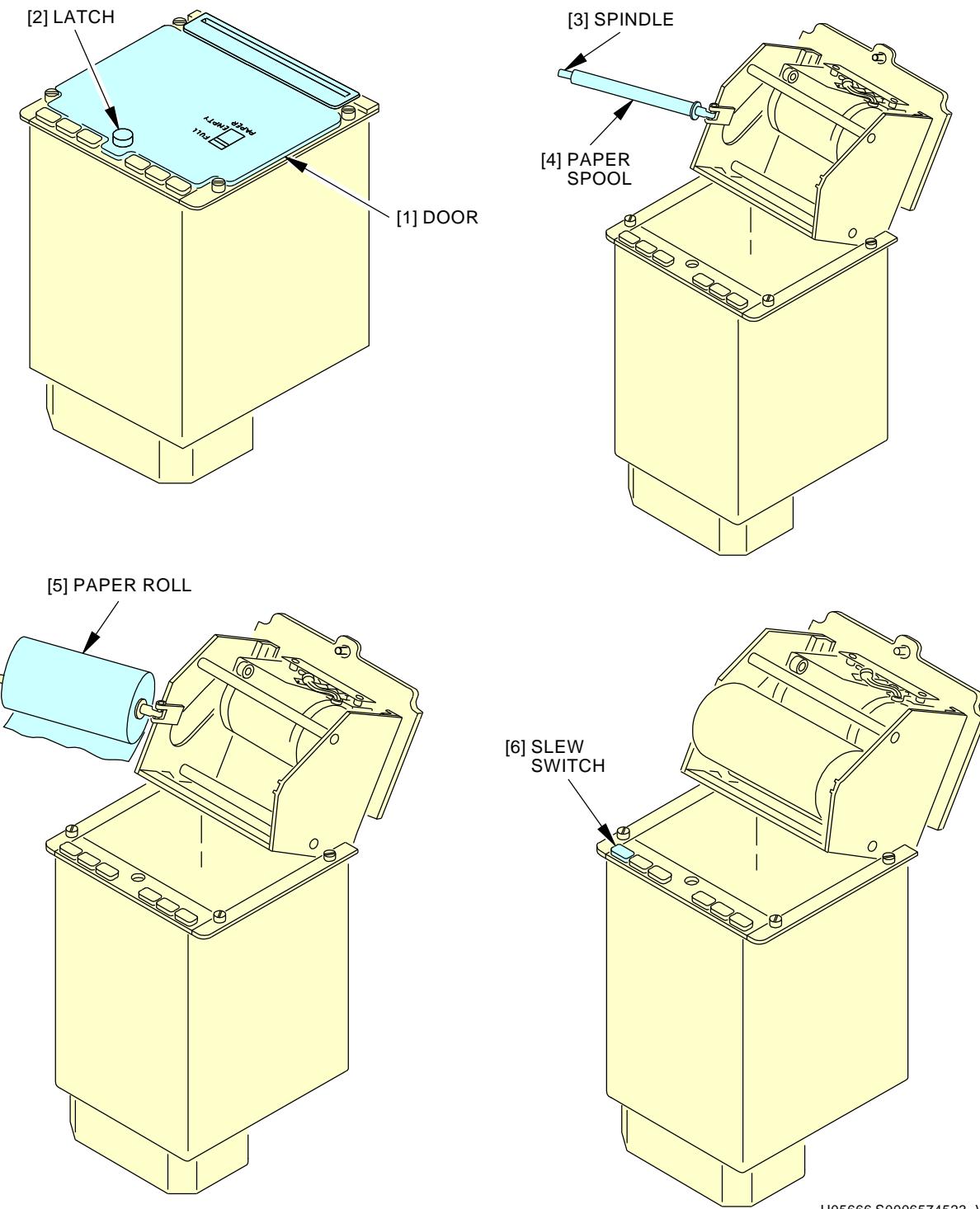
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Printer Servicing
Figure 301/31-33-01-990-802

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PRINTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the printer.
 - (2) An installation of the printer.
- B. The printer is on the aisle stand, P8.

TASK 31-33-01-000-801

2. Printer Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left

B. Removal Procedure

SUBTASK 31-33-01-860-001

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01216	PRINTER

SUBTASK 31-33-01-860-002

- (2) Loosen the fasteners that hold the printer [1] to the panel.

SUBTASK 31-33-01-010-001

- (3) Remove the printer [1] from the panel.

SUBTASK 31-33-01-000-001

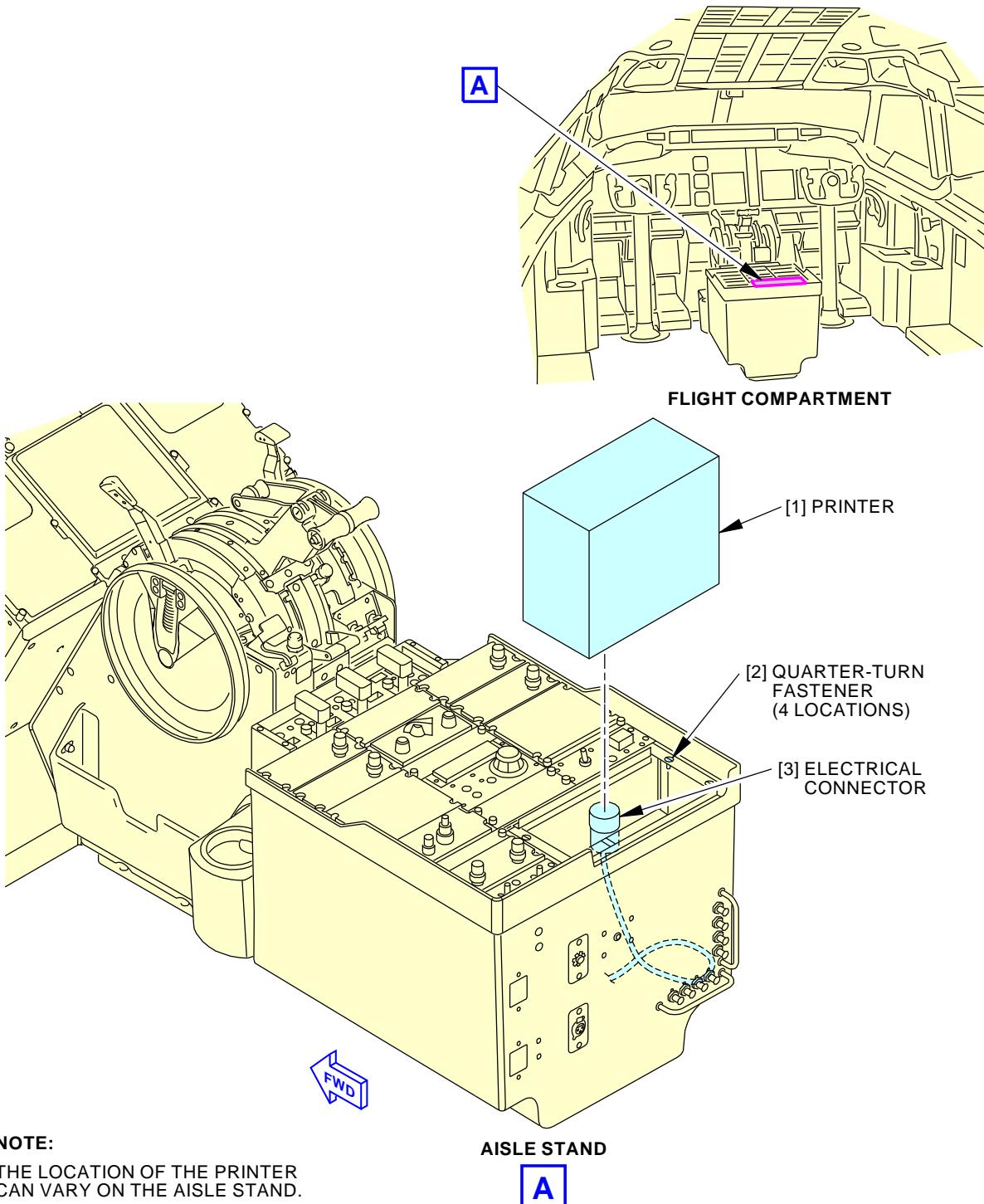
CAUTION: PUT A TAG ON THE CONNECTOR IF YOU REMOVE MORE THAN ONE CONNECTOR IN THE SAME AREA. THE CONNECTORS CAN BE CONNECTED INCORRECTLY AND CAUSE DAMAGE TO THE EQUIPMENT.

- (4) Disconnect the electrical connector from the printer [1].

———— END OF TASK ————

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Printer Installation
Figure 401/31-33-01-990-801

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TASK 31-33-01-400-801

3. Printer Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
31-33-01-400-802	Printer Paper Installation (P/B 301)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Printer	31-33-01-03D-025	AKS ALL

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Installation Procedure

SUBTASK 31-33-01-860-003

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	5	C01216	PRINTER

SUBTASK 31-33-01-400-001

- (2) Install the printer [1].

SUBTASK 31-33-01-400-002

- (3) Tighten the fasteners that hold the printer [1].

E. Installation Test

SUBTASK 31-33-01-400-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-33-01-860-004

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	5	C01216	PRINTER

SUBTASK 31-33-01-400-004

- (3) Do these steps to do an installation test of the printer:

- (a) Push the SLEW switch to make sure the printer [1] has paper.

NOTE: If the edge of the paper shows a color, there is not sufficient paper in the printer.
If there is not sufficient paper in the printer, install paper in the printer (Printer Paper Installation, TASK 31-33-01-400-802).

- (b) Push the TEST and the RESET switch at the same time.

- (c) Make sure the printer prints a page of test pattern.



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SUBTASK 31-33-01-860-005

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

———— END OF TASK ——

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AURAL WARNING SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Aural Warning System Deactivation.
 - (2) Aural Warning System Activation.

TASK 31-51-00-040-801

2. Aural Warning System - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power from the Aural Warning System.

B. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 31-51-00-860-180

- (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>
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

D. Aural Warning System - Tryout

NOTE: This tryout is to make sure the Aural Warning System is in a zero energy state.

SUBTASK 31-51-00-860-181

- (1)

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1



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F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-00-700-001

- (2) Do the following steps at the aural warning module:

- (a) Turn and hold the ROTATE TO TEST switch on top of the aural warning module to the A position.
 - 1) Make sure you do not hear the intermittent horn.
- (b) Release the ROTATE TO TEST switch.
 - 1) Make sure you do not hear the clacker.
- (c) Turn and hold the ROTATE TO TEST switch on top of the aural warning module to the B position.
 - 1) Make sure you do not hear the intermittent horn.
- (d) Release the ROTATE TO TEST switch.
 - 1) Make sure you do not hear the clacker.

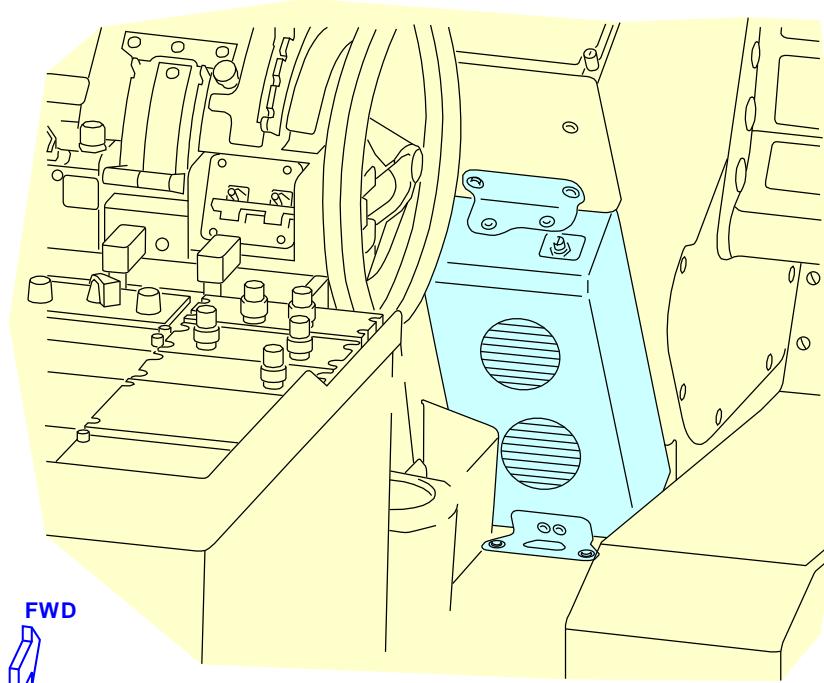
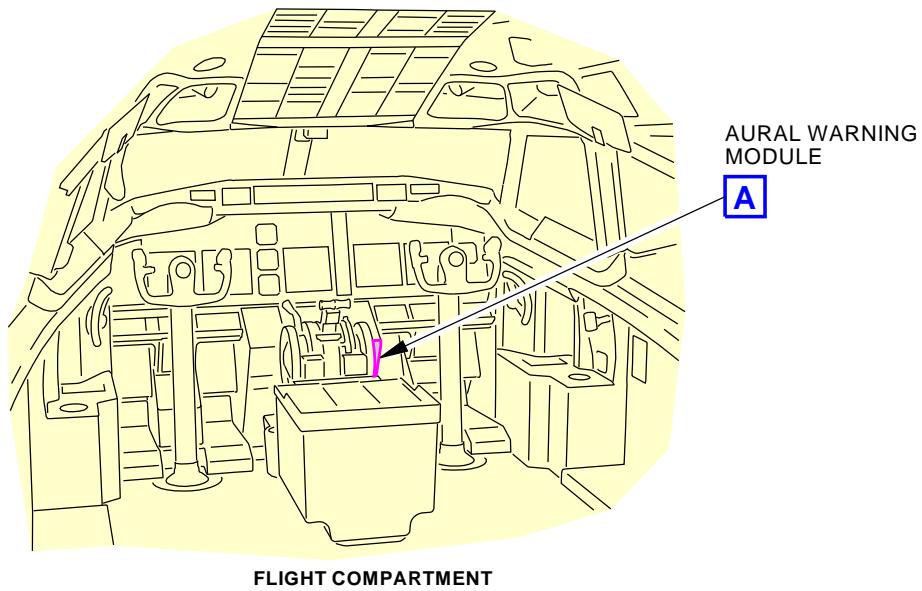
———— END OF TASK ————



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2382910 S0000545658_V1

Aural Warning Module
Figure 201/31-51-00-990-801

EFFECTIVITY
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D633A101-AKS

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TASK 31-51-00-440-801

3. Aural Warning System - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Aural Warning System.

B. Location Zones

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

C. Procedure

SUBTASK 31-51-00-860-182

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

———— END OF TASK ————

EFFECTIVITY
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AURAL WARNING SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) An aural warning module BITE test
 - (2) A system test
 - (3) A landing warning system test
 - (4) A takeoff warning system test
 - (5) An autothrottle switchpack test

TASK 31-51-00-740-801

2. Aural Warning Module BITE Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The BITE does an operational check of the two channels within the aural warning module. You need to do a test of channel A and channel B separately. Failure of this BITE test indicates a failure of the module only.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

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

D. Procedure

SUBTASK 31-51-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-51-00-860-002

- (2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-00-740-001

- (3) Do the channel A BITE test as follows:

- (a) Turn and hold the ROTATE TO TEST switch on top of the aural warning module to the A position.
 - 1) Make sure you hear the intermittent horn.
- (b) Release the ROTATE TO TEST switch.
 - 1) Make sure you hear the clacker for approximately 5 seconds.

EFFECTIVITY	AKS ALL
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SUBTASK 31-51-00-740-002

- (4) Do the channel B BITE test as follows:
 - (a) Turn and hold the ROTATE TO TEST switch on top of the aural warning module to the B position.
 - 1) Make sure you hear the intermittent horn.
 - (b) Release the ROTATE TO TEST switch.
 - 1) Make sure you hear the clacker for approximately 5 seconds.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-00-860-003

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

————— END OF TASK ————

TASK 31-51-00-730-801

3. Aural Warning System - System Test

A. General

- (1) The System Test does an operation test of the takeoff and landing aural warning systems.
 - (a) You can do the entire system test or the individual takeoff warning and landing warning system tests.

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
713	Nose Landing Gear

C. Procedure

SUBTASK 31-51-00-740-003

- (1) Do this task: Aural Warning Module BITE Test, TASK 31-51-00-740-801.

SUBTASK 31-51-00-730-001

- (2) Do this task: Landing Warning System Test, TASK 31-51-00-730-802.

SUBTASK 31-51-00-730-002

- (3) Do this task: Takeoff Warning System Test, TASK 31-51-00-730-803.

SUBTASK 31-51-00-741-008

- (4) Do this task: Autothrottle Switchpack Test, TASK 31-51-00-741-804

————— END OF TASK ————

TASK 31-51-00-730-802

4. Landing Warning System Test

NOTE: This procedure is a scheduled maintenance task.



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A. General

- (1) The landing warning system will come on if the airplane is in a landing configuration and any of the gear is not down and locked. The landing warning horn that you will hear is continuous.
- (2) The landing warning system receives inputs from the gear down lock sensors, the landing gear lever position sw, the radio altimeters, the thrust lever position switches, the flap landing warning switch (S138), the stall warning yaw damper (SMYD) computers, the horn cutout switch and the engine running relays.
- (3) The continuous landing warning horn will sound when a gear is not down and locked and one of these conditions exist:
 - (a) The trailing edge flaps are from 0 and 10 units when one thrust lever is set to a thrust lever angle (TLA) that is less than 21 degrees of thrust, while the other thrust lever is set to a TLA that is less than 34 degree of thrust and the radio altitude is less than 800 feet.
NOTE: The horn can be silenced with the horn cutout switch only when the radio altitude is between 200 and 800 feet.
 - (b) The trailing edge flaps are positioned from 15 to 25 units with one of the TLA is at less than 21 degrees of thrust and the other TLA is at less than 34 degrees of thrust. The horn cannot be stopped with the horn cutout switch.
NOTE: The thrust lever settings are different during a one engine landing.
 - (c) The trailing edge flaps are at more than 25 units. The position of the TLAs does not matter. The horn cannot be stopped with the horn cutout switch.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
34-33-00-700-801	Radio Altitude Simulation Test (P/B 201)
36-00-00-860-806	Remove Pressure from the Pneumatic System (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-706	Protractor - Thrust Reverser Levers, Digital Readout Part #: G76002-19 Supplier: 81205
SPL-1690	Actuators/Deactuators Set - Proximity Sensor Part #: 8-758-01 Supplier: 08748 Part #: A27092-106 Supplier: 81205 Opt Part #: A27092-84 Supplier: 81205

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right



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(Continued)

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right
713	Nose Landing Gear

E. Prepare for the Test

SUBTASK 31-51-00-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-51-00-860-141

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS 001-024, 026, 028-999			
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
AKS 025, 027			
A	6	C00148	ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET
AKS 001-024, 026, 028-999			
B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL
AKS 025, 027			
B	6	C00149	ANTI-ICE-RAIN ENG 2/CONT & ICE DET

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS ALL			
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND



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F/O Electrical System Panel, P6-3

Row Col Number Name

C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
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SUBTASK 31-51-00-420-013

- (3) Use one of the methods below to set the thrust levers:

NOTE: The value that shows on the digital protractor is measured in thrust lever angle (TLA).

NOTE: The value that shows on the CDU is measured in thrust resolver angle (TRA).

- (a) Install a thrust reverser levers, digital readout protractor, SPL-706, on the thrust levers No. 1 and 2 to measure the thrust lever angle (TLA).

NOTE: Idle = 0 degree

- (b) Use Thrust Resolver Angle (TRA) value on CDU to set the thrust levers.

- 1) Do these steps to show engine test menu on the FMCS CDU:

- a) Make sure that the applicable engine thrust lever and reverse thrust lever is at the IDLE stop.

- b) Get access to the FMCS CDU in the flight compartment.

- c) Press the INIT REF key to show the PERF INIT screen on the FMCS CDU.

- d) Push these line select keys (LSK) on the FMCS CDU:

<1> INDEX.

<2> MAINT.

NOTE: This LSK causes the MAINT BITE INDEX screen to show.

<3> ENGINE.

NOTE: This LSK causes the ENGINE/EXCEED BITE INDEX screen to show.

<4> ENGINE X for the applicable resolver.

NOTE: This LSK causes the ENGINE X BITE TEST MAIN MENU to show. Also, the ENGINE X LSK automatically applies power to the EEC and causes the EEC to initialize. The CDU will show INITIALIZING EEC X, and EEC SORTING FAULT HISTORY DATA for a short time, just before the ENGINE X BITE TEST MAIN MENU shows.

- 2) Do these steps to show the TRA values for the Engine X thrust lever:

- a) Push the INPUT MONITORING LSK.

NOTE: This will cause the CAUTION SCREEN OF INPUT MONITORING to show.

- b) Push the CONTINUE LSK.

- c) Push the CONTROL LOOPS LSK.

NOTE: This will cause screen 1 of the CONTROL LOOPS to show.

- d) Push the NEXT PAGE key two times.

NOTE: This will cause screen 3 of the CONTROL LOOPS to show.

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- e) Push the TRA line select key (LSK) on screen 3 of the CONTROL LOOPS.
- NOTE: This causes the thrust resolver angle (TRA) for channels A and B, of Engine X, to show.
- NOTE: The data for the channel that is in control will show first.

F. Procedure

SUBTASK 31-51-00-860-160

- (1) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-51-00-860-159

- (2) Make sure the trailing edge flaps are in the 1 unit position.
- Set the stabilizer within 1 unit center of the green band.
 - Set the speed brake lever to the DOWN position.
 - Release the parking brake.

SUBTASK 31-51-00-420-016

WARNING: MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (3) Set the landing gear lever to the OFF position.
- Make sure the green and red NOSE GEAR Lights are on.

SUBTASK 31-51-00-860-158

- (4) Do these steps to simulate the engine operations:
- Make sure that the pneumatic power is OFF to the engine starters.
 - If it is necessary, do this task: Remove Pressure from the Pneumatic System, TASK 36-00-00-860-806.
 - 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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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

- (c) Set the two engine start levers to the IDLE position.
- Wait a minimum of 5 minutes before proceeding.

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SUBTASK 31-51-00-860-122

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (5) Move the thrust levers No. 1 and 2 to the full forward thrust position.

SUBTASK 31-51-00-480-001

- (6) Put deactuators from the proximity sensor test set, SPL-1690, between the sensor and the target for these switches to simulate a nose gear not down condition:
- (a) The #1 nose gear down sensor, S845
 - (b) The #2 nose gear down sensor, S853.

SUBTASK 31-51-00-210-001

- (7) Make sure the red and green NOSE GEAR lights go off.

NOTE: If the red and green NOSE gear lights do not go off, add additional deactuators as necessary until the lights go out.

SUBTASK 31-51-00-750-050

- (8) Do a radio simulation of 700ft at the no.1 radio altimeters. To do the radio altitude simulation, do this task: Radio Altitude Simulation Test, TASK 34-33-00-700-801.

SUBTASK 31-51-00-750-071

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

SUBTASK 31-51-00-750-051

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (10) Set thrust lever no. 1 to between 29.5 and 30.5 degree TLA, or 60.5 and 61.5 degree TRA.

SUBTASK 31-51-00-750-001

- (11) Move the thrust lever no. 2 to the idle position.

- (a) Make sure the continuous horn comes on when the TLA is approximately less than 20 degree TLA (+/- 0.5 degree), or 52 degree TRA (+/- 0.5 degree) forward of idle.

SUBTASK 31-51-00-750-052

- (12) Push the horn cutout switch.

- (a) Make sure the continuous horn stops.

SUBTASK 31-51-00-750-053

- (13) Move the thrust levers no. 1 and 2 to the full forward thrust position.



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SUBTASK 31-51-00-750-054

- (14) Set thrust lever no. 2 to between 29.5 and 30.5 degree TLA, or 60.5 and 61.5 degree TRA.

SUBTASK 31-51-00-750-003

- (15) Move the thrust lever no. 1 to the idle position.

- (a) Make sure a continuous horn comes on when the TLA is approximately less than 20 degree TLA (+/- 0.5 degree), or 52 degree TRA (+/- 0.5 degree) forward of idle.

SUBTASK 31-51-00-750-004

- (16) Push the horn cutout switch.

- (a) Make sure the continuous horn stops.

SUBTASK 31-51-00-860-161

- (17) Move the thrust lever no. 1 to the full forward thrust position.

SUBTASK 31-51-00-860-162

- (18) Set thrust lever no. 2 to between 29.5 and 30.5 degree TLA, or 60.5 and 61.5 degree TRA.

SUBTASK 31-51-00-860-163

- (19) Set the radio altitude simulation test set to an altitude that is less than 200 ft.

SUBTASK 31-51-00-860-164

- (20) Set the thrust lever no. 1 to a position that is less than 20 degree TLA (+/- 0.5 degree), or 52 degree TRA (+/- 0.5 degree).

- (a) Make sure a continuous horn comes on.

SUBTASK 31-51-00-860-165

- (21) Push the horn cutout switch.

- (a) Make sure the continuous horn stays on.

SUBTASK 31-51-00-860-166

- (22) Move the thrust lever no. 1 to the full forward thrust position.

- (a) Make sure a continuous horn stops.

SUBTASK 31-51-00-860-127

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

SUBTASK 31-51-00-750-072

- (24) Do a radio simulation of 700ft at the no.2 radio altimeters. To do the radio altitude simulation, do this task: Radio Altitude Simulation Test, TASK 34-33-00-700-801

SUBTASK 31-51-00-860-128

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1



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(Continued)

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C01045	AFCS SYS A FCC DC

SUBTASK 31-51-00-860-129

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (26) Set thrust lever no. 1 to between 29.5 and 30.5 degree TLA, or 60.5 and 61.5 degree TRA.

SUBTASK 31-51-00-750-073

- (27) Move the thrust lever no. 2 to the idle position.

- (a) Make sure the continuous horn comes on when the TLA is approximately less than 20 degree TLA (+/- 0.5 degree), or 52 degree TRA (+/- 0.5 degree) forward of idle.

SUBTASK 31-51-00-730-007

- (28) Push the horn cutout switch.

- (a) Make sure the continuous horn stops.

SUBTASK 31-51-00-860-130

- (29) Move the thrust levers no. 1 and 2 to the full forward thrust position.

SUBTASK 31-51-00-860-131

- (30) Set thrust lever no. 2 to between 29.5 and 30.5 degree TLA, or 60.5 and 61.5 degree TRA.

SUBTASK 31-51-00-750-074

- (31) Move the thrust lever no. 1 to the idle position.

- (a) Make sure a continuous horn comes on when the TLA is approximately less than 20 degree TLA (+/- 0.5 degree), or 52 degree TRA (+/- 0.5 degree) forward of idle.

SUBTASK 31-51-00-750-075

- (32) Push the horn cutout switch.

- (a) Make sure the continuous horn stops.

SUBTASK 31-51-00-860-167

- (33) Move the thrust lever no. 1 to the full forward thrust position.

SUBTASK 31-51-00-860-168

- (34) Set thrust lever no. 2 to between 29.5 and 30.5 degree TLA, or 60.5 and 61.5 degree TRA.

SUBTASK 31-51-00-860-169

- (35) Set the radio altitude simulation test set to an altitude that is less than 200 ft.

SUBTASK 31-51-00-860-170

- (36) Set the thrust lever no. 1 to a position that is less than 20 degree TLA (+/- 0.5 degree), or 52 degree TRA (+/- 0.5 degree).

- (a) Make sure a continuous horn comes on.

SUBTASK 31-51-00-860-171

- (37) Push the horn cutout switch.

- (a) Make sure the continuous horn stays on.

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SUBTASK 31-51-00-860-172

- (38) Move the thrust lever no. 1 to the full forward thrust position.
(a) Make sure a continuous horn stops.

SUBTASK 31-51-00-860-132

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

SUBTASK 31-51-00-750-062

- (40) Set thrust lever no. 2 to between 29.5 and 30.5 degree TLA, or 60.5 and 61.5 degree TRA.
(a) Move the thrust lever no. 1 to the idle position.
 1) Make sure the horn does not come on.
(b) Move the thrust lever no. 1 to the full forward position.

SUBTASK 31-51-00-750-056

- (41) Move the trailing edge flaps to the 15 unit position.

SUBTASK 31-51-00-750-040

- (42) Move thrust lever no. 1 to the idle position.
(a) Make sure the continuous horn comes on when the TLA is less than 20 degree TLA (+/- 0.5 degree), or 52 degree TRA (+/- 0.5 degree) forward of idle.

SUBTASK 31-51-00-750-063

- (43) Push the horn cutout switch.
(a) Make sure the continuous horn stays on.

SUBTASK 31-51-00-860-013

- (44) Move the thrust lever no. 1 to the full forward thrust position.
(a) Make sure the continuous horn stops.

SUBTASK 31-51-00-860-099

- (45) Move thrust lever no. 2 to the full forward thrust position.

SUBTASK 31-51-00-860-179

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01384	RADIO NAVIGATION RADIO ALTM 1
D	2	C01045	AFCS SYS A FCC DC

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01385	RADIO NAVIGATION RADIO ALTM 2

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F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01046	AFCS SYS B FCC DC

SUBTASK 31-51-00-860-174

WARNING: MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE CONTROL SURFACES AND LANDING GEAR DOOR AREAS. THE CONTROL SURFACES, THE LANDING GEAR, AND THE LANDING GEAR DOORS CAN MOVE WHEN YOU DO THE AIR MODE SIMULATION. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (47) Use the PSEU BITE panel to set SYS 1 and SYS 2 to the air mode. To set SYS 1 and SYS 2 to the air mode, do this task; Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 31-51-00-860-014

- (48) Move the trailing edge flaps to any position that is greater than 25 units.
(a) Make sure the continuous horn comes on when the trailing edge flaps go past 25 units.

SUBTASK 31-51-00-750-008

- (49) Move the thrust lever no. 1 to the idle position.
(a) Make sure the continuous horn stays on.

SUBTASK 31-51-00-750-058

- (50) Move the thrust lever no. 2 to the idle position.
(a) Make sure the continuous horn stays on.

SUBTASK 31-51-00-750-009

- (51) Push the horn cutout switch.
(a) Make sure the continuous horn stays on.

SUBTASK 31-51-00-750-059

- (52) Move the thrust lever no. 1 and 2 to the full forward thrust position.

SUBTASK 31-51-00-750-060

- (53) Move the trailing edge flaps to the 1 unit position.
(a) Make sure the continuous horn has stopped when the trailing edge flaps are at 25 units.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-00-860-177

- (1) Set the two engine start levers to the CUT OFF position.

SUBTASK 31-51-00-860-178

- (2) Move the trailing edge flaps to the 0 units position.

SUBTASK 31-51-00-860-107

- (3) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-51-00-480-005

- (4) Remove the deactuator from these switches:
(a) The #1 nose gear down sensor, S845
(b) The #2 nose gear down sensor, S853.



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SUBTASK 31-51-00-860-178

- (5) Use the PSEU BITE panel to set SYS 1 and SYS 2 to the ground mode. To set SYS 1 and SYS 2 to the ground mode, do this task; Return the Airplane to the Ground Mode, TASK 32-09-00-860-802

SUBTASK 31-51-00-480-007

- (6) Set the landing gear lever to the DOWN position.

SUBTASK 31-51-00-420-003

- (7) Move the thrust levers no. 1 and 2 to the idle position.

SUBTASK 31-51-00-420-002

- (8) Remove the thrust reverser levers, digital readout protractor, SPL-706, if installed.

SUBTASK 31-51-00-420-005

- (9) Remove the radio altimeter test set. To remove it, do this task: Radio Altitude Simulation Test, TASK 34-33-00-700-801.

SUBTASK 31-51-00-860-173

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

CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00629	GND PROX WARN

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	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS 001-024, 026, 028-999			
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
AKS 025, 027			
A	6	C00148	ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET
AKS 001-024, 026, 028-999			
B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL
AKS 025, 027			
B	6	C00149	ANTI-ICE-RAIN ENG 2/CONT & ICE DET

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS ALL			
D	13	C00120	WEATHER RADAR RT



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F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
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
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF

SUBTASK 31-51-00-860-019

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

————— END OF TASK ————

TASK 31-51-00-730-803

5. Takeoff Warning System Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) TAKEOFF CONFIG indicator lights are installed on the captains instrument panel, P1-3, and the first officer's instrument panel, P3-1. They will come on when the takeoff warning horn comes on.
- (2) The takeoff warning system will come on if the airplane is not in a takeoff configuration and you move the thrust levers forward for takeoff. The takeoff warning horn that you will hear is intermittent.
- (3) The parking brake is released during the takeoff warning test. This prevents the parking brake function of the takeoff warning horn from overriding the tests. Put chocks on the landing gear wheels.
- (4) The intermittent takeoff warning horn will sound when the airplane is on the ground and you move one or both of the thrust levers forward for takeoff and at least one of these conditions exist:
 - (a) The stabilizer is not in the green band
 - (b) The trailing edge flaps are at less than 1 unit or more than 25 units
 - (c) The leading edge flaps/slats are not in the extend or full extend position, or are in a UCM condition
 - (d) The speedbrake handle is not down
 - (e) The parking brake is set
 - (f) The ground spoilers are not down
- (5) The intermittent takeoff warning horn will also sound when the airplane is in the air and all of the conditions below exist:
 - (a) The ground spoiler valve is not closed



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- (b) The leading edge flaps are not extended
- (c) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
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C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
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- (6) The takeoff warning system has these inputs:
 - (a) A left throttle forward input from the left autothrottle switchpack, M1766
 - (b) A right throttle forward input from the right autothrottle switchpack, M1767
 - (c) Ground spoiler up pressure switch, S1049
 - (d) Ground spoiler interlock valve, S1050
 - (e) A logic input from the flap/slat electronics unit, M1746
 - (f) The speed brake switch, S651
 - (g) The airplane nose up (stabilizer leading edge down) switches, S132 & S1184
 - (h) The airplane nose down (stabilizer leading edge up) switches, S546 & S1183
 - (i) A parking brake input.

B. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
21-33-00-000-801	Cabin Altitude Warning Switch Functional Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (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. 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-706	Protractor - Thrust Reverser Levers, Digital Readout Part #: G76002-19 Supplier: 81205
SPL-1690	Actuators/Deactuators Set - Proximity Sensor Part #: 8-758-01 Supplier: 08748 Part #: A27092-106 Supplier: 81205 Opt Part #: A27092-84 Supplier: 81205

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
713	Nose Landing Gear



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E. Prepare for the Test

SUBTASK 31-51-00-860-020

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-51-00-860-022

- (2) Use the PSEU to make sure SYS 1 and SYS 2 is in the ground mode. To set the airplane in the ground mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 31-51-00-860-023

- (3) Install chocks on the landing gear wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 31-51-00-860-111

- (4) 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>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS 001-024, 026, 028-999			
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
AKS 025, 027			
A	6	C00148	ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET
AKS 001-024, 026, 028-999			
B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL
AKS 025, 027			
B	6	C00149	ANTI-ICE-RAIN ENG 2/CONT & ICE DET

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS ALL			
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND

SUBTASK 31-51-00-420-014

- (5) Use one of the methods below to set the thrust levers:

NOTE: The value that shows on the digital protractor is measured in thrust lever angle (TLA).

NOTE: The value that shows on the CDU is measured in thrust resolver angle (TRA).

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- (a) Install a thrust reverser levers, digital readout protractor, SPL-706, on the thrust levers No. 1 and 2 to measure the thrust lever angle (TLA).
NOTE: Idle = 0 degree
- (b) Use Thrust Resolver Angle (TRA) value on the CDU to set the thrust levers.
 - 1) Do these steps to show engine test menu on the FMCS CDU:
 - a) Make sure that the applicable engine thrust lever and reverse thrust lever is at the IDLE stop.
 - b) Get access to the FMCS CDU in the flight compartment.
 - c) Press the INIT REF key to show the PERF INIT screen on the FMCS CDU.
 - d) Push these line select keys (LSK) on the FMCS CDU:
 - <1> INDEX.
 - <2> MAINT.
NOTE: This LSK causes the MAINT BITE INDEX screen to show.
 - <3> ENGINE.
NOTE: This LSK causes the ENGINE/EXCEED BITE INDEX screen to show.
 - <4> ENGINE X for the applicable resolver.
NOTE: This LSK causes the ENGINE X BITE TEST MAIN MENU to show. Also, the ENGINE X LSK automatically applies power to the EEC and causes the EEC to initialize. The CDU will show INITIALIZING EEC X, and EEC SORTING FAULT HISTORY DATA for a short time, just before the ENGINE X BITE TEST MAIN MENU shows.
 - 2) Do these steps to show the TRA values for the Engine X thrust lever:
 - a) Push the INPUT MONITORING LSK.
NOTE: This will cause the CAUTION SCREEN OF INPUT MONITORING to show.
 - b) Push the CONTINUE LSK.
 - c) Push the CONTROL LOOPS LSK.
NOTE: This will cause screen 1 of the CONTROL LOOPS to show.
 - d) Push the NEXT PAGE key two times.
NOTE: This will cause screen 3 of the CONTROL LOOPS to show.
 - e) Push the TRA line select key (LSK) on screen 3 of the CONTROL LOOPS.
NOTE: This causes the thrust resolver angle (TRA) for channels A and B, of Engine X, to show.
NOTE: The data for the channel that is in control will show first.

SUBTASK 31-51-00-750-083

- (6) Do this task: Cabin Altitude Warning Switch Functional Test, TASK 21-33-00-000-801.

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SUBTASK 31-51-00-860-108

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

- (7) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 31-51-00-860-102

- (8) Do these steps to set the airplane in the takeoff configuration:
- Move the trailing edge flaps to the 15 unit position.
 - Set the stabilizer within 1 unit center of the green band.
 - Set the speed brake lever to the DOWN position.
 - Release the parking brakes.
 - Set the thrust lever no. 2 to the idle position.

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (f) Set the thrust lever no. 1 to the full forward thrust position.

F. Procedure

SUBTASK 31-51-00-750-064

- (1) Do these steps to do a test of the autothrottle inputs to the takeoff warning system:
- Make sure you did the Prepare for Test.
 - Set the parking brakes.
 - Make sure the intermittent horn comes on.
 - Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
 - Move the thrust lever no. 1 to the idle position.
 - Make sure the intermittent horn stops when the thrust lever is approximately less than 20 degrees TLA (52 degree TRA) forward of idle.
 - Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (d) Move the thrust lever no. 2 to the full forward thrust position.
 - Make sure the intermittent horn comes on when the thrust lever is greater than approximately 20 degree TLA (52 degree TRA) forward of idle.
 - Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
- (e) Move the thrust lever no. 2 to the idle position.



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- 1) Make sure the intermittent horn goes out when the thrust lever is approximately less than 20 degree TLA (52 degree TRA) forward of idle.
- 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.
 - (f) Release the parking brakes.
 - (g) Move the thrust lever no. 1 to the full forward thrust position.

SUBTASK 31-51-00-750-065

- (2) Do these steps to do a test of the trailing edge flaps input to the takeoff warning system:
 - (a) If the airplane is not in the takeoff configuration, do the steps in the Prepare for the Test that put the airplane into the takeoff configuration.
 - (b) Move the trailing edge flaps to the 0 unit position.
 - 1) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
 - 2) Make sure the intermittent horn comes on.

NOTE: The intermittent horn can sound when the leading edge flaps are in transit.
 - (c) Move the thrust lever no. 1 to the idle position.
 - 1) Make sure the intermittent horn stops.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.
 - (d) Move the trailing edge flaps to a position in the takeoff range (1, 2, 5, 10, 15, or 25 units detent).
 - (e) Move the thrust lever no. 1 to the full forward thrust position.
 - 1) Make sure the intermittent horn does not come on.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, do not come on.
 - (f) Move the trailing edge flaps to a position greater than 25 units.
 - 1) Make sure the intermittent horn comes on.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
 - (g) Move the trailing edge flaps to the 15 unit position.
 - 1) Make sure the intermittent horn stops when the trailing edge flaps are in a position in the takeoff range.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.

