

CHAPTER

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10	Feb 15/2016		401	Oct 15/2014		406	Feb 15/2016	
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16	BLANK		604	BLANK		401	Oct 15/2014	
23-00-00			23-11-61			402	Oct 15/2014	
901	Oct 15/2015		401	Jun 15/2015		403	Oct 15/2015	
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904	Oct 15/2015		404	Oct 15/2015		406	Jun 15/2015	
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202	Feb 15/2015		202	Jun 15/2015		406	Jun 15/2015	
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505	Feb 15/2016		201	Jun 15/2015		201	Feb 15/2015	
506	BLANK		202	Jun 15/2015		202	Feb 15/2015	
23-24-02			203	Jun 15/2015		203	Oct 15/2015	
401	Feb 15/2016		204	Feb 15/2015		204	Feb 15/2015	
402	Feb 15/2016		205	Feb 15/2016		205	Feb 15/2016	
403	Oct 15/2015		206	Feb 15/2016		206	Oct 15/2015	
404	Feb 15/2016		207	Feb 15/2016		23-28-00		
405	Feb 15/2016		208	Feb 15/2016		501	Jun 15/2015	
406	Feb 15/2016		209	Feb 15/2016		502	Feb 15/2015	
23-24-03			210	Feb 15/2016		503	Jun 15/2015	
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402	Oct 15/2014		212	Feb 15/2016		23-28-11		
403	Oct 15/2015		23-27-33			401	Oct 15/2014	
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503	Jun 15/2015		403	Oct 15/2015		203	Oct 15/2014	
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508	Feb 15/2016		201	Feb 15/2015		208	BLANK	
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203	Feb 15/2015		23-31-05			23-42-04		
204	BLANK		401	Feb 15/2015		401	Oct 15/2014	
23-31-01			402	Oct 15/2015		402	Oct 15/2015	
401	Oct 15/2014		403	Oct 15/2015		403	Oct 15/2014	
402	Oct 15/2015		404	Jun 15/2015		404	Oct 15/2014	
403	Jun 15/2015		405	Jun 15/2015		23-43-00		
404	Jun 15/2015		406	BLANK		501	Jun 15/2015	
23-31-02			23-41-00			502	Jun 15/2015	
201	Feb 15/2015		501	Jun 15/2015		23-43-02		
202	Oct 15/2015		502	Oct 15/2014		401	Oct 15/2014	
203	Feb 15/2015		503	Jun 15/2015		402	Oct 15/2015	
204	BLANK		504	BLANK		403	Oct 15/2015	
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401	Feb 15/2015	R	501	Jun 15/2016		405	Jun 15/2015	
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404	Jun 15/2015		504	Oct 15/2014		201	Feb 15/2015	
405	Jun 15/2015		23-42-01			202	Feb 15/2015	
406	BLANK		401	Jun 15/2015		203	Feb 15/2015	
23-31-03			402	Oct 15/2015		204	BLANK	
201	Feb 15/2015		403	Oct 15/2015		23-51-00		
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506	Oct 15/2015		204	Oct 15/2015		609	Feb 15/2015	
23-51-01			205	Oct 15/2015		610	Feb 15/2015	
401	Oct 15/2014		206	Feb 15/2016		611	Feb 15/2015	
402	Oct 15/2014		207	Jun 15/2015		612	Feb 15/2015	
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404	Jun 15/2015		209	Feb 15/2016		614	BLANK	
405	Jun 15/2015		210	Feb 15/2016		23-71-00		
406	Jun 15/2015		211	Feb 15/2016		201	Feb 15/2015	
23-51-02			212	Feb 15/2016		202	Feb 15/2015	
401	Oct 15/2014		213	Feb 15/2016		203	Oct 15/2015	
402	Oct 15/2015		214	Feb 15/2016		204	Feb 15/2015	
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404	Jun 15/2015		216	Feb 15/2016		501	Jun 15/2015	
405	Jun 15/2015		217	Feb 15/2016		502	Jun 15/2015	
406	BLANK		218	Feb 15/2016		503	Oct 15/2015	
23-51-03			219	Feb 15/2016		504	Oct 15/2015	
401	Oct 15/2014		220	Feb 15/2016		505	Oct 15/2015	
402	Oct 15/2015		221	Feb 15/2016		506	Oct 15/2015	
403	Jun 15/2015		222	Feb 15/2016		23-71-11		
404	Jun 15/2015		223	Feb 15/2016		401	Oct 15/2014	
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401	Oct 15/2014		225	Feb 15/2016		403	Oct 15/2015	
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207	Oct 15/2015		403	Oct 15/2015				
208	Oct 15/2015		404	Oct 15/2014				
209	Feb 15/2015		405	Oct 15/2014				
210	Feb 15/2015		406	BLANK				
211	Oct 15/2015		23-75-11					
212	Oct 15/2015		401	Oct 15/2014				
213	Oct 15/2015		402	Oct 15/2014				
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203	Oct 15/2015		404	Oct 15/2014				
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23-75-00 Config 1			406	BLANK				
501	Jun 15/2015		23-82-00					
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401	Oct 15/2014		23-82-01					
402	Oct 15/2014		401	Oct 15/2014				
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SELCAL System - Deactivation					201	AKS ALL
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SELCAL System - Activation					204	AKS ALL
TASK 23-28-00-440-801						
SELCAL Program Switch Module switch settings					204	AKS ALL
TASK 23-28-00-860-801						
<u>SELCAL - ADJUSTMENT/TEST</u>	23-28-00				501	AKS ALL
SELCAL System - Operational Test					501	AKS ALL
TASK 23-28-00-700-801						
<u>SELCAL DECODER - REMOVAL/INSTALLATION</u>	23-28-11				401	AKS ALL
SELCAL Decoder Unit Removal					401	AKS ALL
TASK 23-28-11-020-801						
SELCAL Decoder Installation					404	AKS ALL
TASK 23-28-11-420-801						
<u>PASSENGER ADDRESS SYSTEM - ADJUSTMENT/TEST</u>	23-31-00				501	AKS ALL
Passenger Address System - Operational Test					501	AKS ALL
TASK 23-31-00-740-801						
Passenger Address System - System Test					503	AKS ALL
TASK 23-31-00-730-801						
<u>PASSENGER ADDRESS AMPLIFIER - MAINTENANCE PRACTICES</u>	23-31-01				201	AKS ALL
Passenger Address Amplifier - Deactivation					201	AKS ALL
TASK 23-31-01-040-801						

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Passenger Address Amplifier - Activation TASK 23-31-01-440-801				203	AKS ALL
PASSENGER ADDRESS AMPLIFIER - REMOVAL/INSTALLATION	23-31-01			401	AKS ALL
Passenger Address (PA) Amplifier Removal TASK 23-31-01-000-801				401	AKS ALL
Passenger Address (PA) Amplifier Installation TASK 23-31-01-400-801				403	AKS ALL
PASSENGER SERVICE UNIT SPEAKER - MAINTENANCE PRACTICES	23-31-02			201	AKS ALL
Passenger Service Unit Speaker - Deactivation TASK 23-31-02-040-801				201	AKS ALL
Passenger Service Unit Speaker - Activation TASK 23-31-02-440-801				203	AKS ALL
PASSENGER SERVICE UNIT SPEAKER - REMOVAL/INSTALLATION	23-31-02			401	AKS ALL
Passenger Service Unit (PSU) Speaker Removal TASK 23-31-02-000-801				401	AKS ALL
Passenger Service Unit (PSU) Speaker Installation TASK 23-31-02-400-801				404	AKS ALL
ATTENDANT SPEAKER - MAINTENANCE PRACTICES	23-31-03			201	AKS ALL
Attendant Speaker - Deactivation TASK 23-31-03-040-801				201	AKS ALL
Attendant Speaker - Activation TASK 23-31-03-440-801				203	AKS ALL
ATTENDANT SPEAKER - REMOVAL/INSTALLATION	23-31-03			401	AKS ALL
Attendant Speaker Removal TASK 23-31-03-000-801				401	AKS ALL
Attendant Speaker Installation TASK 23-31-03-400-801				404	AKS ALL

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LAVATORY SPEAKER - MAINTENANCE PRACTICES	23-31-05		201		201	AKS ALL
Lavatory Speaker - Deactivation TASK 23-31-05-040-801					201	AKS ALL
Lavatory Speaker - Activation TASK 23-31-05-440-801					203	AKS ALL
LAVATORY SPEAKER - REMOVAL/INSTALLATION	23-31-05		401		401	AKS ALL
Lavatory Speaker Removal TASK 23-31-05-000-801					401	AKS ALL
Lavatory Speaker Installation TASK 23-31-05-400-801					404	AKS ALL
SERVICE INTERPHONE SYSTEM - ADJUSTMENT/TEST	23-41-00		501		501	AKS ALL
Service Interphone System - Operational Test TASK 23-41-00-710-801					501	AKS ALL
CABIN INTERPHONE SYSTEM - ADJUSTMENT/TEST	23-42-00		501		501	AKS ALL
Cabin Interphone System - Operational Test TASK 23-42-00-710-802					501	AKS ALL
Cabin Ready System - Operational Test TASK 23-42-00-710-804			502		502	AKS 006, 009, 010, 013, 015-018, 020-025, 027
Cabin Interphone system - Attendant Panel Installation Test TASK 23-42-00-710-803			503		503	AKS ALL
ATTENDANT HANDSET - REMOVAL/INSTALLATION	23-42-01		401		401	AKS ALL
Attendant Handset Removal TASK 23-42-01-000-801					401	AKS ALL
Attendant Handset Cord Removal TASK 23-42-01-000-802			404		404	AKS ALL
Attendant Handset Cradle Removal TASK 23-42-01-000-803			404		404	AKS ALL
Attendant Handset Cradle Installation TASK 23-42-01-400-801			404		404	AKS ALL
Attendant Handset Cord Installation TASK 23-42-01-400-802			405		405	AKS ALL

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Attendant Handset Installation TASK 23-42-01-400-803				405	AKS ALL
Attendant Handset Installation Test TASK 23-42-01-700-801				406	AKS ALL
ATTENDANT CONTROL PANEL - MAINTENANCE PRACTICES	23-42-03			201	AKS ALL
Attendant Control Panel (ACP) Software Loading TASK 23-42-03-470-801				201	AKS ALL
Attendant Control Panel (ACP) Configuration Check TASK 23-42-03-700-801				203	AKS ALL
Attendant Control Panel (ACP) - Saving Data Diskette Preparation TASK 23-42-03-940-801				204	AKS ALL
Attendant Control Panel (ACP) - Saving Configuration Data TASK 23-42-03-970-801				205	AKS ALL
Attendant Control Panel (ACP) - Saving Fault Data TASK 23-42-03-970-802				206	AKS ALL
Attendant Control Panel (ACP) - Erasing Mass Storage Area (MSA) TASK 23-42-03-070-801				206	AKS ALL
Attendant Control Panel (ACP) Touchscreen Cleaning TASK 23-42-03-100-801				207	AKS ALL
ATTENDANT CONTROL PANEL - ADJUSTMENT/TEST	23-42-03			501	AKS ALL
Attendant Control Panel - Operational Test TASK 23-42-03-710-801				501	AKS ALL
INLINE FILTER - REMOVAL/INSTALLATION	23-42-04			401	AKS ALL
Inline Filter Removal TASK 23-42-04-000-801				401	AKS ALL
Inline Filter Installation TASK 23-42-04-400-801				403	AKS ALL

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<u>FLIGHT AND GROUND CREW CALL SYSTEM - ADJUSTMENT/TEST</u>	23-43-00		501			AKS ALL
Flight and Ground Crew Call System - Operational Test			501			AKS ALL
TASK 23-43-00-710-801						
<u>GROUND CREW CALL HORN - REMOVAL/INSTALLATION</u>	23-43-02		401			AKS ALL
Ground Crew Call Horn Removal			401			AKS ALL
TASK 23-43-02-000-801						
Ground Crew Call Horn Installation			404			AKS ALL
TASK 23-43-02-420-801						
<u>FLIGHT INTERPHONE SYSTEM - MAINTENANCE PRACTICES</u>	23-51-00		201			AKS ALL
Flight Interphone System - Deactivation			201			AKS ALL
TASK 23-51-00-040-801						
Flight Interphone System - Activation			202			AKS ALL
TASK 23-51-00-440-801						
<u>FLIGHT INTERPHONE SYSTEM - ADJUSTMENT/TEST</u>	23-51-00		501			AKS ALL
Flight Interphone System - Operational Test			501			AKS ALL
TASK 23-51-00-710-801						
<u>REMOTE ELECTRONICS UNIT - REMOVAL/INSTALLATION</u>	23-51-01		401			AKS ALL
Remote Electronics Unit (REU) Removal			401			AKS ALL
TASK 23-51-01-000-801						
Remote Electronics Unit (REU) Installation			404			AKS ALL
TASK 23-51-01-000-802						
<u>AUDIO CONTROL PANEL - REMOVAL/INSTALLATION</u>	23-51-02		401			AKS ALL
Audio Control Panel Removal			401			AKS ALL
TASK 23-51-02-000-801						
Audio Control Panel Installation			404			AKS ALL
TASK 23-51-02-400-801						

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<u>FLIGHT INTERPHONE SPEAKER - REMOVAL/INSTALLATION</u>	23-51-03		Flight Interphone Speaker Removal		401	AKS ALL
			TASK 23-51-03-000-802		401	AKS ALL
			Flight Interphone Speaker Installation		403	AKS ALL
			TASK 23-51-03-000-804			
<u>CONTROL WHEEL PTT SWITCH - REMOVAL/INSTALLATION</u>	23-51-04		Control Wheel PTT Switch Removal		401	AKS ALL
			TASK 23-51-04-000-801		401	AKS ALL
			Control Wheel PTT Switch Installation		404	AKS ALL
			TASK 23-51-04-400-801			
<u>GLARESHIELD PTT SWITCH - REMOVAL/INSTALLATION</u>	23-51-05		Glareshield PTT Switch Removal		401	AKS ALL
			TASK 23-51-05-000-801		401	AKS ALL
			Glareshield PTT Switch Installation		403	AKS ALL
			TASK 23-51-05-400-801			
<u>STATIC DISCHARGERS - MAINTENANCE PRACTICES</u>	23-61-00		Static Discharger Removal		201	AKS ALL
			TASK 23-61-00-000-801		201	AKS ALL
			Static Discharger Installation		206	AKS ALL
			TASK 23-61-00-400-801			
			Static Discharger Base Removal (Base Attached with Screws)		210	AKS ALL
			TASK 23-61-00-000-802			
			Static Discharger Base Removal (Base Attached with Rivets)		212	AKS ALL
			TASK 23-61-00-000-803			
			Static Discharger Base Removal (Adapter Plate Assembly)		214	AKS ALL
			TASK 23-61-00-000-804			
			Static Discharger Base Installation (With Screws)		216	AKS ALL
			TASK 23-61-00-400-802			

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Static Discharger Base Installation (With Rivets) TASK 23-61-00-400-803				221	AKS ALL
Static Discharger Base Installation (Adapter Plate Assembly With Rivets and Screws) TASK 23-61-00-400-805				225	AKS ALL
STATIC DISCHARGER - INSPECTION/CHECK	23-61-00			601	AKS ALL
Static Discharger Inspection TASK 23-61-00-210-801				601	AKS ALL
Static Discharger Resistance Measurement TASK 23-61-00-760-801				606	AKS ALL
VOICE RECORDER SYSTEM - MAINTENANCE PRACTICES	23-71-00			201	AKS ALL
Voice Recorder System - Deactivation TASK 23-71-00-040-801				201	AKS ALL
Voice Recorder System - Activation TASK 23-71-00-440-801				204	AKS ALL
VOICE RECORDER SYSTEM - ADJUSTMENT/TEST	23-71-00			501	AKS ALL
Voice Recorder System - Operational Test TASK 23-71-00-710-801				501	AKS ALL
Voice Recorder System - Audio Fidelity Test TASK 23-71-00-730-801				502	AKS ALL
Voice Recorder System - System Test TASK 23-71-00-730-802				504	AKS ALL
VOICE RECORDER - REMOVAL/INSTALLATION	23-71-11			401	AKS ALL
Voice Recorder Removal TASK 23-71-11-000-801				401	AKS ALL
Voice Recorder Installation TASK 23-71-11-400-801				405	AKS ALL
VOICE RECORDER CONTROL PANEL - REMOVAL/INSTALLATION	23-71-12			401	AKS ALL
Voice Recorder Control Panel Removal TASK 23-71-12-000-801				401	AKS ALL
Voice Recorder Control Panel Installation TASK 23-71-12-400-801				403	AKS ALL

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UNDERWATER LOCATOR BEACON - MAINTENANCE PRACTICES	23-71-21			201	AKS ALL
Underwater Locator Beacon (ULB) Removal TASK 23-71-21-000-801				201	AKS ALL
Dukane Underwater Locator Beacon Battery - Replacement TASK 23-71-21-960-801				204	AKS ALL
Teledyne Benthos Underwater Locator Beacon Battery - Replacement TASK 23-71-21-960-802				209	AKS ALL
Underwater Locator Beacon Test with a 42A12 Series Test Set TASK 23-71-21-700-801				212	AKS ALL
Underwater Locator Beacon Test with a PL1 Test Set TASK 23-71-21-700-802				213	AKS ALL
Underwater Locator Beacon Test with a PL3 Test Set TASK 23-71-21-700-803				213	AKS ALL
Underwater Locator Beacon Test with an ATS-260 Test Set TASK 23-71-21-700-804				214	AKS ALL
Underwater Locator Beacon Test with a Seacom TS100 Test Set TASK 23-71-21-700-805				215	AKS ALL
Underwater Locator Beacon Test with a TS200 Test Set TASK 23-71-21-700-806				216	AKS ALL
Underwater Locator Beacon (ULB) Installation TASK 23-71-21-400-801				217	AKS ALL
FLIGHT DECK ENTRY VIDEO SURVEILLANCE SYSTEM - MAINTENANCE PRACTICES	23-75-00			201	AKS ALL
Video Surveillance System - Deactivation TASK 23-75-00-040-801				201	AKS ALL
Video Surveillance System - Activation TASK 23-75-00-440-801				204	AKS ALL

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<u>FLIGHT DECK ENTRY VIDEO SURVEILLANCE</u>	23-75-00	1	501		AKS ALL
<u>SYSTEM - ADJUSTMENT/TEST</u>					
Flight Deck Entry Video Surveillance System - System Test		1	501		AKS ALL
TASK 23-75-00-730-804					
<u>VIDEO CAMERAS - REMOVAL/INSTALLATION</u>	23-75-02	1	401		AKS ALL
Video Camera - Removal		1	401		AKS ALL
TASK 23-75-02-000-804					
Video Camera - Installation		1	406		AKS ALL
TASK 23-75-02-400-804					
<u>CAMERA CONTROL PANEL ASSEMBLY- REMOVAL/INSTALLATION</u>	23-75-03		401		AKS ALL
Control Panel - Removal			401		AKS ALL
TASK 23-75-03-000-803					
Camera Control Panel - Installation			403		AKS ALL
TASK 23-75-03-400-803					
<u>VIDEO SWITCH - REMOVAL/INSTALLATION</u>	23-75-07		401		AKS ALL
Video Switch - Removal			401		AKS ALL
TASK 23-75-07-000-801					
Video Switch - Installation			404		AKS ALL
TASK 23-75-07-400-801					
<u>CAMERA CONTROL UNIT - REMOVAL/INSTALLATION</u>	23-75-11		401		AKS ALL
Camera Control Unit - Removal			401		AKS ALL
TASK 23-75-11-000-801					
Camera Control Unit - Installation			404		AKS ALL
TASK 23-75-11-400-801					
<u>ILLUMINATOR - REMOVAL/INSTALLATION</u>	23-75-12		401		AKS ALL
Illuminator - Removal			401		AKS ALL
TASK 23-75-12-000-801					
Illuminator - Installation			404		AKS ALL
TASK 23-75-12-400-801					

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<u>FLIGHT COMPARTMENT PC POWER SYSTEM - ADJUSTMENT/TEST</u>	23-82-00		501			AKS ALL
Flight Compartment PC Power System - Operational Test TASK 23-82-00-710-801			501			AKS ALL
<u>OUTLET UNIT - REMOVAL/INSTALLATION</u>	23-82-01		401			AKS ALL
Outlet Unit Removal TASK 23-82-01-000-801			401			AKS ALL
Outlet Unit Installation TASK 23-82-01-400-801			403			AKS ALL
<u>IN-SEAT POWER SUPPLY - REMOVAL/INSTALLATION</u>	23-82-02		401			AKS ALL
In-Seat Power Supply Removal TASK 23-82-02-000-801			401			AKS ALL
In-Seat Power Supply Installation TASK 23-82-02-400-801			403			AKS ALL

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COMMUNICATION - DDG MAINTENANCE PROCEDURES

1. General

- A. This procedure has maintenance tasks for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Procedures Guide (DDPG). These tasks are used to prepare the airplane for flight with certain systems/components inoperative.
- B. This procedure also has the tasks that put the airplane back to its usual condition.
- C. These are the tasks for the components in the communication system:
 - (1) MMEL 23-12-1 (DDPG) Preparation - Survival Type Emergency Locator Transmitter (ELT) System Inoperative.
 - (2) MMEL 23-12-1 (DDPG) Restoration - Survival Type Emergency Locator Transmitter (ELT) System Inoperative.
 - (3) MMEL 23-16-1 (DDPG) Preparation - Control Wheel Push-To-Talk (PTT) Switches Inoperative.
 - (4) MMEL 23-16-1 (DDPG) Restoration - Control Wheel PTT Switches Inoperative.
 - (5) MMEL 23-16-2 (DDPG) Preparation - Flight Crew Audio Control Panel Push-To-Talk (PTT) Switches Inoperative.
 - (6) MMEL 23-16-2 (DDPG) Restoration - Flight Crew Audio Control Panel Push-To-Talk (PTT) Switches Inoperative.
 - (7) MMEL 23-16-3 (DDPG) Preparation - Glareshield Panel Push-To-Talk (PTT) Switches Inoperative.
 - (8) MMEL 23-16-3 (DDPG) Restoration - Glareshield Panel Push-To-Talk (PTT) Switches Inoperative.

TASK 23-00-00-040-808

2. MMEL 23-12-1 (DDPG) Preparation - Survival Type Emergency Locator Transmitter (ELT) System Inoperative

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the ELT system inoperative.

B. References

Reference	Title
WDM 23-24-11	Wiring Diagram Manual

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

D. ELT System Deactivation

SUBTASK 23-00-00-010-007

- (1) Open the ceiling panel for access to the ELT unit (station 794).

SUBTASK 23-00-00-040-011

- (2) Set the switch on the front panel of the ELT unit to the OFF position.

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SUBTASK 23-00-00-040-012

- (3) Disconnect the electrical connector, D3003 from the front panel of the ELT unit (WDM 23-24-11).
- (4) Install the caps on the electrical connectors on the airplane cable and the ELT unit.
- (5) Stow the electrical cable.

SUBTASK 23-00-00-410-005

- (6) Close the ceiling panel for access to the ELT unit.

SUBTASK 23-00-00-040-014

- (7) Install an INOP placard adjacent to the switch of the ELT control panel in the flight compartment.

———— END OF TASK ————

TASK 23-00-00-440-807

3. MMEL 23-12-1 (DDPG) Restoration - Survival Type Emergency Locator Transmitter (ELT) System Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with the ELT system inoperative.

B. References

Reference	Title
23-24-00-710-802-002	ELT System - Operational Test (P/B 501)
FIM 23-24 TASK 801	Emergency Locator Transmitter (ELT) BITE Procedure
WDM 23-24-11	Wiring Diagram Manual

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

D. ELT System Reactivation

SUBTASK 23-00-00-010-008

- (1) Open the ceiling panel for access to the ELT unit (station 794).

SUBTASK 23-00-00-440-008

- (2) Remove the caps for the electrical connectors on the airplane cable and the ELT unit.
- (3) Connect the connector, D3003 to the front panel of the ELT unit (WDM 23-24-11).

SUBTASK 23-00-00-740-002

- (4) Do this task: FIM 23-24 TASK 801.

SUBTASK 23-00-00-810-004

- (5) Do the steps in a FIM task that applies to the fault message.
- (6) Repair the problems that you find.

SUBTASK 23-00-00-710-003

- (7) Do this task: ELT System - Operational Test, TASK 23-24-00-710-802-002.

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SUBTASK 23-00-00-440-011

- (8) Remove the INOP placards from the ELT control panel in the flight compartment.

SUBTASK 23-00-00-410-006

- (9) Close the ceiling panel for access to the ELT unit.

————— END OF TASK ————

TASK 23-00-00-040-801

4. MMEL 23-16-1 (DDPG) Preparation - Control Wheel Push-To-Talk (PTT) Switches Inoperative

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the Control Wheel PTT switches inoperative.
- (2) The Control Wheel PTT switches can be inoperative under these conditions:
- (a) The associated Audio Control Panel PTT switch operates normally.
 - (b) The inoperative switch is deactivated open.

B. References

Reference	Title
23-51-04-000-801	Control Wheel PTT Switch Removal (P/B 401)

C. Location Zones

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

D. Confirmation

SUBTASK 23-00-00-700-003

- (1) Do the steps that follow to confirm that the inoperative control wheel PTT switch is inoperative open:
- (a) Listen for a sound during a test transmission without pushing the associated PTT switch.
NOTE: If there is sound, the PTT switch is inoperative in the closed position.
- (2) Use the audio selector panel PTT switch to verify R/T and/or I/C communications.

E. PTT Switches Deactivation

SUBTASK 23-00-00-860-001

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

SUBTASK 23-00-00-010-001

- (2) Remove the PTT switch on the control wheel to get access to the wire
(TASK 23-51-04-000-801).

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SUBTASK 23-00-00-020-001

- (3) Disconnect, cap and stow the GROUND (BLK/BRN) wire from the PTT switch.

SUBTASK 23-00-00-420-001

- (4) Install the PTT switch.

SUBTASK 23-00-00-860-002

- (5) 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>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

SUBTASK 23-00-00-930-001

- (6) Put an INOP placard on the PTT switch.

————— END OF TASK ————

TASK 23-00-00-440-801

5. MMEL 23-16-1 (DDPG) Restoration - Control Wheel Push-To-Talk (PTT) Switches Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with the PTT switches inoperative.

B. References

<u>Reference</u>	<u>Title</u>
23-51-04-000-801	Control Wheel PTT Switch Removal (P/B 401)
23-51-04-400-801	Control Wheel PTT Switch Installation (P/B 401)

C. Procedure

SUBTASK 23-00-00-860-003

- (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>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

SUBTASK 23-00-00-020-002

- (2) Remove the INOP placard from the switch.

SUBTASK 23-00-00-020-003

- (3) Remove the PTT switch on the control wheel (TASK 23-51-04-000-801).



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SUBTASK 23-00-00-020-004

- (4) Remove the cap from the GROUND (BLK/BRN) wire for the PTT switch.

SUBTASK 23-00-00-420-002

- (5) Install the new PTT switch on the control wheel. To install it, do this task: Control Wheel PTT Switch Installation, TASK 23-51-04-400-801.

SUBTASK 23-00-00-860-004

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

———— END OF TASK ————

TASK 23-00-00-040-807

6. MMEL 23-16-2 (DDPG) Preparation - Flight Crew Audio Control Panel Push-To-Talk (PTT) Switches Inoperative

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the PTT switches on the Flight Crew Audio Control Panel inoperative.
- (2) The Audio Control Panel PTT switches can be inoperative under these conditions:
 - (a) The associated control wheel PTT switch operates normally
 - (b) The inoperative switch is deactivated open.

B. References

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

C. Location Zones

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

D. Confirmation

SUBTASK 23-00-00-700-001

- (1) Do the steps that follow to confirm that the inoperative Audio Control Panel PTT switch is inoperative open and the associated control wheel PTT switch operates normally:
 - (a) Listen for a sound during a test transmission without pushing the PTT switch.
NOTE: If there is sound, the PTT switch is inoperative in the closed position.
 - (b) Do this task: Supply Electrical Power, TASK 24-22-00-860-811
 - (c) Push the PA microphone selector switch on the associated audio control panel.
 - (d) Make sure that the PA MIC light comes on.
 - (e) Speak into the associated microphone without pushing any PTT switch.

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- (f) Make sure you hear no voice on the PA system.
- (g) Push the inoperative PTT switch and speak into the associated microphone.
- (h) Make sure you hear no voice at the other pilot's headset.
- (i) Push the associated pilot's control wheel PTT switch and speak into the associated microphone.
- (j) Make sure you hear your voice clearly at the other pilot's headset.

———— END OF TASK ————

TASK 23-00-00-440-806

7. MMEL 23-16-2 (DDPG) Restoration - Flight Crew Audio Control Panel Push-To-Talk (PTT) Switches Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with the Audio Control Panel PTT switches inoperative.
- (2) To put the airplane to usual condition, replace the Audio Control Panel with the inoperative switch.

B. References

Reference	Title
23-51-02 P/B 401	AUDIO CONTROL PANEL - REMOVAL/INSTALLATION

C. Location Zones

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

D. Procedure

SUBTASK 23-00-00-900-001

- (1) Do the tasks: AUDIO CONTROL PANEL - REMOVAL/INSTALLATION, PAGEBLOCK 23-51-02/401

———— END OF TASK ————

TASK 23-00-00-040-803

8. MMEL 23-16-3 (DDPG) Preparation - Glareshield Panel Push-To-Talk (PTT) Switches Inoperative.

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the glareshield PTT switches inoperative.
- (2) The glareshield PTT switches can be inoperative under one of these conditions:
 - (a) The switch is inoperative open.
 - (b) The inoperative switch is deactivated

B. Confirmation

SUBTASK 23-00-00-700-002

- (1) Do the steps that follow to confirm that the inoperative glareshield PTT switch is inoperative open:



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- (a) Listen for a sound during a test transmission without pushing the PTT switch.

NOTE: If there is sound, the PTT switch is inoperative in the closed position.

C. PTT Switches Deactivation

SUBTASK 23-00-00-860-005

- (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>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

SUBTASK 23-00-00-010-002

- (2) Remove the PTT switch on the glareshield to get access to the wire.

SUBTASK 23-00-00-020-005

- (3) Disconnect, cap and stow the GROUND wire from the PTT switch.

SUBTASK 23-00-00-420-003

- (4) Install the PTT switch.

SUBTASK 23-00-00-860-006

- (5) 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>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

SUBTASK 23-00-00-930-002

- (6) Put an INOP placard on the PTT switch.

————— END OF TASK ————

TASK 23-00-00-440-802

9. MMEL 23-16-3 (DDPG) Restoration - Glareshield Panel Push-To-Talk (PTT) Switches Inoperative.

A. General

- (1) This task puts the airplane back to its usual condition after operation with the glareshield PTT switches inoperative.
(2) To put the airplane to usual condition, replace the glareshield PTT switch.

B. References

Reference	Title
23-51-05 P/B 401	GLARESHIELD PTT SWITCH - REMOVAL/INSTALLATION

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C. Procedure

SUBTASK 23-00-00-900-002

- (1) Do the tasks: GLARESHIELD PTT SWITCH - REMOVAL/INSTALLATION,
PAGEBLOCK 23-51-05/401

———— END OF TASK ————

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HIGH FREQUENCY (HF) COMMUNICATION SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has two tasks:
 - (1) High Frequency (HF) Communication Deactivation.
 - (2) High Frequency (HF) Communication Activation.

TASK 23-11-00-040-801

2. High Frequency Communication - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power to the HF communications system.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
142	Aft Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
822	Aft Cargo Door

D. Procedure

NOTE: The airplane will have single or dual HF transceivers installed depending on customer requirements. Reference the airplane wire diagram manual.

SUBTASK 23-11-00-860-036

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

E. High Frequency Communication - Tryout

NOTE: This tryout is to make sure the HF communications system is in a zero energy state.

SUBTASK 23-11-00-860-037

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	11	C00839	COMMUNICATIONS HF 1



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This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row Col Number Name

D	2	C00857	COMMUNICATIONS HF 2 (INOP)
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SUBTASK 23-11-00-860-039

- (2) Do the following steps at the HF-1 or HF-2 (if applicable) control panel on the aft electronic panel, P8:
 - (a) Set the mode selector switch to the USB position.
 - (b) Push the applicable HF switch light (HF 1 or HF 2), on the No. 1 radio tuning panel (RTP-1).
 - 1) Make sure the switch light does not come on.

SUBTASK 23-11-00-010-008

- (3) To gain access to the HF transceivers, do this step:

Open this access panel:

Number Name/Location

822	Aft Cargo Door
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SUBTASK 23-11-00-710-004

- (4) Do the following steps at the HF-1 and HF-2 (if applicable) transceiver:
 - (a) Push and hold the TEST switch on the transceiver front panel.
 - 1) Make sure none of the lights on the front panel come on.

———— END OF TASK ————

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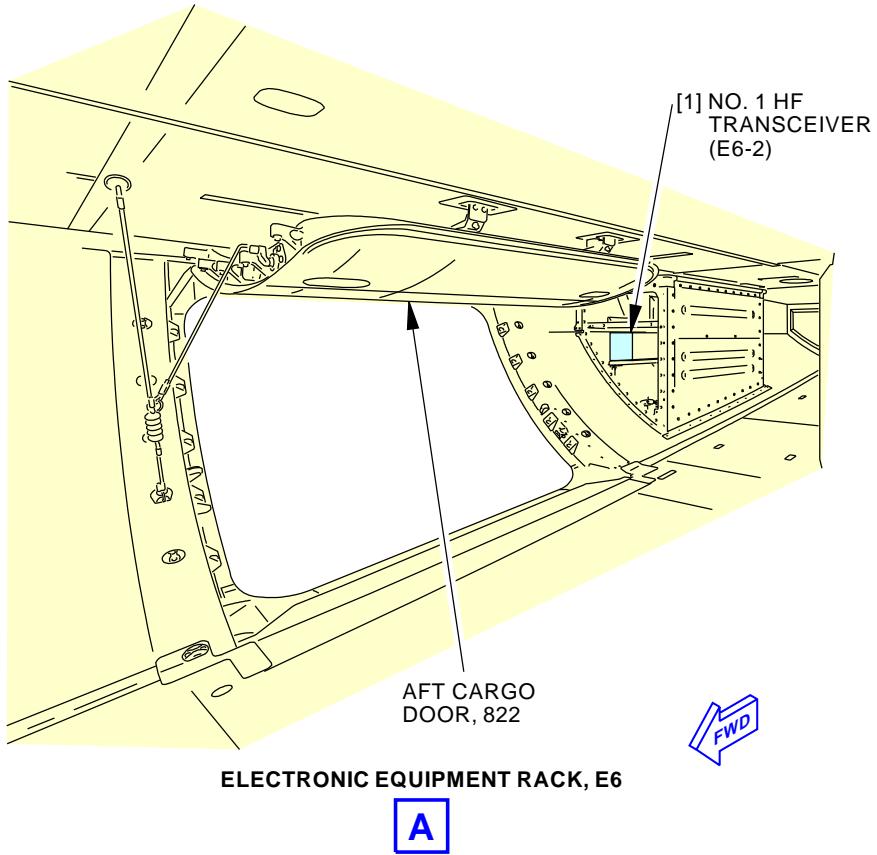
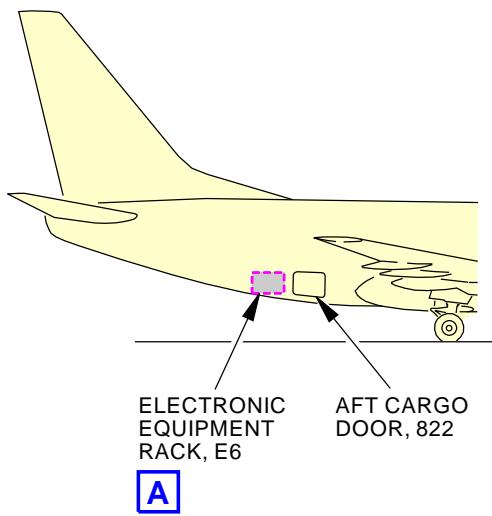
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HF Transceiver
Figure 201/23-11-00-990-801

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TASK 23-11-00-440-801

3. High Frequency Communication - Activation

(Figure 201)

A. General

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

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
142	Aft Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
822	Aft Cargo Door

D. Procedure

WARNING: DO NOT OPERATE THE HF SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. AN EXPLOSION CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE AIRPLANE.

WARNING: MAKE SURE THAT PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

NOTE: The airplane will have single or dual HF transceivers installed depending on customer requirements. Reference the airplane wire diagram manual.

SUBTASK 23-11-00-860-038

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

SUBTASK 23-11-00-410-003

- (2) Close this access panel:

Number **Name/Location**

822 Aft Cargo Door

———— END OF TASK ————

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HIGH FREQUENCY (HF) COMMUNICATION SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has these tasks:
 - (1) An Operational Test of the HF transceiver.
 - (2) A System Test of the HF communication system.
- B. There is one HF communication system installed on the airplane.
- C. The HF transceiver is located in the aft cargo compartment on the electronic equipment rack E6.
- D. The No. 1, No. 2, and No. 3 radio tuning panels (RTPs) are located on the aft electronic panel, P8, in the flight compartment.

TASK 23-11-00-710-801

2. HF Communication System - Operational Test

A. General

- (1) The operational test for the HFS-900D transceivers is a BITE test which does a check of the internal functions of the HF transceiver. The BITE test also does a check of the ARINC 429/719 frequency tuning input data to the HF transceiver. The BITE test does not include a check of the HF antenna couplers, coaxial cables, or the HF antenna. The HF communication system does not transmit during the BITE test.
- (2) HF Antenna Coupler Tuning
 - (a) A tune tone is generated while the HF antenna coupler tunes to a new frequency. The tune tone can be continuous or pulsed (determined by the coupler/transceiver configuration). Some couplers save previously tuned frequencies in memory. If a coupler is set to a frequency in memory, then the tune time can be very short and you may not hear the tune tone. If you hear the tune tone for more than 7 seconds (15 seconds maximum), then it is an indication of a tuning failure.
 - (b) Rockwell Collins Analog HF Antenna Coupler (Model 490S-1, Part Number 792-6140-001):
 - 1) The tune time is 2-4 seconds typical, 7 seconds maximum.
 - 2) The tune tone is continuous.
 - (c) Rockwell Collins Digital HF Antenna Coupler (Model CPL-920D, Part Number 822-0987-XXX):
 - 1) The tune time for a frequency not in memory is 2 to 4 seconds typical, 7 seconds maximum.
 - 2) If HFS-700 or HFS-900 transceiver is installed:
 - a) The tune time for a frequency saved in memory is 1 second typical.
 - b) Up to 100 frequencies can be saved in memory.
 - c) The tune tone is pulsed. Basically, the tuning tone is audible, but if using a previously tuned channel, the tune tone may not be audible.
 - 3) If HFS-900D transceiver is installed:
 - a) The tune time for a frequency saved in memory is 200 milliseconds typical.
 - b) The tune tone is continuous.
 - 4) At the first tuning after a cold start, the tune tone is always audible regardless of whether this frequency is stored (average 2 to 4 seconds, 7 seconds maximum).

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- 5) When either HF antenna or HF transceiver is replaced, the frequency memory is reset.

B. 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)

C. Location Zones

<u>Zone</u>	<u>Area</u>
142	Aft Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

<u>Number</u>	<u>Name/Location</u>
822	Aft Cargo Door

E. Procedure

SUBTASK 23-11-00-800-001

WARNING: DO NOT OPERATE THE HF SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. THIS CAN CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT.

WARNING: MAKE SURE THAT PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do not operate the HF system while a fuel operation is done on the airplane.

SUBTASK 23-11-00-860-001

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

SUBTASK 23-11-00-860-017

- (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>
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3
E	11	C00839	COMMUNICATIONS HF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-11-00-860-029

- (4) Push the HF 1 switch light, on the No. 1 radio tuning panel (RTP-1), on the aft electronic panel, P8.
- (a) Make sure the switch light comes on.
- (b) If the AM lamp is on, push the AM switch once to select the USB mode.

SUBTASK 23-11-00-010-006

- (5) To gain access to the HF transceivers, do this step:



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Open this access panel:

<u>Number</u>	<u>Name/Location</u>
822	Aft Cargo Door

SUBTASK 23-11-00-860-007

- (6) Make sure the internal blower fan on the HF transceiver operates when you transmit.

F. To do a BITE test of the No. 1 or No. 2 (if installed) HF transceiver, do these steps:

SUBTASK 23-11-00-740-003

- (1) Push and release the TEST switch on the HF transceiver front panel.
(a) Make sure these conditions occur:
1) The LRU STATUS and CONTROL INPUT LEDs turn red for 1 to 3 seconds. The KEY INTERLOCK LED flashes red for 45 milliseconds and then turns off for 2 seconds.
2) The LRU STATUS LED turns green and the other LEDs turn red for 1 to 3 seconds.
3) All LEDs go off for 1 to 7 seconds.
4) The LRU STATUS LED turns green and the other LEDs stay off. After 30 seconds, all LEDs are off.

NOTE: Any of the three LEDs that come on red after the self-test is completed indicates a defective condition.

G. Put the Airplane Back to Its Initial Condition

SUBTASK 23-11-00-010-005

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
822	Aft Cargo Door

SUBTASK 23-11-00-860-009

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

———— END OF TASK ————

TASK 23-11-00-730-801

3. HF Communication System - System Test

A. General

- (1) This task includes these tests:
(a) An Operational Test
(b) A HF Communication Test.
(2) Make sure the flight interphone system operates. The communication test uses these flight interphone system components: audio control panels (ACPs), headsets, microphones, and push-to-talk (PTT) switches.
(3) Make sure the airplane is not in or near any large metal structures. HF communication while the airplane is on the ground can be degraded by airplane position or blocked by RF signal attenuation due to ground equipment and structures. If the quality of the transmitted and received voice signals is not satisfactory, move the airplane to a better position.
(4) Make sure you use approved test frequencies when you speak with the radio tower operator.



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B. References

Reference	Title
23-27-00-700-812-009	ACARS - System 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)

C. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 23-11-00-800-002

WARNING: DO NOT OPERATE THE HF SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. AN EXPLOSION CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE AIRPLANE.

WARNING: MAKE SURE THAT PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do not operate the HF system while a fuel operation is done on the airplane.

SUBTASK 23-11-00-860-010

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

SUBTASK 23-11-00-860-019

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3
E	11	C00839	COMMUNICATIONS HF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-11-00-860-032

- (4) If necessary, do these steps to change from Data to Voice:
 - (a) Push the applicable HF key on RTP-1 (or, on RTP-2).
 - (b) Tune the RTP to display "DATA" in the active window.
 - (c) Push the display transfer button on the RTP.
 - (d) Make sure that "DATA" is in the standby window of the RTP.

SUBTASK 23-11-00-860-033

- (5) If necessary, do these steps to change from Voice to Data:
 - (a) Push the display transfer button on the RTP.
 - (b) Make sure that "DATA" toggles from the standby display to the active display on the RTP.



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SUBTASK 23-11-00-860-034

- (6) If necessary, do these steps to change back from Data to Voice:
 - (a) Push the display transfer button on the RTP.
 - (b) Make sure that "DATA" toggles from the active display to the standby display on the RTP.

E. Operational Test

SUBTASK 23-11-00-710-003

- (1) Do this task: HF Communication System - Operational Test, TASK 23-11-00-710-801.

F. HF Communication Test

SUBTASK 23-11-00-730-001

- (1) Do a test of the HF-1 communication system:
 - (a) Connect a headset/boom microphone to the captain's jack panel.
 - (b) Do these steps to prepare the captain's audio control panel (ACP) for HF-1 system operation:
 - 1) Push and release the HF-1 switch.
 - a) Make sure the switch light comes on.
 - 2) Push and release the HF-1 volume control.
 - a) Make sure the volume control indicator light comes on.
 - 3) Set the volume control to the middle position.
 - 4) Set the MASK/BOOM switch (if installed) to the BOOM position.
 - (c) Do these steps at the No. 1 radio tuning panel (RTP-1):
 - 1) Push the HF 1 switch light.
 - a) Make sure the switch light comes on.
 - 2) Push the AM switch light for AM or USB mode of operation.
 - a) Make sure the switch light is on for AM, or off for USB.
 - 3) Turn the SENS control clockwise for maximum gain.
 - 4) Set the STANDBY frequency window to an approved test frequency.
 - 5) Push the display transfer switch.
 - a) Make sure the STANDBY frequency moves to the ACTIVE frequency window.
 - (d) Push and release the captain's push-to-talk (PTT) switch.
 - 1) Make sure you hear a 1 kHz tune-in-progress tone in the headset.

NOTE: A continuous or pulsed tone indicates that the coupler is tuning to a new frequency. The coupler tune tone will sound no longer than 15 seconds. The average coupler tune time is approximately 1 to 7 seconds.

NOTE: Some coupler types are able to tune quickly when previously used frequencies are selected, in which case the tune tone may be only a momentary beep.
 - (e) Do these steps to do a voice communication test with a radio tower operator:
 - 1) Push and hold the PTT switch while you speak.
 - a) Make sure you hear the sidetone in the headset while you speak.
 - b) Make sure the LRU STATUS, KEY INTERLOCK, and CONTROL FAIL lights on the front panel of the HF transceiver are not on.

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- 2) Release the PTT switch while you listen.
 - a) Make sure the quality of the transmitted and received voice is satisfactory.
 - b) Make sure the sound of the received voice decreases and increases when you turn the SENS control counterclockwise and clockwise on the RTP.
 - c) Make sure the sound of the received voice changes when you turn the HF-1 volume control on the captain's ACP with no change in voice quality.
- (f) If more than one mode of operation (AM and USB) is available at your location, do this step:
 - 1) Push the AM switch light to the other mode of operation and make a voice transmission.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 23-11-00-860-015

- (1) Do these steps at the P8 panel:
 - (a) Push and release the HF-1 switch on the captain's ACP.
 - 1) Make sure the switch light goes off.
 - (b) Push and release the HF-1 volume control on the captain's ACP.
 - 1) Make sure the volume control indicator light goes off.

SUBTASK 23-11-00-730-003

- (2) Do a test of HF Datalink. Do this task: (ACARS - System Test, TASK 23-27-00-700-812-009

SUBTASK 23-11-00-860-016

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

———— END OF TASK ————

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HF TRANSCEIVER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the HF transceiver.
 - (2) An installation of the HF transceiver.
- B. The HF transceiver is located in the aft cargo compartment on the electronic equipment rack E6.

TASK 23-11-21-000-801

2. HF Transceiver - Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
142	Aft Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

<u>Number</u>	<u>Name/Location</u>
822	Aft Cargo Door

D. Removal Procedure

SUBTASK 23-11-21-860-002

- (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	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

SUBTASK 23-11-21-010-002

- (2) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
822	Aft Cargo Door

SUBTASK 23-11-21-020-001

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

- (3) Before you touch the HF TRANSCEIVER [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

EFFECTIVITY
AKS ALL

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SUBTASK 23-11-21-020-002

- (4) To remove the HF TRANSCEIVER [1], do this task: E/E Box Removal,
TASK 20-10-07-000-801.

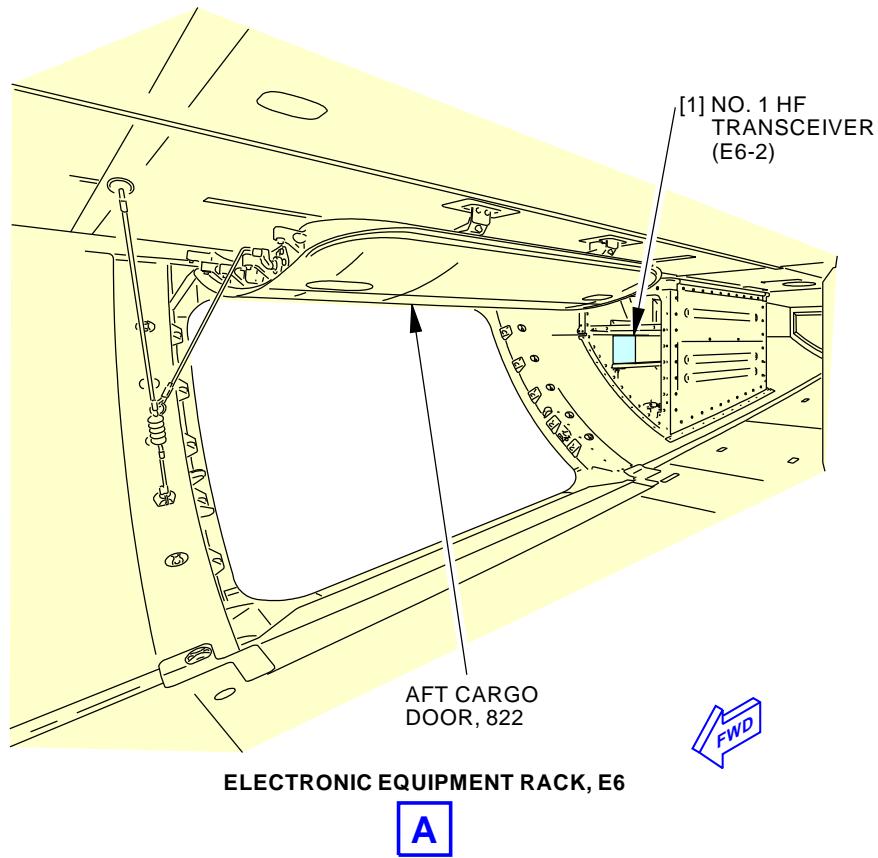
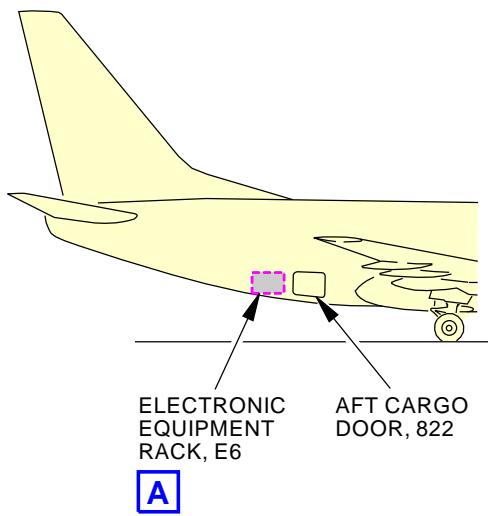
———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-11-21



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HF Transceiver Installation
Figure 401/23-11-21-990-801

EFFECTIVITY
AKS ALL

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TASK 23-11-21-400-801

3. HF Transceiver - Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	HF TRANSCEIVER	23-11-21-10-010	AKS ALL

C. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
822	Aft Cargo Door

E. Installation Procedure

SUBTASK 23-11-21-860-006

- (1) Make sure that this circuit breaker is open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

SUBTASK 23-11-21-420-001

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

- (2) Before you touch the HF TRANSCEIVER [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 23-11-21-420-002

- (3) To install the HF TRANSCEIVER [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.



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SUBTASK 23-11-21-860-010

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

CAPT Electrical System Panel, P18-2

Row Col Number Name

E	11	C00839	COMMUNICATIONS HF 1
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This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row Col Number Name

D	2	C00857	COMMUNICATIONS HF 2 (INOP)
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F. Installation Test

SUBTASK 23-11-21-800-001

WARNING: DO NOT OPERATE THE HF SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. THIS CAN CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT.

WARNING: MAKE SURE PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do not operate the HF system while a fuel operation is done on the airplane.

SUBTASK 23-11-21-860-013

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

SUBTASK 23-11-21-860-018

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

CAPT Electrical System Panel, P18-2

Row Col Number Name

D	11	C00165	COMMUNICATIONS VHF 1
---	----	--------	----------------------

D	12	C00471	COMMUNICATIONS VHF 3
---	----	--------	----------------------

F/O Electrical System Panel, P6-1

Row Col Number Name

C	3	C00166	COMMUNICATIONS VHF 2
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SUBTASK 23-11-21-810-002

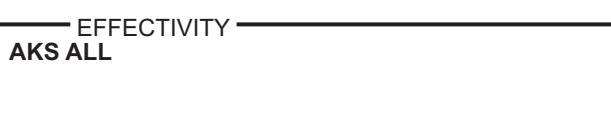
- (4) Push the HF 1 switch light, on the No. 1 radio tuning panel (RTP-1), on the aft electronic panel, P8.
(a) Make sure the switch light comes on.

SUBTASK 23-11-21-860-015

- (5) Make sure the internal blower fan on the HF transceiver operates when you transmit.

SUBTASK 23-11-21-740-010

- (6) Push and release the TEST switch on the HF transceiver front panel to do the BITE test of the HF communication system:
(a) Make sure these conditions occur:
1) The LRU STATUS and CONTROL INPUT LEDs turn red for 1 to 3 seconds. The KEY INTERLOCK LED flashes red for 45 milliseconds and then turns off for 2 seconds.



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- 2) The LRU STATUS LED turns green and the other LEDs turn red for 1 to 3 seconds.
- 3) All LEDs go off for 1 to 7 seconds.
- 4) The LRU STATUS LED turns green and the other LEDs stay off. After 30 seconds, all LEDs are off.

NOTE: Any of the three LEDs that come on red after the self-test is completed indicates a defective condition.

G. Put the Airplane Back to Its Initial Condition

SUBTASK 23-11-21-410-002

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
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822	Aft Cargo Door
-----	----------------

SUBTASK 23-11-21-860-017

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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HF COMMUNICATION ANTENNA - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) Removal of the HF communication antenna.
 - (2) Installation of the HF communication antenna.
- B. The HF communication antenna is part of the leading edge of the vertical stabilizer.

TASK 23-11-51-000-801

2. HF Communication Antenna Removal

A. References

Reference	Title
55-33-11-000-801	Vertical Stabilizer (Fin) Leading Edge Removal (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
322	Vertical Fin - Removable Fin Leading Edge

C. Procedure

SUBTASK 23-11-51-860-001

WARNING: REMOVE THE ELECTRICAL POWER FOR THE HF COMMUNICATION SYSTEM BEFORE YOU REMOVE THE HF COMMUNICATION ANTENNA. HF SIGNALS CAN CAUSE ELECTRICAL SHOCKS AND INJURIES TO PERSONS.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

SUBTASK 23-11-51-020-001

- (2) Remove the part of the leading edge of the vertical stabilizer that contains the HF communication antenna:
 - (a) Do this task: Vertical Stabilizer (Fin) Leading Edge Removal, TASK 55-33-11-000-801.

———— END OF TASK ————

TASK 23-11-51-400-801

3. HF Communication Antenna Installation

A. References

Reference	Title
23-11-00-730-801	HF Communication System - System Test (P/B 501)
55-33-11-400-801	Vertical Stabilizer (Fin) Leading Edge Installation (P/B 401)

EFFECTIVITY
AKS ALL

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B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
322	Vertical Fin - Removable Fin Leading Edge

C. Procedure

SUBTASK 23-11-51-860-002

WARNING: REMOVE THE ELECTRICAL POWER FOR THE HF COMMUNICATION SYSTEM BEFORE YOU INSTALL THE HF COMMUNICATION ANTENNA. HF SIGNALS CAN CAUSE ELECTRICAL SHOCKS AND INJURIES TO PERSONS.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

SUBTASK 23-11-51-420-001

- (2) Install the part of the leading edge of the vertical stabilizer that contains the HF communication antenna:
 - (a) Do this task: Vertical Stabilizer (Fin) Leading Edge Installation, TASK 55-33-11-400-801.

SUBTASK 23-11-51-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

D. Installation Test

SUBTASK 23-11-51-730-001

- (1) Do this task: HF Communication System - System Test, TASK 23-11-00-730-801.

———— END OF TASK ————



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HF ANTENNA - INSPECTION/CHECK

1. General

- A. This procedure has this task:
 - (1) An electrical bond check for the HF antenna.
- B. The HF antenna is part of the leading edge of the vertical stabilizer.
- C. You must remove the HF antenna coupler(s) before you do the electrical bond check. The HF antenna coupler(s) are installed adjacent to the HF antenna in the vertical stabilizer.

TASK 23-11-51-760-801

2. HF Antenna - Electrical Bond Check

(Figure 601)

A. References

Reference	Title
23-11-61-000-801	HF Antenna Coupler - Removal (P/B 401)
23-11-61-400-801	HF Antenna Coupler - Installation (P/B 401)
SWPM 20-20-00	Standard Wiring Practices Manual

B. Tools/Equipment

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

Reference	Description
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. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
322	Vertical Fin - Removable Fin Leading Edge

D. Procedure

SUBTASK 23-11-51-010-001

CAUTION: YOU MUST PREPARE EACH HF ANTENNA COUPLER FOR THE REMOVAL. IF YOU DO NOT PREPARE FOR THE REMOVAL, YOU CAN EASILY CAUSE DAMAGE TO INTERNAL PARTS OF THE HF ANTENNA COUPLER.

- (1) Remove the HF antenna coupler(s). To remove the HF antenna coupler(s), do this task: HF Antenna Coupler - Removal, TASK 23-11-61-000-801.

SUBTASK 23-11-51-760-001

- (2) Use an intrinsically safe approved bonding meter, COM-1550 to measure the resistances that follow at each HF antenna coupler mount (SWPM 20-20-00):
 - (a) From the electrical contact to the mount.