SUBTASK 31-51-00-750-066

- (3) Do these steps to do a check of the parking brake input and circuit breaker function to the takeoff warning system:
 - (a) If the airplane is not in the takeoff configuration, do the steps in the Prepare for the Test that put the airplane in the takeoff configuration.
 - (b) Set the parking brakes.
 - 1) Make sure the intermittent horn comes on.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.

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- (c) 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>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN

- (d) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

- 1) Make sure the intermittent horn stops.
- 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

- 1) Make sure the intermittent horn turns on.
- 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.

- (f) Release the parking brakes.

- 1) Make sure the intermittent horn stops.
- 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.

SUBTASK 31-51-00-750-067

- (4) Do these steps to do a check of the speed brake handle input to the takeoff warning system:
- (a) If the airplane is not in the takeoff configuration, do the steps in the Prepare for the Test that put the airplane in the takeoff configuration.
 - (b) Set the speed brake handle to the up position.
 - 1) Make sure the intermittent horn comes on.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
 - (c) Set the speed brake handle to the down position.
 - 1) Make sure the intermittent horn stops.
 - 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.

SUBTASK 31-51-00-750-068

- (5) Do these steps to do a check of the stabilizer input to the takeoff warning system:
- (a) If the airplane is not in the takeoff configuration, do the steps in the Prepare for the Test that put the airplane into the takeoff configuration.
 - (b) Move the stabilizer through the full range of motion.
 - 1) Make sure the intermittent horn comes on when the green band pointer is outside of the green band range by $\pm 1/2$ unit.

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- a) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.
 - 2) Set the stabilizer outside the green band range by greater than 1 unit toward the nose down position.
 - 3) Do the following steps at the PSEU BITE panel to access the state of the input output pin:
 - a) Push ON/OFF to start PSEU BITE display.
 - b) Select OTHER FUNCTIONS MENU.
NOTE: Push the Up and Down Arrows to move through menu options.
 - c) Select I/O MONITOR.
 - d) Select INPUTS.
 - e) Select CONN D10982.
<1> Verify D10982 pin 51 is GND.
 - f) Select CONN D10984.
<1> Verify D10984 pin 51 is NO GND.
 - 4) Set the stabilizer outside the green band range by greater than 1 unit toward the nose up position.
 - 5) Do the following steps at the PSEU BITE panel to access the state of the input output pin:
 - a) Push ON/OFF to start PSEU BITE display.
 - b) Select OTHER FUNCTIONS MENU.
NOTE: Push the Up and Down Arrows to move through menu options.
 - c) Select I/O MONITOR.
 - d) Select INPUTS.
 - e) Select CONN D10982.
<1> Verify D10982 pin 51 is GND.
 - f) Select CONN D10984.
<1> Verify D10984 pin 51 is NO GND.
 - 6) Set the stabilizer to within one unit center of the green band.
 - 7) Do the following steps at the PSEU BITE panel to access the state of the input output pin:
 - a) Push ON/OFF to start PSEU BITE display.
 - b) Select OTHER FUNCTIONS MENU.
NOTE: Push the Up and Down Arrows to move through menu options.
 - c) Select I/O MONITOR.
 - d) Select INPUTS.
 - e) Select CONN D10982.
<1> Verify D10982 pin 51 is NO GND.
 - f) Select CONN D10984.
<1> Verify D10984 pin 51 is GND.
- (c) Set the thrust lever No. 1 to the idle position.

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- (d) Set the trailing edge flaps to the 0 unit position.

SUBTASK 31-51-00-750-069

- (6) Do these steps to do a check of the takeoff warning system when the airplane is in the air:

- (a) Make sure the thrust lever No. 1 is in the idle position.
- (b) Make sure the leading edge flaps are in the up position.
- (c) Use the PSEU BITE panel to set SYS 1 and SYS 2 to the air mode. To set SYS 1 and SYS 2 to the air mode, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: The ground spoiler interlock is opened when you use the PSEU BITE panel or slug the air/gnd sensor target far to simulate air mode. The interlock valve is closed when you lift the airplane on jacks to simulate air mode.

- 1) Make sure the intermittent horn comes on.
- 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.

- (d) Open this circuit breaker and attach safety tag:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF

- 1) Make sure the intermittent horn stops.
- 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.

- (e) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF

- 1) Make sure the intermittent horn comes on.
- 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, come on.

- (f) Put a steel actuator from the proximity sensor test set, SPL-1690, on the ground spoiler interlock valve sensor, S1050, to simulate that the ground spoiler interlock valve is closed.

NOTE: You can also use the pull/push cable, located in the right main landing gear up link, to open and close the ground spoiler interlock valve. When the airplane is on the ground, the interlock valve closes when you push the cable up. The interlock valve opens when you pull the cable down.

- 1) Make sure the intermittent horn stops.
- 2) Make sure that the TAKEOFF CONFIG lights on the Captain's instrument panel, P1-3, and the First Officer's instrument panel, P3-1, go off.

- (g) Use the PSEU BITE panel to return SYS 1 and SYS 2 to the ground mode. To return SYS 1 and SYS 2 to the ground mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

- (h) Remove the actuator.



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G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-00-020-002

- (1) Remove the thrust reverser levers, digital readout protractor, SPL-706.

SUBTASK 31-51-00-860-035

- (2) Set the parking brakes.

SUBTASK 31-51-00-020-003

- (3) Remove the chocks from the landing gear wheels.

SUBTASK 31-51-00-860-109

- (4) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-51-00-860-113

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

CAPT Electrical System Panel, P18-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS 001-024, 026, 028-999			
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
AKS 025, 027			
A	6	C00148	ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET
AKS 001-024, 026, 028-999			
B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL
AKS 025, 027			
B	6	C00149	ANTI-ICE-RAIN ENG 2/CONT & ICE DET

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS ALL			
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND

SUBTASK 31-51-00-860-037

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

———— END OF TASK ————

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TASK 31-51-00-741-804

6. Autothrottle Switchpack Test

A. General

- (1) The autothrottle switch pack replacement test does a return to service test for switches S1, S8, and S9 interface with the PSEU.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Procedure

SUBTASK 31-51-00-860-138

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-51-00-860-139

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	1	C01399	PSEU PRI
D	2	C01400	PSEU ALTN

- (3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 31-51-00-741-009

- (4) Do the autothrottle switch pack replacement test as follows:

- (a) If the PSEU is not on, then push the ON/OFF switch.

NOTE: The display will show EXISTING FAULTS?

- (b) Push the NO button.

NOTE: The display will show FAULTS HISTORY?

- (c) Push the NO button.

NOTE: The display will show GROUND TESTS?

- (d) Push the NO button.

NOTE: The display will show AIR/GND OVRD?

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- (e) Push the NO button.
NOTE: The display will show OTHER FUNCTNS?
- (f) Push the YES button.
NOTE: The display will show T/O WARN REPORT?
- (g) Push the NO button.
NOTE: The display will show LGTV REPORT?
- (h) Push the NO button.
NOTE: The display will show SENSOR RIGGING?
- (i) Push the NO button.
NOTE: The display will show I/O MONITOR?
- (j) Push the YES button.
NOTE: The display will show SENSORS?
- (k) Push the "Down Arrow" button.
NOTE: The display will show INPUTS?
- (l) Push the YES button.
NOTE: The display will show CONN D10982?

SUBTASK 31-51-00-741-010

- (5) Do the test for M1766, S1 (Left Thrust Lever < 44 Degrees Resolver Angle) as follows:
 - (a) If the PSEU display is showing CONN D10982, then push the YES switch.
 - (b) If the PSEU display is not showing CONN D10982, then do this subtask:SUBTASK 31-51-00-741-009.
 - (c) Use the UP and/or DOWN ARROW to select PIN 40.
 - (d) Place the left thrust lever in a fully retarded position.
 - 1) Make sure the display shows PIN 40 GND.
 - (e) Advance the left thrust lever greater than 46 degrees thrust resolver angle but less than 51 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 40 NO GND.

SUBTASK 31-51-00-741-011

- (6) Do the test for M1766, S8 (Left Thrust Lever > 53 Degrees Resolver Angle) as follows:
 - (a) If the PSEU display is showing CONN D10982, then push the YES switch.
 - (b) If the PSEU display is not showing CONN D10982, then do this subtask:SUBTASK 31-51-00-741-009.
 - (c) Use the UP and/or DOWN ARROW to select PIN 42.
 - (d) Advance the left thrust lever greater than 46 degrees thrust resolver angle but less than 51 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 42 NO GND.
 - (e) Advance the left thrust lever greater than 55 degrees thrust resolver angle but less than 62 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 42 GND.

SUBTASK 31-51-00-741-012

- (7) Do the test for M1766, S9 (Left Thrust Lever < 64 Degrees Resolver Angle) as follows:

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- (a) If the PSEU display is showing CONN D10982, then push the YES switch.
- (b) If the PSEU display is not showing CONN D10982, then do this subtask:SUBTASK 31-51-00-741-009.
- (c) Use the UP and/or DOWN ARROW to select PIN 41.
- (d) Advance the left thrust lever greater than 55 degrees thrust resolver angle but less than 62 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 41 GND.
- (e) Advance the left thrust lever greater than 66 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 41 NO GND.

SUBTASK 31-51-00-741-013

- (8) Do the test for M1767, S1 (Right Thrust Lever < 44 Degrees Resolver Angle) as follows:
 - (a) If the PSEU display is showing CONN D10982, then push the NO switch.
 - (b) If the PSEU display is not showing CONN D10982, then do this subtask:SUBTASK 31-51-00-741-009.
 - (c) Make sure the display shows CONN D10984
 - (d) Use the UP and/or DOWN ARROW to select PIN 40.
 - (e) Place the right thrust lever in a fully retarded position.
 - 1) Make sure the display shows PIN 40 GND.
 - (f) Advance the right thrust lever greater than 46 degrees thrust resolver angle but less than 51 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 40 NO GND.

SUBTASK 31-51-00-741-014

- (9) Do the test for M1767, S8 (Right Thrust Lever > 53 Degrees Resolver Angle) as follows:
 - (a) If the PSEU display is showing CONN D10982, then push the NO switch.
 - (b) If the PSEU display is not showing CONN D10982, then do this subtask:SUBTASK 31-51-00-741-009.
 - (c) Make sure the display shows CONN D10984
 - (d) Use the UP and/or DOWN ARROW to select PIN 42.
 - (e) Advance the right thrust lever greater than 46 degrees thrust resolver angle but less than 51 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 42 NO GND.
 - (f) Advance the right thrust lever greater than 55 degrees thrust resolver angle but less than 62 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 42 GND.

SUBTASK 31-51-00-741-015

- (10) Do the test for M1767, S9 (Right Thrust Lever < 64 Degrees Resolver Angle) as follows:
 - (a) If the PSEU display is showing CONN D10982, then push the NO switch.
 - (b) If the PSEU display is not showing CONN D10982, then do this subtask:SUBTASK 31-51-00-741-009.
 - (c) Make sure the display shows CONN D10984
 - (d) Use the UP and/or DOWN ARROW to select PIN 41.

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- (e) Advance the right thrust lever greater than 55 degrees thrust resolver angle but less than 62 degrees thrust resolver angle.
 - 1) Make sure the display shows PIN 41 GND.
- (f) Advance the right thrust lever greater than 66 degrees.
 - 1) Make sure the display shows PIN 41 NO GND.
- (g) Push the ON/OFF button.
NOTE: The display will show TURN OFF DISPLAY?
- (h) Push the YES button.
NOTE: The display will turn off.
- (i) The test is completed.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-00-860-140

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

———— END OF TASK ————

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FLAP LANDING WARNING SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the flap landing warning switch
 - (2) An installation of the flap landing warning switch
 - (3) An adjustment of the flap landing warning switch.
- B. The flap landing warning switch, S138, is on the flap control unit in the right main landing gear wheel well.
- (1) Use the table below to replace the flap landing warning switch, S138.

Table 401/31-51-01-993-801 Flap Landing Warning Switch, S138

WIRE CONTACT NO.	WIRE IDENTIFICATION	DESTINATION	WDM REF	PURPOSE	POST INSTALLATION TEST
1	W8124-A-AA	GD332-DC	32-64-21	Landing Flaps A	AMM 31-51-01
2	A-BB	CAPPED AND STOWED	32-64-21	N/A	
3	A-CC	D46040P/8	32-64-21	Landing Flaps A	AMM 31-51-01
4	A-DD	CAPPED AND STOWED	32-64-21	N/A	
5	A-EE	CAPPED AND STOWED	32-64-21	N/A	
6	A-FF	CAPPED AND STOWED	32-64-21	N/A	
7	A-GG	D46040P/19	29-25-11	S1051/18	AMM 31-51-01
8	A-HH	D46040P/9	29-25-11		AMM 31-51-01
9	A-JJ	D46040P/6	29-25-11	PTU Control Valve	AMM 31-51-01
10	A-KK	CAPPED AND STOWED	32-64-21	N/A	
11	A-LL	CAPPED AND STOWED	32-64-21	N/A	
12	A-MM	CAPPED AND STOWED	32-64-21	N/A	
13	A-NN	CAPPED AND STOWED	32-64-21	N/A	
14	A-PP	CAPPED AND STOWED	32-64-21	N/A	
15	A-RR	CAPPED AND STOWED	32-64-21	N/A	
16	A-SS	GD332-DC	32-64-21	Landing Flaps B	AMM 31-51-01
17	A-TT	CAPPED AND STOWED	32-64-21	N/A	

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Table 401/31-51-01-993-801 Flap Landing Warning Switch, S138 (Continued)

18	A-UU	D46040P/10	32-64-21	Landing Flaps B	AMM 31-51-01
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TASK 31-51-01-000-801

2. Flap Landing Warning Switch Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

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

Reference	Description
SPL-4962	Wrench - Limit Switch, Flap Control Unit Part #: F80197-5 Supplier: 81205

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 31-51-01-860-001

- (1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 31-51-01-040-001

- (2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 31-51-01-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

E. Removal Procedure

SUBTASK 31-51-01-860-002

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	18	C00451	LANDING GEAR AURAL WARN

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SUBTASK 31-51-01-020-003

- (2) Remove the screws [6] and washer [18] that attach the switch cover [7].

SUBTASK 31-51-01-010-002

- (3) Remove the switch cover [7] from the flap control unit [1].

SUBTASK 31-51-01-020-004

- (4) Disconnect the electrical connectors from the applicable limit switch.

SUBTASK 31-51-01-020-002

- (5) To remove the flap landing warning switch [8], use tool set FCU limit switch wrench, SPL-4962:

- (a) Remove the lockwire from the nuts [12] and [15].
- (b) Remove the roller guide lock ring [11] from the roller guide [10].
- (c) Remove the roller guide [10] from the switch [8].
- (d) Remove the nut [12] and washer [13] from the flap landing warning switch [8].
- (e) Remove the switch [8] with the nut [15] and washer [14] from the flap control unit [1].
- (f) Put the nut [12], washer [13], roller guide [10], and roller guide lock ring [11] on the switch [8] to keep the parts together.

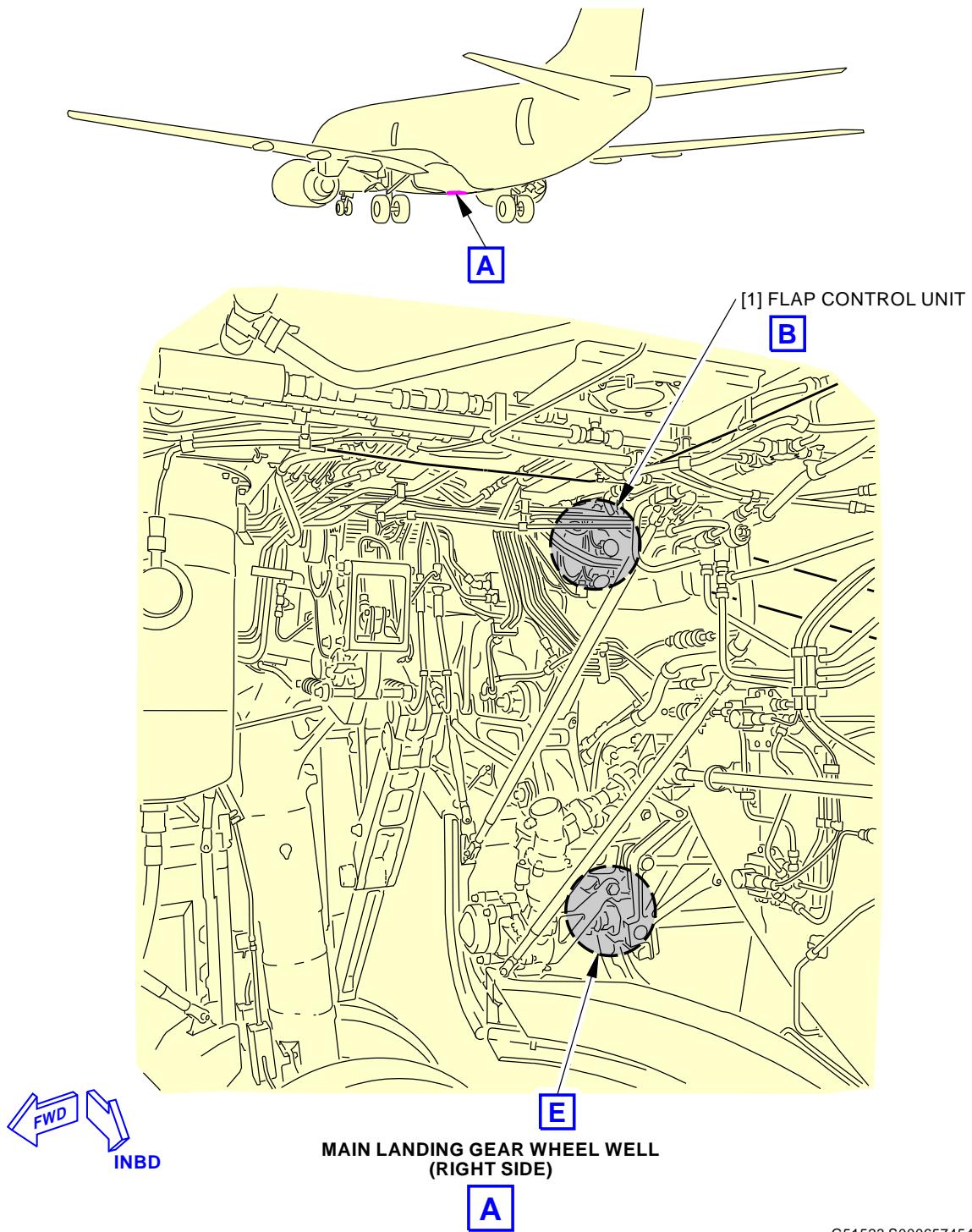
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Flap Landing Warning Switch Installation
Figure 401/31-51-01-990-801 (Sheet 1 of 4)

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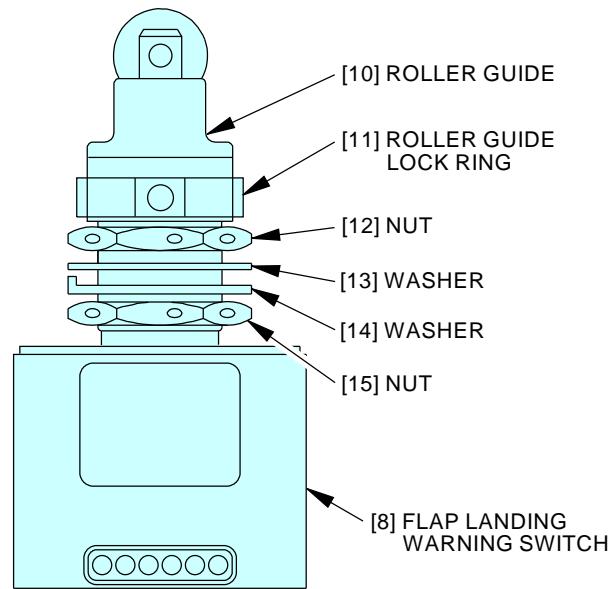
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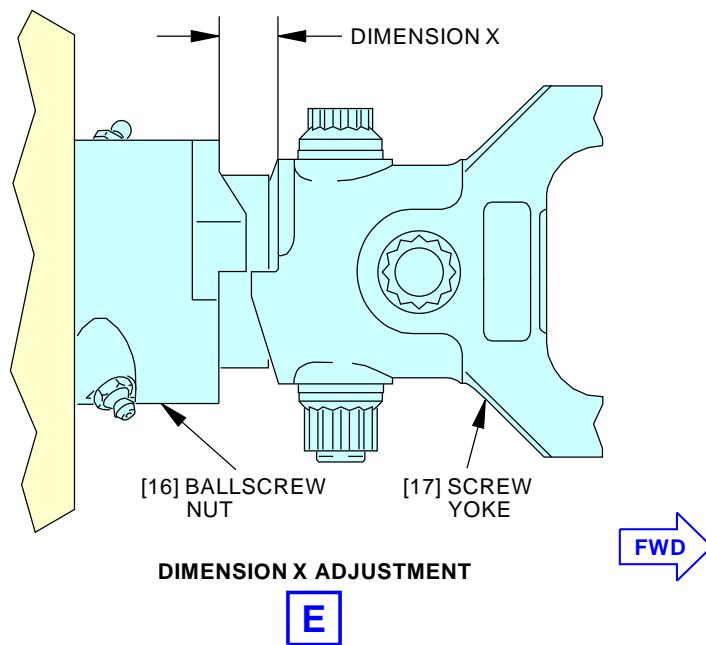


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FLAP LANDING WARNING SWITCH, S138

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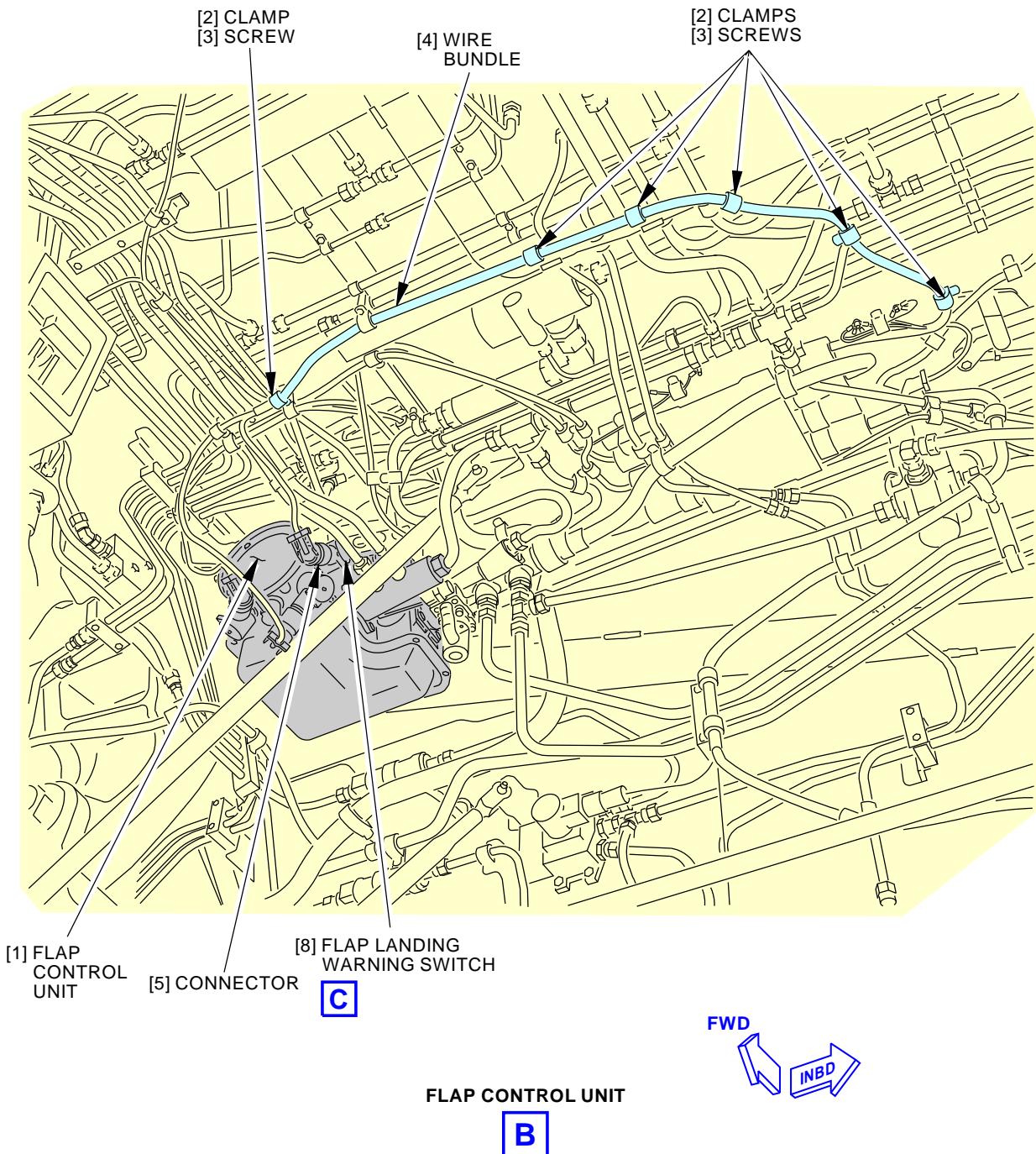


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Flap Landing Warning Switch Installation
Figure 401/31-51-01-990-801 (Sheet 2 of 4)

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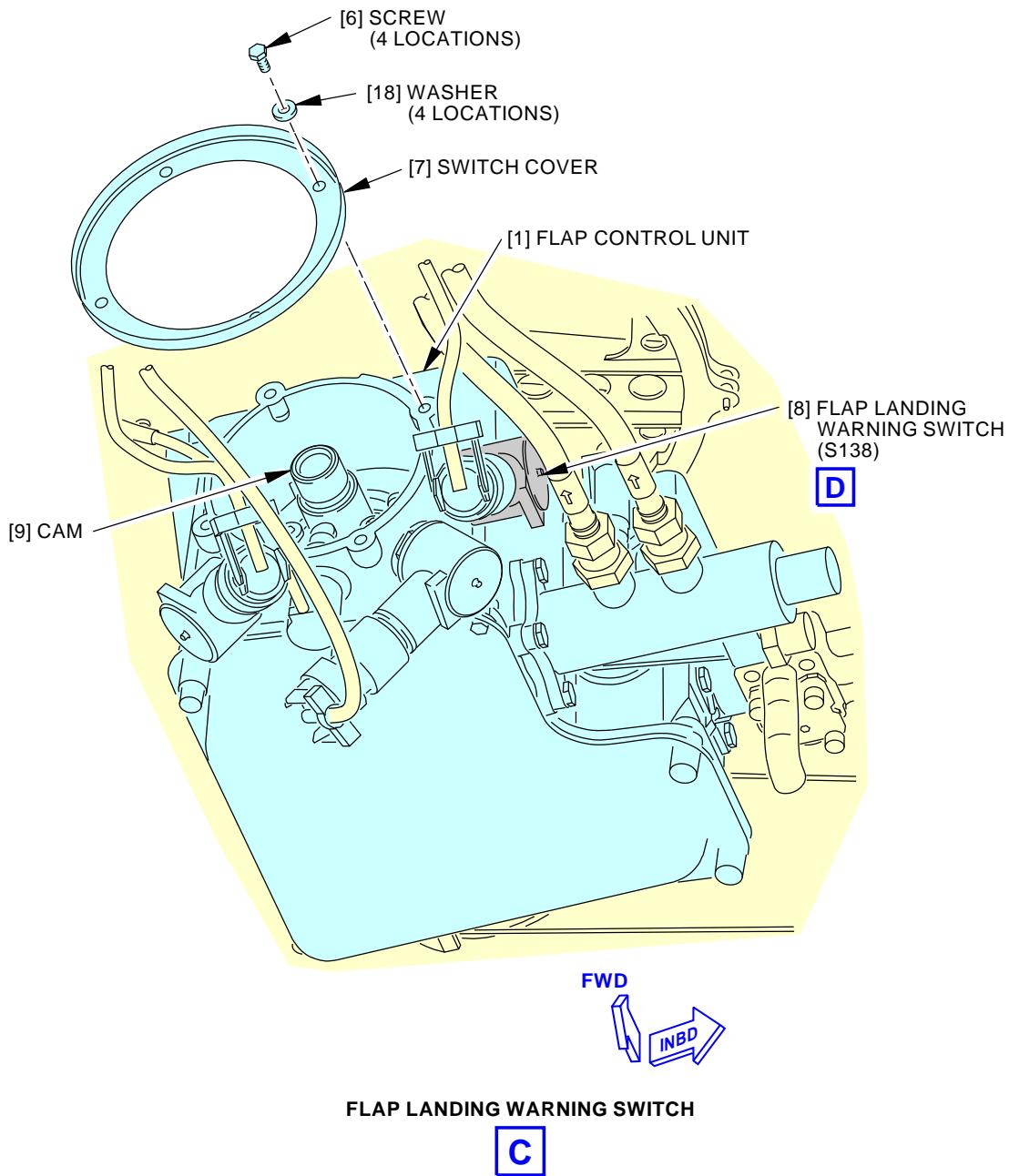


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Flap Landing Warning Switch Installation
Figure 401/31-51-01-990-801 (Sheet 3 of 4)

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Flap Landing Warning Switch Installation
Figure 401/31-51-01-990-801 (Sheet 4 of 4)

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TASK 31-51-01-400-801

3. Flap Landing Warning Switch Installation

(Figure 401)

A. References

Reference	Title
20-50-11-910-801	Standard Torque Values (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding Meters - 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 #: C15292 (MODEL T477W) Supplier: 01014 Part #: M1 Supplier: 3AD17 Opt Part #: M1B Supplier: 3AD17
SPL-4962	Wrench - Limit Switch, Flap Control Unit Part #: F80197-5 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
G50136	Compound - Corrosion Inhibiting, Non-drying	BMS3-38
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38, NSN 6850-01-469-7645

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Switch	27-51-63-01B-010 31-51-01-01B-010	AKS ALL AKS ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
741	Right Main Landing Gear - Outboard Door

F. Installation Procedure

SUBTASK 31-51-01-860-003

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

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F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-01-420-001

- (2) To install the flap landing warning switch [8], use tool set FCU limit switch wrench, SPL-4962:
 - (a) Remove the roller guide lock ring [11], roller guide [10], nut [12], and washer [13] from the switch [8].
 - (b) Put the nut [15] on the switch [8] with approximately 3 threads showing.
 - (c) Put the washer [14] on the switch [8] and put the switch into position on the flap control unit [1].
 - (d) Install the washer [13] and the nut [12] to the flap landing warning switch [8].
 - (e) Put the roller guide [10] into position on the switch [8].
 - (f) Install the roller guide lock ring [11] to hold the roller guide [10].

SUBTASK 31-51-01-760-001

- (3) With the electrical bonding intrinsically safe approved bonding meter, COM-1550, make sure the resistance between the switch [8] and the flap control unit [1] is less than 0.0025 ohms.

SUBTASK 31-51-01-420-008

- (4) Attach the electrical wires for the limit switch.
 - (a) Connect the connector [5] to the switch at the flap control unit [1].

SUBTASK 31-51-01-390-001

- (5) Apply fillet seal with sealant, A02315.

SUBTASK 31-51-01-860-004

- (6) 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>
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-01-820-001

- (7) Do this task: Flap Landing Warning Switch Adjustment and Test, TASK 31-51-01-820-801.

SUBTASK 31-51-01-410-001

- (8) Install the switch cover [7] on the flap control unit [1]:
 - (a) Put the switch cover [7] into position on the flap control unit [1].

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WARNING: USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (b) Apply Cor-Ban 27L Compound, G50237 (preferred) or corrosion inhibiting compound, G50136 (alternate) to the shank and threads of the screws [6].

NOTE: Use the applicable dry or lubed torque values corresponding to the choice of the corrosion inhibitor, refer to Standard Torque Values, TASK 20-50-11-910-801 or BAC5009.

- (c) Install the screws [6] and washer [18] that attach the switch cover [7].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-01-440-001

- (1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 31-51-01-080-001

- (2) If the downlock pins are no longer necessary, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

———— END OF TASK ————

TASK 31-51-01-820-801

4. Flap Landing Warning Switch Adjustment and Test

(Figure 401, Figure 402)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-22-00-710-801	Power Transfer Unit Operational Test (P/B 501)
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Adjustment Procedure

SUBTASK 31-51-01-860-025

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.



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SUBTASK 31-51-01-860-005

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

- (2) Pressurize the hydraulic system for system B to 3000 psi (TASK 29-11-00-860-801).

SUBTASK 31-51-01-220-002

- (3) Move the flap control lever to the 15 unit position.

SUBTASK 31-51-01-220-003

- (4) Depressurize the hydraulic system for the system B (TASK 29-11-00-860-805).

SUBTASK 31-51-01-220-004

- (5) Position the flaps electrically until dimension X is 8.09 ± 0.03 inches.

NOTE: The dimension X of 8.09 ± 0.03 inches corresponds to a flap position that is between 10 and 15 units.

SUBTASK 31-51-01-820-002

- (6) Adjust the flap landing warning switch [8]:

- (a) Turn the inner nut [12] to temporarily adjust the switch [8] in the direction of the cam [9] until you hear a click.
(b) Turn the inner nut to move the switch away from the cam [9] until you hear a click.

NOTE: There will be continuity between pins A and B, S and T on the limit switch connector.

- (c) Tighten the nuts [15] on switch [8].
(d) Install MS20995C32 lockwire, G01048 on the nuts [12] and [15] (TASK 20-10-44-400-801).
(e) Do a check of the switch continuity or push on the switch roller and listen for the switch [8] until you hear a click.

SUBTASK 31-51-01-410-002

- (7) Put the switch cover [7] on the flap control unit [1].

E. Prepare for the Installation Test

SUBTASK 31-51-01-860-026

- (1) Make sure the engines are shutdown.

SUBTASK 31-51-01-860-024

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

- (2) Pressurize the hydraulic system for system B to 3000 psi (TASK 29-11-00-860-801).

SUBTASK 31-51-01-860-027

- (3) Move the flap control lever to the 0 unit position.



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SUBTASK 31-51-01-480-006

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (4) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

F. Installation Test

SUBTASK 31-51-01-720-001

- (1) Do the interface test between the S138 switch and the PSEU below:
- (a) Make sure the PSEU BITE display is off.
 - (b) Press the ON/OFF button.
 - (c) The display will show EXISTING FAULTS?
 - (d) Press the NO button.
 - (e) The display will show FAULT HISTORY?
 - (f) Press the NO button.
 - (g) The display will show GROUND TESTS?
 - (h) Press the NO button.
 - (i) The display will show AIR/GND OVRD?
 - (j) Press the NO button.
 - (k) The display will show OTHER FUNCTNS?
 - (l) Press the YES button.
 - (m) The display will show T/O WARN REPORT?
 - (n) Press the NO button.
 - (o) The display will show LGTV REPORT?
 - (p) Press the NO button.
 - (q) The display will show SENSOR RIGGING?
 - (r) Press the NO button.
 - (s) The display will show I/O MONITOR?
 - (t) Press the YES button.
 - (u) The display will show SENSORS?
 - (v) Press the DOWN ARROW button.
 - (w) The display will show INPUTS?
 - (x) Press the YES button.
 - (y) The display will show CONN D10982?
 - (z) Press the NO button.
 - (aa) The display will show CONN D10984?
 - (ab) Press the YES button.
 - (ac) Move the Flaps lever to Full "UP".
 - (ad) Using the UP and/or DOWN ARROW find PIN 48.
 - 1) Make sure that the PSEU BITE display shows PIN 48 as NO GND.

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- (ae) Use DOWN ARROW to find PIN 49.
 - 1) Make sure that the PSEU BITE display shows PIN 49 as NO GND.
- (af) Move the Flaps lever to "10".
 - 1) Make sure that the PSEU BITE display shows PIN 49 as NO GND.
- (ag) Move the Flaps lever to "15".
 - 1) Make sure that the PSEU BITE display shows PIN 49 as GND.
- (ah) Use the DOWN ARROW to find PIN 48.
 - 1) Make sure that the PSEU BITE display shows PIN 48 as GND.

SUBTASK 31-51-01-710-001

- (2) Do this task: Power Transfer Unit Operational Test, TASK 29-22-00-710-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-01-860-031

- (1) Do these steps to return the PSEU to normal:
 - (a) Press the ON/OFF button.
 - (b) The display will show TURN OFF DISPLAY?
 - (c) Press the YES button.
 - 1) Make sure that the display turns off.

SUBTASK 31-51-01-860-030

- (2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-51-01-080-004

- (3) If the downlock pins are no longer necessary, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

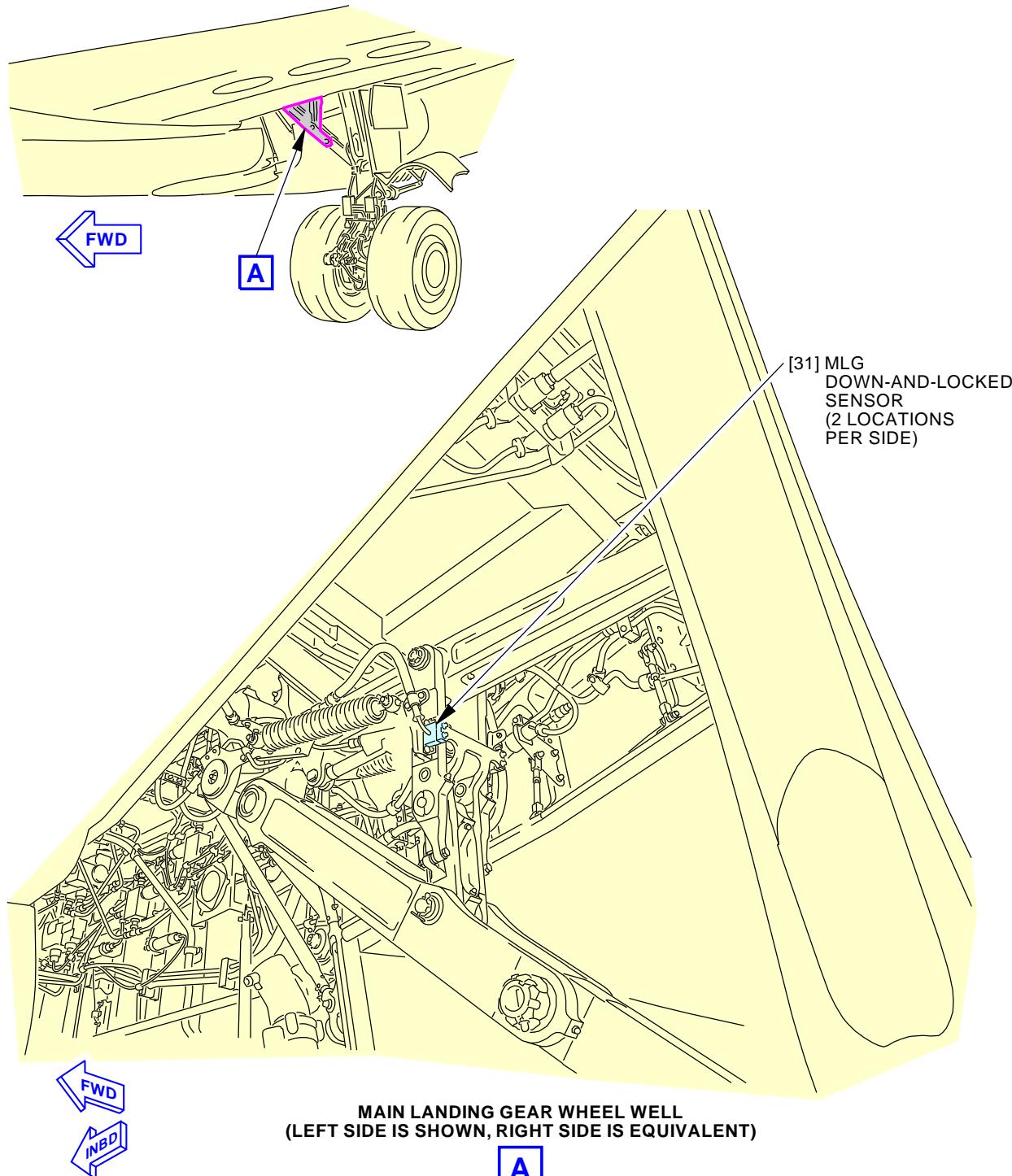
SUBTASK 31-51-01-860-011

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

———— END OF TASK ————



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Main Landing Gear Down-and-Locked Sensor Location
Figure 402/31-51-01-990-802

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STABILIZER TAKEOFF WARNING SWITCHES - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the four stabilizer takeoff warning switches
 - (2) An installation of the four stabilizer takeoff warning switches.
- B. Each switch is operated by an upper and a lower limit switch cam.