EFFECTIVITY	AKS ALL
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23-11-51



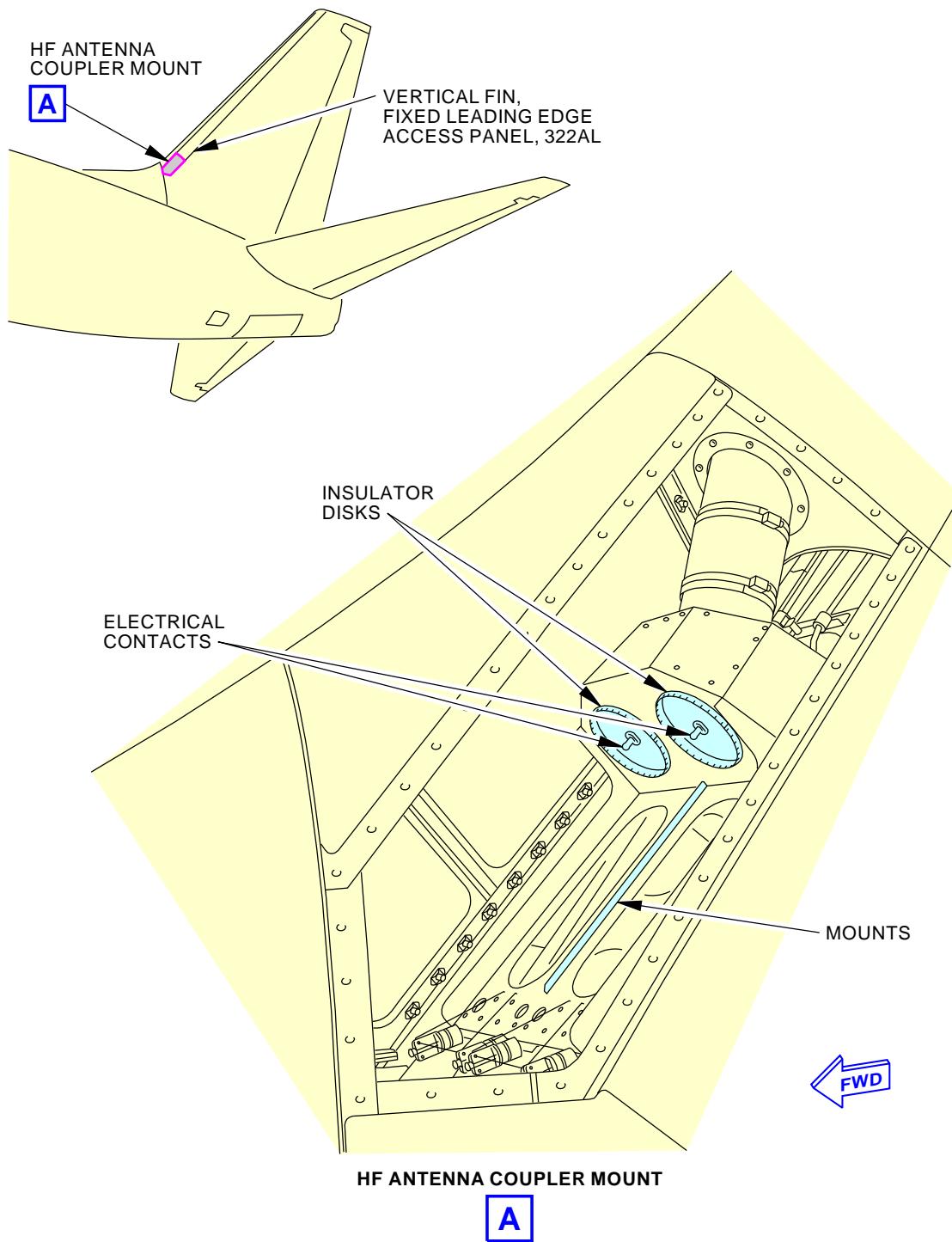
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- 1) Make sure the resistance is 10 milliohms or less.
 - (b) From the electrical contact to the airplane structure.
 - 1) Make sure the resistance is 10 milliohms or less.
- SUBTASK 23-11-51-410-001
- (3) To install the HF antenna coupler(s), do this task: HF Antenna Coupler - Installation, TASK 23-11-61-400-801.

———— END OF TASK ——

EFFECTIVITY
AKS ALL

23-11-51



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HF Antenna - Electrical Bond Check
Figure 601/23-11-51-990-801EFFECTIVITY
AKS ALL**23-11-51**

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HF ANTENNA COUPLER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the HF antenna coupler.
 - (2) An installation of the HF antenna coupler.
- B. The HF antenna coupler is located in the antenna coupler mount in the lower leading edge of the vertical stabilizer.

TASK 23-11-61-000-801

2. HF Antenna Coupler - Removal

(Figure 401)

A. References

Reference	Title
20-10-44-000-801	Lockwire, Cotter Pins, and Lockrings - Removal (P/B 401)
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (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
211	Flight Compartment - Left
212	Flight Compartment - Right
322	Vertical Fin - Removable Fin Leading Edge

D. Access Panels

Number	Name/Location
322AL	Vertical Fin, Fixed Leading Edge

E. Prepare for the Removal

SUBTASK 23-11-61-860-027

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3
E	11	C00839	COMMUNICATIONS HF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

EFFECTIVITY	AKS ALL
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SUBTASK 23-11-61-860-005

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

F. Removal Procedure

SUBTASK 23-11-61-040-002

WARNING: BEFORE YOU OPEN THE COUPLER ACCESS PANEL, REMOVE ELECTRICAL POWER FROM EACH HF COMMUNICATION SYSTEM. HF SIGNALS CAN CAUSE ELECTRICAL SHOCK, BURNS, AND INJURIES TO PERSONNEL.

- (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	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

SUBTASK 23-11-61-010-001

- (2) Remove this access panel:

Number Name/Location

322AL Vertical Fin, Fixed Leading Edge

NOTE: The HF-1 antenna coupler is installed on the left side of the vertical stabilizer.

SUBTASK 23-11-61-020-007

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

- (3) Before you touch the coupler [2], coaxial connector [4] or electrical connector [5], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-11-61-020-001

- (4) To remove the lockwire [3] from the coaxial connector [4], do this task: Lockwire, Cotter Pins, and Lockrings - Removal, TASK 20-10-44-000-801.

SUBTASK 23-11-61-020-002

- (5) Disconnect the coaxial connector [4] and the electrical connector [5] from the HF ANTENNA COUPLER [2].

SUBTASK 23-11-61-020-008

- (6) Loosen and disengage the hold-down nuts.

SUBTASK 23-11-61-020-003

CAUTION: OBEY THESE STEPS WHEN YOU REMOVE THE HF ANTENNA COUPLER. IF YOU IGNORE THESE STEPS, DAMAGE TO THE HF ANTENNA COUPLER CAN OCCUR.

- (7) Remove the HF ANTENNA COUPLER [2].

(a) Always keep the bottom side of the coupler in the down position.

(b) Do not set the coupler on its end (with the handle up).

(c) If you rotate or invert the coupler, this can cause damage to the internal parts.

EFFECTIVITY
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SUBTASK 23-11-61-020-009

- (8) Install protective dust caps on the coupler [2], coaxial connector [4] and electrical connector [5]. This is the task: (Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804).

SUBTASK 23-11-61-420-007

- (9) If the airplane will return-to-service with one or more HF trays empty, install MS20995C32 lockwire, G01048 on each unused hold-down fitting as follows.

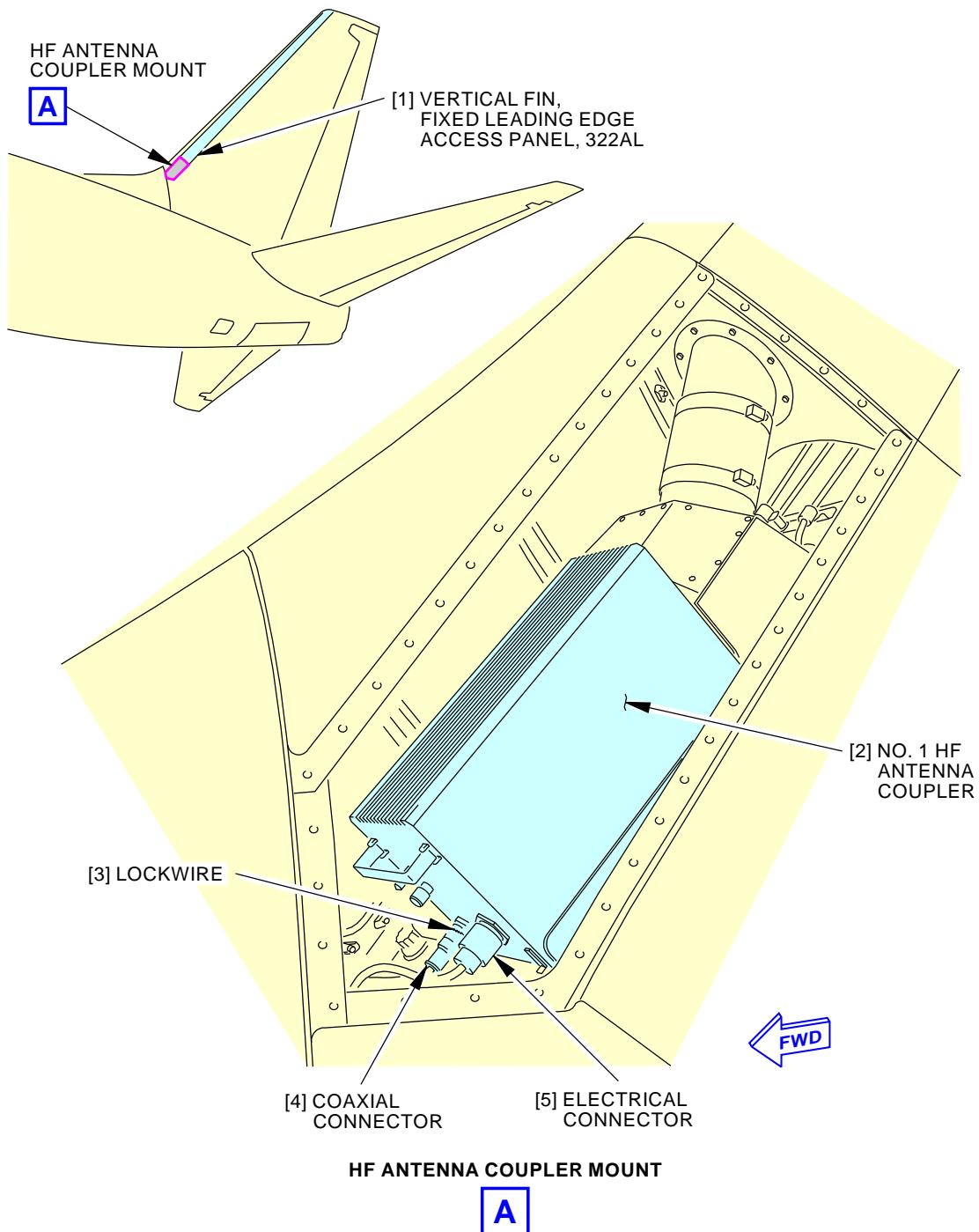
NOTE: The HF tray is located in a high vibration area.

- (a) Rotate the hold-down fitting upward, and hold in place.
- (b) Tighten down the wing nut until it contacts with the HF tray.
- (c) Install MS20995C32 lockwire, G01048 using the pre-drilled holes in the hold-down fitting, and the holes in the HF tray, (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801).

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-11-61



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HF Antenna Coupler Installation
Figure 401/23-11-61-990-801

 EFFECTIVITY
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TASK 23-11-61-400-801

3. HF Antenna Coupler - Installation

(Figure 401)

A. General

- (1) This task gives the steps to install an HF antenna coupler.

B. References

Reference	Title
20-10-44-400-801	Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter	NASM20995

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	HF ANTENNA COUPLER	23-11-61-01-010	AKS ALL

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
322	Vertical Fin - Removable Fin Leading Edge

F. Access Panels

Number	Name/Location
322AL	Vertical Fin, Fixed Leading Edge

G. Prepare for the Installation

SUBTASK 23-11-61-860-010

WARNING: BEFORE YOU OPEN THE COUPLER ACCESS PANEL, REMOVE ELECTRICAL POWER FROM EACH HF COMMUNICATION SYSTEM. HF SIGNALS CAN CAUSE ELECTRICAL SHOCK, BURNS, AND INJURIES TO PERSONNEL.

- (1) Make sure that this circuit breaker is open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	11	C00839	COMMUNICATIONS HF 1

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	2	C00857	COMMUNICATIONS HF 2 (INOP)



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H. HF Antenna Coupler Installation

SUBTASK 23-11-61-420-004

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

- (1) Before you touch the mount, coupler [2], coaxial connector [4], or electrical connector [5], do this step: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802

SUBTASK 23-11-61-710-001

- (2) Examine the coupler mount. Make sure there is no corrosion, or damage from electrical arcing at the rear connection.

SUBTASK 23-11-61-420-001

- (3) Install the HF ANTENNA COUPLER [2].
 - (a) Engage and hand tighten the hold down nuts.

SUBTASK 23-11-61-420-005

- (4) Examine the connectors for bent or broken pins, and for dirt or foreign objects.
 - (a) If you find a problem, do the repair of the damage you found.

SUBTASK 23-11-61-420-002

- (5) Connect the coaxial connector [4] and the electrical connector [5] to the HF ANTENNA COUPLER [2].

SUBTASK 23-11-61-420-003

- (6) Install lockwire [3] on the coaxial connector [4], (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801).

SUBTASK 23-11-61-420-006

- (7) If the airplane will return-to-service with one or more HF trays empty, install MS20995C32 lockwire, G01048 on each unused hold-down fitting as follows.

NOTE: The HF tray is located in a high vibration area.

- (a) Rotate the hold-down fitting upward, and hold in place.
 - (b) Tighten down the wing nut until it contacts with the HF tray.
 - (c) Install MS20995C32 lockwire, G01048 using the pre-drilled holes in the hold-down fittings, and the holes in the HF tray, (Lockwire, Cotter Pins, and Lockrings - Installation, TASK 20-10-44-400-801).

SUBTASK 23-11-61-410-001

- (8) Install this access panel:

Number Name/Location

322AL Vertical Fin, Fixed Leading Edge

SUBTASK 23-11-61-440-002

- (9) 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>
E	11	C00839	COMMUNICATIONS HF 1

EFFECTIVITY
AKS ALL

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This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C00857	COMMUNICATIONS HF 2 (INOP)

I. Installation Test

SUBTASK 23-11-61-800-001

WARNING: DO NOT OPERATE THE HF SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. AN EXPLOSION CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE AIRPLANE.

WARNING: MAKE SURE THAT PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

- (1) Do not operate the HF system while a fuel operation is done on the airplane.

SUBTASK 23-11-61-860-013

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

SUBTASK 23-11-61-860-016

- (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>
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-11-61-720-001

- (4) Do these steps at the P8 panel to do the installation test:
 - (a) Connect a headset/boom microphone to the captain's jack panel.
 - (b) Do these steps to prepare the captain's audio control panel (ACP) for HF system operation:
 - 1) Push and release the HF-1 switch.
 - a) Make sure the switch light comes on.
 - 2) Push and release the HF-1 volume control.
 - a) Make sure the volume control indicator light comes on.
 - 3) Set the volume control to the middle position.
 - 4) Set the MASK/BOOM switch (if installed) to the BOOM position.
 - (c) Do these steps at the No. 1 radio tuning panel (RTP-1):
 - 1) Push the HF 1 switch light.
 - a) Make sure the switch light comes on.
 - 2) Push the AM switch light for AM or USB mode of operation.
 - a) Make sure the switch light is on for AM, or off for USB.

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- 3) Turn the SENS control fully clockwise.
 - 4) Set the STANDBY frequency window to an approved test frequency.
 - 5) Push the display transfer switch.
 - a) Make sure the STANDBY frequency moves to the ACTIVE frequency window.
- (d) Push and release the captain's push-to-talk (PTT) switch.
- 1) Make sure you hear a 1 kHz tune-in-progress tone in the headset.
- NOTE: A continuous or pulsed tone indicates that the coupler is tuning to a new frequency. The coupler tune tone will sound no longer than 15 seconds. The average coupler tune time is approximately 1 to 7 seconds.
- NOTE: Some coupler types are able to tune quickly when previously used frequencies are selected, in which case the tune tone may be only a momentary beep.
- (e) Do these steps to do a voice communication test with a radio tower operator:
- 1) Push and hold the PTT switch while you speak.
 - a) Make sure you hear the sidetone in the headset while you speak.
 - 2) Release the PTT switch while you listen.
 - a) Make sure the quality of the transmitted and received voice is satisfactory.
 - b) Make sure the sound of the received voice changes when you turn the HF-1 volume control on the captain's ACP with no change in voice quality.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 23-11-61-860-014

- (1) Do these steps at the P8 panel:
 - (a) Push and release the HF-1 switch on the captain's ACP.
 - 1) Make sure the switch light goes off.
 - (b) Push and release the HF-1 volume control on the captain's ACP.

SUBTASK 23-11-61-860-015

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

———— END OF TASK ————



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VERY HIGH FREQUENCY (VHF) COMMUNICATION SYSTEM - MAINTENANCE PRACTICES

1. **General**

- A. This procedure has two tasks:
- (1) Very High Frequency (VHF) Communication Deactivation.
 - (2) Very High Frequency (VHF) Communication Activation.

TASK 23-12-00-040-801

2. **Very High Frequency Communication - Deactivation**

(Figure 201)

A. **General**

- (1) This procedure removes electrical power to the VHF Communications system.

B. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

D. **Procedure**

NOTE: The airplane will have dual or triple VHF transceivers installed. Reference the airplane wire diagram manual.

SUBTASK 23-12-00-860-027

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-00-010-002

- (2) Open this access panel:

Number **Name/Location**

117A Electronic Equipment Access Door

SUBTASK 23-12-00-710-010

- (3) Push and release the TEST switch on the applicable VHF communication transceiver front panel to do the BITE test for each VHF communication system (VHF-1, VHF-2, or VHF-3).
 - (a) Make sure none of the lights on the front panel come on.

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E. Very High Frequency Communication - Tryout

NOTE: This tryout is to make sure the VHF communications system is in a zero energy state.

SUBTASK 23-12-00-860-028

- (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>
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

———— END OF TASK ————

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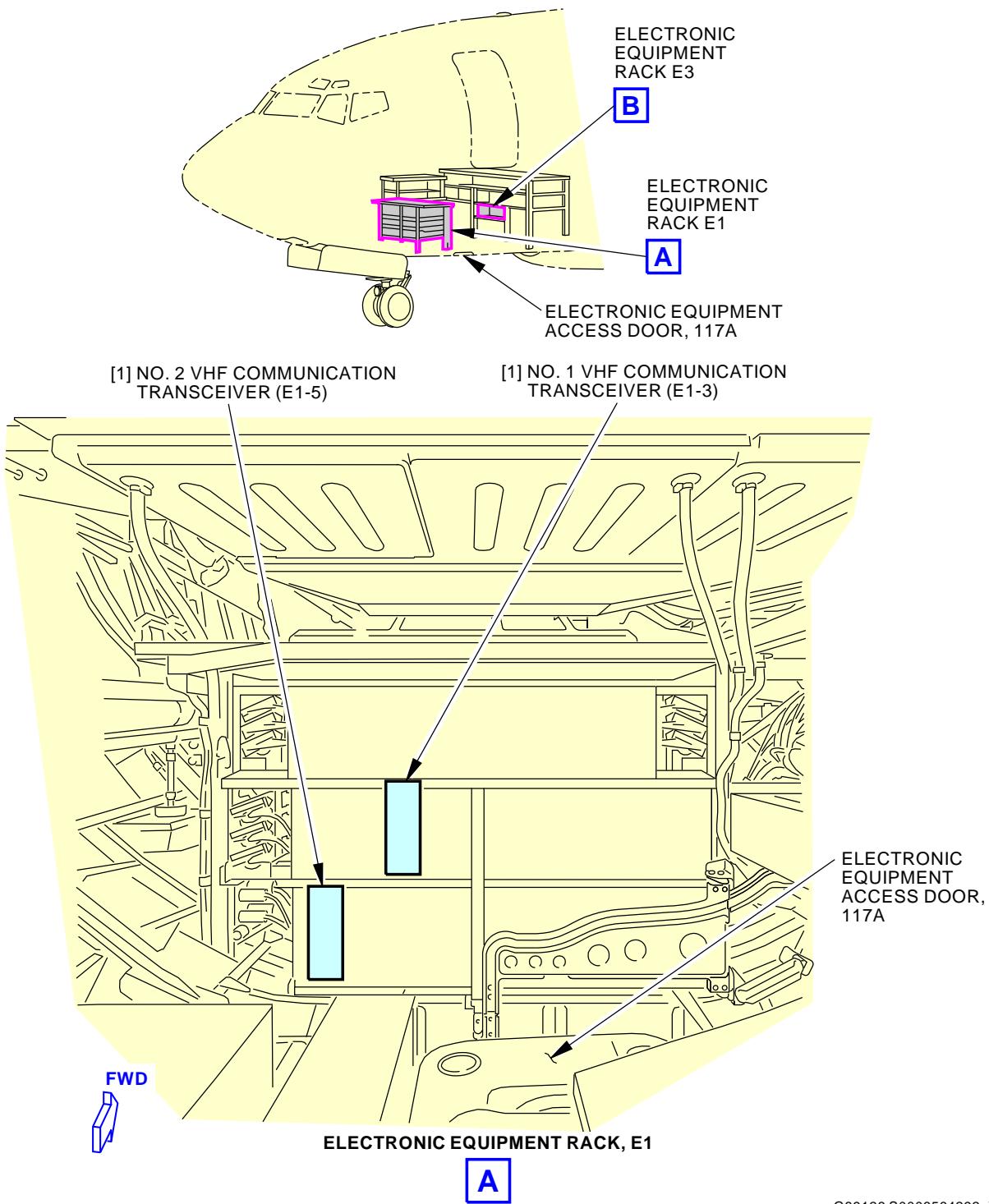
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G89126 S0006564292_V3

VHF Communication Transceiver
Figure 201/23-12-00-990-801 (Sheet 1 of 2)

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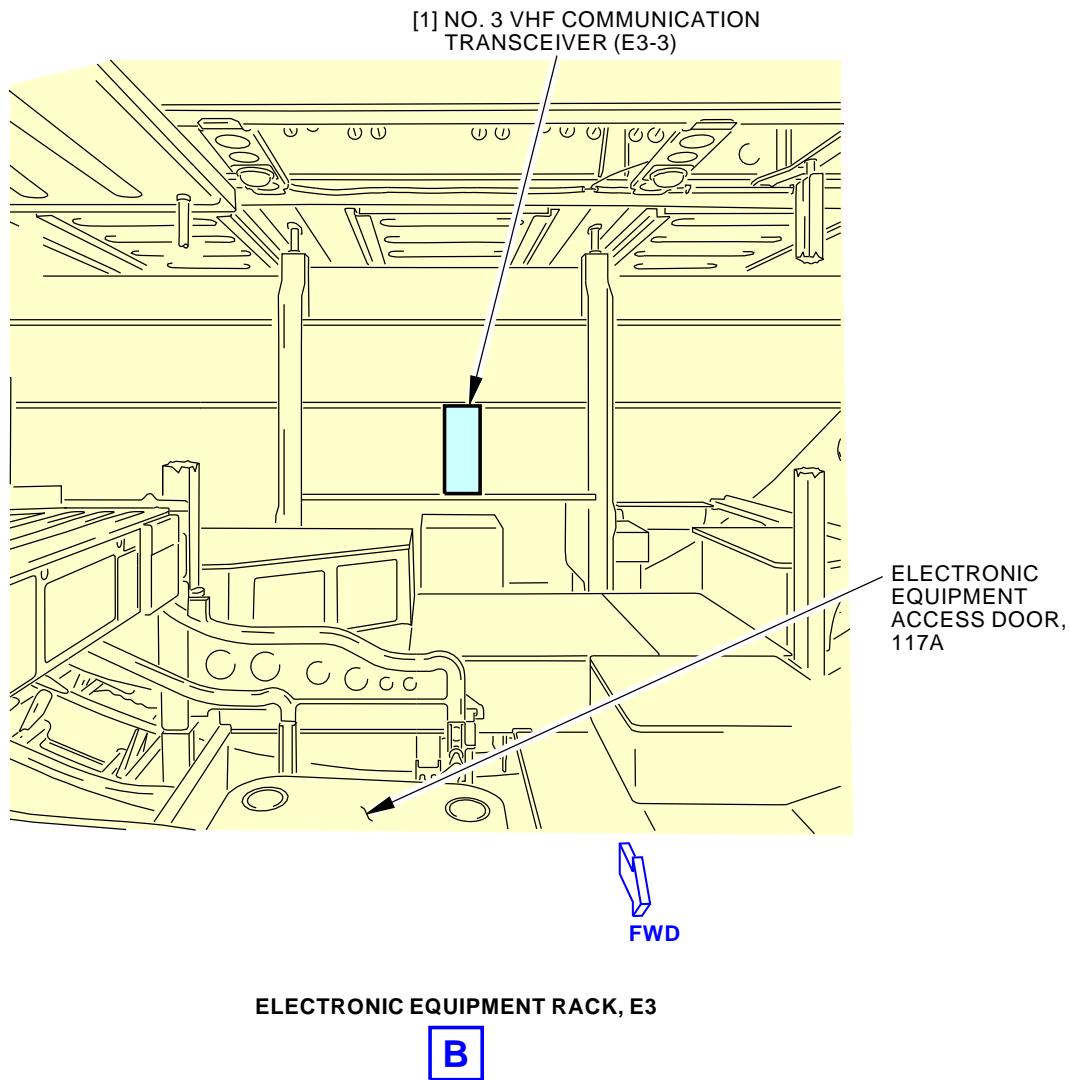
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G89318 S0006564293_V3

VHF Communication Transceiver
Figure 201/23-12-00-990-801 (Sheet 2 of 2)

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TASK 23-12-00-440-801

3. Very High Frequency Communication - Activation

(Figure 201)

A. General

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

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

WARNING: KEEP ALL PERSONNEL AT A SAFE DISTANCE FROM THE ANTENNA. RF ENERGY CAN CAUSE INJURIES TO PERSONNEL.

SUBTASK 23-12-00-860-030

NOTE: The airplane will have dual or triple VHF transceivers installed. Reference the airplane wire diagram manual.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

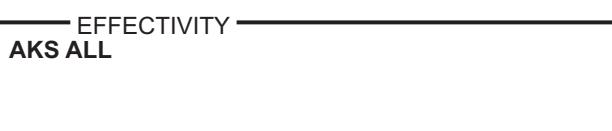
SUBTASK 23-12-00-860-031

- (2) Close this access panel:

Number **Name/Location**

117A Electronic Equipment Access Door

———— END OF TASK ————



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VERY HIGH FREQUENCY (VHF) COMMUNICATION SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has these tasks:
 - (1) An Operational Test of the VHF communication transceiver.
 - (2) A System Test of the VHF communication system.
- B. There are three VHF communication systems installed on the airplane. These are: VHF-1, VHF-2, and VHF-3.
- C. The No. 1, No. 2, and No. 3 radio tuning panels (RTPs) are located on the aft electronic panel, P8, in the flight compartment.

TASK 23-12-00-710-801

2. VHF Communication System - Operational Test

A. General

- (1) The operational test is a BITE test of the VHF communication transceiver.
 - (a) The BITE test does a check of the internal functions of the VHF communication transceiver. The BITE test also does a check of the ARINC 429 frequency tuning input data to the VHF communication transceiver.
 - (b) The same sequence of steps is used for the No. 1, No. 2, or No. 3 VHF communication system.
 - (c) The operational test is a quick test that makes sure the VHF transceiver is functional.

B. References

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

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Procedure

SUBTASK 23-12-00-860-001

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

SUBTASK 23-12-00-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	10	C00284	PANEL & INSTR ELEX PANEL

SUBTASK 23-12-00-010-001

- (3) Open this access panel:

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

SUBTASK 23-12-00-710-007

NOTE: Before you do the BITE test, make sure that VHF-3 is in the voice mode (a voice frequency shows in the active (left) display of the RTP).

- (4) Push and release the TEST switch on the applicable VHF communication transceiver front panel to do the BITE test for each VHF communication system (VHF-1, VHF-2, or VHF-3).

- (a) Make sure these conditions occur:

- 1) All three LEDs on the VHF transceiver front panel turn red for about two seconds.
- 2) The LRU STATUS LED turns green and the CONTROL FAIL and ANTENNA FAIL LEDs remain red for about two seconds.
- 3) All three LEDs go off for about five seconds.
- 4) The LRU STATUS LED comes on green for about 30 seconds and the CONTROL FAIL and ANTENNA FAIL LEDs remain off.

NOTE: Any of the three LEDs that come on red after the self-test is completed indicates a defective condition.

F. Put the Airplane Back to Its Initial Condition

SUBTASK 23-12-00-410-001

- (1) Close this access panel:

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

SUBTASK 23-12-00-860-006

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

———— END OF TASK ————

TASK 23-12-00-730-801

3. VHF Communication System - System Test

A. General

- (1) This task includes these tests:
 - (a) A BITE Test
 - (b) An RTP to RTP Interface Test
 - (c) A VHF Communication Test.

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- (2) Make sure the flight interphone system operates. The communication test uses these flight interphone system components: audio control panels (ACPs), headsets, microphones, and push-to-talk (PTT) switches.
- (3) Make sure the airplane is not in or near any large metal structures. VHF communication while the airplane is on the ground can be degraded by airplane position or blocked by RF signal attenuation due to ground equipment and structures. If the quality of the transmitted and received voice signals is not satisfactory, move the airplane to a better position.
- (4) Make sure you use approved test frequencies when you speak with the radio tower operator.

B. References

Reference	Title
23-27-00-700-812-009	ACARS - System 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)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 23-12-00-860-007

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

SUBTASK 23-12-00-860-009

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	10	C00284	PANEL & INSTR ELEX PANEL

SUBTASK 23-12-00-860-023

- (3) If necessary, do these steps to change from Data to Voice:

- (a) Push the applicable VHF key on RTP-1 (or, on RTP-2) on the P8 panel.
- (b) Tune the applicable RTP to display "DATA" in the active window.
- (c) Push the display transfer button on the RTP.
- (d) Make sure that "DATA" is in the standby window of the RTP.

SUBTASK 23-12-00-860-024

- (4) If necessary, do these steps to change from Voice to Data:

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- (a) Push the display transfer button on the RTP.
- (b) Make sure that "DATA" toggles from the standby display to the active display on the RTP.

SUBTASK 23-12-00-860-025

- (5) If necessary, do these steps to change back from Data to Voice:
 - (a) Push the display transfer button on the RTP.
 - (b) Make sure that "DATA" toggles from the active display to the standby display on the RTP.

E. BITE Test

SUBTASK 23-12-00-710-003

- (1) Do this task: VHF Communication System - Operational Test, TASK 23-12-00-710-801.

F. RTP to RTP Interface Test

SUBTASK 23-12-00-730-003

- (1) Do these steps at the radio tuning panels (RTPs):
 - (a) Push the VHF-1 switch on each RTP.
 - 1) Make sure that all RTPs show the same ACTIVE and STANDBY frequencies.
 - (b) Set RTP-1 to a new frequency.
 - 1) Make sure that RTP-2 and RTP-3 show the new frequency.
 - (c) Set RTP-2 to a new frequency.
 - 1) Make sure that RTP-1 and RTP-3 show the new frequency.
 - (d) Set RTP-3 to a new frequency.
 - 1) Make sure that RTP-1 and RTP-2 show the new frequency.
 - (e) Make sure the crosstuning lights are on, on all three RTPs.

NOTE: The crosstuning light is above the display transfer switch, between the frequency displays.

 - (f) Push the VHF-2 switch on RTP-2.
 - (g) Push the VHF-3 switch on RTP-3.
 - (h) Make sure the crosstuning lights are off on all three RTPs.

G. VHF Communication Test

SUBTASK 23-12-00-730-004

- (1) Do a test of the VHF-1 communication system:
 - (a) Connect a headset/boom microphone to the captain's jack panel.
 - (b) Do these steps to prepare the captain's audio control panel (ACP) for VHF-1 system operation:
 - 1) Push and release the VHF-1 switch.
 - a) Make sure the switch light comes on.
 - 2) Push and release the VHF-1 volume control.
 - a) Make sure the volume control indicator light comes on.
 - 3) Set the volume control to the middle position.
 - 4) Set the MASK/BOOM switch (if installed) to the BOOM position.
 - (c) Set the RTP-1 to an approved test frequency for VHF-1.
 - (d) Do these steps to do a voice communication test with a radio tower operator:



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- 1) Push and hold a push-to-talk (PTT) switch while you speak.
 - a) Make sure you hear the sidetone in the headset while you speak.
- 2) Release the PTT switch while you listen.
 - a) Make sure the quality of the transmitted and received voice is satisfactory.
 - b) Make sure the sound of the received voice changes when you turn the VHF-1 volume control on the captain's ACP with no change in voice quality.

SUBTASK 23-12-00-730-005

- (2) Do a test of the VHF-2 communication system:
 - (a) Connect a headset/boom microphone to the first officer's jack panel.
 - (b) Do these steps to prepare the first officer's ACP for VHF-2 system operation:
 - 1) Push and release the VHF-2 switch.
 - a) Make sure the switch light comes on.
 - 2) Push and release the VHF-2 volume control.
 - a) Make sure the volume control indicator light comes on.
 - 3) Set the volume control to the middle position.
 - 4) Set the MASK/BOOM switch (if installed) to the BOOM position.
 - (c) Set the RTP-2 to an approved test frequency for VHF-2.
 - (d) Do these steps to do a voice communication test with a radio tower operator:
 - 1) Push and hold a PTT switch while you speak.
 - a) Make sure you hear the sidetone in the headset while you speak.
 - 2) Release the PTT switch while you listen.
 - a) Make sure the quality of the transmitted and received voice is satisfactory.
 - b) Make sure the sound of the received voice changes when you turn the VHF-2 volume control on the first officer's ACP with no change in voice quality.

SUBTASK 23-12-00-730-006

- (3) Do a test of the VHF-3 communication system:
 - (a) Connect a headset/boom microphone to the captain's jack panel.
 - (b) Do these steps to prepare the captain's ACP for VHF-3 system operation:
 - 1) Push and release the VHF-3 switch.
 - a) Make sure the switch light comes on.
 - 2) Push and release the VHF-3 volume control.
 - a) Make sure the volume control indicator light comes on.
 - 3) Set the volume control to the middle position.
 - 4) Set the MASK/BOOM switch (if installed) to the BOOM position.
 - (c) Set the RTP-3 to an approved test frequency for VHF-3.
 - (d) Do these steps to do a voice communication test with a radio tower operator:
 - 1) Push and hold a PTT switch while you speak.
 - a) Make sure you hear the sidetone in the headset while you speak.
 - 2) Release the PTT switch while you listen.
 - a) Make sure the quality of the transmitted and received voice is satisfactory.

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- b) Make sure the sound of the received voice changes when you turn the VHF-3 volume control on the captain's ACP with no change in voice quality.

SUBTASK 23-12-00-730-007

- (4) To do a test of the VHF-3 communication system, do this task: ACARS - System Test, TASK 23-27-00-700-812-009

NOTE: If the VHF Link Test passes, the VHF-3 communication system is operational.

H. Put the Airplane Back to Its Initial Condition

SUBTASK 23-12-00-860-015

- (1) At each ACP, push and release the applicable VHF switches.
(a) Make sure all the switch lights go off.

SUBTASK 23-12-00-860-017

- (2) At each ACP, push and release the applicable VHF volume controls.
(a) Make sure all the volume control indicator lights go off.

SUBTASK 23-12-00-860-016

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

———— END OF TASK ————



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VHF COMMUNICATION ANTENNA - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the VHF communication antenna.
 - (2) An installation of the VHF communication antenna.
- B. The VHF communications antennas are installed at centerline on top and bottom of the fuselage (Figure 401 or Figure 402). See WDM 23-12-XX for antenna installation station numbers.

TASK 23-12-11-000-801

2. VHF Communication Antenna - Removal

(Figure 401 or Figure 402)

A. Tools/Equipment

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

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5

B. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
143	Area Below Aft Cargo Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left



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C. Removal Procedure

SUBTASK 23-12-11-860-008

- (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>
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-11-020-001

- (2) Do these steps to remove the VHF COMMUNICATION ANTENNA [1]:

- (a) Remove the ten bolts [2] that attach the VHF COMMUNICATION ANTENNA [1] to the airplane.

CAUTION: REMOVE THE AERODYNAMIC FILLET SEAL CAREFULLY WITH THE SEALANT REMOVAL TOOL. DAMAGE TO THE AIRPLANE SKIN OR THE COAXIAL CABLE CAN OCCUR.

- (b) While you hold the VHF COMMUNICATION ANTENNA [1], use a sealant removal tool, COM-2481 to break the fillet seal around the base of the antenna.

CAUTION: DO NOT PULL ON THE COAXIAL CABLE. CAREFULLY MOVE THE ANTENNA. DISCONNECT THE COAXIAL CONNECTOR. THIS WILL PREVENT DAMAGE TO THE COAXIAL CABLE.

- (c) Move the VHF COMMUNICATION ANTENNA [1] away from the airplane to get access to the coaxial connector [4] on the coaxial cable.
- (d) Disconnect the coaxial connector [4] from the VHF COMMUNICATION ANTENNA [1] and remove the antenna.

NOTE: For the top VHF COMMUNICATION ANTENNA [1], make sure the coaxial connector [4] does not go back through the hole in the fuselage. Make sure you attach the coaxial connector [4] to something to prevent this.

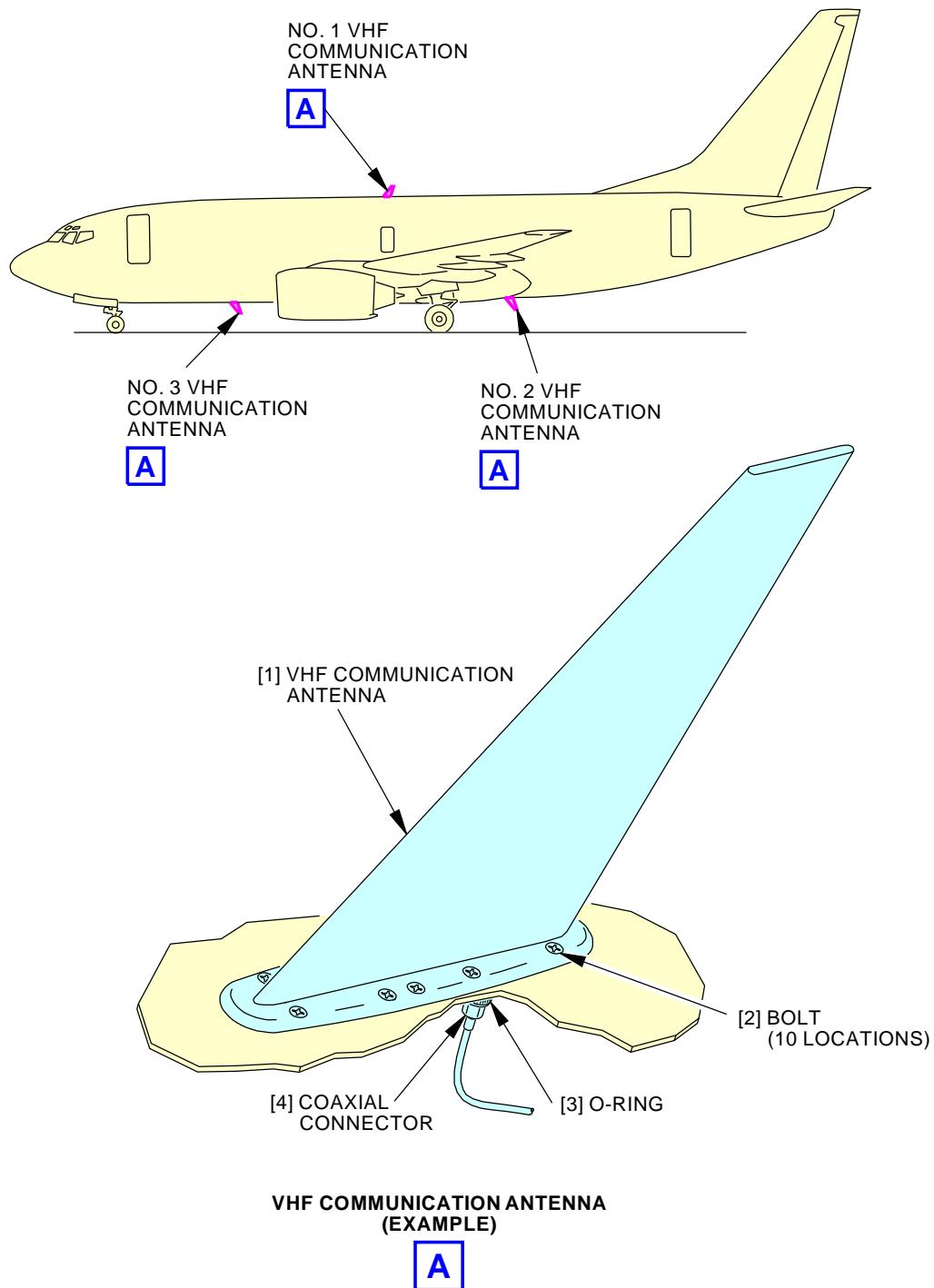
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VHF Communication Antenna Installation
Figure 401/23-12-11-990-801

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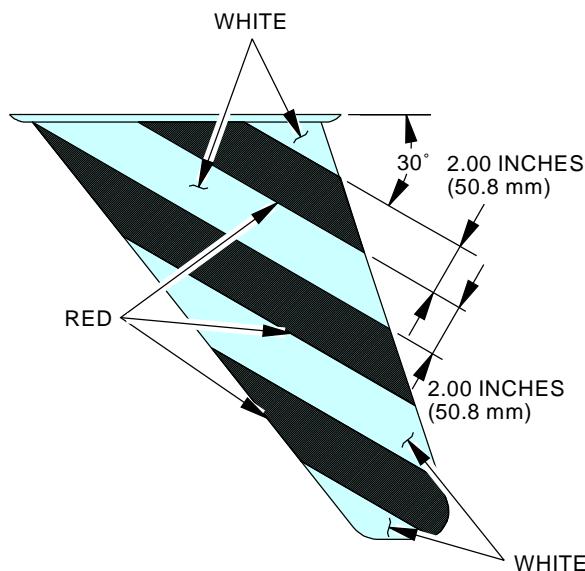
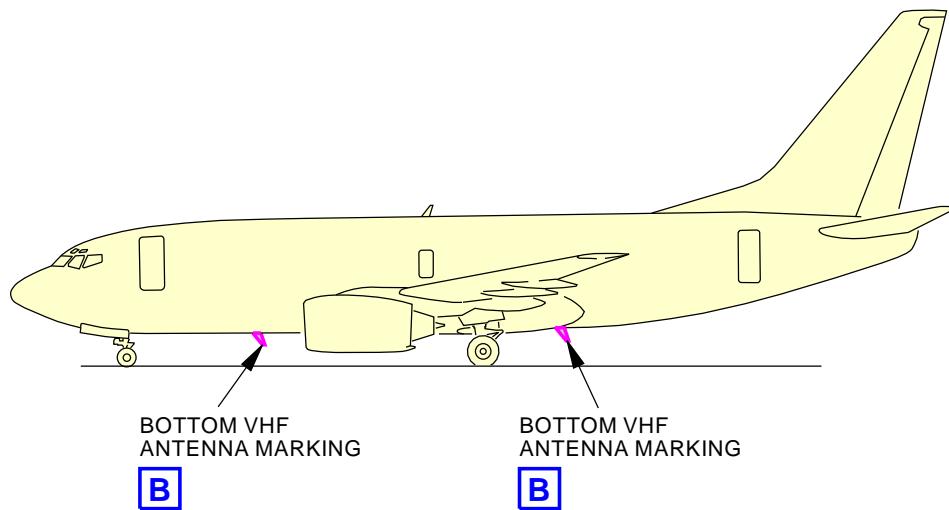
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BOTTOM VHF ANTENNA MARKING
(PAINT STRIPES, EXAMPLE)

B

1307404 S0000224038_V2

VHF Communication Antenna Installation
Figure 402/23-12-11-990-803

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TASK 23-12-11-400-801

3. VHF Communication Antenna - Installation

(Figure 401 or Figure 402)

A. References

Reference	Title
20-10-17-400-801	O-Rings Installation (P/B 401)
23-12-00-730-801	VHF Communication System - System 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)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations
SWPM 20-20-00	Electrical Bonding Processes

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding 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

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(Continued)

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01026	Solvent - FCC-55	
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
C00033	Coating - Protective Enamel, Flexibility Use	BMS10-60 Type II
C50005	Coating - Chemical Conversion - Alodine 1200S	
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50316	Cloth - Clean, Dry, Lint-free, White, Cotton	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	VHF COMMUNICATION ANTENNA	23-12-11-01-010	AKS ALL
		23-12-11-01-035	AKS ALL
		23-12-11-01-165	AKS ALL



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E. Location Zones

Zone	Area
123	Forward Cargo Compartment - Left
143	Area Below Aft Cargo Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left

F. Prepare for the Installation

SUBTASK 23-12-11-860-006

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-11-100-002

- (2) Clean the airplane mating surface:

- (a) Remove sealant with a sealant removal tool, COM-2481.

WARNING: DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE. OBEY THE MATERIAL SAFETY DATA SHEETS (MSDS) FOR SOLVENTS. OBEY LOCAL REGULATIONS FOR THE CORRECT PROCEDURES TO USE OR DISCARD SOLVENTS. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (b) Clean the airplane mating surface with a cotton wiper, G00034 that is moist with solvent, B00148, solvent, B00666, solvent, B00184, FCC-55 solvent, B01026, or solvent, B01054.
(c) Use a clean cotton wiper, G00034 and clean the airplane mating surface again.
(d) Do these two steps above until the airplane mating surface is clean and dry.

SUBTASK 23-12-11-100-003

- (3) If the mating surface has corrosion or other damage, or if the airplane mating surface has no alodine, then do these steps to prepare the airplane mating surface:

NOTE: An alternative installation procedure is to apply corrosion inhibiting compound, G00009 on an airplane mating surface that has no alodine.

- (a) If there is corrosion, then, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.
(b) Apply a layer of Alodine 1200S coating, C50005 to the airplane mating surface. To apply the alodine, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802.

SUBTASK 23-12-11-420-001

- (4) To install a new O-ring [3], do this task: O-Rings Installation, TASK 20-10-17-400-801.

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- (a) Make sure the O-ring [3] is aligned correctly in the O-ring groove.

G. Installation Procedure

SUBTASK 23-12-11-420-002

- (1) Do these steps to install the VHF COMMUNICATION ANTENNA [1]:
(a) Connect the coaxial connector [4] to the VHF COMMUNICATION ANTENNA [1].
(b) Apply a layer of sealant, A00247 to the shank and threads of 9 of the 10 bolts [2].
(c) Put the VHF COMMUNICATION ANTENNA [1] in its position and install 9 of the 10 bolts [2].

NOTE: Leave one of the 10 bolts [2] out to do an electrical bond check.

SUBTASK 23-12-11-700-001

- (2) Measure the resistance between the VHF COMMUNICATION ANTENNA [1] base and the airplane skin with a intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00).
NOTE: Use the empty bolt hole to get access to the VHF COMMUNICATION ANTENNA [1] base.

- (a) Make sure the resistance is 0.001 ohm or less.

SUBTASK 23-12-11-420-003

- (3) Apply a layer of sealant, A00247 to the shank and threads of the last bolt [2].
(a) Install the last bolt [2].

SUBTASK 23-12-11-390-001

- (4) Apply sealant, A00247 around the base of the VHF COMMUNICATION ANTENNA [1] to make a corrosion fillet seal. To apply the sealant, do this task: Fillet Seal Application, TASK 51-31-00-390-804.

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

SUBTASK 23-12-11-860-007

- (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>
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

H. VHF Communication Antenna Markings (Optional)

NOTE: Figure 401 or Figure 402 shows an example of caution markings for the bottom VHF antenna. Caution markings for the upper VHF antenna are the same. Follow airline requirements for VHF antenna marking. Color and pattern can be different.

SUBTASK 23-12-11-100-006

- (1) Clean the surface of the VHF antenna with solvent, B00148 and a clean, dry cotton cloth, G50316.



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SUBTASK 23-12-11-370-001

CAUTION: DO NOT USE METAL-BASED PAINT, OR METALLIC TAPE ON THE VHF ANTENNA. A HIGH VSWR WILL OCCUR. THIS CAN CAUSE DAMAGE TO THE VHF COMM TRANSCEIVER.

- (2) If applicable, apply paint stripes on the bottom or top VHF antenna:
 - (a) Use the coating, C00033, Enamel or equivalent to apply paint stripes as shown in Figure 401 or Figure 402.

I. Installation Test

SUBTASK 23-12-11-860-004

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

SUBTASK 23-12-11-730-001

- (2) Do this task: VHF Communication System - System Test, TASK 23-12-00-730-801.

J. Put the Airplane Back to Its Initial Condition

SUBTASK 23-12-11-860-005

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

———— END OF TASK ————

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VHF COMMUNICATION TRANSCEIVER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the VHF communication transceiver.
 - (2) An installation of the VHF communication transceiver.
- B. The No. 1, No. 2, and No. 3 VHF communication transceivers are located in the main equipment center. The No. 1 and No. 2 VHF communication transceivers are installed on the electronic equipment rack E1. The No. 3 VHF communication transceiver is installed on the electronic equipment rack E3.

TASK 23-12-21-020-801

2. VHF Communication Transceiver - Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Removal Procedure

SUBTASK 23-12-21-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-21-010-001

- (2) Open this access panel:

Number Name/Location

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

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SUBTASK 23-12-21-020-001

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

- (3) Before you touch the VHF COMM TRANSCEIVER [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-12-21-020-002

- (4) To remove the VHF COMM TRANSCEIVER [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

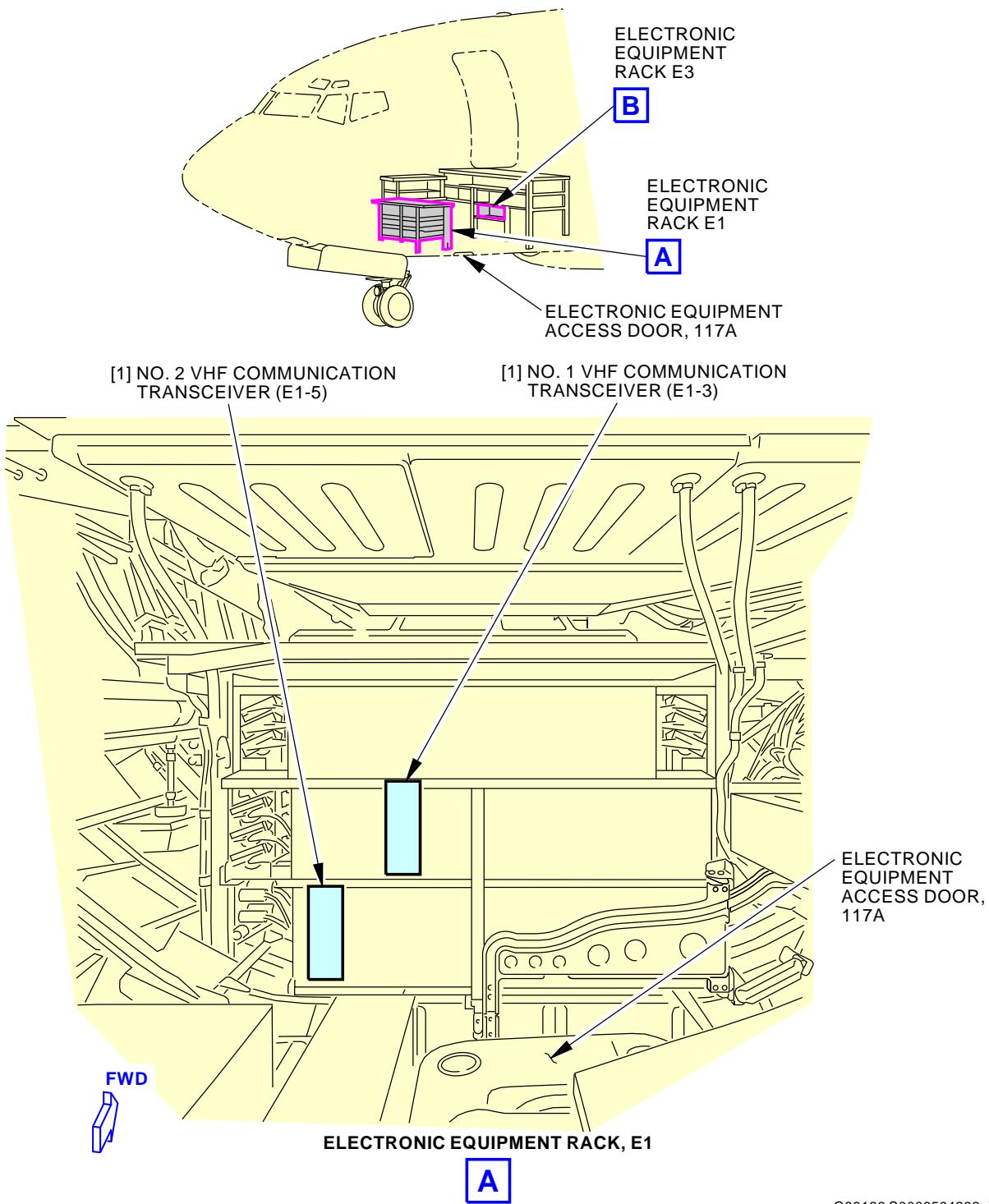
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EFFECTIVITY
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VHF Communication Transceiver Installation
Figure 401/23-12-21-990-801 (Sheet 1 of 2)

EFFECTIVITY
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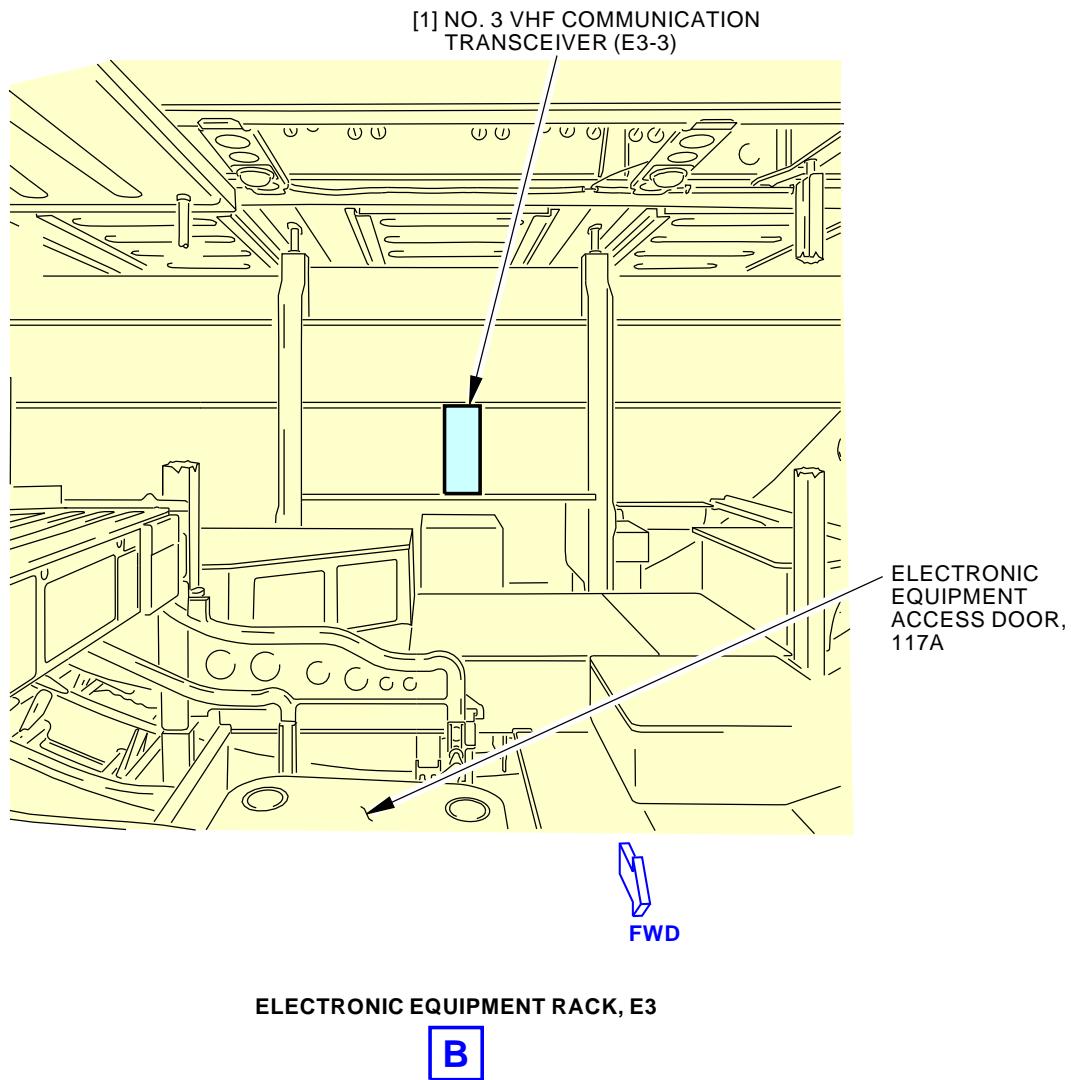
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G89318 S0006564293_V3

VHF Communication Transceiver Installation
Figure 401/23-12-21-990-801 (Sheet 2 of 2)

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TASK 23-12-21-420-801

3. VHF Communication Transceiver - Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
23-12-00-710-801	VHF Communication System - Operational Test (P/B 501)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	VHF COMM TRANSCEIVER	23-12-21-06-005 23-12-21-07-005	AKS ALL AKS ALL

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Installation Procedure

SUBTASK 23-12-21-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-21-420-001

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

- (2) Before you touch the VHF COMM TRANSCEIVER [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 23-12-21-420-002

- (3) To install the VHF COMM TRANSCEIVER [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.