TASK 31-51-02-000-801

2. Stabilizer Takeoff Warning Switch Removal

(Figure 401)

A. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
313	Stabilizer Torsion Box Compartment - Left
314	Stabilizer Torsion Box Compartment - Right

C. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

D. Prepare for the Removal

SUBTASK 31-51-02-860-016

- (1) Set the stabilizer trim cutout switches to the CUTOUT position.

E. Removal Procedure

SUBTASK 31-51-02-860-001

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-02-010-001

- (2) Open this access panel:

Number Name/Location

311BL Stabilizer Trim Access Door



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SUBTASK 31-51-02-010-002

WARNING: YOU MUST PREVENT ALL POSSIBLE OPERATION OF THE HORIZONTAL STABILIZER WHEN YOU WORK ON OR NEAR IT. THE HORIZONTAL STABILIZER MOVES QUICKLY AND WITH FORCE. IF THE STABILIZER MOVES WHEN PERSONS ARE IN THE TORSION BOX COMPARTMENT OR NEAR THE STABILIZER, YOU CAN CAUSE INJURY TO THEM.

- (3) Find the applicable stabilizer takeoff warning switch [1].

SUBTASK 31-51-02-020-001

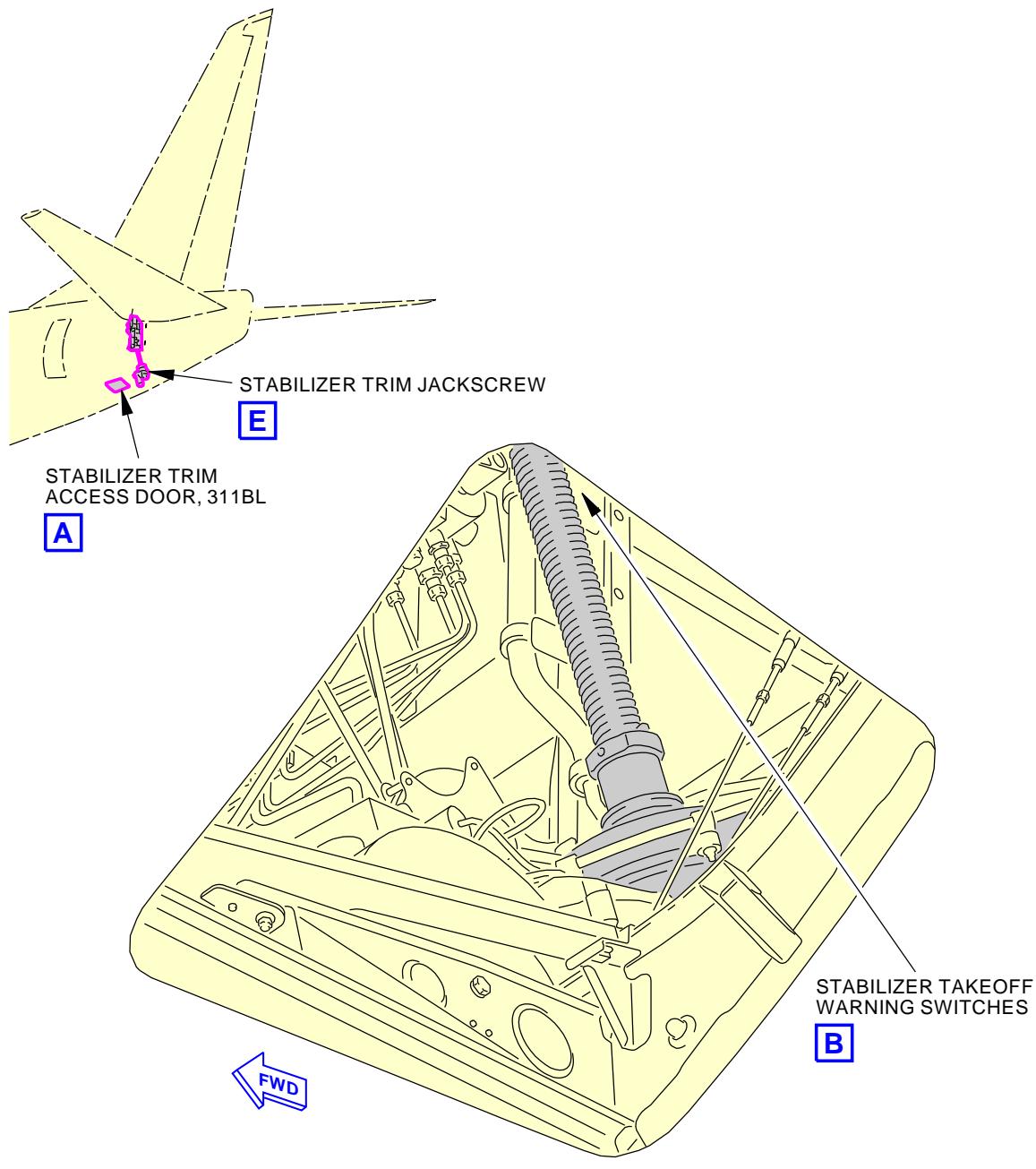
- (4) Remove the switch [1]:

- (a) Disconnect and label the wires for the switch [1].
- (b) Loosen the jam nut [3] and remove the locknut [5] and washer [4] which attach the switch arm [6] to the switch [1].
- (c) Remove the switch arm [6] from the shaft of the switch [1].
- (d) Remove the lockwire from the retainer nut [9] (TASK 20-10-44-000-801).
- (e) Remove the lockwasher [8] and retainer nut [9] which attach the switch [1] to the bracket assembly [2].
- (f) Remove the switch [1] from the bracket assembly [2].

———— END OF TASK ————

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VIEW WHEN YOU LOOK UP THROUGH THE
STABILIZER TRIM ACCESS DOOR



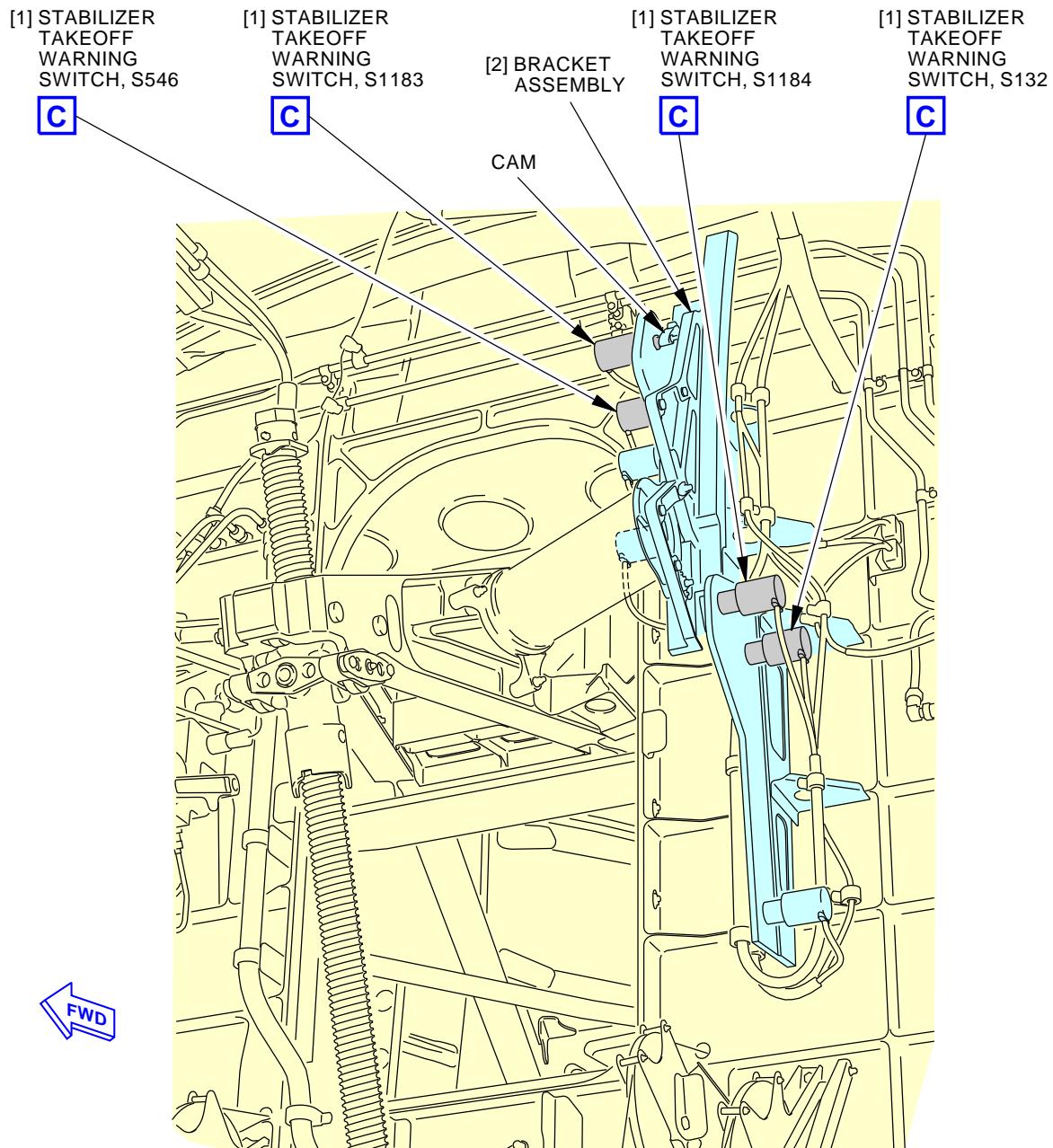
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Stabilizer Takeoff Warning Switches Installation
Figure 401/31-51-02-990-801 (Sheet 1 of 5)

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STABILIZER TAKEOFF WARNING SWITCHES

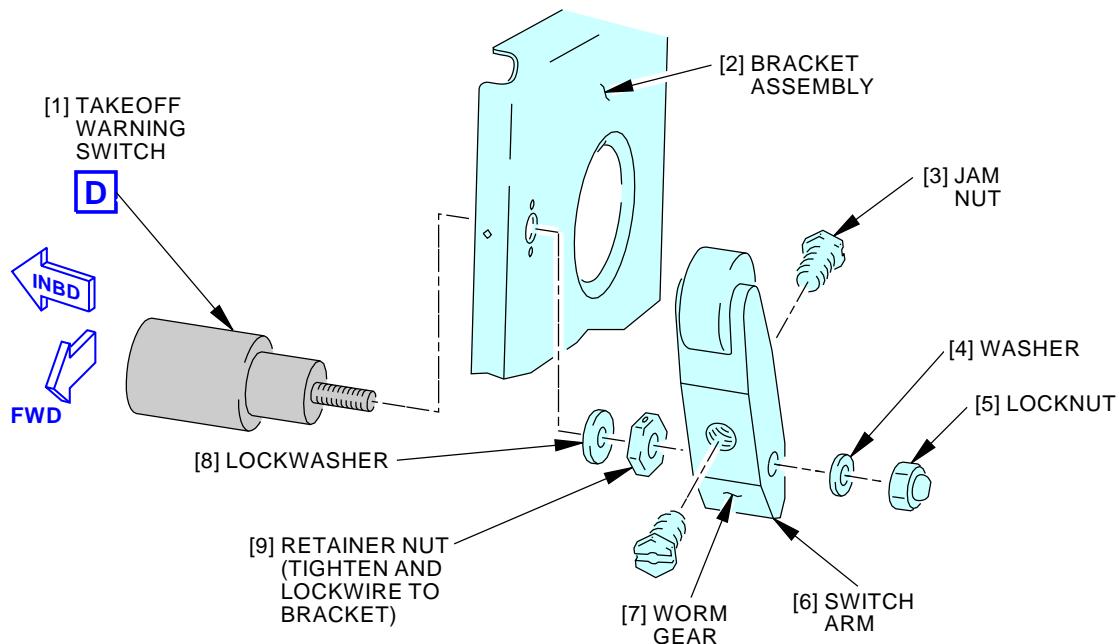
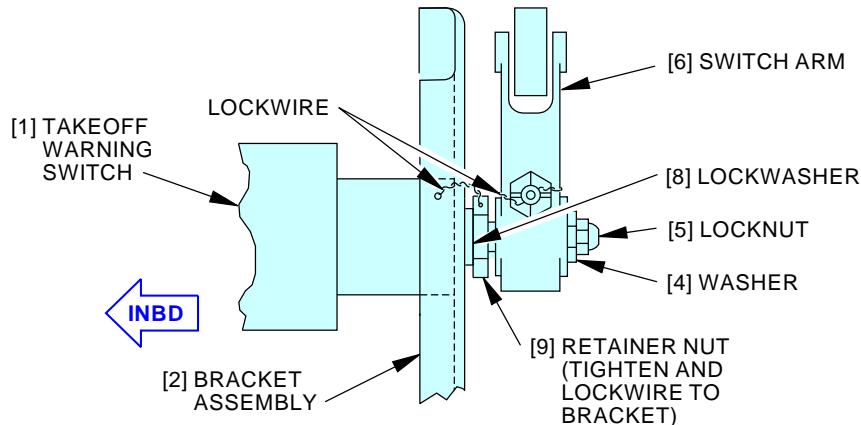
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Stabilizer Takeoff Warning Switches Installation
Figure 401/31-51-02-990-801 (Sheet 2 of 5)

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STABILIZER TAKEOFF WARNING SWITCHES
(EXAMPLE)**C**TAKEOFF WARNING SWITCH
(EXAMPLE)**D**

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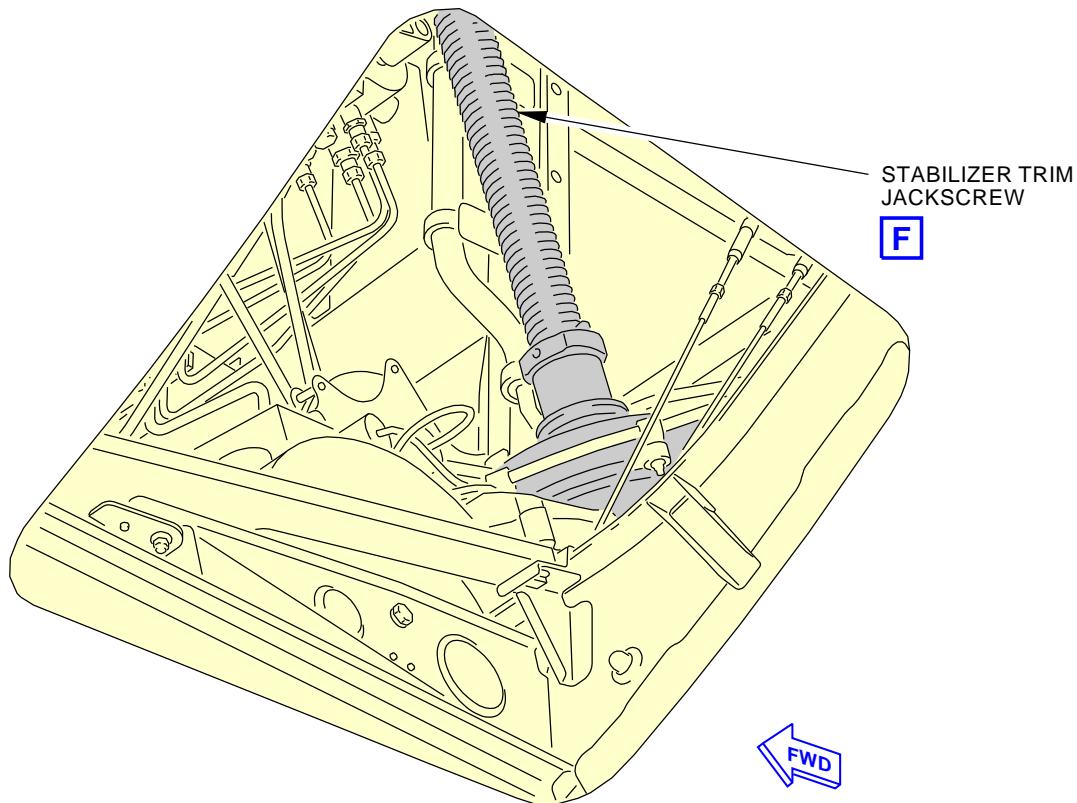
Stabilizer Takeoff Warning Switches Installation

Figure 401/31-51-02-990-801 (Sheet 3 of 5)

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VIEW WHEN YOU LOOK UP THROUGH THE
STABILIZER TRIM ACCESS DOOR AT THE
STABILIZER TRIM JACKSCREW

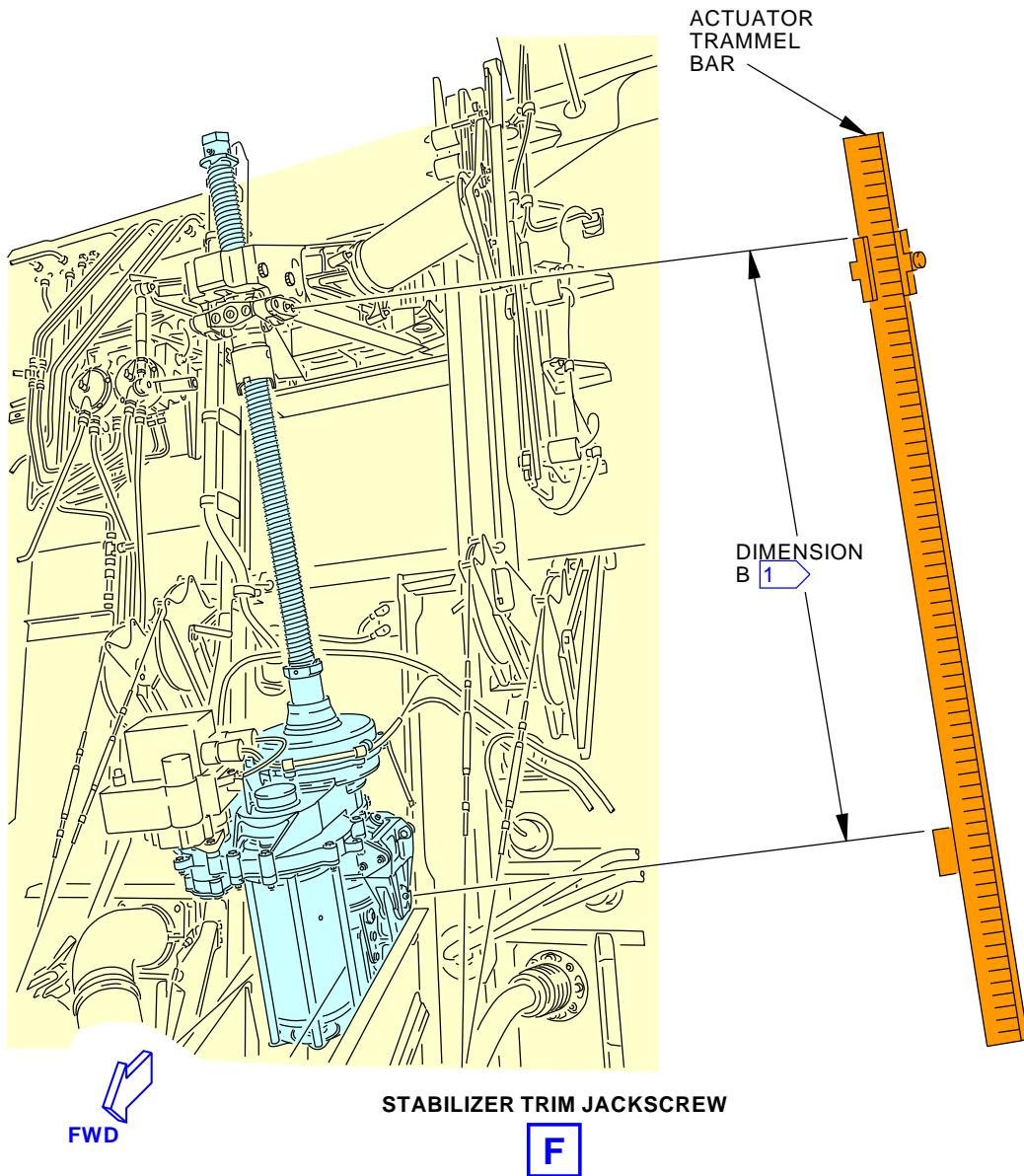
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Stabilizer Takeoff Warning Switches Installation
Figure 401/31-51-02-990-801 (Sheet 4 of 5)

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**NOTE:**

THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION "B" IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS (CENTER OF GREASE FITTING)

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Stabilizer Takeoff Warning Switches Installation
Figure 401/31-51-02-990-801 (Sheet 5 of 5)

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TASK 31-51-02-400-801

3. Stabilizer Takeoff Warning Switch Installation

(Figure 401)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
31-51-02-700-801	Stabilizer Takeoff Warning Switches Test (P/B 501)
31-51-02-820-801	Stabilizer Takeoff Warning Switches Adjustment (P/B 501)
WDM 31-51-11	Wiring Diagram Manual

B. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Switch	27-41-94-04-010	AKS ALL
		31-51-02-02-010	AKS ALL
		31-51-02-02-015	AKS ALL

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
313	Stabilizer Torsion Box Compartment - Left
314	Stabilizer Torsion Box Compartment - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Installation Procedure

SUBTASK 31-51-02-860-002

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-02-420-001

- (2) Install the switch [1]:

- (a) Put the shaft of the switch [1] through the bracket assembly [2].
- (b) Install the retainer nut [9] and lockwasher [8] to attach the switch [1] to the bracket assembly [2].
- (c) Install a MS20995NC32 lockwire, G01912, to attach the retainer nut [9] to the bracket assembly [2] (TASK 20-10-44-400-801).
- (d) Install the switch arm [6] on the shaft of the switch [1].
- (e) Turn the switch arm [6] to the approximate position for installation.



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- (f) Put the switch arm [6] on the switch [1] to engage the serrations.
- (g) Install the washer [4] and locknut [5] to attach the switch arm [6] to the switch [1].
- (h) Connect the wires to the switch [1] (WDM 31-51-11).
 - 1) Make sure the wires go through the wire bundle clamps.
- (i) Do this task: Stabilizer Takeoff Warning Switches Adjustment, TASK 31-51-02-820-801
- (j) Do this task: Stabilizer Takeoff Warning Switches Test, TASK 31-51-02-700-801

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-02-860-008

- (1) Move the thrust lever to the idle position.

SUBTASK 31-51-02-860-015

- (2) Set the stabilizer trim cutout switches to the NORMAL position.

SUBTASK 31-51-02-410-001

- (3) Close this access panel:

Number Name/Location

311BL Stabilizer Trim Access Door

———— END OF TASK ————

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STABILIZER TAKEOFF WARNING SWITCHES - ADJUSTMENT/TEST

1. General

- A. This procedure has these tasks:
 - (1) An adjustment of the stabilizer takeoff warning switches
 - (2) A test of the stabilizer takeoff warning switches
- B. The stabilizer takeoff warning switch is referred to as the limit switch in this procedure.
- C. There are four stabilizer takeoff warning switches (S132, S1184, S546, and S1183) on the brackets along the stabilizer jackscrew.

TASK 31-51-02-820-801

2. Stabilizer Takeoff Warning Switches Adjustment

(Figure 501)

A. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-1107	Gauge - Feeler, 0.0 - 0.5 Inch, Readable to 1/1000th
STD-1330	Wrench - Hexdrive, Allen Wrench
STD-13571	Screwdriver - Flat Tip

C. Consumable Materials

Reference	Description	Specification
G02166	Lockwire - MS20995NC20, Monel - 0.020 Inch (0.508 mm) Diameter	NASM20995

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
313	Stabilizer Torsion Box Compartment - Left
314	Stabilizer Torsion Box Compartment - Right

E. Stabilizer Takeoff Warning Switches Adjustment

(Figure 501)

SUBTASK 31-51-02-820-002

- (1) Adjust the Switch [1]:

- (a) Loosen the Locking Nut [2] and the Lock Screw [3]. Do not remove the Locking Nut [2] or Lock Screws [3].

NOTE: The adjustment gear must be adjusted when the switch is not loaded by the actuating cam.

- (b) Hand-adjust the stabilizer jackscrew to the necessary position so that the switch is not loaded.

NOTE: Clockwise movement of the jackscrew crank results in a decrease in the "B" dimension.

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- (c) Adjust the switch roller arm position on the switch spline shaft to the approximate switch actuation position.
 - (d) Hand-tighten the Locking Nut [2] and Lock Screws [3].
 - (e) Rotate the stabilizer jackscrew until the switch actuates.
- NOTE: The audible “click” at the point of actuation is very subtle. The switch actuating can be sensed by placing your fingers on the switch housing while adjusting to feel the switch actuate.
- (f) Make sure the “B” dimension is in the correct range for the upper (S546 and S1183) and lower (S132 and S1184) Switches [1] (Table 501 or Table 502).

Table 501/31-51-02-993-816

S546 and S1183 STAB LIMIT SWITCHES			
NON-WINGLETS & Non-Short Field Option		WINGLETS and/or Short Field Option	
TRIM UNITS	B DIMENSION	TRIM UNITS	B DIMENSION
1.80	43.01 \pm 0.03 in. (109.25 \pm 0.08 cm) ^[1]	2.40	42.16 \pm 0.03 in. (107.09 \pm 0.08 cm) ^[1]

*[1] Switches S546 and S1183 must be rigged simultaneously and switch within 0.015 in. (0.038 cm) maximum of each other. If one of the pair switches needs to be removed or replaced, both switches need to be re-rigged.

Table 502/31-51-02-993-817

S132 and S1184 STAB LIMIT SWITCHES			
NON-WINGLETS & Non-Short Field Option		WINGLETS and/or Short Field Option	
TRIM UNITS	B-DIMENSION	TRIM UNITS	B-DIMENSION
8.75	33.10 \pm 0.03 in. (84.07 \pm 0.08 cm) ^[1]	8.75	33.10 \pm 0.03 in. (84.07 \pm 0.08 cm) ^[1]

*[1] Switches S132 and S1184 must be rigged simultaneously and switch within 0.015 in. (0.038 cm) maximum of each other. If one of the pair switches needs to be removed or replaced, both switches need to be re-rigged.

- 1) If the “B” dimension is not within the correct tolerance at the actuation point, back the cam off by adjusting the stabilizer jackscrew until the switch is unloaded, loosen the Locking Nut [2] and Lock Screws [3], and repeat the roller arm adjustment until the correct “B” dimension is obtained.
 - (g) Tighten the two Lock Screws [3] on the lever.
 - (h) Tighten the Locking Nut [2] to 22.5 \pm 2.5 in-lb (2.5 \pm 0.3 N·m).
 - (i) Use a hexdrive allen wrench, STD-1330 or a Flat Tip Screwdriver, STD-13571 to turn the Worm Gear [4] with no more than 6 in-lb (1 N·m) until within the “B” dimension tolerances per Table 501 or Table 502.
- NOTE: Clockwise movement of the worm gear results in a decrease of the “B” dimension for the adjusted switch.
- (j) Install a MS20995NC20 lockwire, G02166, between the two Lock Screws [3] (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801).
 - (k) With the stabilizer leading edge in the full down position (airplane nose up), make sure the nose up switch S132 and S1184 can be rotated away from the cam surface by a minimum of 0.05 in. (1.27 mm). Use a 0.0 - 0.5 Inch feeler gauge, STD-1107.

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- (I) With the stabilizer leading edge in the full up position (airplane nose down), make sure the nose down switch S546 and S1183 can be rotated away from the cam surface by a minimum of 0.05 in. (1.27 mm). Use a 0.0 - 0.5 Inch feeler gauge, STD-1107.

———— END OF TASK ————

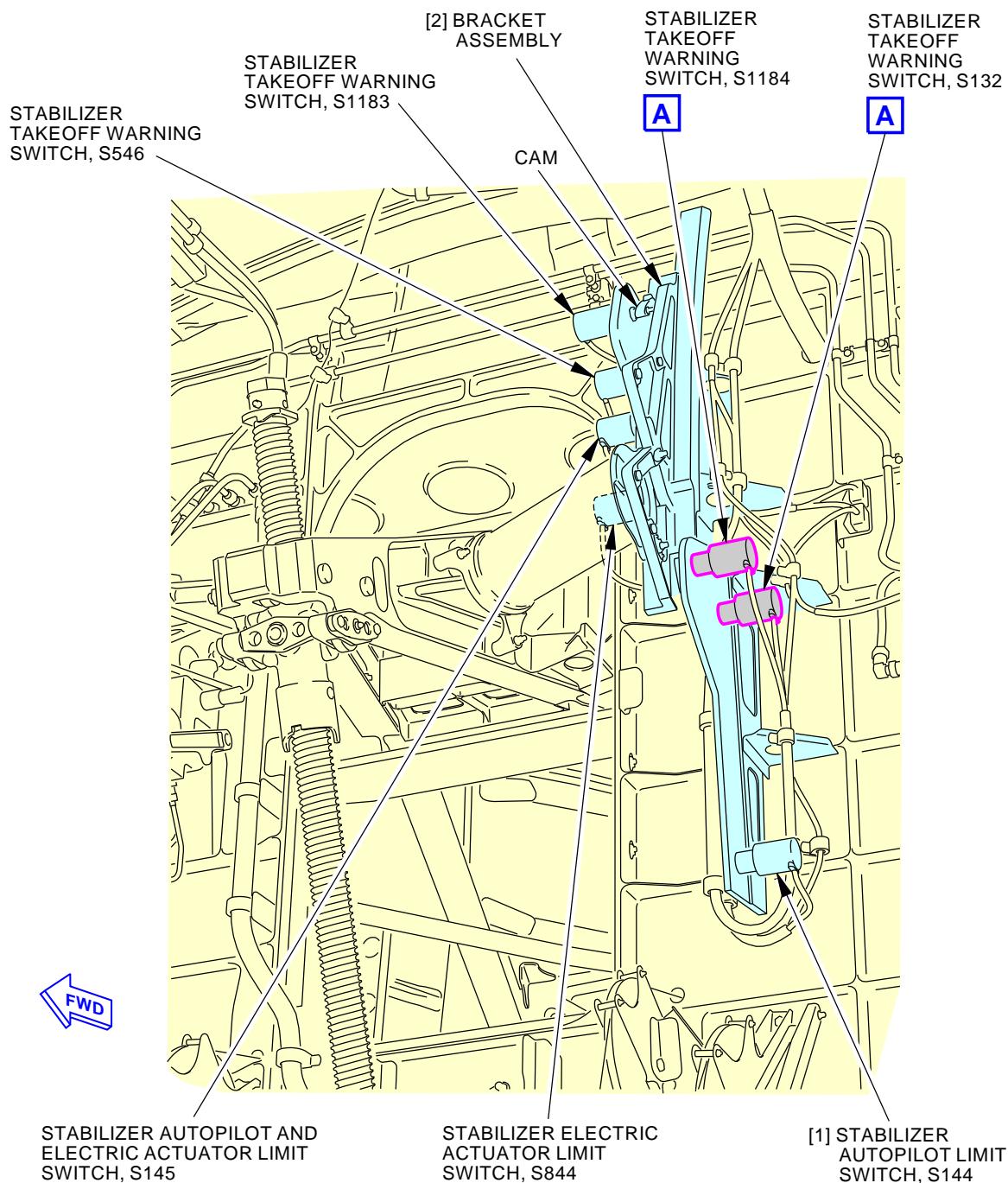
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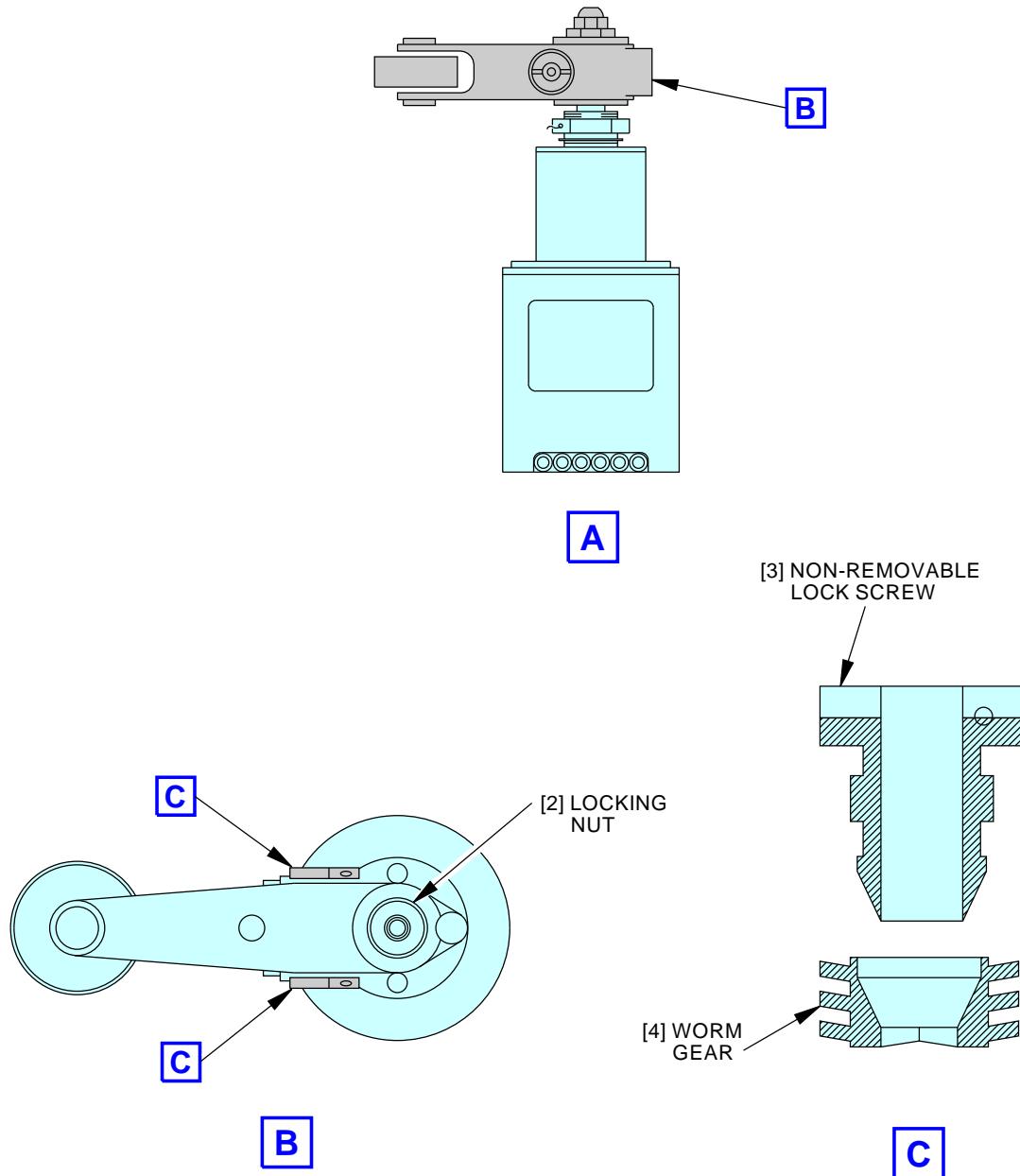


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Stabilizer Takeoff Warning Switches Adjustment
Figure 501/31-51-02-990-802 (Sheet 1 of 2)

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Stabilizer Takeoff Warning Switches Adjustment
Figure 501/31-51-02-990-802 (Sheet 2 of 2)

EFFECTIVITY

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TASK 31-51-02-700-801

3. Stabilizer Takeoff Warning Switches Test

A. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Lower Half of the Fuselage (P/B 201)
10-11-01 P/B 201	NORMAL PARKING - MAINTENANCE PRACTICES
10-11-05 P/B 201	CHOCK INSTALLATION
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00 P/B 201	HYDRAULIC SYSTEMS A AND B - MAINTENANCE PRACTICES
31-51-02-990-801	Figure: Stabilizer Takeoff Warning Switches Installation (P/B 401)
32-09-00 P/B 201	AIR/GROUND SYSTEM - MAINTENANCE PRACTICES

B. Tools/Equipment

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

Reference	Description
COM-1505	Chocks - Wheel Part #: 99-9028-6000 Supplier: 59603 Part #: AC6820-LR Supplier: 032T9 Part #: W88 Supplier: 9L752 Part #: W92 Supplier: 9L752
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator Part #: F80055-10 Supplier: 81205 Opt Part #: F80055-1 Supplier: 81205

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
313	Stabilizer Torsion Box Compartment - Left
314	Stabilizer Torsion Box Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

E. Stabilizer Takeoff Warning Switch Test

(Figure 31-51-02-990-801)

SUBTASK 31-51-02-860-010

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811



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SUBTASK 31-51-02-840-001

- (2) Make sure wheel chocks, COM-1505 are installed, (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

NOTE: This procedure requires release of the parking brake. Parking brake release prevents the horn activation from the takeoff warning system.

SUBTASK 31-51-02-010-003

- (3) Get access to the Proximity Sensor Electronics Unit (PSEU), M02061, in the E/E bay.

- (a) Open this access panel:

Number Name/Location

112A Forward Access Door

- (b) You can refer to (Finding an Access Door or Panel on the Lower Half of the Fuselage, TASK 06-41-00-800-801).

SUBTASK 31-51-02-860-021

- (4) Using the PSEU, make sure SYS-1 and SYS-2 are set to ground mode, (AIR/GROUND SYSTEM - MAINTENANCE PRACTICES, PAGEBLOCK 32-09-00/201).

SUBTASK 31-51-02-860-019

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (5) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 31-51-02-010-004

- (6) Open this access panel:

Number Name/Location

311BL Stabilizer Trim Access Door

SUBTASK 31-51-02-860-023

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.

- (7) Pressurize hydraulic systems A and B, (HYDRAULIC SYSTEMS A AND B - MAINTENANCE PRACTICES, PAGEBLOCK 29-11-00/201).

SUBTASK 31-51-02-860-011

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN



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SUBTASK 31-51-02-860-012

- (9) Make sure the speed brakes are down.

SUBTASK 31-51-02-860-013

- (10) Make sure the flaps are in the takeoff range of 1 to 15 units.

SUBTASK 31-51-02-860-014

- (11) Move one of the thrust levers full forward.

SUBTASK 31-51-02-860-017

- (12) Do this test for the upper Switches [1], S546 and S1183:

- (a) Move the stabilizer in the leading edge up direction (airplane nose down) until you hear the warning horn.
- (b) Use the bar, SPL-1677, to make sure dimension "B" is in the correct range for the upper Switch [1] (Table 503).

Table 503/31-51-02-993-812

S546 and S1183 STAB LIMIT SWITCHES			
NON-WINGLETS & Non-Short Field Option		WINGLETS and/or Short Field Option	
TRIM UNITS	B DIMENSION	TRIM UNITS	B DIMENSION
1.80	43.01 ±0.03 in. (109.25 ±0.08 cm) ^[1]	2.40	42.16 ±0.03 in. (107.09 ±0.08 cm) ^[1]

*[1] Switches S546 and S1183 must be rigged simultaneously and switch within 0.015 in. (0.038 cm) maximum of each other. If one of the pair switches needs to be removed or replaced, both switches need to be re-rigged.