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SUBTASK 23-12-21-860-003

- (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>
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F. Installation Test

SUBTASK 23-12-21-860-004

- (1) Do this task: VHF Communication System - Operational Test, TASK 23-12-00-710-801.

G. Put the Airplane Back to Its Initial Condition

SUBTASK 23-12-21-410-002

- (1) Close this access panel:

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

SUBTASK 23-12-21-860-005

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

———— END OF TASK ————



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RADIO TUNING PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the radio tuning panel.
 - (2) An installation of the radio tuning panel.
 - (3) Radio Tuning Panel - INOP Display Toggle.
- B. The No. 1, No. 2, and No. 3 radio tuning panels (RTPs) are located on the aft electronic panel, P8, in the flight compartment.

TASK 23-12-41-000-801

2. Radio Tuning Panel (RTP) - Removal

(Figure 401)

A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

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

C. Removal Procedure

SUBTASK 23-12-41-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-41-860-002

- (2) Rotate the PANEL BRIGHT control on the aft electronic panel, P8, to the OFF position.

SUBTASK 23-12-41-020-001

CAUTION: CLEARLY IDENTIFY THE CONNECTOR FOR THE RTP POSITION (NO. 1, NO. 2 OR NO. 3) DURING REPLACEMENT. THERE IS A CROSS CONNECTION POSSIBILITY DURING INSTALLATION.

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

- (3) Before you touch the RTP [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

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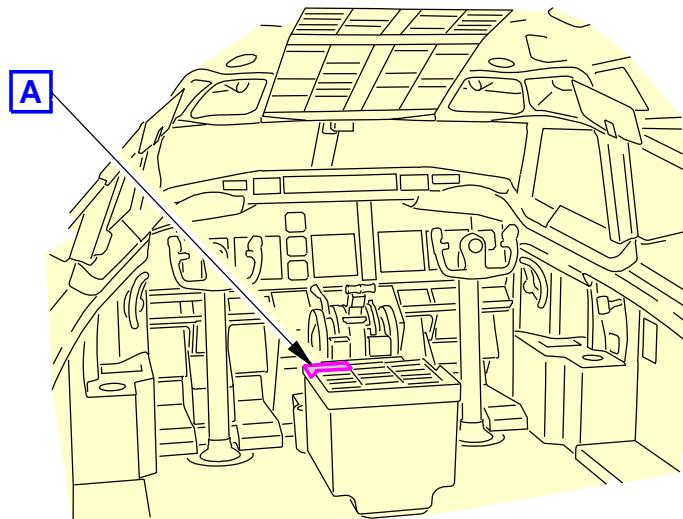
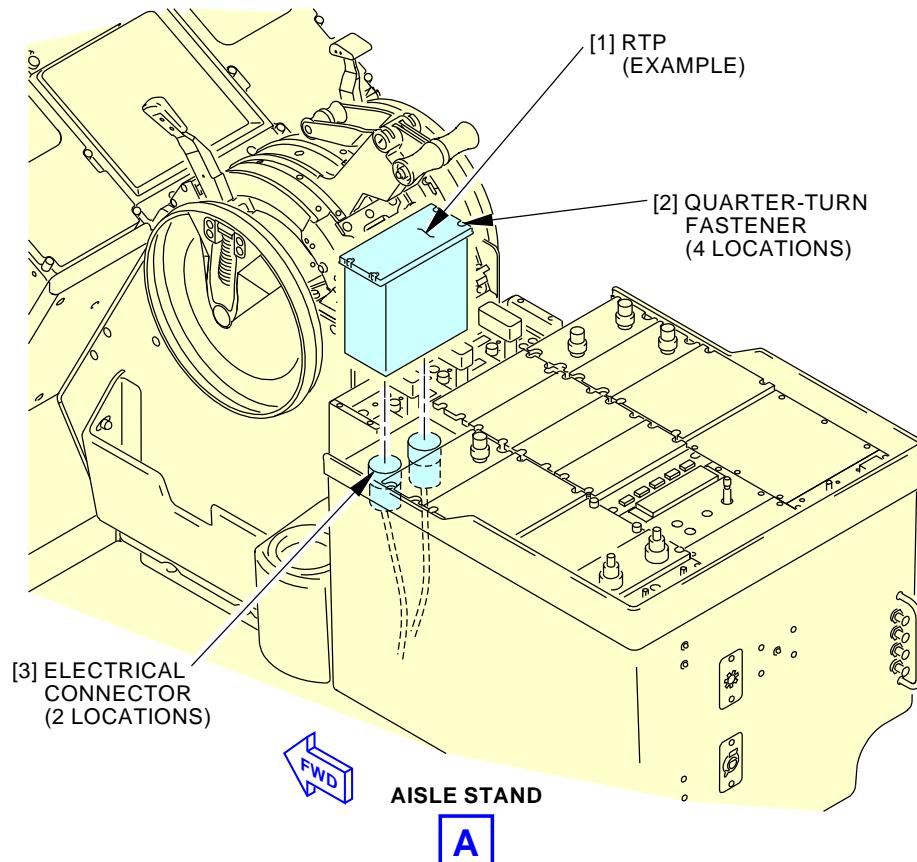
SUBTASK 23-12-41-020-002

- (4) Do these steps to remove the RTP [1]:
- (a) Loosen the four quarter-turn fasteners [2].
 - (b) Carefully lift the RTP [1] from the P8 panel to get access to the two electrical connectors [3].
 - (c) Disconnect the two electrical connectors [3].
 - (d) To install protective covers on the two electrical connectors [3], do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

———— END OF TASK ————

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AKS ALL

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**FLIGHT COMPARTMENT**

G89424 S0006564303_V3

Radio Tuning Panel (RTP) Installation
Figure 401/23-12-41-990-801

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TASK 23-12-41-400-801

3. Radio Tuning Panel (RTP) - Installation

(Figure 401)

A. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Conductor Cover Removal (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	RTP	23-12-41-06F-010	AKS ALL

C. Location Zones

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

D. Installation Procedure

SUBTASK 23-12-41-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-41-420-001

CAUTION: CLEARLY IDENTIFY THE CONNECTOR FOR THE RTP POSITION (NO. 1, NO. 2 OR NO. 3) DURING REPLACEMENT. THERE IS A CROSS CONNECTION POSSIBILITY DURING INSTALLATION.

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

- (2) Before you touch the RTP [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 23-12-41-420-002

- (3) Do these steps to install the RTP [1]:

- (a) To remove the protective covers from the two electrical connectors [3], do this task: Conductive Dust Cap and Conductor Cover Removal, TASK 20-40-12-000-804.
- (b) Examine the two electrical connectors [3] for bent or broken pins, dirt, and damage.
- (c) Connect the two electrical connectors [3].
- (d) Put the RTP [1] in its position on the P8 panel.



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- (e) Tighten the four quarter-turn fasteners [2].

SUBTASK 23-12-41-860-013

- (4) For the RTP that you installed:

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	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-41-860-016

- (5) Make sure that the two circuit breakers for the other RTPs are open.

NOTE: You will close one circuit breaker at a time to do a check for a cross connection.

E. Installation Test

SUBTASK 23-12-41-860-005

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

SUBTASK 23-12-41-860-006

- (2) Rotate the PANEL BRIGHT control on the P8 panel to the midrange position.

- (a) Make sure the back-lighting intensity of the RTP [1] changes.

SUBTASK 23-12-41-860-018

WARNING: DO NOT OPERATE THE HF COMMUNICATION SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. AN EXPLOSION CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING: MAKE SURE PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF COMMUNICATION TRANSMITS. RF ENERGY FROM THE HF COMMUNICATION ANTENNA CAN CAUSE INJURIES TO PERSONS.

- (3) Use the new RTP to set a VHF communication system or HF communication system to a test frequency.

SUBTASK 23-12-41-860-019

- (4) Make sure the VHF or HF communication operates satisfactorily.

SUBTASK 23-12-41-860-020

- (5) Remove the DO-NOT-CLOSE tag and close the circuit breaker for one of the other RTP's:

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	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3



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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

SUBTASK 23-12-41-860-021

- (6) Use the applicable RTP to set a VHF or HF communication system to a test frequency.

SUBTASK 23-12-41-700-001

- (7) Make sure the VHF or HF communication system operates satisfactorily.

SUBTASK 23-12-41-860-022

- (8) Remove the DO-NOT-CLOSE tag and close the last circuit breaker.

F. Put the Airplane Back to Its Initial Condition

SUBTASK 23-12-41-860-007

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

————— END OF TASK ————

TASK 23-12-41-800-802

4. Radio Tuning Panel - INOP Display Toggle

A. General

- (1) You can use this procedure to set or remove INOP from RTP ACTIVE/STANDBY frequency displays. If the RTP frequency displays are normal, this procedure will change the displays to show INOP. If the RTP frequency displays show INOP, this procedure will change the frequency displays to normal.

NOTE: For airplanes with the Gables G7404-04 RTP installed, there is a known software problem that causes INOP to show, even though the INOP pin option is not enabled. This procedure can be used to remove the INOP indication for those airplanes. Boeing recommends that the G7404-04 be replaced by the G7404-24 or G7404-124 panel at the airlines convenience.

- (2) If a communication system is not installed, you can use this procedure to set the RTP to INOP for the applicable communication system.
- (a) For Gables P/N G7404-0X, the RTP can be set to show INOP for VHF1, VHF2, VHF3, HF1 or HF2.
 - (b) For Gables P/N G7404-2X or G7404-12X, the RTP can be set to show INOP only for VHF3, HF1 or HF2.
 - (c) When the display for a communication system is changed in one RTP, the display of all RTP's will be changed for that communication system.
 - (d) If this procedure is used to set frequency displays from INOP to normal, a communication system failure will change (toggle) the applicable communication system to FAIL or back to INOP.
 - (e) When RTP frequency displays show INOP, the set communication system is not on or not installed.
 - (f) When RTP frequency displays show FAIL, the set communication system has failed.
 - (g) When RTP frequency displays show PANEL FAIL, there is a problem in the RTP, not in a communication system. The RTP self test failed.

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B. Location Zones

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

C. Radio Tuning Panel - Display Toggle Procedure

SUBTASK 23-12-41-860-023

- (1) Do these steps:

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1
D	12	C00471	COMMUNICATIONS VHF 3

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

- (b) Push the RTP-1 Radio Tuning switch (VHF1, VHF2, VHF3, HF1 or HF2) for the communication system displays to be changed.
- (c) Push the same Radio Tuning switch on RTP-2 (VHF1, VHF2, VHF3, HF1 or HF2).
- (d) Push the same Radio Tuning switch on RTP-3 (if installed) (VHF1, VHF2, VHF3, HF1 or HF2).
- (e) Open this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1

- (f) Wait a minimum of 5 seconds.
- (g) Push and hold down the RTP-1 Frequency Transfer switch.
- (h) Push and hold down the RTP-1 Radio Tuning switch (VHF1, VHF2, VHF3, HF1 or HF2) for the communication system displays to be changed.
- (i) While still holding the Frequency Transfer switch and Radio Tuning system switch on RTP-1,

Close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1

- (j) Make sure RTP-1, RTP-2, and RTP-3 (if installed) displays have changed (toggled).
- (k) Release the RTP-1 Frequency Transfer switch.
- (l) Release the Radio Tuning switch (VHF1, VHF2, VHF3, HF1 or HF2).

———— END OF TASK ————



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EMERGENCY LOCATOR TRANSMITTER SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has this task:
- (1) ELT Programming

TASK 23-24-00-860-801

2. ELT Programming

A. General

- (1) This procedure is for re-programming of the ELT with Aircraft 24-bit ID version of Standard Location Protocol. Use this procedure if the aircraft ID (or 24-bit ICAO aircraft address code) has changed as due to a change of aircraft registry or ownership.
- (2) This procedure includes the steps to set the DIP switches on the ELT system's Program Switch Module (PSM), M2115. The PSM is located at approximate STA 794, on the side of the ELT mounting tray.
- (3) The 24-bit ICAO aircraft address transmitted by the ELT is set by the DIP switches on PSM, M2115. The first bit of the address corresponds to Switch 1 and so on sequentially through bit 24.
- (4) For the DIP switch to be operational, the AIM cannot contain a code. A compatible AIM will be labeled "PROTOCOL: NULL M1".
- (5) If the ELT is going to be moved to an aircraft which is registered in a country other than the country for which the ELT was originally programmed, the ELT must be re-registered and the product label remarked to reflect the new country of registry. Contact your ELT supplier for details of marking and reprogramming.

B. References

Reference	Title
23-24-00-730-802-002	ELT System - System Test (P/B 501)
WDM 23-24-11	Wiring Diagram Manual

C. Tools/Equipment

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

Reference	Description
COM-1913	Test Set - NAV/COMM Ramp Part #: IFR 4000 Supplier: 51190 Part #: T-30D Supplier: 92606 Part #: T-36C Supplier: 92606 Opt Part #: 402AP-110 Supplier: 51190 Opt Part #: 972Q-4 Supplier: 4V792 Opt Part #: NAV-402AP-2 Supplier: 51190 Opt Part #: T-30C Supplier: 92606
COM-14303	Adapter - Coax (TNC to BNC) Part #: RFT1230 Supplier: 0Z3C6

D. Location Zones

Zone	Area
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left

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(Continued)

Zone Area

242 Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

E. Procedure

SUBTASK 23-24-00-010-010

- (1) Do these steps to get access to the DIP switches [6] on the PSM [1]:
 - (a) Open the applicable access panel to get access to the PSM [1] for the ELT system.
 - (b) Loosen the two captive screws [4] and washers [5] to remove the security cover [3] from the PSM [1].
 - (c) Remove the switch seals to get access to the DIP switches [6].

SUBTASK 23-24-00-860-023

- (2) Examine the 24-bit DIP switches setting on the PSM [1].
 - (a) Make sure that the DIP switches are set correctly with the 24-bit ICAO aircraft ID.
NOTE: The PSM for the ELT system which is configured to match the PSM connected to the aircraft's Mode S transponder system.

SUBTASK 23-24-00-860-020

- (3) If the DIP switches are not set correctly, then do these steps to set the DIP switches (1 to 24) on the PSM (M2115) for the ELT system as follows:

NOTE: See WDM 23-24-11 for specific airplane DIP switches settings.

- (a) Look at the ELT coding table in WDM 23-24-11 and find the airplane you are performing this task on.
 - (b) Read across the columns (24 binary codes) to find all switch settings.
 - (c) If the aircraft registry or ownership has changed, make sure that you have the correct ICAO aircraft address (ICAO Hexadecimal or Octal address) for reprogramming the ELT.
 - 1) If necessary, use the code conversion tables below to convert the ICAO aircraft address from the Hexadecimal or Octal code to the binary code.

NOTE: See examples in Figure 201.

Hexadecimal to Binary Conversion table:

Hexadecimal	Binary
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010

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Hexadecimal to Binary Conversion table: (Continued)

Hexadecimal	Binary
B	1011
C	1100
D	1101
E	1110
F	1111

Octal to Binary Conversion Table:

Octal	Binary
0	000
1	001
2	010
3	011
4	100
5	101
6	110
7	111

- (d) Move the DIP switches [6] to the ON/OFF position according to the binary codes show in the ELT coding table of WDM 23-24-11 or the 24-Bit ICAO aircraft address.
 - For each switch where you find a “1”, set the switch to ON (red dot visible).
 - For each switch where you find a “0”, set the switch to OFF (red dot not visible).
 - 1) Make sure that all the DIP switches are set correctly.
- (e) After setting DIP switches, do these steps at the ELT unit to initiate a self-test and reprogramming of the ELT:
 - 1) Move the ELT switch from OFF to ARM (or ARM-OFF-ARM).
 - 2) Make sure that the ELT LED flashes three times. This indicates the ELT re-coding is successful.

F. ELT Coding Verification

SUBTASK 23-24-00-480-001

- (1) Do these steps to prepare the NAV/COMM ramp test set for the test:
 - (a) Do these steps to install the NAV/COMM ramp test set:

NOTE: This procedure is for using IFR 4000 NAV/COMM ramp test set. If you use an equivalent test set other than IFR 4000, please refer to the applicable operation manual of that test set for detailed user instructions.

 - 1) Disconnect the antenna coaxial cable connector D02905 from ELT.
 - 2) Use a TNC to BNC cable to connect the ELT test set to the ELT unit:
 - a) If necessary to make the cable (TNC Male to BNC Male), do these steps:
 <1> Find a test cable (TNC Male to TNC Male) that come with the test set.

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- <2> Use a coax adapter, COM-14303 (TNC Female to BNC Male) to connect with the TNC to TNC cable.
- b) Connect the TNC connector of the TNC to BNC cable to the "RF I/O" connector on the NAV/COMM ramp test set, COM-1913.
 - c) Connect the BNC connector of the TNC to BNC cable to the RF output on the ELT unit.
- (b) Prepare the test set to verify the 406 MHz message or Beacon ID:
- 1) Press the POWER button on the test set to turn it on.
NOTE: The test set will start in VOR Mode.
 - 2) Press the SETUP key on the test set.
 - 3) Press the UP arrow key on the test set to select PORT: RF I/O.
 - 4) Press the MODE key on the test set.
NOTE: VOR mode will be displayed.
 - 5) Press the UP arrow key on the test set until the 406 BCN mode page is displayed.

SUBTASK 23-24-00-720-002

- (2) Use an NAV/COMM ramp test set to verify the ELT coding (or BEACON ID):
 - (a) On the front panel of the ELT unit, move the toggle switch from "ARM" to "TX".
 - (b) Make sure that the 406 BCN screen displays message data within approximately 1 minute of the ELT activation.
 - (c) Move the operating toggle switch on the ELT from "TX" to "ARM".
 - (d) Make sure that the "BEACON ID" displayed on test set matches the "Hex ID" shown on WDM 23-24-11.
- (3) Record the following information from the test set:
 - COUNTRY: _____ (Example: 316 CANADA)
 - BEACON ID (15 digit Hex ID):
 - BEACON ID: _____ (Example: A78DF0AAAA802AD)

NOTE: The Beacon ID is always 15 hexadecimal characters. Valid characters are 0-9, A-F.

NOTE: If necessary, the "Beacon Message Decode Program" at the COSPAS-SARSAT website (<http://www.cospas-sarsat.org/index.php?lang=en>) can be used to decode the Beacon ID.

SUBTASK 23-24-00-720-003

- (4) Record the BEACON ID on the HEX ID label installed adjacent to the ELT.
NOTE: Preferred method: Use a label-maker to print an appropriately sized label to fit the HEX ID field.
Alternate method: Write neatly using a Sharpie or other fine-point permanent marker. If needed, a replacement (BAC27WEX2107) label or equivalent can be installed over existing label.
NOTE: If the ELT was re-coded, the ELT may be required to re-register through your local authority.

SUBTASK 23-24-00-080-001

- (5) Do these steps to remove the NAV/COMM ramp test set:

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- (a) Press the POWER button on the test set to turn it off.
- (b) Disconnect the test cables from the ELT unit and the test set.
- (c) Reconnect the antenna coaxial cable connector D02905 to the ELT unit.

G. ELT System Test

SUBTASK 23-24-00-710-018

- (1) Do this task: ELT System - System Test, TASK 23-24-00-730-802-002.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 23-24-00-910-027

- (1) Put the PSM [1] back to its usual condition:
 - (a) Install the two switch seals [2] to cover the DIP switches.
 - (b) Put the security cover [3] on the PSM [1]. Tighten the two captive screws [4] and washers [5] to attach the security cover [3] on the PSM [1].

SUBTASK 23-24-00-410-012

- (2) Close the access panel that opened for access to the PSM.

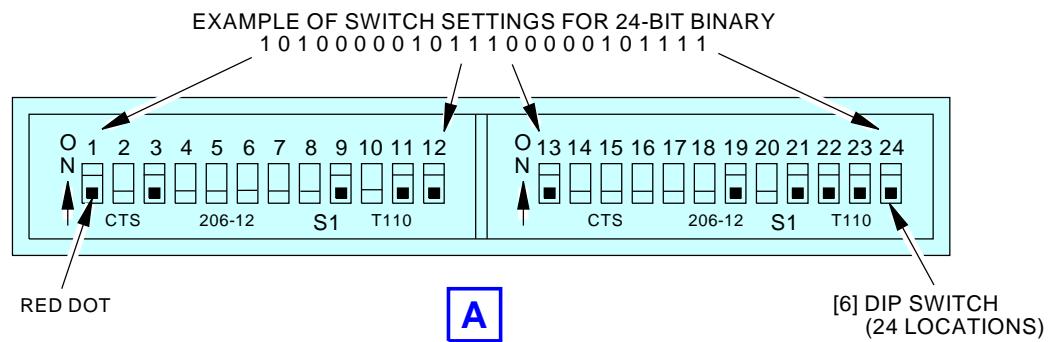
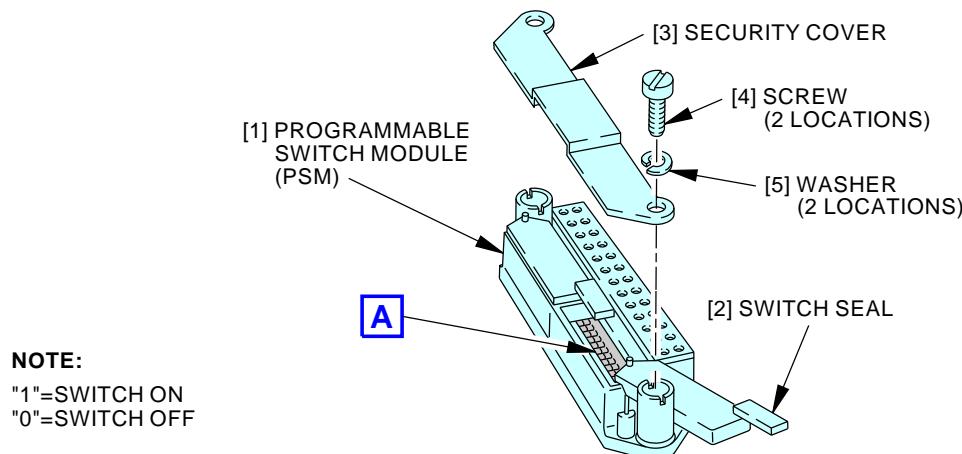
———— END OF TASK ————



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ICAO OCTAL ADDRESS TO 24 BIT BINARY															
5	0	1	3	4	0	5	7								
1	0	1	0	0	0	0	1	0	1	1	1	0	0	0	1

EXAMPLE NO. 1 CONVERTING ICAO ADDRESS 50134057 (OCTAL) TO BINARY 24-BIT ADDRESS

ICAO HEX ADDRESS TO 24 BIT BINARY															
A	0	B	8	2	F										
1	0	1	0	0	0	0	1	0	1	1	1	0	0	0	1

EXAMPLE NO. 2 CONVERTING ICAO ADDRESS A0B82F (HEXADECIMAL) TO BINARY 24-BIT ADDRESS

2321743 S0000526660_V2

ELT System - 24-Bit Aircraft Address Settings
Figure 201/23-24-00-990-807

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EMERGENCY LOCATOR TRANSMITTER - MAINTENANCE PRACTICES

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) Emergency Locator Transmitter Deactivation.
 - (2) Emergency Locator Transmitter Activation.
 - (3) A removal of the emergency locator transmitter (ELT).
 - (4) An installation of the ELT.
 - (5) A removal of the aircraft identification module (AIM).
 - (6) An installation of the AIM.

TASK 23-24-00-040-802-002

2. Emergency Locator Transmitter - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power to the Emergency Locator Transmitter (ELT).

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

C. Procedure

SUBTASK 23-24-00-860-027-002

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
F	14	C01180	INDICATOR MASTER DIM SECT 8

D. Emergency Locator Transmitter - Tryout

NOTE: This tryout is to make sure the Emergency Locator Transmitter is in a zero energy state.

SUBTASK 23-24-00-860-028-002

- (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	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
F	14	C01180	INDICATOR MASTER DIM SECT 8

SUBTASK 23-24-00-700-002-002

- (2) Toggle the switch on the front of the ELT.

- (a) Make sure that none of the LED lights come on.

———— END OF TASK ————

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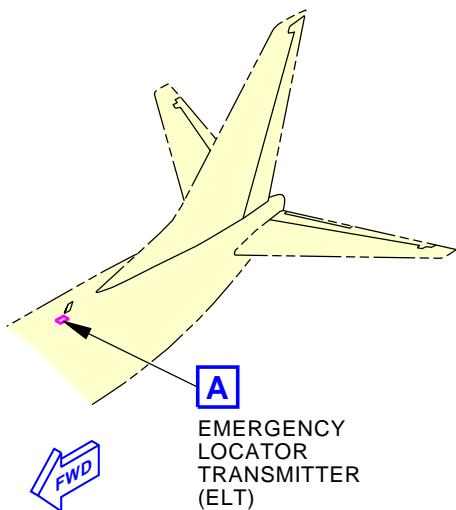
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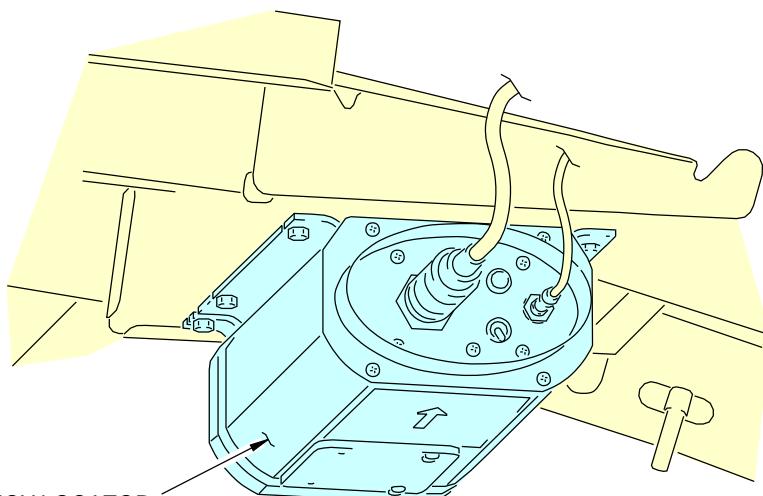
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EMERGENCY
LOCATOR
TRANSMITTER
(ELT)



EMERGENCY LOCATOR
TRANSMITTER (ELT)

EMERGENCY LOCATOR TRANSMITTER (ELT) ASSEMBLY



2381122 S0000543755_V1

Emergency Locator Transmitter
Figure 201/23-24-00-990-809-002

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TASK 23-24-00-440-802-002

3. Emergency Locator Transmitter - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Emergency Locator Transmitter.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

C. Procedure

SUBTASK 23-24-00-860-029-002

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
F	14	C01180	INDICATOR MASTER DIM SECT 8

———— END OF TASK ————

TASK 23-24-00-000-802-002

4. Emergency Locator Transmitter - Removal

(Figure 202)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
25-21-45-000-803-001	Main Ceiling Panel - Removal (P/B 401)

B. Location Zones

Zone	Area
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

C. Removal Procedure

SUBTASK 23-24-00-010-003-002

- (1) Do this task: Main Ceiling Panel - Removal, TASK 25-21-45-000-803-001.

SUBTASK 23-24-00-020-003-002

- (2) Do these steps to remove the ELT [5]:

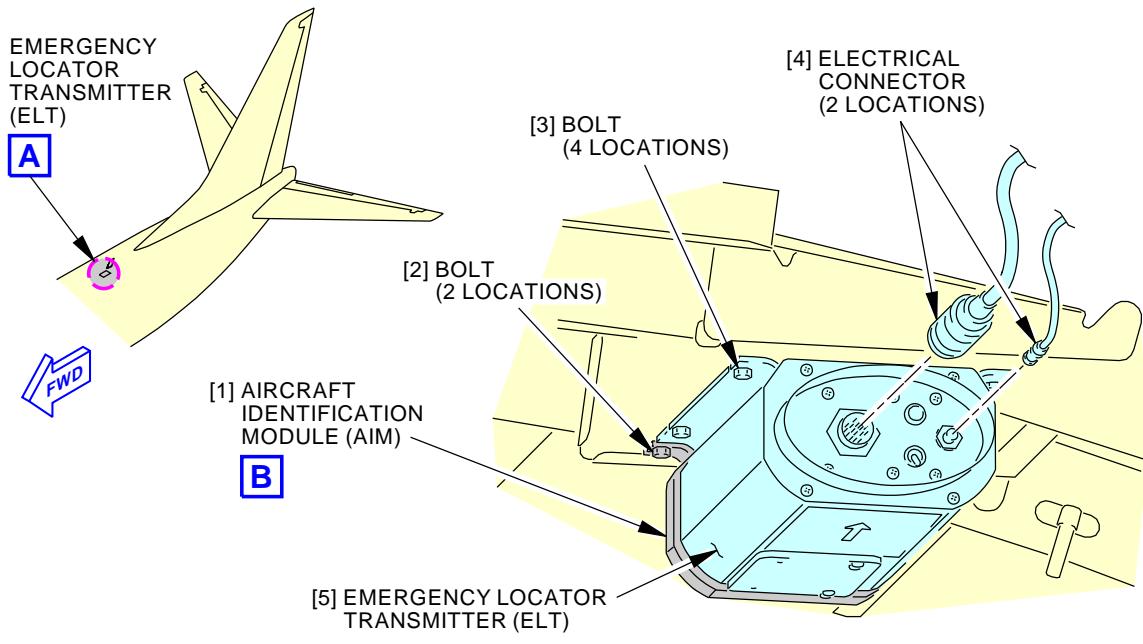
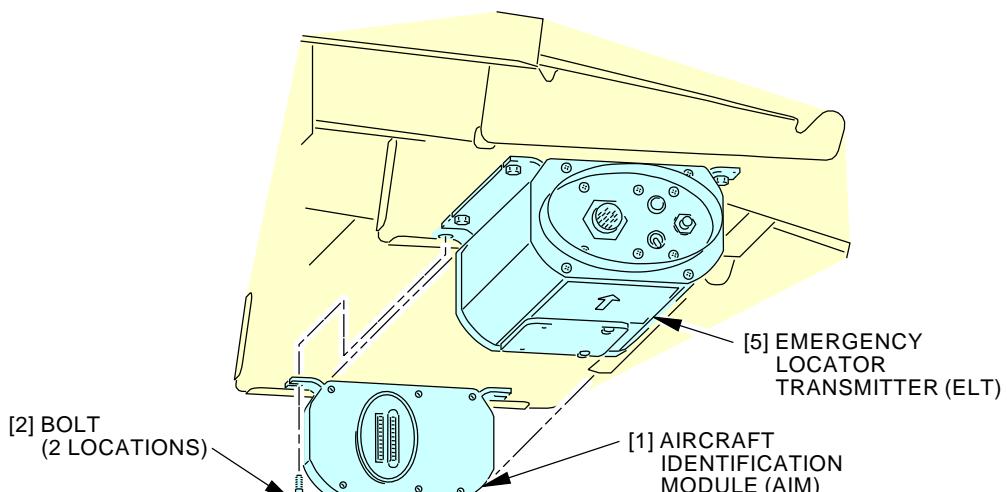
- (a) Make sure the ELT switch is in the OFF position.
- (b) Disconnect the electrical connectors [4] from the ELT front panel.
- (c) Remove the four bolts [3] that attach the ELT [5] to the airplane structure.
- (d) Move the ELT [5] forward until it disconnects from the Aircraft Identification Module.
- (e) Remove the ELT [5].

———— END OF TASK ————

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EMERGENCY LOCATOR TRANSMITTER (ELT) ASSEMBLY
A

AIRCRAFT IDENTIFICATION MODULE (AIM)
B

M44470 S0006565279_V2

**Emergency Locator Transmitter (ELT)
Figure 202/23-24-00-990-802-002**
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TASK 23-24-00-400-802-002

5. Emergency Locator Transmitter - Installation

(Figure 202)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
23-24-00-730-802-002	ELT System - System Test (P/B 501)
25-21-45-400-803-001	Main Ceiling Panel - Installation (P/B 401)

B. Location Zones

Zone	Area
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

C. Installation Procedure

SUBTASK 23-24-00-420-003-002

- (1) Do these steps to install the ELT [5]:

- (a) Make sure the ELT switch is in the OFF position.
- (b) Put the ELT [5] in its position, just forward of AIM connector.
- (c) Move the ELT aft until it connects to the AIM.
- (d) Install the four bolts [3] through the mounting slots of the ELT to attach it to the airplane structure.
- (e) Connect the electrical connectors [4] to the ELT [5].
- (f) Set the ELT switch to the ARM position.

SUBTASK 23-24-00-410-003-002

- (2) Do this task: Main Ceiling Panel - Installation, TASK 25-21-45-400-803-001.

D. ELT Installation Test

SUBTASK 23-24-00-710-003-002

- (1) Do this task: ELT System - System Test, TASK 23-24-00-730-802-002.

NOTE: It is the responsibility of the airlines to report any change in the registered ELT information to their designated registration authority.

———— END OF TASK ————

TASK 23-24-00-000-803-002

6. Aircraft Identification Module - Removal

(Figure 202)

A. References

Reference	Title
25-21-45-000-803-001	Main Ceiling Panel - Removal (P/B 401)

B. Location Zones

Zone	Area
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

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C. Removal Procedure

SUBTASK 23-24-00-010-004-002

- (1) Do this task: Main Ceiling Panel - Removal, TASK 25-21-45-000-803-001.

SUBTASK 23-24-00-020-004-002

- (2) Do these steps to remove the aircraft identification module (AIM) [1]:
- Remove the two bolts [2] that attach the AIM [1] to the airplane structure.
 - Move the AIM aft until it disconnects from the ELT [5].
 - Remove the AIM [1].

———— END OF TASK ————

TASK 23-24-00-400-803-002

7. Aircraft Identification Module - Installation

(Figure 202)

A. General

- The Aircraft Identification Module (AIM) loads the aircraft address to the ELT transmitter.
- For airplanes programmed with 24-bit Aircraft Address Protocol (AIM coding label "NULL-M1"), the AIM will read the aircraft address from the Program Switch Module (PSM). For airplanes not programmed with 24-bit Aircraft Address Protocol, the AIM must be pre-programmed before installation.

NOTE: Refer to WD's 23-24 for airplane configuration

B. References

Reference	Title
23-24-00-710-802-002	ELT System - Operational Test (P/B 501)
25-21-45-400-803-001	Main Ceiling Panel - Installation (P/B 401)

C. Location Zones

Zone	Area
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

D. Installation Procedure

SUBTASK 23-24-00-420-004-002

- (1) Do these steps to install the aircraft identification module (AIM) [1]:
- Put the AIM [1] in its position.
 - Move the AIM forward until it connects to the ELT [5].
 - Install the two bolts [2] through the mounting slots of the AIM to attach it to the airplane structure.

SUBTASK 23-24-00-410-004-002

- (2) Do this task: Main Ceiling Panel - Installation, TASK 25-21-45-400-803-001.





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E. Installation Test

SUBTASK 23-24-00-710-004-002

- (1) Do this task: ELT System - Operational Test, TASK 23-24-00-710-802-002.

NOTE: It is the responsibility of the airlines to report any change in the registered ELT information to their designated registration authority.

———— END OF TASK ——

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EMERGENCY LOCATOR TRANSMITTER - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure contains these tasks:
 - (1) An operational test of the Emergency Locator Transmitter (ELT) system.
 - (2) A system test of the ELT system.

TASK 23-24-00-710-802-002

2. ELT System - Operational Test

A. General

- (1) This task provides a procedure to do an operational test of the ELT system from the ELT control panel in the flight deck.

B. References

Reference	Title
23-12-00-730-801	VHF Communication System - System 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)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

D. Prepare Procedure

SUBTASK 23-24-00-860-005-002

- (1) Supply electrical power to the airplane (TASK 24-22-00-860-811).

SUBTASK 23-24-00-860-006-002

- (2) Set the No. 2 VHF communication system (VHF COMM 2) to a frequency of 121.5 MHz (TASK 23-12-00-730-801).

NOTE: Any VHF COMM System with a bottom mounted antenna can be used for this test. If the VHF antenna is on the top, it is possible to hear the ELT signal even though the ELT antenna has failed.

SUBTASK 23-24-00-910-011

- (3) Make sure that you do the ELT test in the first five minutes of the hour (UTC).

NOTE: Free Space Transmission Tests from the aircraft on 121.5/243 MHz are generally allowed any time within five minutes after each hour. Check your local regulations.
THERE IS NO ALLOWANCE FOR TRANSMITTING A VALID 406 MHZ MESSAGE AT ANY TIME.





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The ELT will begin transmitting on 121.5/243 MHz immediately following activation and 406 MHz distress signals approximately 50 seconds after activation. If the ELT is inadvertently kept in the ON position for longer than approximately 50 seconds, you will hear a brief interruption of the 121.5 MHz signal while the 406 MHz message is transmitted. If this occurs, then you must reset the ELT immediately and tell the local emergency authorities. This will prevent emergency search and rescue operations that are not necessary.

- (a) If you do the ELT test outside of the first five minutes of the hour (UTC), do this step:
 - 1) Speak with the local emergency authority (Air Traffic Control Tower or Flight Service Station) to let them know there will be an ELT Test Transmission on the Emergency Frequencies 121.5/243 MHz.

SUBTASK 23-24-00-910-026-002

WARNING: MAKE SURE THAT YOU FOLLOW THE LOCAL ELT OPERATION REGULATIONS. IF YOU MAKE AN ACCIDENTAL TRANSMISSION, TELL THE AUTHORITIES. THIS WILL PREVENT EMERGENCY SEARCH OPERATIONS THAT ARE NOT NECESSARY.

- (4) Follow the local ELT operation requirements.

E. ELT Operational Test at the ELT Control Panel (Pilots' overhead panel, P5)

SUBTASK 23-24-00-710-006-002

- (1) Do these steps for the ELT test at the ELT remote control panel in the flight compartment:

NOTE: If the ELT is activated accidentally, you will need to reset it. To reset the ELT, move the switch on the ELT's remote control panel to the ON position for approximately 1 second, and then move it back to the ARM position. If the switch is already in the ON position, move it to the ARM position.

CAUTION: READ ALL THE STEPS THAT FOLLOW BEFORE YOU START THE ELT TEST PROCEDURE. YOU MUST BECOME FAMILIAR WITH THE INSTRUCTIONS. MAKE SURE THAT YOU USE A TIMING DEVICE TO MONITOR THE TIME DURING THE ELT TEST. YOU MUST COMPLETE THE ELT TEST PROCEDURE IN LESS THAN 50 SECONDS. THIS WILL HELP PREVENT ACCIDENTAL ACTIVATION OF THE ELT.

- (a) Read all of the instructions below before you do the subsequent steps.
- (b) Push and hold the ELT light switch on the ELT remote control panel, P5.
 - 1) Make sure that the ELT light comes on.
- (c) Release the ELT light switch.
 - 1) Make sure that the ELT light goes off.
- (d) Push and release the MASTER CAUTION reset button on the glareshield panel, P7.
 - 1) Make sure that the MASTER CAUTION and OVERHEAD lights are off.

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CAUTION: MAKE SURE THAT YOU DO THE ELT LIVE TRANSMISSION TEST IN THE FIRST FIVE MINUTES OF THE HOURS (UTC). COORDINATE WITH THE APPLICABLE LOCAL EMERGENCY AUTHORITY (AIR TRAFFIC CONTROL TOWER OR FLIGHT SERVICE STATION) FOR THE APPROVAL OF THIS TEST IF YOU DO THIS TEST OUTSIDE OF THE FIRST FIVE MINUTES OF THE HOURS (UTC).

CAUTION: DO NOT OPERATE THE ELT FOR MORE THAN 50 SECONDS. IF YOU OPERATE THE ELT CONTINUOUSLY FOR MORE THAN 50 SECONDS, IT WILL TRANSMIT A 406-MHZ EMERGENCY SIGNAL. THE SIGNAL TELLS EMERGENCY PERSONNEL TO DO A SEARCH FOR A MISSING AIRCRAFT. IF THE EMERGENCY SIGNAL OCCURS DURING THIS TEST, IMMEDIATELY TELL THE APPLICABLE EMERGENCY PERSONNEL.

- (e) On the ELT remote control panel at the pilot overhead panel, P5, open the guard on the ELT ARM/ON switch.
- (f) Set the ELT ARM/ON switch to the ON position.
 - 1) Make sure that you hear three sweeps of the ELT signal on the VHF COMM system.
 - 2) Make sure that the ELT light comes on.
 - 3) Make sure that the MASTER CAUTION and OVERHEAD lights, on the glareshield panel P7, come on.
- (g) Push and release the MASTER CAUTION reset switch on the glareshield panel P7.
NOTE: This step is only necessary when there are other active inputs to the Master Caution system.
- (h) Set the ELT ARM/ON switch to the ARM position.
 - 1) Make sure that you do not hear the ELT signal on VHF COMM system.
 - 2) Make sure that the ELT light goes off.
 - 3) Make sure that the MASTER CAUTION and OVERHEAD lights, on the glareshield panel P7, are off.
- (i) Close the guard on the ELT ARM/ON switch on the ELT remote control panel.

F. Put the Airplanes Back to Its Usual Condition

SUBTASK 23-24-00-910-012

- (1) Tell the local emergency authority that the ELT test is completed (if applicable).

SUBTASK 23-24-00-860-009-002

- (2) Remove the electrical power if it is not necessary for other tasks (TASK 24-22-00-860-812).

———— END OF TASK ————

TASK 23-24-00-730-802-002

3. ELT System - System Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task provides a procedure to do a system test of the ELT system. The system test includes the ELT operational test at the ELT control panel in the flight deck and the ELT self-test at the ELT front panel.





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B. References

Reference	Title
23-24-00 P/B 201 Config 2	EMERGENCY LOCATOR TRANSMITTER - MAINTENANCE PRACTICES
24-22-00-860-812	Remove 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)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

D. Prepare Procedure

SUBTASK 23-24-00-910-015-002

- (1) Make sure that you do the ELT test in the first five minutes of the hour (UTC).

NOTE: Free Space Transmission Tests from the aircraft on 121.5/243 MHz are generally allowed any time within five minutes after each hour. Check your local regulations.
THERE IS NO ALLOWANCE FOR TRANSMITTING A VALID 406 MHZ MESSAGE AT ANY TIME.

The ELT will begin transmitting on 121.5/243 MHz immediately following activation and 406 MHz distress signals approximately 50 seconds after activation. If the ELT is inadvertently kept in the ON position for longer than approximately 50 seconds, you will hear a brief interruption of the 121.5 MHz signal while the 406 MHz message is transmitted. If this occurs, then you must reset the ELT immediately and tell the local emergency authorities. This will prevent emergency search and rescue operations that are not necessary.

- (a) If you do the ELT test outside of the first five minutes of the hour (UTC), do this step:
 - 1) Speak with the local emergency authority (Air Traffic Control Tower or Flight Service Station) to let them know there will be an ELT Test Transmission on the Emergency Frequencies 121.5/243 MHz.

SUBTASK 23-24-00-910-016-002

WARNING: MAKE SURE THAT YOU FOLLOW THE LOCAL ELT OPERATION REGULATIONS. IF YOU MAKE AN ACCIDENTAL TRANSMISSION, TELL THE AUTHORITIES. THIS WILL PREVENT EMERGENCY SEARCH OPERATIONS THAT ARE NOT NECESSARY.

- (2) Follow the local ELT operation requirements.

E. ELT Operational Test at the ELT Control Panel (Pilots' overhead panel, P5)

SUBTASK 23-24-00-710-015-002

- (1) Do this task: ELT System - Operational Test, TASK 23-24-00-710-802-002.

F. ELT Self-Test at the Front Panel of the ELT Unit

SUBTASK 23-24-00-730-004-002

- (1) Remove the ceiling panel to get access to the ELT (TASK 25-21-45-000-803-001).

NOTE: For the location of the ELT, refer to the ELT - Maintenance Practices procedure (PAGEBLOCK 23-24-00/201 Config 2).



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SUBTASK 23-24-00-730-005-002

- (2) Do the steps that follow to do the self-test at the ELT front panel:

CAUTION: READ ALL THE STEPS THAT FOLLOW BEFORE YOU START THE ELT TEST PROCEDURE. YOU MUST BECOME FAMILIAR WITH THE INSTRUCTIONS. MAKE SURE THAT YOU USE A TIMING DEVICE TO MONITOR THE TIME DURING THE ELT TEST. YOU MUST COMPLETE THE ELT TEST PROCEDURE IN LESS THAN 50 SECONDS. THIS WILL HELP PREVENT ACCIDENTAL ACTIVATION OF THE ELT.

- (a) Read all of the instructions below before you do the subsequent steps.

CAUTION: MAKE SURE THAT YOU DO THE ELT LIVE TRANSMISSION TEST IN THE FIRST FIVE MINUTES OF THE HOURS (UTC). COORDINATE WITH THE APPLICABLE LOCAL EMERGENCY AUTHORITY (AIR TRAFFIC CONTROL TOWER OR FLIGHT SERVICE STATION) FOR THE APPROVAL OF THIS TEST IF YOU DO THIS TEST OUTSIDE OF THE FIRST FIVE MINUTES OF THE HOURS (UTC).

- (b) Move the ELT switch on the front panel of the ELT from the ARM position to the OFF position.
(c) Move the ELT switch on the front panel of the ELT from the OFF position to the ARM position.
1) Make sure the light-emitting diode (LED) on the ELT comes on and then goes off two times.

NOTE: The first flash indicates ELT self-test pass. The second flash indicates the AIM self-test pass.

G. Put the Airplanes Back to Its Usual Condition

SUBTASK 23-24-00-910-017-002

- (1) Tell the local emergency authority that the ELT test is completed (if applicable).

SUBTASK 23-24-00-410-009-002

- (2) Install the ceiling panel that gets access to the ELT (TASK 25-21-45-400-803-001).

SUBTASK 23-24-00-860-017-002

- (3) Remove the electrical power from the airplane, if it is not necessary for other tasks (TASK 24-22-00-860-812).

———— END OF TASK ————



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EMERGENCY LOCATOR TRANSMITTER ANTENNA - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the emergency locator transmitter (ELT) antenna.
 - (2) An installation of the ELT antenna.

TASK 23-24-02-000-801

2. ELT Antenna - Removal

(Figure 401)

A. Tools/Equipment

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

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved
	Part #: 1-6390-A Supplier: 63318
	Part #: 10810 Supplier: \$0855
	Part #: 234350 Supplier: \$0857
	Part #: 235072 Supplier: \$0857
	Part #: 235073 Supplier: \$0857
	Part #: 235074 Supplier: \$0857
	Part #: 235075 Supplier: \$0857
	Part #: 235076 Supplier: \$0857
	Part #: 235077 Supplier: \$0857
	Part #: 235078 Supplier: \$0857
	Part #: 235079 Supplier: \$0857
	Part #: 235080 Supplier: \$0857
	Part #: 235081 Supplier: \$0857
	Part #: 311 Supplier: KA861
	Part #: 411B60 Supplier: 3DN12
	Part #: 411B90 Supplier: 3DN12
	Part #: DAD5013 Supplier: \$0856
	Part #: DFD5019 Supplier: \$0856
	Part #: J5-0275-2010 Supplier: 435R8
	Part #: SCD5019 Supplier: \$0856
	Part #: ST982LF-9 Supplier: 3Z323
	Part #: TS1275-4 Supplier: 1DWR5

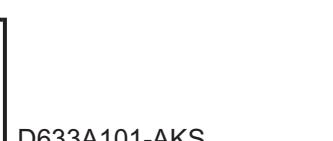
B. Location Zones

Zone	Area
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

C. Removal Procedure

SUBTASK 23-24-02-020-001

- (1) Do these steps to remove the ELT antenna [1]:
 - (a) Remove the six bolts [2] that attach the antenna [1] to the airplane.



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CAUTION: BE CAREFUL WHEN YOU REMOVE THE FILLET SEAL WITH THE SEALANT REMOVAL TOOL. DAMAGE TO THE AIRPLANE SKIN CAN OCCUR.

- (b) While you hold the antenna [1], use a sealant removal tool, COM-2481 to break the fillet seal around the base of the antenna.

CAUTION: DO NOT PULL ON THE COAXIAL CABLE. CAREFULLY MOVE THE ANTENNA. DISCONNECT THE COAXIAL CONNECTOR. THIS WILL PREVENT DAMAGE TO THE COAXIAL CABLE.

- (c) Move the antenna [1] away from the airplane to get access to the coaxial connector [3] on the coaxial cable.

- (d) Disconnect the coaxial connector [3] from the antenna [1] and remove the antenna [1].

NOTE: Make sure the coaxial connector does not fall down through the opening.

———— END OF TASK ————

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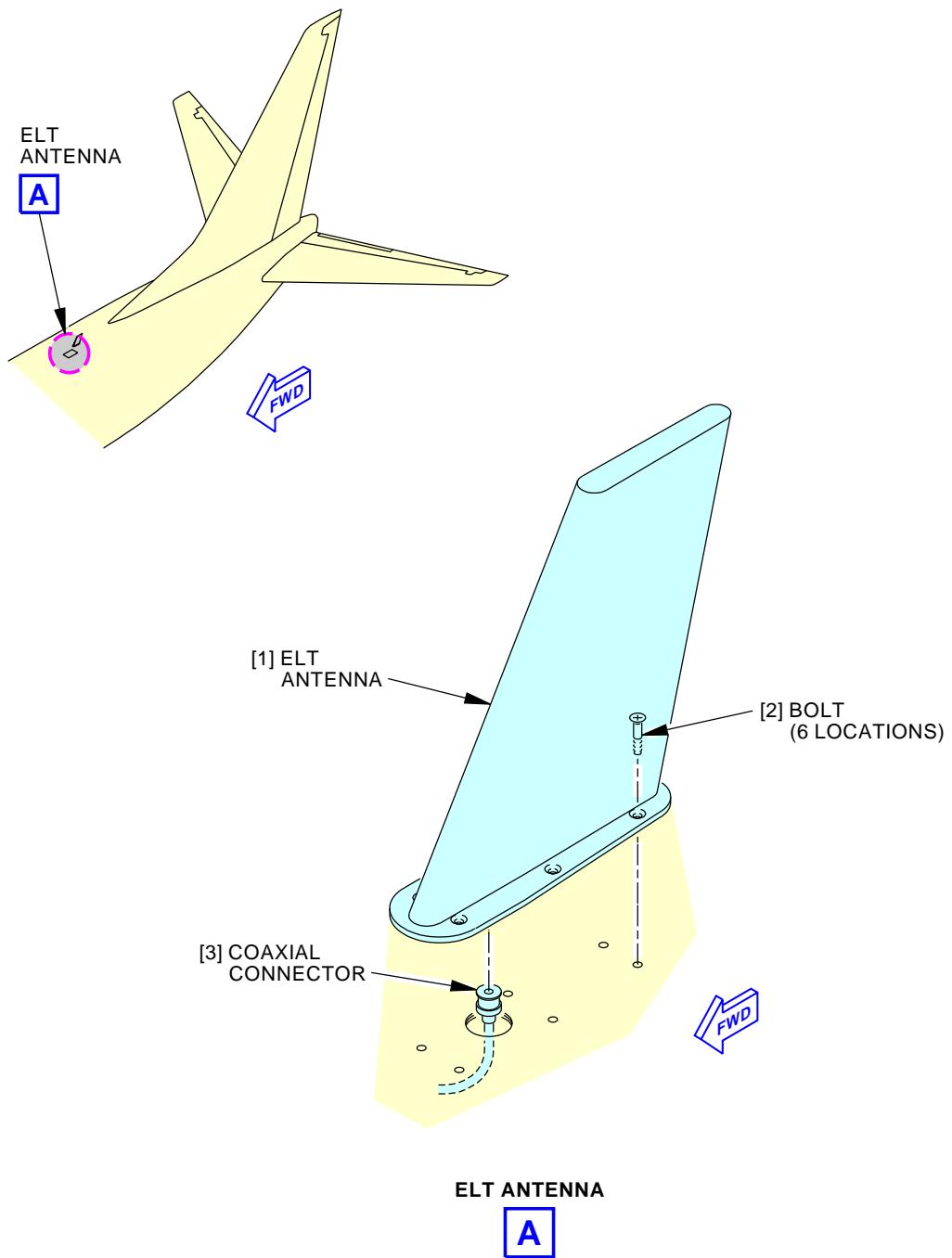
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Emergency Locator Transmitter (ELT) Antenna Installation
Figure 401/23-24-02-990-801

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TASK 23-24-02-400-801

3. ELT Antenna - Installation

(Figure 401)

A. References

Reference	Title
23-24-00-710-802-002	ELT System - Operational Test (P/B 501)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-41-370-802	Apply Alodine 600, 1200 or 1200S Solution (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
SL 20-043	Deferred Application of Aero-Sealant in Antenna Installations

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding 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
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5



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C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01026	Solvent - FCC-55	
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
C50005	Coating - Chemical Conversion - Alodine 1200S	
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Antenna	23-24-02-06-010	AKS ALL

E. Location Zones

Zone	Area
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
242	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right

F. Installation Procedure

SUBTASK 23-24-02-100-002

- (1) Clean the airplane mating surface:
 - (a) Remove sealant with a sealant removal tool, COM-2481.

WARNING: DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.
 - (b) Clean the airplane mating surface with a cotton wiper, G00034 that is moist with one of the solvents that follow:
 - 1) solvent, B00148
 - 2) solvent, B00666
 - 3) solvent, B00184
 - 4) FCC-55 solvent, B01026
 - 5) solvent, B01054
 - (c) Use a clean cotton wiper, G00034 and clean the airplane mating surface again.
 - (d) Do these two steps above until the airplane mating surface is clean and dry.



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SUBTASK 23-24-02-100-003

- (2) If the mating surface has corrosion or other damage, or if the airplane mating surface has no alodine, then do these steps to prepare the airplane mating surface:

NOTE: An alternative installation procedure is to apply corrosion inhibiting compound, G00009 on an airplane mating surface that has no alodine.

- (a) If there is corrosion, then, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.
- (b) Apply a layer of Alodine 1200S coating, C50005 to the airplane mating surface. To apply the alodine, do this task: Apply Alodine 600, 1200 or 1200S Solution, TASK 51-21-41-370-802.

SUBTASK 23-24-02-420-001

- (3) Do these steps to install the ELT antenna [1]:

- (a) Examine the coaxial connector for dirt and damage.
 - (b) Connect the coaxial connector to the antenna [1].
 - (c) Apply a layer of sealant, A00247 to the shank and threads of 5 of the 6 bolts [2].
 - (d) Put the ELT antenna [1] in its position and install the 5 bolts [2].
- NOTE: Leave one of the 6 bolts [2] out to do an electrical bond check.
- (e) Use intrinsically safe approved bonding meter, COM-1550 to measure the resistance between the antenna base and the airplane skin.
- NOTE: Use the empty bolt hole to get access to the antenna [1] base.
- 1) Make sure the resistance is less than or equal to 0.005 ohm.
 - (f) Apply a layer of sealant, A00247 to the shank and threads of the last bolt [2].
 - (g) Install the last bolt [2].

G. Seal the ELT antenna

SUBTASK 23-24-02-390-001

- (1) Apply sealant, A00247 around the base of the antenna [1] to make a corrosion fillet seal. To apply the sealant, do this task: Fillet Seal Application, TASK 51-31-00-390-804.

NOTE: Operators can defer the application of the aero-sealant in the antenna installation to avoid a flight delay (SL 20-043).

H. ELT Antenna Installation Test

SUBTASK 23-24-02-710-001

- (1) Do this task: ELT System - Operational Test, TASK 23-24-00-710-802-002.

———— END OF TASK ————



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EMERGENCY LOCATOR TRANSMITTER CONTROL PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the emergency locator transmitter (ELT) control panel.
 - (2) An installation of the ELT control panel.
- B. The ELT control panel is installed on the forward overhead panel, P5, in the flight compartment.

TASK 23-24-03-000-801

2. Emergency Locator Transmitter (ELT) Control Panel Removal

(Figure 401)

A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)
23-24-00-000-802-002	Emergency Locator Transmitter - Removal (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ELT Control Panel	23-24-00-03-015	AKS 007, 008, 011, 012, 014, 019, 026
		23-24-00-03-025	AKS 001-006, 009, 010, 013, 015-018, 020-025, 027

C. Location Zones

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

D. Procedure

SUBTASK 23-24-03-860-001

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
F	14	C01180	INDICATOR MASTER DIM SECT 8

SUBTASK 23-24-03-940-002

- (2) Get access to the Emergency Locator Transmitter (ELT) (TASK 23-24-00-000-802-002).

SUBTASK 23-24-03-020-003

- (3) On the ELT front panel, do the steps that follow:

NOTE: These steps will prevent accidental activation of the ELT when the ELT control panel is removed.

- (a) Set the toggle switch to the OFF position.
- (b) Disconnect the electrical connector.

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SUBTASK 23-24-03-020-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ELT CONTROL PANEL [1]. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ELT CONTROL PANEL [1].

- (4) Before you touch the ELT Control Panel [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

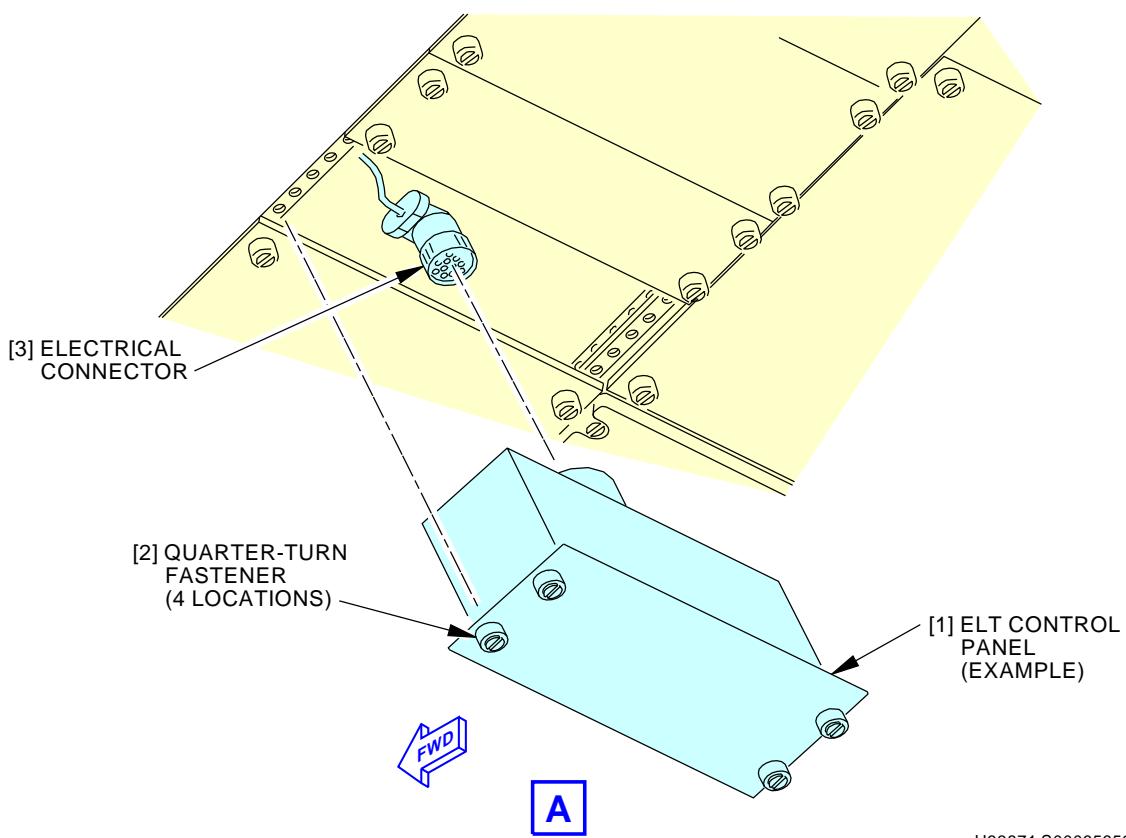
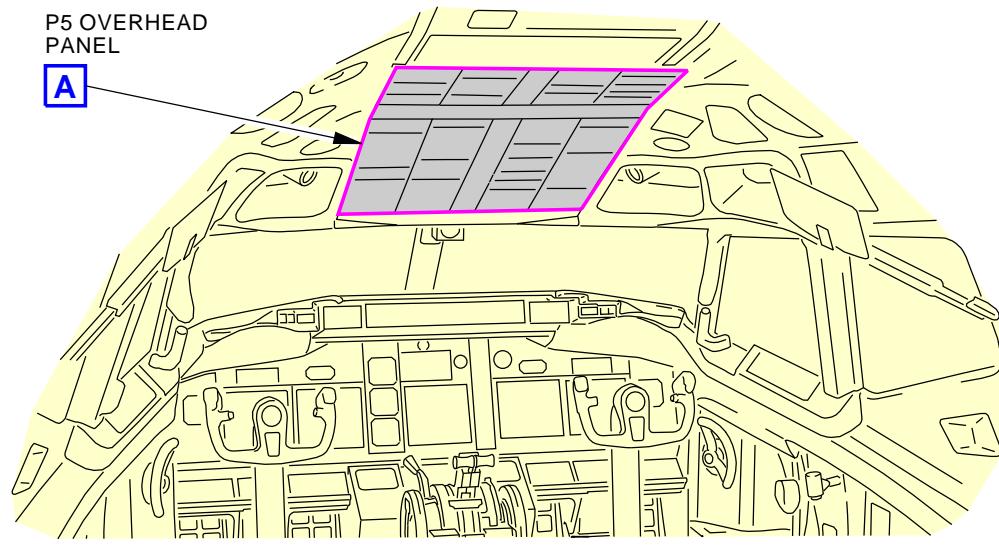
SUBTASK 23-24-03-020-002

- (5) Do these steps to remove the ELT Control Panel [1]:
- (a) Loosen the four Quarter turn fasteners [2].
 - (b) Remove the ELT Control Panel [1] from the P5 overhead panel to get access to the Electrical Connector [3].
 - (c) Disconnect the Electrical Connector [3] from the rear of the ELT Control Panel [1].
 - (d) To install a protective cover on the Electrical Connector [3], do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

———— END OF TASK ————

EFFECTIVITY
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**Emergency Locator Transmitter (ELT) Control Panel Installation
Figure 401/23-24-03-990-801**

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TASK 23-24-03-400-801

3. **Emergency Locator Transmitter (ELT) Control Panel Installation**

(Figure 401)

A. **References**

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Conductor Cover Removal (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
23-24-00-000-802-002	Emergency Locator Transmitter - Removal (P/B 201)
23-24-00-710-802-002	ELT System - Operational Test (P/B 501)

B. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	ELT Control Panel	23-24-00-03-015	AKS 007, 008, 011, 012, 014, 019, 026
		23-24-00-03-025	AKS 001-006, 009, 010, 013, 015-018, 020-025, 027

C. **Location Zones**

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

D. **Procedure**

SUBTASK 23-24-03-860-002

- (1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
F	14	C01180	INDICATOR MASTER DIM SECT 8

SUBTASK 23-24-03-420-001

CAUTION: DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE ELT CONTROL PANEL [1]. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ELT CONTROL PANEL [1].

- (2) Before you touch the ELT Control Panel [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 23-24-03-420-002

- (3) Do these steps to install the ELT Control Panel [1]:

- (a) To remove the protective cover from the Electrical Connector [3], do this task: Conductive Dust Cap and Conductor Cover Removal, TASK 20-40-12-000-804.
- (b) Examine the Electrical Connector [3] for bent or broken pins, dirt, and damage.
- (c) Connect the Electrical Connector [3].
- (d) Install the ELT Control Panel [1] in its position on the P5 panel.
- (e) Tighten the four Quarter turn fasteners [2].

SUBTASK 23-24-03-940-001

- (4) Get access to the Emergency Locator Transmitter (ELT) (TASK 23-24-00-000-802-002).

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SUBTASK 23-24-03-420-003

- (5) On the ELT front panel, do these steps:
 - (a) Connect the electrical connector.
 - (b) Set the toggle switch to the ARMED position.

SUBTASK 23-24-03-860-003

- (6) 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	14	C01278	MASTER CAUTION ANNUNCIATOR CONT 4
F	14	C01180	INDICATOR MASTER DIM SECT 8

E. Installation Test

SUBTASK 23-24-03-860-004

- (1) Do this task: ELT System - Operational Test, TASK 23-24-00-710-802-002.

———— END OF TASK ————



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AIRCRAFT COMMUNICATION AND REPORTING SYSTEM (ACARS) - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Aircraft Communication and Reporting System (ACARS) Deactivation
 - (2) Aircraft Communication and Reporting System (ACARS) Activation

TASK 23-27-00-040-801-001

2. Aircraft Communication and Reporting System - Deactivation

Figure 201

A. General

- (1) This procedure removes electrical power to the ACARS system.

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

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

D. Procedure

NOTE: The aircraft will have either a CMU or AMU installed. Reference the aircraft wire diagram to determine the system installed.

SUBTASK 23-27-00-860-195-001

- (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	8	C01483	CMU-1 AC

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	9	C01500	CMU/ACARS DC (INOP)

E. ACARS - Tryout

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

SUBTASK 23-27-00-860-198-001

- (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	8	C01483	CMU-1 AC

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This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

E	9	C01500	CMU/ACARS DC (INOP)
---	---	--------	---------------------

SUBTASK 23-27-00-010-002-001

- (2) Open this access panel:

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

117A	Electronic Equipment Access Door
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SUBTASK 23-27-00-710-030-001

- (3) Do the following steps at the ACARS CMU:

- (a) Push and hold the TEST switch on the front panel.
 - 1) Make sure that all the lights on the front of the CMU do not come on.
- (b) Release the switch and wait at least one minute.
 - 1) Make sure that none of the lights momentarily come on.

———— END OF TASK ————

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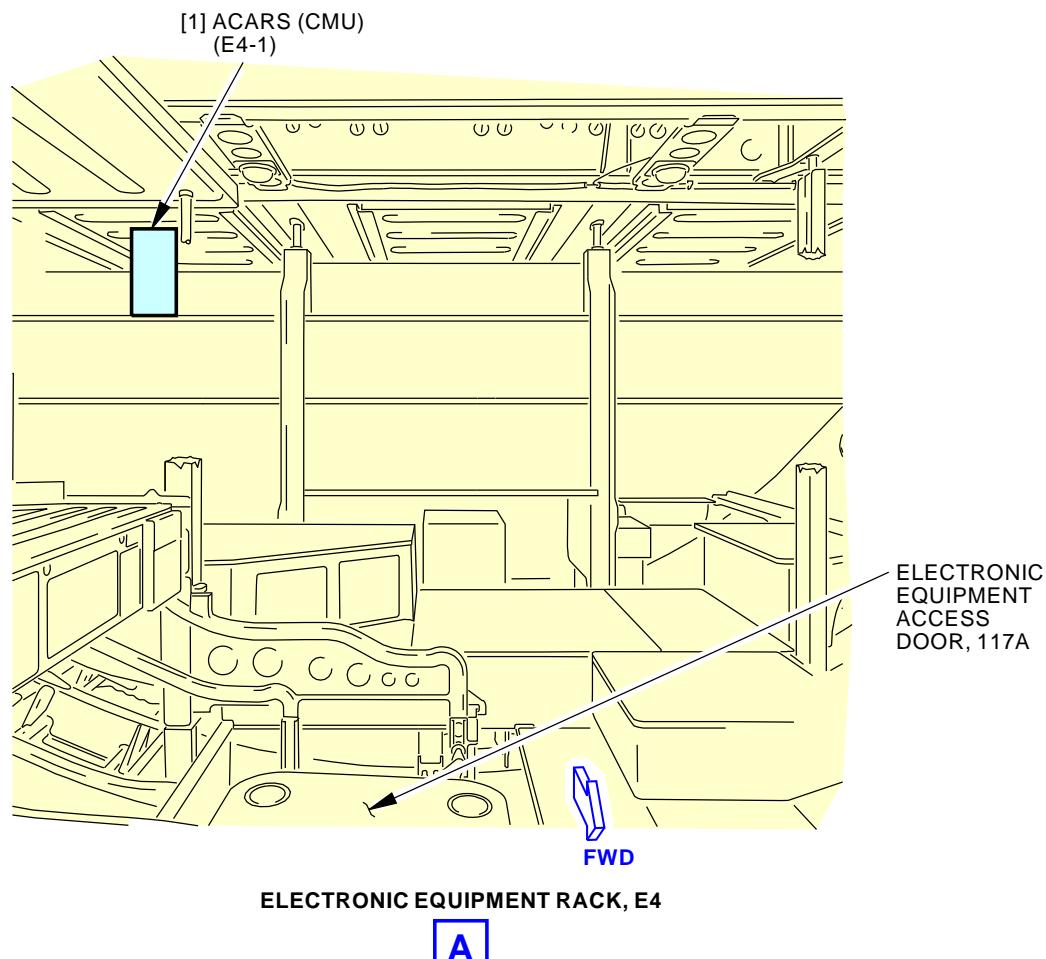
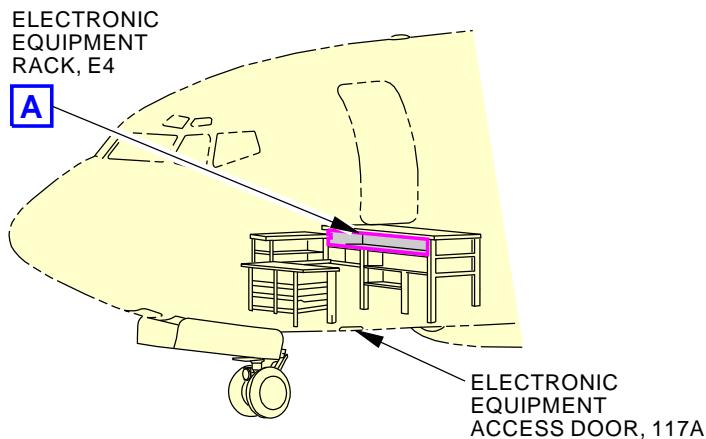
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Aircraft Communications Addressing and Reporting System (ACARS)
Figure 201/23-27-00-990-809-001



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TASK 23-27-00-440-801-001

3. **Aircraft Communication and Reporting System - Activation**

(Figure 201)

A. General

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

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 23-27-00-860-197-001

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	8	C01483	CMU-1 AC

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	9	C01500	CMU/ACARS DC (INOP)

SUBTASK 23-27-00-410-001-001

- (2) Close this access panel:

Number Name/Location

117A	Electronic Equipment Access Door
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———— END OF TASK ————



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ACARS SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has these tasks:
- (1) An operational test of the Aircraft Communications Addressing and Reporting System (ACARS).
 - (2) A system test of the ACARS.

TASK 23-27-00-740-814-009

2. ACARS - Operational Test

A. References

<u>Reference</u>	<u>Title</u>
23-27-33-470-801	ACARS Software Installation with a Portable Data Loader (PDL) (P/B 201)
23-27-33-470-805	ACARS Communications Management Unit Software Installation with an Enhanced Airborne Data Loader (eADL) (P/B 201)
23-27-33-700-802	ACARS Communications Management Unit (CMU) Software Configuration Check (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

C. Procedure

SUBTASK 23-27-00-860-123-009

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

SUBTASK 23-27-00-860-124-009

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

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS 001			
E	7	C01484	CMU-2 AC
AKS ALL			
E	8	C01483	CMU-1 AC

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	9	C01500	CMU/ACARS DC (INOP)

SUBTASK 23-27-00-710-017-009

- (3) Do these steps to do a test of ACARS:

- (a) Push and hold the TEST switch on the front of the ACARS Communications Management Unit (CMU).

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- (b) Make sure that all the lights on the front of the CMU are on.
- (c) Release the switch and wait at least one minute.
- (d) Make sure that the green MU PASS LED is on steady.
- (e) If the LOAD SW light is on, set the ADL switch (P61) back to usual or install the necessary software. Do this task if necessary: ACARS Software Installation with a Portable Data Loader (PDL), TASK 23-27-33-470-801 or ACARS Communications Management Unit Software Installation with an Enhanced Airborne Data Loader (eADL), TASK 23-27-33-470-805.

SUBTASK 23-27-00-750-002-009

- (4) Do this task: ACARS Communications Management Unit (CMU) Software Configuration Check, TASK 23-27-33-700-802.

SUBTASK 23-27-00-760-002-009

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

———— END OF TASK ————

TASK 23-27-00-700-812-009

3. ACARS - System Test

A. General

- (1) For the ACARS system to operate correctly, it must be linked to a remote ground station.
- (2) For ACARS to link to the ground station through the VHF communication system, the airplane must be within range of the ground station. Also, the VHF antenna must have a clear view to the station tower.
- (3) The ACARS ground station and network must also be operational.
- (4) Make sure the airplane is not in or near any large metal structures. HF communication while the airplane is on the ground can be degraded by airplane position or blocked by RF signal attenuation due to ground equipment and structures.
- (5) The system test is based on the default Boeing AOC software and 737 data base. If airline customized AOC software or the 737 data base are installed, there can be differences in MCDU screen formats and screen prompts.

B. References

Reference	Title
23-11-00-710-801	HF Communication System - Operational Test (P/B 501)
23-11-00-730-801	HF Communication System - System Test (P/B 501)
23-12-00-730-801	VHF Communication System - System Test (P/B 501)
23-27-33-470-801	ACARS Software Installation with a Portable Data Loader (PDL) (P/B 201)
23-27-33-470-805	ACARS Communications Management Unit Software Installation with an Enhanced Airborne Data Loader (eADL) (P/B 201)
23-27-35-700-801	ACARS Airplane Personality Module (APM) Data Verification Check (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)
31-31-00-730-801	Flight Data Recorder System - System Test (P/B 501)
32-09-00-840-801	Prepare to Put the Airplane in the Air Mode (P/B 201)

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<u>Reference</u>	<u>Title</u>
32-09-00-840-802	Return the Airplane Systems Back to Their Normal On Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)
32-44-00-710-801	Parking Brake System - Operational Test (P/B 501)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
34-61-00-730-801	Flight Management Computer System - System Test (P/B 501)
52-11-00-700-804	Forward Entry Door System Test (P/B 501)
52-13-00-700-805	Aft Entry Door System Test (P/B 501)
52-31-00-700-801	Cargo Door System Test (P/B 501)

C. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 23-27-00-860-125-009

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

SUBTASK 23-27-00-860-126-009

- (2) Set the Captain's clock to the current Greenwich mean time (GMT).

SUBTASK 23-27-00-860-127-009

- (3) Make sure the IRS is aligned to the current position (latitude, longitude) (TASK 34-21-00-820-802 or TASK 34-21-00-820-801).

SUBTASK 23-27-00-860-128-009

- (4) 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	8	C01483	CMU-1 AC

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	9	C01500	CMU/ACARS DC (INOP)

SUBTASK 23-27-00-860-129-009

- (5) Make sure these systems are serviceable:



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WARNING: DO NOT OPERATE THE HF SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. AN EXPLOSION CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE AIRPLANE.

WARNING: MAKE SURE THAT PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

WARNING: DO NOT KEEP THE HF SYSTEM IN THE DATA MODE AFTER YOU DO THE HF LINK TEST. WHEN THE HF SYSTEM IS IN THE DATA MODE THEN IT CAN TRANSMIT INDEPENDENTLY OF PERSONNEL CONTROL (PUSH-TO-TALK SWITCH). THIS CAN CAUSE INJURIES TO PERSONNEL.

- (a) The HF communication system (TASK 23-11-00-730-801)
- (b) The VHF communication system (TASK 23-12-00-730-801).
- (c) The flight data recorder (FDR) system (TASK 31-31-00-730-801).
- (d) The parking brake system (TASK 32-44-00-710-801).
- (e) The flight management computer (FMC) system (TASK 34-61-00-730-801).
- (f) The passenger doors system (TASK 52-11-00-700-804).
- (g) The aft entry door system (TASK 52-13-00-700-805).
- (h) The cargo door system (TASK 52-31-00-700-801).

SUBTASK 23-27-00-710-025-009

- (6) Do this task: ACARS - Operational Test, TASK 23-27-00-740-814-009.

SUBTASK 23-27-00-700-060-009

- (7) Do this task: ACARS Airplane Personality Module (APM) Data Verification Check, TASK 23-27-35-700-801

SUBTASK 23-27-00-730-081-009

- (8) Do these steps to do the Initialization, Registry and Printer test:

- (a) Push the MENU function key on both MCDUs.
 - 1) Make sure that the MENU page shows with the <DLK in the left position on line 2 of the two displays.
 - (b) Push the line select key (LSK) adjacent to the <DLK prompt on MCDU-1.
 - 1) Make sure that the DATALINK (DLK) MENU page shows on the display.
- NOTE:** Unless otherwise specified, all MCDU key selections are done on MCDU-1 and all pages and messages show on MCDU-1.
- 2) If the message "ENTER AIRLINE ID" does not show on the MCDU, or if the 2 letter airline ID/3 letter airline ICAO code does not need to be changed, continue with step (c).
 - 3) If the message "ENTER AIRLINE ID" shows on the MCDU, or if the 2 letter airline ID/3 letter airline ICAO code needs to be changed, do these steps:
 - a) Push the LSK adjacent to the MAINT> prompt.
 - <1> Make sure that the CMU MAINTENANCE page shows on the display.
 - b) Use the MCDU keypad to enter SERGE into the MCDU scratchpad.
 - c) Push the top right LSK.
 - <1> Make sure that the CMU INIT page shows on the display.

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- d) Push the LSK adjacent to the <AIRLINE ID prompt.
 - <1> Make sure that the CMU AIRLINE ID INIT page shows on the display.
 - e) Use the MCDU keypad to enter the two letter airline ID, a forward slash "/", followed by the three letter airline ICAO code into the MCDU scratchpad. Set the LSK adjacent to MANUAL.
 - f) Push the LSK adjacent to the <SELECT prompt until the <SEL> prompt is adjacent to the dashes on the line below the MANUAL prompt.
 - g) Push the LSK adjacent to the boxes on the line below the MANUAL prompt to keep the two letter airline ID/three letter airline ICAO code.
 - h) Push the LSK adjacent to the <INIT MENU prompt to go back to the CMU INIT menu page.
 - i) Push the LSK adjacent to the <MAINT MENU prompt to go back to the CMU MAINTENANCE page.
 - j) Push the LSK adjacent to the <DLK MENU prompt to go back to the DATALINK (DLK) MENU page.
- (c) Push the LSK adjacent to the MAINT> prompt.
- 1) Make sure that the CMU MAINTENANCE pages show on the display.
- (d) Push the LSK adjacent to the <PART NUMBERS prompt.
- 1) Make sure that the CMU PART NUMBERS page shows on the display.
 - 2) Make sure that the CMU CORE S/W, APP S/W and DB part numbers are correct.
 - 3) If any software part numbers are not correct, do this task: ACARS Software Installation with a Portable Data Loader (PDL), TASK 23-27-33-470-801 or ACARS Communications Management Unit Software Installation with an Enhanced Airborne Data Loader (eADL), TASK 23-27-33-470-805.
- (e) Push the LSK adjacent to the PRINT> prompt.
- 1) Make sure the printer prints the information that shows on the display.
NOTE: The print format is not the same as the display format.
 - 2) Make sure the printed aircraft registration number matches the registration number of the airplane as shown on the captain's or first officer's main instrument panel placard.
- (f) Push the LSK adjacent to the <MAINT MENU prompt to go back to the CMU MAINTENANCE page.
- (g) Push the LSK adjacent to the <DLK MENU prompt to go back to the DATALINK (DLK) MENU page.
- (h) Push the LSK adjacent to the ACARS> prompt. This selection is on the CMU menu page.
- (i) From the ACARS PREFLT MENU page, push the LSK adjacent to the <MISC prompt.
- (j) From the ACARS MISC page, push the LSK adjacent to the <FREQUENCY prompt.
- 1) Make sure that the CMU DATA FREQ page shows on the display.
 - 2) Make sure that the data frequency shows below the CMU DATA FREQ prompt.
 - 3) Make sure that the YES> is shown in LSK 5R below ALLOW MODE 2.
- (k) Push the LSK adjacent to the <RETURN prompt two times to go back to the ACARS PREFLT MENU page.

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SUBTASK 23-27-00-730-082-009

(9) Do these steps to do the VHF link test:

- (a) From the ACARS PREFLT MENU page, push the LSK adjacent to the <MISC prompt.
- (b) From the ACARS MISC page, push the LSK adjacent to the MAINT> prompt.
- (c) From the CMU MAINTENANCE page, push the LSK adjacent to the <TEST prompt.
 - 1) Make sure that the CMU TEST page shows on the display.
- (d) Push the LSK adjacent to the <INITIATE prompt under the VHF LINK prompt.
 - 1) Make sure the word INITIATE, then the word TEST, then the word PASS, then the word INITIATE shows on the display.

NOTE: The word TEST could show momentarily.

SUBTASK 23-27-00-730-083-009

(10) Do these steps to do the HF-1 data link test:

WARNING: DO NOT OPERATE THE HF SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. AN EXPLOSION CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE AIRPLANE.

WARNING: MAKE SURE THAT PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

- (a) Make sure the HF communication system is serviceable (TASK 23-11-00-710-801).

NOTE: HF ACARS Data Link transmission is inhibited until the airplane is in the AIR mode.

- (b) On MCDU-2, push the MENU function key.
- (c) On MCDU-2, push the LSK adjacent to the <ACARS prompt.
- (d) From the ACARS PREFLT MENU page on MCDU-2, push the LSK adjacent to the <MISC prompt.
- (e) From the ACARS MISC page on MCDU-2, push the LSK adjacent to the <STATUS prompt.

1) Make sure the ACARS OOOI STATUS page 1 shows on MCDU-2.

- (f) On MCDU-2, push the NEXT PAGE function key
 - 1) Make sure the ACARS OOOI STATUS page 2 shows on MCDU-2.
 - 2) Make sure that GND shows adjacent to the STRUT prompt.
- (g) Push HF-1 on RTP-1.
 - 1) Make sure DATA shows in the ACTIVE display of RTP-1.
 - 2) If DATA shows in the STANDBY display, push the transfer switch to move DATA to the ACTIVE display.
 - 3) If DATA does not show in the ACTIVE or STANDBY display, select a standby frequency less than 2.
 - a) When DATA shows in the STANDBY display, push the transfer switch to move DATA to the ACTIVE display.

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WARNING: DO NOT OPERATE THE HF SYSTEM WHILE THE AIRPLANE IS REFUELED OR DEFUELED. AN EXPLOSION CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE AIRPLANE.

WARNING: MAKE SURE THAT PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

- (h) Do these steps to put the airplane in AIR mode:
- 1) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.
 - 2) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: HF transmission will start as soon as the airplane is in the AIR mode.

- 3) Make sure AIR shows adjacent to the STRUT prompt on MCDU-2.

- (i) On MCDU-1, push the LSK adjacent to the INITIATE> prompt under the HF-LINK line.
- 1) Make sure the word INITIATE, then the word TEST, then the word PASS, then the word INITIATE shows on the display.

NOTE: TEST will show for approximately 5 minutes or more. PASS or FAIL will show for only seconds, then INITIATE will show.

WARNING: DO NOT KEEP THE HF SYSTEM IN THE DATA MODE AFTER YOU DO THE HF LINK TEST. WHEN THE HF SYSTEM IS IN THE DATA MODE THEN IT CAN TRANSMIT INDEPENDENTLY OF PERSONNEL CONTROL (PUSH-TO-TALK SWITCH). THIS CAN CAUSE INJURIES TO PERSONNEL.

- (j) Push the RTP-1 transfer switch to move DATA to the STANDBY window.

SUBTASK 23-27-00-730-084-009

- (11) Do these steps to do the HF-2 data link test:

- (a) Push HF-2 on RTP-1.

- 1) Make sure DATA shows in the ACTIVE display of RTP-1.
- 2) If DATA shows in the STANDBY display, push the transfer switch to move DATA to the ACTIVE display.
- 3) If DATA does not show in the ACTIVE or STANDBY display, select a standby frequency less than 2.
 - a) When DATA shows in the STANDBY display, push the transfer switch to move DATA to the ACTIVE display.

- (b) On MCDU-1, push the LSK adjacent to the INITIATE> prompt under the HF-LINK line.

- 1) Make sure the word INITIATE, then the word TEST, then the word PASS, then the word INITIATE shows on the display.

NOTE: TEST will show for approximately 5 minutes or more. PASS or FAIL will show for only seconds, then INITIATE will show.

WARNING: DO NOT KEEP THE HF SYSTEM IN THE DATA MODE AFTER YOU DO THE HF LINK TEST. WHEN THE HF SYSTEM IS IN THE DATA MODE THEN IT CAN TRANSMIT INDEPENDENTLY OF PERSONNEL CONTROL (PUSH-TO-TALK SWITCH). THIS CAN CAUSE INJURIES TO PERSONNEL.

- (c) Push the RTP-1 transfer switch to move DATA to the STANDBY window.

SUBTASK 23-27-00-840-003-009

- (12) Do these steps to return the airplane to GROUND mode.

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- (a) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
- (b) Do this task: Return the Airplane Systems Back to Their Normal On Ground Condition, TASK 32-09-00-840-802.
 - 1) Make sure that GND shows adjacent to the STRUT prompt on MCDU-2.
NOTE: HF data link tests are complete.
- (c) On MCDU-2, push the MENU function key.
- (d) From the ACARS TEST page on MCDU-1, push the LSK adjacent to the <MAINT MENU prompt
NOTE: Unless otherwise specified, all MCDU key selections are done on MCDU-1 and all pages and messages show on MCDU-1.
- (e) From the ACARS MAINTENANCE page, push the LSK adjacent to the <ACARS MENU prompt./

SUBTASK 23-27-00-730-086-009

- | (13) Do these steps to do the FMC broadcast bus and Registry test:
 - (a) From the ACARS PREFLT MENU page, push the LSK adjacent to the <FLIGHT prompt.
 - 1) Make sure the ACARS PREFLIGHT INIT page shows on the display.
 - (b) On MCDU-2, push the RTE function key.
 - (c) On MCDU-2, type a valid flight number in the scratchpad.
 - (d) On MCDU-2, push the LSK adjacent to the FLT NO. prompt.
 - 1) Make sure that the FLIGHT number data that shows on the MCDU-2 ROUTE page also shows on the ACARS PREFLIGHT INIT page on MCDU-1.
 - (e) On MCDU-2, push the MENU function key.
 - (f) On MCDU-1, push the LSK adjacent to the <ACARS MENU prompt.
NOTE: Unless otherwise specified, all MCDU key selections are done on MCDU-1 and all pages and messages show on MCDU-1.

SUBTASK 23-27-00-730-118

- | (14) Do these steps to do the Digital Interface test.
 - (a) From the CMU STATUS page, push the LSK adjacent to the <LRU prompt.
 - 1) Make sure that the CMU LRU STATUS page 1 shows.
 - 2) Make sure that the installed LRUs listed on page 1 show ACTIVE adjacent to the LRU prompt.
NOTE: If an LRU is not installed to the ACARS CMU, "NOT INSTALL" shows adjacent to the LRU prompt.
 - (b) Push the NEXT PAGE function key
 - 1) Make sure that the CMU LRU STATUS page 2 shows.
 - 2) Make sure that installed LRUs listed on page 2 show ACTIVE adjacent to the LRU prompt.
NOTE: If an LRU is not installed to the ACARS CMU, "NOT INSTALL" shows adjacent to the LRU prompt.
 - (c) Push the NEXT PAGE function key
 - 1) Make sure that the CMU LRU STATUS page 3 shows.

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- 2) Make sure that installed LRUs listed on page 3 show ACTIVE adjacent to the LRU prompt.

NOTE: If an LRU is not installed to the ACARS CMU, "NOT INSTALL" shows adjacent to the LRU prompt.

- (d) Push the NEXT PAGE function key

- 1) Make sure that the CMU LRU STATUS page 4 shows.

- 2) Make sure that installed LRUs listed on page 4 show ACTIVE adjacent to the LRU prompt.

NOTE: If an LRU is not installed to the ACARS CMU, "NOT INSTALL" shows adjacent to the LRU prompt.

- (e) Push the NEXT PAGE function key

- 1) Make sure that the CMU LRU STATUS page 5 shows.

- 2) Make sure that installed LRUs listed on page 5 show ACTIVE adjacent to the LRU prompt.

NOTE: If an LRU is not installed to the ACARS CMU, "NOT INSTALL" shows adjacent to the LRU prompt.

- (f) Push the NEXT PAGE function key

- 1) Make sure that the CMU LRU STATUS page 6 shows.

- 2) Make sure that installed LRUs listed on page 6 show ACTIVE adjacent to the LRU prompt.

NOTE: If an LRU is not installed to the ACARS CMU, "NOT INSTALL" shows adjacent to the LRU prompt.

- (g) Push the LSK adjacent to the <STATUS MENU prompt to go back to the CMU STATUS page.

- (h) From the CMU STATUS menu, push the LSK adjacent to the <MAINT MENU prompt to go back to the CMU MAINTENANCE.

- (i) From the CMU MAINTENANCE menu, push the LSK adjacent to the <DLK MENU prompt to go back to the DATALINK (DLK) MENU.

SUBTASK 23-27-00-730-087-009

- (15) Do these steps to do the OOOI sensor test:

- (a) From the ACARS PREFLT MENU page, push the LSK adjacent to the <MISC prompt.

- (b) From the ACARS MISC page, push the LSK adjacent to the <STATUS prompt.

- (c) From page 1 of the ACARS OOOI STATUS page, push the NEXT PAGE function key two times.

- 1) Make sure the ACARS OOOI STATUS page 3 shows on the display.

NOTE: The following steps test each OOOI parameter. If the OOOI parameters have been working correctly and the ACARS Communications Management Unit (CMU) was not removed or replaced, these steps are optional.

- (d) Open the left forward entry door.

- 1) Make sure OPEN shows adjacent to the LH FWD CAB prompt.

- (e) Close the left forward entry door.

- 1) Make sure CLOSED shows adjacent to the LH FWD CAB prompt.

- (f) Open the left aft entry door.

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- 1) Make sure OPEN shows adjacent to the LH AFT CAB prompt.
- (g) Close the left aft entry door.
 - 1) Make sure CLOSED shows adjacent to the LH AFT CAB prompt.
- (h) Open the right forward door.
 - 1) Make sure OPEN shows adjacent to the SERVICE prompt.
- (i) Close the right forward door.
 - 1) Make sure CLOSED shows adjacent to the SERVICE prompt.
- (j) Open the right aft door.
 - 1) Make sure OPEN shows adjacent to the SERVICE prompt.
- (k) Close the right aft door.
 - 1) Make sure CLOSED shows adjacent to the SERVICE prompt.
- (l) Open the forward cargo compartment door.
 - 1) Make sure OPEN shows adjacent to the CARGO/AV prompt.
- (m) Close the forward cargo compartment door.
 - 1) Make sure CLOSED shows adjacent to the CARGO/AV prompt.
- (n) Push the PREV PAGE function key.
 - 1) Make sure the ACARS OOOI STATUS page 2 shows on the display.
 - 2) Make sure SET shows adjacent to the PRK BRAKE prompt.

WARNING: MAKE SURE THAT THE AIRPLANE WILL NOT MOVE BEFORE YOU RELEASE THE PARKING BRAKE. IF THE AIRPLANE MOVES, IT CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (o) Release the parking brake.
 - 1) Make sure REL shows adjacent to the PRK BRAKE prompt.
- (p) Set the parking brake.
 - 1) Make sure SET shows adjacent to the PRK BRAKE prompt.
- (q) Make sure GND shows adjacent to the STRUT prompt.
- (r) Do these steps to test the STRUT AIR/GND switch.

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WARNING: DO NOT OPERATE HF COMMUNICATIONS SYSTEM OR WEATHER RADAR DURING THE DEFUELING OPERATIONS. THE HF COMMUNICATION SYSTEM OR WEATHER RADAR COULD CAUSE AN EXPLOSION TO OCCUR.

WARNING: MAKE SURE THAT PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

WARNING: DO NOT LEAVE THE HF SYSTEM IN THE DATA MODE, EXCEPT DURING THE HF LINK TEST. IF THE HF SYSTEM IS IN THE DATA MODE, THEN IT CAN TRANSMIT INDEPENDENTLY OF PERSONNEL CONTROL (PUSH-TO-TALK SWITCH).

- 1) Make sure that DATA does not show in the ACTIVE display of the RTP for HF-1 or HF-2.

NOTE: If an HF data link test was completed, this STRUT AIR/GND test is optional.

- 2) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.
- 3) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
 - a) Make sure AIR shows adjacent to the STRUT prompt.
- 4) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
- 5) Do this task: Return the Airplane Systems Back to Their Normal On Ground Condition, TASK 32-09-00-840-802
 - a) Make sure GND shows adjacent to the STRUT prompt.

- (s) Push the LSK adjacent to the <ACARS MENU prompt.

SUBTASK 23-27-00-860-130-009

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

———— END OF TASK ————





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ACARS COMMUNICATIONS MANAGEMENT UNIT (CMU) - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) A software configuration check for the ACARS Communications Management Unit (CMU).
 - (2) An installation of the ACARS Communications Management Unit (CMU) software with an Enhanced Airborne Data Loader.

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- (3) An installation of the ACARS Communications Management Unit (CMU) software with a portable data loader.

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TASK 23-27-33-700-802

2. ACARS Communications Management Unit (CMU) Software Configuration Check

A. General

- (1) This software configuration check makes sure that ACARS has the correct software loaded.
- (2) A Flight Management Control and Display Unit (CDU) is necessary for this procedure.

B. References

Reference	Title
23-27-33-020-801	ACARS Communications Management Unit (CMU) Removal (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)
34-61-00-730-801	Flight Management Computer System - System Test (P/B 501)

C. Location Zones

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

D. Procedure

SUBTASK 23-27-33-860-001

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

SUBTASK 23-27-33-840-001

- (2) Make sure that the Flight Management Computer System is serviceable
(TASK 34-61-00-730-801).

SUBTASK 23-27-33-700-001

- (3) Do these steps to verify the software installation for Honeywell Mark II Communications Management Units:

NOTE: Make sure that you know the correct software part numbers for the ACARS Communications Management Unit (CMU). For ACARS to be an approved installation, the correct software part numbers must be installed.

- (a) Push the MENU function key on the CDU.
 - 1) Make sure that the CDU MENU page shows on the CDU.
 - (b) Push the line-select-key (LSK) adjacent to the <DLK prompt.

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- 1) Make sure that the DATALINK (DLK) MENU page shows on the CDU.
- (c) Push the LSK adjacent to the MAINT> prompt.
 - 1) Make sure that the CMU MAINTENANCE page shows on the display.
- (d) Push the LSK adjacent to the <PART NUMBERS prompt.
 - 1) Make sure that the CMU PART NUMBERS page shows on the CDU.
 - 2) Make sure that the correct CMU software part numbers show on the CDU.
- a) If the CMU software part numbers are not correct, do this task: ACARS Software Installation with a Portable Data Loader (PDL),
TASK 23-27-33-470-801 or ACARS Communications Management Unit Software Installation with an Enhanced Airborne Data Loader (eADL),
TASK 23-27-33-470-805
or replace the ACARS CMU with one that has the correct software loaded
(ACARS Communications Management Unit (CMU) Removal,
TASK 23-27-33-020-801)

E. Return The Airplane To Its Usual Condition

SUBTASK 23-27-33-860-015

- (1) Push the MENU key on the CDU.
- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

TASK 23-27-33-470-805

3. ACARS Communications Management Unit Software Installation with an Enhanced Airborne Data Loader (eADL)

A. General

- (1) This task provides the instructions on how to install software into the ACARS Communications Management Unit (CMU) with an Enhanced Airborne Data Loader (eADL).
 - (a) The ACARS CMU must contain these pieces of software:
 - 1) Core software.
 - 2) Operational software.
 - 3) Customer Unique Database software.
 - (b) The ACARS Operational software must be installed before the Customer Unique Database software. If the Operational software is already installed, then you can install only the Customer Unique Database software.
- (2) 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.

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- (3) An Enhanced Airborne Data Loader (eADL) and a Control Display Unit (CDU) are necessary for this procedure. A data loader control panel is also necessary. The data loader control panel is installed above the airborne data loader on the P61 panel.
- (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.

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
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Installation

SUBTASK 23-27-33-860-016

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

SUBTASK 23-27-33-860-017

- (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 23-27-33-860-018

- (3) Make sure that you know the correct software part numbers for the ACARS CMU.

NOTE: For ACARS to be an approved installation, the correct software must be installed.

SUBTASK 23-27-33-860-019

- (4) Do these steps to prepare for the software installation:

(a) Make sure the system select switch on the data loader control panel (P61) is set to NORM or NORMAL.

(b) Do these steps at the data loader control panel:

- 1) Set the upper switch to L.
- 2) Set the system select switch to the ACARS/CMU position.

SUBTASK 23-27-33-860-022

- (5) Open the eADL front cover by releasing the two screws and lifting up on the cover.

E. Floppy Disk Software Installation

SUBTASK 23-27-33-470-027

- (1) Do these steps to install the CMU software from a floppy disk to the eADL:

(a) Put the Operational software or Customer Unique Database disk in the disk drive.

NOTE: If the Operational software has not been installed, it must be installed before the Customer Unique Database disk. It may take one to two minutes for the installation to start.

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- (b) Make sure that the eADL Main Menu is shown.
- (c) Make your selection: Target Page.
 - 1) This will show the Select Target System screen.
- (d) Make your selection: Floppy Drive.
 - 1) The eADL will show a Load Confirmation screen for the Floppy Drive.
- (e) Make your selection: CONFIRM.
 - 1) The eADL will show a Transfer In Progress screen with "LOADING".
- (f) In the Transfer In Progress screen, wait for the eADL to show "LOAD COMPLETE" or "COMPLETE".
- (g) Follow the prompts on the data loader to complete the installation.
 - 1) If there is more than one disk to install, wait 10 seconds after each disk is completed before you remove and install the subsequent disk.

NOTE: CHNG, CHANGE DISK, DISK CHANGE and INSERT DISK are examples of data loader prompts for a subsequent disk.
- (h) Remove the disk from the disk drive when the software installation is completed.

NOTE: COMP, LOAD COMPLETE and TRANSF COMPLETE are examples of data loader prompts for a completed installation.
- (i) Set the system select switch on the data loader control panel to NORM or NORMAL.
- (j) Make sure that the <ACARS prompt shows on the CDU.

NOTE: It can take up to 3 minutes for the prompt to show on the CDU.

SUBTASK 23-27-33-860-027

- (2) Do these steps to make sure that the CMU starts correctly:

NOTE: After the software/database is loaded, additional steps are necessary. This is to make sure that the correct part number shows for the Air Traffic Control software/database after a data load.

- (a) Wait until the CMU is ready and the CDU displays <DLK>.
- (b) Push <DLK and then push MAINT>.
- (c) Enter the password SAM into the scratch pad of the CDU and push LINE SELECT KEY (LSK) 6R.
- (d) Push NEXT PAGE until the CDU screen shows CMU DEBUG 2/4.
- (e) Enter the password RESET MU in the scratchpad of the CDU and push LSK 6R. The CDU will show CMU RESET DEBUG.
- (f) Push LSK 2L and then <RESET MU>.
- (g) After a few seconds, the CDU display will clear and the CMU will reset. The CMU is ready for operation.

SUBTASK 23-27-33-860-028

- (3) Do these steps to show the CMU part number page on the CDU. Start from the MENU page on the CDU:
 - (a) If the display does not show the DLK screen, push <DLK>.
 - (b) Push MAINT>.
 - (c) Push LSK 1L.
 - (d) Push <PART NUMBERS.



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- 1) The part numbers are shown on two pages. Push NEXT PAGE to show the second page.

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SUBTASK 23-27-33-470-028

- (4) Do these steps to install the CMU software from a floppy disk to the eADL:

- (a) Put software disk 1 of 2 in the disk drive.

NOTE: It may take one to two minutes for the installation to start.

- 1) Make sure that the eADL Main Menu is shown.
 - 2) Make your selection: Target Page.
 - a) This will show the Select Target System screen.
 - 3) Make your selection: Floppy Drive.
 - a) The eADL will show a Load Confirmation screen for the Floppy Drive.
 - 4) Make your selection: CONFIRM.
 - a) The eADL will show a Transfer In Progress screen with "LOADING".
 - 5) Do these steps on the CDU:
 - a) Push the MENU function key on the CDU.
 - b) Push the line select key (LSK) adjacent to the <DLNK prompt.
 - c) Push the LSK adjacent to the DATALOAD* prompt.

NOTE: If the DATALOAD* prompt does not show, it is because a higher priority prompt is present. This must be selected and cleared using the 6R key in order to see the DATALOAD* prompt.

- d) Push the LSK adjacent to the *PROCEED WITH DATALOAD prompt.
 - e) Make sure the message "SCREEN WILL BLANK WHILE DATALOAD IS IN PROGRESS" appears on the CDU.
- (b) When the data loader shows that it is ready for the subsequent disk, wait approximately 10 seconds and then remove software disk 1 of 2.

NOTE: CHNG, CHANGE DISK, DISK CHANGE and INSERT DISK are examples of data loader prompts for a subsequent disk.
- (c) Put software disk 2 of 2 in the disk drive.
- (d) In the Transfer In Progress screen, wait for the eADL to show "LOAD COMPLETE" or "COMPLETE".
- (e) Remove the disk from the disk drive when the software installation is completed.

NOTE: COMP, LOAD COMPLETE and TRANSF COMPLETE are examples of data loader prompts for a completed installation.
- (f) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

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- (g) Make sure the <DLNK prompt shows on the CDU.

NOTE: It can take up to 3 minutes for the prompt to show on the CDU.

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F. USB Flash Drive Software Installation

SUBTASK 23-27-33-470-030

- (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.

SUBTASK 23-27-33-470-026

- (2) Do these steps to install the software from the eADL MSD to the CMU:

- (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.”

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- 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 necessary software part number.

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.

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- (g) Do these steps on the CDU:
 - 1) Push the MENU function key.
 - 2) Push the line select key (LSK) adjacent to the <DLNK prompt.
 - 3) Push the LSK adjacent to the DATALOAD* prompt.

NOTE: If the DATALOAD* prompt does not show, it is because a higher priority prompt is present. This must be selected and cleared using the 6R key in order to see the DATALOAD* prompt.
- 4) Push the LSK adjacent to the *PROCEED WITH DATALOAD prompt.
- 5) Make sure the message "SCREEN WILL BLANK WHILE DATALOAD IS IN PROGRESS" appears on the CDU.

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- (h) Make sure these messages show on the eADL:
 - 1) The "TRANSFER" annunciator will change to "LOADING" and turn yellow during the installation procedure.
 - 2) The "LOADING" annunciator will change to "COMPLETE" and turn green when the installation procedure is completed.
- (i) Select "MAIN" to go back to the main menu.

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- (j) Make sure that the <DLNK prompt shows on the CDU.

NOTE: After approximately 3 minutes the prompt will show on the CDU.

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SUBTASK 23-27-33-860-029

- (3) Do these steps to make sure that the CMU starts correctly:

NOTE: After the software/database is loaded, additional steps are necessary. This is to make sure that the correct part number shows for the Air Traffic Control software/database after a data load.

- (a) Wait until the CMU is ready and the CDU displays <DLK>.
- (b) Push <DLK and then push MAINT>.
- (c) Enter the password SAM into the scratch pad of the CDU and push LINE SELECT KEY (LSK) 6R.
- (d) Push NEXT PAGE until the CDU screen shows CMU DEBUG 2/4.

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- (e) Enter the password RESET MU in the scratchpad of the CDU and push LSK 6R. The CDU will show CMU RESET DEBUG.
- (f) Push LSK 2L and then <RESET MU>.
- (g) After a few seconds, the CDU display will clear and the CMU will reset. The CMU is ready for operation.

SUBTASK 23-27-33-860-030

- (4) Do these steps to show the CMU part number page on the CDU. Start from the MENU page on the CDU:
 - (a) If the display does not show the DLK screen, push <DLK>.
 - (b) Push MAINT>.
 - (c) Push LSK 1L.
 - (d) Push <PART NUMBERS>.
 - 1) The part numbers are shown on two pages. Push NEXT PAGE to show the second page.

G. Software Installation Configuration Check

SUBTASK 23-27-33-470-023

- (1) Do this task: ACARS Communications Management Unit (CMU) Software Configuration Check, TASK 23-27-33-700-802.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 23-27-33-860-023

- (1) Close the eADL cover and tighten screws.

SUBTASK 23-27-33-860-024

- (2) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 23-27-33-860-020

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

———— END OF TASK ————

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TASK 23-27-33-470-801

4. ACARS Software Installation with a Portable Data Loader (PDL)

A. General

- (1) This procedure tells you how to install software in the aircraft communication addressing and reporting system (ACARS) with a portable data loader (PDL).
 - (a) The ACARS CMU must contain these pieces of software:
 - 1) Core software
 - 2) Operational software.
 - 3) Customer Unique Database software.
 - (b) The ACARS Operational software must be installed before the Customer Unique Database software. If the Operational software is already installed, then you can install only the Customer Unique Database software.

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AKS 002-999 (Continued)

- (2) A 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 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.
- (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, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.

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
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Procedure

SUBTASK 23-27-33-860-003

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

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AKS 002-999 (Continued)

SUBTASK 23-27-33-410-001

- (2) Do these steps to prepare for the software installation:

NOTE: Make sure that you know the correct software part numbers for the ACARS Communications Management Unit (CMU). For ACARS to be an approved installation, the correct software must be installed.

- (a) Make sure the system select switch on the data loader control panel (P61) is set to NORM or NORMAL.

CAUTION: MAKE SURE THAT THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE 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 THAT THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT 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

- (e) Do these steps at the data loader control panel:
1) Set the upper switch to L.
2) Set the system select switch to the ACARS/CMU position.

SUBTASK 23-27-33-020-002

- (3) SOFTWARE INSTALLATION WITH A PDL DISK DRIVE: 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.

- (a) Set the power switch on the data loader to the on position.
(b) Put the correct disk in the disk drive.
(c) Follow the prompts on the data loader to complete the installation.
1) If there is more than one disk to install, wait 10 seconds after each disk is completed before you remove and install the subsequent disk.
NOTE: CHNG, CHANGE DISK, DISK CHANGE and INSERT DISK are examples of data loader prompts for a subsequent disk.
(d) Remove the disk from the disk drive when the software installation is completed.
NOTE: COMP, LOAD COMPLETE and TRANSF COMPLETE are examples of data loader prompts for a completed installation.

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AKS 002-999 (Continued)

- (e) Make sure the <ACARS prompt shows on the CDU.

NOTE: It can take up to 3 minutes for the prompt to show on the CDU.

SUBTASK 23-27-33-470-007

- (4) Set the system select switch on the data loader control panel (P61) to NORM or NORMAL.

SUBTASK 23-27-33-470-008

- (5) Set the power switch on the PDL to the off position.

SUBTASK 23-27-33-860-031

- (6) Do these steps to make sure that the CMU starts correctly:

NOTE: After the software/database is loaded, additional steps are necessary. This is to make sure that the correct part number shows for the Air Traffic Control software/database after a data load.

- (a) After the load plug and data loader is disconnected from the CMU, turn on the CMU.
(b) Wait 10 seconds. Push and hold the black reset button on the CMU front panel until all the LED lights have come on. The LED lights are also on the CMU front panel.
(c) Release the reset button to start the CMU. The CMU is ready for operation.

SUBTASK 23-27-33-860-032

- (7) Do these steps to show the CMU part number page on the CDU. Start from the MENU page on the CDU:

- (a) If the display does not show the DLK screen, push <DLK.
(b) Push MAINT>.
(c) Push LSK 1L.
(d) Push <PART NUMBERS.

- 1) The part numbers are shown on two pages. Push NEXT PAGE to show the second page.

SUBTASK 23-27-33-470-002

- (8) Do this task: ACARS Communications Management Unit (CMU) Software Configuration Check, TASK 23-27-33-700-802.

F. Put The Airplane to Its Usual Condition

SUBTASK 23-27-33-020-003

CAUTION: MAKE SURE THAT THE CIRCUIT BREAKER FOR THE DATA LOADER IS OPEN BEFORE YOU CONNECT OR REMOVE THE INTERFACE CABLE. IF THE CIRCUIT BREAKER IS NOT OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	9	C00923	DATA LOADER

- (2) Remove the interface cable from the DATA TRANSFER UNIT RECEPTACLE.



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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

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

———— END OF TASK ————

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ACARS COMMUNICATIONS MANAGEMENT UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the ARINC Communications Addressing and Reporting System (ACARS) communications management unit (CMU).
 - (2) An installation of the ACARS communications management unit (CMU).
- B. The ACARS communications management unit (CMU) is located on the E4-1 shelf in the main equipment center.

TASK 23-27-33-020-801

2. ACARS Communications Management Unit (CMU) Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

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

D. Removal Procedure

SUBTASK 23-27-33-860-004

- (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>
------------	------------	---------------	-------------

AKS 001

E	7	C01484	CMU-2 AC
---	---	--------	----------

AKS ALL

E	8	C01483	CMU-1 AC
---	---	--------	----------

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

E	9	C01500	CMU/ACARS DC (INOP)
---	---	--------	---------------------

SUBTASK 23-27-33-010-001

- (2) Open this access panel:

Number Name/Location

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

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SUBTASK 23-27-33-020-004

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

- (3) Before you touch the CMU [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-27-33-020-005

- (4) Remove the CMU [1] from the shelf. To remove it, do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ————

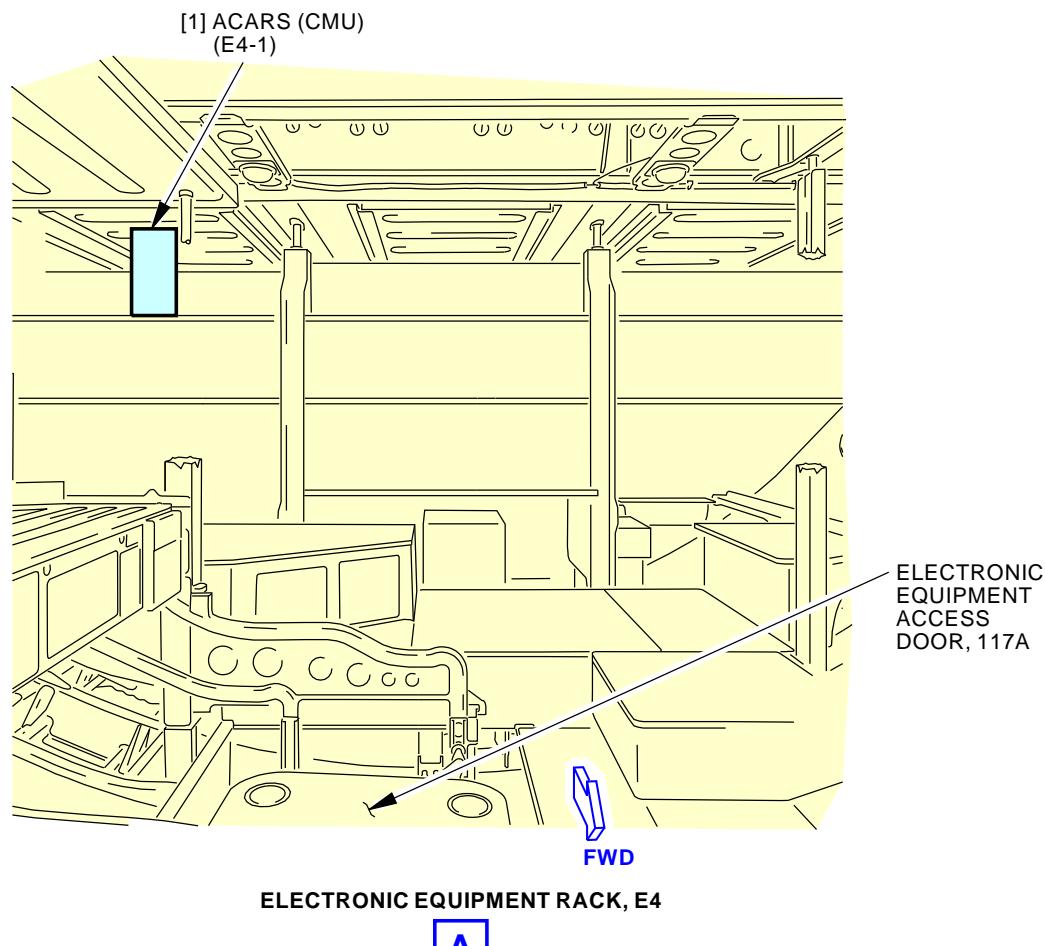
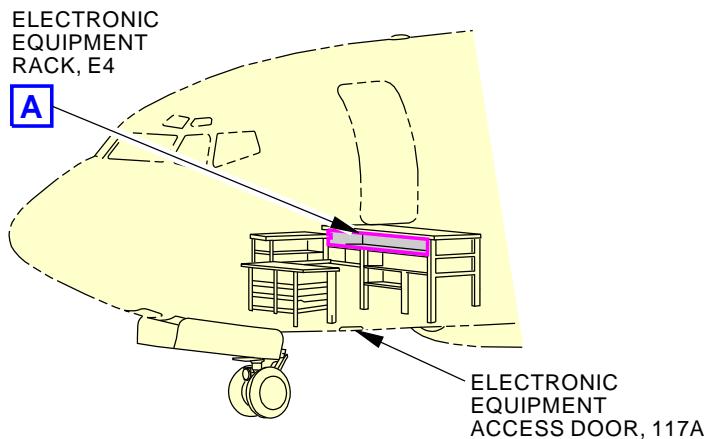
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Aircraft Communications Addressing and Reporting System (ACARS) Communications Management Unit (CMU) Installation
Figure 401/23-27-33-990-801



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TASK 23-27-33-420-801

3. **ACARS Communications Management Unit (CMU) Installation**

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
23-27-00-740-814-009	ACARS - Operational Test (P/B 501)
23-27-33-700-802	ACARS Communications Management Unit (CMU) Software Configuration Check (P/B 201)
23-27-35-700-801	ACARS Airplane Personality Module (APM) Data Verification Check (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Installation Procedure

SUBTASK 23-27-33-860-005

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

F/O Electrical System Panel, P6-1

Row Col Number Name

AKS 001

E 7 C01484 CMU-2 AC

AKS ALL

E 8 C01483 CMU-1 AC

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row Col Number Name

E 9 C01500 CMU/ACARS DC (INOP)

SUBTASK 23-27-33-420-001

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

- (2) Before you touch the CMU [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 23-27-33-410-002

- (3) Install the CMU [1]. To install it, do this task: E/E Box Installation, TASK 20-10-07-400-801.