SUBTASK 31-51-02-860-018

- (13) Do this test for the lower Switches [1], S132 and S1184:

- (a) Move the stabilizer in the leading edge down direction (airplane nose up) until you hear the warning horn.
- (b) Use the bar, SPL-1677, to make sure dimension "B" is in the correct range for the lower Switch [1] (Table 504).

Table 504/31-51-02-993-811

S132 and S1184 STAB LIMIT SWITCHES			
NON-WINGLETS & Non-Short Field Option		WINGLETS and/or Short Field Option	
TRIM UNITS	B-DIMENSION	TRIM UNITS	B-DIMENSION
8.75	33.10 ±0.03 in. (84.07 ±0.08 cm) ^[1]	8.75	33.10 ±0.03 in. (84.07 ±0.08 cm) ^[1]

*[1] Switches S132 and S1184 must be rigged simultaneously and switch within 0.015 in. (0.038 cm) maximum of each other. If one of the pair switches needs to be removed or replaced, both switches need to be re-rigged.

F. Return the Airplane to its Usual Condition

SUBTASK 31-51-02-440-001

- (1) Activate the parking brake, (NORMAL PARKING - MAINTENANCE PRACTICES, PAGEBLOCK 10-11-01/201).

SUBTASK 31-51-02-040-001

- (2) Remove hydraulic pressure from system A and system B, (HYDRAULIC SYSTEMS A AND B - MAINTENANCE PRACTICES, PAGEBLOCK 29-11-00/201).

EFFECTIVITY
AKS ALL

31-51-02

D633A101-AKS



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SUBTASK 31-51-02-410-003

- (3) Close this access panel:

Number Name/Location

311BL Stabilizer Trim Access Door

SUBTASK 31-51-02-860-020

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

F/O Electrical System Panel, P6-1

Row Col Number Name

D	13	C00120	WEATHER RADAR RT
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SUBTASK 31-51-02-410-002

- (5) Close this access panel:

Number Name/Location

112A Forward Access Door

———— END OF TASK ————



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SPEEDBRAKE TAKEOFF WARNING SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
 - (1) A removal of the speed brake takeoff warning switch
 - (2) An installation of the speed brake takeoff warning switch.
- B. The switch is installed in the top left forward position of the control stand. The switch is operated by an actuator on the speed brake lever.

TASK 31-51-03-000-801

2. Speedbrake Takeoff Warning Switch Removal

(Figure 401)

A. References

Reference	Title
27-41-61-010-801	Stabilizer Trim Control Wheel Removal (P/B 401)

B. Location Zones

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

C. Removal Procedure

SUBTASK 31-51-03-860-001

- (1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF

SUBTASK 31-51-03-860-002

- (2) Make sure the speed brake lever is in the DOWN position.

SUBTASK 31-51-03-020-002

- (3) Do this task: Stabilizer Trim Control Wheel Removal, TASK 27-41-61-010-801.

SUBTASK 31-51-03-010-001

- (4) Remove the screws [2] that attach the switch cover [1] to the control stand.

SUBTASK 31-51-03-020-001

- (5) Remove the speedbrake takeoff warning switch [6]:

- (a) Disconnect the electrical wires from the switch [6] as follows:

- 1) Wire No. 20, terminal [10], from the NC terminal
 - 2) Wire No. 21, terminal [12], from the NO terminal
 - 3) Wire No. 19, terminal [11], from the COM terminal.

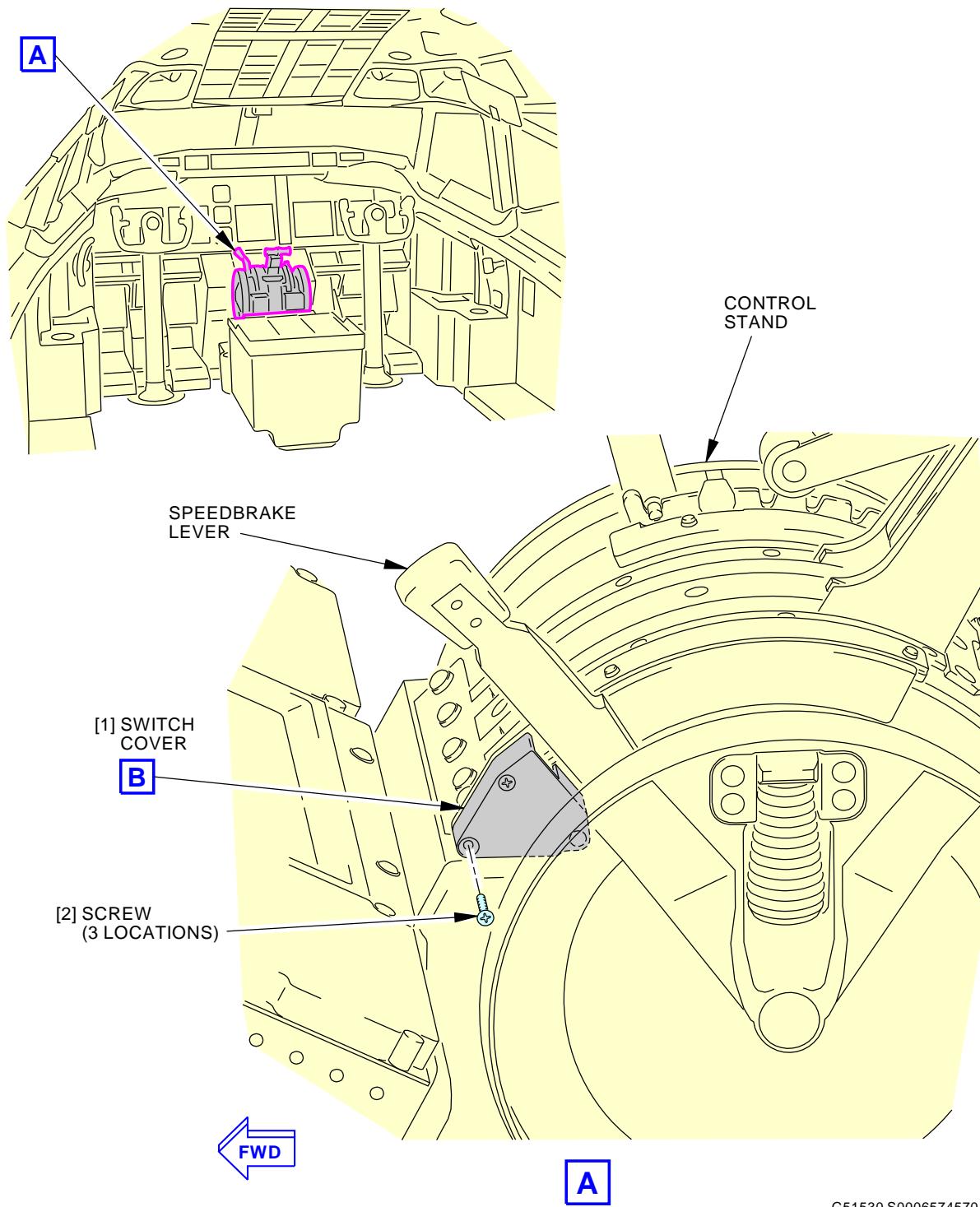
- (b) Remove the self-locking nut [8] and washer [7] from the switch mount stud and the screw [9].

- (c) Remove the switch [6].

———— END OF TASK ————

EFFECTIVITY	AKS ALL
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31-51-03



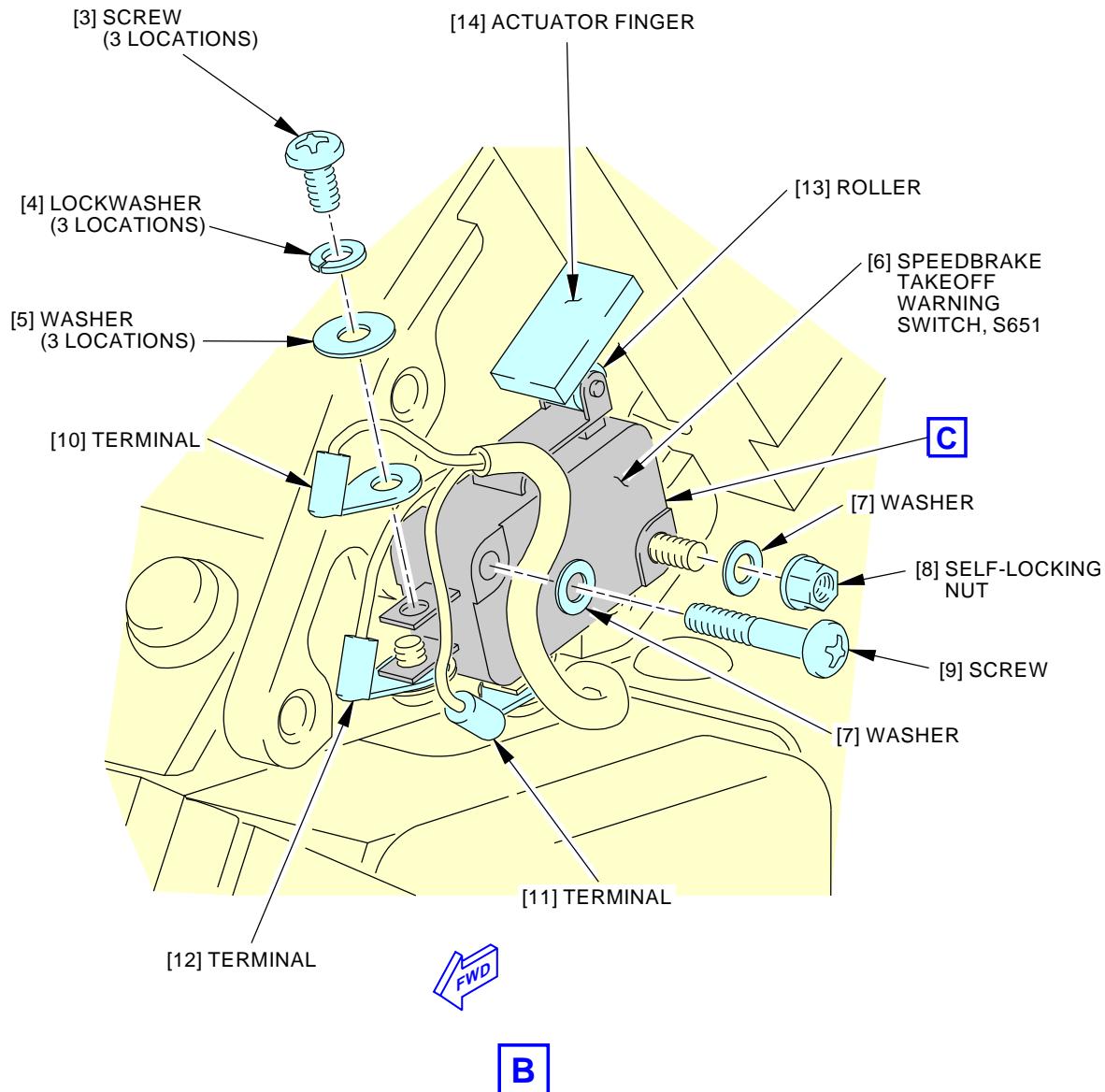
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Speed Brake Takeoff Warning Switch Installation
Figure 401/31-51-03-990-801 (Sheet 1 of 3)

EFFECTIVITY
AKS ALL

31-51-03

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**Speed Brake Takeoff Warning Switch Installation
Figure 401/31-51-03-990-801 (Sheet 2 of 3)**

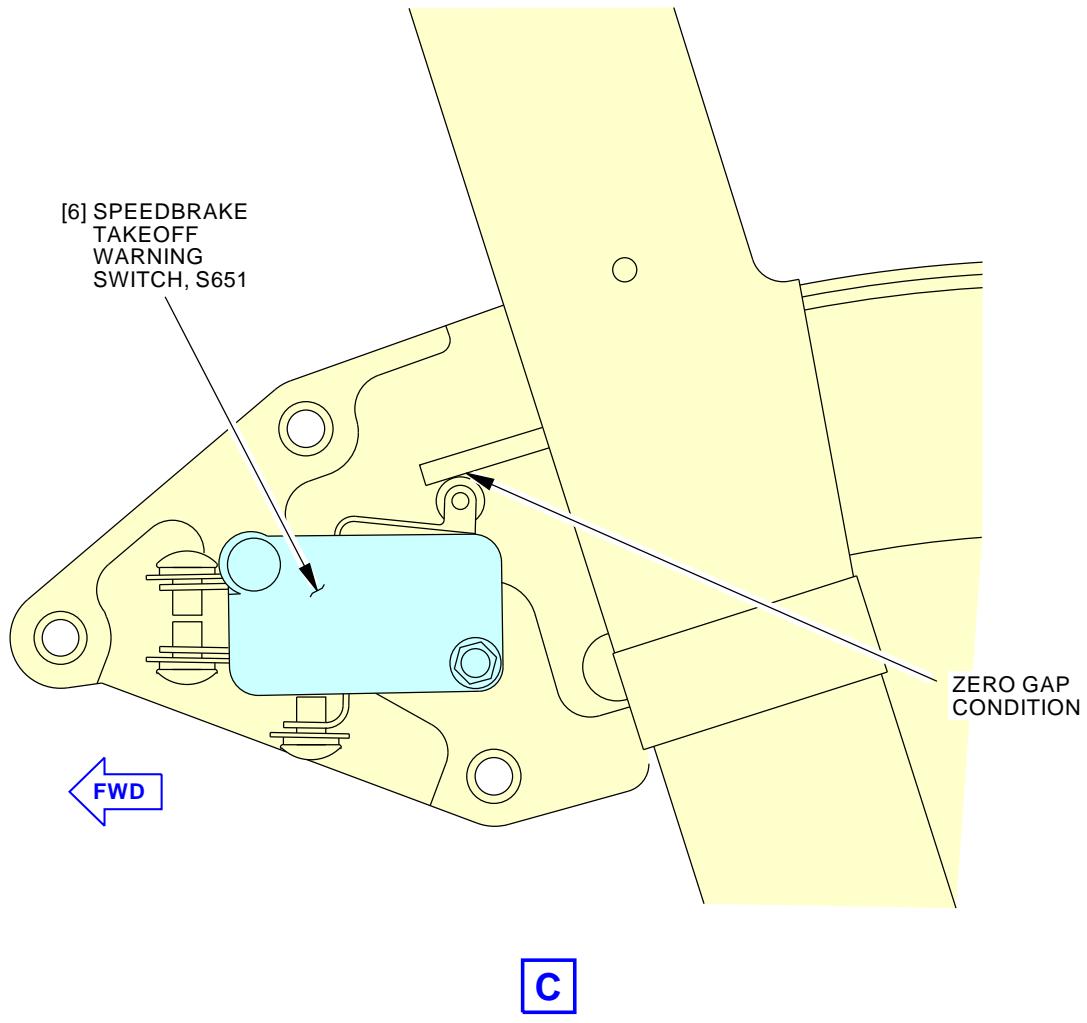
EFFECTIVITY
AKS ALL

31-51-03

D633A101-AKS



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AIRCRAFT MAINTENANCE MANUAL



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Speed Brake Takeoff Warning Switch Installation
Figure 401/31-51-03-990-801 (Sheet 3 of 3)

EFFECTIVITY
AKS ALL

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D633A101-AKS

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AIRCRAFT MAINTENANCE MANUAL

TASK 31-51-03-400-801

3. Speedbrake Takeoff Warning Switch Installation

(Figure 401)

A. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-41-61-410-801	Stabilizer Trim Control Wheel Installation (P/B 401)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. Tools/Equipment

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

Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 260-8XPI Supplier: 88277 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 #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Switch	27-41-51-01-445	AKS ALL

D. Location Zones

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

E. Installation Procedure

SUBTASK 31-51-03-420-001

- (1) Install the speedbrake takeoff warning switch [6]:

- (a) Put the switch [6] into its position on the control stand.

NOTE: If it is required, connect the electrical wires terminal [11] to the switch [6] prior to tighten the switch.



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AIRCRAFT MAINTENANCE MANUAL

- (b) Install the washers [7] and self -locking nut [8] on the switch mount stud and the screw [9].

NOTE: Do not tighten the self -locking nut [8] until you adjust the switch [6].

SUBTASK 31-51-03-820-002

- (2) Adjust the speedbrake takeoff warning switch [6]:
- (a) Lift the speedbrake lever out of the DOWN position and move it aft.
 - (b) Connect a digital/analog multimeter, COM-1793 between terminals COM and NC of the switch [6]
 - 1) Make sure there is continuity between the terminals and no continuity between terminals COM and NO.
 - (c) Hold the speedbrake lever forward and down in the detent, rotate switch [6] counterclockwise until the roller [13] is fully depressed by the speedbrake lever actuator finger [14]. as shown in Figure 401 zero gap condition.
 - (d) Tighten the screw [9] and self -locking nut [8] applying 2 to 3 in-lb above run-on torque.
 - (e) Connect a digital/analog multimeter, COM-1793 between terminals COM and NO of the switch [6].
 - 1) Make sure there is continuity between the terminals.
 - 2) If there is not continuity, loosen the screw [9] and self -locking nut [8] and re-adjust the speedbrake takeoff warning switch [6].
 - (f) Hold the speedbrake lever forward, raise the speedbrake lever to its internal stop.
 - (g) Connect a digital/analog multimeter, COM-1793 between terminals COM and NO of the switch [6].
 - 1) Make sure there is no continuity between the terminals.
 - (h) Move the speedbrake lever slightly aft and slowly lower it into the detent. Maintain contact between the speedbrake lever dog and the aft side of the detent. Verify that switch [6] transitions to meet the following circuit conditions BEFORE the lever reaches the fully down position.
 - (i) Connect a digital/analog multimeter, COM-1793 between terminals COM and NO of the switch [6].
 - 1) Make sure there is continuity between the terminals.
 - (j) Move the reverse thrust lever to the REVERSE THRUST position.
 - (k) Connect a digital/analog multimeter, COM-1793 between terminals COM and NO of the switch [6].
 - 1) Make sure there is no continuity between the terminals.
 - (l) Remove the digital/analog multimeter, COM-1793.
 - (m) Connect the electrical wires to the switch [6] as follows:
 - 1) Wire No. 20, terminal [10], from the NC terminal.
 - 2) Wire No. 21, terminal [12], from the NO terminal.
 - 3) Wire No. 19, terminal [11], from the COM terminal.

SUBTASK 31-51-03-410-001

- (3) Put the switch cover [1] into its position on the control stand.

SUBTASK 31-51-03-410-002

- (4) Install the screws [2].

EFFECTIVITY
AKS ALL

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SUBTASK 31-51-03-420-003

- (5) Do this task: Stabilizer Trim Control Wheel Installation, TASK 27-41-61-410-801.

SUBTASK 31-51-03-860-003

- (6) Remove safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
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F. Speedbrake Installation Test

SUBTASK 31-51-03-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-51-03-860-005

- (2) Make sure that the airplane is in the ground mode. To put the airplane in the ground mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 31-51-03-860-012

- (3) Make sure the thrust levers 1 and 2 are in the idle position.

SUBTASK 31-51-03-860-006

- (4) Install chocks on the landing wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 31-51-03-860-007

- (5) Do these steps to set the airplane into the takeoff configuration:

- Set the trailing edge flaps to the 15 unit position.
- Make sure the stabilizer is within 1 unit of the center of the green band.
- Make sure the speed brake lever is in the DOWN position.
- Release the parking brakes.
- Set the thrust lever no. 1 to the full forward thrust position.

SUBTASK 31-51-03-730-002

- (6) Set the speed brake handle to the UP position.

- Make sure an intermittent horn comes on.

SUBTASK 31-51-03-730-003

- (7) Set the speed brake handle to the DOWN position.

- Make sure an intermittent horn stops.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-51-03-860-008

- (1) Set the thrust levers no. 1 to the idle position.

SUBTASK 31-51-03-860-009

- (2) Set the trailing edge flaps to the 0 unit position.

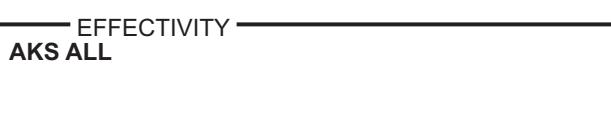
SUBTASK 31-51-03-860-010

- (3) Set the parking brakes.

SUBTASK 31-51-03-860-011

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

———— END OF TASK ————



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AIRCRAFT MAINTENANCE MANUAL

AURAL WARNING MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the aural warning module.
 - (2) An installation of the aural warning module.
- B. The aural warning module, M315, is on the control stand.

TASK 31-51-04-000-801

2. Aural Warning Module Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 31-51-04-860-001

- (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>
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00549	MACH WARN SYS -2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-04-860-002

- (2) Disconnect the electrical connector [3].

SUBTASK 31-51-04-040-001

- (3) Remove the screws [2].

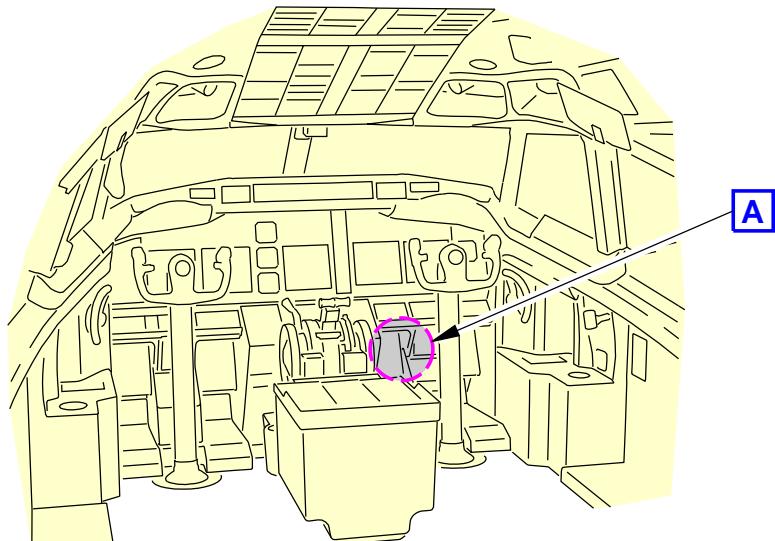
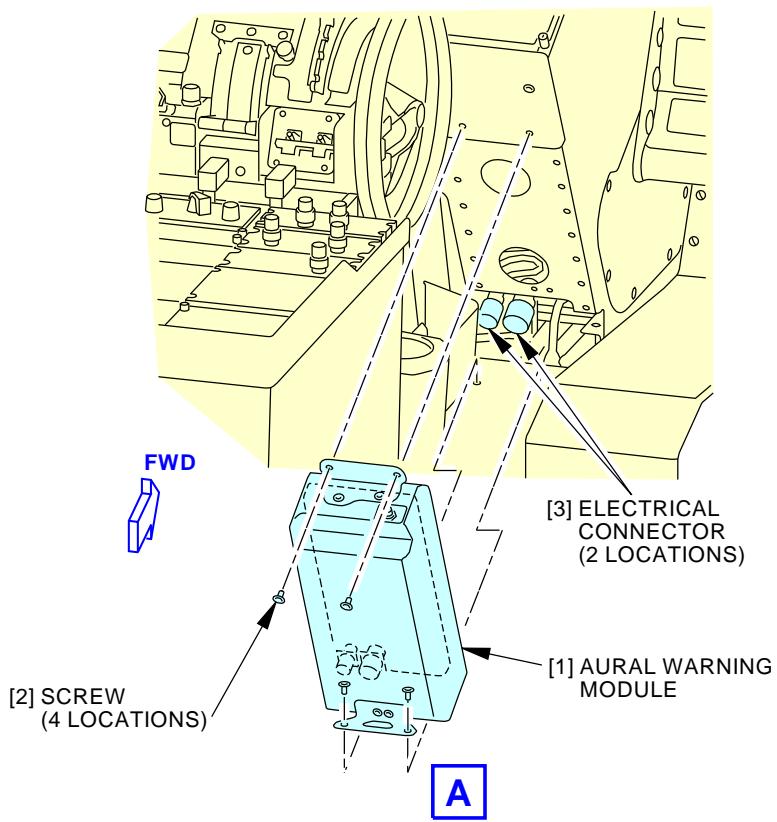
SUBTASK 31-51-04-480-001

- (4) Remove the aural warning module [1].

— END OF TASK —

EFFECTIVITY
AKS ALL

31-51-04


FLIGHT COMPARTMENT


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Aural Warning Module Installation
Figure 401/31-51-04-990-801

 EFFECTIVITY
 AKS ALL

31-51-04



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

TASK 31-51-04-400-801

3. Aural Warning Module Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
31-51-00-740-801	Aural Warning Module BITE Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module	31-51-00-01-025	AKS ALL

C. Location Zones

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

D. Installation Procedure

SUBTASK 31-51-04-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	7	C00549	MACH WARN SYS -2

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 31-51-04-420-001

- (2) Put the aural warning module [1] on the forward section of the control stand.

SUBTASK 31-51-04-760-001

- (3) Install the screws [2].

SUBTASK 31-51-04-420-002

- (4) Connect the electrical connector [3].



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AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-51-04-860-004

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C00170	MACH WARN SYS-1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C00549	MACH WARN SYS -2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	21	C00396	FIRE PROT DETECTION MA WRN & CONT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	17	C00129	LANDING GEAR LATCH & PRESS WARN
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

E. Installation Test

SUBTASK 31-51-04-820-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-51-04-410-001

- (2) Make sure the airplane is in the ground mode.

SUBTASK 31-51-04-740-001

- (3) Do this task: Aural Warning Module BITE Test, TASK 31-51-00-740-801

SUBTASK 31-51-04-410-002

- (4) Set the parking brakes.

SUBTASK 31-51-04-860-005

- (5) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 31-51-04-410-003

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

- (6) Move the thrust levers to the takeoff position.

- (a) Make sure you hear an intermittent horn.

SUBTASK 31-51-04-410-004

- (7) Move the thrust levers to the idle position.

- (a) Make sure the intermittent horn stops.

EFFECTIVITY	AKS ALL
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31-51-04



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

SUBTASK 31-51-04-860-006

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

———— END OF TASK ————

EFFECTIVITY
AKS ALL

31-51-04



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

COMMON DISPLAY SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Common Display System Deactivation.
 - (2) Common Display System Activation

TASK 31-62-00-040-801

2. Common Display System - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power to the Common Display System.

B. Location Zones

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

C. Procedure

SUBTASK 31-62-00-860-030

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	10	C01364	DISPLAY F/O OUTBD
E	11	C01366	DISPLAY F/O INBD
E	12	C01373	DISPLAY CTR LWR

D. Common Display System - Tryout

NOTE: This tryout is to make sure the Common Display System is in a zero energy state.

SUBTASK 31-62-00-860-031

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	10	C01364	DISPLAY F/O OUTBD
E	11	C01366	DISPLAY F/O INBD

EFFECTIVITY
AKS ALL

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(Continued)

F/O Electrical System Panel, P6-1

Row Col Number Name

E 12 C01373 DISPLAY CTR LWR

SUBTASK 31-62-00-700-001

- (2) Make sure the display screens on the display units are blank and non functional.

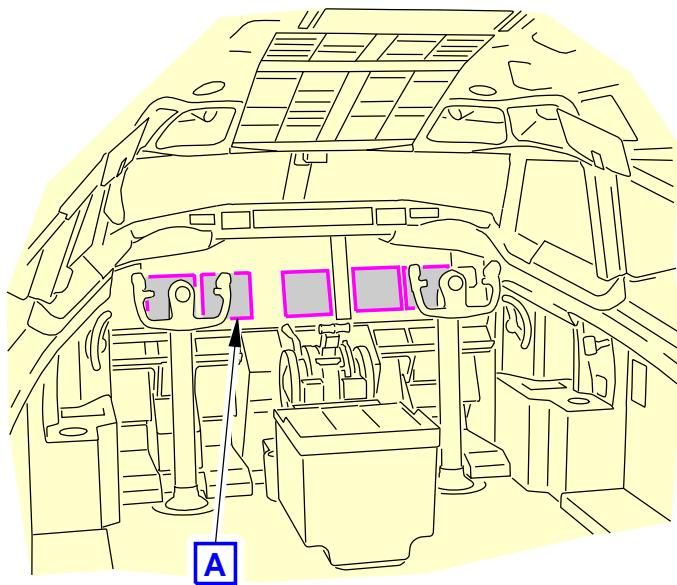
———— END OF TASK ————

EFFECTIVITY
AKS ALL

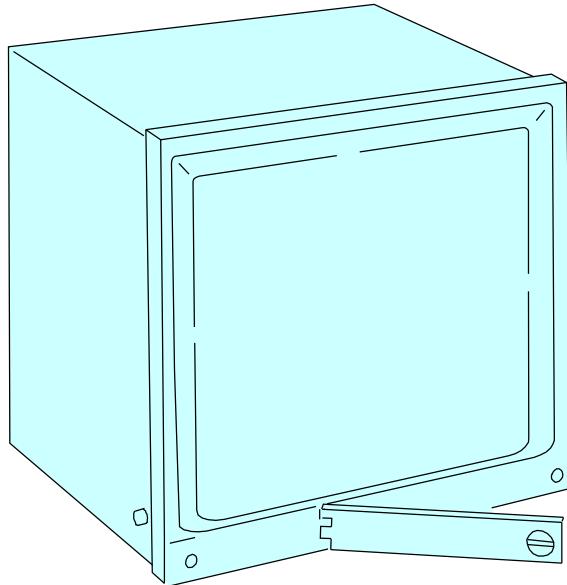
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FLIGHT COMPARTMENT



(EXAMPLE, 6 LOCATIONS)



2382914 S0000545674_V1

Common Display System
Figure 201/31-62-00-990-802

EFFECTIVITY
AKS ALL

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D633A101-AKS

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TASK 31-62-00-440-801

3. Common Display System - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Common Display Systemn

B. Location Zones

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

C. Procedure

SUBTASK 31-62-00-860-032

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	10	C01364	DISPLAY F/O OUTBD
E	11	C01366	DISPLAY F/O INBD
E	12	C01373	DISPLAY CTR LWR

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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COMMON DISPLAY SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) An operational test of the common display system.
 - (2) A system test of the common display system.

TASK 31-62-00-710-801

2. Common Display System - Operational Test

A. General

- (1) The operational test does a quick check of the common display system. The test makes sure that the system is serviceable.
- (2) You can do the tests in sequence or one at a time. The Prepare For Test procedure must be done before each test or sequence of tests.
- (3) The control display unit (CDU) is necessary for this procedure.
- (4) The software Compatibility Class Number (CCN) for the two DEUs must be the same for them to operate together. You can find the CCN on the Ident/Config BITE page in the line below the OPS P/N.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
31-62-21-000-801	Display Electronic Unit Removal (P/B 401)
31-62-21-400-801	Display Electronic Unit Installation (P/B 401)
31-62-21-470-801	Display Electronic Unit Software Installation with an Airborne Data Loader (P/B 201)
31-62-21-470-802	Display Electronic Unit Software Installation with a Portable Data Loader (P/B 201)

C. Location Zones

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

D. Prepare For Test

SUBTASK 31-62-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-00-860-002

- (2) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to NORM.
 - (a) Make sure the two outboard display units and the two inboard display units show the applicable flight data format.

EFFECTIVITY
AKS ALL

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E. Software Configuration Check

SUBTASK 31-62-00-750-001

- (1) Do these steps to do a software configuration check of the DEUs.

NOTE: Make sure that you know the correct software part numbers for the DEUs. For the DEUs to be an approved installation, the correct software part numbers must be installed. Also, the software CCNs must agree.

- (a) If you are not at one of the CDS DEU BITE displays, then do these steps:

- 1) Push the INIT REF function key.
- 2) If the POS INIT display shows, then push the line select key (LSK) next to the INDEX prompt.

NOTE: This makes the INIT/REF INDEX show.

- 3) Push the LSK next to the MAINT prompt.

- (b) From the MAINT BITE INDEX, push the LSK next to the CDS prompt.

- (c) Push the LSK next to the DEU 1 prompt.

- (d) Push the LSK next to the IDENT/CONFIG prompt.

- 1) Make sure the correct part numbers show on the display.

(a) If the part numbers are not correct, do this task: Display Electronic Unit Software Installation with a Portable Data Loader, TASK 31-62-21-470-802 or Display Electronic Unit Software Installation with an Airborne Data Loader, TASK 31-62-21-470-801
or replace the DEU.

These are the tasks:

Display Electronic Unit Removal, TASK 31-62-21-000-801,

Display Electronic Unit Installation, TASK 31-62-21-400-801.

- 2) Record the CCN.

NOTE: The CCN is on the Ident/Config BITE display in the line after the OPS P/N.
You will compare it to the DEU-2 CCN in a different step.

- (e) Push the LSK next to the INDEX prompt until the MAINT BITE INDEX page shows.

- (f) Push the LSK next to the CDS prompt.

- (g) Push the LSK next to the DEU 2 prompt.

- (h) Push the LSK next to the IDENT/CONFIG prompt.

- 1) Make sure the correct part numbers show on the display.

(a) If the part numbers are not correct, do this task: Display Electronic Unit Software Installation with a Portable Data Loader, TASK 31-62-21-470-802 or Display Electronic Unit Software Installation with an Airborne Data Loader, TASK 31-62-21-470-801
or replace the DEU.

These are the tasks:

Display Electronic Unit Removal, TASK 31-62-21-000-801,

Display Electronic Unit Installation, TASK 31-62-21-400-801.

- 2) Compare the CCN for DEU-2 with the CCN for DEU-1.

NOTE: The CCN is on the Ident/Config BITE display in the line after the OPS P/N.

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- a) If the first four digits of the CCNs are not the same, replace the OPS software in one of the DEUs. To install compatible software, do this task: Display Electronic Unit Software Installation with a Portable Data Loader, TASK 31-62-21-470-802 or Display Electronic Unit Software Installation with an Airborne Data Loader, TASK 31-62-21-470-801

NOTE: If the left and right DEU models are different (one is a DEU I and the other is a DEU II); or if the offside DEU has failed, is powered off, or has faulty communication with the on-side DEU, the last four digits of the CCN will be displayed as X's instead of numbers.

F. Display Unit Operational Test

SUBTASK 31-62-00-730-001

- (1) Use the control display unit (CDU) to do a test of the display units (DUs):

- (a) Make these selections on the CDU:

- 1) Push the INIT REF key.
- 2) Push the line select key (LSK) adjacent to INDEX.
- 3) Push the LSK adjacent to MAINT.
- 4) Push the LSK adjacent to CDS.
- 5) Push the LSK adjacent to DEU 1.
- 6) Push the LSK adjacent to GROUND TESTS.
- 7) Push the LSK adjacent to DU LOOP TEST.
- 8) Push the LSK adjacent to COAX 1 TO LT DISPLAYS & COAX 2 TO RT DISPLAYS.

- (b) Make sure all six DUs agree with the data in (Table 501).

Table 501/31-62-00-993-802 Display Unit Test Format DEU 1 selected coupler #1

Display Unit Test Format DEU 1 selected coupler #1 to left DUs coupler #2 to right DUs						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
COAX OUTPUT	1	1	1	2	2	2
INPUT ACTIVITY	[Y]YYY	[Y]YYY	[Y]YYY	Y[Y]YY	Y[Y]YY	Y[Y]YY
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (c) For the Bezel light sensor and the remote light sensor, make sure some numbers show.

NOTE: if the bezel light sensor shows "BAB", then see fault isolation procedure associated with display unit problems. If the remote light sensor (RML) shows "BAB", then see fault isolation procedure regarding the RLS problem.

EFFECTIVITY
AKS ALL

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- (d) For each DU, make sure the DU LOCATION, COAX OUTPUT, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:

NOTE: The boxed Y indicates the active channel and will show in white on the DU. A green Y on the DU indicates a channel with activity on it. A red N on the DU indicates a channel with no detected activity on it.
- (e) On the control display unit, push the LSK adjacent to COAX 2 TO LT DISPLAYS & COAX 1 TO RT DISPLAYS.
- (f) Make sure all six DUs agree with the data in (Table 502).

Table 502/31-62-00-993-803 Display Unit Test Format DEU 1 selected coupler #2

Display Unit Test Format DEU 1 selected coupler #2 to left DUs coupler #1 to right DUs						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
COAX OUTPUT	2	2	2	1	1	1
INPUT ACTIVITY	Y[Y]YY	Y[Y]YY	Y[Y]YY	[Y]YYY	[Y]YYY	[Y]YYY
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (g) For each DU, make sure the DU LOCATION, COAX OUTPUT, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:

NOTE: The boxed Y indicates the active channel and will show in white on the DU. A green Y on the DU indicates a channel with activity on it. A red N on the DU indicates a channel with no detected activity on it.
- (h) Do these steps at the control display unit:
 - 1) Push the INIT REF key.
 - 2) Push the line select key (LSK) adjacent to INDEX.
 - 3) Push the LSK adjacent to MAINT.
 - 4) Push the LSK adjacent to CDS.
 - 5) Push the LSK adjacent to DEU 2.
 - 6) Push the LSK adjacent to GROUND TESTS.
 - 7) Push the LSK adjacent to DU LOOP TEST.
 - 8) Push the LSK adjacent to COAX 1 TO LT DISPLAYS & COAX 2 TO RT DISPLAYS.
- (i) Make sure all six DUs agree with the data in (Table 503).

Table 503/31-62-00-993-804

Display Unit Test Format DEU 2 selected coupler #4 to left DUs coupler #3 to right DUs						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU

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AKS ALL

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Table 503/31-62-00-993-804 (Continued)

Display Unit Test Format DEU 2 selected coupler #4 to left DUs coupler #3 to right DUs						
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
COAX OUTPUT	1	1	1	2	2	2
INPUT ACTIVITY	YY[Y]Y	YY[Y]Y	YY[Y]Y	YYY[Y]	YYY[Y]	YYY[Y]
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (j) For each DU, make sure the DU LOCATION, COAX OUTPUT, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:

NOTE: The boxed Y indicates the active channel and will show in white on the DU. A green Y on the DU indicates a channel with activity on it. A red N on the DU indicates a channel with no detected activity on it.

- (k) On the control display unit, push the LSK adjacent to COAX 2 TO LT DISPLAYS & COAX 1 TO RT DISPLAYS.
 (l) Make sure all six DUs agree with the data in (Table 504).

Table 504/31-62-00-993-805

Display Unit Test Format DEU 2 selected coupler #3 to left DUs coupler #4 to right DUs						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
COAX OUTPUT	2	2	2	1	1	1
INPUT ACTIVITY	YYY[Y]	YYY[Y]	YYY[Y]	YY[Y]Y	YY[Y]Y	YY[Y]Y
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (m) For each DU, make sure the DU LOCATION, COAX OUTPUT, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:

NOTE: The boxed Y indicates the active channel and will show in white on the DU. A green Y on the DU indicates a channel with activity on it. A red N on the DU indicates a channel with no detected activity on it.

- (n) Push the INIT REF on the control display unit to stop the test.

G. EFIS Control Panel Operational Test

SUBTASK 31-62-00-860-003

- (1) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to NORMAL.

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AKS ALL

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SUBTASK 31-62-00-710-001

- (2) Do these steps at the captain's EFIS control panel.
 - (a) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - 1) Make sure the barometric pressure shows in inches on the captain's display unit.
 - (b) Turn the inner knob on the BARO switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the barometric pressure increases and decreases.
 - (c) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure the STD shows on the captain's display unit.

NOTE: This selects the standard baro setting of 29.92 inches or 1013 hPa.

SUBTASK 31-62-00-710-002

- (3) Do these steps at the first officer's EFIS control panel.
 - (a) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - 1) Make sure the barometric pressure shows in inches on the first officer's display unit.
 - (b) Turn the inner knob on the BARO switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the barometric pressure increases and decreases.
 - (c) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure the STD shows on the first officer's display unit.

NOTE: This selects the standard baro setting of 29.92 inches or 1013 hPa.