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SUBTASK 23-27-33-860-006

- (4) 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>
------------	------------	---------------	-------------

AKS 001

E	7	C01484	CMU-2 AC
---	---	--------	----------

AKS ALL

E	8	C01483	CMU-1 AC
---	---	--------	----------

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

E	9	C01500	CMU/ACARS DC (INOP)
---	---	--------	---------------------

E. Installation Test

SUBTASK 23-27-33-860-033

- (1) Do a check of the software part number. Do this task: ACARS Communications Management Unit (CMU) Software Configuration Check, TASK 23-27-33-700-802.

SUBTASK 23-27-33-740-001

- (2) Do this task: ACARS - Operational Test, TASK 23-27-00-740-814-009.

NOTE: Allow sufficient time (approximately one minute) for the CMU to boot up.

SUBTASK 23-27-33-700-008

- (3) Do this task: (ACARS Airplane Personality Module (APM) Data Verification Check, TASK 23-27-35-700-801).

F. Put the Airplane Back to its Initial Condition.

SUBTASK 23-27-33-410-003

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
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117A	Electronic Equipment Access Door
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SUBTASK 23-27-33-860-007

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

———— END OF TASK ————



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AIRPLANE PERSONALITY MODULE (APM) - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) ACARS APM software configuration check.
 - (2) ACARS APM software installation.

TASK 23-27-35-700-801

2. ACARS Airplane Personality Module (APM) Data Verification Check

A. General

- (1) This data verification check makes sure the APM contains the correct data values.
- (2) A Flight Management Multi-Purpose Control and Display Unit (MCDU) is necessary for this procedure.

B. References

Reference	Title
23-27-33-020-801	ACARS Communications Management Unit (CMU) Removal (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)
34-61-00-730-801	Flight Management Computer System - System Test (P/B 501)

C. Location Zones

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

D. Procedure

SUBTASK 23-27-35-860-005

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

SUBTASK 23-27-35-840-001

- (2) Make sure that the Flight Management Computer System is serviceable (TASK 34-61-00-730-801).

SUBTASK 23-27-35-730-005

- (3) Do these steps on multi-purpose control display unit (MCDU-2) to do an APM software verification check:
 - (a) Push the MENU key on both MCDUs.
 - 1) Make sure the MAIN menu shows on both MCDUs.
 - (b) Push the line select key (LSK) adjacent to the <DLK prompt on MCDU-1 and MCDU-2.
 - 1) Make sure that the DATALINK (DLK) MENU shows on the two MCDU displays.
 - (c) Push the LSK adjacent to the MAINT> prompt.
 - (d) Push the LSK adjacent to the <APM prompt.
 - 1) Make sure the ICAO address or code, airline ID and airplane registration number are correct.

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- 2) If the ICAO address or code, airline ID or airplane registration number are not correct, do this task: ACARS Airplane Personality Module (APM) Software Installation, TASK 23-27-35-700-802
or replace the ACARS APM (TASK 23-27-33-020-801).
 - (e) Push the LSK 6L twice to get back to DATALINK (DLK) MENU.

E. Return The Airplane To Its Usual Condition

SUBTASK 23-27-35-862-001

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

———— END OF TASK ————

TASK 23-27-35-700-802

3. ACARS Airplane Personality Module (APM) Software Installation

A. General

- (1) This software installation writes data values into the APM.
- (2) A Flight Management Multi-Purpose Control and Display Unit (MCDU) 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)
34-61-00-730-801	Flight Management Computer System - System Test (P/B 501)

C. Location Zones

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

D. Procedure

SUBTASK 23-27-35-860-006

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

SUBTASK 23-27-35-840-002

- (2) Make sure that the Flight Management Computer System is serviceable (TASK 34-61-00-730-801).

SUBTASK 23-27-35-730-009

- (3) Do these steps on the #1 multi-purpose control display unit (MCDU-1) to write data into the APM:
 - (a) Push the MENU key on both MCDUs.
 - 1) Make sure the MAIN menu shows on both MCDUs.
 - (b) Push the line select key (LSK) adjacent to the <DLK prompt on MCDU-1.
 - 1) Make sure that the DATALINK (DLK) MENU page shows on the MCDU display.
 - (c) Push the LSK adjacent to the MAINT> prompt.
 - 1) Make sure that the CMU MAINTENANCE page shows on the MCDU display.
 - (d) Enter "SAM" in the MCDU scratchpad.
 - (e) Push the LSK 6R (blank key).



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- 1) Make sure that CMU DEBUG page is displayed.
- (f) Push the LSK adjacent to VDRS.
 - 1) Make sure that ACARS VDRS DEBUG menu is displayed.
- (g) Record the Transponder/Broadcast ICAO code (BC ICAO), shown at LSK 5R, for later use.
 - BC ICAO code: _____.
- (h) Select the LSK adjacent to RETURN to go back to the DEBUG MENU page.
- (i) Select the LSK adjacent to the MAINT MENU.
- (j) Enter "SERGE" into the MCDU scratchpad.
- (k) Push the LSK 1R (blank key).
 - 1) Make sure that the CMU INIT page is displayed.
- (l) Push the LSK adjacent to <AIRLINE ID>.
 - 1) Make sure that CMU AIRLINE ID INIT page is displayed.
- (m) Enter into the MCDU scratchpad the airline ID, a forward slash "/", followed by a three character ICAO code.

NOTE: Manual entry of Airline ID is required for the CMU.
- (n) Select LSK 2L MANUAL.
- (o) Push the LSK adjacent to <SELECT until the <SEL> indicator is adjacent to the LSK 2L.
- (p) Record the two letter Airline ID entered on the AIRLINE ID INIT page.
 - Airline ID: _____.
- (q) Push the LSK adjacent to the RETURN until the CMU MAINTENANCE menu is displayed.
- (r) Push the LSK adjacent to the <APM prompt>.
 - 1) Make sure that the CMU APM MENU shows on the MCDU display.
- (s) Push the LSK adjacent to the EDIT> prompt.
 - 1) Make sure that the CMU APM EDIT page shows on the MCDU display.
- (t) Use the MCDU keypad to enter "THUYVAN" in the scratchpad.
- (u) Push the LSK adjacent to the boxes under the ENTER PASSWORD prompt.
- (v) Push the LSK adjacent to the CONTINUE> prompt.
 - 1) Make sure that the CMU APM EDIT page 1 of 4 (1/4) shows on the MCDU display.
- (w) Push the LSK adjacent to the line below the A/C TYPE prompt.
 - 1) Make sure that the CMU AIRCRAFT TYPE shows on the MCDU display.
 - 2) Push the LSK adjacent to the <B737NG>.
 - 3) Push the LSK adjacent to the <RETURN>.
- (x) Use the MCDU-2 keypad to enter the registration number of the airplane as shown on the captain's or first officer's main instrument panel placard in the scratchpad.

NOTE: Enter 7 characters. If the registration number is less than 7 characters, enter leading decimal points. Example: ..N1239 or .A-2345

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Examples of aircraft registration number verses scratchpad entry:

DISPLAYED ON PLACARD	ENTER IN SCRATCHPAD
N1239	..N1239
A-2345	.A-2345
N123456	N123456

- (y) Push the LSK adjacent to the line under the A/C REG prompt.
 - 1) Make sure that the aircraft registration number displayed at the LSK adjacent to the A/C REG agrees with the registration number on the Captain's or First Officer's Main Instrument Panel placard.
- (z) Use the MCDU keypad to enter the ICAO Address number of the airplane in the scratchpad.
NOTE: The transponder/ICAO code was recorded at an earlier step.
NOTE: The ICAO code must be converted to hexadecimal, which is 6 characters. Type the hexadecimal value of the ICAO number into the scratchpad. See W/D 34-53-11 or 34-53-21.
 - (aa) Push the LSK adjacent to the line under the ICAO ADDR prompt.
 - (ab) Push the LSK adjacent to the HFDR1 DLK prompt until HFDR1 DLK shows.
 - (ac) Push the LSK adjacent to the HFDR2 DLK prompt until NO HFDR2 DLK shows.
 - (ad) Push the NEXT PAGE function key.
 - 1) Make sure that the CMU APM EDIT page 2 of 4 (2/4) shows on the MCDU display.
 - (ae) Push the LSK adjacent to the ARINC 750 line until CLASSIC 750 shows.
 - (af) Push the LSK adjacent to VDR1 until VDR1 NOT INSTALLED shows.
 - (ag) Push the LSK adjacent to VDR2 until VDR2 NOT INSTALLED shows.
 - (ah) Push the LSK adjacent to VDR3 until VDR3 INSTALLED shows.
 - (ai) Make sure B738 is displayed at LSK 5L PDC A/C Type. If B738 is not displayed then enter B738 in the scratchpad and select LSK 5L.
 - (aj) Push the NEXT PAGE function key.
 - 1) Make sure that the CMU APM EDIT page 3 of 4 (3/4) shows on the MCDU display.
 - (ak) Push the LSK adjacent to PRT until PRT INSTALLED shows.
 - (al) Push the NEXT PAGE function key on the MCDU.
 - 1) Make sure that the CMU APM EDIT page 4 of 4 (4/4) is displayed.
 - (am) Enter into the MCDU scratchpad the airline ID, a forward slash "/" followed by the three character ICAO code.
 - (an) Select ACARS AIRLINE ID LSK 4L.
 - (ao) Push the LSK adjacent to the line below ATN CPDLC until the CMU shows.
 - (ap) Push the LSK adjacent to the line below ATN VER until the 41 shows.
 - (aq) Use the MCDU keypad to enter the 6 character hexadecimal value of the ADM code in the scratchpad.
NOTE: The 6 character hexadecimal value of the ADM code also known as the AIRLINE ICAO DESIGNATOR HEX code.
 - (ar) Push LSK adjacent to the boxes below ATN ADM.

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- (as) Push the LSK adjacent to the STORE AND RESET> prompt.
NOTE: The CMU will reset. This may take up to two minutes.
- (at) Make sure that the <DLK prompt shows on the MCDU MENU.
- (au) When the <DLK prompt shows on the MCDU display, make sure that the changes you made were saved. To verify the APM data, do this task: ACARS Airplane Personality Module (APM) Data Verification Check, TASK 23-27-35-700-801.

SUBTASK 23-27-35-200-002

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

———— END OF TASK ————

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ACARS AIRPLANE PERSONALITY MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the ARINC Communications Addressing and Reporting System (ACARS) airplane personality module (APM).
 - (2) An installation of the ACARS airplane personality module (APM).
- B. The APM [1] is located behind the ACARS communications management unit (CMU) , M02127, on the E4-1 shelf in the main equipment center.

TASK 23-27-35-020-801

2. ACARS Airplane Personality Module (APM) Removal

(Figure 401)

A. References

Reference	Title
20-40-12-000-801	ESDS Handling for Printed Circuit Board Removal (P/B 201)
25-52-16-000-801	Forward Cargo Compartment Forward Bulkhead Liner - Removal (P/B 401)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
821	Forward Cargo Door

D. Removal Procedure

SUBTASK 23-27-35-860-001

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
AKS 001			
E	7	C01484	CMU-2 AC
AKS ALL			
E	8	C01483	CMU-1 AC

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	9	C01500	CMU/ACARS DC (INOP)

EFFECTIVITY
AKS ALL

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SUBTASK 23-27-35-010-001

- (2) Open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 23-27-35-010-002

- (3) Open this access panel:

Number Name/Location

821 Forward Cargo Door

SUBTASK 23-27-35-020-001

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

- (4) Before you touch the APM [1], do this task: ESDS Handling for Printed Circuit Board Removal,
TASK 20-40-12-000-801.

SUBTASK 23-27-35-020-005

- (5) For the E4-1 shelf, do these steps to remove the APM [1]:

NOTE: Access to the APM [1] is from the forward cargo area, through the right bulkhead
panel [5] and the wire bundle disconnect bracket [4] on the back of the E4-1 shelf.

- (a) Remove the right bulkhead panel [5] (TASK 25-52-16-000-801).
- (b) From behind the E4-1 shelf, loosen the four fasteners that hold the E4-1 shelf wire bundle
disconnect bracket [4].
- (c) Lower the E4-1 shelf wire bundle disconnect bracket [4] for access to the APM [1].
- (d) Remove the two screws [2] that hold the APM [1] to the APM support bracket [6].
- (e) Loosen the two fasteners that hold the connector [3] to the APM [1].
- (f) Disconnect the connector [3] and remove the APM [1].

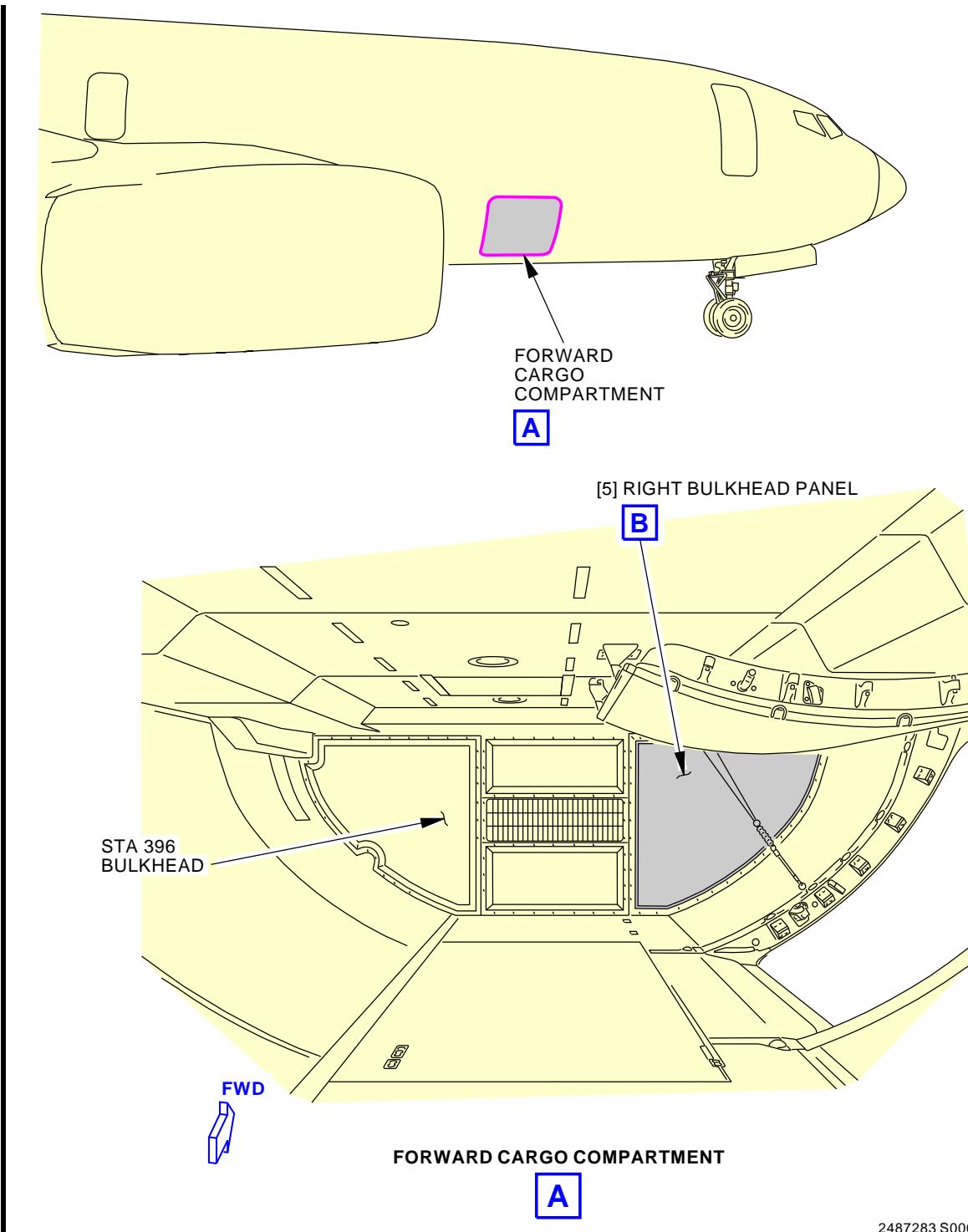
———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-27-35



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AIRCRAFT MAINTENANCE MANUAL



2487283 S0000585416_V1

Aircraft Communications Addressing and Reporting System (ACARS) Airplane Personality Module
(APM) E4-1
Figure 401/23-27-35-990-806 (Sheet 1 of 2)

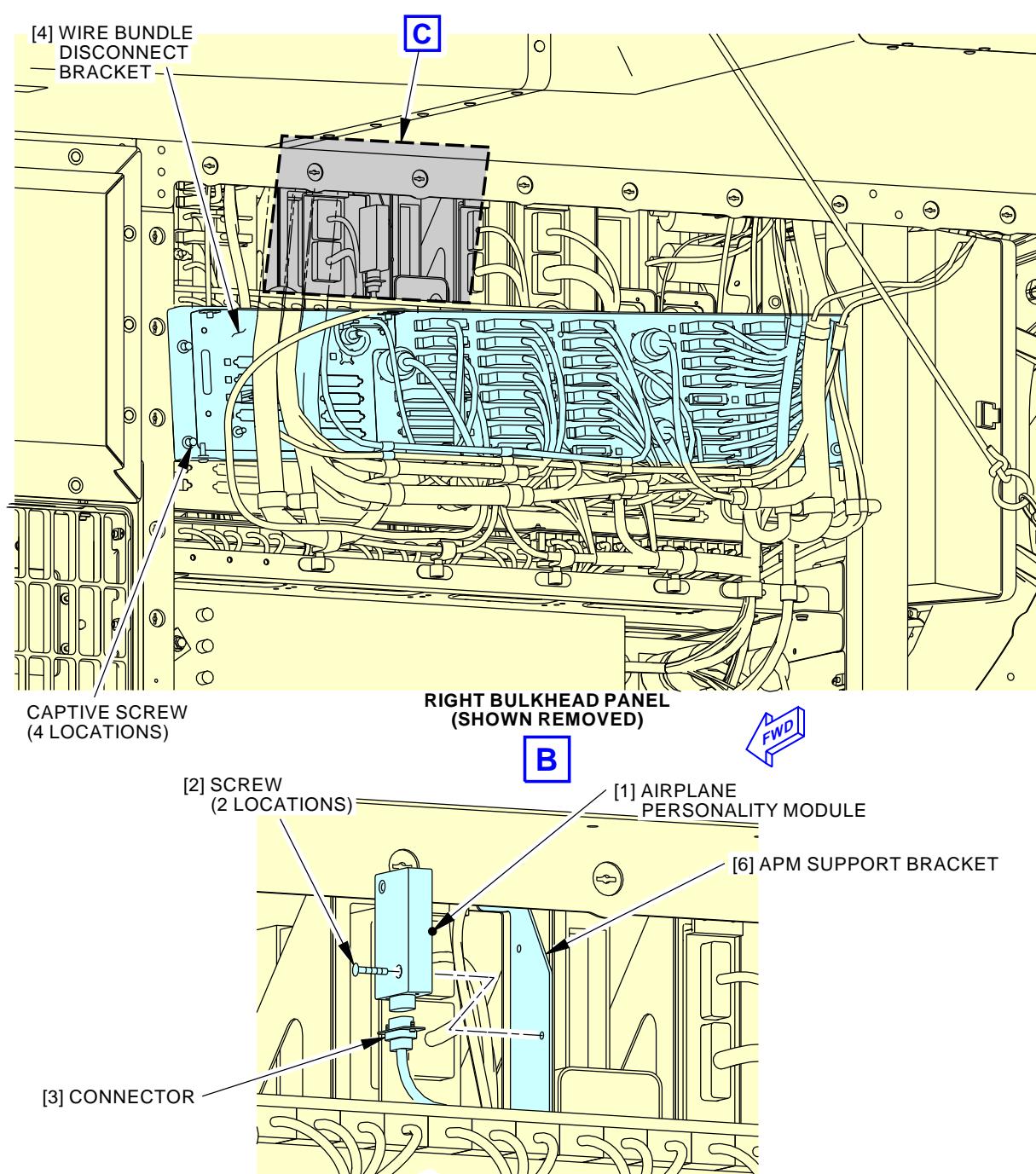
EFFECTIVITY
AKS ALL

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2487565 S0000585423_V1

Aircraft Communications Addressing and Reporting System (ACARS) Airplane Personality Module (APM) E4-1
Figure 401/23-27-35-990-806 (Sheet 2 of 2)

 EFFECTIVITY
 AKS ALL

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TASK 23-27-35-420-801

3. ACARS Airplane Personality Module (APM) Installation
(Figure 401)

A. References

Reference	Title
20-40-12-400-801	ESDS Handling for Printed Circuit Board Installation (P/B 201)
23-27-00-740-814-009	ACARS - Operational Test (P/B 501)
23-27-35-700-801	ACARS Airplane Personality Module (APM) Data Verification Check (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
25-52-16-400-801	Forward Cargo Compartment Forward Bulkhead Liner - Installation (P/B 401)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	APM	23-27-35-05-005	AKS ALL

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
821	Forward Cargo Door

E. Installation Procedure

SUBTASK 23-27-35-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
AKS 001			
E	7	C01484	CMU-2 AC
AKS ALL			
E	8	C01483	CMU-1 AC

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	9	C01500	CMU/ACARS DC (INOP)



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SUBTASK 23-27-35-020-003

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

- (2) Before you touch the APM [1], do this task: ESDS Handling for Printed Circuit Board Installation, TASK 20-40-12-400-801.

SUBTASK 23-27-35-420-001

- (3) For the E4-1 shelf, do these steps to install the APM [1]:

NOTE: Access to the APM [1] is from the forward cargo area, through the right bulkhead panel [5] and the wire bundle disconnect bracket [4] in the back of the E4-1 shelf.

- (a) Connect the APM [1] to the connector [3].
- (b) Tighten the two fasteners that hold the connector [3] to the APM [1].
- (c) Install the two screws [2] that hold the APM [1] to the APM support bracket [6].
- (d) Install the E4-1 shelf wire bundle disconnect bracket [4].
 - 1) Make sure the four fasteners that secure the wire bundle disconnect bracket [4] are tightened.
- (e) Install the right bulkhead panel [5] (TASK 25-52-16-400-801).

SUBTASK 23-27-35-860-003

- (4) 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>
------------	------------	---------------	-------------

AKS 001

E	7	C01484	CMU-2 AC
---	---	--------	----------

AKS ALL

E	8	C01483	CMU-1 AC
---	---	--------	----------

This circuit breaker is inoperative and should remain open:

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

E	9	C01500	CMU/ACARS DC (INOP)
---	---	--------	---------------------

F. Installation Test

SUBTASK 23-27-35-700-004

- (1) Do this task: ACARS Airplane Personality Module (APM) Data Verification Check, TASK 23-27-35-700-801.

SUBTASK 23-27-35-740-001

- (2) Do this task: ACARS - Operational Test, TASK 23-27-00-740-814-009.

G. Put the Airplane Back to its Initial Condition.

SUBTASK 23-27-35-410-001

- (1) Close this access panel:

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

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

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SUBTASK 23-27-35-410-002

- (2) Close this access panel:

Number Name/Location

821 Forward Cargo Door

SUBTASK 23-27-35-860-004

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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SELCAL SYSTEM - MAINTENANCE/PRACTICES

1. General

- A. This procedure has these tasks:
- (1) SELCAL System Deactivation.
 - (2) SELCAL System Activation.
 - (3) SELCAL Program Switch Module switch settings

TASK 23-28-00-040-801

2. SELCAL System - Deactivation

(Figure 201)

A. General

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

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-28-00-860-011

- (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>
D	15	C00058	COMMUNICATIONS SELCAL

D. SELCAL System - Tryout

SUBTASK 23-28-00-860-012

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

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	15	C00058	COMMUNICATIONS SELCAL

SUBTASK 23-28-00-700-002

- (2) Do the following:

- (a) Set the captain's audio control panel to the VHF 1 communication system.
- (b) Set the VHF 1 to an approved test frequency.
- (c) Have a SELCAL identified signal transmitted on the VHF 1 test frequency.

NOTE: If a station is not available to transmit from, make a SELCAL signal with a SELCAL ground station encoder. Make sure the signal is approved and the set to the SELCAL code for the airplane.

- (d) Make sure the VHF 1 light on the SELCAL control panel does not come on.
- (e) Make sure the VHF 1 call light on all audio control panels does not come on.

EFFECTIVITY	AKS ALL
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- (f) Make sure you do not hear a single high-low chime in the flight compartment.

———— END OF TASK ——

———— EFFECTIVITY ——
AKS ALL

23-28-00

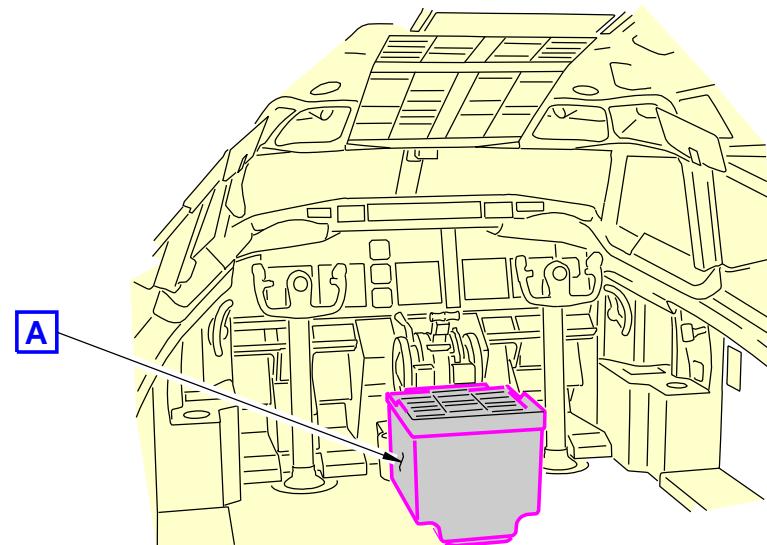
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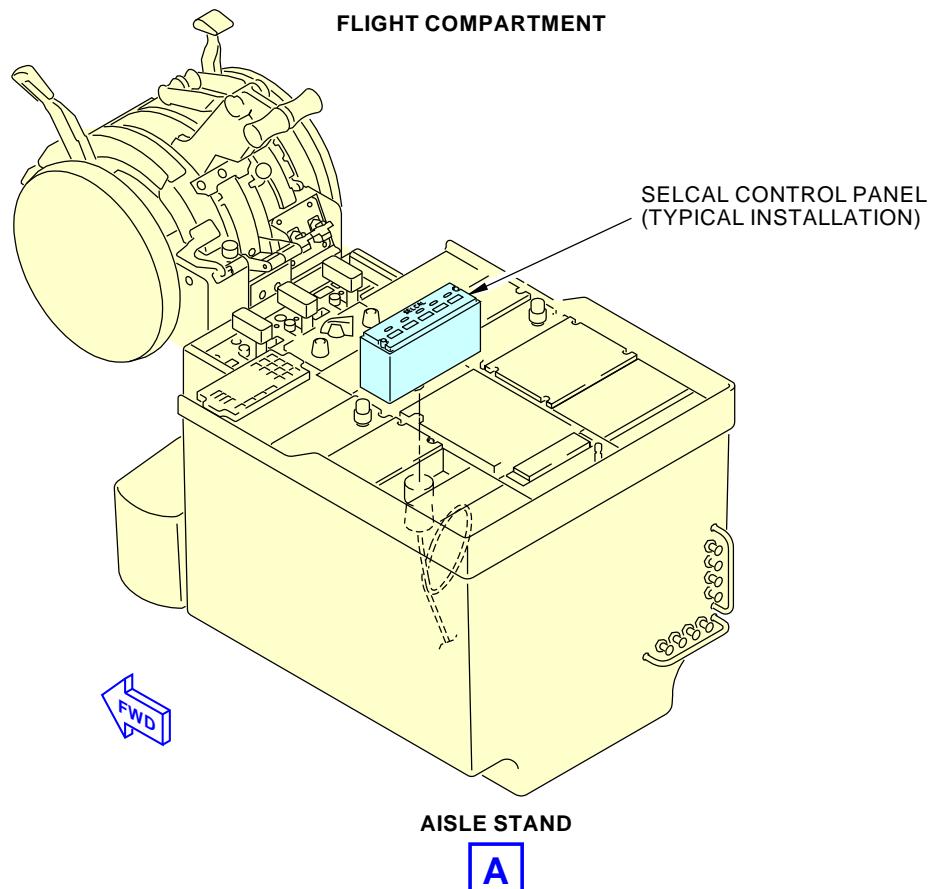
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FLIGHT COMPARTMENT



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SECAL Control Panel
Figure 201/23-28-00-990-802

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TASK 23-28-00-440-801

3. SELCAL System - Activation

(Figure 201)

A. General

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

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-28-00-860-013

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	15	C00058	COMMUNICATIONS SELCAL

———— END OF TASK ————

TASK 23-28-00-860-801

4. SELCAL Program Switch Module switch settings

A. General

- (1) This task includes the steps to set the DIP switches on the SELCAL Program Switch Module (PSM), M1995. The PSM is located at the rear side of the E4-1 electronics shelf.
- (2) This procedure is used to change the SELCAL code (four letter code) when required as a result of an airplane registry change.

B. References

Reference	Title
23-28-00-700-801	SELCAL System - Operational Test (P/B 501)
WDM 23-22-11	Wiring Diagram Manual

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 23-28-00-860-010

- (1) When necessary, set the SELCAL program switch module switch settings as follows:

NOTE: See WDM 23-22-11 for specific airplane switch settings.

- (a) Look at the SELCAL coding table in WDM 23-22-11 and find the airplane you are performing this task on.

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- (b) Look at the airplane identification placard in the flight compartment (pilots' instrument panels) to make sure that the SELCAL code is same.
- (c) In the forward cargo compartment, open an access panel to get access the rear side of the E4 electronics rack.
NOTE: The SELCAL PSM, M1995 is on the rear side of the E4-1 electronics rack.
- (d) Loosen the two captive screws [4] and washers [5] to remove the security cover [3] from the PSM [1].
- (e) Remove the switch seals [2] to get access to the DIP switches [6].
- (f) Find the same airplane code in WDM 23-22-11 and read across all columns to find all switch settings.
- (g) Move the DIP switches [6] to the ON/OFF position according to the WDM 23-22-11.
 - For each switch where you find a "0", set the switch to ON.
 - For each switch where you find a "1", set the switch to OFF.
 - For each switch where you find unused or not connected, set the switch to OFF.
 - 1) If it is necessary to convert the SELCAL code (four letter code) to Binary code, see the SELCAL letter code to binary code conversion table in Figure 202.
 - 2) Make sure that all the DIP switches are set correctly.
- (h) Install the two switch seals [2] to cover the DIP switches.
- (i) Put the security cover [3] on the PSM [1]. Tighten the two captive screws [4] and washers [5] to attach the security cover [3] on the PSM [1].
- (j) Install the access panel for the E4 electronics rack.

E. Operational Test

SUBTASK 23-28-00-710-022

- (1) Do this task: SELCAL System - Operational Test, TASK 23-28-00-700-801.

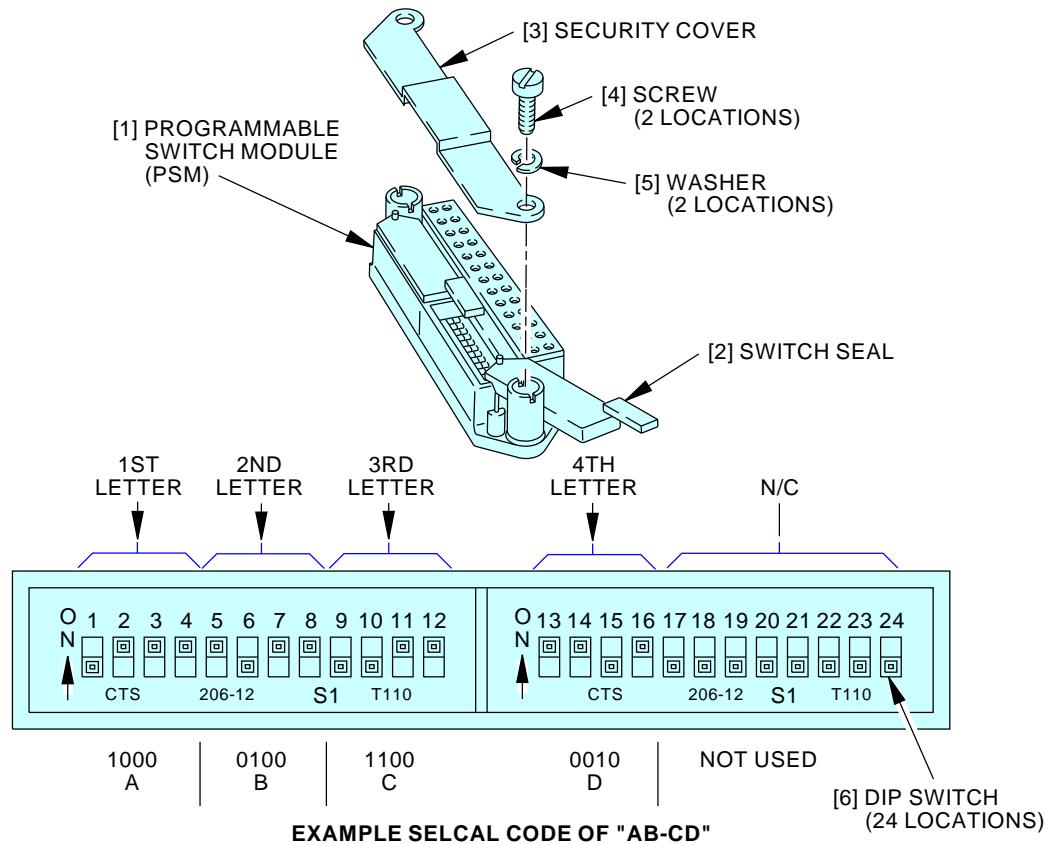
———— END OF TASK ————



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NOTE:

"0"=SWITCH ON

"1"=SWITCH OFF

"NOT UNUSED"=SWITCH OFF

SELCAL LETTER CODE	BINARY CODE
A	1000
B	0100
C	1100
D	0010
E	1010
F	0110
G	1110
H	0001
J	1001
K	0101
L	1101
M	0011
P	1011
Q	0111
R	1111
S	0000

**SELCAL LETTER CODE TO BINARY CODE
CONVERSION TABLE**

2304013 S0000522986_V2

**SELCAL Program Switch Module Switch Settings
Figure 202/23-28-00-990-801**

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SELCAL - ADJUSTMENT/TEST

1. General

- A. This procedure has this task:
- (1) An operational test of the Selective Calling (SELCAL) system.

TASK 23-28-00-700-801

2. SELCAL System - Operational Test

A. References

Reference	Title
23-11-00-710-801	HF Communication System - Operational Test (P/B 501)
23-12-00-710-801	VHF Communication System - Operational Test (P/B 501)
23-51-00-710-801	Flight Interphone System - Operational 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)

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-1613	Transmitter Tester - Selcal, Ground Equipment
	Part #: CTS-700 Supplier: 30242
	Part #: IFR 4000 Supplier: 51190
	Part #: N1304B-1 Supplier: 30242
	Opt Part #: N1304A Supplier: 30242

C. Location Zones

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

D. Procedure

SUBTASK 23-28-00-860-001

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

SUBTASK 23-28-00-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	15	C00058	COMMUNICATIONS SELCAL

SUBTASK 23-28-00-860-003

- (3) Make sure that the HF communication system (TASK 23-11-00-710-801) and VHF communication system (TASK 23-12-00-710-801) are serviceable.

SUBTASK 23-28-00-860-007

- (4) Make sure that the Flight Interphone System (TASK 23-51-00-710-801) is serviceable.

SUBTASK 23-28-00-710-008

- (5) Do the steps that follow for VHF 1:

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- (a) Set the captain's audio control panel to the VHF 1 communication system.
- (b) Set the VHF 1 to an approved test frequency.
- (c) Have a SELCAL identified signal transmitted on the VHF 1 test frequency.
NOTE: If a station is not available to transmit from, make a SELCAL signal with a SELCAL ground station encoder. Make sure the signal is approved and the SELCAL Transmitter/Tester, COM-1613 set to the SELCAL code for the airplane.
- (d) Make sure the VHF 1 call light on all the audio control panels comes on.
- (e) Make sure you hear a single high-low chime in the flight compartment.
- (f) Push the push-to-talk (PTT) switch on the Captain's or the First Officer's control wheel.
- (g) Make sure the VHF 1 light on all the audio control panels goes off.

SUBTASK 23-28-00-710-010

- (6) Do the steps that follow for VHF 2:
 - (a) Set the captain's audio control panel to the VHF 2 communication system.
 - (b) Set the VHF 2 to an approved test frequency.
 - (c) Have a SELCAL identified signal transmitted on the VHF 2 test frequency.
NOTE: If a station is not available to transmit from, make a SELCAL signal with a SELCAL ground station encoder. Make sure the signal is approved and the SELCAL Transmitter/Tester, COM-1613 set to the SELCAL code for the airplane.
 - (d) Make sure the VHF 2 call light on all the audio control panels comes on.
 - (e) Make sure you hear a single high-low chime in the flight compartment.
 - (f) Push the push-to-talk (PTT) switch on the Captain's or the First Officer's control wheel.
 - (g) Make sure the VHF 2 light on all the audio control panels goes off.

SUBTASK 23-28-00-710-012

- (7) Do the steps that follow for VHF 3:
 - (a) Set the captain's audio control panel to the VHF 3 communication system.
 - (b) Set the VHF 3 to an approved test frequency.
 - (c) Have a SELCAL identified signal transmitted on the VHF 3 test frequency.
NOTE: If a station is not available to transmit from, make a SELCAL signal with a SELCAL ground station encoder. Make sure the signal is approved and the SELCAL Transmitter/Tester, COM-1613 set to the SELCAL code for the airplane.
 - (d) Make sure the VHF 3 call light on all the audio control panels comes on.
 - (e) Make sure you hear a single high-low chime in the flight compartment.
 - (f) Push the push-to-talk (PTT) switch on the Captain's or the First Officer's control wheel.
 - (g) Make sure the VHF 3 light on all the audio control panels goes off.

SUBTASK 23-28-00-710-014

- (8) Do the steps that follow for HF 1:
 - (a) Set the captain's audio control panel to the HF 1 communication system.
 - (b) Set the HF 1 to an approved test frequency.

EFFECTIVITY	AKS ALL
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- (c) Have a SELCAL identified signal transmitted on the HF 1 test frequency.

NOTE: If a station is not available to transmit from, make a SELCAL signal with a SELCAL ground station encoder. Make sure the signal is approved and the SELCAL Transmitter/Tester, COM-1613 set to the SELCAL code for the airplane.

- (d) Make sure the HF 1 call light on all the audio control panels comes on.
(e) Make sure you hear a single high-low chime in the flight compartment.
(f) Push the push-to-talk (PTT) switch on the Captain's or the First Officer's control wheel.
(g) Make sure the HF 1 light on all the audio control panels goes off.

SUBTASK 23-28-00-860-006

- (9) Set the communication systems back to their usual conditions.

SUBTASK 23-28-00-860-004

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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SELCAL DECODER - REMOVAL/INSTALLATION

1. **General**

- A. This procedure has these tasks:
 - (1) A removal of the selective calling (SELCAL) decoder.
 - (2) An installation of the SELCAL decoder.
- B. The SELCAL decoder is located on the E4-1 electronics shelf in the main equipment center.

TASK 23-28-11-020-801

2. **SELCAL Decoder Unit Removal**

(Figure 401)

A. **References**

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. **Location Zones**

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. **Access Panels**

Number	Name/Location
117A	Electronic Equipment Access Door

D. **Removal Procedure**

SUBTASK 23-28-11-010-001

- (1) Open this access panel to get access to the main equipment center:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 23-28-11-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	15	C00058	COMMUNICATIONS SELCAL

SUBTASK 23-28-11-860-002

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

- (3) Before you touch the SELCAL decoder [1], do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.



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SUBTASK 23-28-11-020-001

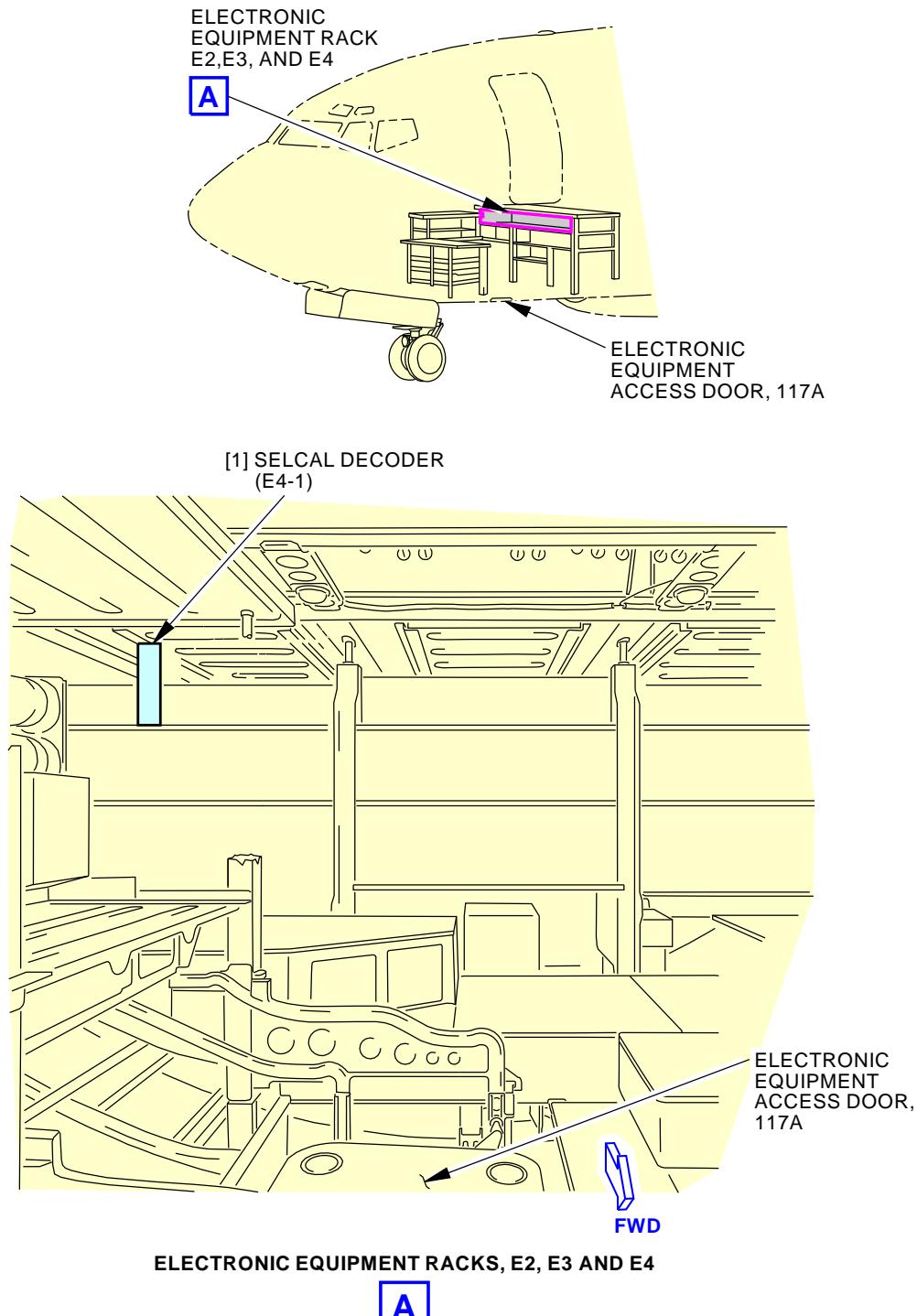
- (4) Remove the SELCAL decoder [1] from the shelf. To remove it, do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

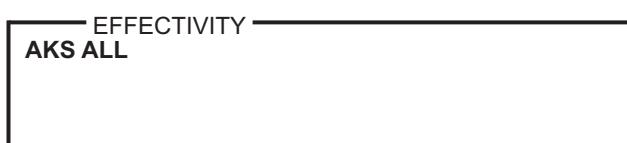
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Selective Calling (SELCAL) Decoder Installation
Figure 401/23-28-11-990-801



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TASK 23-28-11-420-801

3. **SELCAL Decoder Installation**

(Figure 401)

A. **References**

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
23-12-00-710-801	VHF Communication System - Operational 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)

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-1613	Transmitter Tester - Selcal, Ground Equipment
	Part #: CTS-700 Supplier: 30242
	Part #: IFR 4000 Supplier: 51190
	Part #: N1304B-1 Supplier: 30242
	Opt Part #: N1304A Supplier: 30242

C. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	SELCAL decoder	23-22-11-02-005	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 23-28-11-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	15	C00058	COMMUNICATIONS SELCAL

SUBTASK 23-28-11-860-004

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

- (2) Before you touch the SELCAL decoder [1], do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

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SUBTASK 23-28-11-420-001

- (3) Install the SELCAL decoder [1] on the shelf. To install it, do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 23-28-11-860-005

- (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>
D	15	C00058	COMMUNICATIONS SELCAL

G. Installation Test

SUBTASK 23-28-11-860-006

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

SUBTASK 23-28-11-860-007

- (2) Make sure that the VHF communication system (TASK 23-12-00-710-801) is serviceable.

SUBTASK 23-28-11-700-002

- (3) Do the SELCAL decoder installation test.

(a) Set the captain's audio control panel to the VHF 1 communication system.

(b) Set the VHF 1 to an approved test frequency.

1) Make sure you can communicate on this system.

(c) Have a SELCAL identified signal transmitted on the VHF 1 test frequency.

NOTE: If a station is not available to transmit from, make a SELCAL signal with a SELCAL ground station encoder. Make sure the signal is approved and the SELCAL Transmitter/Tester, COM-1613 set to the SELCAL code for the airplane.

(d) Make sure the VHF 1 call light on all audio control panels comes on.

(e) Make sure you hear a single high-low chime in the flight compartment.

(f) Push the push-to-talk (PTT) switch on the Captain's or the First Officer's control wheel.

(g) Make sure the VHF 1 light on all the audio control panels goes off.

(h) Set the communication system back to its usual condition.

H. Put the Airplane Back to Its Initial Condition

SUBTASK 23-28-11-410-001

- (1) Close this access panel for the main equipment center:

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

SUBTASK 23-28-11-860-008

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

———— END OF TASK ————



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PASSENGER ADDRESS SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure does a full test of the passenger address system.
- C. This procedure contains:
 - (1) An operational test of the passenger address system
 - (2) A system flight mode test of the sound level in the passenger cabin.

TASK 23-31-00-740-801

2. Passenger Address System - Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The operational test is a fast check of the system. The test has a number of different parts. All parts of the test follow in a given sequence.
- (2) The operational test has these test sections:
 - (a) Passenger Address Operation Test
 - (b) Chime Operation Test

B. References

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

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 23-31-00-860-007

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-31-00-710-005

- (2) Do a test to do a check of the Passenger Address priority system from the aft control stand:
 - (a) Attach a PA microphone to the jack (D6001) on the aft control stand if a microphone or handset is not installed.
 - (b) Push and hold the PTT switch on the control stand PA microphone.
 - 1) Make sure you can hear the announcement from these speakers:
 - a) Attendant's speakers.
 - b) Lavatory speakers
 - c) PSU speakers
 - (c) Release the PTT switch.
 - (d) Remove the PA microphone from the jack as applicable.

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SUBTASK 23-31-00-710-027

- (3) Do a test of the passenger address operation from the captain's boom mic:
 - (a) Push and hold the PTT switch on the captain's control wheel to MIC.
 - (b) Speak into the captain's boom mic
 - 1) Make sure you can hear the announcement from these speakers:
 - a) Attendant's speakers.
 - b) Lavatory speakers
 - c) PSU speakers

SUBTASK 23-31-00-710-017

- (4) Do a test of the passenger address operation from a forward attendant station:
 - (a) Set the attendant handset to the PA mode.
 - (b) Push and hold the PTT switch on the captain's control wheel to the MIC position.
 - (c) Push the PTT button on the attendant handset.
 - (d) At the same time, speak into the captain's boom mic and have someone speak into the attendant handset.
 - 1) Make sure you can hear the captain's announcement on these speakers:
 - a) Attendant's speakers.
 - b) Lavatory speakers
 - c) PSU speakers
 - 2) Make sure you cannot hear the announcement from the attendant handset on the speakers.
 - (e) Release the PTT switch on the captain's control wheel.
 - 1) Make sure you can hear the announcement from the attendant handset on the speakers.
 - 2) Make sure that you cannot hear the announcement on the forward attendant speakers.
 - (f) Put the attendant handset in the handset cradle.
 - (g) Do this test again using a handset from a different Forward attendant station (if installed).

SUBTASK 23-31-00-710-028

- (5) Do a test of the passenger address operation from an aft attendant station:
 - (a) Set the handset from an aft attendant station to the PA mode.
 - (b) Push and hold the PTT switch on the captain's control wheel to the MIC position.
 - (c) Push the PTT button on the attendant handset.
 - (d) At the same time, speak into the captain's boom mic and have someone speak into the aft attendant handset.
 - 1) Make sure you can hear the captain's announcement on the attendant, PSU, and lavatory speakers.
 - 2) Make sure you cannot hear the announcement from the attendant handset on the speakers.
 - (e) Release the PTT switch on the captain's control wheel.

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- 1) Make sure you can hear the announcement from the attendant handset on the forward attendant, PSU, and lavatory speakers.
- 2) Make sure that you cannot hear the announcement from the attendant handset on the aft attendant speakers.
 - (f) Put the attendant handset in the handset cradle.
 - (g) Do this test again using a handset from a different Aft attendant station (if installed).

SUBTASK 23-31-00-710-006

- (6) Do a test of the chime operation:
 - (a) Push the attendant call button on a PSU.
 - 1) Make sure you hear one high tone on the PA speakers.
 - (b) Push the attendant call button on all other PSUs.
 - 1) Make sure you hear a high tone each time you push an attendant call button.
 - (c) Push the attendant call buttons once more to reset them.
 - 1) Make sure the attendant light goes off.
 - (d) Push the PILOT call button on each attendant handset.
 - 1) Make sure you hear a high tone in the flight compartment.
 - (e) Push the button for the attendant on each attendant handset.
 - 1) Make sure you hear a high/low tone on the attendant speakers and in the passenger cabin.
 - (f) Push the ATT call button on the captain's overhead panel (P5).
 - 1) Make sure you hear a high/low tone on the attendant speakers and in the passenger cabin.
 - (g) Put the attendant handsets in the handset cradles.
 - (h) Do these steps to do a check of the Fasten Seat Belt warning function:
 - 1) Make sure the FASTEN BELTS sign switch on the captain's overhead panel is in the OFF position.
 - 2) Put the FASTEN BELTS sign switch to the ON position.
 - a) Make sure you hear a low tone in the passenger cabin.
 - 3) Put the FASTEN BELTS sign switch to the OFF position.
 - a) Make sure you hear a low tone in the passenger cabin.

SUBTASK 23-31-00-860-004

- (7) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

TASK 23-31-00-730-801

3. Passenger Address System - System Test

A. General

- (1) The system test has these test sections:
 - (a) A ground mode test which checks the sound level of each passenger address speaker.

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- (b) A flight mode test which makes sure that the sound level of the passenger address speakers increases when the engines are running.
- (2) This test makes sure the sound level of the speakers in the passenger cabin increases by at least 5 dBs when the engines are running.
- (3) This test checks the sound level in the airplane with the engine running relay from the #1 engine, or the #1 and #2 engines, connected to the PA amplifier.

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-1322	Multimeter (Analog / Digital with sufficient internal Voltage to measure long cable or equivalent meter) Part #: 1587 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 260-8XPI Supplier: 88277 Part #: MODEL 8 MK7 Supplier: 00426 Opt Part #: MODEL 8 MK7 Supplier: 88277
COM-1612	Generator - Random Noise, Audio Output Part #: 543-1 Supplier: 21562
COM-1616	Meter - Sound Level Part #: CEL-240/K1 Supplier: 01RN5 Part #: SE-402-AC3 Supplier: 1QDV5 Opt Part #: 2100-10 Supplier: 90435 Opt Part #: 2400-10 Supplier: 90435 Opt Part #: CEL-254/K1 Supplier: 01RN5

D. Location Zones

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

E. System Ground Mode Test

SUBTASK 23-31-00-860-006

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-31-00-820-001

- (2) Do these steps to calibrate the noise generator:
 - (a) Connect the Multimeter, COM-1322 to the SIGNAL OUTPUT jacks on the noise random noise generator, COM-1612.
 - (b) Set the PWR/PTT switch on the noise generator to ON.
 - (c) Set the OUTPUT switch to the SIG position.
 - 1) Make sure 1.0 +/- 0.05 volts rms is shown on the voltmeter.
 - (d) Adjust the SIGNAL ADJUST potentiometer on the noise generator if necessary.



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- (e) Set the PWR/PTT switch on the noise generator to OFF.
- (f) Disconnect the Multimeter, COM-1322 from the SIGNAL OUTPUT jacks on the noise random noise generator, COM-1612.

SUBTASK 23-31-00-480-001

- (3) Do these steps to prepare for test:
 - (a) Connect the noise random noise generator, COM-1612, to a microphone jack in the flight compartment.
 - (b) Set the noise random noise generator, COM-1612, PWR/PTT switch to ON.
 - (c) Set the PA microphone selector switch on the applicable audio control panel to ON.
 - 1) Make sure its light comes on.
 - 2) Set the sound level meter, COM-1616 to SLOW and C.

SUBTASK 23-31-00-730-003

- (4) Do this test of the sound level of the PA speakers:
 - (a) Hold the sound level meter, COM-1616 close to the speaker grill at each passenger service unit with an installed speaker and at each lavatory.
NOTE: Do not touch the sound level meter to the speaker grill when you do the sound level test.
 - 1) Make sure the sound level meter shows a value between 95 dB and 110 dB.
 - (b) If necessary, Adjust the MASTER GAIN on the front panel of the PA Amplifier (M00063) located on shelf E1-3 in the Electronic Equipment Compartment.
 - (c) Hold the sound level meter, COM-1616 close to the speaker grill at each forward and aft attendant PA speaker.
NOTE: Do not touch the sound level meter to the speaker grill when you do the sound level test.
 - 1) Make sure the sound level meter shows a value between 100 dB and 115 dB.
 - (d) If necessary, adjust the PA GAIN on the front panel of the Remote Electronic Unit (M01353) located on shelf E4-1 in the Electronic Equipment Compartment.
 - (e) Set the random noise generator, COM-1612, PWR/PTT switch to OFF.
 - (f) Disconnect the random noise generator, COM-1612, from the microphone jack in the flight compartment.
 - (g) Set the sound level meter to FAST.
 - (h) Hold the sound level meter close to the speaker grill at aft right attendant speaker.
 - (i) Push the ATTENDANT call button on the aft attendant handset.
 - 1) Make sure the sound level meter shows a value between 90 dB and 100 dB.
 - (j) Push the ATTENDANT call button on any PSU.
 - 1) Make sure the sound level meter shows a value between 90 dB and 100 dB.
 - (k) Push the FASTEN SEAT BELT sign switch to the ON position.
 - 1) Make sure the sound level meter shows a value between 100 dB and 115 dB.
 - (l) Push the ATTENDANT call button on the pilot's overhead panel P5 to the ON position.
 - 1) Make sure the sound level meter shows a value between 90 dB and 100 dB.



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F. System Flight Mode Test

SUBTASK 23-31-00-860-001

- (1) Do these steps to prepare for test:

- (a) Connect the noise random noise generator, COM-1612, to a microphone jack in the flight compartment.
- (b) Set the noise random noise generator, COM-1612, PWR/PTT switch to ON.
- (c) Measure the sound level of the speakers:
 - 1) Move the sound level meter across one of the main PA passenger cabin speaker panels.
 - 2) Write the value down.