H. Display Select Module Operational Test

SUBTASK 31-62-00-860-004

- (1) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to INBD ENG PRI.
 - (a) Make sure the display units show as follows:

AKS 001-024

- 1) The two outboard display units show the PFD format.

AKS ALL

- 2) The two inboard display units show the engine format.
- 3) The center upper display unit is blank.

SUBTASK 31-62-00-860-005

- (2) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to NORM.

SUBTASK 31-62-00-860-006

- (3) Turn the knobs on the LOWER DU switches on the two display select modules to ENG PRI.
 - (a) Make sure the center lower display unit shows the engine format.
 - (b) Make sure the center upper display unit is blank.

I. Instrument Switching Module Operational Test

SUBTASK 31-62-00-730-002

- (1) Set the NAVIGATION IRS switch on the instrument switching module to BOTH ON L.
 - (a) Make sure the message INSTR SWITCH shows on the captain's display unit.

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- (b) Make sure the message INSTR SWITCH shows on the first officer's display unit.

NOTE: You also see this message if the NAVIGATION IRS switch is set to BOTH ON R.

SUBTASK 31-62-00-730-003

- (2) Set the DISPLAYS SOURCE switch on the instrument switching module to ALL ON 1.

- (a) Make sure the message DSPLY SOURCE shows on the captain's display unit.

- (b) Make sure the message DSPLY SOURCE shows on the first officer's display unit.

NOTE: You also see this message if the DISPLAYS SOURCE switch is set to ALL ON 2.

SUBTASK 31-62-00-860-028

- (3) Set the NAVIGATION IRS switch back to NORMAL.

- (4) Set the DISPLAYS SOURCE switch back to AUTO.

J. Engine Control Module Operational Test

SUBTASK 31-62-00-730-004

- (1) Turn the knobs on the LOWER DU switches on the two display select modules to NORM.

- (a) Make sure the center upper display unit shows the engine format.

SUBTASK 31-62-00-860-019

- (2) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to NORMAL.

SUBTASK 31-62-00-730-005

- (3) Set the FUEL FLOW switch on the engine control module to USED.

- (a) Make sure the FF/FU displays show fuel quantity used.

NOTE: If there is no power to the EEC, then the fuel used indication will be zero.

SUBTASK 31-62-00-730-006

- (4) Set the outer knob on the N1 SET switch on the engine control module to 2.

SUBTASK 31-62-00-730-007

- (5) Turn the inner knob on the N1 SET switch on the engine control module clockwise to the first detent.

- (a) Make sure the number 2 N1 BUG moves in the counterclockwise direction.

SUBTASK 31-62-00-730-048

- (6) Set the outer knob on the SPD REF switch on the engine control module to VR.

SUBTASK 31-62-00-730-049

- (7) Turn the inner knob on the SPD REF switch on the engine control module clockwise to the second detent (right stop).

- (a) Make sure the VR digits on the captain's and first officer's display units increase in value.

SUBTASK 31-62-00-010-001

- (8) Set the outer knob on the N1 SET switch back to AUTO.

- (9) Set the outer knob on the SPD REF switch to AUTO.

———— END OF TASK ————

TASK 31-62-00-730-801

3. Common Display System - System Test

A. General

- (1) The system test does a complete check of the common display system. The test makes sure that the system operates satisfactorily.

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- (2) You can do the tests in sequence or one at a time. The Prepare For Test procedure must be done before each test or sequence of tests.
- (3) The control display unit (CDU) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

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

D. Prepare For Test

SUBTASK 31-62-00-860-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-00-860-008

- (2) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to NORM.
 - (a) Make sure the display units show as follows:

AKS 001-024

- 1) The two outboard display units and the two inboard display units show the PFD/ND formats.

AKS ALL

- 2) The center upper display unit shows the engine format.

AKS 001-024

- 3) The center lower display unit shows the engine secondary display.

AKS ALL

SUBTASK 31-62-00-860-009

- (3) Turn the knobs on the LOWER DU switches on the two display select modules to ENG PRI.
 - (a) Make sure the center lower display unit shows the engine format.

E. Lighting Control Module Test

SUBTASK 31-62-00-860-024

- (1) Make these selections on the CDU:
 - (a) Push the INIT REF key.
 - (b) Push the line select key (LSK) adjacent to INDEX.
 - (c) Push the LSK adjacent to MAINT.
 - (d) Push the LSK adjacent to CDS.
 - (e) Push the LSK adjacent to DEU 1.
 - (f) Push the LSK adjacent to GROUND TESTS.
 - (g) Push the LSK adjacent to DU LOOP TEST.
 - (h) Push the LSK adjacent to COAX 1 TO LT DISPLAYS & COAX 2 TO RT DISPLAYS.



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SUBTASK 31-62-00-730-051

- (2) Make sure all six DUs agree with the data in (Table 501).

SUBTASK 31-62-00-710-003

- (3) Turn the outer INBD BRT control on the captain's lighting control module.

- (a) Make sure the UNIT value that shows on the captain's inboard DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-00-710-004

- (4) Turn the outer OUTBD BRT control on the captain's lighting control module.

- (a) Make sure the UNIT value that shows on the captain's outboard DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-00-710-005

- (5) Turn the outer UPPER BRT control on the captain's lighting control module.

- (a) Make sure the UNIT value that shows on the center upper DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-00-710-006

- (6) Turn the outer LOWER BRT control on the captain's lighting control module.

- (a) Make sure the UNIT value that shows on the center lower DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-00-710-007

- (7) Turn the outer INBD BRT control on the first officer's lighting control module.

- (a) Make sure the UNIT value that shows on the first officer's inboard DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-00-710-008

- (8) Turn the outer OUTBD BRT control on the first officer's lighting control module.

- (a) Make sure the UNIT value that shows on the first officer's outboard DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-00-710-009

- (9) Turn the inner INBD BRT control on the captain's lighting control module.

- (a) Make sure the WXR value that shows on the captain's inboard DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-00-710-010

- (10) Turn the inner LOWER BRT control on the captain's lighting control module.

- (a) Make sure the WXR value that shows on the center lower DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

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SUBTASK 31-62-00-710-011

- (11) Turn the inner INBD BRT control on the first officer's lighting control module.
- (a) Make sure the WXR value that shows on the first officer's inboard DU changes.
NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-00-860-025

- (12) Push the INIT REF key on the CDU to stop the test.

F. EFIS Control Panel Test

SUBTASK 31-62-00-860-027

- (1) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to NORMAL.

SUBTASK 31-62-00-730-054

- (2) Do these steps at the captain's EFIS control panel.
- (a) Set the display mode switch on the EFIS control panel to VOR.
1) Make sure the VOR mode shows on the captain's display unit.
- (b) Set the display mode switch on the EFIS control panel to MAP.
1) Make sure map mode shows on the captain's display unit.
- (c) Set the display mode switch on the EFIS control panel to PLN.
1) Make sure plan mode shows on the captain's display unit.
NOTE: The plan mode shows as a full rose compass with a north up orientation.
- (d) Set the display mode switch on the EFIS control panel to APP.
1) Make sure app mode shows on the captain's display unit.
- (e) Set the VOR 1/ADF 1 switch on the EFIS control panel to VOR 1.
1) Make sure VOR 1 shows in the captain's display unit.
- (f) Set the VOR 1/ADF 1 switch on the EFIS control panel to ADF 1.
1) Make sure ADF 1 shows in the captain's display unit.
- (g) Set the VOR 1/ADF 1 switch on the EFIS control panel to OFF.
1) Make sure neither VOR 1 shows in the captain's display unit.
2) Make sure ADF 1 does not show in the captain's display unit.
- (h) Set the VOR 2/ADF 2 switch on the EFIS control panel to VOR 2.
1) Make sure VOR 2 shows in the captain's display unit.
- (i) Set the VOR 2/ADF 2 switch on the EFIS control panel to ADF 2.
1) Make sure ADF 2 shows in the captain's display unit.
- (j) Set the VOR 2/ADF 2 switch on the EFIS control panel to OFF.
1) Make sure VOR 2 does not show in the captain's display unit.
2) Make sure ADF 2 does not show in the captain's display unit.
- (k) Set the display mode switch on the EFIS control panel to MAP.
NOTE: If the captain's display unit does not show the MAP data in the expanded mode, push CTR on the EFIS control panel.
- (l) Set the range switch on the EFIS control panel to the values that follow (Table 505).

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- 1) Make sure the captain's display unit shows the corresponding mid-range value in the middle of the display.

Table 505/31-62-00-993-810

EFIS Range Switch Test	
Range Switch	Mid-Range Value
5	2.5
10	5
20	10
40	20
80	40
160	80
320	160
640	320

- (m) Set the range switch on the EFIS control panel to 40.
- (n) Push the TFC button on the EFIS control panel.
 - 1) Make sure the TFC annunciator shows on the captain's display unit.
- (o) Push the TFC button on the EFIS control panel.
 - 1) Make sure the TFC annunciator does not show on the captain's display unit.
- (p) Push the STA button on the EFIS control panel.
 - 1) Make sure the STA annunciator shows on the captain's display unit.
- (q) Push the STA button on the EFIS control panel.
 - 1) Make sure the STA annunciator does not show on the captain's display unit.
- (r) Push the WPT button on the EFIS control panel.
 - 1) Make sure the WPT annunciator shows on the captain's display unit.
- (s) Push the WPT button on the EFIS control panel.
 - 1) Make sure the WPT annunciator does not show on the captain's display unit.
- (t) Push the ARPT button on the EFIS control panel.
 - 1) Make sure the ARPT annunciator shows on the captain's display unit.
- (u) Push the ARPT button on the EFIS control panel.
 - 1) Make sure the ARPT annunciator does not show on the captain's display unit.
- (v) Push the DATA button on the EFIS control panel.
 - 1) Make sure the waypoint data shows on the captain's display unit.

NOTE: Waypoint data will not show unless an active route is installed in the flight management computer and the waypoint is within range.
- (w) Push the DATA button on the EFIS control panel.
 - 1) Make sure the waypoint data does not show on the captain's display unit.
- (x) Push the POS button on the EFIS control panel.
 - 1) Make sure the IRS position indicator shows on the captain's display unit.
- (y) Push the POS button on the EFIS control panel.

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- 1) Make sure the IRS position indicator does not show on the captain's display unit.
- (z) Set the outer knob on the MINS switch on the EFIS control panel to the BARO position.
 - 1) Make sure BARO shows on the captain's display unit.
- (aa) Turn the inner knob on the MINS switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the minimum BARO altitude increases and decreases on the captain's display unit.
- (ab) Set the outer knob on the MINS switch on the EFIS control panel to the RADIO position.
 - 1) Make sure RADIO shows on the captain's display unit.
- (ac) Turn the inner knob on the MINS switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the minimum RADIO altitude increases and decreases on the captain's display unit.
- (ad) Set the outer knob on the BARO switch on the EFIS control panel to the HPA position.
 - 1) Make sure the barometric pressure shows in hecto-pascals on the captain's display unit.
- (ae) Set the outer knob on the BARO switch on the EFIS control panel to the IN position.
 - 1) Make sure the barometric pressure shows in inches on the captain's display unit.
- (af) Turn the inner knob on the BARO switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the barometric pressure increases and decreases on the captain's display unit.
- (ag) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure STD shows on the captain's display unit.
- (ah) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure the barometric pressure shows in inches on the captain's display unit.
- (ai) Do these steps to do a test of the MTRS button on the EFIS control panel.
 - 1) Push the MTRS button on the EFIS control panel.
 - a) Make sure that the metric altitude shows on the captain's display unit.
 - 2) Push the MTRS button on the EFIS control panel.
 - a) Make sure that the metric altitude does not shows on the captain's display unit.
- (aj) Push the FPV button on the EFIS control panel.
 - 1) Make sure flight path vector shows on the captain's display unit.

SUBTASK 31-62-00-730-055

- (3) Do these steps at the first officer's EFIS control panel.
 - (a) Set the display mode switch on the EFIS control panel to VOR.
 - 1) Make sure the VOR mode shows on the first officer's display unit.
 - (b) Set the display mode switch on the EFIS control panel to MAP.
 - 1) Make sure map mode shows on the first officer's display unit.
 - (c) Set the display mode switch on the EFIS control panel to PLN.

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- 1) Make sure plan mode shows on the first officer's display unit.

NOTE: The plan mode shows as a full rose compass with a north up orientation.

- (d) Set the display mode switch on the EFIS control panel to APP.
1) Make sure app mode shows on the first officer's display unit.
- (e) Set the VOR 1/ADF 1 switch on the EFIS control panel to VOR 1.
1) Make sure VOR 1 shows in the first officer's display unit.
- (f) Set the VOR 1/ADF 1 switch on the EFIS control panel to ADF 1.
1) Make sure ADF 1 shows in the first officer's display unit.
- (g) Set the VOR 1/ADF 1 switch on the EFIS control panel to OFF.
1) Make sure neither VOR 1 shows in the first officer's display unit.
2) Make sure ADF 1 does not show in the first officer's display unit.
- (h) Set the VOR 2/ADF 2 switch on the EFIS control panel to VOR 2.
1) Make sure VOR 2 shows in the first officer's display unit.
- (i) Set the VOR 2/ADF 2 switch on the EFIS control panel to ADF 2.
1) Make sure ADF 2 shows in the first officer's display unit.
- (j) Set the VOR 2/ADF 2 switch on the EFIS control panel to OFF.
1) Make sure VOR 2 does not show in the first officer's display unit.
2) Make sure ADF 2 does not show in the first officer's display unit.
- (k) Set the display mode switch on the EFIS control panel to MAP.
NOTE: If the first officer's display unit does not show the MAP data in the expanded mode, push CTR on the EFIS control panel.

- (l) Set the range switch on the EFIS control panel to the values that follow (Table 506).
1) Make sure the first officer's display unit shows the corresponding mid-range value in the middle of the display.

Table 506/31-62-00-993-811

EFIS Range Switch Test	
Range Switch	Mid-Range Value
5	2.5
10	5
20	10
40	20
80	40
160	80
320	160
640	320

- (m) Set the range switch on the EFIS control panel to 40.
- (n) Push the TFC button on the EFIS control panel.
1) Make sure the TFC annunciator shows on the first officer's display unit.
- (o) Push the TFC button on the EFIS control panel.

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- 1) Make sure the TFC annunciator does not show on the first officer's display unit.
- (p) Push the STA button on the EFIS control panel.
 - 1) Make sure the STA annunciator shows on the first officer's display unit.
- (q) Push the STA button on the EFIS control panel.
 - 1) Make sure the STA annunciator does not show on the first officer's display unit.
- (r) Push the WPT button on the EFIS control panel.
 - 1) Make sure the WPT annunciator shows on the first officer's display unit.
- (s) Push the WPT button on the EFIS control panel.
 - 1) Make sure the WPT annunciator does not show on the first officer's display unit.
- (t) Push the ARPT button on the EFIS control panel.
 - 1) Make sure the ARPT annunciator shows on the first officer's display unit.
- (u) Push the ARPT button on the EFIS control panel.
 - 1) Make sure the ARPT annunciator does not show on the first officer's display unit.
- (v) Push the DATA button on the EFIS control panel.
 - 1) Make sure the waypoint data shows on the first officer's display unit.

NOTE: Waypoint data will not show unless an active route is installed in the flight management computer and the waypoint is within range.
- (w) Push the DATA button on the EFIS control panel.
 - 1) Make sure the waypoint data does not show on the first officer's display unit.
- (x) Push the POS button on the EFIS control panel.
 - 1) Make sure the IRS position indicator shows on the first officer's display unit.
- (y) Push the POS button on the EFIS control panel.
 - 1) Make sure the IRS position indicator does not show on the first officer's display unit.
- (z) Set the outer knob on the MINS switch on the EFIS control panel to the BARO position.
 - 1) Make sure BARO shows on the first officer's display unit.
- (aa) Turn the inner knob on the MINS switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the minimum BARO altitude increases and decreases on the first officer's display unit.
- (ab) Set the outer knob on the MINS switch on the EFIS control panel to the RADIO position.
 - 1) Make sure RADIO shows on the first officer's display unit.
- (ac) Turn the inner knob on the MINS switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the minimum RADIO altitude increases and decreases on the first officer's display unit.
- (ad) Set the outer knob on the BARO switch on the EFIS control panel to the HPA position.
 - 1) Make sure the barometric pressure shows in hecto-pascals on the first officer's display unit.
- (ae) Set the outer knob on the BARO switch on the EFIS control panel to the IN position.
 - 1) Make sure the barometric pressure shows in inches on the first officer's display unit.

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- (af) Turn the inner knob on the BARO switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the barometric pressure increases and decreases on the first officer's display unit.
- (ag) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure STD shows on the first officer's display unit.
- (ah) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure the barometric pressure shows in inches on the first officer's display unit.
- (ai) Do these steps to do a test of the MTRS button on the EFIS control panel.
 - 1) Push the MTRS button on the EFIS control panel.
 - a) Make sure that the metric altitude shows on the first officer's display unit.
 - 2) Push the MTRS button on the EFIS control panel.
 - a) Make sure that the metric altitude does not show on the first officer's display unit.
- (aj) Push the FPV button on the EFIS control panel.
 - 1) Make sure flight path vector shows on the first officer's display unit.

G. Display Select Module Test

SUBTASK 31-62-00-730-041

- (1) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to NORMAL.

SUBTASK 31-62-00-860-011

- (2) Turn the knobs on the LOWER DU switches on the two display select modules to ENG PRI.
 - (a) Make sure the engine format moves from the center upper display to the center lower display.
- NOTE: The center upper display will be blank.

SUBTASK 31-62-00-860-012

- (3) Turn the knobs on the LOWER DU switches on the two display select modules to NORM.
 - (a) Make sure the engine format moves from the center lower display to the center upper display.
- NOTE: The center lower display will be blank.

AKS 001-024

SUBTASK 31-62-00-860-020

- (4) Turn the knobs on the LOWER DU switches on the two display select modules to ND.
 - (a) Make sure the navigation map shows on the center lower display unit.

AKS ALL

SUBTASK 31-62-00-860-021

- (5) Turn the knobs on the LOWER DU switches on the two display select modules to NORM.

SUBTASK 31-62-00-860-013

- (6) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to OUTBD PFD.
 - (a) Make sure the displays show as follows:

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AKS 001-024

- 1) The two outboard display units show the PFD format.

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- 2) The two inboard display units are blank.

SUBTASK 31-62-00-860-022

- (7) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to NORM.
 - (a) Make sure the two outboard display units and the two inboard display units show the applicable flight data format.

SUBTASK 31-62-00-860-023

- (8) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to INBD ENG PRI.
 - (a) Make sure the displays show as follows:

AKS 001-024

- 1) The two outboard display units show the PFD format.

AKS ALL

- 2) The two inboard display units show the engine format.
- 3) The center upper display unit is blank.

SUBTASK 31-62-00-860-016

- (9) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to INBD PFD.
 - (a) Make sure the displays show as follows:

AKS 001-024

- 1) The two inboard display units show the PFD format.

AKS ALL

- 2) The two outboard display units are blank.
- 3) The center upper display unit shows the engine format.

SUBTASK 31-62-00-860-017

- (10) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to INBD MFD.
 - (a) Make sure the display units show as follows:

AKS 001-024

- 1) The two outboard display units show the PFD format.

AKS ALL

- 2) The two inboard display units will show the same format that shows on the center lower display unit.

SUBTASK 31-62-00-860-018

- (11) Turn the knobs on the MAIN PANEL DU switches on the two display select modules to NORM.

H. Instrument Switching Module Test

SUBTASK 31-62-00-730-060

- (1) Set the display mode switch on the EFIS control panel to APP.
 - (a) Make sure app mode shows on the captain's display unit.

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SUBTASK 31-62-00-730-012

- (2) Set the NAVIGATION VHF NAV switch on the instrument switching module to BOTH ON 1.
 - (a) Make sure the ILS/VOR/ADF source identifiers are all -1 on the captain's display unit.
 - (b) Make sure the ILS/VOR/ADF source identifiers are all -1 on the first officer's display unit.

SUBTASK 31-62-00-730-013

- (3) Set the NAVIGATION VHF NAV switch on the instrument switching module to BOTH ON 2.
 - (a) Make sure the ILS/VOR/DME source identifiers are all -2 on the captain's display unit.
 - (b) Make sure the ILS/VOR/DME source identifiers are all -2 on the first officer's display unit.

SUBTASK 31-62-00-730-059

- (4) Set the display mode switch on the EFIS control panel to MAP.
 - (a) Make sure map mode shows on the captain's display unit.

SUBTASK 31-62-00-730-014

- (5) Set the NAVIGATION VHF NAV switch on the instrument switching module to NORMAL.

SUBTASK 31-62-00-730-015

- (6) Set the NAVIGATION IRS switch on the instrument switching module to BOTH ON L.
 - (a) Make sure the message INSTR SWITCH shows on captain's display unit.
 - (b) Make sure the message INSTR SWITCH shows on the first officer's display unit.

SUBTASK 31-62-00-730-016

- (7) Set the NAVIGATION IRS switch on the instrument switching module to BOTH ON R.
 - (a) Make sure the message INSTR SWITCH shows on the captain's display unit.
 - (b) Make sure the message INSTR SWITCH shows on the first officer's display unit.

SUBTASK 31-62-00-730-017

- (8) Set the NAVIGATION IRS switch on the instrument switching module to NORMAL.

SUBTASK 31-62-00-730-018

- (9) Set the DISPLAYS SOURCE switch on the instrument switching module to ALL ON 1.
 - (a) Make sure the message DSPLY SOURCE shows on the captain's display unit.
 - (b) Make sure the message DSPLY SOURCE shows on the first officer's display unit.

SUBTASK 31-62-00-730-019

- (10) Set the DISPLAYS SOURCE switch on the instrument switching module to ALL ON 2.
 - (a) Make sure the message DSPLY SOURCE shows on the captain's display unit.
 - (b) Make sure the message DSPLY SOURCE shows on the first officer's display unit.

SUBTASK 31-62-00-730-020

- (11) Set the DISPLAYS SOURCE switch on the instrument switching module to AUTO.

SUBTASK 31-62-00-730-021

- (12) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to BOTH ON 1.
 - (a) Do these steps at the left EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - a) Make sure the barometric pressure shows in inches on the captain's display unit.



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- b) Make sure the barometric pressure shows in inches on the first officer's display unit.
- (b) Do these steps at the right EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to HPA.
 - a) Make sure the barometric pressure shows no changes on the captain's display unit.
 - b) Make sure the barometric pressure shows no changes on the first officer's display unit.

SUBTASK 31-62-00-730-022

- (13) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to BOTH ON 2.
 - (a) Do these steps at the first officer's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - a) Make sure the barometric pressure shows in inches on the captain's display unit.
 - b) Make sure the barometric pressure shows in inches on the first officer's display unit.
 - (b) Do these steps at the captain's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to HPA.
 - a) Make sure the barometric pressure shows no changes on the captain's display unit.
 - b) Make sure the barometric pressure shows no changes on the first officer's display unit.

SUBTASK 31-62-00-730-023

- (14) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to NORMAL.

SUBTASK 31-62-00-730-024

- (15) Set the display mode switch on the EFIS control panel to MAP.
 - (a) Make sure map modes show on both the captain's and first officer's display units.

SUBTASK 31-62-00-730-050

- (16) Do these steps to test the FMC switch:
 - (a) Set the FMC switch on the instrument switching module to BOTH ON L.
 - 1) Make sure FMC L shows on the captain's and first officer's display units.
 - (b) Set the FMC switch on the instrument switching module to BOTH ON R.
 - 1) Make sure FMC R shows on the captain's and first officer's display units.
 - (c) Set the FMC switch on the instrument switching module to NORMAL.

I. Engine Control Module Test

SUBTASK 31-62-00-730-028

- (1) Turn the knobs on the LOWER DU switches on the two display switching modules to NORM.
 - (a) Make sure the center upper display unit shows the engine format.

SUBTASK 31-62-00-730-042

- (2) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to NORMAL.

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SUBTASK 31-62-00-730-029

- (3) Set the FUEL FLOW switch on the engine control module to USED.

- (a) Make sure the FF/FU displays show fuel quantity used.

NOTE: If there is no power to the EEC, then the fuel used indication will be zero.

SUBTASK 31-62-00-730-043

- (4) Set the FUEL FLOW switch on the engine control module to RESET.

- (a) Make sure the FF/FU displays show fuel quantity used being reset to zero.

SUBTASK 31-62-00-730-030

- (5) Set the FUEL FLOW switch on the engine control module to RATE.

- (a) Make sure the FF/FU displays show fuel flow rate.

NOTE: If there is no power to the EEC, then the fuel flow rate indication will be blank.

SUBTASK 31-62-00-730-032

- (6) Set the outer knob on the N1 SET switch on the engine control module to 2.

SUBTASK 31-62-00-730-033

- (7) Turn the inner knob on the N1 SET switch on the engine control module counterclockwise to the second detent (left stop).

- (a) Make sure the number 2 N1 BUG moves in the counterclockwise direction.

SUBTASK 31-62-00-730-034

- (8) Set the outer knob on the N1 SET switch on the engine control module to 1.

SUBTASK 31-62-00-730-035

- (9) Turn the inner knob on the N1 SET switch on the engine control module counterclockwise to the second detent (left stop).

- (a) Make sure the number 1 N1 BUG moves in the counterclockwise direction.

SUBTASK 31-62-00-730-044

- (10) Set the outer knob on the N1 SET switch on the engine control module to BOTH.

SUBTASK 31-62-00-730-045

- (11) Turn the inner knob on the N1 SET switch on the engine control module clockwise to the first detent.

- (a) Make sure the number 1 and number 2 N1 BUGs move in the clockwise direction.

SUBTASK 31-62-00-730-038

- (12) Set the outer knob on the SPD REF switch on the engine control module to VR.

SUBTASK 31-62-00-730-039

- (13) Turn the inner knob on the SPD REF switch on the engine control module clockwise to the second detent (right stop).

- (a) Make sure the VR digits on the captain's and first officer's display units increase in value.

SUBTASK 31-62-00-730-046

- (14) Turn the inner knob on the SPD REF switch on the engine control module counterclockwise to the first detent.

- (a) Make sure the VR digits on the captain's and first officer's display units decrease in value.

SUBTASK 31-62-00-730-047

- (15) Set the outer knob on the SPD REF switch on the engine control module to WT.

- (a) Make sure the WT digits show on the captain's and first officer's display units.

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SUBTASK 31-62-00-730-040

- (16) Set the outer knob on the SPD REF switch on the engine control module to AUTO.

SUBTASK 31-62-00-730-056

- (17) Set the Main Panel DU switch on the Display Select Panel to INBD MFD.

SUBTASK 31-62-00-730-057

- (18) Push the ENG key on the Engine Display Control Panel.

- (a) Make sure the inboard display unit shows the engine data.

SUBTASK 31-62-00-730-058

- (19) Push the SYS key on the Engine Display Control Panel.

- (a) Make sure the inboard display unit shows the systems data.

J. Put the airplane back to its usual condition

SUBTASK 31-62-00-860-029

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

———— END OF TASK ————

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DISPLAY UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of a display unit.
 - (2) An installation of a display unit, which includes an installation test.
- B. There are six display units. Five of the display units are in the forward instrument panel. The five display units are installed with the latch mechanism at the bottom. The sixth display is the lower center display unit and is in the forward aisle stand. The lower center display unit is installed with the latch mechanism at the top.

TASK 31-62-11-000-801

2. Display Unit Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

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

C. Removal Procedure

SUBTASK 31-62-11-860-001

- (1) For the applicable display unit open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	10	C01364	DISPLAY F/O OUTBD
E	11	C01366	DISPLAY F/O INBD
E	12	C01373	DISPLAY CTR LWR

SUBTASK 31-62-11-800-001

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

- (2) Make sure hydraulic power is removed from the flight controls before you move the control column. To remove hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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SUBTASK 31-62-11-020-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY UNIT. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY UNIT.

- (3) Do these steps to remove the display UNIT [1] from the instrument panel:

NOTE: The center lower display UNIT [1] is installed with the latch mechanism at the top. All other display UNIT [1] are installed with the latch mechanism at the bottom.

- (a) Release the quarter-turn fastener [2] on the handle [3] of the display UNIT [1].
- (b) Pull the handle [3] to approximately 90 degrees from the face of the display UNIT [1].
- (c) If the center lower display unit is being removed, move the speed brake lever from the DOWN position to the UP position.

NOTE: Moving the speed brake lever will provide the clearance needed to remove the center lower display unit.

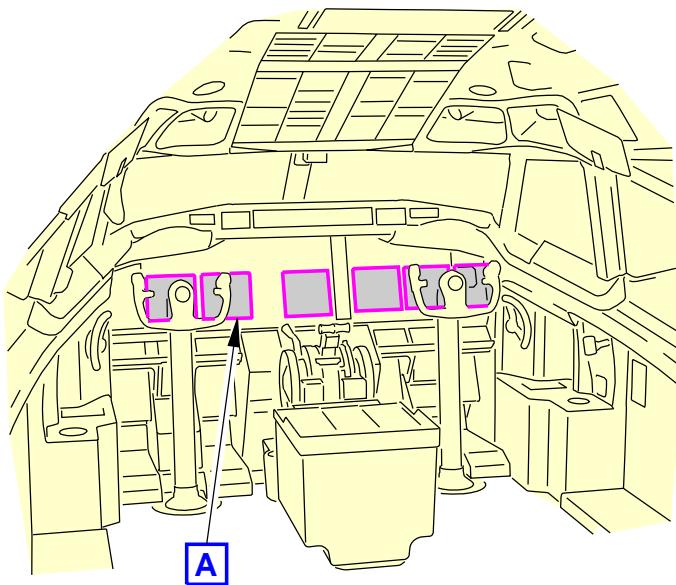
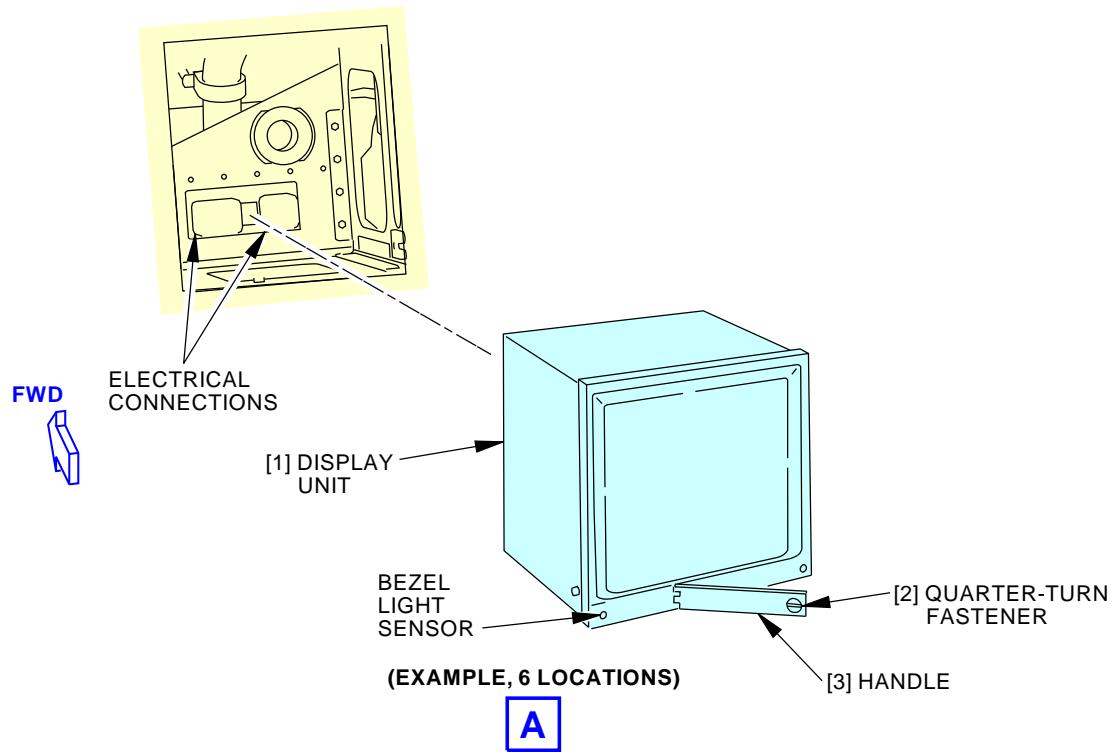
- (d) Pull the display UNIT [1] out carefully to remove it from the instrument panel.
- (e) Push the handle [3] until it is flat against the face of the display UNIT [1].
- (f) Turn and lock the quarter-turn fastener [2] on the handle of the display UNIT [1].
- (g) Put protective covers on the electrical connectors.
- (h) If the center lower display unit is being removed, move the speed brake lever from the UP position to the DOWN position.

- 1) Make sure the speed brake lever is in the DOWN and locked position.

———— END OF TASK ————

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FLIGHT COMPARTMENT


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Display Unit Installation
Figure 401/31-62-11-990-801


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TASK 31-62-11-400-801

3. Display Unit Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that the display UNIT [1] is connected correctly to ARINC 429 feedback busses.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
31-62-00-710-801	Common Display System - Operational Test (P/B 501)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	UNIT	31-11-21-06-095	AKS ALL
		31-11-31-06-025	AKS ALL
		31-11-51-08-035	AKS ALL
		31-11-81-02-020	AKS ALL
		31-62-11-03-105	AKS 001-027

D. Location Zones

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

E. Installation Procedure

SUBTASK 31-62-11-860-002

- (1) For the applicable display unit:

Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	10	C01364	DISPLAY F/O OUTBD
E	11	C01366	DISPLAY F/O INBD
E	12	C01373	DISPLAY CTR LWR



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SUBTASK 31-62-11-800-002

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

- (2) Make sure hydraulic power is removed from the flight controls before you move the control column. To remove hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 31-62-11-420-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY UNIT. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY UNIT.

- (3) Do these steps to install the display unit:

NOTE: You must install the center lower display UNIT [1] with the latch mechanism at the top.
You install all other display UNITS [1] with the latch mechanism at the bottom.

- (a) Remove the protective covers from the electrical connectors.
- (b) Examine the electrical connectors for bent or broken pins, dirt, and damage.
- (c) Release the quarter-turn fastener [2] on the handle [3] of the display UNIT [1].
- (d) Pull the handle [3] to approximately 90 degrees from the face of the display UNIT [1].
- (e) If the center lower display unit is being installed, move the speed brake lever from the DOWN position to the UP position.

NOTE: Moving the speed brake lever will provide the clearance needed to install the center lower display unit.

- (f) Put the display UNIT [1] carefully into its position in the instrument panel.
- (g) Push the display UNIT [1] forward until it stops.
- (h) Push the handle [3] until it is flat against the face of the display UNIT [1].
- (i) Turn and lock the quarter-turn fastener [2] on the handle of the display UNIT [1].
- (j) If the center lower display unit is being installed, move the speed brake lever from the UP position to the DOWN position.

- 1) Make sure the speed brake lever is in the DOWN and locked position.

SUBTASK 31-62-11-860-003

- (4) For the applicable display unit:

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C01372	DISPLAY CTR UPR
D	3	C01365	DISPLAY CAPT INBD
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	10	C01364	DISPLAY F/O OUTBD

EFFECTIVITY
AKS ALL

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(Continued)

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	11	C01366	DISPLAY F/O INBD
E	12	C01373	DISPLAY CTR LWR

SUBTASK 31-62-11-800-003

- (5) Make sure that the engine start levers on the P8 aisle stand are in the CUTOFF position, and install DO-NOT-OPERATE tags.

SUBTASK 31-62-11-860-009

- (6) Put the engine start switches on the P5 overhead panel to CONT for a minimum of 10 seconds.

NOTE: This will cause the EECs to transmit all of the download limits to the DEU.

F. Installation Test

SUBTASK 31-62-11-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-11-860-005

- (2) If you installed the lower center display unit, then do this step:
 - (a) Set the LOWER DU switch on the captain's display select module to the ENG PRI position.

SUBTASK 31-62-11-710-001

- (3) Make sure the applicable display UNIT [1] is not blank.
- (4) If you installed the lower-center multi-function display (MFD), then do these steps:
 - (a) Make sure the Flight Deck Entry Video Surveillance System (FDEVSS) can show on the lower-center MFD.

NOTE: Video-capable MFDs are required.

- 1) Make sure that the P5-13 IFE/PASS SEAT switch in the flight deck is in the ON position.
- 2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01641	SURVEILLANCE CAMERA

- 3) Press the DSPL button on the Camera Control Panel (CCP), M3000.
- 4) Make sure that a video image appears on the lower-center MFD.

SUBTASK 31-62-11-710-002

- (5) To do the display unit operational test (optional), do this task: Common Display System - Operational Test, TASK 31-62-00-710-801.

SUBTASK 31-62-11-860-006

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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DISPLAY UNIT - CLEANING/PAINTING

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) How to clean the display surface.
 - (2) How to clean the display unit light sensor.
 - (3) How to clean the display unit cooling air inlet screen.
- C. There are six display units. Five of the display units are in the forward instrument panel. The sixth display is the center lower display unit and is in the forward aisle stand.
- D. These procedures are the same for all six display units.

TASK 31-62-11-100-801

2. How to Clean the Display Surface

A. General

- (1) This task has two procedures to clean the display surface. It is necessary to use only one of the two procedures.

B. Tools/Equipment

Reference	Description
STD-123	Brush - Soft Bristle

C. Consumable Materials

Reference	Description	Specification
B50012	Cleaner - Optical Cleaning, Calotherm Solution - Supaspray	
B50013	Cloth - Calocoat Hi-Tech Lenscloth - Supacloth	
G02457	Cleaner - Wet/Dry Anti-Static Sachet - ALGLAS Visial ALG/CR 215	

D. Location Zones

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

E. Procedure to Use Alglas Visial Wet/Dry Anti-Static Sachet

SUBTASK 31-62-11-100-008

CAUTION: USE ONLY THE RECOMMENDED CLEANERS TO CLEAN THE DISPLAY. DO NOT USE ABRASIVE MATERIALS. DO NOT TOUCH THE GLASS WITH YOUR BARE SKIN. DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE DISPLAY SURFACE. OTHER CLEANERS, ABRASIVE MATERIALS, OR BARE SKIN WILL CAUSE DAMAGE TO THE DISPLAY SURFACE. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE DISPLAY.

- (1) Remove all particles from the display surface with a clean, soft, natural-bristle soft bristle brush, STD-123.



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SUBTASK 31-62-11-100-009

- (2) Clean the display surface with the wet and dry anti-static sachets (ALGLAS Visial cleaner, G02457):
 - (a) Use the wet sachet to carefully clean the display surface in a straight line from top to bottom.
 - (b) Gradually move from one side of the display surface to the other side while you clean from top to bottom.
 - (c) When the display surface is clean, use the dry sachet in a straight line from top to bottom to carefully dry the display surface.

F. Procedure to Use Supaspray and Supacloth

SUBTASK 31-62-11-100-010

CAUTION: USE ONLY THE RECOMMENDED CLEANERS TO CLEAN THE DISPLAY. DO NOT USE ABRASIVE MATERIALS. DO NOT TOUCH THE GLASS WITH YOUR BARE SKIN. DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE DISPLAY SURFACE. OTHER CLEANERS, ABRASIVE MATERIALS, OR BARE SKIN WILL CAUSE DAMAGE TO THE DISPLAY SURFACE. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE DISPLAY.

- (1) Remove all particles from the display surface with a clean, soft, natural-bristle soft bristle brush, STD-123.

SUBTASK 31-62-11-100-011

- (2) Clean the display surface with the Supaspray cleaner, B50012, and a Supacloth cloth, B50013:
 - (a) Apply 2 or 3 sprays of the Supaspray cleaner, B50012, to the Supacloth cloth, B50013.
 - (b) Use the moist cloth to carefully clean the display surface in a straight line from top to bottom.
 - (c) Gradually move from one side of the display surface to the other side while you clean from top to bottom.
 - (d) When the display surface is clean, use a clean, dry area of the Supacloth cloth, B50013, in a straight line from top to bottom to carefully dry the display surface.