NOTE: This is the value you will use to compare to the other measurements that will follow.

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

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	12	C00314	INDICATOR MASTER DIM SECT 2
F	11	C00317	INDICATOR MASTER DIM SECT 5

SUBTASK 23-31-00-730-001

- (2) Do a test of engine 1 flight mode:

- (a) 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, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C00359	FUEL SPAR VALVE ENG 1

- (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>
B	3	C01312	ENGINE 1 RUN/PWR

- (c) Move the engine 1 start lever to the IDLE position.
- (d) Wait at least five minutes.
- (e) Measure the sound level of the speakers:
 - 1) Move the sound level meter across the same speaker panel used in the Prepare For Test section.
 - 2) Write the value down.
 - a) Make sure the value is at least 5 dBs higher than the first measurement.
- (f) Move the engine 1 start lever to the CUTOFF position.



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- (g) 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>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C00359	FUEL SPAR VALVE ENG 1

- (h) Measure the sound level across the speaker.

- 1) Make sure the sound level is approximately the same as in the first measurement.

SUBTASK 23-31-00-730-002

- (3) Do a test of engine 2 flight mode:

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

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR

- (c) Move the engine 2 start lever to the IDLE position.

- (d) Wait at least five minutes.

- (e) Measure the sound level of the speakers:

- 1) Move the sound level meter across the same speaker panel used in the Prepare For Test section.
2) Write the value down.

- a) Make sure the value is at least 5 dBs higher than the first measurement.

- (f) Move the engine 2 start lever to the CUTOFF position.

- (g) 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>
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT



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F/O Electrical System Panel, P6-3

Row Col Number Name

B	3	C00360	FUEL SPAR VALVE ENG 2
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- (h) Measure the sound level across the same speaker.
 - 1) Make sure the sound level is approximately the same as in the first measurement.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 23-31-00-860-002

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

F/O Electrical System Panel, P6-3

Row Col Number Name

E	12	C00314	INDICATOR MASTER DIM SECT 2
F	11	C00317	INDICATOR MASTER DIM SECT 5

SUBTASK 23-31-00-860-003

- (2) Do the steps that follow to put the airplane back to its usual condition:
 - (a) Set the noise random noise generator, COM-1612, PWR/PTT switch to OFF.
 - (b) Disconnect the noise random noise generator, COM-1612, from the microphone jack in the flight compartment.
 - 1) Remove the test equipment from the airplane.

SUBTASK 23-31-00-860-005

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

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PASSENGER ADDRESS AMPLIFIER - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Passenger Address Amplifier Deactivation.
 - (2) Passenger Address Amplifier Activation.

TASK 23-31-01-040-801

2. Passenger Address Amplifier - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power from the Passenger Address Amplifier.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 23-31-01-860-006

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

E. Passenger Address Amplifier - Tryout

NOTE: This tryout is to make sure the Passenger Address Amplifier is in a zero energy state.

SUBTASK 23-31-01-860-007

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-01-010-001

- (2) Open this access panel:

Number Name/Location

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

SUBTASK 23-31-01-700-001

- (3) Make sure the display on the front of the amplifier is blank.

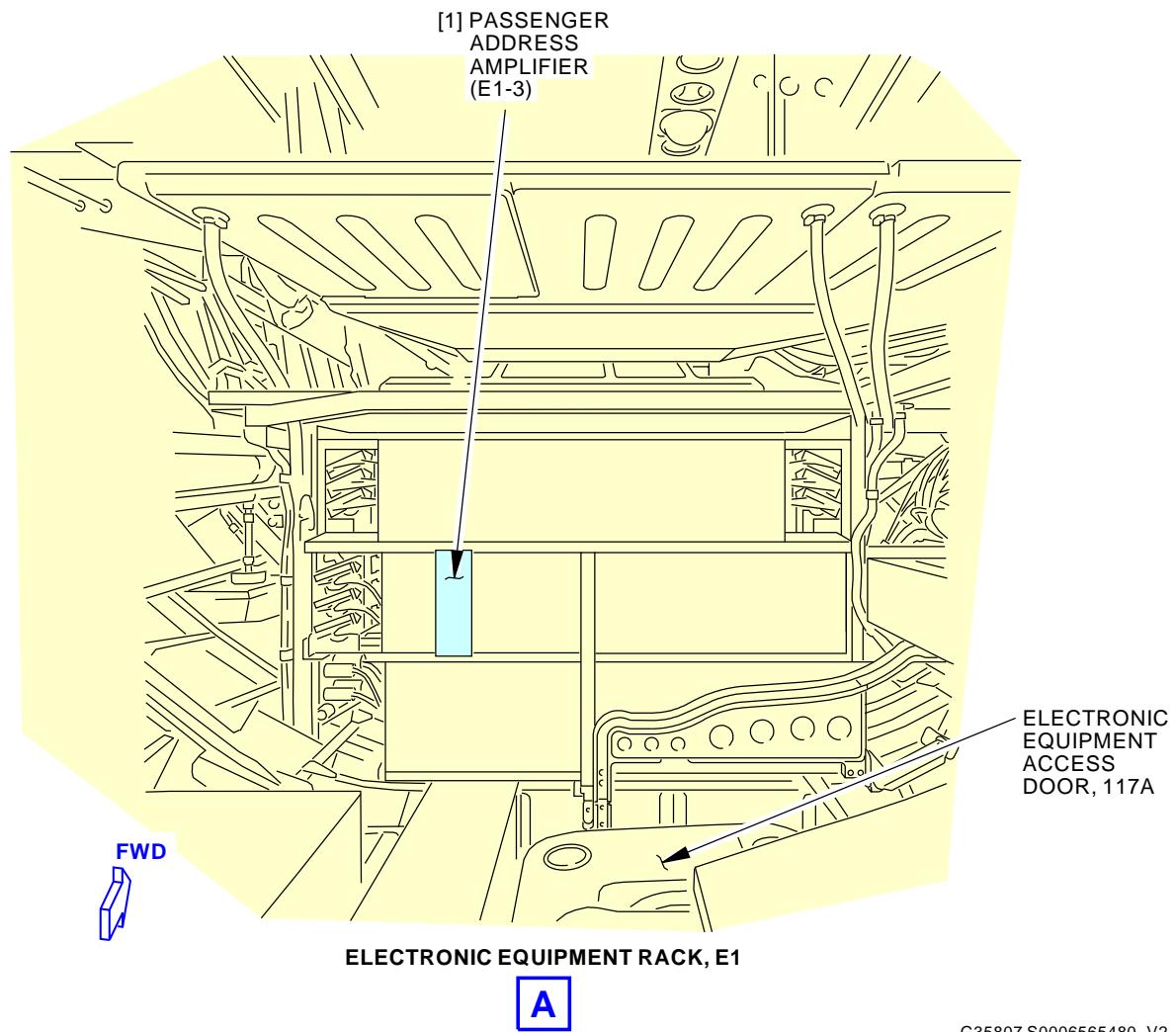
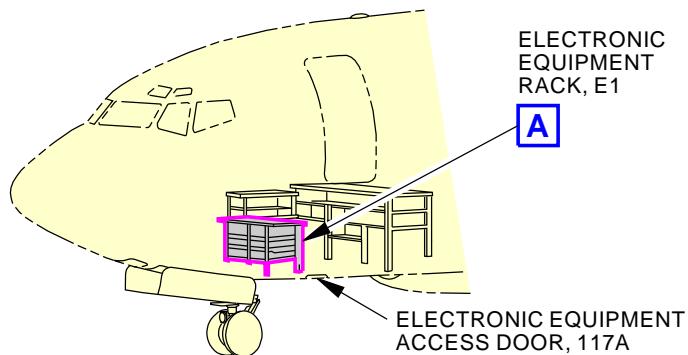
———— END OF TASK ————

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G35807 S0006565480_V2

Passenger Address Amplifier
Figure 201/23-31-01-990-802

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TASK 23-31-01-440-801

3. Passenger Address Amplifier - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Passenger Address Amplifier.

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

117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
---------------	----------------------

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

D. Procedure

SUBTASK 23-31-01-860-008

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-01-410-001

- (2) Close this access panel:

Number	Name/Location
---------------	----------------------

117A	Electronic Equipment Access Door
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———— END OF TASK ————

EFFECTIVITY
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PASSENGER ADDRESS AMPLIFIER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the passenger address (PA) amplifier
 - (2) An installation of the PA amplifier.
- B. The PA amplifier is located on the E1-3 shelf.

TASK 23-31-01-000-801

2. Passenger Address (PA) Amplifier Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
20-10-07-000-801	E/E Box Removal (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left

C. Removal Procedure

SUBTASK 23-31-01-860-001

- (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>
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-01-020-001

- (2) To remove the PA amplifier [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.

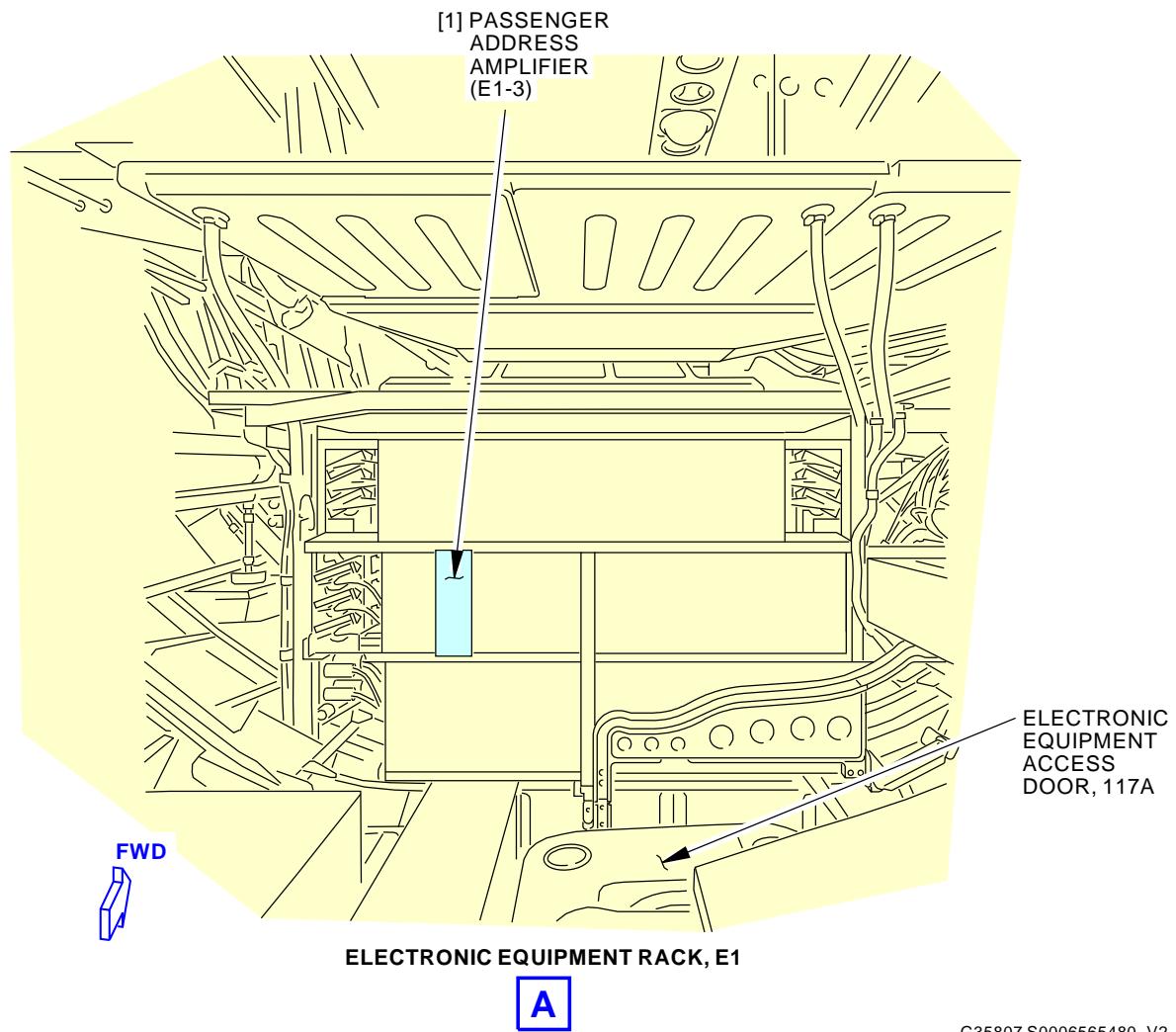
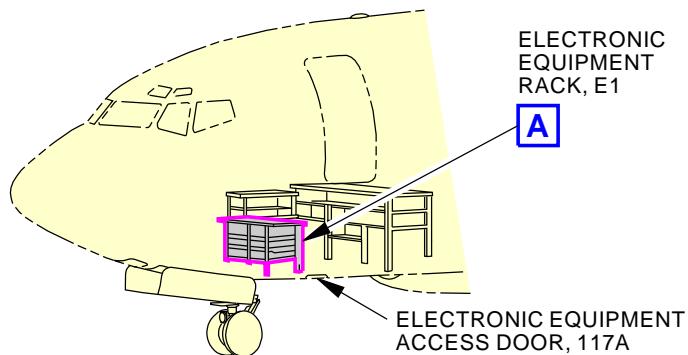
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23-31-01



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G35807 S0006565480_V2

Passenger Address Amplifier Installation
Figure 401/23-31-01-990-801

EFFECTIVITY
AKS ALL

23-31-01

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TASK 23-31-01-400-801

3. Passenger Address (PA) Amplifier 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)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Amplifier	23-31-01-01-010	AKS ALL
		23-31-01-01-060	AKS ALL

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

D. Installation Procedure

SUBTASK 23-31-01-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-01-420-001

- (2) To install the PA amplifier [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 23-31-01-860-003

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

E. Installation Test

SUBTASK 23-31-01-860-004

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-31-01-710-002

- (2) Do a test of the PA amplifier operation:

- (a) Put the OPERATE/TONE switch on the front panel of the PA amplifier to the LEVEL position.
 - 1) Make sure the display on the amplifier shows 69.0 to 71.0 VRMS.
 - 2) If necessary, adjust the MASTER GAIN on the front panel of the PA amplifier (M00063) located on shelf E1-3 in the Electronic Equipment Compartment.
- (b) Put the OPERATE/TONE switch to the TONE position.
 - 1) Make sure you can hear a high tone on the passenger address speakers.
- (c) Put the OPERATE/TONE switch to the OPERATE position.

EFFECTIVITY
AKS ALL

23-31-01



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SUBTASK 23-31-01-860-005

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ——

———— EFFECTIVITY ——
AKS ALL

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PASSENGER SERVICE UNIT SPEAKER - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Passenger Service Unit Speaker Deactivation.
 - (2) Passenger Service Unit Speaker Activation.

TASK 23-31-02-040-801

2. Passenger Service Unit Speaker - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power to the Passenger Service Unit Speaker.

B. Location Zones

Zone	Area
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-31-02-860-009

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

D. Passenger Service Unit Speaker - Tryout

NOTE: This tryout is to make sure the Passenger Service Unit Speaker is in a zero energy state.

SUBTASK 23-31-02-860-011

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-02-700-001

- (2) Do the following to test the PSU speaker:
 - (a) Lift a handset from an attendant station.
 - (b) Set the handset to PA.
 - (c) Push the PTT button on the handset.
 - (d) Make an announcement on the PA system.
- 1) Make sure you can not hear the announcement on the speaker.

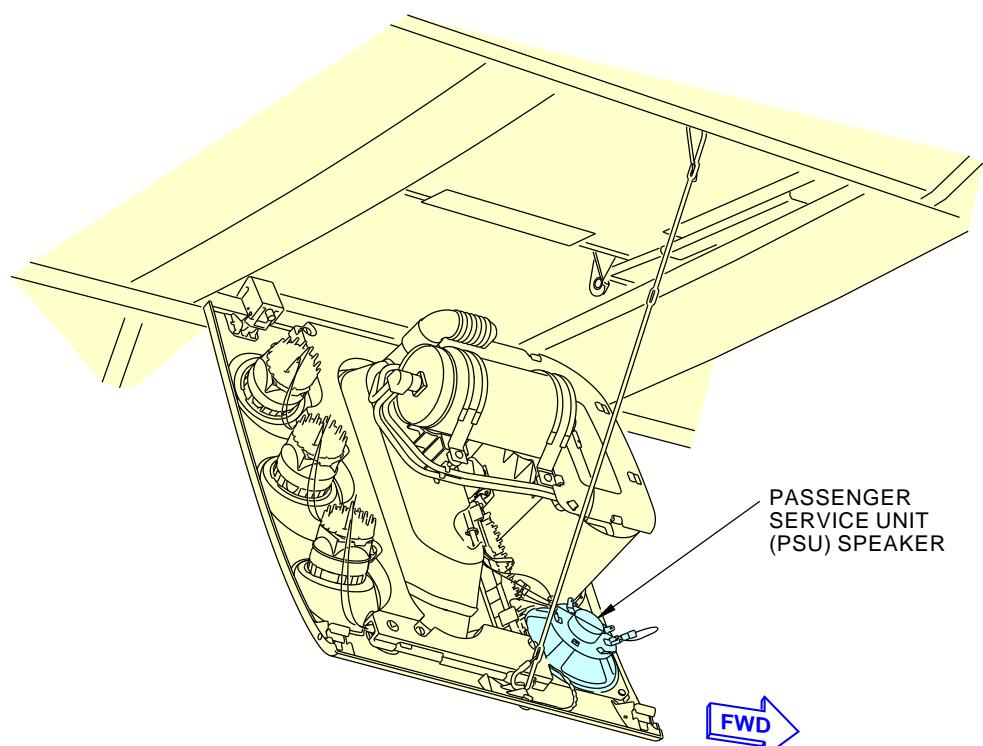
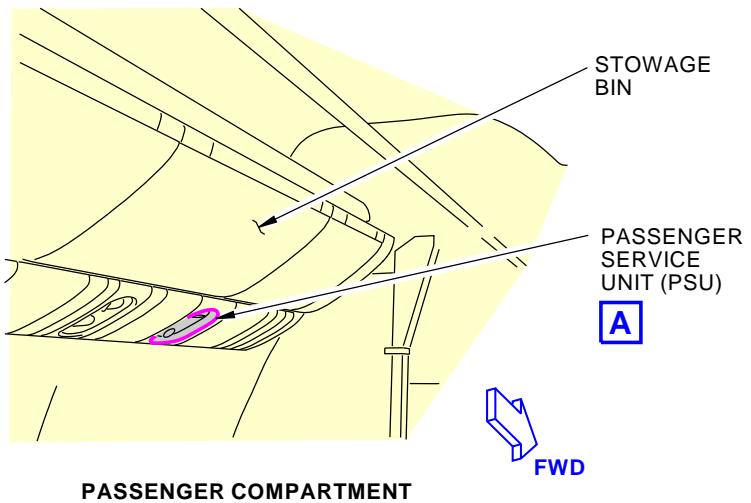
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EFFECTIVITY
AKS ALL

23-31-02



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PASSENGER SERVICE UNIT (PSU)
(EXAMPLE)

A

2381516 S0000543865_V1

Passenger Service Unit Speaker
Figure 201/23-31-02-990-803

EFFECTIVITY
AKS ALL

23-31-02



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TASK 23-31-02-440-801

3. Passenger Service Unit Speaker - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Passenger Service Unit Speaker.

B. Location Zones

Zone	Area
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-31-02-860-013

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-31-02



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PASSENGER SERVICE UNIT SPEAKER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the passenger service unit (PSU) speaker
 - (2) An installation of the PSU speaker.
- B. The passenger service units have speakers installed, as necessary, to supply equal sound in the passenger compartment.

TASK 23-31-02-000-801

2. Passenger Service Unit (PSU) Speaker Removal

(Figure 401)

A. Tools/Equipment

Reference	Description
STD-1073	Wire - Standard, 18-22 Gauge, Insulation Removed

B. Location Zones

Zone	Area
200	Upper Half of Fuselage

C. Removal Procedure

SUBTASK 23-31-02-860-001

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-02-020-001

CAUTION: MAKE SURE THAT THE RELEASE PIN FOR THE CHEMICAL OXYGEN GENERATOR STAYS ENGAGED IN THE FIRING PIN. IF THE CHEMICAL OXYGEN GENERATOR ACCIDENTALLY OPERATES, IT IS MANDATORY THAT YOU REPLACE IT.

- (2) Do the steps that follow to remove the PSU speaker:

- (a) Open the PSU.
 - 1) Push a 18-22 gauge insulation removed wire, STD-1073 in the holes of the PSU face panel to open the assembly.
- (b) Hold the PSU panel.
 - 1) Push the spring clip with the 18-22 gauge insulation removed wire, STD-1073 to release the assembly.
- (c) Slowly lower the PSU panel assembly until the lanyard can hold the PSU.
- (d) Disconnect the PSU electrical connector.
- (e) Identify the location of the electrical wires on the speaker transformer terminals.
- (f) Disconnect the two electrical connectors [2] from the speaker transformer terminals.
- (g) Remove the screws [1] from the speaker [3].
- (h) Carefully remove the speaker from the PSU.

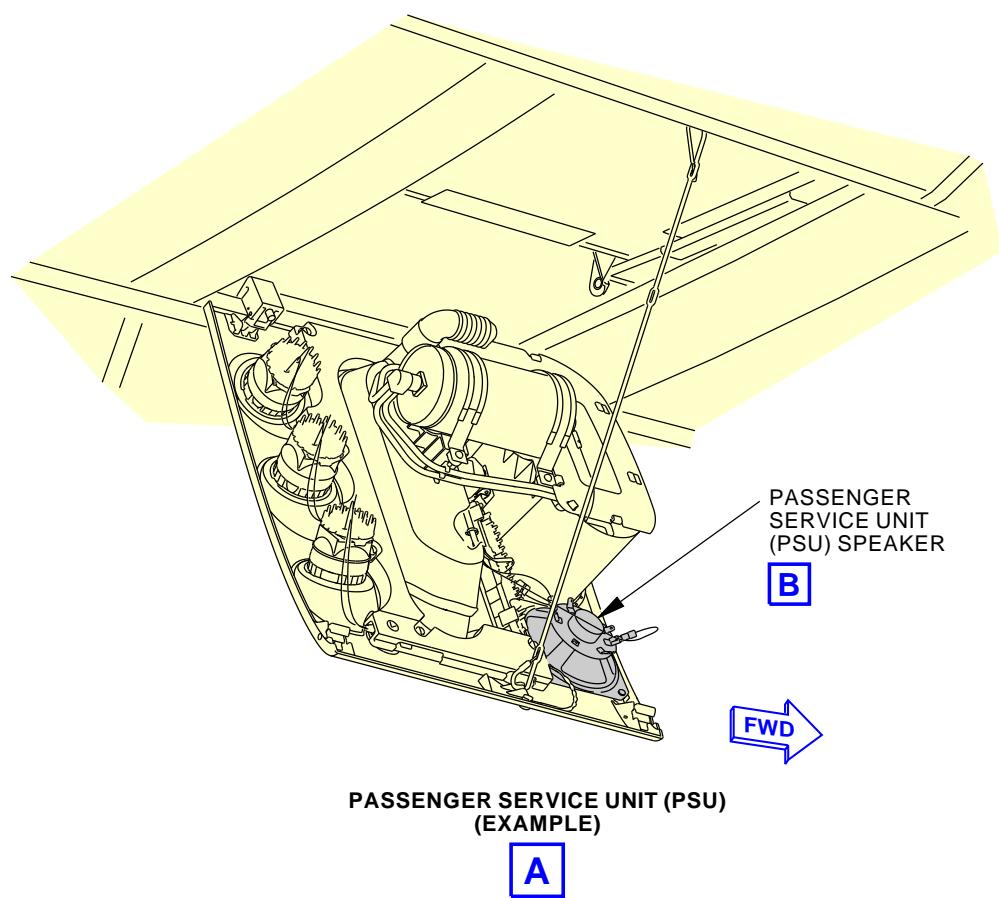
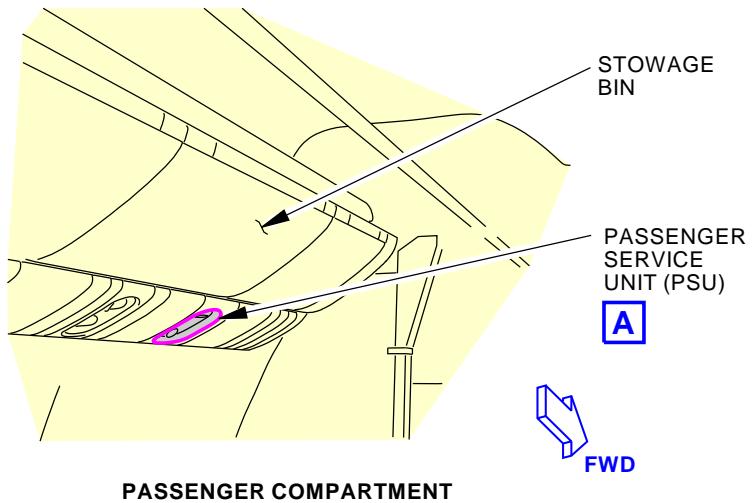
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EFFECTIVITY
AKS ALL

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Passenger Service Unit Speaker Installation
Figure 401/23-31-02-990-802 (Sheet 1 of 2)

EFFECTIVITY
AKS ALL

23-31-02

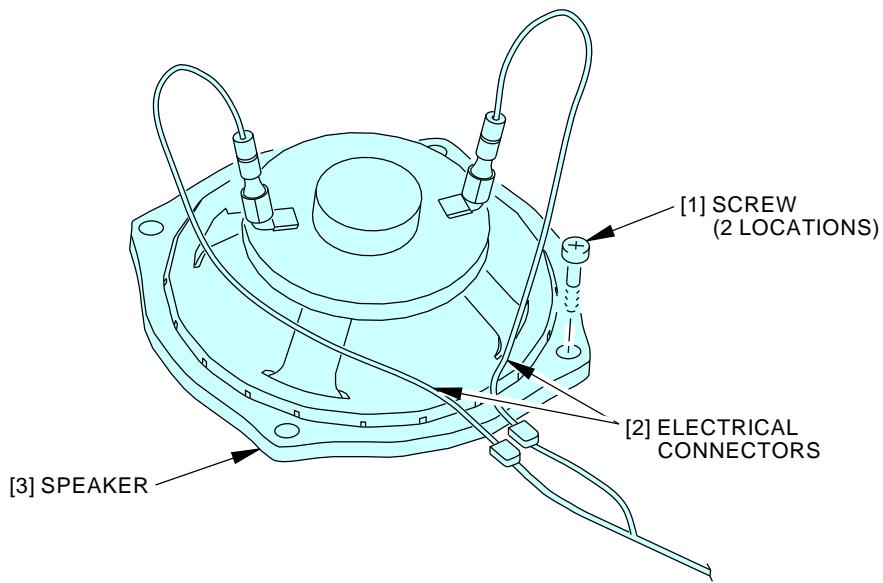
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PASSENGER SERVICE UNIT (PSU) SPEAKER (EXAMPLE)

B

2037315 S0000410234_V2

Passenger Service Unit Speaker Installation
Figure 401/23-31-02-990-802 (Sheet 2 of 2)

EFFECTIVITY
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TASK 23-31-02-400-801

3. **Passenger Service Unit (PSU) Speaker 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. **Location Zones**

Zone	Area
200	Upper Half of Fuselage

C. **Installation Procedure**

SUBTASK 23-31-02-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-02-420-001

CAUTION: MAKE SURE THAT THE RELEASE PIN FOR THE CHEMICAL OXYGEN GENERATOR STAYS ENGAGED IN THE FIRING PIN. IF THE CHEMICAL OXYGEN GENERATOR ACCIDENTALLY OPERATES, IT IS MANDATORY THAT YOU REPLACE IT.

- (2) Install the PSU speaker:

- (a) Install the speaker [3] on the PSU assembly.
- (b) Install the screws [1].
- (c) Connect the electrical connectors [2] to the speaker transformer terminals.
 - 1) Make sure the electrical connectors are connected to the same terminals that they were removed from.
- (d) Connect the PSU electrical connector.
- (e) Close the PSU panel assembly.

SUBTASK 23-31-02-860-003

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

D. **Installation Test**

SUBTASK 23-31-02-860-004

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-31-02-710-001

- (2) Do a test of the PSU speaker operation:

- (a) Lift a handset from an attendant station.
- (b) Set the handset to PA.
- (c) Push the PTT button on the handset.



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- (d) Make an announcement on the PA system.
 - 1) Make sure you can hear the announcement on the new PSU speaker.
- (e) Put the handset back in the cradle.

SUBTASK 23-31-02-860-005

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

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ATTENDANT SPEAKER - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Attendant Speaker Deactivation.
 - (2) Attendant Speaker Activation.

TASK 23-31-03-040-801

2. Attendant Speaker - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power to the Attendant Speaker.

B. Location Zones

<u>Zone</u>	<u>Area</u>
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-31-03-860-007

- (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>
D	4	C00082	COMMUNICATIONS PA AMPL BAT

D. Attendant Speaker - Tryout

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

SUBTASK 23-31-03-860-009

- (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>
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-03-700-001

- (2) Do the following to test the attendant speaker operation:

- (a) Push the call button on a passenger services unit (PSU).

- 1) Make sure that you can not hear one high chime from all the attendant speakers.
 - 2) Make sure the PSU call light does not come on.

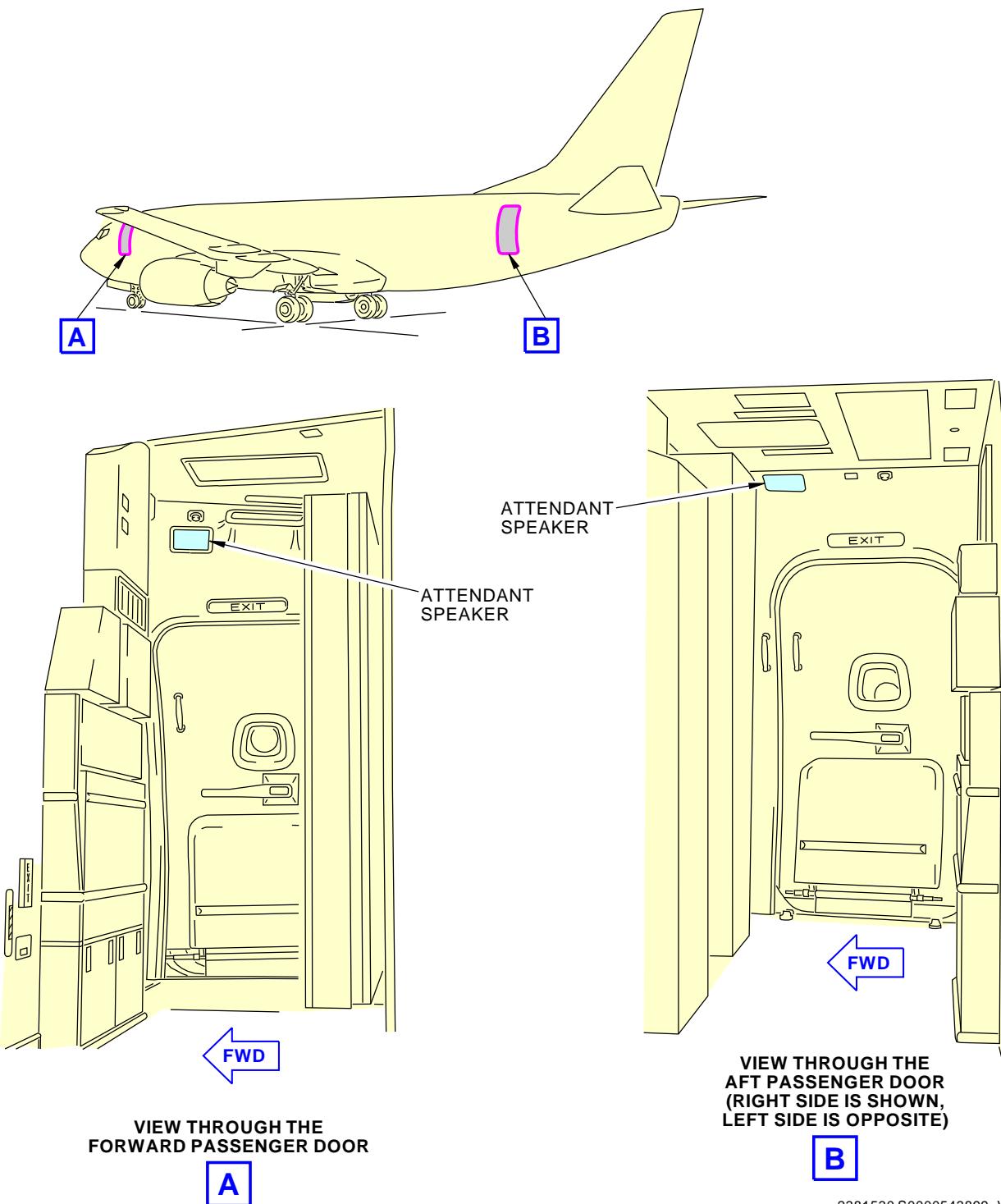
———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-31-03



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Attendant Speaker
Figure 201/23-31-03-990-802

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AKS ALL

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TASK 23-31-03-440-801

3. Attendant Speaker - Activation

(Figure 201)

A. General

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

B. Location Zones

Zone	Area
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-31-03-860-011

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-31-03



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ATTENDANT SPEAKER - REMOVAL/INSTALLATION

1. General

- A. This procedure contains:
 - (1) A removal of the attendant speaker
 - (2) An installation of the attendant speaker.
- B. The attendant speaker is in the header panel over the door. You must remove the door header panel to get access to the speaker.

TASK 23-31-03-000-801

2. Attendant Speaker Removal

(Figure 401)

A. References

Reference	Title
25-21-24-000-801	Aft Door Doorway Header Panel - Removal (P/B 401)
25-21-30-020-801	Forward Entry Door Doorway Header Panel - Removal (P/B 401)

B. Location Zones

Zone	Area
200	Upper Half of Fuselage

C. Removal Procedure

SUBTASK 23-31-03-860-001

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-03-010-002

- (2) Do this task for the forward attendant speaker: Forward Entry Door Doorway Header Panel - Removal, TASK 25-21-30-020-801

SUBTASK 23-31-03-010-001

- (3) Do this task for the aft attendant speaker: Aft Door Doorway Header Panel - Removal, TASK 25-21-24-000-801

SUBTASK 23-31-03-020-001

- (4) Do these steps to remove the attendant speaker [1]:
 - (a) Identify the location of the electrical wires on the speaker transformer terminals.
 - (b) Disconnect the two electrical connectors [2] from the speaker [1].
 - (c) Remove the screw [3] and the speaker [1].

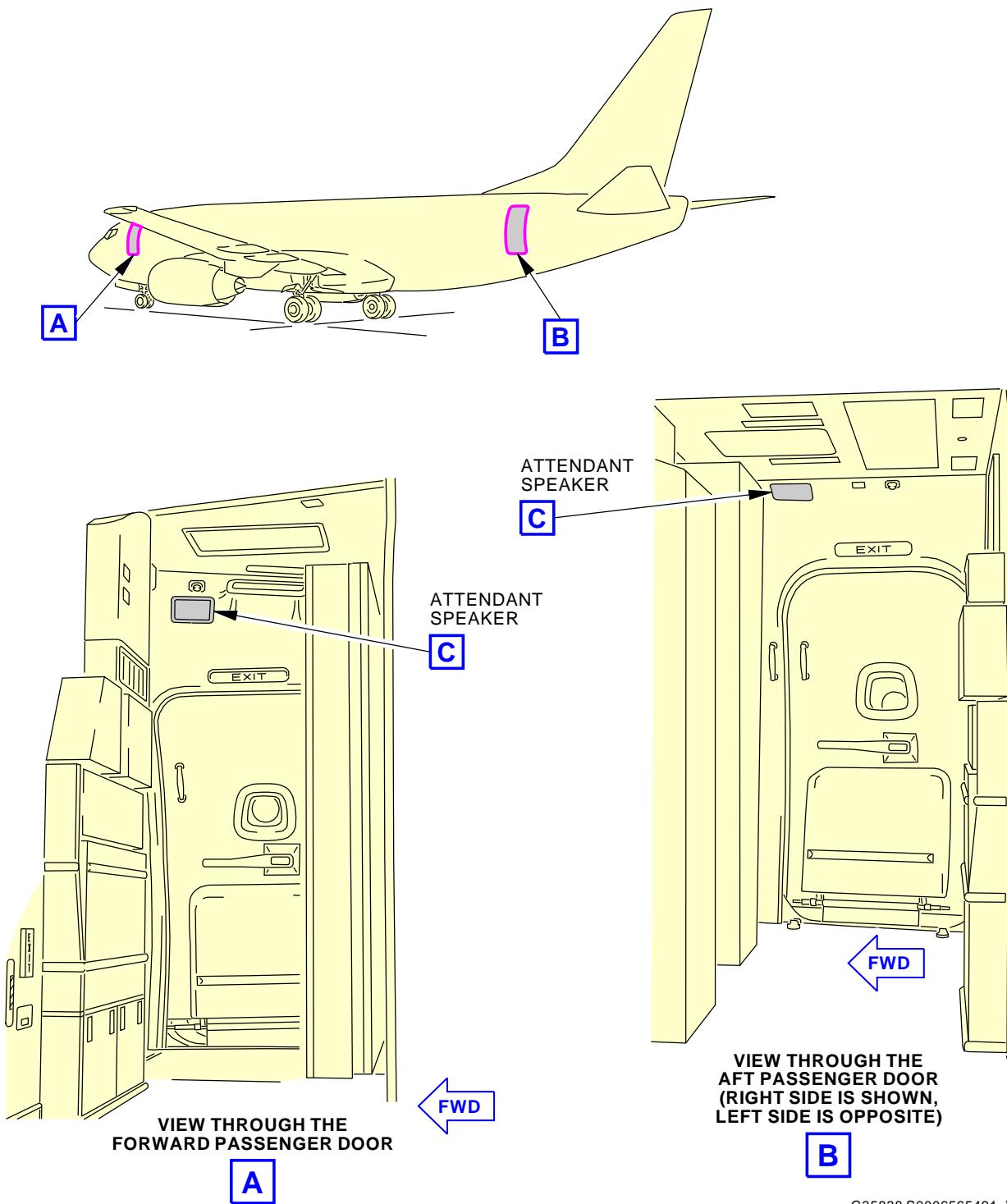
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Attendant Speaker Installation
Figure 401/23-31-03-990-801 (Sheet 1 of 2)

EFFECTIVITY
AKS ALL

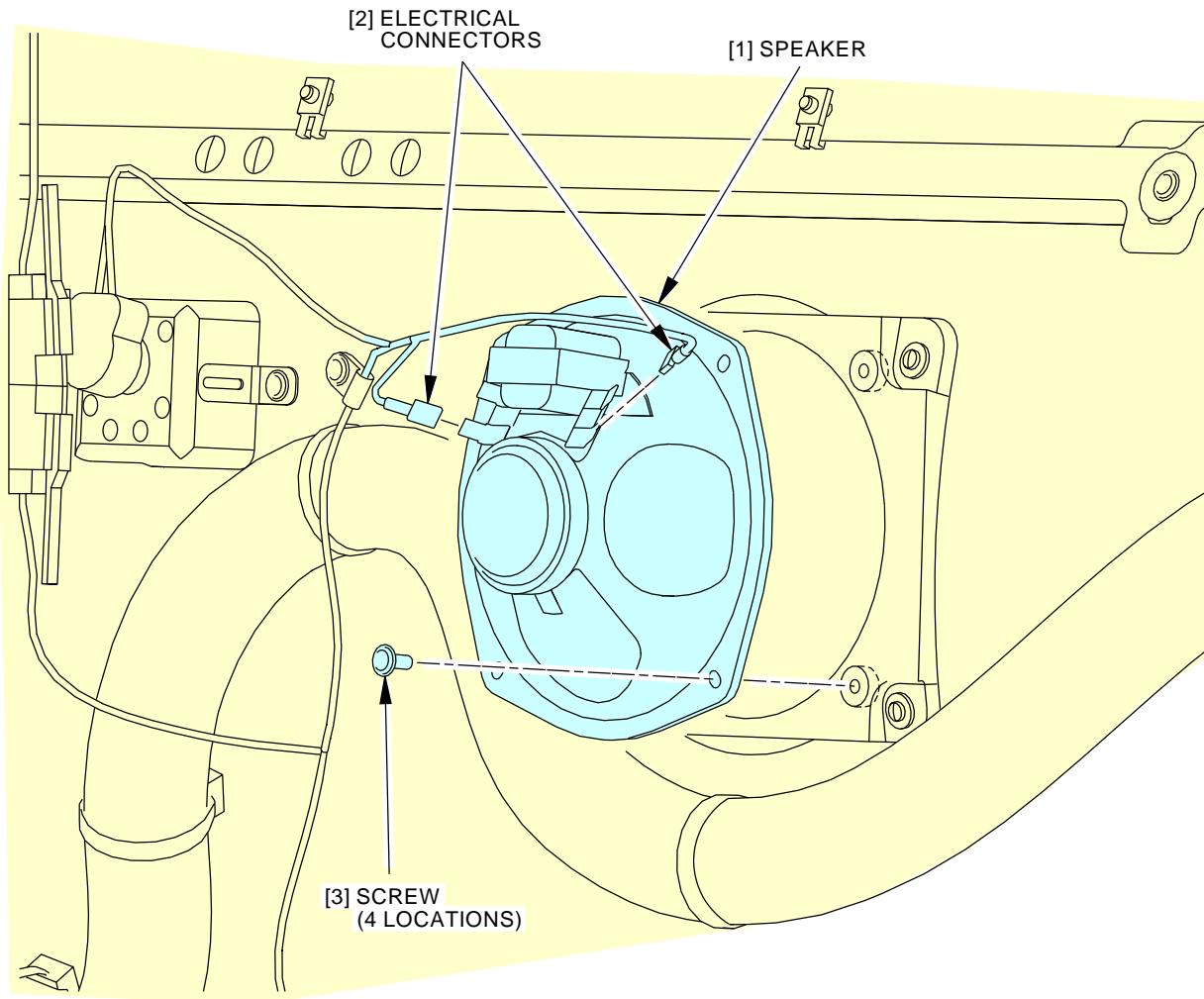
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ATTENDANT SPEAKER

A

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Attendant Speaker Installation
Figure 401/23-31-03-990-801 (Sheet 2 of 2)

EFFECTIVITY
AKS ALL

23-31-03



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TASK 23-31-03-400-801

3. Attendant Speaker 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)
25-21-24-400-801	Aft Door Doorway Header Panel - Installation (P/B 401)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Speaker	23-31-03-09A-040	AKS ALL
		23-31-03-31-040	AKS ALL
		23-31-03-33-040	AKS ALL
		23-31-03-95-035	AKS ALL

C. Location Zones

Zone	Area
200	Upper Half of Fuselage

D. Installation Procedure

SUBTASK 23-31-03-420-001

- (1) Do these steps to install the attendant speaker:
 - (a) Hold the speaker [1] in the correct position.
 - (b) Install the speaker [1] with the screw [3].
 - (c) Connect the two electrical connectors [2] to the speaker [1].
 - 1) Make sure the electrical connectors are connected to the same terminals that they were removed from.

SUBTASK 23-31-03-410-002

- (2) Do this task for the forward attendant speaker: Aft Door Doorway Header Panel - Installation, TASK 25-21-24-400-801

SUBTASK 23-31-03-410-001

- (3) Do this task for the aft attendant speaker: Aft Door Doorway Header Panel - Installation, TASK 25-21-24-400-801

SUBTASK 23-31-03-860-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

E. Installation Test

SUBTASK 23-31-03-860-003

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-31-03-710-001

- (2) Do a test of the attendant speaker operation:
 - (a) Push the call button on a passenger services unit (PSU).

EFFECTIVITY
AKS ALL

23-31-03



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- 1) Make sure that you can hear one high chime from all the attendant speakers.
 - 2) Make sure the PSU call light comes on.
 - (b) Push the call button on a PSU one more time.
 - 1) Make sure that the PSU call light goes off.
- SUBTASK 23-31-03-860-004
- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-31-03

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LAVATORY SPEAKER - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Lavatory Speaker Deactivation.
 - (2) Lavatory Speaker Activation.

TASK 23-31-05-040-801

2. Lavatory Speaker - Deactivation

(Figure 201)

A. General

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

B. Location Zones

Zone	Area
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-31-05-860-012

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

D. Lavatory Speaker - Tryout

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

SUBTASK 23-31-05-860-014

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-05-700-001

- (2) Do the following to test the lavatory speaker operation:

- (a) Lift the PA microphone from at an attendant station.
- (b) Push the PTT button on the microphone.
- (c) Make an announcement on the PA system.

- 1) Make sure you can not hear the announcement on the speaker.

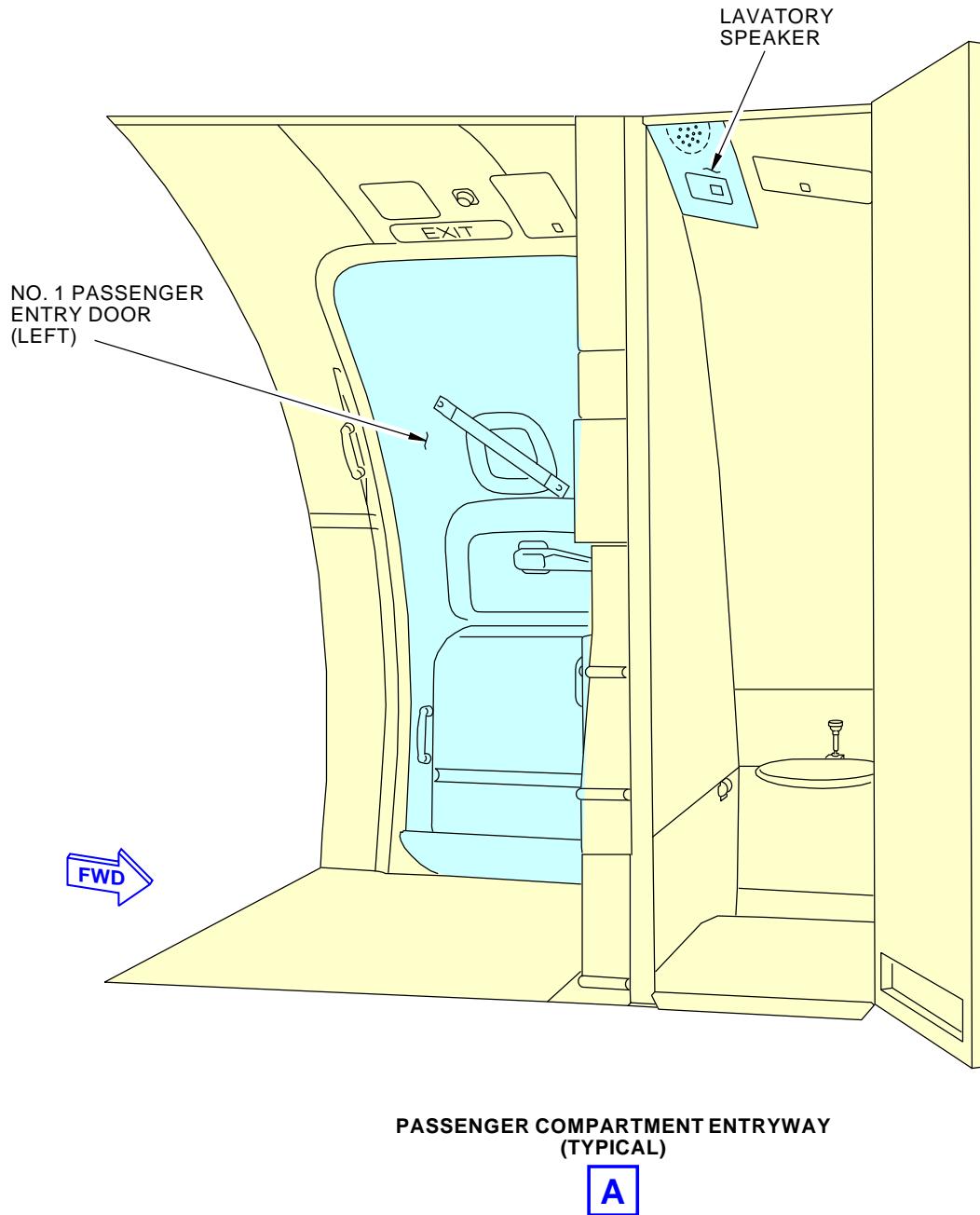
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23-31-05



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Lavatory Speaker
Figure 201/23-31-05-990-802

EFFECTIVITY
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TASK 23-31-05-440-801

3. Lavatory Speaker - Activation

(Figure 201)

A. General

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

B. Location Zones

Zone	Area
200	Upper Half of Fuselage
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-31-05-860-016

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-31-05



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LAVATORY SPEAKER - REMOVAL/INSTALLATION

1. General

- A. This procedure contains:
 - (1) A removal of the lavatory speaker
 - (2) An installation of the lavatory speaker.
- B. The location of the lavatory speaker is in the passenger service unit (PSU) in the ceiling.

TASK 23-31-05-000-801

2. Lavatory Speaker Removal

(Figure 401)

A. Tools/Equipment

<u>Reference</u>	<u>Description</u>
STD-1073	Wire - Standard, 18-22 Gauge, Insulation Removed

B. Location Zones

<u>Zone</u>	<u>Area</u>
200	Upper Half of Fuselage

C. Removal Procedure

SUBTASK 23-31-05-860-011

- (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>
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-05-020-001

- (2) Do the steps that follow to remove the lavatory speaker [1]:

- (a) Open the passenger service unit (PSU).

- 1) Put the 18-22 gauge insulation removed wire, STD-1073 in the holes of the PSU face panel to open the assembly.

- (b) Hold the PSU panel.

- 1) Push the spring clip with the 18-22 gauge insulation removed wire, STD-1073 to release the assembly.

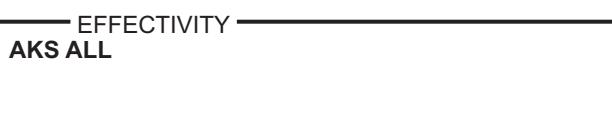
- (c) Slowly lower the PSU panel assembly until the lanyard can hold the PSU.

- (d) Identify the location of the speaker wires on the speaker transformer terminals.

- (e) Disconnect the electrical connectors [9] from the speaker transformer terminals.

- (f) Remove the screws [2] and [8], washers [3] and [7], spacers [5] and speaker [1].

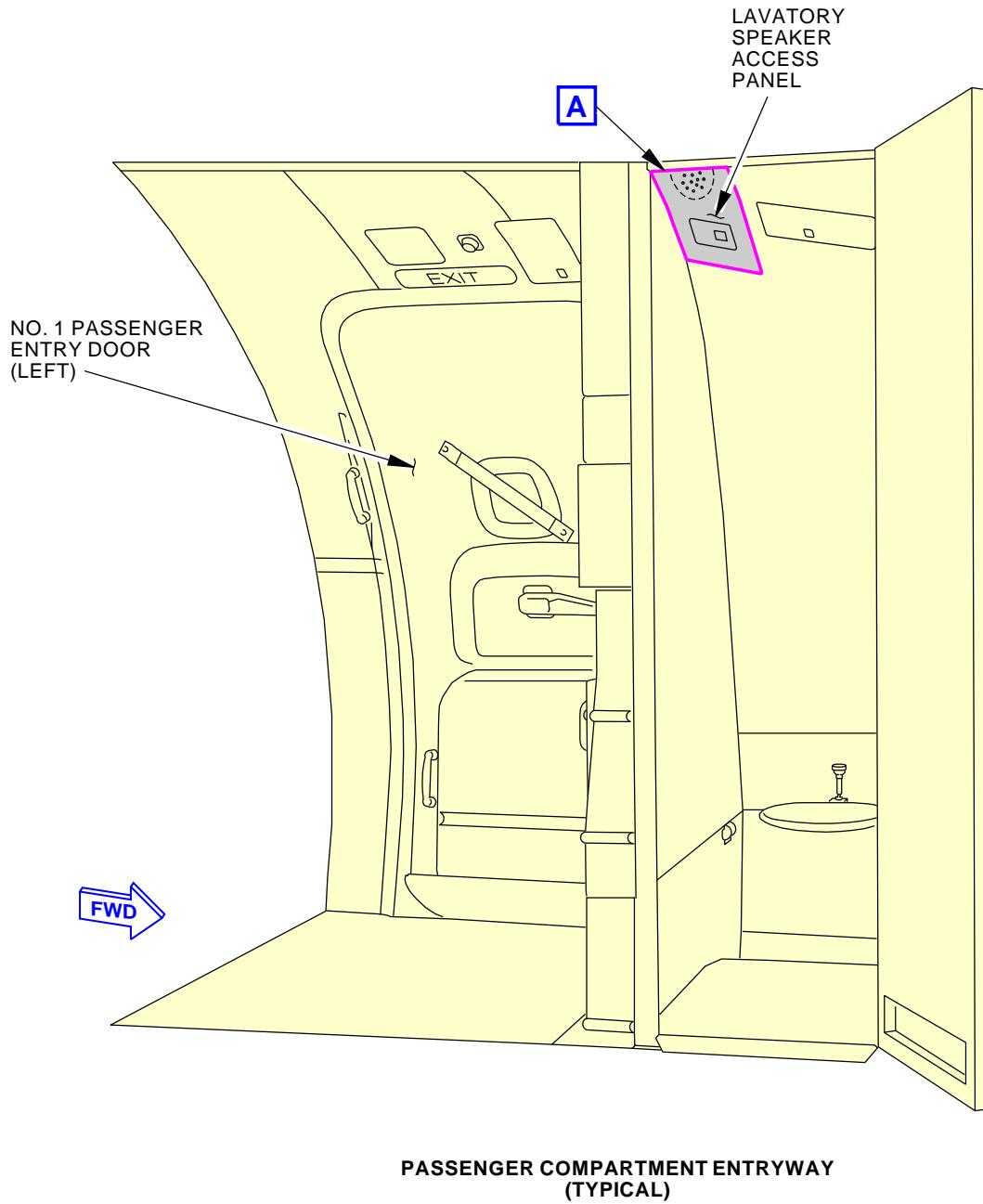
———— END OF TASK ————



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Lavatory Speaker Installation
Figure 401/23-31-05-990-801 (Sheet 1 of 2)

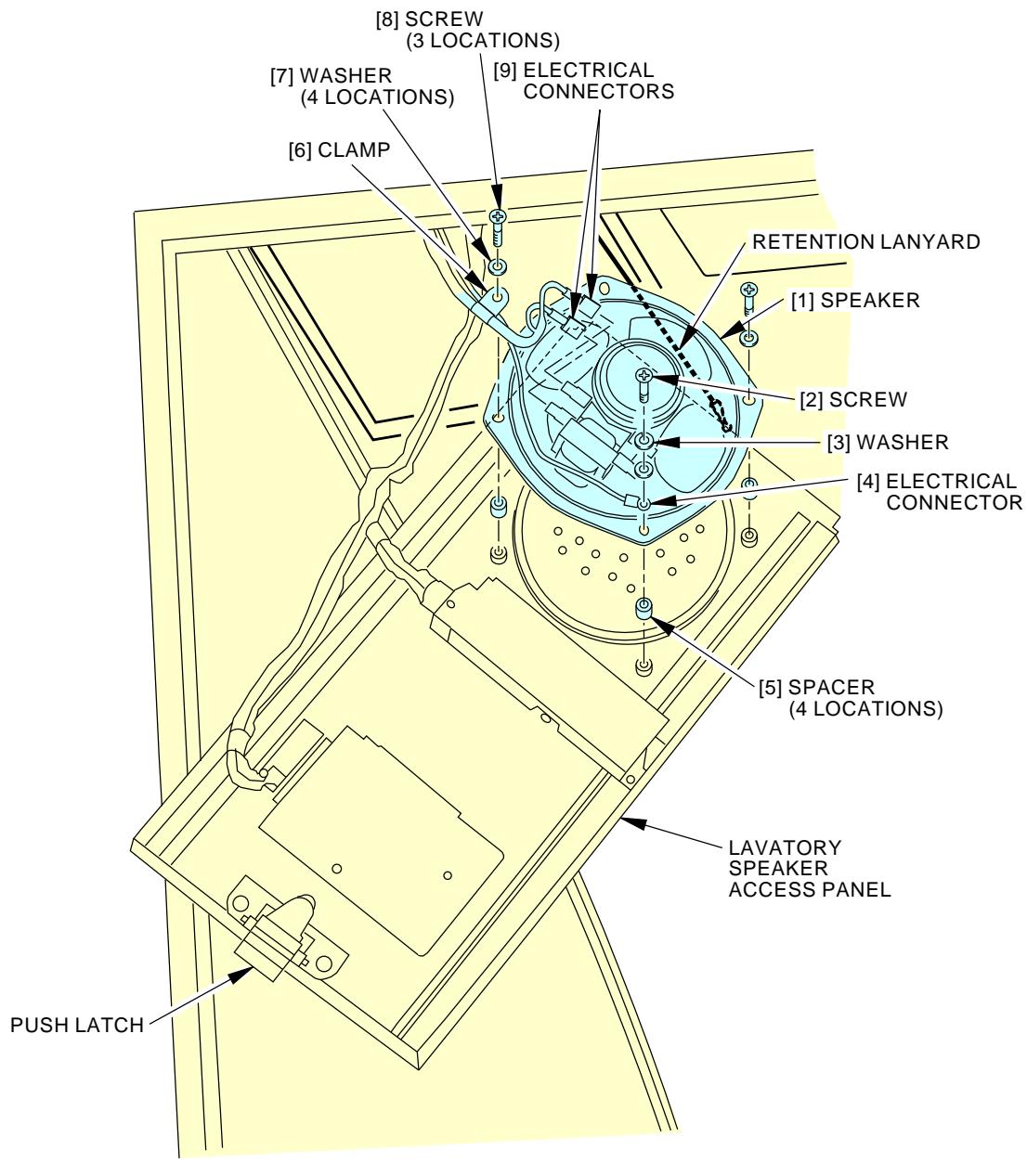
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A

G44161 S0006565498_V2

Lavatory Speaker Installation
Figure 401/23-31-05-990-801 (Sheet 2 of 2)

EFFECTIVITY
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TASK 23-31-05-400-801

3. Lavatory Speaker 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. Location Zones

Zone	Area
200	Upper Half of Fuselage

C. Installation Procedure

SUBTASK 23-31-05-860-008

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

SUBTASK 23-31-05-420-001

- (2) Do the steps that follow to install the lavatory speaker [1]:

- (a) Hold the speaker [1] in the correct position.
- (b) Make sure the clamp [6] and the electrical connector [4] are in the correct position.
- (c) Install the screws [2] and [8], washers [3] and [7], and spacers [5].
- (d) Attach the electrical connectors [9] to the speaker [1].
 - 1) Make sure the electrical connectors are connected to the same terminals that they were removed from.
- (e) Push the PSU panel assembly up until it closes to the usual position.