———— END OF TASK ————

TASK 31-62-11-100-802

3. How to Clean the Display Unit Light Sensor

A. Tools/Equipment

Reference	Description
STD-123	Brush - Soft Bristle

B. Location Zones

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

C. Procedure

SUBTASK 31-62-11-100-006

- (1) Remove all grit, dirt, and sand from the light sensor with a clean, soft, soft bristle brush, STD-123.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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TASK 31-62-11-100-803

4. How to Clean the Holes on the Rear of the Display Unit

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
31-62-11-000-801	Display Unit Removal (P/B 401)
31-62-11-400-801	Display Unit Installation (P/B 401)

B. Tools/Equipment

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

Reference	Description
COM-2618	Cleaner - Vacuum Part #: 98606 Supplier: 08531 Part #: BP80 Supplier: \$0373 Part #: R80 Supplier: \$0373 Part #: RSV130 Supplier: \$1291 Opt Part #: 02146A Supplier: 0A5X2 Opt Part #: 44SPEC Supplier: 0Y8U0 Opt Part #: 655406-7M Supplier: 0Y8U0 Opt Part #: C-39485-41 Supplier: 16893 Opt Part #: C-39485-42 Supplier: 16893 Opt Part #: WD80 Supplier: \$0373

C. Location Zones

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

D. Procedure

SUBTASK 31-62-11-010-001

- (1) Do this task: Display Unit Removal, TASK 31-62-11-000-801.

SUBTASK 31-62-11-210-001

- (2) Examine the air holes on the rear of the display unit.

SUBTASK 31-62-11-100-012

- (3) If contamination causes a blockage of more than 50 percent of the holes, then clean the holes on the rear of the display units.

SUBTASK 31-62-11-100-007

CAUTION: DO NOT USE COMPRESSED AIR TO CLEAN THE HOLES ON THE REAR OF THE DISPLAY UNIT. COMPRESSED AIR WILL PUSH CONTAMINATION INTO THE DISPLAY UNIT. THIS CAN CAUSE DAMAGE TO THE EQUIPMENT.

- (4) Do this step to clean the holes on the rear of the display unit.

- (a) Remove all lint, dust, and debris from the air inlet and exhaust holes on the rear of the display unit with a vacuum cleaner, COM-2618.

SUBTASK 31-62-11-410-001

- (5) Do this task: Display Unit Installation, TASK 31-62-11-400-801.

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SUBTASK 31-62-11-860-007

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

———— END OF TASK ——

— EFFECTIVITY —
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EFIS CONTROL PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of an EFIS control panel.
 - (2) An installation of an EFIS control panel, which includes an installation test.
- B. There are two EFIS control panels installed on the glareshield panel, P7 in the flight compartment. The captain's EFIS control panel is on the left side of the P7 panel. The first officer's EFIS control panel is on the right side of the P7 panel.

TASK 31-62-12-000-801

2. EFIS Control Panel Removal

(Figure 401)

A. Location Zones

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

B. Removal Procedure

SUBTASK 31-62-12-860-001

- (1) For the applicable control panel:
Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	13	C01370	DISPLAY F/O EFIS CONT PANEL

SUBTASK 31-62-12-860-002

- (2) On the captain's main instrument panel, P1, turn the knob of the PANEL control to the OFF position.

SUBTASK 31-62-12-010-001

- (3) Do these steps to get access to the electrical connector [5] for the EFIS CONTROL PANEL [3].
 - (a) Loosen the eight quarter turn fasteners [1] that hold the glareshield access panel [2] to the glareshield, P7.
 - (b) Remove the glareshield access panel [2].

SUBTASK 31-62-12-020-001

- CAUTION:** DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE EFIS CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE EFIS CONTROL PANEL.
- (4) Do these steps to remove the EFIS CONTROL PANEL [3]:
 - (a) Remove the four screws [4] that attach the EFIS CONTROL PANEL [3] to the bottom of the glareshield.

EFFECTIVITY	AKS ALL
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- (b) Carefully pull the EFIS CONTROL PANEL [3] approximately four inches aft to get access to the electrical connector [5].
- (c) Disconnect the electrical connector [5].

NOTE: You can get access to the electrical connector [5] from above the EFIS CONTROL PANEL [3].

- (d) Remove the EFIS CONTROL PANEL [3].
- (e) Put a protective cover on the electrical connector.

———— END OF TASK ————

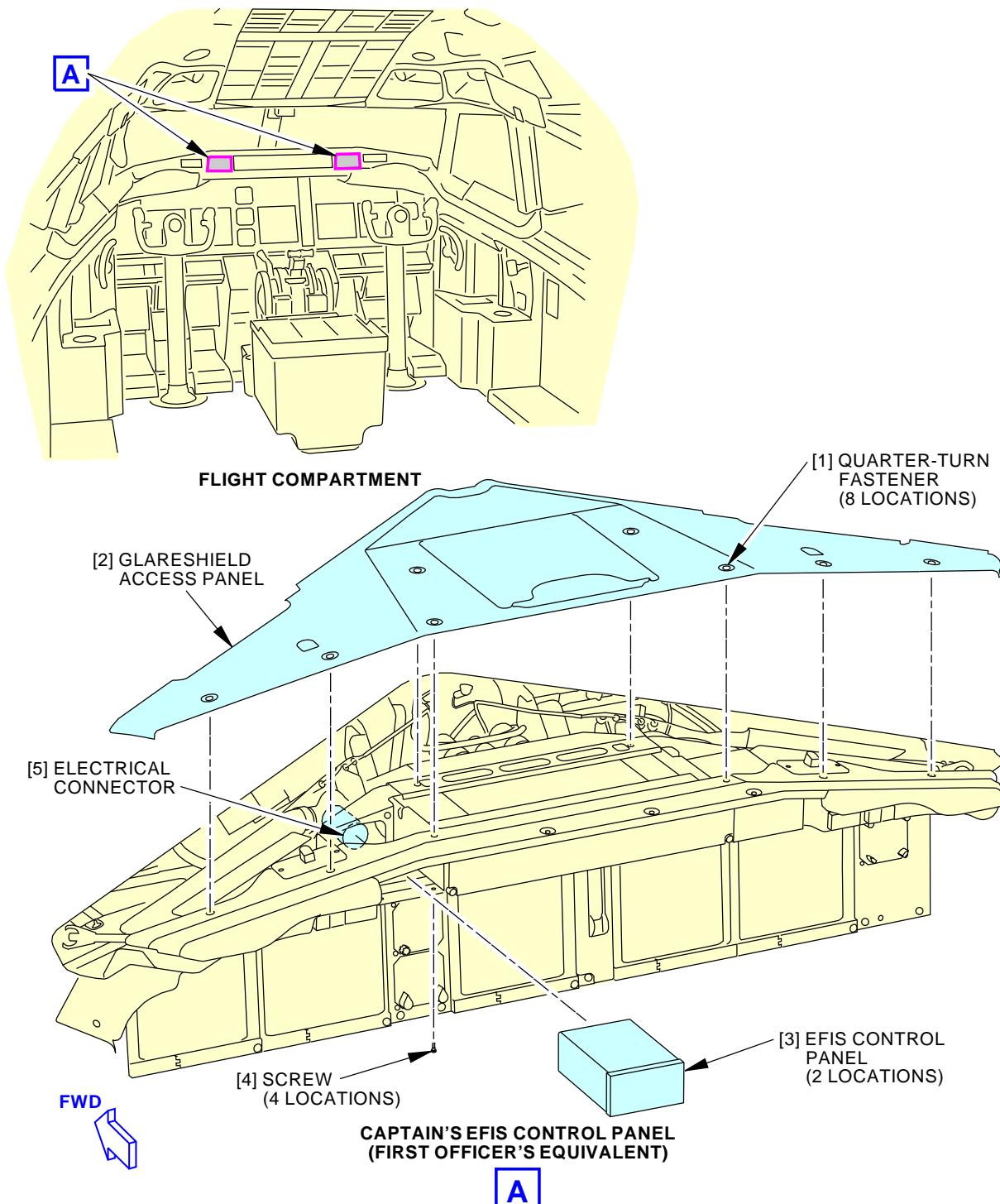
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EFIS Control Panel Installation
Figure 401/31-62-12-990-801

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TASK 31-62-12-400-801

3. EFIS Control Panel Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	EFIS CONTROL PANEL	31-62-12-01-005	AKS ALL

C. Location Zones

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

D. Installation Procedure

SUBTASK 31-62-12-860-003

- (1) For the applicable control panel:

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	13	C01370	DISPLAY F/O EFIS CONT PANEL

SUBTASK 31-62-12-420-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE EFIS CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE EFIS CONTROL PANEL.

- (2) Do these steps to install the EFIS CONTROL PANEL [3]:

- Remove the protective cover from the electrical connector.
- Examine the electrical connector for bent or broken pins, dirt, and damage.
- Put the EFIS CONTROL PANEL [3] carefully into its position in the glareshield.
- Do these steps to connect the electrical connector [5].

1) Move the EFIS CONTROL PANEL [3] forward until the electrical connector can touch the EFIS CONTROL PANEL [3].

NOTE: You can get access to the electrical connector [5] from above the EFIS CONTROL PANEL [3].

2) Connect the electrical connector [5].

- Push the EFIS CONTROL PANEL [3] forward until it stops.
- Install the four screws [4] that attach the EFIS CONTROL PANEL [3] to the bottom of the glareshield.

EFFECTIVITY	AKS ALL
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SUBTASK 31-62-12-410-001

- (3) Install the glareshield access panel on top of the glareshield panel.
 - (a) Put the glareshield access panel in place on top of the glareshield panel.
 - (b) Tighten the eight quarter turn fasteners on the glareshield access panel.

SUBTASK 31-62-12-860-004

- (4) For the applicable control panel:

For the applicable control panel:

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C01369	DISPLAY CAPT EFIS CONT PANEL

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	13	C01370	DISPLAY F/O EFIS CONT PANEL

SUBTASK 31-62-12-860-005

- (5) On the captain's main instrument panel, P1, turn the knob of the PANEL control to the middle position.

E. Installation Test

SUBTASK 31-62-12-860-006

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-12-750-001

- (2) Do a test of the EFIS CONTROL PANEL [3] that you installed:
 - (a) Make sure EFIS CP does not show on the applicable display.

SUBTASK 31-62-12-860-007

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

———— END OF TASK ————



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LIGHTING CONTROL MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the lighting control module.
 - (2) An installation of the lighting control module.
- B. The two lighting control modules are on the main instrument panels. The captain's lighting control module is on the captain instrument panel, P1, in the flight compartment. The first officer's lighting control module is on the first officer's instrument panel, P3, in the flight compartment.

TASK 31-62-13-000-801

2. Lighting Control Module Removal

(Figure 401)

A. Location Zones

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

B. Removal Procedure

SUBTASK 31-62-13-860-001

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
B	10	C00335	PANEL & INSTR 28V PRI F/O

SUBTASK 31-62-13-020-001

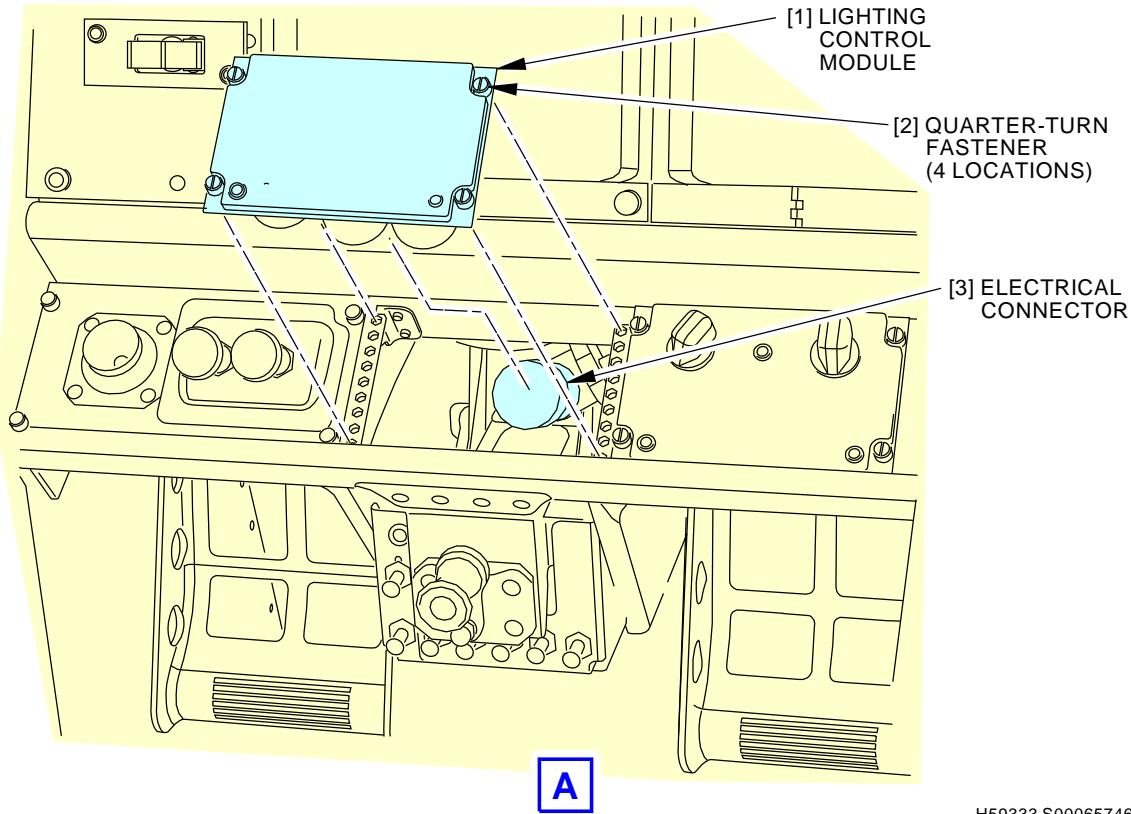
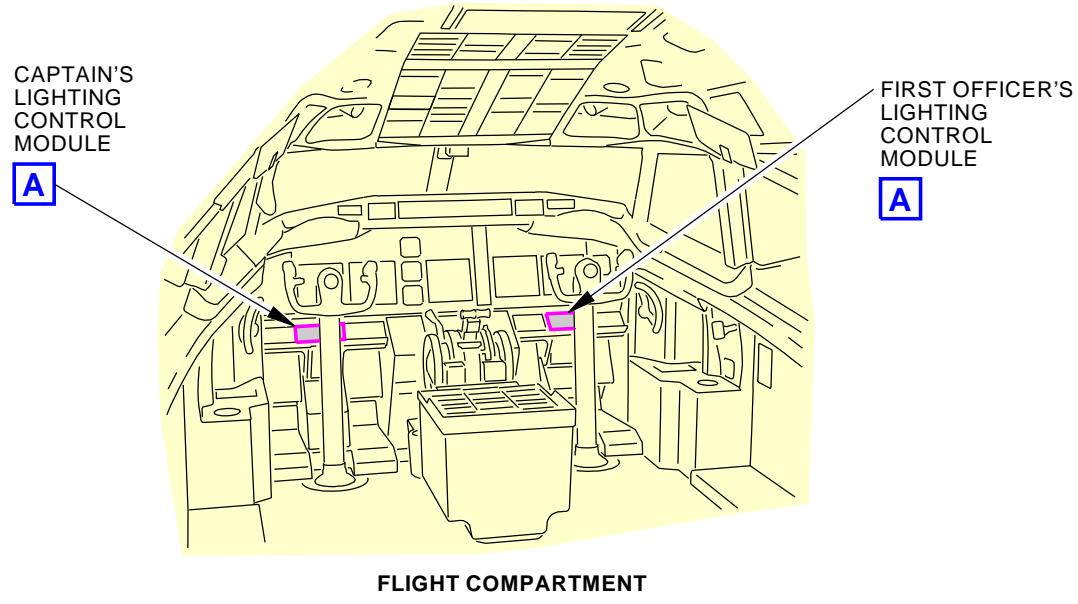
CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LIGHTING CONTROL MODULE. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LIGHTING CONTROL MODULE.

- (2) Remove the LIGHTING CONTROL MODULE [1]:
 - (a) Loosen the four quarter-turn fasteners [2].
 - (b) Carefully lift the lighting control module from the main instrument panel to get access to the electrical connectors [3].
 - (c) Disconnect the electrical connectors [3].
 - (d) Put protective covers on the electrical connectors [3].

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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Lighting Control Module Installation
Figure 401/31-62-13-990-801

EFFECTIVITY
AKS ALL

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TASK 31-62-13-400-801

3. Lighting Control Module Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
31-62-00-993-802	Table: Display Unit Test Format DEU 1 selected coupler #1 (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	LIGHTING CONTROL MODULE	31-62-13-03-050	AKS ALL
		31-62-13-03-100	AKS ALL

C. Location Zones

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

D. Installation Procedure

SUBTASK 31-62-13-860-002

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
B	10	C00335	PANEL & INSTR 28V PRI F/O

SUBTASK 31-62-13-420-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE LIGHTING CONTROL MODULE. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LIGHTING CONTROL MODULE.

- (2) Install the LIGHTING CONTROL MODULE [1]:

- (a) Remove the protective covers from the electrical connectors [3].
- (b) Examine the electrical connectors [3] for bent or broken pins, dirt, and damage.
- (c) Connect the electrical connectors [3].
- (d) Put the LIGHTING CONTROL MODULE [1] in its position on the main instrument panel.
- (e) Tighten the four quarter-turn fasteners [2].

SUBTASK 31-62-13-860-003

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	9	C00331	PANEL & INSTR 28V PRI CAPT & CTR
B	10	C00335	PANEL & INSTR 28V PRI F/O

EFFECTIVITY	AKS ALL
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E. Installation Test

SUBTASK 31-62-13-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-13-860-005

- (2) Make these selections on the control display unit (CDU):

- (a) Push the INIT REF key.
- (b) Push the line select key (LSK) adjacent to INDEX.
- (c) Push the LSK adjacent to MAINT.
- (d) Push the LSK adjacent to CDS.
- (e) Push the LSK adjacent to DEU 1.
- (f) Push the LSK adjacent to GROUND TESTS.
- (g) Push the LSK adjacent to DU LOOP TEST.
- (h) Push the LSK adjacent to COAX 1 TO LT DISPLAYS & COAX 2 TO RT DISPLAYS.

SUBTASK 31-62-13-710-001

- (3) Make sure all six display units (DUs) show the test format Table 31-62-00-993-802.

SUBTASK 31-62-13-710-002

- (4) Turn the outer OUTBD BRT control on the captain's lighting control module.

- (a) Make sure the UNIT value that shows on the captain's outboard DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-13-710-003

- (5) Turn the outer OUTBD BRT control on the first officer's lighting control module.

- (a) Make sure the UNIT value that shows on the first officer's outboard DU changes.

NOTE: The value will increase when you turn the control clockwise in the range of 0 to 100.

SUBTASK 31-62-13-860-006

- (6) Push the INIT REF key on the CDU to stop the test.

SUBTASK 31-62-13-860-007

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

———— END OF TASK ————



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INSTRUMENT SWITCHING MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the instrument switching module.
 - (2) An installation of the instrument switching module.
- B. The instrument switching module is on the forward overhead panel, P5, in the flight compartment.

TASK 31-62-14-000-801

2. Instrument Switching Module Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 31-62-14-860-001

- (1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	2	C00412	INSTR XFR

SUBTASK 31-62-14-860-002

- (2) On the forward overhead panel, P5, turn the knob of the PANEL control to the OFF position.

SUBTASK 31-62-14-020-001

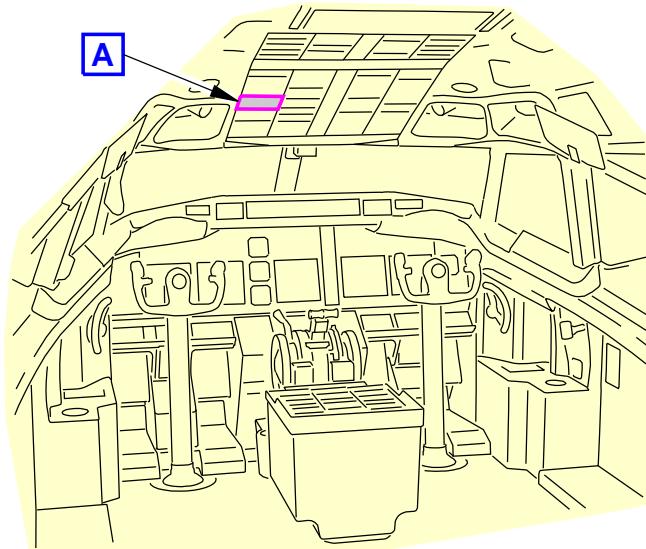
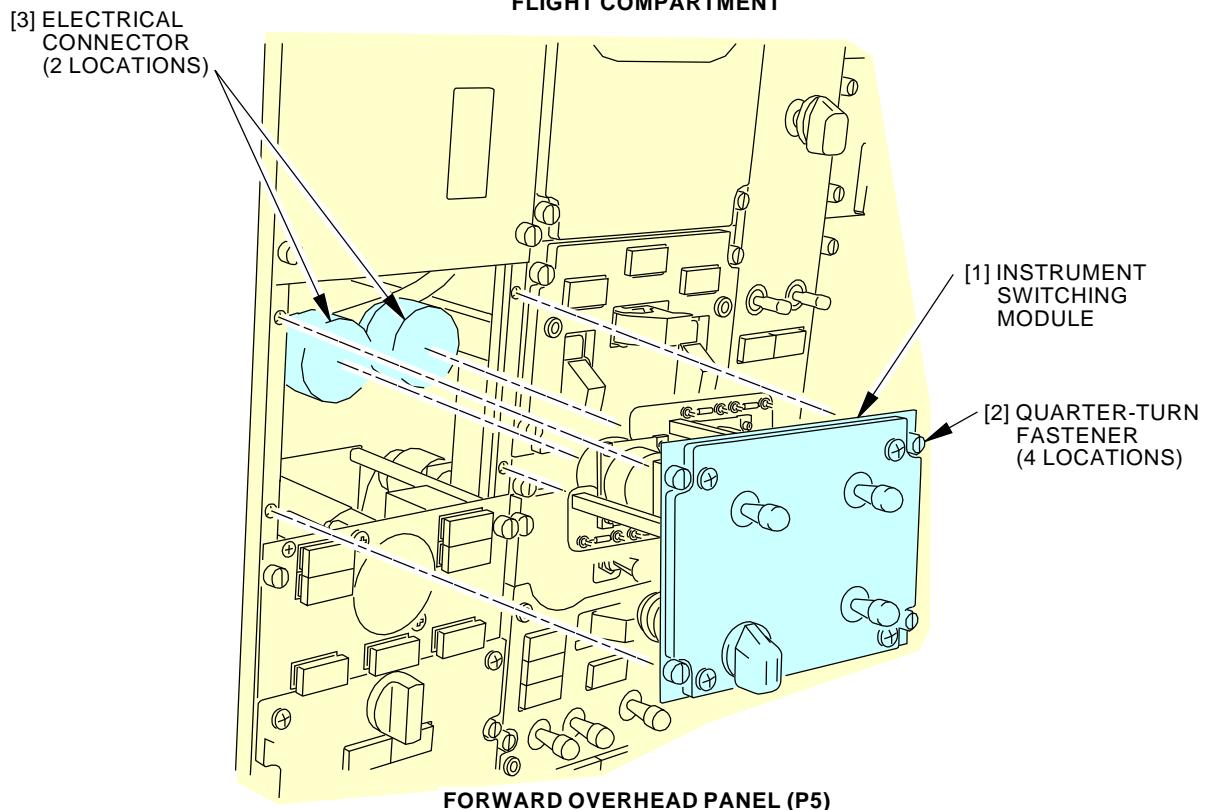
CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INSTRUMENT SWITCHING MODULE. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE INSTRUMENT SWITCHING MODULE.

- (3) Remove the INSTRUMENT SWITCHING MODULE [1]:
 - (a) Loosen the four quarter-turn fasteners [2].
 - (b) Carefully lift the instrument switching module from the forward overhead panel, P5, to get access to the electrical connectors [3].
 - (c) Disconnect the electrical connectors [3].
 - (d) Put protective covers on the electrical connectors [3].

———— END OF TASK ————



31-62-14


FLIGHT COMPARTMENT

A

G34014 S0006574616_V2

**Instrument Switching Module Installation
Figure 401/31-62-14-990-801**

EFFECTIVITY
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TASK 31-62-14-400-801

3. Instrument Switching Module Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	INSTRUMENT SWITCHING MODULE	31-62-14-01-015	AKS 001-020, 026-999

C. Location Zones

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

D. Installation Procedure

SUBTASK 31-62-14-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	2	C00412	INSTR XFR

SUBTASK 31-62-14-420-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INSTRUMENT SWITCHING MODULE. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE INSTRUMENT SWITCHING MODULE.

- (2) Install the INSTRUMENT SWITCHING MODULE [1]:

- (a) Remove the protective covers from the electrical connectors [3].
- (b) Examine the electrical connectors [3] for bent or broken pins, dirt, and damage.
- (c) Connect the electrical connectors [3].
- (d) Put the INSTRUMENT SWITCHING MODULE [1] in its position on the forward overhead panel, P5.
- (e) Tighten the four quarter-turn fasteners [2].

SUBTASK 31-62-14-860-004

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	2	C00412	INSTR XFR

E. Installation Test

SUBTASK 31-62-14-860-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

EFFECTIVITY
AKS ALL

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SUBTASK 31-62-14-730-001

- (2) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to the BOTH ON 1 position.
 - (a) Do these steps at the captain's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - a) Make sure the barometric pressure shows in inches on the captain's display unit.
 - b) Make sure the barometric pressure shows in inches on the first officer's display unit.
 - (b) Do these steps at the first officer's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to HPA.
 - a) Make sure the barometric pressure shows no changes on the captain's display unit.
 - b) Make sure the barometric pressure shows no changes on the first officer's display unit.

SUBTASK 31-62-14-730-002

- (3) Set the CONTROL PANEL switch on the instrument switching module to the BOTH ON 2 position.
 - (a) Do these steps at the first officer's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - a) Make sure the barometric pressure shows in inches on the captain's display unit.
 - b) Make sure the barometric pressure shows in inches on the first officer's display unit.
 - (b) Do these steps at the captain's EFIS control panel.
 - 1) Set the outer knob on the BARO switch on the EFIS control panel to HPA.
 - a) Make sure the barometric pressure shows no changes on the captain's display unit.
 - b) Make sure the barometric pressure shows no changes on the first officer's display unit.

SUBTASK 31-62-14-730-003

- (4) Set the DISPLAYS CONTROL PANEL switch on the instrument switching module to the NORMAL position.

SUBTASK 31-62-14-860-006

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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DISPLAY ELECTRONIC UNIT - MAINTENANCE PRACTICES

1. General

- A. This procedure contains these tasks:
- (1) An installation of the display electronic unit (DEU) software with an airborne data loader (ADL).

AKS 002-999

- (2) An installation of the display electronic unit (DEU) software with a portable data loader (PDL).

AKS ALL

- (3) An installation of the display electronic unit (DEU) software with an enhanced airborne data loader (eADL).
- (4) A task to send BITE data from the DEUs to a diskette in the ADL.

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- (5) A task to send BITE data from the DEUs to a diskette in the PDL.

AKS ALL

- (6) A task to send BITE data from the DEUs to a diskette in the enhanced airborne data loader (eADL).

TASK 31-62-21-470-801

2. Display Electronic Unit Software Installation with an Airborne Data Loader

A. General

- (1) This procedure tells you how to install software in the display electronic unit 1 (DEU-1) and display electronic unit 2 (DEU-2).
 - (a) The DEU-1 and DEU-2 contain these pieces of software:
 - 1) operational program software (OPS)
 - 2) operational program configuration (OPC)
 - 3) display unit database (DUDB).
- (2) If you will install a new OPS, then install it before you install other DEU software.
- (3) You can install the OPC or DUDB in any sequence after the OPS is installed.
- (4) If you install the OPS part number that is already installed in the DEU, then the DEU will do a short load. The data transfer time for a short load is significantly less than the data transfer for a new software part number.
- (5) You must install software in one DEU at a time. There is no crossover-load function for the DEUs.
- (6) An airborne data loader (ADL) and a data loader control panel are necessary for this procedure. The data loader control panel is installed above the airborne data loader on the P61 panel.
- (7) The airplane must be on the ground with the engines shutdown before you can install software.
- (8) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.
- (9) To read about software installation times and data loaders, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.

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- (10) The word "media" defines a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Procedure

SUBTASK 31-62-21-860-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-21-860-020

- (2) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

NOTE: Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary to increase the length of time that the data loader is serviceable.

SUBTASK 31-62-21-860-006

- (3) Use an ADL to install software in the applicable DEU.

NOTE: Make sure you know the correct software part number for the applicable DEU. For the DEU to be an approved installation, the correct software part numbers must be installed.

NOTE: Different part numbers for DEU-1 and DEU-2 may require different software part numbers. See the notes for the applicable DEU part number(s) in the Illustrated Parts Catalogue (IPC).

SUBTASK 31-62-21-860-007

- (4) Do these steps to prepare for the software installation:

- (a) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

AKS ALL; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (b) Do these steps at the data loader control panel:

- 1) Set the upper switch to L for DEU 1 or to R for DEU 2.
- 2) Set the system select switch to DEU.

AKS ALL

- (c) Continue the procedure.

NOTE: The DEU will go into a software load condition when you put the system select switch on the data loader control panel in the DEU position. The displays can be blank or show a CDS FAULT message. After you put the system select switch in the NORMAL position, it can take approximately 2 minutes for the DEU to come back from its software load condition.



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SUBTASK 31-62-21-420-002

- (5) Do these steps at the airborne data loader to install the software:

- (a) Put the correct media in the drive.

NOTE: When you put the disk in the disk drive, the data loader can read a part of the disk. Then, show no signs of a load sequence for 2 to 7 minutes. During this 2 to 7 minutes, the DEU will process data internally. After the 2 to 7 minutes, the data loader will continue to install the software.

CAUTION: DO NOT STOP THE DATA LOAD UNLESS THE DATA LOADER SHOWS LOAD FAILED OR LOAD COMPLETE. IF THE POWER STOPS AND STARTS DURING THE LOAD, THE DATA LOADER WILL TRY TO COMPLETE THE DATA LOAD. DURING THE RECOVERY, THE DATA LOADER CAN SHOW NO DISK ACTIVITY OR FILE TRANSFERS FOR A LONG TIME. GIVE THE DATA LOADER 10 TO 15 MINUTES TO COMPLETE THE LOAD. IF YOU STOP THE DATA LOAD BEFORE IT IS DONE, YOU CAN CAUSE DAMAGE TO THE UNIT.

- (b) Follow the prompts on the data loader to complete the installation.

- 1) If there is more than one piece of media to install, wait 10 seconds after each load is completed before you remove and install the subsequent media.

NOTE: CHNG, CHANGE DISK, DISK CHANGE and INSERT DISK are examples of data loader prompts for a subsequent disk.

- (c) Remove the media from the drive when the software installation is completed.

NOTE: COMP, LOAD COMPLETE and TRANSF COMPLETE are examples of data loader prompts for a completed installation.

SUBTASK 31-62-21-420-003

- (6) Do these steps to do a software configuration check of the DEU:

- (a) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

NOTE: It can take approximately 2 minutes for the DEU to come back from its software load condition.

- (b) If you are not at one of the CDS DEU BITE displays, then do these steps:

- 1) Push the INIT REF function key on the CDU.

- 2) If the POS INIT display shows, then push the line select key next to the INDEX prompt.

NOTE: This makes the INIT/REF INDEX show.

- 3) Push the line select key next to the MAINT prompt.

- (c) From the MAINT BITE INDEX, push the line select key next to the CDS prompt.

- (d) Push the line select key next to the applicable DEU prompt.

- (e) Push the line select key next to the IDENT/CONFIG prompt.

- 1) When the software installation is completed, make sure the correct part number shows on the display.

SUBTASK 31-62-21-860-008

- (7) Do this step to put the airplane back to its usual condition:

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

———— END OF TASK ————

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AKS 002-999

TASK 31-62-21-470-802

3. Display Electronic Unit Software Installation with a Portable Data Loader

A. General

- (1) This procedure tells you how to install software in the display electronic unit 1 (DEU-1) and the display electronic unit 2 (DEU-2).

- (a) The DEU-1 and DEU-2 contain these pieces of software:

- 1) operational program software (OPS)

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

NOTE: DEU-I will always have a different OPS software part number than DEU-II. These differing OPS part numbers may or may not be incompatible. Incompatible OPS part numbers between the two installed DEU's will always be detected and annunciated by CDS as a software configuration fault. Consult with the authorized Airline Department for the correct software part numbers.

- 2) operational program configuration (OPC)

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

NOTE: The OPC part number must be the same between DEU-I and DEU-II.

Non-matching OPC part numbers between the two installed DEU's will always be detected and annunciated by CDS as a software configuration fault. Consult with the authorized Airline Department for the correct software part numbers.

- 3) display unit database (DUDB).

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

NOTE: The DUDB part number must be the same between DEU-I and DEU-II.

Consult with the authorized Airline Department for the correct software part numbers.

- (2) If you will install a new OPS, then install it before you install other DEU software.

- (3) You can install the OPC or DUDB in any sequence after the OPS is installed.

- (4) If you install the OPS part number that is already installed in the DEU, then the DEU will do a short load. The data transfer time for a short load is significantly less than the data transfer for a new software part number.

- (5) You must install software in one DEU at a time. There is no crossover-load function for the DEUs.

- (6) A portable data loader (PDL) is necessary for this procedure. A data loader control panel and a PDL interface connector are also necessary. The data loader control panel is installed above the DATA TRANSFER UNIT RECEPTACLE connector on the P61 panel.

- (7) A PDL is not a Boeing supplied part. Refer to the PDL supplier for instructions for operation. PDLs have a disk drive for software installation from disks. Some PDLs have an internal mass storage device. If the software is stored in the PDL, then disks are not necessary.

- (8) The airplane must be on the ground with the engines shutdown before you can install software.

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AKS 002-999 (Continued)

- (9) To read about software installation times and data loaders, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (10) The word "media" defines a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

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

Reference	Description
COM-1915	Data Loader - ARINC 615 Part #: 11615-50 Supplier: 0D4J3 Part #: 2231560-1-B Supplier: 98571 Part #: 30100 Supplier: 0BAW0 Part #: 465130-01-01 Supplier: 30782 Part #: 800-0631 Supplier: 1JSZ6 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: P2K-615A-06 Supplier: 0BAW0 Part #: YV68A110 Supplier: FAQ15 Opt Part #: 11615-02 Supplier: 0D4J3 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 18000-02 Supplier: 0D4J3 Opt Part #: 80000-03-01010203 Supplier: 0BAW0 Opt Part #: 80000-04-01020301 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896

D. Location Zones

Zone	Area
212	Flight Compartment - Right

E. Procedure

SUBTASK 31-62-21-860-009

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.



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AKS 002-999 (Continued)

SUBTASK 31-62-21-860-010

- (2) Use a PDL to install software in the applicable DEU.

NOTE: Make sure you know the correct software part number for the applicable DEU. For the DEU to be an approved installation, the correct software part numbers must be installed.

NOTE: Different part numbers for DEU-1 and DEU-2 may require different software part numbers. See the notes for the applicable DEU part number(s) in the Illustrated Parts Catalogue (IPC).

NOTE: The software version for the 30100 loader must be 4.53 or subsequent. The software version for the 465130-01-01 loader must be 4.53L or subsequent.

SUBTASK 31-62-21-860-011

- (3) Do these steps to prepare for the software installation:

- (a) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

CAUTION: MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

CAUTION: MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

- (c) Connect the interface cable of the portable data ARINC 615 data loader, COM-1915, to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.
- (d) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

AKS 002-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (e) Do these steps at the data loader control panel:
- 1) Set the upper switch to L for DEU 1 or to R for DEU 2.
 - 2) Set the system select switch to DEU.

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- (f) Continue the procedure.

NOTE: The DEU will go into a software load condition when you put the system select switch on the data loader control panel in the DEU position. The displays can be blank or show a CDS FAULT message. After you put the system select switch in the NORMAL position, it can take approximately 2 minutes for the DEU to come back from its software load condition.



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AKS 002-999; SOFTWARE INSTALLATION WITH A PDL DISK DRIVE

SUBTASK 31-62-21-420-004

- (4) Do these steps to install the software:

NOTE: For more information on how to use the data loader, refer to the supplier's instructions for the data loader.

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- (a) Set the power switch on the data loader to the on position.
(b) Put the correct media in the drive.

NOTE: When you put the disk in the disk drive, the data loader can read a part of the disk. Then, show no signs of a load sequence for 2 to 7 minutes. During this 2 to 7 minutes, the DEU will process data internally. After the 2 to 7 minutes, the data loader will continue to install the software.

CAUTION: DO NOT STOP THE DATA LOAD UNLESS THE DATA LOADER SHOWS LOAD FAILED OR LOAD COMPLETE. IF THE POWER STOPS AND STARTS DURING THE LOAD, THE DATA LOADER WILL TRY TO COMPLETE THE DATA LOAD. DURING THE RECOVERY, THE DATA LOADER CAN SHOW NO DISK ACTIVITY OR FILE TRANSFERS FOR A LONG TIME. GIVE THE DATA LOADER 10 TO 15 MINUTES TO COMPLETE THE LOAD. IF YOU STOP THE DATA LOAD BEFORE IT IS DONE, YOU CAN CAUSE DAMAGE TO THE UNIT.

- (c) Follow the prompts on the data loader to complete the installation.
1) If there is more than one piece of media to install, wait 10 seconds after each load is completed before you remove and install the subsequent media.
NOTE: CHNG, CHANGE DISK, DISK CHANGE and INSERT DISK are examples of data loader prompts for a subsequent disk.
- (d) Remove the media from the drive when the software installation is completed.
NOTE: COMP, LOAD COMPLETE and TRANSF COMPLETE are examples of data loader prompts for a completed installation.

AKS 002-999; SOFTWARE INSTALLATION WITH A PDL MASS STORAGE DEVICE

SUBTASK 31-62-21-420-008

- (5) Follow the PDL supplier instructions to install the software.

AKS 002-999

SUBTASK 31-62-21-860-021

- (6) Set the power switch on the data loader to the off position.

SUBTASK 31-62-21-420-005

- (7) Do these steps to do a software configuration check of the DEU:
(a) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.
NOTE: It can take approximately 2 minutes for the DEU to come back from its software load condition.
(b) If you are not at one of the CDS DEU BITE displays, then do these steps:
1) Push the INIT REF function key on the CDU.



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AKS 002-999 (Continued)

- 2) If the POS INIT display shows, then push the line select key next to the INDEX prompt.

NOTE: This makes the INIT/REF INDEX show.

- 3) Push the line select key next to the MAINT prompt.

- (c) From the MAINT BITE INDEX, push the line select key next to the CDS prompt.

- (d) Push the line select key next to the applicable DEU prompt.

- (e) Push the line select key next to the IDENT/CONFIG prompt.

- 1) When the software installation is completed, make sure the correct part number shows on the display.

SUBTASK 31-62-21-860-012

- (8) Do these steps to put the airplane back to its usual condition:

CAUTION: MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Open this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

- (b) Remove the interface cable from the DATA TRANSFER UNIT RECEPTACLE.

- (c) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

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

———— END OF TASK ————

AKS ALL

TASK 31-62-21-470-805

4. Display Electronic Unit (DEU) Software Installation with an Enhanced Airborne Data Loader (eADL)

A. General

- (1) This task provides the instructions on how to install software in the display electronic unit 1 (DEU-1) and display electronic unit 2 (DEU-2).
 - (a) The DEU-1 and DEU-2 contain these pieces of software:
 - 1) Operational Program Software (OPS)
 - 2) Operational Program Configuration (OPC)
 - 3) Display Unit Database (DUDB).
- (2) If you will install a new OPS, then install it before you install other DEU software.
- (3) You can install the OPC or DUDB in any sequence after the OPS is installed.