SUBTASK 23-31-05-860-010

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	4	C00082	COMMUNICATIONS PA AMPL BAT

D. Installation Test

SUBTASK 23-31-05-860-004

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-31-05-710-001

- (2) Do a test of the Lavatory speaker operation:
- (a) Lift the PA microphone from at an attendant station.
 - (b) Push the PTT button on the microphone.
 - (c) Make an announcement on the PA system.
 - 1) Make sure you can hear the announcement on the new lavatory speaker.
 - (d) Put the microphone back in its cradle.



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SUBTASK 23-31-05-860-005

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ——

— EFFECTIVITY —
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SERVICE INTERPHONE SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains this task:
- (1) An operational test of the service interphone system.

TASK 23-41-00-710-801

2. Service Interphone System - Operational Test

A. References

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

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
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
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left
315	APU Compartment - Left
600	Right Wing

C. Procedure

SUBTASK 23-41-00-860-005

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-41-00-860-002

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

SUBTASK 23-41-00-840-004

- (3) Do these steps to prepare for test:

- (a) Connect a boom mic/headset to the captain's boom mic/headset jack in the flight deck.
- (b) Push the CABIN microphone selector switch on all audio control panels (ACPs).
- (c) Push the volume control for the CABIN microphone selector switch.
- (d) Turn the volume control switch for CABIN to the middle position.

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- (e) Set the SERVICE INTERPHONE switch, on the P5 overhead panel in the flight deck, to ON.

SUBTASK 23-41-00-710-012

- (4) Do a communication test between the flight crew and the ground crew at the auxiliary power unit:
- (a) Connect a boom mic/headset to the service interphone jack.
 - (b) Push and hold the R/T - I/C switch on the captain's ACP to the R/T position.
 - (c) Speak into the captain's boom microphone.
 - 1) Make sure the ground crew can hear the voice clearly on the headset.
 - (d) Release the R/T - I/C switch on the captain's ACP.
 - (e) Have the ground crew speak into the boom microphone.
 - 1) Make sure you can hear the voice clearly on the captain's headset.
 - (f) Disconnect the boom mic/headset from the service interphone jack.

SUBTASK 23-41-00-710-004

- (5) Repeat the communication test between the flight crew and the ground crew using the service interphone jack in the overhead at the aft passenger cabin.

SUBTASK 23-41-00-710-005

- (6) Repeat the communication test between the flight crew and the ground crew using the service interphone jack at the refueling station on the right wing.

SUBTASK 23-41-00-710-006

- (7) Repeat the communication test between the flight crew and the ground crew using the service interphone jack at the left wheel well.

SUBTASK 23-41-00-710-007

- (8) Repeat the communication test between the flight crew and the ground crew using the service interphone jack at the right wheel well.

SUBTASK 23-41-00-710-008

- (9) Repeat the communication test between the flight crew and the ground crew using the service interphone jack at the electrical and electronics compartment.

SUBTASK 23-41-00-710-009

- (10) Do this test of the SERVICE INTERPHONE switch:
- (a) Connect a boom mic/headset to any service interphone jack.
 - (b) Set the SERVICE INTERPHONE switch to OFF.
 - (c) Push and hold the R/T - I/C switch on the captain's ACP to the R/T position.
 - (d) Speak into the captain's boom microphone.
 - 1) Make sure the ground crew can hear the voice on the service interphone headset.
 - (e) Release the R/T - I/C switch on the captain's ACP.
 - (f) Have the ground crew speak into the boom microphone.
 - 1) Make sure you cannot hear the voice on the captain's headset.

SUBTASK 23-41-00-710-010

- (11) Repeat the communication test between the flight crew and the ground crew using the first officer's ACP.

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SUBTASK 23-41-00-710-011

- (12) Repeat the communication test between the flight crew and the ground crew using the observer's ACP.

SUBTASK 23-41-00-860-004

- (13) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ——

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CABIN INTERPHONE SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains these tasks:
- (1) An Operational Test of the Cabin Interphone system

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

- (2) An Operational Test of the Cabin Ready system

AKS ALL

- (3) A Cabin Interphone system / Attendant Panel Installation Test

TASK 23-42-00-710-802

2. Cabin Interphone System - Operational Test

A. General

- (1) This task checks to make sure the interphone communication between the flight crew and the attendants operates correctly.
- (2) This task requires two persons to complete.

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
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. Prepare for the Operational Test

SUBTASK 23-42-00-840-001

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-42-00-840-002

- (2) Make sure all handsets are on the hook.

E. Cabin Interphone Operational Test

SUBTASK 23-42-00-710-001

- (1) Do the steps that follow for the Cabin Interphone Call Test:
 - (a) Push the "ATTENDANT" call switch on the P5 panel (passenger sign panel).
 - (b) Make sure that the attendant call light on the forward and aft exit locator signs turn on.
 - (c) Make sure you hear a HI/LO tone in the cabin.
 - (d) Remove any handset from the holder to reset the light.
 - (e) Make sure the attendant call lights turn off.
 - (f) Put the handset back on its holder.
 - (g) Do the steps that follow for the forward attendant handset:
 - 1) Remove the handset from its holder.
 - 2) Push the button corresponding to "PILOT" on the handset.

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- 3) Make sure the Cabin call light on the audio control panel turns on.
 - 4) Make sure you hear a HI tone in the flight deck.
 - 5) Push the "RESET" button on the handset.
 - 6) Push the button corresponding to an "Attendant call" on the handset.
 - 7) Make sure the attendant call light at the other station turns on.
 - 8) Make sure you hear a HI/LO tone in the cabin.
 - 9) Put the handset back on its holder.
 - 10) Make sure the attendant call light at the other station turns off.
- (h) Repeat the test for the aft attendant handset(s).

SUBTASK 23-42-00-710-002

- (2) Do the steps that follow for the Cabin Interphone Communication Test:
 - (a) Push the interphone button on all audio control panels.
NOTE: Button may be labeled "SERVICE" or "CABIN".
 - (b) Make sure you get good two way interphone communication between all communication devices: flight deck handset, pilots boom/mic headset, forward and aft attendant handsets.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 23-42-00-840-003

- (1) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

————— END OF TASK ————

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

TASK 23-42-00-710-804

3. Cabin Ready System - Operational Test

A. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

B. Procedure

SUBTASK 23-42-00-710-007

- (1) Do the steps that follow to check the operation of the Cabin Ready system:

- (a) Make sure the Cabin Ready indicator in the P5 panel in the flight deck is off.
- (b) At the forward Attendant Control Panel (ACP), select the PASSENGER SERVICES menu.

NOTE: PASSENGER SERVICES menu is on the left hand side of the main menu display.

NOTE: When the ACP is not in use for 5 minutes, the display will enter screen saver mode. To exit the screen saver mode, touch opposite corners of the display in sequence within 2 seconds.

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AKS 006, 009, 010, 013, 015-018, 020-025, 027 (Continued)

- (c) Make sure the Cabin Ready soft button on the ACP's PASSENGER SERVICES menu is "OFF" and not blue.

NOTE: The Cabin Ready operates like a three way control switch with the Cabin Ready button on the ACP and the flight deck switch located in the P5 panel.

- (d) Push the Cabin Ready soft button on the ACP.

- (e) Make sure you hear a LO tone chime in the flight deck.

- (f) Make sure the Cabin Ready soft button on the ACP's PASSENGER SERVICES menu is "ON" and blue.

- (g) Make sure the Cabin Ready indicator in the P5 panel in the flight deck turns on.

- (h) Push the Cabin Ready switch in the P5 panel.

- (i) Make sure you do not hear a LO tone chime in the flight deck.

NOTE: If you push the Cabin Ready switch in the flight deck when the Cabin Ready indicator in the P5 panel and the Cabin Ready button on the ACP are off, you will hear a LO chime in the flight deck.

- (j) Make sure the Cabin Ready soft button on the ACP's menu is "OFF" and not blue.

- (k) Make sure the Cabin Ready indicator in the P5 panel in the flight deck turns off.

AKS ALL

————— END OF TASK ————

TASK 23-42-00-710-803

4. Cabin Interphone system - Attendant Panel Installation Test

A. General

- (1) This task makes sure that the Cabin Interphone system operates correctly after the ACP installation.
(2) This task requires two persons to complete.

B. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Cabin Interphone / Attendant Panel Installation Test

SUBTASK 23-42-00-710-005

- (1) Do the steps that follow to check the Cabin Interphone system after the Attendant Panel installation:
(a) Do the steps that follow for any forward attendant handset:
1) Remove the handset from its holder.
2) Push the button corresponding to an "Attendant call" on the handset.
3) Make sure the attendant call light at the other station turns on.
4) Make sure you hear a HI/LO tone in the cabin.
5) Make sure you get a good two way communication between the handset and the other station's attendant handset.
6) Push the "RESET" button on the handset.

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- 7) Push the button corresponding to "PILOT" on the handset.
 - 8) Make sure the Cabin call light on the audio control panel turns on.
 - 9) Make sure you hear a HI tone in the flight deck.
 - 10) Make sure you get a good two way communication between the handset and the pilot's boom microphone.
 - 11) Put the handset back on its holder.
- (b) Repeat the test for any aft attendant handset.

———— END OF TASK ————

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ATTENDANT HANDSET - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of an attendant handset.
 - (2) Removal of an attendant handset cord.
 - (3) Removal of an attendant handset cradle.
 - (4) Installation of an attendant handset cradle.
 - (5) Installation of an attendant handset cord.
 - (6) Installation of an attendant handset.
 - (7) Installation Test of an attendant handset.
- B. The attendant handsets are installed at the forward and aft attendant's stations.

TASK 23-42-01-000-801

2. Attendant Handset Removal

(Figure 401)

A. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

B. Removal Procedure

SUBTASK 23-42-01-020-001

- (1) Remove the attendant handset [4]:
 - (a) Remove the handset [4] from the handset cradle [1].
 - (b) Disconnect the cord [5] from the handset [4].

— END OF TASK —

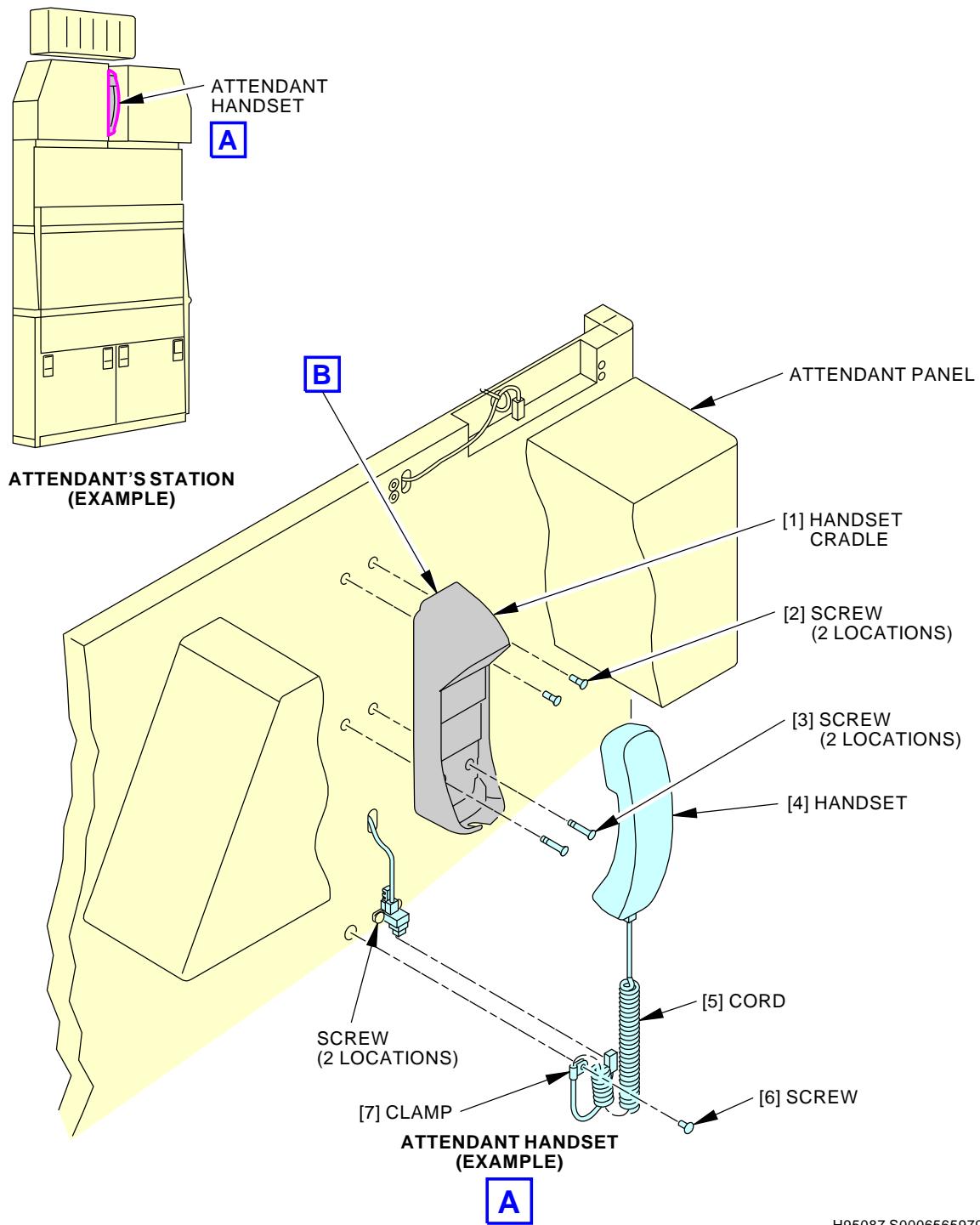
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Attendant Handset Installation
Figure 401/23-42-01-990-801 (Sheet 1 of 2)

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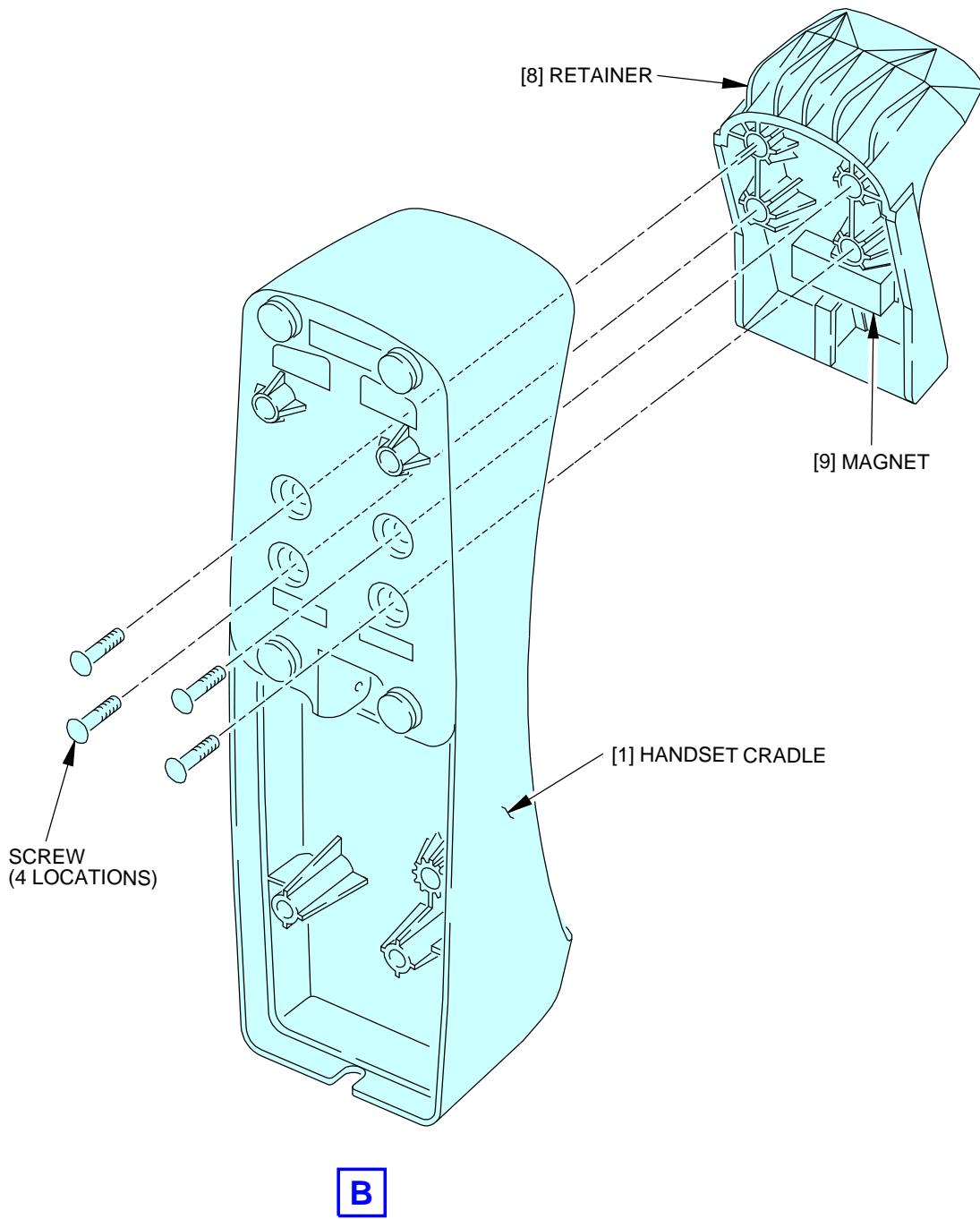
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Attendant Handset Installation
Figure 401/23-42-01-990-801 (Sheet 2 of 2)

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TASK 23-42-01-000-802

3. Attendant Handset Cord Removal

(Figure 401)

A. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

B. Removal Procedure

SUBTASK 23-42-01-020-002

- (1) Remove the handset cord [5]:
 - (a) Disconnect the cord [5] from the handset [4].
 - (b) Remove the screw [6] from the clamp [7].
 - (c) Remove the clamp [7].
 - (d) Pull the handset cord [5] out of the clamp [7].

— END OF TASK —

TASK 23-42-01-000-803

4. Attendant Handset Cradle Removal

(Figure 401)

A. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

B. Removal Procedure

SUBTASK 23-42-01-020-003

- (1) Remove the handset cradle [1]:
 - (a) Remove the handset [4] from the handset cradle [1].
 - (b) Remove screws [2] and screws [3] from the handset cradle [1].
 - (c) Remove the handset cradle [1] from the attendant's station.
 - (d) Do these steps if the magnet [9] is loose inside the handset cradle [1].
 - 1) Remove the screws.
 - 2) Remove the retainer [8] and magnet [9].

— END OF TASK —

TASK 23-42-01-400-801

5. Attendant Handset Cradle Installation

(Figure 401)

A. Consumable Materials

Reference	Description	Specification
A00188	Adhesive - Urethane, Two Component	BMS5-105 Type V



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B. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Handset Cradle Installation

SUBTASK 23-42-01-420-001

- (1) Install the handset cradle [1]:

- (a) Do these steps if you need to attach the magnet [9] to the handset cradle [1]:
 - 1) Use adhesive, A00188 to attach the magnet to the cradle.
 - 2) Put the retainer [8] in its correct position in the handset cradle [1].
 - 3) Install the screws.
- (b) Put the handset cradle [1] in its correct position over the screw holes in the attendant's station.
- (c) Install screws [2] and screws [3] to tighten the handset cradle [1] to the attendant's station.
- (d) Put the handset [4] in the handset cradle [1].

———— END OF TASK ————

TASK 23-42-01-400-802

6. Attendant Handset Cord Installation

(Figure 401)

A. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

B. Installation Procedure

SUBTASK 23-42-01-420-002

- (1) Install the handset cord [5]:

- (a) Put the handset cord [5] through the clamp [7].
- (b) Put the clamp [7] in its location over the screw hole in the attendant's station.
- (c) Install the screw [6] to tighten the clamp [7] to the attendant's station.
- (d) Connect the cord [5] to the handset [4].

———— END OF TASK ————

TASK 23-42-01-400-803

7. Attendant Handset Installation

(Figure 401)

A. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00



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B. Installation Procedure

SUBTASK 23-42-01-420-003

- (1) Install the attendant handset [4]:

NOTE: Install the marker on the handset if missing.

- (a) Connect the cord [5] to the handset [4].
(b) Put the handset [4] on the handset cradle [1].

———— END OF TASK ————

TASK 23-42-01-700-801

8. Attendant Handset 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)

B. Location Zones

Zone	Area
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Installation Test

SUBTASK 23-42-01-860-002

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-42-01-710-001

- (2) Do an installation test of the handset:

- (a) Lift the handset from the handle cradle.
(b) Push the button for the attendant on the handset keypad.
 1) Make sure you hear a chime on the PA speakers.
 2) Make sure the pink attendant call light at the other attendant's station comes on.
(c) Make voice communication to the calling attendant's station.
 1) Make sure communication can be made.
(d) Put the handset in the handset cradle.

SUBTASK 23-42-01-860-001

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————



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ATTENDANT CONTROL PANEL - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Software Loading
 - (2) Configuration Check
 - (3) Saving Data Diskette Preparation
 - (4) Saving Configuration Data
 - (5) Saving Fault Data
 - (6) Erasing Mass Storage Area (MSA)
 - (7) Touchscreen Cleaning

TASK 23-42-03-470-801

2. Attendant Control Panel (ACP) Software Loading

A. General

- (1) This procedure installs new Loadable Software Airplane Parts (LSAPs) to the ACP's and the Light LRU's.

NOTE: You need to have three different types of software for the ACP operation: OPS (Operational Software), CDB (Configuration Database) and LDB (Lighting Database). The software is loaded individually.

NOTE: If you need to load software to only the forward ACP, ADL to ACP (Phase 1) dataload is required. If you need to load software to the aft ACP or the light LRU's, ACP to ACP/ACP to LRU (Phase 2) dataload is required.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
32-09-00 P/B 201	AIR/GROUND SYSTEM - MAINTENANCE PRACTICES

C. Procedure

SUBTASK 23-42-03-940-001

- (1) Make sure the airplane is set to ground mode. Refer to: AIR/GROUND SYSTEM - MAINTENANCE PRACTICES, PAGEBLOCK 32-09-00/201.

SUBTASK 23-42-03-940-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	9	C00923	DATA LOADER

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	12	C01936	ATTENDANT PANELS

SUBTASK 23-42-03-470-001

- (3) AIRPLANES WITH P4 SOFTWARE;

Do the steps that follow to install the new software:

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- (a) Set up the data loader at P61-1 panel located in the flight deck to applicable configuration for loading software to the ACP. Refer to On-Airplane Software Installation, TASK 20-15-11-400-801.
 - 1) Set CHANNEL SELECT to CENTER
 - 2) Set DATA LOAD SELECT to ACP
- (b) Go to the forward ACP touchscreen and select Maintenance Menu.
- (c) Enter password if required.
NOTE: Depending on the ACP configuration, you may be required to provide password.
- (d) Select the "ADL to ACP" button located under the Data Load section.
 - 1) The "ADL to ACP" button should be highlighted and the ACP is ready to accept data loads from the data loader.
- (e) Insert the media containing the new LSAPs into the data loader.
NOTE: The word "media" defines a data storage device. Examples of media are CDs, mass storage devices, diskettes, PCMCIA, etc.
- (f) Wait and check to make sure that the loading is complete for all the new LSAPs.
NOTE: The ACP will not accept an LSAP currently installed unless the file is corrupted. A data load fail message will appear if the user tries to reload an LSAP which is already installed.
- (g) Press "ADL to ACP" button to exit the Data load.
 - 1) The "ADL to ACP" button should not be illuminated and the "ACP to LRUs" button should be disabled.
- (h) Remove and store away the media containing the LSAPs.
- (i) Press "ACP to ACP" button to load the LSAPs from the forward ACP to the aft ACP.
 - 1) The "ACP to ACP" button should be highlighted
NOTE: If the aft ACP has the same LSAPs as the forward ACP, the ACP to ACP button will fail and a manual restart of the ACP circuit breaker is required.
- (j) Wait for the loading to complete, both the forward and aft ACP's should restart.
- (k) For loading data from the ACP to the LED Lighting assemblies, do the steps that follow:
 - 1) Press the "ACP to LRUs" button
 - a) The "ACP to LRUs" button should highlight.
 - 2) Wait for the data load to finish.
 - 3) Check to make sure the Address, Scene and Zone information are downloaded without errors.

SUBTASK 23-42-03-470-002

(4) AIRPLANES WITH P5 SOFTWARE;

Do the steps that follow to install the new software:

- (a) Set up the data loader at P61-1 panel located in the flight deck to applicable configuration for loading software to the ACP. Refer to On-Airplane Software Installation, TASK 20-15-11-400-801.
 - 1) Set CHANNEL SELECT to CENTER
 - 2) Set DATA LOAD SELECT to ACP
- (b) Go to the forward ACP touchscreen and select Maintenance Menu.

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- (c) Enter password if required.

NOTE: Depending on the ACP configuration, you may be required to provide password.

- (d) Select the “Data Load” button in the Maintenance menu.

NOTE: When you push the “Data Load” button, you will see four buttons in the control window: Phase 1 Data Load, Phase 2 Data Load, Start, and Exit. Data loading instructions will be displayed in the result window.

Phase 1 Data Load transfers data from aircraft loader to the forward ACP. Phase 2 Data Load transfers data from the forward ACP to the aft ACP and light LRU's.

- (e) For Phase 1 Data Load, do the steps that follow:

1) Push the “Phase 1 Data Load” button.

2) Insert the media containing the new LSAPs into the data loader or select an appropriate file in the Electronic Aircraft Data Loader (eADL).

NOTE: Once the process has started, the result window will show the current progress of the file transfer. The status bar will show the approximate percent complete as the process executes.

3) When the process completes, push the “Exit” button.

- (f) For Phase 2 Data Load, do the steps that follow:

1) Push the “Phase 2 Data Load” button.

NOTE: When user select Phase 2 Data Load button, the screen will show the LSAP selection table and control window. The current configuration is selected at default. The user can select another LSAP to load into the ACP's and the light LRU's.

2) Select the LSAP in the Mass Storage Area.

3) Push the “Start” button.

NOTE: Once the process has started, the result window will show the current progress of the file transfer. The status bar will show the approximate percent complete as the process executes.

SUBTASK 23-42-03-700-001

- (5) Do this task to verify that the LSAPs are loaded correctly: Attendant Control Panel (ACP) Configuration Check, TASK 23-42-03-700-801.

————— END OF TASK ————

TASK 23-42-03-700-801

3. Attendant Control Panel (ACP) Configuration Check

A. General

- (1) The Configuration Check provides part number information for the ACP's and each Light LRU. It displays part numbers for hardware, Operational Software (OPS), Configuration Database (CDB), Standard Scene and Custom Scene (if applicable).

B. Procedure

SUBTASK 23-42-03-700-002

- (1) AIRPLANES WITH P4 SOFTWARE;

Do the steps that follow for the Configuration Check:

- (a) At the forward ACP, select Maintenance menu.

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Enter password if required.

NOTE: Depending on the ACP configuration, you may be required to provide password.

- (b) Select the "Check" button in the Configuration Check section.
- (c) Verify the part numbers on the display screen.

SUBTASK 23-42-03-700-003

(2) AIRPLANES WITH P5 SOFTWARE;

Do the steps that follow for the Configuration Check:

- (a) At the forward ACP, select Maintenance menu.
- (b) Enter password if required.

NOTE: Depending on the ACP configuration, you may be required to provide password.

- (c) Push the "Config Check" button in the Maintenance menu.
- (d) Push the "Start Check" button in the control window.
- (e) Verify the part numbers on the display screen.

———— END OF TASK ————

TASK 23-42-03-940-801

4. Attendant Control Panel (ACP) - Saving Data Diskette Preparation

A. General

- (1) This procedure prepares the diskette for saving configuration check data and fault data.

NOTE: This task is applicable for airplanes with P5 software.

B. Procedure

SUBTASK 23-42-03-940-004

- (1) To prepare a diskette for saving configuration check data, do the steps that follow on your computer:

- (a) Insert the diskette in the diskette drive.
- (b) Create a text file with following contents:

LBL=226

DSN = 1

DTN = 1

B1D = 1H,1H,374

B2D = 0H,0H,300

B1P = 1

B2P = 0

B1R = SAVECFG.TXT

- (c) Save the text file on the diskette as CONFIG.LDR.

NOTE: Windows may hide the extension of the text file. Make sure the filename has a ".LDR" file extension and not a ".TXT" extension.

- (d) Remove the diskette from diskette drive.

SUBTASK 23-42-03-940-003

- (2) To prepare a diskette for saving fault data and configuration check data, do the steps that follow on your computer:

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- (a) Insert a diskette in the diskette drive.
- (b) Create a text file with following contents:

LBL=226
DSN = 1
DTN = 1
B1D = 1H,1H,374
B2D = 0H,0H,300
B1P = 1
B2P = 0
B1R = SAVEALL.TXT
- (c) Save the text file on the diskette as CONFIG.LDR.

NOTE: Windows may hide the extension of the text file. Make sure the filename has a ".LDR" file extension and not a ".TXT" extension.
- (d) Remove the diskette from diskette drive.

———— END OF TASK ————

TASK 23-42-03-970-801

5. Attendant Control Panel (ACP) - Saving Configuration Data

A. General

- (1) This task saves the Configuration Data on a diskette.
- NOTE: This task is applicable for airplanes with P5 software.

B. Procedure

SUBTASK 23-42-03-970-001

- (1) Do the steps that follow to save the Configuration Data:
 - (a) In the Maintenance menu column, push the "Config Check" button.

NOTE: When you push the Config Check button, three buttons will appear in the control window: Start Check, Save Config Data and Exit. The result window will display instructions for user to view or save the configuration data.
 - (b) Insert a properly formatted diskette into the Aircraft Data Loader (ADL).
 - 1) The Save Data diskette can be created by using the Configuration Database Generator (CDG) or by the task: Attendant Control Panel (ACP) - Saving Data Diskette Preparation, TASK 23-42-03-940-801.
 - (c) Push the Save Config Data button in the control window.

NOTE: When this process starts, the result window will display the current progress of the file transfer.
 - (d) Push the Exit button in the control window to complete the process.

———— END OF TASK ————

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TASK 23-42-03-970-802

6. Attendant Control Panel (ACP) - Saving Fault Data

A. General

- (1) This task saves the system test faults or data load faults on a diskette.

NOTE: This task is applicable for airplanes with P5 software.

B. Procedure

SUBTASK 23-42-03-970-002

- (1) In the Maintenance menu column, push the "Config Check" button.

NOTE: When you push the Config Check button, three buttons will appear in the control window: Start Check, Save Config Data and Exit. The result window will display instructions for user to view or save the configuration data. This will save the current config data to memory.

- (2) To save the fault data, do the steps that follow:

- (a) In the Maintenance menu column, push the Fault Data button.

NOTE: When you push the Fault Data button, four buttons will appear in the control window: System Test Faults, Data Load Faults, Save All and Exit. The result window will display instructions for user to view or save the fault data.

- (b) Insert a properly formatted diskette into the Aircraft Data Loader (ADL).

1) The Save Data diskette can be created by using the Configuration Database Generator (CDG) or by the task: Attendant Control Panel (ACP) - Saving Data Diskette Preparation, TASK 23-42-03-940-801.

- (c) Push the Save All button in the control window.

NOTE: When this process starts, the result window will display the current progress of the file transfer.

- (d) Push the Exit button in the control window to complete the process.

———— END OF TASK ————

TASK 23-42-03-070-801

7. Attendant Control Panel (ACP) - Erasing Mass Storage Area (MSA)

A. General

- (1) This task erases the Mass Storage Area (MSA) at the forward ACP.

NOTE: This task is applicable for airplanes with P5 software.

B. Procedure

SUBTASK 23-42-03-070-001

- (1) At the forward ACP, do the steps that follow to erase the MSA:

- (a) In the ACP main menu column, push the Maintenance button.

- (b) Enter password if required.

NOTE: Depending on the ACP configuration, you may be required to provide password.

- (c) In the Maintenance menu column, push the Data Load button.

- (d) In the control window, push the Phase 2 Data Load button.

- (e) In the control window, push the Erase MS Area button.

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- (f) In the control window, push the Start button.

NOTE: The result window will show the progress of the erase process.

———— END OF TASK ————

TASK 23-42-03-100-801

8. Attendant Control Panel (ACP) Touchscreen Cleaning

A. General

- (1) This tasks tells you how to clean the LCD touchscreen.

B. LCD Touchscreen Cleaning Procedure

SUBTASK 23-42-03-160-001

- (1) Do the steps that follow to clean the LCD Touchscreen:

- (a) Under display menu, push the Clean screen button to put the ACP in screen cleaning mode.
 - (b) Clean the LCD Touchscreen assembly with soft, lint-free cloth and isopropyl alcohol.
- 1) Wipe the screen in gentle motion.

NOTE: Lint-free cleaning wipes with alcohol are acceptable.

———— END OF TASK ————

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ATTENDANT CONTROL PANEL - ADJUSTMENT/TEST

1. General

- A. This procedure contains a task for the operation test of the Attendant Control Panel (ACP). Do this task when you replace the ACP.

TASK 23-42-03-710-801

2. Attendant Control Panel - Operational Test

A. General

- (1) This task makes sure the Attendant Control Panel (ACP) operates correctly.
- (2) The ACP controls and monitors several systems on the airplane. The ACP operational test consists of the tests for all systems that the ACP is associated with.

B. References

Reference	Title
23-42-00-710-803	Cabin Interphone system - Attendant Panel Installation Test (P/B 501)
23-42-00-710-804	Cabin Ready System - Operational Test (P/B 501)
44-21-00-440-802	Video Entertainment System - Activation (P/B 201)
FIM 23-42 TASK 839	LED on the ACP Switch Assembly (ISA) is ON - Fault Isolation
FIM 23-42 TASK 840	Attendant Control Panel - Touch Screen Inoperative
FIM 23-42 TASK 841	Amber LED Light on ACP Switch Assembly does not come on during operational test

C. Procedure

SUBTASK 23-42-03-700-004

- (1) Do the power-up test for the ACP:

NOTE: After power-up, the Over-Temperature LED will turn on for 2 seconds and then turn off.

- (a) Open this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	12	C01936	ATTENDANT PANELS

- (b) Close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	12	C01936	ATTENDANT PANELS

- (c) Check the LED at the upper left corner of the Integrated Switch Assembly (ISA).

NOTE: The LED should turn on in the first 2 seconds after power-up and then turn off.

- 1) If the LED light (amber) does not turn on in the first 2 seconds after power-up, refer to: FIM 23-42 TASK 841 for corrective actions.
- 2) If the LED light continues to stay on after power-up, refer to: FIM 23-42 TASK 839 for corrective actions.

- (d) Check the ACP Touch Screen to make sure it responds to touching inputs.

- 1) If the ACP Touch Screen does not respond to any touching inputs, refer to: FIM 23-42 TASK 840 for corrective actions.

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SUBTASK 23-42-03-710-003

- (2) Do the test for the Cabin Interphone system:
- (a) Do this task: Cabin Interphone system - Attendant Panel Installation Test, TASK 23-42-00-710-803

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

SUBTASK 23-42-03-710-004

- (3) Do the test for the Cabin Ready system if you replace the forward Attendant Control Panel:
- (a) Do this task: Cabin Ready System - Operational Test, TASK 23-42-00-710-804

AKS ALL

SUBTASK 23-42-03-710-006

- (4) Do the test for the IFE system if you replace the forward Attendant Control Panel:
- (a) Do this task: Video Entertainment System - Activation, TASK 44-21-00-440-802

SUBTASK 23-42-03-710-007

- (5) Do the test for the Water/Waste system if you replace the Aft Attendant Control Panel:
- (a) At the Aft Attendant Control Panel, select ENVIRONMENT menu.
- 1) Make sure you see the indicators for Potable Water, Vacuum Waste and LAV INOP.
- 2) Make sure the Potable Water and Vacuum Waste indicators show the actual system levels.
- (b) Select the MAINTENANCE menu at the Aft ACP:
- 1) Make sure you see the LAV INOP Test, LAV INOP and Clean Check Sensors buttons in the Vacuum Waste section.
- 2) Make sure the LAV INOP indicator is not orange.

———— END OF TASK ————

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INLINE FILTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) Removal of an inline filter.
 - (2) Installation of an inline filter.
- B. The inline filters are installed above the ceiling in the forward and aft sections of the passenger compartment.

TASK 23-42-04-000-801

2. Inline Filter Removal

Figure 401

A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
25-21-45-000-803-001	Main Ceiling Panel - Removal (P/B 401)

B. Location Zones

Zone	Area
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left

C. Removal Procedure

SUBTASK 23-42-04-840-001

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	9	C00073	PASSENGER CABIN CREW CALL

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	12	C01936	ATTENDANT PANELS

SUBTASK 23-42-04-010-001

- (2) To get access to the inline filter, do this task: Main Ceiling Panel - Removal, TASK 25-21-45-000-803-001.

SUBTASK 23-42-04-840-004

- (3) Before you touch the inline filter, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-42-04-020-001

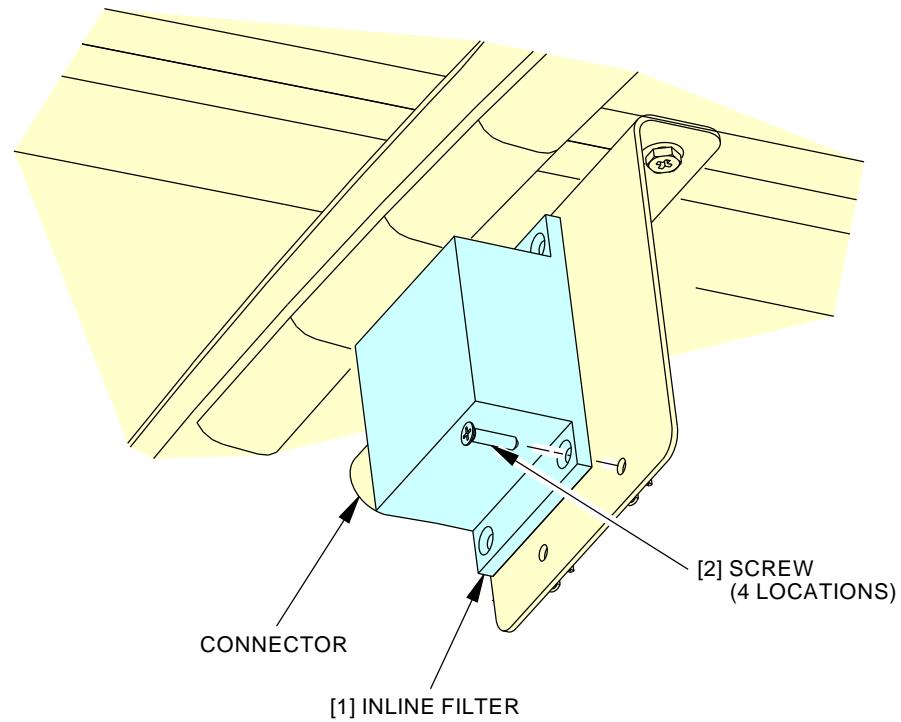
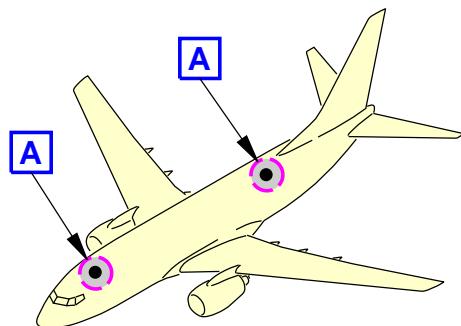
- (4) Do the steps that follow to remove the inline filter [1]:
 - (a) Disconnect the electrical connector from the inline filter [1].
 - (b) Remove the four screws [2] that attach the inline filter [1] to the mounting bracket.
 - (c) Remove the inline filter [1].

———— END OF TASK ————

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A

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INLINE FILTER INSTALLATION
Figure 401/23-42-04-990-801

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TASK 23-42-04-400-801

3. Inline Filter Installation

Figure 401

A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
23-42-00-710-802	Cabin Interphone System - Operational Test (P/B 501)
25-21-45-400-803-001	Main Ceiling Panel - Installation (P/B 401)

B. Location Zones

Zone	Area
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right
241	Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left

C. Installation Procedure

SUBTASK 23-42-04-840-002

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	9	C00073	PASSENGER CABIN CREW CALL

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	12	C01936	ATTENDANT PANELS

SUBTASK 23-42-04-840-005

- (2) Before you touch the inline filter, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-42-04-420-001

- (3) Do the steps that follow to install the inline filter [1]:

- Attach the inline filter [1] to the mounting bracket with the screws [2] from the removal.
- Connect the electrical connector to the inline filter [1].

SUBTASK 23-42-04-410-001

- (4) Install the main ceiling panel:

Do this task: Main Ceiling Panel - Installation, TASK 25-21-45-400-803-001.

SUBTASK 23-42-04-840-003

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	9	C00073	PASSENGER CABIN CREW CALL

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	12	C01936	ATTENDANT PANELS

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D. Installation Test

SUBTASK 23-42-04-700-001

- (1) Do voice communication test between the flight compartment and the attendant stations and make sure you can hear the voice clearly. Refer to the task: Cabin Interphone System - Operational Test, TASK 23-42-00-710-802.

———— END OF TASK ——

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FLIGHT AND GROUND CREW CALL SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has one task:
- (1) An operational test of the flight and ground crew call system.

TASK 23-43-00-710-801

2. Flight and Ground Crew Call System - Operational Test

A. References

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

B. Location Zones

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

C. Flight and Ground Crew Call System Operational Test

SUBTASK 23-43-00-860-002

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-43-00-710-001

- (2) Do an operational test of the forward attendant to aft attendant call:
 - (a) Do these steps from each forward attendant handset to each aft attendant handset.
 - 1) Push the button for attendant on the handset at the forward attendant's station.
 - a) Make sure you hear a chime on the PA speakers.
 - b) Make sure the aft pink attendant call light comes on.
 - 2) Push the button for reset on the handset at the aft attendant's station.
 - a) Make sure the attendant call light goes off.
 - 3) Speak into the forward attendant's handset.
 - a) Make sure you can hear speech on the aft attendant's handset.
 - 4) Speak into the aft attendant's handset.
 - a) Make sure you can hear speech on the forward attendant's handset.

SUBTASK 23-43-00-710-004

- (3) Do an operational test of the aft attendant to forward attendant call:
 - (a) Do these steps from each aft attendant handset to each forward attendant handset.
 - 1) Push the button for attendant on the handset at the aft attendant's station.
 - a) Make sure you hear a chime on the PA speakers.
 - b) Make sure the pink attendant call light at the forward attendant's station comes on.
 - 2) Push the button for reset on the handset at the forward attendant's station.
 - a) Make sure the attendant call light goes off.

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SUBTASK 23-43-00-710-002

- (4) Do an operational test of the flight crew to attendant call:
 - (a) Push the ATTEND button on the P5 Overhead Panel.
 - 1) Make sure the pink attendant call lights at the forward and aft attendant's stations come on.
 - 2) Make sure you hear a two-tone chime in the passenger cabin.
 - (b) Push the button for reset on the handset at the forward attendant's station.
 - 1) Make sure the attendant call light goes off.

SUBTASK 23-43-00-710-005

- (5) Do an operational test of the attendant to flight crew call:
 - (a) Do these steps from each forward attendant handset and from each aft attendant handset.
 - 1) Push the button for the pilot on the forward or aft attendant's handset.
 - a) Make sure that you hear a chime in the flight compartment.
 - b) Make sure the CABIN interphone call light on each audio control panel comes on.
 - c) Make sure the CABIN microphone selector switch is depressed on the audio control panels.
 - 2) Speak into the attendant's handset.
 - a) Make sure you can hear speech on the pilot's headset.
 - 3) Speak into the pilot's boom microphone.
 - a) Make sure you can hear speech on the attendant's handset.

SUBTASK 23-43-00-710-003

- (6) Do an operational test between the flight crew and the ground crew:
 - (a) Push and hold the GRD CALL button on the P5 Overhead Panel in the flight compartment.
 - 1) Make sure you hear the ground crew call horn at the nose wheel well area.
 - (b) Release the GRD CALL button.
 - (c) Push and hold the PILOT CALL button on the external power P19 panel at the nose wheel well area.
 - 1) Make sure you hear a chime in the flight compartment.
 - 2) Make sure the flight interphone call light on each audio control panel comes on. The flight interphone is labelled Flt, Int, or Flt Int.
 - (d) Release the pilot call BUTTON.

SUBTASK 23-43-00-860-001

- (7) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

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GROUND CREW CALL HORN - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the ground crew call horn.
 - (2) An installation of the ground crew call horn.
- B. The ground crew call horn is installed at the nose wheel well area.

TASK 23-43-02-000-801

2. Ground Crew Call Horn Removal

(Figure 401)

A. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
115	Nose Landing Gear Wheel Well - Left

C. Procedure

SUBTASK 23-43-02-760-001

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	9	C00073	PASSENGER CABIN CREW CALL

SUBTASK 23-43-02-020-001

- (2) Remove the ground crew call horn [1]:

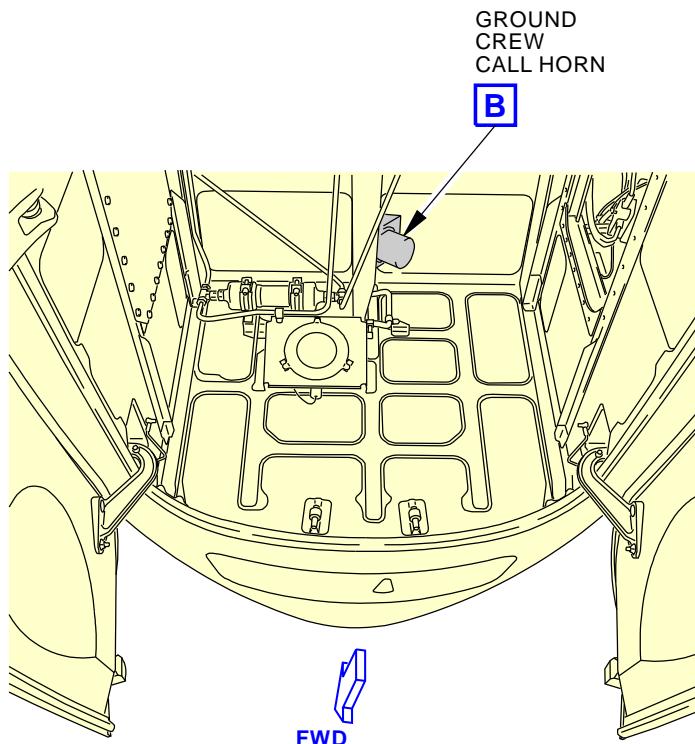
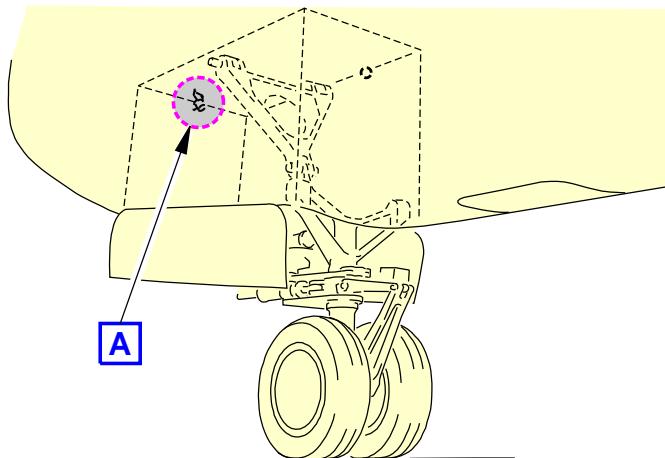
WARNING: MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR BEFORE YOU REMOVE THE GROUND-CREW CALL HORN. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (a) Make sure the downlock pins are installed on the nose and main landing gear. If the downlock pins are not installed, do this task: TASK 32-00-01-480-801.
- (b) Remove the screws [3] and washers [2] from the ground crew call horn [1].
- (c) Pull the ground crew call horn [1] out until you can get access to the terminals.
- (d) Remove the two nuts [4] from the ground crew call horn terminals.
- (e) Disconnect the electrical connectors [5] from the ground crew call horn terminals.
- (f) Remove the ground crew call horn [1].

———— END OF TASK ————

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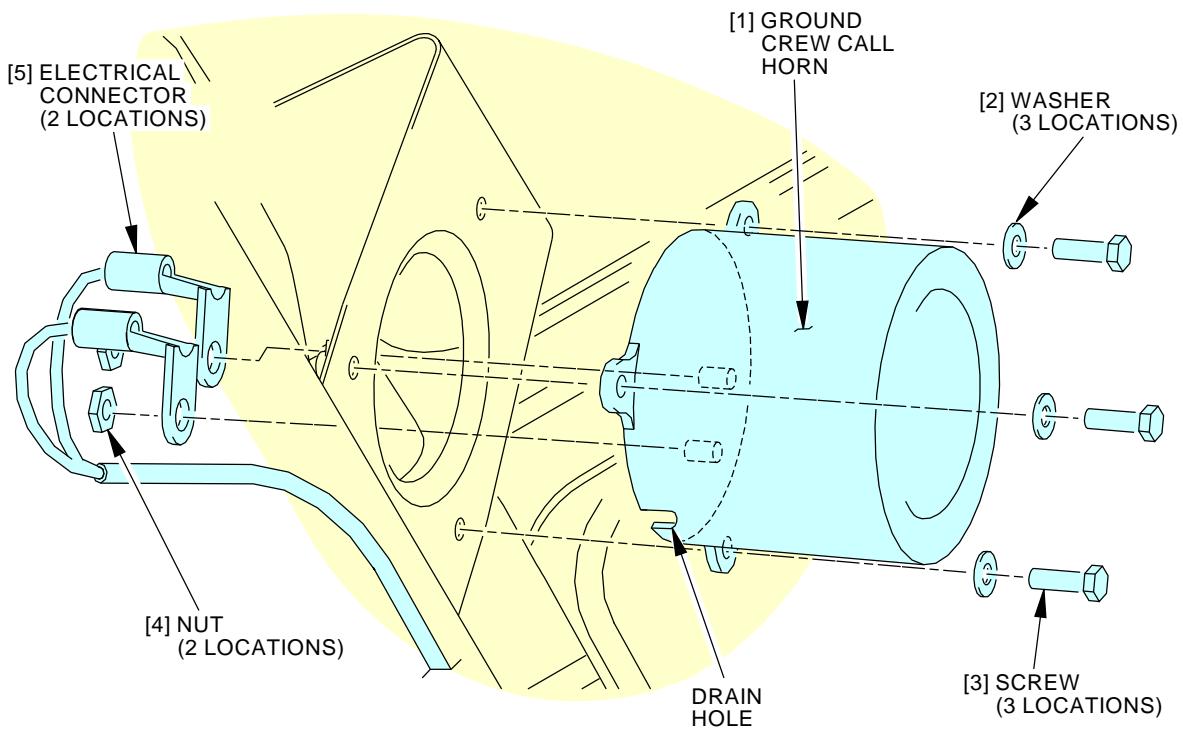
NOSE LANDING GEAR WHEEL WELL

A

G06602 S0006566005_V2

Ground Crew Call Horn Installation
Figure 401/23-43-02-990-801 (Sheet 1 of 2)EFFECTIVITY
AKS ALL**23-43-02**

D633A101-AKS



GROUND CREW CALL HORN

B

G06607 S0006566006_V3

Ground Crew Call Horn Installation
Figure 401/23-43-02-990-801 (Sheet 2 of 2)EFFECTIVITY
AKS ALL**23-43-02**



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TASK 23-43-02-420-801

3. Ground Crew Call Horn 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)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
115	Nose Landing Gear Wheel Well - Left

C. Procedure

SUBTASK 23-43-02-760-003

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	9	C00073	PASSENGER CABIN CREW CALL

SUBTASK 23-43-02-420-001

- (2) Install the ground crew call horn [1]:

WARNING: MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR BEFORE YOU REMOVE THE GROUND-CREW CALL HORN. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (a) Make sure the downlock pins are installed on the nose and main landing gear. If the downlock pins are not installed, do this task: TASK 32-00-01-480-801.
- (b) Connect the electrical connectors [5] to the ground crew call horn terminals.
NOTE: The ground crew horn is polarity sensitive and will not operate if the positive connector is not connected to the positive terminal above the +28V label.
- (c) Install and tighten the nuts [4] that attach the electrical connectors [5] to the ground crew call horn terminals.
- (d) Put the ground crew call horn [1] in its position over the screw holes in the forward area of the nose wheel well.
 - 1) Make sure the drain hole is downward to allow drainage of moisture.
- (e) Install the screws [3] and washers [2] that attach the ground crew call horn [1] to the airplane.

SUBTASK 23-43-02-760-002

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	9	C00073	PASSENGER CABIN CREW CALL



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D. Installation Test

SUBTASK 23-43-02-860-002

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-43-02-700-001

- (2) Do an installation test of the ground crew call horn:
- (a) Push the GND CALL switch momentarily on the P5 overhead panel.
 - (b) Make sure that the ground crew call horn operates.

SUBTASK 23-43-02-860-001

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

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FLIGHT INTERPHONE SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Flight Interphone System Deactivation.
 - (2) Flight Interphone System Activation.

TASK 23-51-00-040-801

2. Flight Interphone System - Deactivation

A. General

- (1) This procedure removes electrical power to the Flight Interphone System.

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-51-00-860-015

- (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>
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	13	C01179	INDICATOR MASTER DIM SECT 7
F	14	C01180	INDICATOR MASTER DIM SECT 8

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D. Flight Interphone System - Tryout

NOTE: This tryout is to make sure the Flight Interphone System is in a zero energy state.

SUBTASK 23-51-00-860-016

- (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>
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	13	C01179	INDICATOR MASTER DIM SECT 7
F	14	C01180	INDICATOR MASTER DIM SECT 8

SUBTASK 23-51-00-700-001

- (2) Set all audio control panels (ACPs) to these conditions:
- Push all audio monitor switches to off.
 - Push the applicable microphone selector switch to on.
 - Make sure its light does not come on.

———— END OF TASK ————

TASK 23-51-00-440-801

3. Flight Interphone System - Activation

A. General

- (1) This procedure adds electrical power to the Flight Interphone System.

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50



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(Continued)

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-51-00-860-014

(1) ...

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	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	13	C01179	INDICATOR MASTER DIM SECT 7
F	14	C01180	INDICATOR MASTER DIM SECT 8

— END OF TASK —



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FLIGHT INTERPHONE SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure contains a task for the operational test of the flight interphone system.

NOTE: Two persons are necessary to do this procedure.

TASK 23-51-00-710-801

2. Flight Interphone System - Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
35-12-85-910-801	Crew Oxygen Mask Stowage (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Operational Test

SUBTASK 23-51-00-860-011

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-51-00-860-009

- (2) Make sure the oxygen system for the flight crew is pressurized.

SUBTASK 23-51-00-860-002

- (3) Make sure the SERVICE INTERPHONE switch on the captain's and first officer's overhead panel is in the OFF position.

SUBTASK 23-51-00-860-006

- (4) Set all audio control panels (ACPs) to these conditions:

- (a) Push all audio monitor switches to off.
- (b) Push the FLT microphone selector switch to on.
 - 1) Make sure its light comes on.
- (c) Push the volume control for the FLT microphone selector switch.
- (d) Turn the volume control for the FLT microphone selector switch clockwise to the middle position.