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- (4) If you install the OPS part number that is already installed in the DEU, then the DEU will do a short load. The data transfer time for a short load is significantly less than the data transfer for a new software part number.
- (5) An enhanced airborne data loader (eADL) and a data loader control panel are necessary for this procedure. The data loader control panel is installed above the enhanced airborne data loader on the P61 panel.
- (6) The eADL has two procedures for software installation:
 - (a) Floppy Disk Software Installation
 - (b) USB Flash Drive Software Installation
 - 1) This procedure uses the USB port on the front panel of the eADL to install software from a valid USB flash drive to the Mass Storage Device (MSD). Once the software is installed on the MSD, the software is loaded to the CMU LRU.
 - 2) The USB flash drive must be configured correctly using the USB stick creator tool defined in the eADL Operations Guide.
- (7) You must install software in one DEU at a time. There is no crossover-load function for the DEUs.
- (8) The airplane must be on the ground with the engines shutdown before you can install software.
- (9) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.
- (10) To read about software installation times and data loaders, reference this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (11) The word "media" defines a data storage device. Examples of media are CDs, mass storage devices, diskettes, or floppy disks.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Prepare for the Installation

SUBTASK 31-62-21-860-027

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.
 - (a) Make sure that the power is not removed while you install software.
NOTE: A power interruption will cause a failure of the software installation.
- (2) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

SUBTASK 31-62-21-860-028

- (3) Make sure you know the correct software part number for the DEUs.
NOTE: For the DEU to be an approved installation, the correct software part number must be installed.
- (4) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

EFFECTIVITY
AKS ALL

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AKS ALL; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (5) Do these steps at the data loader control panel:
 - (a) Set the upper switch to L for DEU 1 or to R for DEU 2.
 - (b) Set the system select switch to DEU.

AKS ALL

SUBTASK 31-62-21-860-033

- (6) Open the eADL front cover by releasing the two screws and lifting up on the cover.

D. Floppy Disk Software Installation

SUBTASK 31-62-21-470-004

- (1) Do these steps to install software from a floppy disk:
 - (a) Wait until the display shows the eADL Main Menu.
NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.
 - NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.
 - (b) Select "Target Page."
 - 1) The eADL will show the Select Target System screen.
 - (c) Select "Floppy Drive."
 - 1) The eADL will show a Load Confirmation screen.
 - (d) Carefully push the first disk (label up) into the disk drive.
 - (e) Select "CONFIRM."
 - 1) The eADL will show "LOADING" on the Transfer In Progress screen.
NOTE: It may take one to two minutes for the installation to start.
 - NOTE: If the disk set has more than one disk and the data of the current disk is completely transferred, the eADL will prompt you to insert the next diskette. Eject the current diskette, insert the next diskette and select "CONTINUE."
 - (f) In the Transfer In Progress screen, wait for the eADL to show "LOAD COMPLETE."
 - (g) Select "MAIN" to go back to the main menu.
 - (h) Eject the disk from the disk drive when the software installation is completed.

E. USB Flash Drive Software Installation

SUBTASK 31-62-21-470-005

- (1) Do these steps to install software from a USB flash drive to the eADL MSD:
 - (a) Put the USB flash drive into the eADL USB port.
NOTE: The USB flash drive must be configured correctly by the USB stick creator tool as specified in the eADL Operations Guide.
 - (b) Make sure that the "eADL Main Menu" is shown.
NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.
 - NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.
 - (c) Select "Maintenance Page."



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- 1) This will show the "Maintenance Menu" screen.
 - (d) Select "Transfer Parts From USB."

NOTE: If the error message "USB Is Not Mounted Or Is Not A Valid USB" is shown, select "GO BACK" and do the steps again.

NOTE: Make sure the USB flash drive is configured correctly by the USB stick creator tool as specified in the eADL Operations Guide.

 - 1) The eADL screen will show "CONFIRM TO BEGIN TRANSFERRING."
 - 2) Select "CONFIRM."

NOTE: The USB and MSD annunciators will turn yellow during the transfer procedure.

NOTE: If the software is already on the eADL MSD, this message will show:
"Skipping, the software part number already exists."
 - (e) When the software transfer is complete, the USB and MSD annunciators will turn green and this message will show:
"Part Transfer Complete"

NOTE: The annunciators will turn red if the transfer procedure is aborted or if there is a failure.
 - (f) Select "GO BACK" two times to go back to the main menu.
- SUBTASK 31-62-21-470-006**
- (2) Do these steps to install the software from the eADL MSD to the LRU:
 - (a) Make sure that the "eADL Main Menu" is shown.

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate buttons on the eADL front panel.

NOTE: If the eADL Main Menu does not show, select MAIN or GO BACK until the eADL shows the Main Menu.
 - (b) Select "Target Page."
 - 1) This will show the "Select Target System" screen.
 - (c) Select the LRU to receive the software.
 - 1) This will show the "Select Software Part" screen.
 - (d) Push the "SELECT" button for the desired software.

NOTE: The listed software will appear as it was originally configured in the USB stick creator tool.
 - (e) Make sure that the "Load Confirmation" screen shows.
 - (f) Select "CONFIRM."
 - 1) This will show the "Transfer In Progress" screen.
 - 2) The "TRANSFER" annunciator will change to "LOADING" and turn yellow during the installation procedure.
 - 3) The "LOADING" annunciator will change to "COMPLETE" and turn green when the installation procedure is completed.
 - (g) Select "MAIN" to go back to the main menu.

EFFECTIVITY
AKS ALL

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F. Software Installation Configuration Check

SUBTASK 31-62-21-700-001

- (1) Do these steps to do a software configuration check of the DEU:

- (a) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

NOTE: It can take approximately 2 minutes for the DEU to come back from its software load condition.

- (b) If you are not at one of the CDS DEU BITE displays, then do these steps:

- 1) Push the INIT REF function key on the CDU.

- 2) If the POS INIT display shows, then push the line select key next to the INDEX prompt.

NOTE: This makes the INIT/REF INDEX show.

- 3) Push the line select key next to the MAINT prompt.

- (c) From the MAINT BITE INDEX, push the line select key next to the CDS prompt.

- (d) Push the line select key next to the applicable DEU prompt.

- (e) Push the line select key next to the IDENT/CONFIG prompt.

- 1) Make sure the correct software part number shows on the CDU.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-62-21-860-034

- (1) Close the eADL cover and tighten screws.

SUBTASK 31-62-21-860-035

- (2) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 31-62-21-860-029

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

———— END OF TASK ————

TASK 31-62-21-470-803

5. BITE Data Output from the DEUs to an Airborne Data Loader

A. General

- (1) This procedure contains the steps to send BITE data from the display electronic unit 1 (DEU-1) and display electronic unit 2 (DEU-2) to a disk in the airborne data loader. You can keep the data on the disk and examine it at a different time.

- (2) An airborne data loader (ADL) and a special disk from Honeywell are necessary for this procedure. The disk part number is PS4081944-103.

NOTE: Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email.

- (3) The necessary files are DEU1.REQ, DEU1.REQ and CONFIG.LDR. The files go on a formatted high density disk (HD 1.44 MB).

- (4) The airplane must be on the ground with the engines shutdown before you can do the BITE data output.

- (5) If necessary, send the disk or disks with BITE data to Boeing or Honeywell for analysis.

NOTE: If you send the BITE data to Boeing or Honeywell by email, these are the files you send.

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The three files for DEU P/N 4081600–930 are BITESRAM.BIN, EEXNY.BIN, and OCH.BIN.

The three files for DEU P/N 4081600–940 are D2BHDRA.M.DMP, D2BHXEE.DMP, and D2NRBHLI.DMP.

- (6) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable. Make sure this circuit breaker is closed before you start the procedure:

Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Procedure

SUBTASK 31-62-21-860-014

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-21-860-015

- (2) Do these steps to prepare for the BITE data output:

- (a) Record the fault history from the applicable DEU.

- 1) From the MAINT BITE INDEX, push the line select key next to the CDS prompt.
- 2) For DEU-1 CDS BITE, push the line select key next to the DEU-1 prompt.
- 3) For DEU-2 CDS BITE, push the line select key next to the DEU-2 prompt.
- 4) Do these steps to look for maintenance messages in CURRENT STATUS:
 - a) Push the line select key next to the CURRENT STATUS prompt.

NOTE: If there are active faults detected by the applicable DEU, you will see a maintenance message number and the maintenance message text.

- b) If there are any maintenance messages, then refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.

NOTE: The number of maintenance messages that are in Current Status are shown in the upper right corner of the display. You can use the PREV PAGE and NEXT PAGE buttons to move from one maintenance message to another.

- c) If NO FAULTS shows for DEU 1 and 2, then do these steps:

NOTE: There are no faults that are currently active.

- <1> Push the line select key next to the INDEX prompt.

NOTE: This will bring you back to the CDS DEU BITE main menu.

EFFECTIVITY
AKS ALL

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- <2> Do the steps that follow to look for maintenance messages in the INFLIGHT FAULTS menu selection.
- 5) If there are no maintenance messages in CURRENT STATUS for both DEU 1 and 2, then do these steps to look for maintenance messages in INFLIGHT FAULTS for both DEU 1 and 2:
- Push the line select key next to the INFLIGHT FAULTS prompt.
 - Push the line select key next to the prompt for the flight leg (LEG) during which the fault occurred.
NOTE: The most recent flight leg is LEG 01.
 - Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.
NOTE: The number of maintenance messages that are in Current Status are shown in the upper right corner of the display. You can use the PREV PAGE and NEXT PAGE buttons to move from one maintenance message to another.
- 6) Push the line select key next to the INDEX prompt twice to return to the CDS DEU BITE Main Menu.
- (b) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

AKS ALL; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (c) Do these steps at the data loader control panel:
- Set the upper switch to L.
 - Set the system select switch to DEU.

AKS ALL

- (d) Continue the procedure.

NOTE: The DEU will go into a software load condition when you put the system select switch on the data loader control panel in the DEU position. The displays can be blank or show a CDS FAULT message. After you put the system select switch in the NORMAL position, it can take approximately 2 minutes for the DEU to come back from its software load condition.

SUBTASK 31-62-21-860-023

- (3) Do these steps for safestoring the DEU ground faults:

NOTE: If the BITE data you will download has faults from a test on the ground, safestore the BITE DATA to the DEU.

- On the MAINT BITE INDEX page select CDS.
- On the CDS BITE page select DEU 1 or DEU 2 if applicable.
- On the CDS DEU X BITE page select GROUND TEST.
- On the CDS DEU X MAINT/BITE page select the DEU X SELF-TEST.
- Select RUN SELF-TEST.

NOTE: The self-test can take up to 3 minutes. At this time the MCDU page will show : DEU SELF-TEST (3 MIN) OR DEU-X BITE INOP CHECK DEU OR INTERFACE. Do not be concerned with this message the test page will read: SELF-TEST IN PROGRESS.

- (f) At the end of the SELF-TEST the test page will show PASSED or FAILED.

EFFECTIVITY	AKS ALL
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- (g) To exit the test select INDEX.

SUBTASK 31-62-21-420-006

- (4) Do these steps to do the BITE data output:

NOTE: For more information on how to use the data loader, refer to the supplier's instruction for the data loader. The necessary files are DEU11.REQ, DEU1.REQ and CONFIG.LDR. The files go on a formatted high density disk (HD 1.44 MB).

- (a) Put a disk in the disk drive.

NOTE: You must use a special Honeywell disk, P/N PS4081944-103, to send data to the disk drive. This updated download diskette set will support DEU-I and DEU-II. Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email.

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

- (b) Remove the disk from the disk drive when the data output for DEU 1 is completed.

AKS ALL; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (c) Set the upper switch to R.

AKS ALL

- (d) Put a new disk in the disk drive.

NOTE: You must use a special Honeywell disk, P/N PS4081944-103, to send data to the disk drive. This updated download diskette set will support DEU-I and DEU-II. Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email. The necessary files are DEU11.REQ, DEU1.REQ and CONFIG.LDR. The files go on a formatted high density disk (HD 1.44 MB).

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

- (e) Remove the disk from the disk drive when the data output for DEU 2 is completed.

SUBTASK 31-62-21-860-016

- (5) Do these steps to put the airplane back to its usual condition:

- (a) Set the system select switch on the data loader control panel to NORM or NORMAL.
(b) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

AKS 002-999

TASK 31-62-21-470-804

6. BITE Data Output from the DEUs to a Portable Data Loader

A. General

- (1) This procedure contains the steps to send BITE data from the display electronic unit 1 (DEU-1) and the display electronic unit 2 (DEU-2) to a disk in the portable data loader. You can keep the data on the disk and examine it at a different time.

EFFECTIVITY
AKS ALL

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AKS 002-999 (Continued)

- (2) A portable data loader (PDL) and a special disk from Honeywell are necessary for this procedure. The disk part number is PS4081944-103.
- NOTE: Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email.
- (3) The necessary files are DEUII.REQ, DEUII.REQ and CONFIG.LDR. The files go on a formatted high density disk (HD 1.44 MB).
- (4) The airplane must be on the ground with the engines shutdown before you can do the BITE data output.
- (5) If necessary, send the disk or disks with BITE data to Boeing or Honeywell for analysis.
- NOTE: If you send the BITE data to Boeing or Honeywell by email, these are the files you send.
- The three files for DEU P/N 4081600-930 are BITESRAM.BIN, EEXNY.BIN, and OCH.BIN.
- The three files for DEU P/N 4081600-940 are D2BHDRA.M.DMP, D2BHXEE.DMP, and D2NRBHLI.DMP.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

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

Reference	Description
COM-1915	Data Loader - ARINC 615 Part #: 11615-50 Supplier: 0D4J3 Part #: 2231560-1-B Supplier: 98571 Part #: 30100 Supplier: 0BAW0 Part #: 465130-01-01 Supplier: 30782 Part #: 800-0631 Supplier: 1JSZ6 Part #: CEI-715-DL-2 Supplier: 0BPH5 Part #: P2K-615A-06 Supplier: 0BAW0 Part #: YV68A110 Supplier: FAQ15 Opt Part #: 11615-02 Supplier: 0D4J3 Opt Part #: 11615-20 Supplier: 0D4J3 Opt Part #: 18000-02 Supplier: 0D4J3 Opt Part #: 80000-03-01010203 Supplier: 0BAW0 Opt Part #: 80000-04-01020301 Supplier: 0BAW0 Opt Part #: 80000-05 Supplier: 0BAW0 Opt Part #: 964-0400-020 Supplier: 97896 Opt Part #: 964-0400-025 Supplier: 97896 Opt Part #: 964-0400-030 Supplier: 97896 Opt Part #: 964-0400-055 Supplier: 97896

D. Location Zones

Zone	Area
212	Flight Compartment - Right

EFFECTIVITY
AKS ALL

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AKS 002-999 (Continued)

E. Procedure

SUBTASK 31-62-21-860-017

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-21-860-036

- (2) Do these steps to safestore the DEU ground faults:

NOTE: If the BITE data you will download has faults from a test on the ground, safestore the BITE DATA to the DEU.

- (a) On the MAINT BITE INDEX page select CDS.
- (b) On the CDS BITE page select DEU 1 or DEU 2 if applicable.
- (c) On the CDS DEU X BITE page select GROUND TEST.
- (d) On the CDS DEU X MAINT/BITE page select the DEU X SELF-TEST.
- (e) Select RUN SELF-TEST.

NOTE: The self-test can take up to 3 minutes. At this time the MCDU page will show : DEU SELF-TEST (3 MIN) OR DEU-X BITE INOP CHECK DEU OR INTERFACE. Do not be concerned with this message the test page will read: SELF-TEST IN PROGRESS.

- (f) At the end of the SELF-TEST the test page will show PASSED or FAILED.
- (g) If the BITE needs to be downloaded from the other DEU, repeat the steps to safestore the DEU ground faults.
- (h) To exit the test select INDEX.

SUBTASK 31-62-21-860-018

- (3) Do these steps to prepare for the BITE data output:

- (a) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

CAUTION: MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

CAUTION: MAKE SURE THE POWER SWITCH FOR THE PORTABLE DATA LOADER IS SET TO OFF BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE POWER SWITCH IS NOT OFF, DAMAGE TO THE PORTABLE DATA LOADER CAN OCCUR.

- (c) Connect the interface cable of the portable data ARINC 615 data loader, COM-1915, to the DATA TRANSFER UNIT RECEPTACLE on the P61 panel.

NOTE: The software version for the 30100 loader must be 4.52 or subsequent. The software version for the 465130-01-01 loader must be 4.52L or subsequent.

EFFECTIVITY
AKS ALL

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AKS 002-999 (Continued)

- (d) Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

AKS 002-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (e) Do these steps at the data loader control panel:

- 1) Set the upper switch to L.
- 2) Set the system select switch to DEU.

AKS 002-999

- (f) Continue the procedure.

NOTE: The DEU will go into a software load condition when you put the system select switch on the data loader control panel in the DEU position. The displays can be blank or show a CDS FAULT message. After you put the system select switch in the NORMAL position, it can take approximately 2 minutes for the DEU to come back from its software load condition.

SUBTASK 31-62-21-420-007

- (4) Do these steps to do the BITE data output:

NOTE: For more information on how to use the data loader, refer to the supplier's instructions for the data loader.

- (a) Set the power switch on the data loader to the on position.
- (b) Put a disk in the disk drive.

NOTE: You must use a special Honeywell disk, P/N PS4081944-103, to send data to the disk drive. This updated download diskette set will support DEU-I and DEU-II. Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email.

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

- (c) Remove the disk from the disk drive when the data output for DEU 1 is completed.

AKS 002-999; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (d) Set the upper switch to R.

AKS 002-999

- (e) Put a disk in the disk drive.

NOTE: You must use a special Honeywell disk, P/N PS4081944-103, to send data to the disk drive. This updated download diskette set will support DEU-I and DEU-II. Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email.

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

- (f) Remove the disk from the disk drive when the data output for DEU 2 is completed.
- (g) Set the power switch on the data loader to the off position.

EFFECTIVITY
AKS ALL

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AKS 002-999 (Continued)

SUBTASK 31-62-21-860-019

- (5) Do these steps to put the airplane back to its usual condition:
- Set the system select switch on the data loader control panel to NORM or NORMAL.

CAUTION: MAKE SURE THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE DATA LOADER CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

- Open this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

- Remove the interface cable from the DATA TRANSFER UNIT RECEPTACLE.
- Close this circuit breaker:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

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

———— END OF TASK ————

AKS ALL

TASK 31-62-21-470-806

7. BITE Data Output from the DEUs to an enhanced Airborne Data Loader (eADL)

A. General

- This procedure contains the steps to send BITE data from the display electronic unit 1 (DEU-1) and display electronic unit 2 (DEU-2) to a disk in the enhanced airborne data loader (eADL). You can keep the data on the disk and examine it at a different time.
- An airborne data loader (ADL) and a special disk from Honeywell are necessary for this procedure. The disk part number is PS4081944-103.

NOTE: Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email.

- The necessary files are DEU11.REQ, DEU1.REQ and CONFIG.LDR. The files go on a formatted high density disk (HD 1.44 MB).
- The airplane must be on the ground with the engines shutdown before you can do the BITE data output.
- If necessary, send the disk or disks with BITE data to Boeing or Honeywell for analysis.

NOTE: If you send the BITE data to Boeing or Honeywell by email, these are the files you send.

The three files for DEU P/N 4081600-930 are BITESRAM.BIN, EEXNY.BIN, and OCH.BIN.

The three files for DEU P/N 4081600-940 are D2BHDRA.MDP, D2BHXEE.DMP, and D2NRBHLI.DMP.

EFFECTIVITY

AKS ALL

D633A101-AKS

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- (6) Some airlines keep the circuit breaker for the data loader open when the data loader is not necessary. This increases the length of time that the data loader is serviceable.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Prepare for the Procedure

SUBTASK 31-62-21-860-030

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-21-860-031

- (2) Make sure this circuit breaker is closed before you start the procedure:
Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

E. Procedure

SUBTASK 31-62-21-760-001

- (1) Do these steps to prepare for the BITE data output:

- (a) Record the fault history from the applicable DEU.

- 1) From the MAINT BITE INDEX, push the line select key next to the CDS prompt.
- 2) For DEU-1 CDS BITE, push the line select key next to the DEU-1 prompt.
- 3) For DEU-2 CDS BITE, push the line select key next to the DEU-2 prompt.
- 4) Do these steps to look for maintenance messages in CURRENT STATUS:

- (a) Push the line select key next to the CURRENT STATUS prompt.

NOTE: If there are active faults detected by the applicable DEU, you will see a maintenance message number and the maintenance message text.

- (b) If there are any maintenance messages, then refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.

NOTE: The number of maintenance messages that are in Current Status are shown in the upper right corner of the display. You can use the PREV PAGE and NEXT PAGE buttons to move from one maintenance message to another.

- (c) If NO FAULTS shows for DEU 1 and 2, then do these steps:

NOTE: There are no faults that are currently active.

- <1> Push the line select key next to the INDEX prompt.

NOTE: This will bring you back to the CDS DEU BITE main menu.

- <2> Do the steps that follow to look for maintenance messages in the INFLIGHT FAULTS menu selection.



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- 5) If there are no maintenance messages in CURRENT STATUS for both DEU 1 and 2, then do these steps to look for maintenance messages in INFLIGHT FAULTS for both DEU 1 and 2:
 - a) Push the line select key next to the INFLIGHT FAULTS prompt.
 - b) Push the line select key next to the prompt for the flight leg (LEG) during which the fault occurred.

NOTE: The most recent flight leg is LEG 01.
 - c) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.

NOTE: The number of maintenance messages that are in Current Status are shown in the upper right corner of the display. You can use the PREV PAGE and NEXT PAGE buttons to move from one maintenance message to another.
 - 6) Push the line select key next to the INDEX prompt twice to return to the CDS DEU BITE Main Menu.
- (b) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

AKS ALL; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (c) Do these steps at the data loader control panel:
 - 1) Set the upper switch to L.
 - 2) Set the system select switch to DEU.

AKS ALL

- (d) Continue the procedure.

NOTE: The DEU will go into a software load condition when you put the system select switch on the data loader control panel in the DEU position. The displays can be blank or show a CDS FAULT message. After you put the system select switch in the NORMAL position, it can take approximately 2 minutes for the DEU to come back from its software load condition.

SUBTASK 31-62-21-760-002

- (2) Do these steps for safestoring the DEU ground faults:

NOTE: If the BITE data you will download has faults from a test on the ground, safestore the BITE DATA to the DEU.

- (a) On the MAINT BITE INDEX page select CDS.
- (b) On the CDS BITE page select DEU 1 or DEU 2 if applicable.
- (c) On the CDS DEU X BITE page select GROUND TEST.
- (d) On the CDS DEU X MAINT/BITE page select the DEU X SELF-TEST.
- (e) Select RUN SELF-TEST.

NOTE: The self-test can take up to 3 minutes. At this time the MCDU page will show : DEU SELF-TEST (3 MIN) OR DEU-X BITE INOP CHECK DEU OR INTERFACE. Do not be concerned with this message the test page will read: SELF-TEST IN PROGRESS.

- (f) At the end of the SELF-TEST the test page will show PASSED or FAILED.
- (g) To exit the test select INDEX.

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AKS ALL

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SUBTASK 31-62-21-760-003

- (3) Do these steps to do the BITE data output:

NOTE: For more information on how to use the data loader, refer to the supplier's instruction for the data loader. The necessary files are DEUII.REQ, DEUI.REQ and CONFIG.LDR. The files go on a formatted high density disk (HD 1.44 MB).

- (a) Put a disk in the disk drive of the eADL.

NOTE: You must use a special Honeywell disk, P/N PS4081944-103, to send data to the disk drive. This updated download diskette set will support DEU-I and DEU-II. Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email.

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

- (b) Wait until the display shows "eADL MAIN MENU."

NOTE: To navigate UP or DOWN and make a selection on the eADL screen, use the appropriate pushbuttons on the right panel of the eADL.

NOTE: If the eADL MAIN MENU is not displayed, select "MAIN" or "GO BACK" until the eADL displays MAIN MENU."

- (c) Select "Target Page."

1) The eADL will show the "Select Target System" screen.

- (d) Select "Floppy Drive."

1) The eADL will show a "Load Confirmation" screen.

- (e) Select "CONFIRM."

1) The eADL will show the "Transfer In Progress" screen.

NOTE: During downloading, the MCDU will display "DEU SELF-TEST (3 MIN.)".

NOTE: If the MCDU displays "DEU BITE INOP," check the DEU or its interface.

- (f) Remove the disk from the disk drive when the data output for DEU 1 is completed.

AKS ALL; AIRPLANES WITH TWO SWITCHES ON THE DATA LOADER CONTROL PANEL (P61)

- (g) Set the upper switch to R.

AKS ALL

- (h) Put a new disk in the disk drive and repeat the steps above to do the BITE data output for DEU 2.

NOTE: You must use a special Honeywell disk, P/N PS4081944-103, to send data to the disk drive. This updated download diskette set will support DEU-I and DEU-II. Honeywell lets airlines make more copies of the disk. If you need the disk immediately, you can make it from files received from Honeywell by email. The necessary files are DEUII.REQ, DEUI.REQ and CONFIG.LDR. The files go on a formatted high density disk (HD 1.44 MB).

NOTE: In this case DEU-I and DEU-II refers to the DEU hardware rather than the DEU installation position.

- (i) Remove the disk from the disk drive when the data output for DEU 2 is completed.

SUBTASK 31-62-21-860-032

- (4) Do these steps to put the airplane back to its usual condition:

- (a) Set the system select switch on the data loader control panel to NORM or NORMAL.

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AKS ALL

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

———— END OF TASK ——

———— EFFECTIVITY ——
AKS ALL

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DISPLAY ELECTRONIC UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of a display electronic unit.
 - (2) An installation of a display electronic unit.
- B. The two display electronic units are on the E3 electronic equipment rack, shelf No. 1, in the main equipment center.

TASK 31-62-21-000-801

2. Display Electronic Unit Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 31-62-21-020-002

- (1) If the DEU to be removed has fault data, perform the following safestore steps before removing power to the DEU:
 - (a) On the MAINT BITE INDEX page select CDS.
 - (b) On the CDS BITE page select DEU 1 or DEU 2 if applicable.
 - (c) On the CDS DEU X BITE page select GROUND TEST.
 - (d) On the CDS DEU X MAINT/BITE page select the DEU X SELF-TEST.
 - (e) Select RUN SELF-TEST.

NOTE: The self-test can take up to 3 minutes. At this time the MCDU page will show :
DEU SELF-TEST (3 MIN) OR DEU-X BITE INOP CHECK DEU OR INTERFACE.
Do not be concerned with this message the test page will read: SELF-TEST IN PROGRESS.

- (f) At the end of the SELF-TEST the test page will show PASSED or FAILED.
- (g) To exit the test select INDEX.

SUBTASK 31-62-21-040-001

- (2) For the applicable unit:



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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>
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

SUBTASK 31-62-21-010-001

- (3) Open this access panel:

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

SUBTASK 31-62-21-020-001

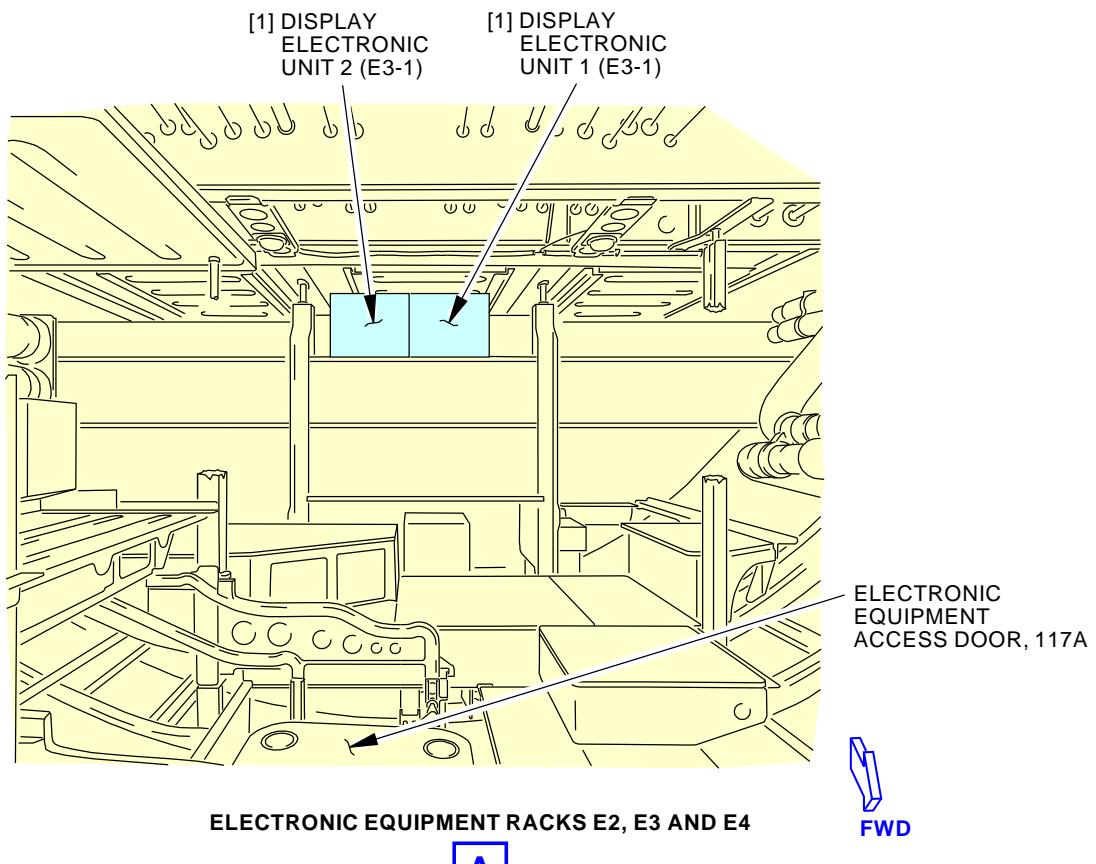
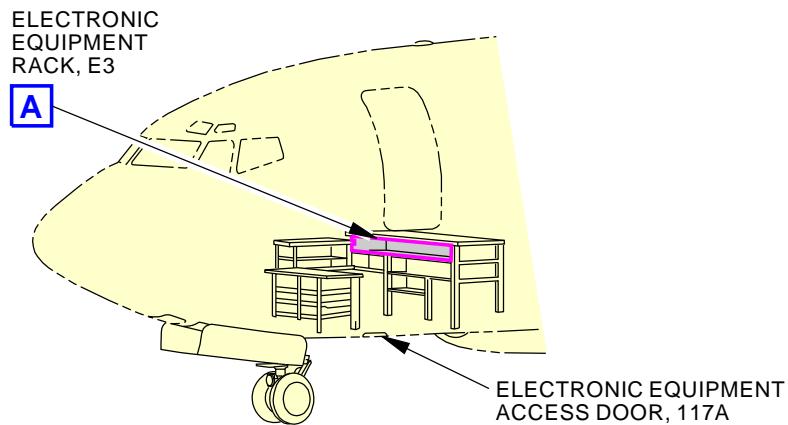
CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY ELECTRONIC UNIT. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY ELECTRONIC UNIT.

- (4) To remove a DISPLAY ELECTRONIC UNIT [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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**Display Electronic Unit Installation
Figure 401/31-62-21-990-801**

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TASK 31-62-21-400-801

3. Display Electronic Unit Installation

(Figure 401)

A. General

- (1) The installation test makes sure the display electronic unit operates correctly.

B. References

Reference	Title
20-10-07-400-801	E/E Box 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)
31-62-21-470-801	Display Electronic Unit Software Installation with an Airborne Data Loader (P/B 201)
31-62-21-470-802	Display Electronic Unit Software Installation with a Portable Data Loader (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	DISPLAY ELECTRONIC UNIT	31-62-21-09-005	AKS ALL

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Installation Procedure

SUBTASK 31-62-21-860-001

- (1) For the applicable unit:

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI



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SUBTASK 31-62-21-420-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY ELECTRONIC UNIT. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY ELECTRONIC UNIT.

- (2) To install the DISPLAY ELECTRONIC UNIT [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 31-62-21-440-001

- (3) For the applicable unit:

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

NOTE: The DEU could take as long as 3 minutes to perform its Power Up Bite.

SUBTASK 31-62-21-410-001

- (4) Close this access panel:

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

SUBTASK 31-62-21-860-026

- (5) Put the engine start switches to "CONT" for a minimum of 10 seconds.

NOTE: This will cause the EECs to transmit all of the download limits to the DEU.

G. Installation Test

SUBTASK 31-62-21-860-002

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-21-860-003

- (2) Make sure the DISPLAY SOURCE switch on the instrument switching module is in the AUTO position.

SUBTASK 31-62-21-860-013

- (3) Do these steps to make sure the correct software part number for the OPS, OPC and DU DB are installed in the applicable DEU.

NOTE: Different part numbers for DEU-1 and DEU-2 may require different software part numbers. See the notes for the applicable DEU part number(s) in the Illustrated Parts Catalogue (IPC).

- (a) If you are not at one of the CDS DEU BITE displays, then do these steps:

- 1) Push the INIT REF function key.

EFFECTIVITY	AKS ALL
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- 2) If the POS INIT display shows, then push the line select key next to the INDEX prompt.

NOTE: This makes the INIT/REF INDEX show.

- 3) Push the line select key next to the MAINT prompt.

- (b) From the MAINT BITE INDEX, push the line select key next to the CDS prompt.

- (c) Push the line select key next to the applicable DEU prompt.

- (d) Push the line select key next to the IDENT/CONFIG prompt.

- 1) Make sure the correct part number shows on the display.

- 2) If an incorrect part number shows on the display, install the correct software part number (Display Electronic Unit Software Installation with a Portable Data Loader, TASK 31-62-21-470-802 or Display Electronic Unit Software Installation with an Airborne Data Loader, TASK 31-62-21-470-801), or replace the display electronic unit.

SUBTASK 31-62-21-750-001

- (4) Do a test of the DISPLAY ELECTRONIC UNIT [1]:

- (a) Make sure CDS FAULT does not show on the outboard display unit.

- (b) Make sure DSPLY SOURCE does not show on the outboard display unit.

SUBTASK 31-62-21-860-004

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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DISPLAY ELECTRONIC UNIT - CLEANING/PAINTING

1. General

- A. This procedure has this task:
 - (1) How to clean the display electronic unit cooling air inlet screen.
- B. There are two display electronic units.
- C. This procedure is the same for both display electronic units.

TASK 31-62-21-100-801

2. How to Clean the Cooling Air Inlet Screen for the Display Electronic Unit

A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
31-62-21-000-801	Display Electronic Unit Removal (P/B 401)
31-62-21-400-801	Display Electronic Unit Installation (P/B 401)

B. Location Zones

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

C. Procedure

SUBTASK 31-62-21-010-002

- (1) Do this task: Display Electronic Unit Removal, TASK 31-62-21-000-801.

SUBTASK 31-62-21-100-001

CAUTION: DO NOT USE COMPRESSED AIR TO CLEAN THE SCREEN IN THE COOLING AIR INLET. COMPRESSED AIR WILL PUSH CONTAMINATION INTO THE DISPLAY ELECTRONIC UNIT AND CAUSE EQUIPMENT FAILURE.

- (2) Remove all lint, dust, and debris from the cooling air inlet screen with a vacuum cleaner.

SUBTASK 31-62-21-410-002

- (3) Do this task: Display Electronic Unit Installation, TASK 31-62-21-400-801.

SUBTASK 31-62-21-860-022

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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COAXIAL COUPLER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of a coaxial coupler.
 - (2) An installation of a coaxial coupler.
- B. There are four coaxial couplers installed in the common display system.
 - (1) There are two coaxial couplers installed inboard of the rudder pedals on each side.
 - (a) The two couplers are mounted on a bracket.
 - (b) Remove the applicable FMCS control display unit and the applicable main access panel to get access to the bracket for the coaxial couplers.
 - (c) Remove the bracket to get access to the coaxial couplers.

TASK 31-62-31-000-801

2. Coaxial Coupler Removal

(Figure 401)

A. General

- (1) This task includes the steps to remove the coaxial coupler.

B. References

Reference	Title
25-11-01-000-801	Captain's and First Officer's Seat Removal (P/B 401)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
34-61-01-000-802	FMCS Control Display Unit (CDU) Removal (P/B 401)

C. Location Zones

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

D. Removal Procedure

SUBTASK 31-62-31-860-001

- (1) Make sure the hydraulic system A and hydraulic system B are off (TASK 29-11-00-860-805).

SUBTASK 31-62-31-010-001

- (2) Remove the captain's (first officer's) seat (TASK 25-11-01-000-801).

SUBTASK 31-62-31-010-002

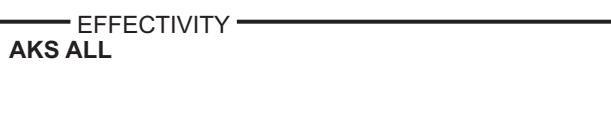
- (3) Do these steps to get access to the left (right) bracket [4] for coaxial couplers [7]:
 - (a) Use the hand crank to move the rudder pedals to the full forward position.
 - (b) Remove the screws on the left (right) main access panel [2] (inboard of the rudder pedals).
 - (c) Remove the left (right) main access panel [2].

SUBTASK 31-62-31-010-003

- (4) Remove the left (right) FMCS control display unit [1] (TASK 34-61-01-000-802).

SUBTASK 31-62-31-020-003

- (5) Loosen four quarter turn fasteners to lower the dimmer bracket to get access to the two screws that hold the coax bracket on the structure.



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SUBTASK 31-62-31-020-001

- (6) Do these steps to remove the left (right) bracket [4] for the coaxial couplers [7]:

- (a) Disconnect the coaxial cables [8] from the two coaxial couplers [7].

NOTE: Record the coaxial cable [8] locations before you remove them.

- (b) Remove the two screws [3] that hold the bracket [4] to the structure.

- (c) Remove the bracket [4] from the structure.

SUBTASK 31-62-31-020-002

- (7) Remove the applicable coaxial coupler [7] from the bracket [4]:

- (a) Remove the four screws [5], and washers [6] that hold the coaxial coupler [7] to the bracket [4].

———— END OF TASK ————

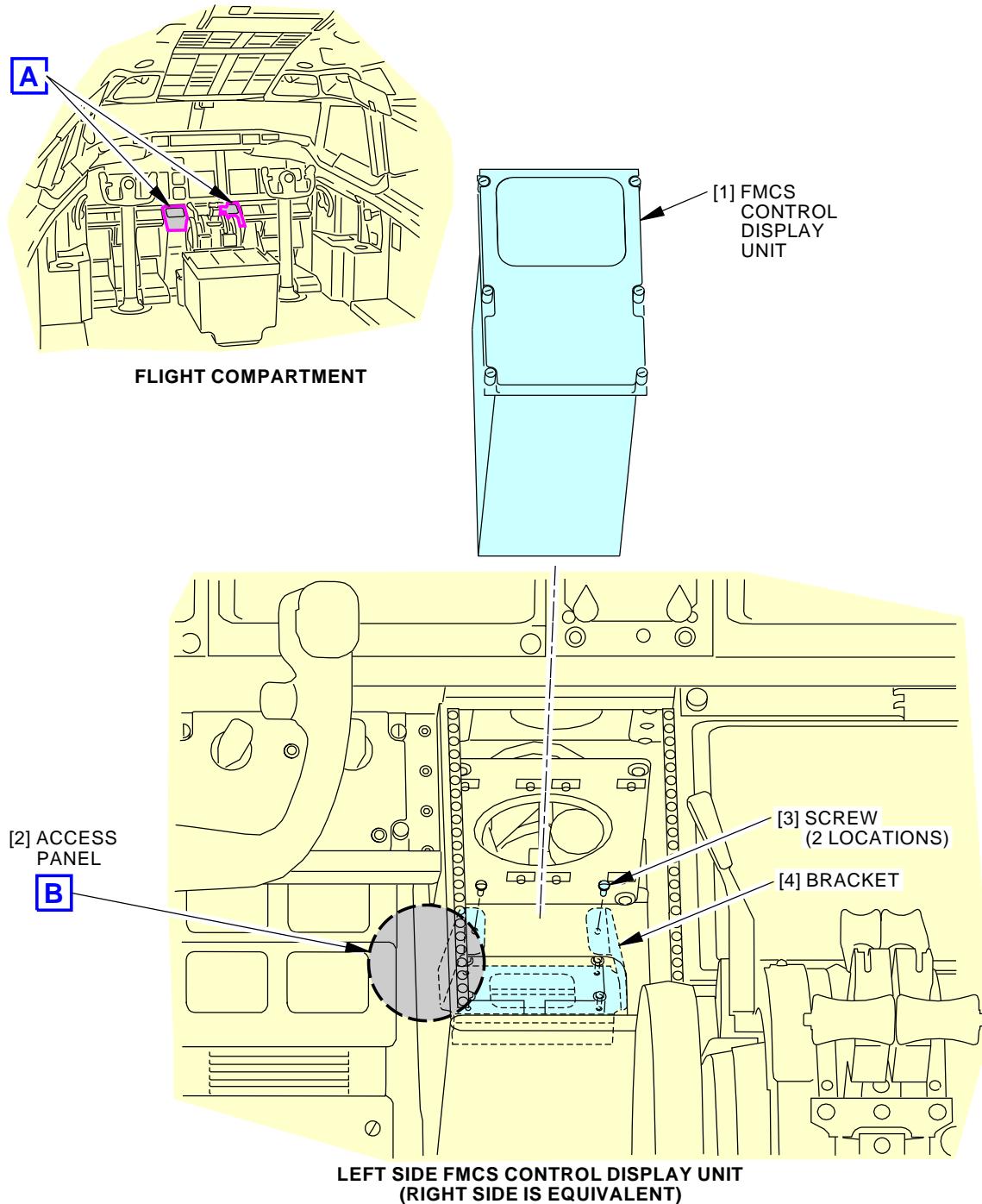
EFFECTIVITY
AKS ALL

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Coaxial Coupler Installation
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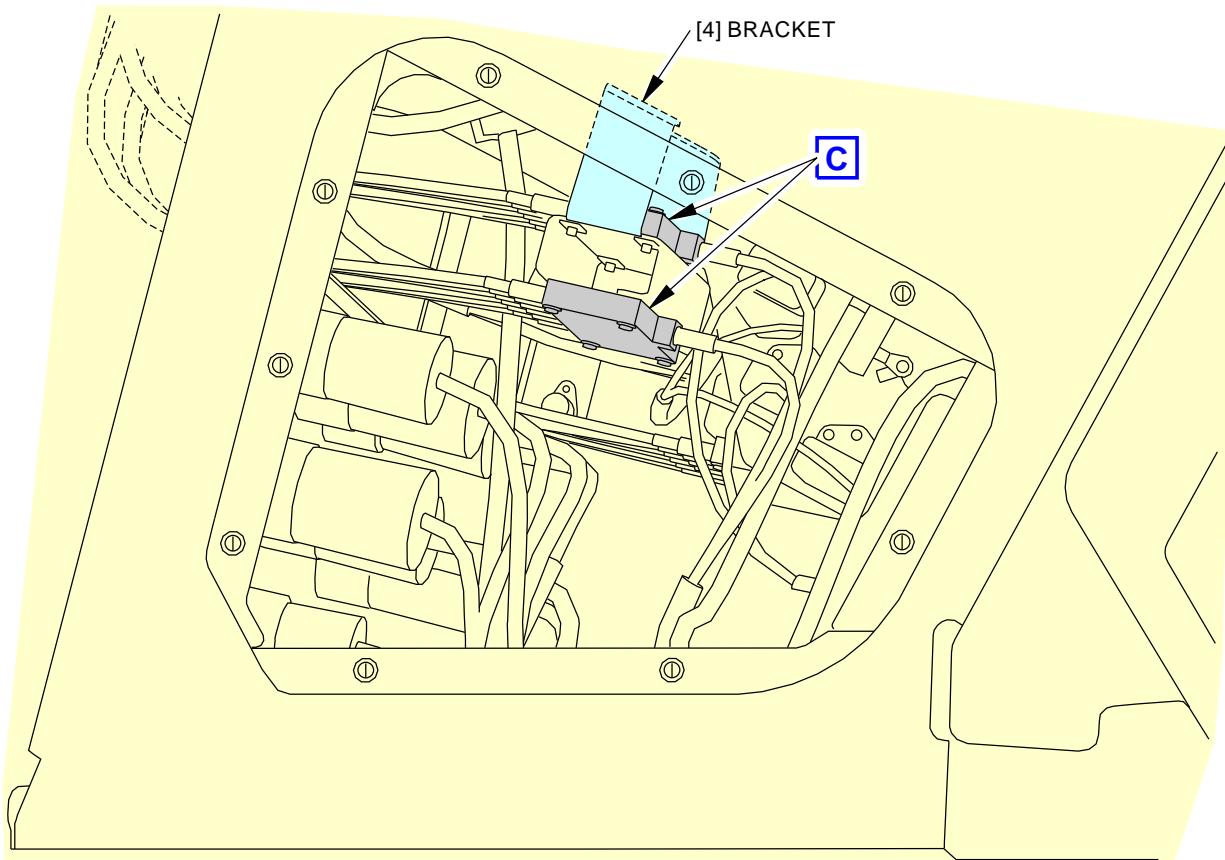
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LEFT SIDE COAXIAL COUPLER ACCESS
(RIGHT SIDE IS EQUIVALENT)

B

2031487 S0000407061_V3

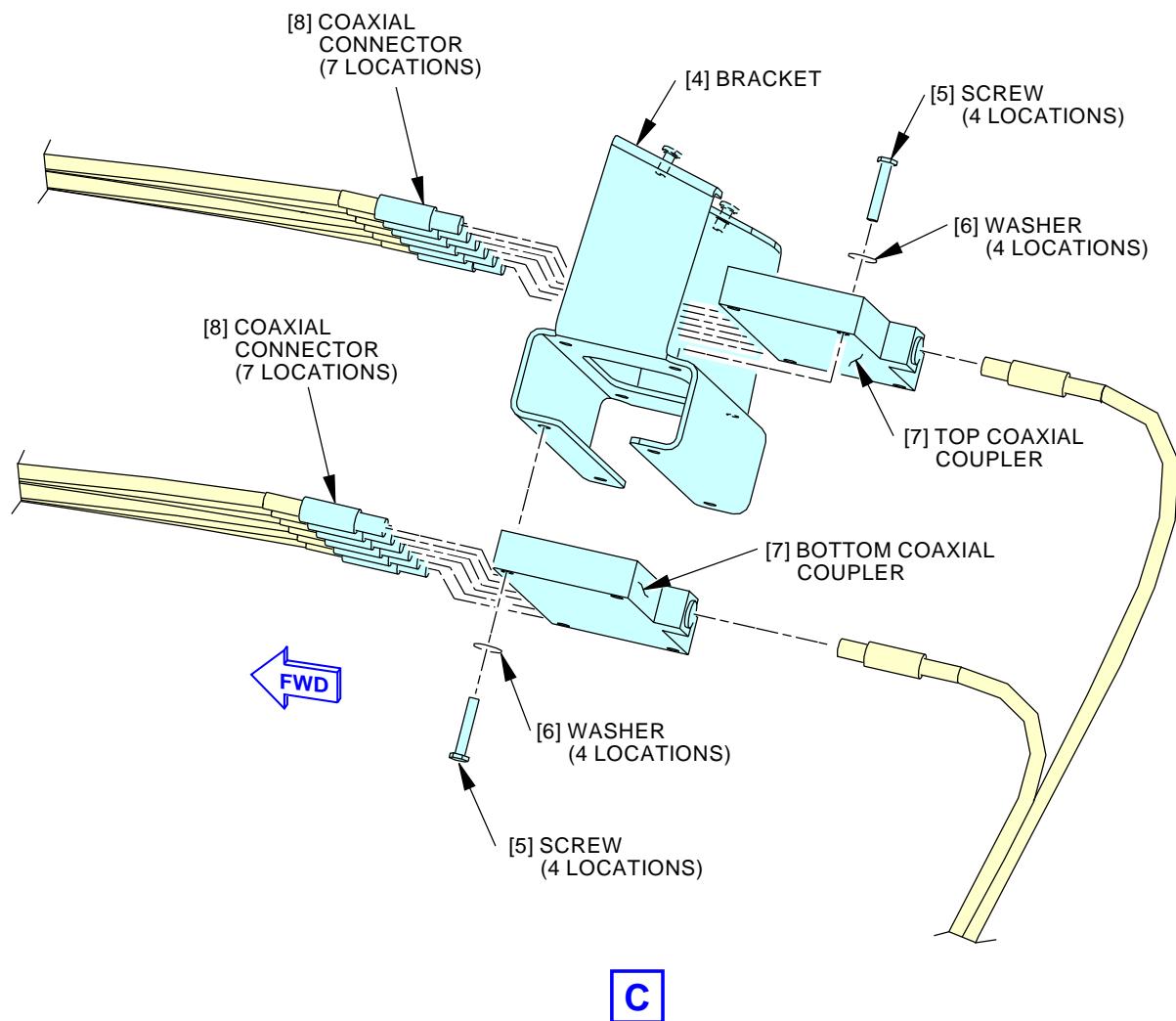
Coaxial Coupler Installation
Figure 401/31-62-31-990-801 (Sheet 2 of 3)

EFFECTIVITY
AKS ALL

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Coaxial Coupler Installation
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AKS ALL

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TASK 31-62-31-400-801

3. Coaxial Coupler Installation

(Figure 401)

A. General

- (1) This task includes the steps to install the coaxial coupler.
- (2) The LRU replacement test makes sure the coaxial coupler [7] you install operates correctly.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
25-11-01-400-801	Captain's and First Officer's Seat Installation (P/B 401)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
34-61-01-400-802	FMCS Control Display Unit (CDU) Installation (P/B 401)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Coaxial coupler	53-42-00-19B-225	AKS ALL

D. Location Zones

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

E. Installation Procedure

SUBTASK 31-62-31-860-002

- (1) Make sure the hydraulic system A and hydraulic system B are off (TASK 29-11-00-860-805).

SUBTASK 31-62-31-420-001

- (2) Install the coaxial coupler [7]:
 - (a) Put the coaxial coupler [7] in place on the bracket [4].
 - (b) Install the four screws [5], and washers [6] that hold the coaxial coupler [7] to the bracket [4].

SUBTASK 31-62-31-420-002

- (3) Install the bracket [4] for the coaxial couplers [7]:
 - (a) Put the bracket [4] in place on the support structure.
 - (b) Install the two screws [3] that hold the bracket [4] in place.
 - (c) Connect the coaxial cables [8] to the two coaxial couplers [7].

NOTE: Connect the coaxial cables in the same locations you recorded before.

SUBTASK 31-62-31-410-003

- (4) Install the main access panel [2] (inboard of the rudder pedals):
 - (a) Install the screws on the main access panel [2].

SUBTASK 31-62-31-410-001

- (5) Install the applicable FMCS control display unit (TASK 34-61-01-400-802).

SUBTASK 31-62-31-410-002

- (6) Install the captain's (first officer's) seat (TASK 25-11-01-400-801).



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F. Installation Test

SUBTASK 31-62-31-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-31-860-004

- (2) Adjust the brightness controls for each display unit (DU) so that all six DUs are readable.

SUBTASK 31-62-31-730-002

- (3) Do a test of the two coaxial couplers [7] on the bracket [4] that you installed.

- (a) Do these steps at the FMCS control display unit that you installed:

- 1) Push the INIT REF key.
- 2) Push the line select key (LSK) adjacent to INDEX.
- 3) Push the LSK adjacent to MAINT.
- 4) Push the LSK adjacent to CDS.
- 5) Push the LSK adjacent to DEU 1.
- 6) Push the LSK adjacent to GROUND TESTS.
- 7) Push the LSK adjacent to DU LOOP TEST.
- 8) Push the LSK adjacent to COAX 1 TO LT DISPLAYS & COAX 2 TO RT DISPLAYS.

- (b) Make sure all six DUs show the test format (Figure 402).

- (c) For each DU, make sure the DU LOCATION, COAX OUTPUT, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:

NOTE: The boxed Y indicates the active channel and will show in white on the DU. A green Y on the DU indicates a channel with activity on it. A red N on the DU indicates a channel with no detected activity on it.

- (d) Make sure all six DUs agree with the data in (Table 401).

Table 401/31-62-31-993-803

Display Unit Test Format DEU 1 selected coupler #1 to left DUs coupler #2 to right DUs						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
COAX OUTPUT	1	1	1	2	2	2
INPUT ACTIVITY	[Y]YYY	[Y]YYY	[Y]YYY	Y[Y]YY	Y[Y]YY	Y[Y]YY
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (e) On the FMCS control display unit, push the LSK adjacent to COAX 2 TO LT DISPLAYS & COAX 1 TO RT DISPLAYS.
(f) Make sure all six DUs show the test format (Figure 402).



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- (g) For each DU, make sure the DU LOCATION, COAX OUTPUT, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:

NOTE: The boxed Y indicates the active channel and will show in white on the DU. A green Y on the DU indicates a channel with activity on it. A red N on the DU indicates a channel with no detected activity on it.

- (h) Make sure all six DUs agree with the data in (Table 402).

Table 402/31-62-31-993-804

Display Unit Test Format DEU 1 selected coupler #2 to left DUs coupler #1 to right DUs						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
COAX OUTPUT	2	2	2	1	1	1
INPUT ACTIVITY	Y[Y]YY	Y[Y]YY	Y[Y]YY	[Y]YYY	[Y]YYY	[Y]YYY
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (i) Do these steps at the FMCS control display unit:
- 1) Push the LSK adjacent to INDEX until the CDS BITE INDEX page shows.
 - 2) Push the LSK adjacent to DEU 2.
 - 3) Push the LSK adjacent to GROUND TESTS.
 - 4) Push the LSK adjacent to DU LOOP TEST.
 - 5) Push the LSK adjacent to COAX 1 TO LT DISPLAYS & COAX 2 TO RT DISPLAYS.

- (j) Make sure all six DUs show the test format (Figure 402).

- (k) For each DU, make sure the DU LOCATION, COAX OUTPUT, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:

NOTE: The boxed Y indicates the active channel and will show in white on the DU. A green Y on the DU indicates a channel with activity on it. A red N on the DU indicates a channel with no detected activity on it.

- (l) Make sure all six DUs agree with the data in (Table 403).

Table 403/31-62-31-993-805

Display Unit Test Format DEU 2 selected coupler #3 to left DUs coupler #4 to right DUs						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
COAX OUTPUT	1	1	1	2	2	2

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Table 403/31-62-31-993-805 (Continued)

Display Unit Test Format DEU 2 selected coupler #3 to left DUs coupler #4 to right DUs						
INPUT ACTIVITY	YY[Y]Y	YY[Y]Y	YY[Y]Y	YYY[Y]	YYY[Y]	YYY[Y]
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (m) On the FMCS control display unit, push the LSK adjacent to COAX 2 TO LT DISPLAYS & COAX 1 TO RT DISPLAYS.
- (n) Make sure all six DUs show the test format (Figure 402).
- (o) For each DU, make sure the DU LOCATION, COAX OUTPUT, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:
NOTE: The boxed Y indicates the active channel and will show in white on the DU. A green Y on the DU indicates a channel with activity on it. A red N on the DU indicates a channel with no detected activity on it.
- (p) Make sure all six DUs agree with the data in (Table 404).

Table 404/31-62-31-993-806

Display Unit Test Format DEU 2 selected coupler #4 to left DUs coupler #3 to right DUs						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
COAX OUTPUT	2	2	2	1	1	1
INPUT ACTIVITY	YYY[Y]	YYY[Y]	YYY[Y]	YY[Y]Y	YY[Y]Y	YY[Y]Y
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (q) Push the LSK adjacent to INDEX on the FMCS control display unit to stop the test.

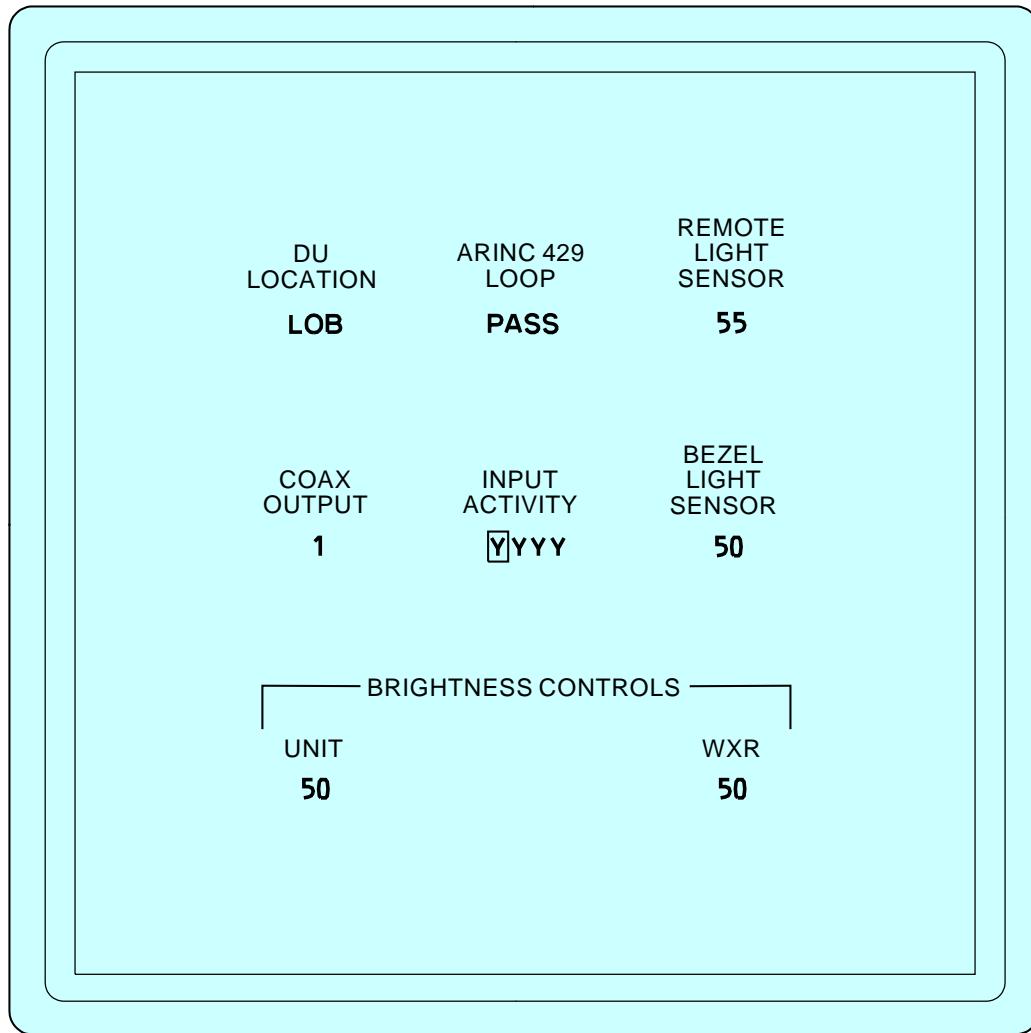
———— END OF TASK ————

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AKS ALL

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F78700 S0006574641_V2

Display Unit Test Format
Figure 402/31-62-31-990-802

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REMOTE LIGHT SENSOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of a remote light sensor.
 - (2) An installation of a remote light sensor.
- B. There are two remote light sensors. The remote light sensors are on the glareshield in front of the pilots. You remove or install the remote light sensor from above the glareshield.
- C. Power for the left remote light sensor is supplied by the captain's outboard display unit. Power for the right remote light sensor is supplied by the first officer's outboard display unit.

TASK 31-62-41-000-801

2. Remote Light Sensor Removal

(Figure 401)

A. References

Reference	Title
SWPM 20-61-11	Standard Wiring Practices Manual

B. Location Zones

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

C. Removal Procedure

SUBTASK 31-62-41-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	10	C01364	DISPLAY F/O OUTBD

SUBTASK 31-62-41-010-001

- (2) Do these steps to get access to the remote light sensor [4]:
 - (a) Loosen the eight quarter turn fasteners [2] that hold the glareshield access panel [1] to the glareshield, P7.
 - (b) Remove the glareshield access panel [1].

SUBTASK 31-62-41-010-003

- (3) Remove the bottom panel of the glareshield structure to get access to the electrical connector [5] for the remote light sensor [4].

SUBTASK 31-62-41-020-001

- (4) Remove the remote light sensor [4]:
 - (a) Remove the two screws [3] that hold the remote light sensor [4] to the glareshield structure.

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- (b) Disconnect the electrical connector [5] at the other end of the wirefrom the remote light sensor [4].
- (c) Remove the pins for the remote light sensor wires from the electrical connector [5] (SWPM 20-61-11).
- (d) Remove the remote light sensor [4] with wires from the airplane.

———— END OF TASK ————

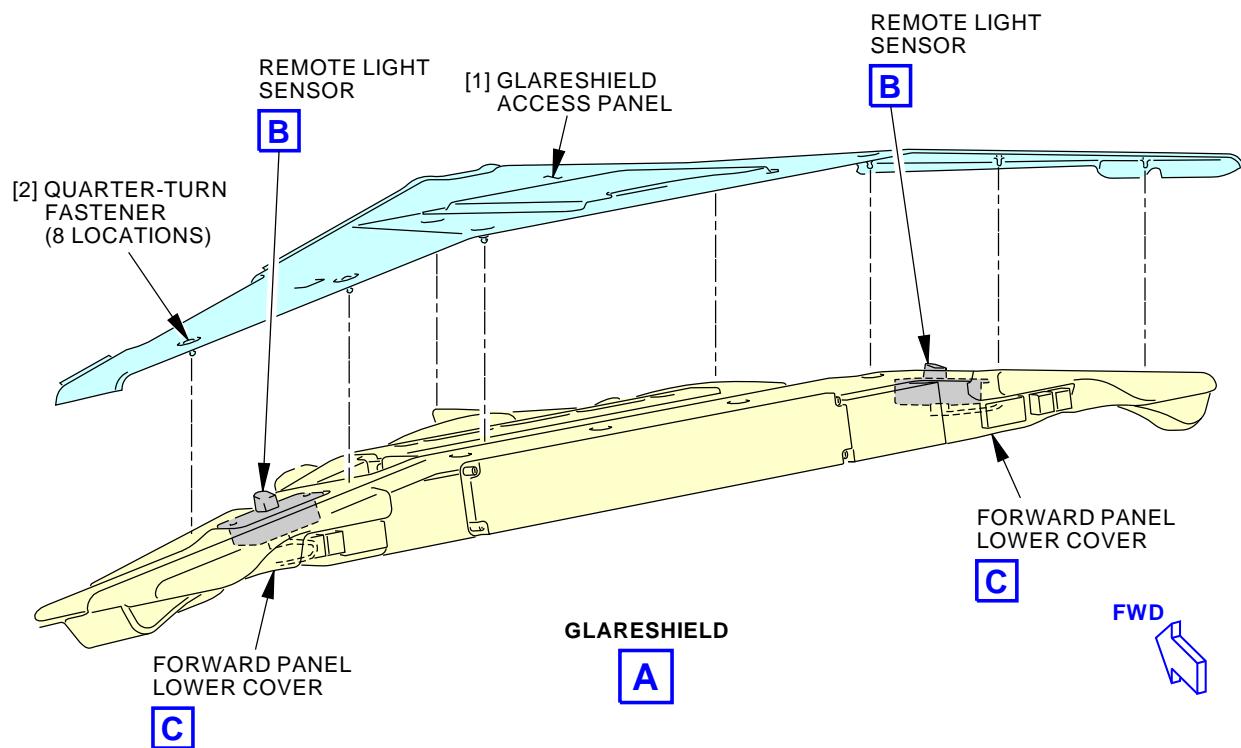
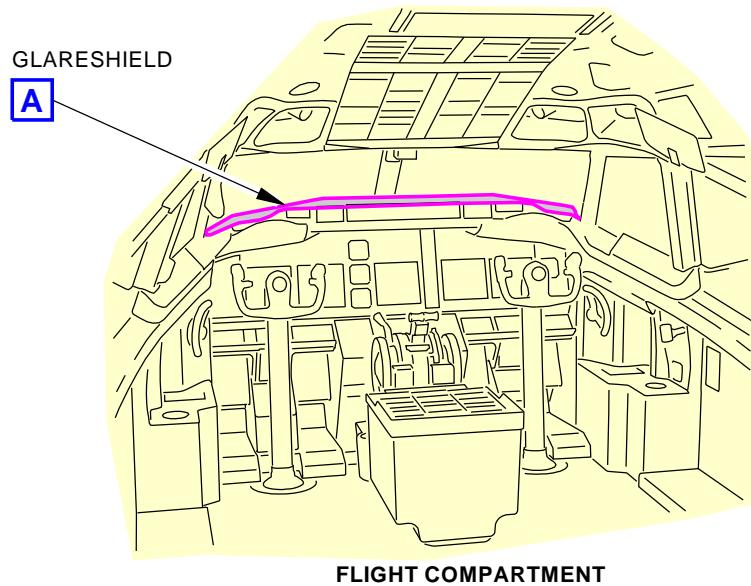
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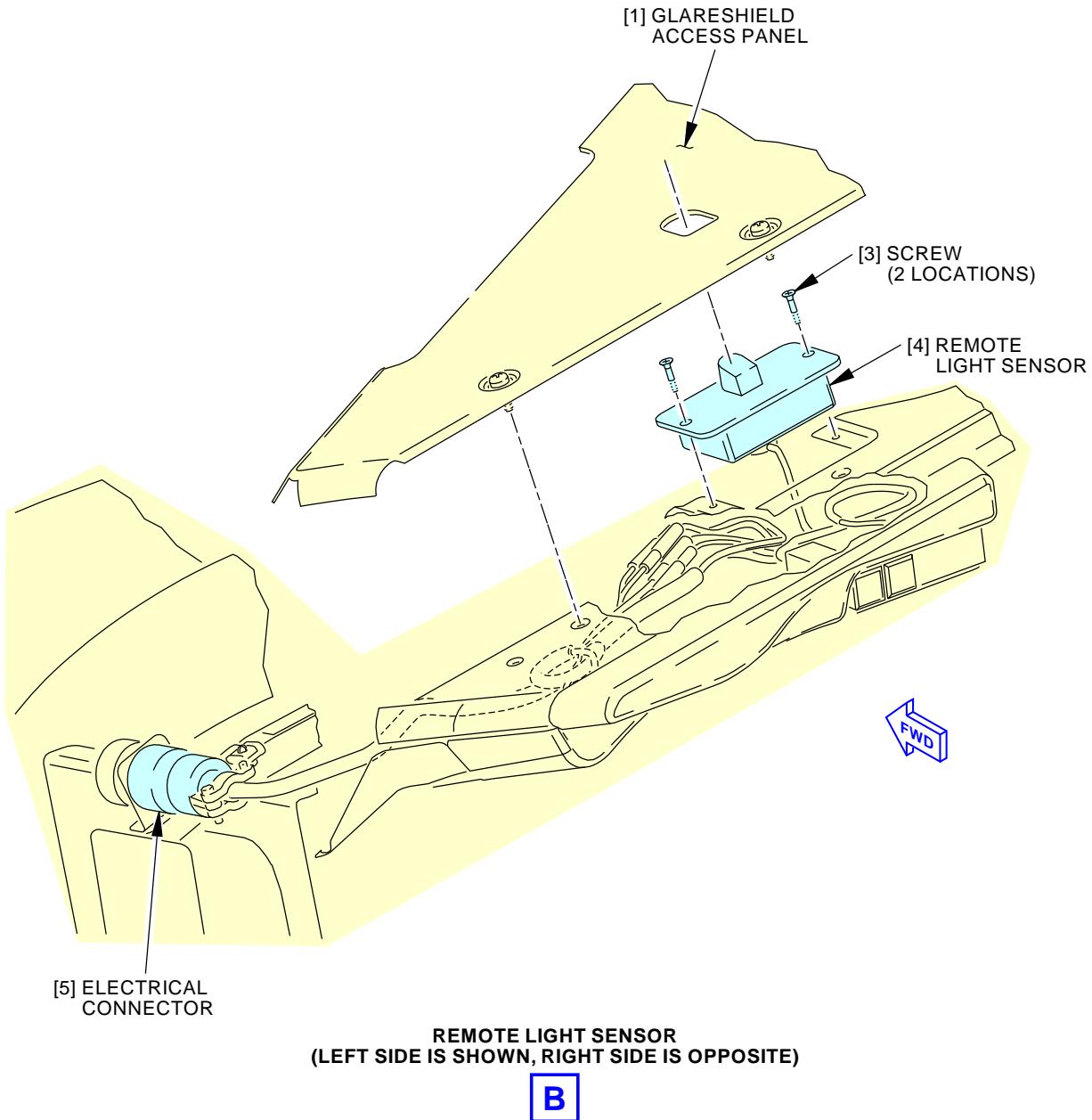
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Remote Light Sensor Installation
Figure 401/31-62-41-990-801 (Sheet 1 of 3)

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Remote Light Sensor Installation
Figure 401/31-62-41-990-801 (Sheet 2 of 3)

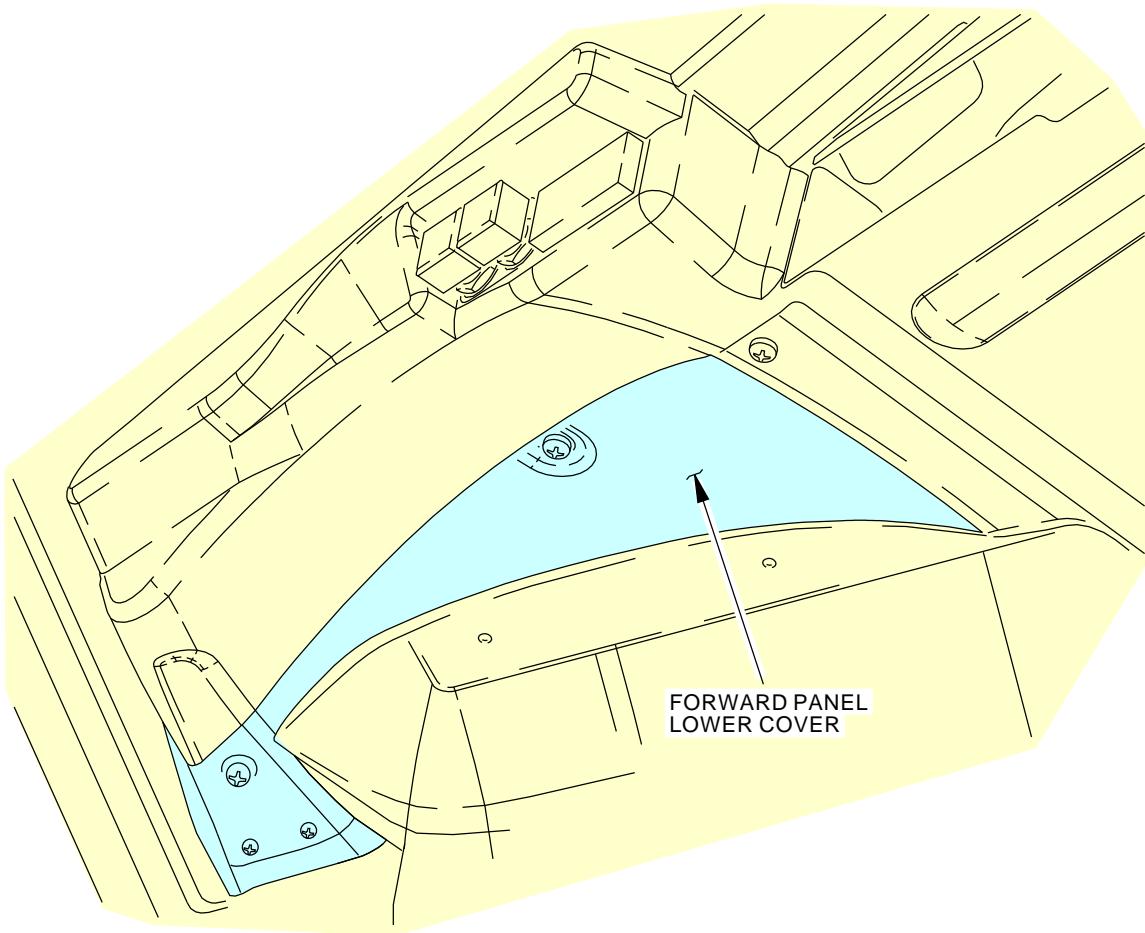
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FORWARD PANEL LOWER COVER
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

C

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Remote Light Sensor Installation
Figure 401/31-62-41-990-801 (Sheet 3 of 3)

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TASK 31-62-41-400-801

3. Remote Light Sensor Installation

(Figure 401)

A. General

- (1) The LRU replacement test makes sure that the remote light sensor [4] is installed correctly.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
SWPM 20-61-11	Standard Wiring Practices Manual

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Remote light sensor	31-62-41-01-210	AKS ALL
		31-62-41-01-310	AKS ALL

D. Location Zones

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

E. Installation Procedure

SUBTASK 31-62-41-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	10	C01364	DISPLAY F/O OUTBD

SUBTASK 31-62-41-420-001

- (2) Install the remote light sensor [4]:

- (a) If not installed, put pins on the end of the remote light sensor wires (SWPM 20-61-11).
 - 1) Make sure the wires of the new remote light sensor [4] have approximately the same length as the one that you removed.
- (b) Put the remote light sensor [4] and wires into its place in the glareshield structure.
- (c) Install the pins in the electrical connector [5].
- (d) Connect the electrical connector [5].
- (e) Install the two screws [3] that hold the remote light sensor [4] to the glareshield structure.

SUBTASK 31-62-41-010-002

- (3) Do these steps to install the glareshield access panel [1]:

- (a) Put the glareshield access panel [1] into its place on the glareshield structure.
- (b) Tighten the eight quarter turn fasteners [2] that hold the glareshield access panel [1] to the glareshield, P7.



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SUBTASK 31-62-41-410-001

- (4) Install the bottom panel of the glareshield structure.

SUBTASK 31-62-41-860-003

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C01363	DISPLAY CAPT OUTBD

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	10	C01364	DISPLAY F/O OUTBD

F. Installation Test

(Figure 402)

SUBTASK 31-62-41-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 31-62-41-730-001

- (2) Do these steps to do a test of the remote light sensor [4] that you installed:

- (a) Do these steps at an FMCS CDU:

- 1) Push the INIT REF key.
- 2) Push the line select key (LSK) adjacent to INDEX.
- 3) Push the LSK adjacent to MAINT.
- 4) Push the LSK adjacent to CDS.
- 5) Push the LSK adjacent to DEU 1.
- 6) Push the LSK adjacent to GROUND TESTS.
- 7) Push the LSK adjacent to DU LOOP TEST.
- 8) Push the LSK adjacent to COAX 1 TO LT DISPLAYS & COAX 2 TO RT DISPLAYS.

- (b) Make a note of the REMOTE LIGHT SENSOR value shown on the left (right) outboard display unit.

- (c) If there is good lighting in the flight compartment, do these steps:

- 1) Put an opaque lint-free fabric on the left (right) remote light sensor [4].
 - a) Make sure the REMOTE LIGHT SENSOR value decreases on the left (right) outboard display unit.
- 2) Remove the opaque lint-free fabric from the left (right) remote light sensor [4].
 - a) Make sure the REMOTE LIGHT SENSOR value increases on the left (right) outboard display unit.

- (d) If there is bad lighting in the flight compartment, do these steps.

- 1) Point a flashlight at the left (right) remote light sensor [4] until the light hits the notch on the front of the remote light sensor [4].
 - a) Make sure the REMOTE LIGHT SENSOR value increases on the left (right) outboard display unit.
- 2) Remove the flashlight from the left (right) remote light sensor [4].





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- a) Make sure the REMOTE LIGHT SENSOR value decreases on the left (right) outboard display unit.
- (e) Push the LSK adjacent to INDEX on the FMC CDU to stop the DU LOOP TEST.

SUBTASK 31-62-41-860-005

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

———— END OF TASK ————

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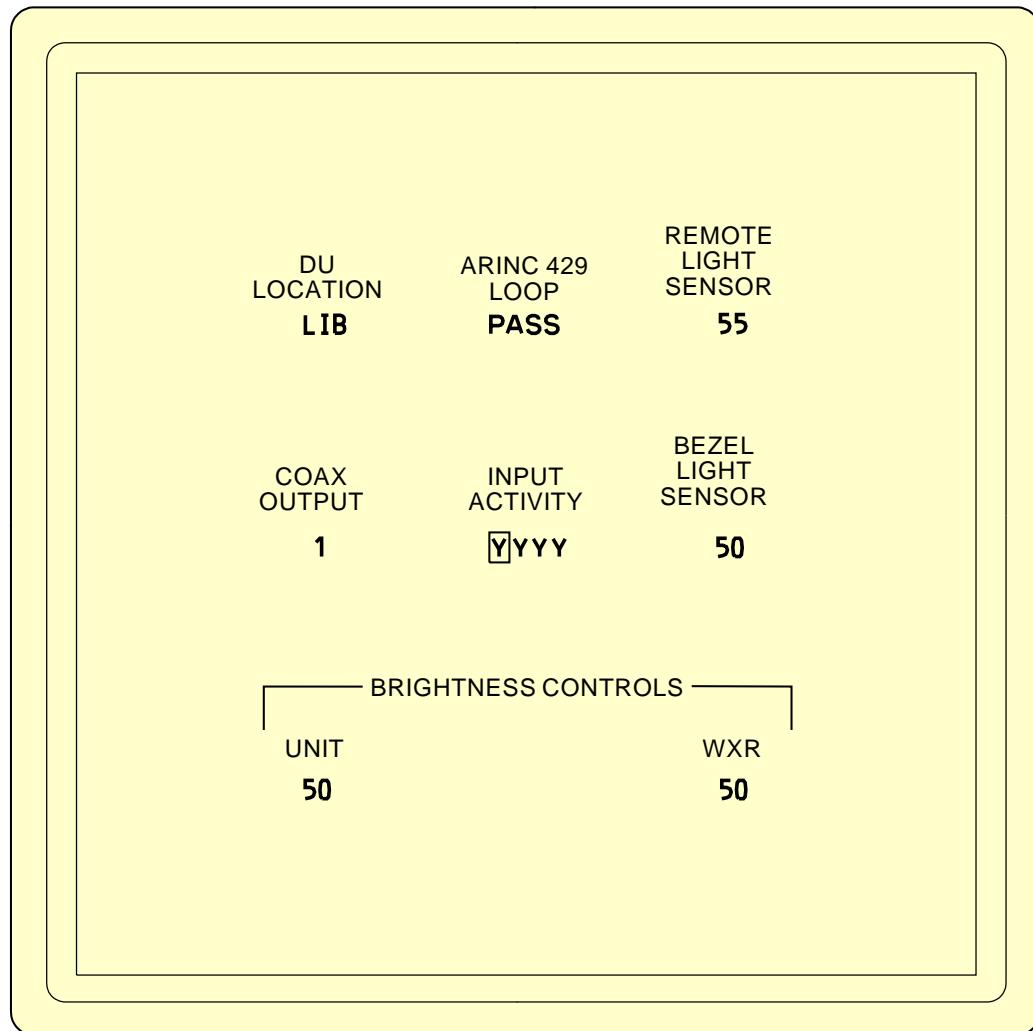
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Display Unit Test Format
Figure 402/31-62-41-990-802

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