SUBTASK 23-51-00-860-004

- (5) Set the captain's and first officer's ACPs to these conditions:

- (a) Push the SPKR volume control switch to ON.

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- 1) Make sure its light comes on.
- (b) Turn the SPKR volume control switch clockwise to the middle position or to the volume level you are comfortable with.

SUBTASK 23-51-00-710-001

- (6) Do the communication test between each of the flight crew stations with the PTT switch on the hand microphone:
 - (a) Push and hold the PTT switch on the hand microphone.
 - (b) Speak into the hand microphone.
 - 1) Make sure you can hear the voice clearly from the other headsets.
 - 2) Make sure the voice level from the flight deck speakers decreases.
 - (c) Release the PTT switch on the hand microphone.

SUBTASK 23-51-00-710-002

- (7) Do the communication test between each of the flight crew stations with the PTT switch on the captain's and first officer's control wheel:
 - (a) Push and hold the PTT switch on the captain's and first officer's control wheel to the INT position.
 - (b) Speak into the captain's and first officer's boom microphone.
 - 1) Make sure you can hear the voice clearly from the other headsets.
 - 2) Make sure the voice level from the flight deck speakers decreases.
 - (c) Release the PTT switch on the captain's and first officer's control wheel.

SUBTASK 23-51-00-710-008

- (8) Do the communication test between each of the flight crew stations with the PTT switch on the captain's and first officer's glareshield:
 - (a) Push and hold the PTT switch on the captain's and first officer's glareshield.
 - (b) Speak into the captain's and first officer's boom microphone.
 - 1) Make sure you can hear the voice clearly from the other headsets.
 - 2) Make sure the voice level from the flight deck speakers decreases.
 - (c) Release the PTT switch on the captain's and first officer's glareshield panel.

SUBTASK 23-51-00-710-003

- (9) Do the communication test between each of the flight crew stations with the R/T - I/C switch on the captain's and first officer's ACP:
 - (a) Push and hold the R/T - I/C switch on the captain's and first officer's ACP to the R/T position.
 - (b) Speak into the captain's and first officer's boom microphone.
 - 1) Make sure you can hear the voice clearly from the other headsets.
 - 2) Make sure the voice level from the flight deck speakers decreases.
 - (c) Release the R/T - I/C switch on the ACP.

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- (d) Push and hold the R/T - I/C switch on the captain's and first officer's ACP to the I/C position.

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AKS 017, 018, 020-999

- (e) Push the R/T - I/C switch on the captain's and first officer's ACP to the I/C position.

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- (f) Speak into the captain's and first officer's boom microphone.
 - 1) Make sure you can hear the voice clearly from the other headsets.
 - 2) Make sure the voice level from the flight deck speakers decreases.

AKS 001-016, 019

- (g) Release the R/T - I/C switch on the captain's and first officer's ACP.

AKS 017, 018, 020-999

- (h) Push the R/T - I/C switch back to the center position.

AKS ALL

SUBTASK 23-51-00-710-012

- (10) Do the communication test between each of the flight crew stations with the oxygen mask:
 - (a) Remove the oxygen mask from the stowage box at the flight crew's station.
 - (b) If necessary, connect the oxygen mask microphone to the interphone jack at the flight crew's station.

AKS 001-016, 019

- (c) Push and hold the R/T - I/C switch on the flight crew's ACPs to the I/C position.

AKS 017, 018, 020-999

- (d) Push the R/T - I/C switch on the flight crew's ACPs to the I/C position.

AKS ALL

- (e) Speak into the flight crew's oxygen mask microphone.
 - 1) Make sure the person at the other end can hear your voice clearly.
 - 2) Make sure you can hear the voice at both flight deck speakers.
 - 3) Make sure the voice level from the flight deck speakers does not decrease.
- (f) Make sure you can hear the voice clearly when the person at the other end speaks to you.

AKS 001-016, 019

- (g) Release the R/T - I/C switch on the flight crew's ACP.

AKS 017, 018, 020-999

- (h) Push the R/T - I/C switch on the flight crew's ACP back to the center position.

AKS ALL

- (i) Speak into the flight crew's oxygen mask microphone.
 - 1) Make sure the person at the other end cannot hear your voice.
 - 2) Make sure you cannot hear the voice at both flight deck speakers.
- (j) Do this task to stow the Oxygen Masks: Crew Oxygen Mask Stowage, TASK 35-12-85-910-801
- (k) Close the door of all mask stowage boxes.

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SUBTASK 23-51-00-710-005

- (11) Do a test of the flight interphone jack at the external power panel:
- (a) Connect a headset to the FLIGHT INTERPHONE jack on the external power panel.
 - (b) Push and hold the PTT switch on the ground crew microphone.
 - (c) Speak into the ground crew microphone.
 - 1) Make sure you can hear the voice clearly on the flight compartment speakers.
 - (d) Release the PTT switch on the ground crew microphone.
 - (e) Push and hold the PTT switch on the captain's and first officer's control wheel to the INT position.
 - (f) Speak into the captain's and first officer's boom microphone.
 - 1) Make sure you can hear the voice clearly on the ground crew headphone.
 - (g) Release the PTT switch on the captain's and first officer's control wheel.

SUBTASK 23-51-00-760-001

- (12) Do the dual power source test:
- (a) Do the test for the captain's station:
 - 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>
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	23	C00239	INTERPHONE POWER CAPT DC 2

- 2) Push and hold the PTT switch on the captain's control wheel to the INT position.
- 3) Speak into the captain's boom microphone.
 - a) Make sure you hear the voice clearly on the flight deck speakers.
- 4) Release the PTT switch on the captain's control wheel.
- 5) 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>
C	24	C00240	INTERPHONE POWER CAPT BAT

- 6) Push and hold the PTT switch on the captain's control wheel to the INT position.
- 7) Speak into the captain's boom microphone.
 - a) Make sure you cannot hear the voice on the flight deck speakers.
- 8) Release the PTT switch on the captain's control wheel.
 - a) Make sure that VHF-1 is the only microphone selector button on the captain's ACP that is on.



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- 9) 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>
C	23	C00239	INTERPHONE POWER CAPT DC 2

- 10) Make sure that the FLT microphone selector button on the captain's ACP comes on.

- (b) Do the test for the first officer's station:

- 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>
C	21	C00560	INTERPHONE POWER F/O DC 2

- 2) Push and hold the PTT switch on the first officer's control wheel to the INT position.

- 3) Speak into the first officer's boom microphone.

- a) Make sure you hear the voice clearly on the flight deck speakers.

- 4) Release the PTT switch on the first officer's control wheel.

- 5) 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>
C	22	C00561	INTERPHONE POWER F/O BAT

- 6) Push and hold the PTT switch on the first officer's control wheel to the INT position.

- 7) Speak into the first officer's boom microphone.

- a) Make sure you cannot hear the voice on the flight deck speakers.

- 8) Release the PTT switch on the first officer's control wheel.

- a) Make sure that VHF-2 is the only microphone selector button on the first officer's ACP that is on.

- 9) 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>
C	21	C00560	INTERPHONE POWER F/O DC 2

- 10) Make sure that the FLT microphone selector button on the first officer's ACP comes on.

SUBTASK 23-51-00-710-011

- (13) Do the test for the ALT/NORM switch:

- (a) Put the ALT/NORM switch on the captain's and first observer's ACP to the ALT position.

- 1) Make sure that the VHF-1 microphone selector button on the captain's and first observer's ACP comes on.

- (b) Put the ALT/NORM switch on the captain's and first observer's ACP to the NORM position.

- 1) Make sure that the FLT microphone selector button on the captain's and first observer's ACP comes on.

- (c) Put the ALT/NORM switch on the first officer's ACP to the ALT position.



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- 1) Make sure that the VHF-2 microphone selector button on the first officer's ACP comes on.
- (d) Put the ALT/NORM switch on the first officer's ACP to the NORM position.
 - 1) Make sure that the FLT microphone selector button on the first officer's ACP comes on.

SUBTASK 23-51-00-710-014

- (14) Do the test to verify the position of the REU Aural Warning mute switch:

- (a) Open this access panel:

Number Name/Location

117A Electronic Equipment Access Door

- (b) With the REU Aural Warning Mute switch in the "ON" position:

- 1) Push the SYS TEST switch on the ground proximity panel, P3.
- 2) Make sure that the PULL UP message is not audible in the flight deck headphones.

- (c) With the REU Aural Warning Mute switch in the "OFF" position:

- 1) Push the SYS TEST switch on the ground proximity panel, P3.
- 2) Make sure that the PULL UP message is audible in the flight deck headphones.

- (d) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

E. Put the Airplane Back to Its Usual Condition

SUBTASK 23-51-00-860-005

- (1) Put all ACPs back to their usual condition:

- (a) Push all microphone selector switches to off.
- (b) Push the volume control switch for all microphone selector switches to off.
- (c) Push the SPKR volume control switch to off.

SUBTASK 23-51-00-760-002

- (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>
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	22	C00561	INTERPHONE POWER F/O BAT
C	24	C00240	INTERPHONE POWER CAPT BAT

SUBTASK 23-51-00-860-010

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

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REMOTE ELECTRONICS UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the remote electronics unit (REU).
 - (2) An installation of the REU.
- B. The REU is on the E4-1 shelf in the electrical/electronic compartment.

TASK 23-51-01-000-801

2. Remote Electronics Unit (REU) Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Electrical and Electronics Compartment - Left

C. Access Panels

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

D. Removal Procedure

SUBTASK 23-51-01-010-001

- (1) To get access to the main equipment center, do this step:

Open this access panel:

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

SUBTASK 23-51-01-860-001

- (2) 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>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS



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SUBTASK 23-51-01-860-005

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

- (3) Before you touch the REU, do the procedure for devices that are sensitive to electrostatic discharge. To do this procedure, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

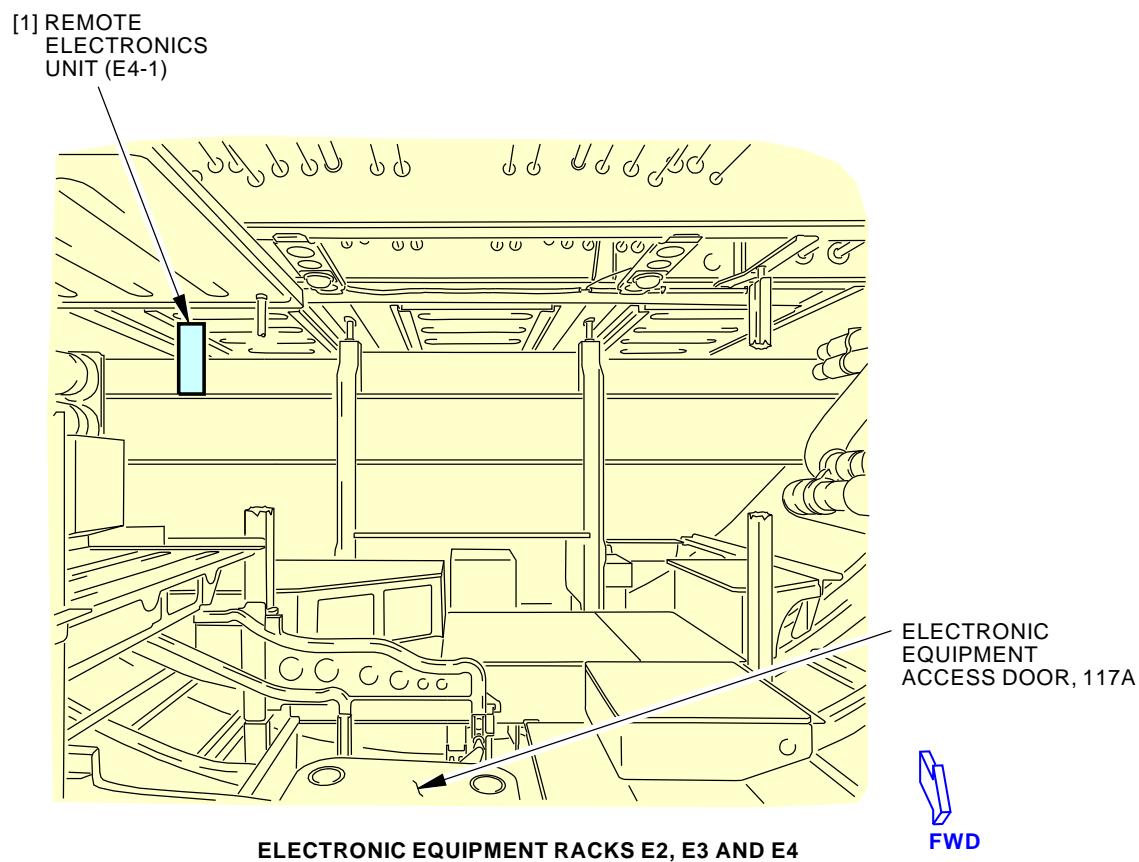
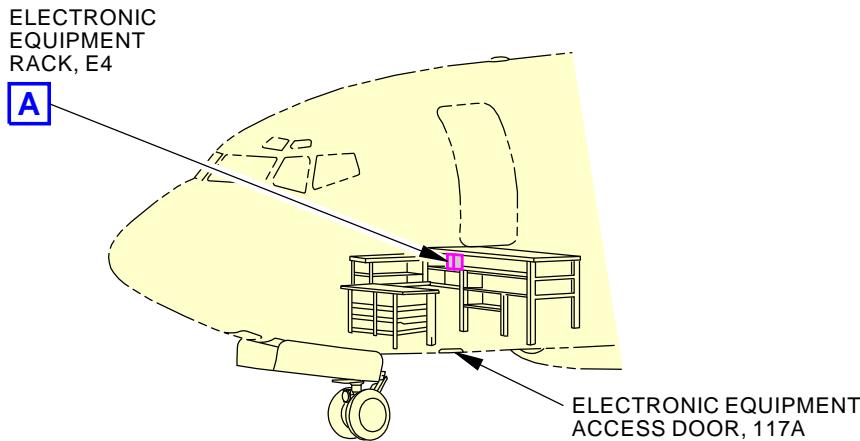
SUBTASK 23-51-01-020-001

- (4) Remove the REU [1] from the shelf. To remove it, do this task: E/E Box Removal, TASK 20-10-07-000-801.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-51-01



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**Remote Electronics Unit Installation
Figure 401/23-51-01-990-801**

 EFFECTIVITY
AKS ALL

23-51-01



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TASK 23-51-01-000-802

3. Remote Electronics Unit (REU) Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
23-51-00-710-801	Flight Interphone System - Operational 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)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	REU	23-51-01-03-005	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 23-51-01-860-002

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

SUBTASK 23-51-01-860-006

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

- (2) Before you touch the REU, do the procedure for the devices that are sensitive to electrostatic discharge. To do this procedure, do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 23-51-01-420-001

- (3) Install the REU [1] on the shelf. To install it, do this task: E/E Box Installation, TASK 20-10-07-400-801.



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SUBTASK 23-51-01-200-003

- (4) If there is an AURAL WARN MUTE switch on the front panel of the REU, adjust the switch to the applicable airline standard as follows:

NOTE: If no AURAL WARN MUTE switch is present, the REU is preset.

- (a) Vertical Position - Aural warnings are delivered to the flight deck headsets and speakers.
(b) Horizontal Position - Aural warnings are muted from the flight deck headsets and are only heard through the flight deck speakers.

SUBTASK 23-51-01-860-003

- (5) Close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

F. REU Installation Test

SUBTASK 23-51-01-600-001

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

SUBTASK 23-51-01-860-009

- (2) Close these circuit breakers:

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

SUBTASK 23-51-01-710-002

- (3) Do an installation test of the REU:

- Push the Flight Interphone Microphone Selector Buttons on the Captain's, First Officer's and Observer's Audio Control Panels to the ON position.
- Make sure that the Flight Interphone Microphone Selector Buttons are illuminated on all three panels.
- Turn the Flight Interphone volume controls to approximately 1/2 MAX on all three panels.
- Push the Captain's and First Officer's Audio Control Panel "SPKR" volume control to the ON position.

EFFECTIVITY
AKS ALL

23-51-01



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- (e) Turn the "SPKR" volume control on the Captain's Audio Control Panel to approximately 1/2 MAX.
- (f) Turn the "SPKR" volume control on the First Officer's Audio Control Panel to approximately 1/2 MAX.
- (g) Make sure that you hear an announcement between the Captain, First Officer and Observer when you use Hand Microphones, Headphones, and Boom Mic headsets.

SUBTASK 23-51-01-710-001

- (4) Do this task: Flight Interphone System - Operational Test, TASK 23-51-00-710-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 23-51-01-860-007

- (1) Close this access panel:

Number Name/Location

117A Electronic Equipment Access Door

SUBTASK 23-51-01-860-008

- (2) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————



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AUDIO CONTROL PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the audio control panel (ACP).
 - (2) An installation of the ACP.

TASK 23-51-02-000-801

2. Audio Control Panel Removal

(Figure 401)

A. Location Zones

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

B. Removal Procedure

SUBTASK 23-51-02-860-001

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	13	C01179	INDICATOR MASTER DIM SECT 7
F	14	C01180	INDICATOR MASTER DIM SECT 8

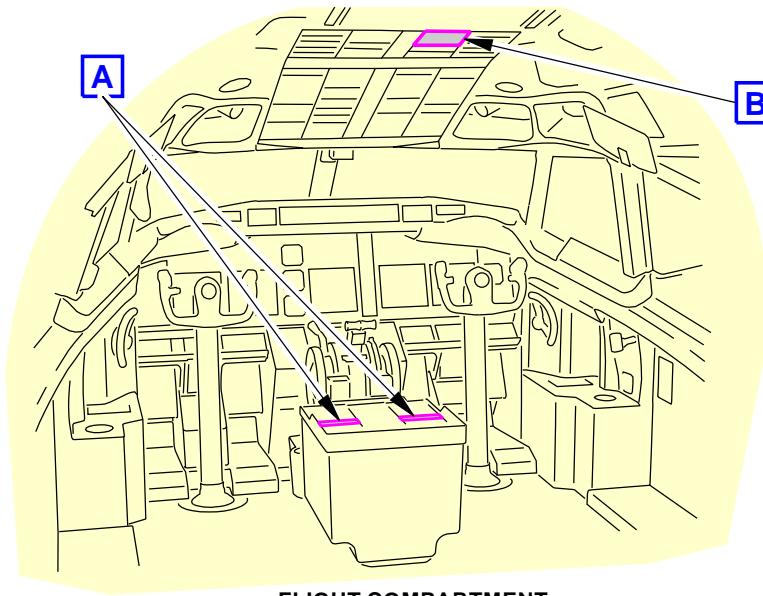
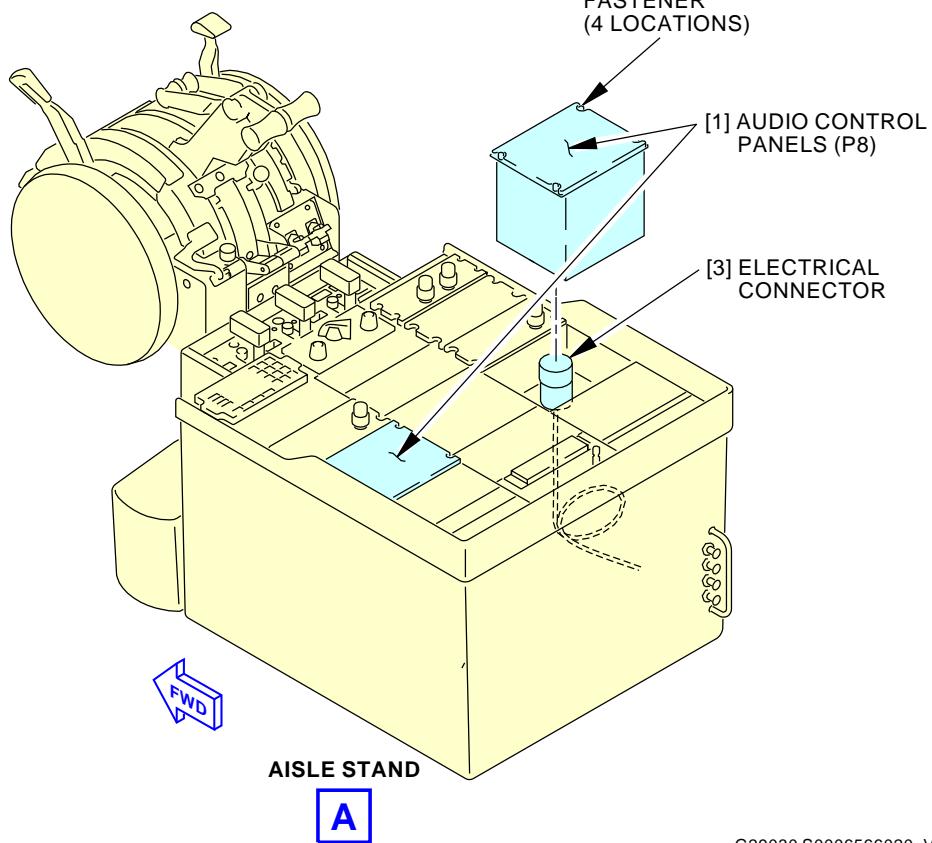
SUBTASK 23-51-02-020-001

- (2) Remove the Audio Control Panel (ACP) [1]:
 - (a) Loosen the four quarter-turn fasteners [2] on the front panel of the ACP [1].
 - (b) Lift the ACP [1] to get access to the electrical connector [3].
 - (c) Disconnect the electrical connector [3] from the rear of the ACP [1].
 - (d) Remove the ACP panel [1].

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-51-02


FLIGHT COMPARTMENT


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Audio Control Panel Installation
Figure 401/23-51-02-990-801 (Sheet 1 of 2)

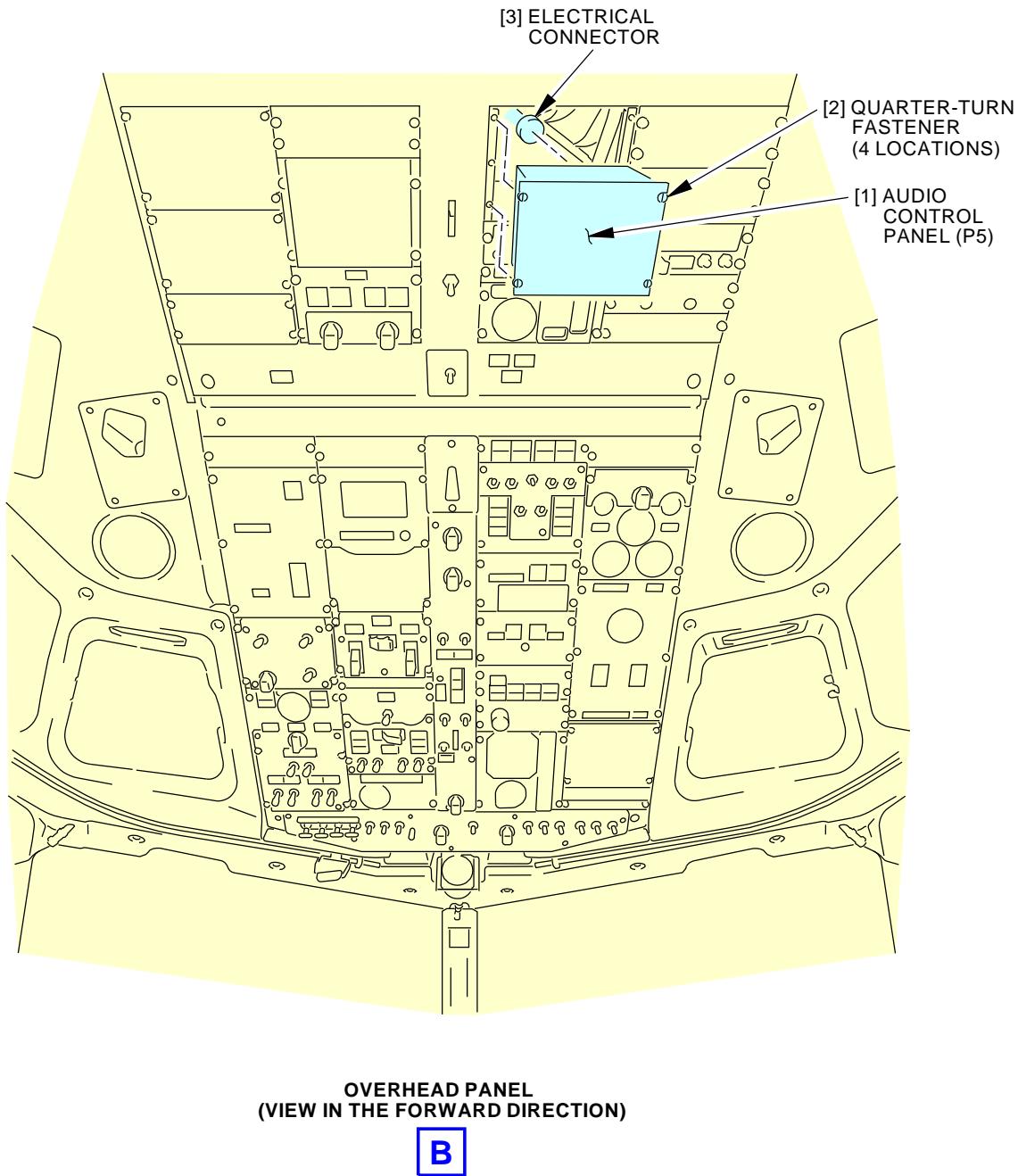
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23-51-02

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Audio Control Panel Installation
Figure 401/23-51-02-990-801 (Sheet 2 of 2)

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TASK 23-51-02-400-801

3. Audio 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. Location Zones

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

C. Installation Procedure

SUBTASK 23-51-02-860-004

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	13	C01179	INDICATOR MASTER DIM SECT 7
F	14	C01180	INDICATOR MASTER DIM SECT 8

SUBTASK 23-51-02-420-001

- (2) Install the Audio Control Panel (ACP) [1]:
- Connect the electrical connector [3] to the rear of the ACP [1].
 - Put the ACP [1] into its position.
 - Tighten the four quarter-turn fasteners [2] on the front panel of the ACP [1].

SUBTASK 23-51-02-860-007

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN

EFFECTIVITY
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(Continued)

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

F/O Electrical System Panel, P6-3

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	11	C00317	INDICATOR MASTER DIM SECT 5
F	13	C01179	INDICATOR MASTER DIM SECT 7
F	14	C01180	INDICATOR MASTER DIM SECT 8

D. Installation Test

SUBTASK 23-51-02-860-010

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

SUBTASK 23-51-02-710-001

- (2) Do an operational test of the ACP:

- (a) Push the FLT microphone selector switch on the ACP.
- (b) Push and hold the PTT switch on the ACP to the R/T position.
- (c) Speak into the pilot's boom microphone or any other available microphone.
 - 1) Make sure the voice can be heard from the other pilot's headsets.
- (d) Push the PA microphone selector switch on the ACP.
- (e) Push and hold the PTT switch on the ACP to the I/C position.
- (f) Speak into the pilot's boom microphone.

NOTE: For the observer's ACP test when boom microphone is not installed, you can connect a boom microphone at the observer's boom mic jack and use it for the test. You can also use the oxygen mask microphone for the test.

- 1) Make sure the voice can be heard from the other pilot's headset.
- 2) Make sure the voice cannot be heard on the PA.
- (g) Release the PTT switch.
- (h) Push any other microphone selector switch on the ACP.
 - 1) Make sure the PA microphone selector switch light goes off.

SUBTASK 23-51-02-860-011

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————



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FLIGHT INTERPHONE SPEAKER - REMOVAL/INSTALLATION

1. General

A. Procedure Information:

- (1) This procedure has these tasks:
 - (a) A removal of the flight interphone speaker.
 - (b) An installation of the flight interphone speaker.
- (2) These tasks are the same for the captain's and first officer's speaker.
- (3) The flight interphone speaker is in the forward ceiling panel in the flight compartment.

TASK 23-51-03-000-802

2. Flight Interphone Speaker Removal

(Figure 401)

A. References

Reference	Title
25-11-21-000-801	Flight Compartment Forward Ceiling Panel Removal (P/B 201)

B. Location Zones

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

C. Procedure

SUBTASK 23-51-03-760-002

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

SUBTASK 23-51-03-010-001

- (2) Do this task: Flight Compartment Forward Ceiling Panel Removal, TASK 25-11-21-000-801.

SUBTASK 23-51-03-000-002

- (3) Remove the speaker [1]:

- (a) Disconnect the electrical connector [2] from the speaker [1].
- (b) Remove the screws [3] from the speaker [1].
- (c) Remove the speaker [1].

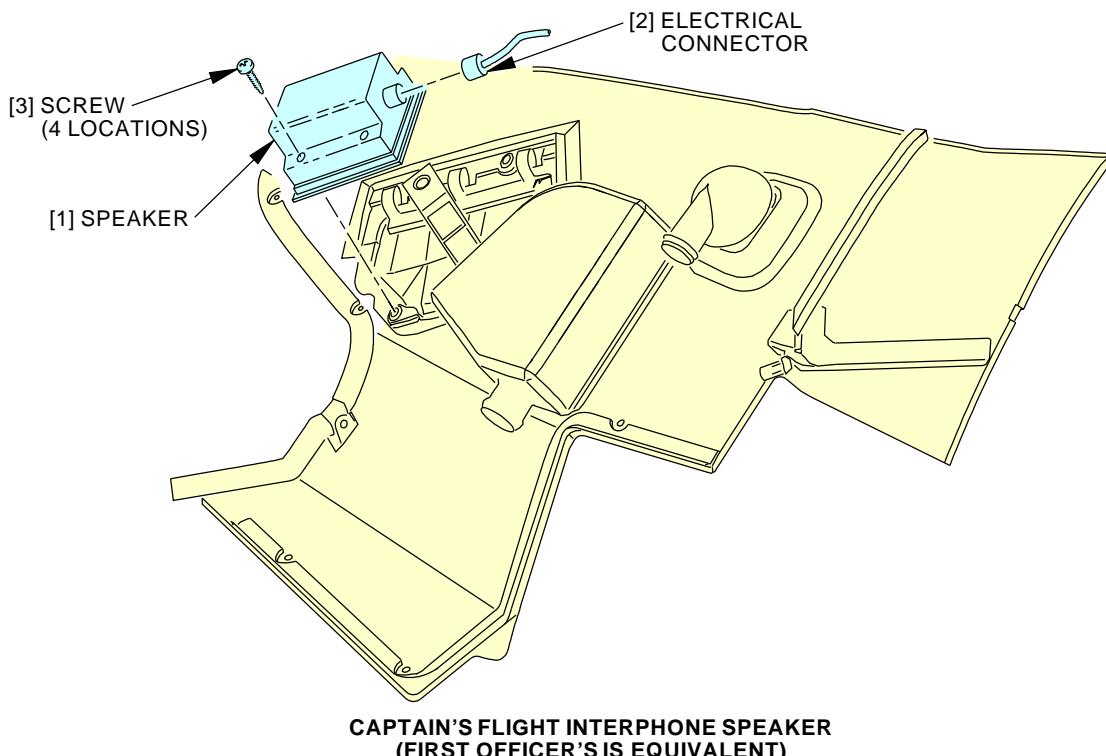
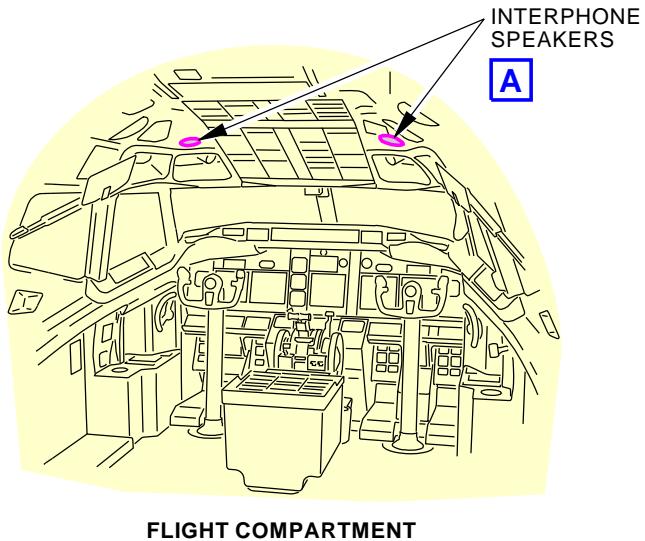
———— END OF TASK ————



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Captain's Flight Interphone Speaker Installation
Figure 401/23-51-03-990-804

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23-51-03

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TASK 23-51-03-000-804

3. Flight Interphone Speaker 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)
25-11-21-400-801	Flight Compartment Forward Ceiling Panel Installation (P/B 201)

B. Location Zones

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

C. Procedure

SUBTASK 23-51-03-420-002

- (1) Install the speaker [1]:

- (a) Put the speaker [1] in its correct position in the forward overhead panel.
- (b) Install the screws [3] to the speaker [1].
- (c) Connect the electrical connector [2] to the speaker [1].

SUBTASK 23-51-03-410-001

- (2) Do this task: Flight Compartment Forward Ceiling Panel Installation, TASK 25-11-21-400-801.

SUBTASK 23-51-03-860-002

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

D. Installation Test

SUBTASK 23-51-03-860-010

- (1) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-51-03-700-002

- (2) Do this test of the flight interphone speaker:

- (a) Make sure the SERVICE INTERPHONE switch on the P5 overhead panel is in the OFF position.
- (b) Set all audio control panels (ACPs) to these conditions:
 - 1) Push all audio monitor switches to off.
 - 2) Push the FLT microphone selector switch to on.
 - a) Make sure its light comes on.
- 3) Push the volume control for the FLT microphone selector switch.



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- a) Make sure its light comes on.
- 4) Turn the volume control for the FLT microphone selector switch to the middle position.
- (c) Set the captain's ACP to these conditions:
 - 1) Push the SPKR volume control switch to ON.
 - a) Make sure its light comes on.
 - 2) Turn the SPKR volume control switch to the middle position or to the volume level you are comfortable with.
- (d) Connect a headset to the first officer's boom/mic jack.
- (e) Push and hold the PTT switch on the first officer's control wheel to the MIC position.
- (f) Speak into the first officer's boom microphone.
 - 1) Make sure you can hear the voice clearly on the captain's flight interphone speaker.

SUBTASK 23-51-03-700-003

- (3) Do this test of the first officer's flight interphone speaker:
 - (a) Make sure the SERVICE INTERPHONE switch on the P5 overhead panel is in the OFF position.
 - (b) Set all audio control panels (ACPs) to these conditions:
 - 1) Push all audio monitor switches to off.
 - 2) Push the FLT microphone selector switch to on.
 - a) Make sure its light comes on.
 - 3) Push the volume control for the FLT microphone selector switch.
 - a) Make sure its light comes on.
 - 4) Turn the volume control for the FLT microphone selector switch to the middle position.
 - 5) Push the SPKR volume control switch to ON.
 - a) Make sure its light comes on.
 - 6) Turn the SPKR volume control switch to the middle position or to the volume level you are comfortable with.
 - (c) Connect a headset to the captain's boom/mic jack.
 - (d) Push and hold the PTT switch on the captain's control wheel to the MIC position.
 - (e) Speak into the captain's boom microphone.
 - 1) Make sure you can hear the voice clearly from the first officer's flight interphone speaker.

SUBTASK 23-51-03-860-011

- (4) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-51-03

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CONTROL WHEEL PTT SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has three tasks:
- (1) A removal of the push-to-talk (PTT) switch on the control wheel.
 - (2) An installation of the PTT switch on the control wheel.
 - (a) The installation task includes an operational test of the PTT switch.

TASK 23-51-04-000-801

2. Control Wheel PTT Switch Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 23-51-04-860-001

- (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>
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

SUBTASK 23-51-04-020-001

- (2) Remove the push-to-talk (PTT) switch on the control wheel:
 - (a) Remove the two mounting screws [2] from the control wheel.
 - (b) Carefully remove the PTT switch assembly [1] to get access to the wires.
 - (c) Disconnect the terminal lugs from the switch to be changed [3] or [6].
 - 1) Identify each wire for correct installation on the switch.
- NOTE: Correct wire installation is important for correct switch operation.
- 2) Make sure the disconnected wire ends do not touch.



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- (d) Remove the locking screw [5] from the clamp [4].
- (e) Turn the PTT switch in a counterclockwise direction to remove it from the clamp [4].
- (f) Remove the PTT switch from the clamp [4].

———— END OF TASK ————

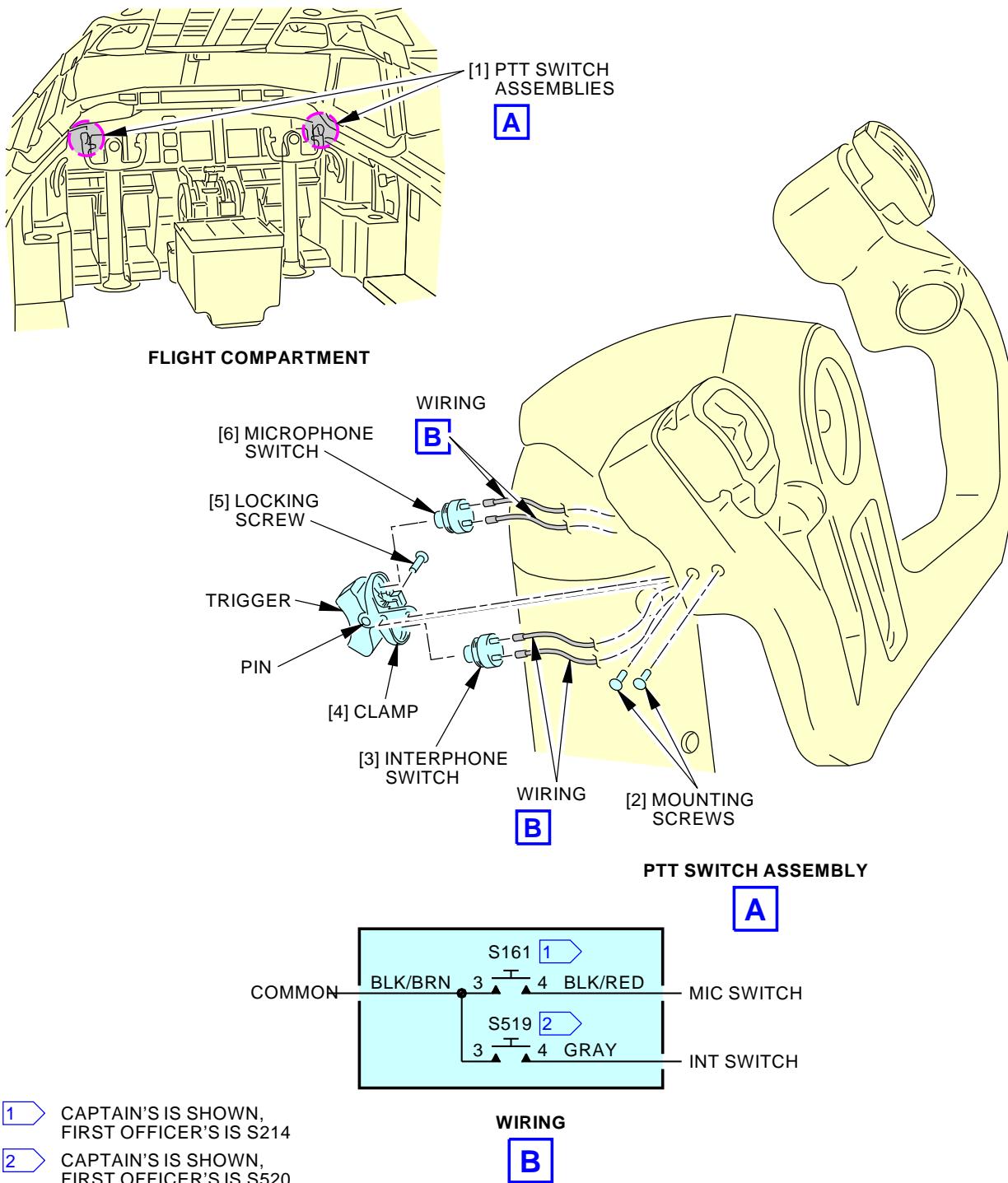
———— EFFECTIVITY ————
AKS ALL

23-51-04



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Control Wheel PTT Switch Installation Figure 401/23-51-04-990-802

EFFECTIVITY
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23-51-04

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TASK 23-51-04-400-801

3. Control Wheel PTT Switch 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. Location Zones

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

C. Procedure

SUBTASK 23-51-04-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

SUBTASK 23-51-04-420-004

- (2) Install the push-to-talk (PTT) switch on the control wheel:

- (a) Install the replacement switch [3] or [6] into the switch clamp [4].
- (b) Turn the switch clockwise until the switch stays in the switch clamp.
- (c) Adjust microphone PTT switch [6] all the way in. Switch may be backed out up to one full turn as required to facilitate wiring.
- (d) Adjust the interphone PTT switch [3] until switch contacts trigger.
- (e) Turn the interphone switch [3] clockwise 1/4 turn, plus or minus 1/8 turn to preload the switch button.
- (f) Tighten the locking screw [5] in the clamp [4].

SUBTASK 23-51-04-420-003

- (3) Finish PTT switch installation:

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- (a) Connect the terminal lugs to the switch you just installed.
 - 1) Make sure that you connect the identified wires on the correct terminal locations.

NOTE: Correct wire installation is important for correct switch operation.

 - (b) Make sure the locking screw is tight.
 - (c) Carefully push the clamp [4] into the control wheel.
 - (d) Install and tighten the two mounting screws [2] on the control wheel.

SUBTASK 23-51-04-860-003

- (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>
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	21	C00084	INTPH AND WARN
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT
D	24	C00085	AUDIO OBS

D. Installation Test

SUBTASK 23-51-04-860-004

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

SUBTASK 23-51-04-710-002

- (2) Do an operational test of the PTT switch on the control wheel:
 - (a) Push the FLT microphone selector switch on the pilot's audio control panel (ACP) to on.
 - (b) Push the volume control for the FLT microphone selector switch.
 - (c) Turn the volume control for the FLT microphone selector switch clockwise to the middle position.
 - (d) Push the SPKR volume control switch to on.
 - (e) Turn the SPKR volume control switch clockwise to the middle position or to the volume level you are comfortable with.
 - (f) Push and hold the PTT switch on the pilot's control wheel to the MIC position.
 - (g) Speak into the pilot's boom microphone.
 - 1) Make sure you hear the voice clearly on the headsets.
 - (h) Release the PTT switch.
 - 1) Make sure the switch goes to the center (off) position.

EFFECTIVITY	AKS ALL
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23-51-04



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- (i) Push and hold the PTT switch on the pilot's control wheel to the INT position.
- (j) Speak into the pilot's boom microphone.
 - 1) Make sure you can hear the voice clearly on the headsets.
- (k) Release the PTT switch.
 - 1) Make sure the switch goes to the center (off) position.

SUBTASK 23-51-04-860-005

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

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GLARESHIELD PTT SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks:
- (1) A removal of the push-to-talk (PTT) switch on the glareshield.
 - (2) An installation of the PTT switch on the glareshield.
 - (a) The installation task includes an operational test of the PTT switch.

TASK 23-51-05-000-801

2. Glareshield PTT Switch Removal

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 23-51-05-860-001

- (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>
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

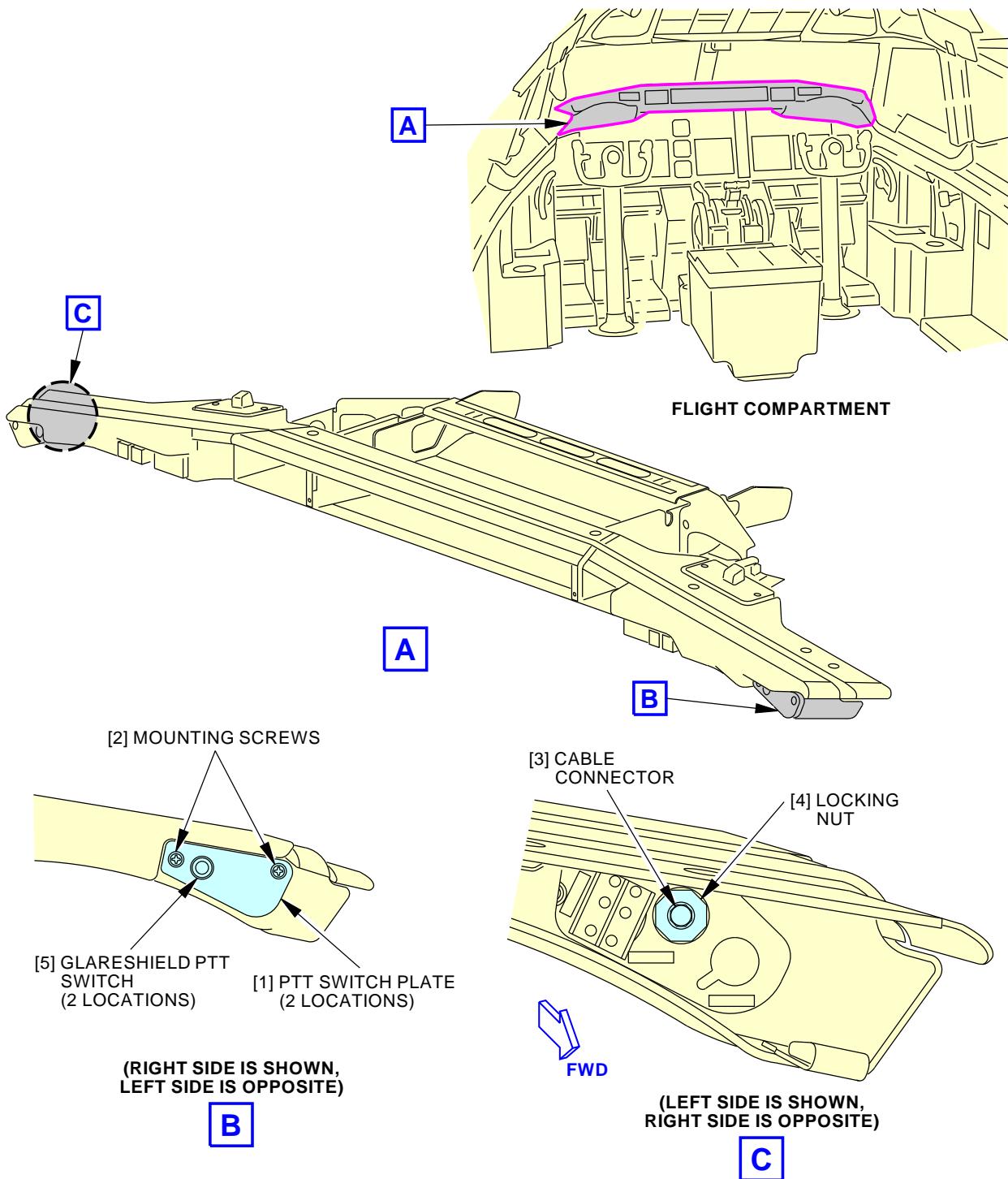
SUBTASK 23-51-05-020-001

- (2) Remove the push-to-talk (PTT) switch on the glareshield:
 - (a) Remove the two mounting screws [2] from the PTT switch plate [1] on the glareshield.
 - (b) Carefully pull the PTT switch plate [1] to get access to the connector [3] at the back of the PTT switch.
 - (c) Disconnect the electrical cable from the connector [3].
 - (d) Remove the locking nut [4] that holds the PTT switch to the plate [1].
 - (e) Remove the PTT switch [5].

———— END OF TASK ————

EFFECTIVITY	AKS ALL
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23-51-05



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Glareshield PTT Switch Installation
Figure 401/23-51-05-990-801

 EFFECTIVITY
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TASK 23-51-05-400-801

3. Glareshield PTT Switch 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. Location Zones

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

C. Procedure

SUBTASK 23-51-05-860-005

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

SUBTASK 23-51-05-420-001

- (2) Install the push-to-talk (PTT) switch on the glareshield:
- Carefully push the replacement PTT switch [5] into the switch plate [1].
 - Install the locking nut (4) that holds the PTT switch to the switch plate [1].
 - Make sure the locking nut is tight.
 - Connect the electrical cable to the connector [3].
 - Place the PTT switch plate [1] in its position on the glareshield.
 - Tighten the two fasteners [2] that attach the PTT switch plate [1] to the glareshield.

SUBTASK 23-51-05-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	11	C00165	COMMUNICATIONS VHF 1

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F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	3	C00166	COMMUNICATIONS VHF 2

F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	21	C00560	INTERPHONE POWER F/O DC 2
C	22	C00561	INTERPHONE POWER F/O BAT
C	23	C00239	INTERPHONE POWER CAPT DC 2
C	24	C00240	INTERPHONE POWER CAPT BAT
D	22	C00086	AUDIO F/O
D	23	C00083	AUDIO CAPT

D. Installation Test

SUBTASK 23-51-05-860-003

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

SUBTASK 23-51-05-710-002

- (2) Do an operational test of the PTT switch on the glareshield:
 - (a) Push the FLT microphone selector switch on the audio control panel (ACP) to on.
 - (b) Push the volume control for the FLT microphone selector switch to ON.
 - (c) Turn the volume control for the FLT microphone selector switch clockwise to the middle position.
 - (d) Push the SPKR volume control switch to on.
 - (e) Turn the SPKR volume control switch clockwise to the middle position or to the volume level you are comfortable with.
 - (f) Push and hold the PTT switch on the glareshield.
 - (g) Speak into the boom microphone.
 - 1) Make sure you can hear the voice clearly from the other headsets.
 - (h) Release the PTT switch on the glareshield panel.

SUBTASK 23-51-05-860-004

- (3) If it is necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812

———— END OF TASK ————

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AIRCRAFT MAINTENANCE MANUAL

STATIC DISCHARGERS - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) A removal of the static discharger.
 - (2) An installation of the static discharger.
 - (3) A removal of the static discharger base.
 - (4) An installation of the static discharger base.

TASK 23-61-00-000-801

2. Static Discharger Removal

(Figure 201)

A. General

- (1) The static dischargers are installed on the edge of the airplane wing and tail.
- (2) The discharger is held by a setscrew on its base.
- (3) The base is attached to the airplane surface.

B. References

Reference	Title
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)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

C. Location Zones

Zone	Area
300	Empennage
500	Left Wing
600	Right Wing



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D. Procedure

SUBTASK 23-61-00-860-021

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove pressure and power from the hydraulic systems for the applicable flight control surfaces: do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801
or, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802
or, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 23-61-00-860-022

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

SUBTASK 23-61-00-010-001

- (3) Get access to the defective static discharger.

SUBTASK 23-61-00-020-001

- (4) Loosen the static discharger setscrew [2].

SUBTASK 23-61-00-020-002

- (5) Remove the static discharger [1] from the discharger base [3].

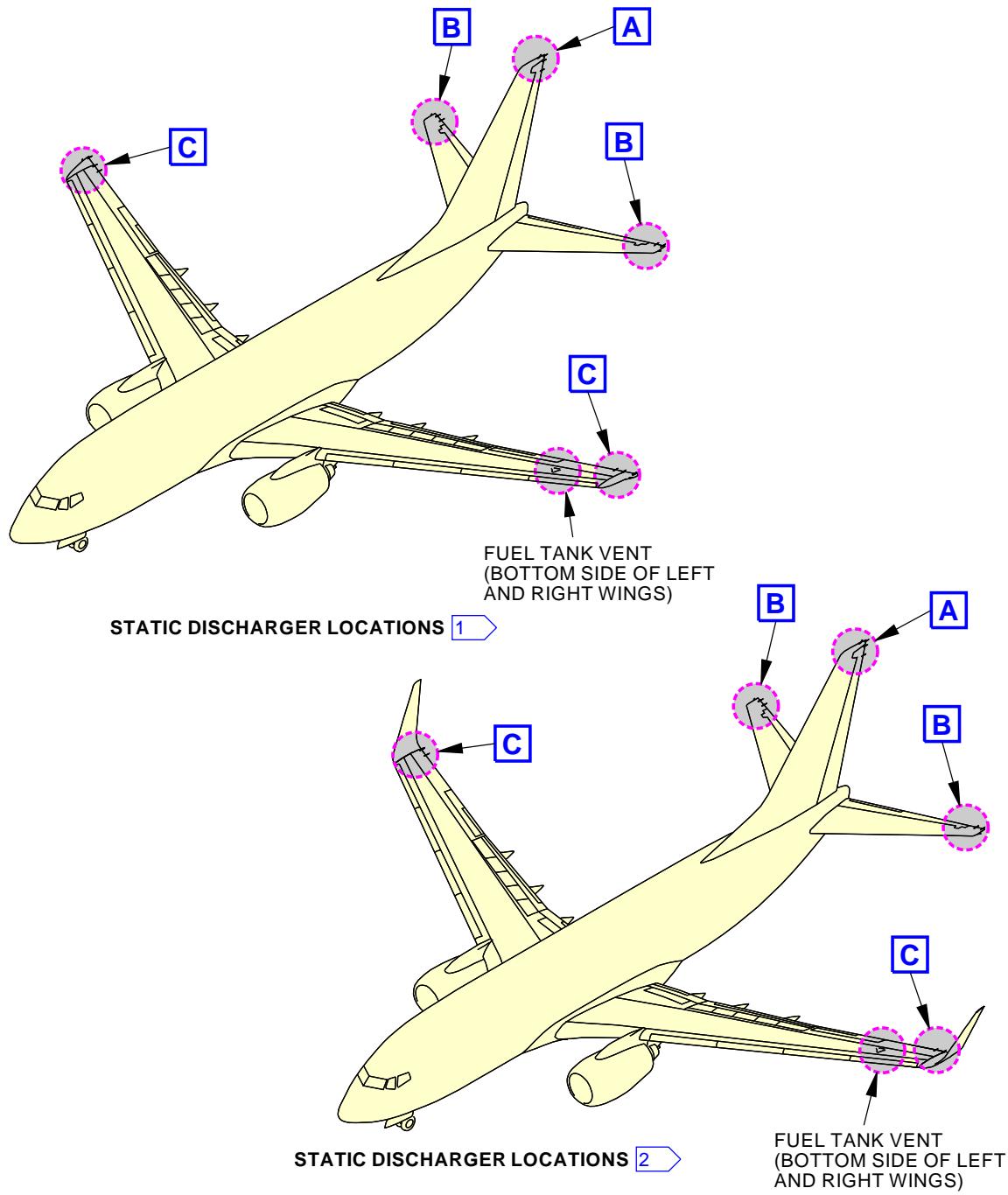
SUBTASK 23-61-00-010-002

- (6) If it is necessary, put the hydraulic systems back to the usual condition: do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802
or, do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802
or, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

———— END OF TASK ——

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- 1 AIRPLANES WITHOUT WINGLETS
 2 AIRPLANES WITH WINGLETS

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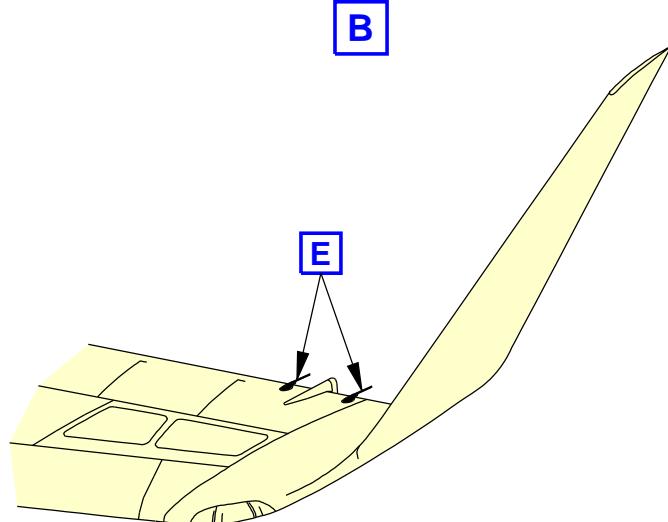
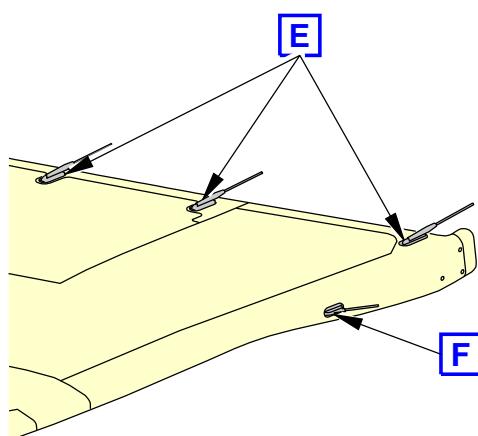
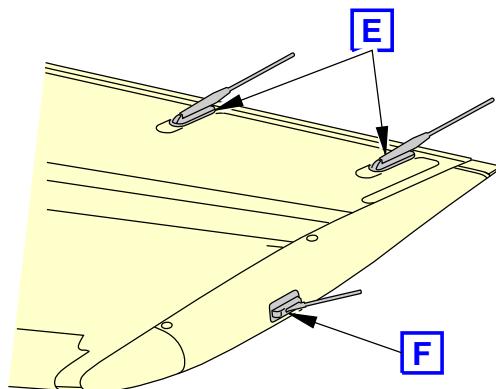
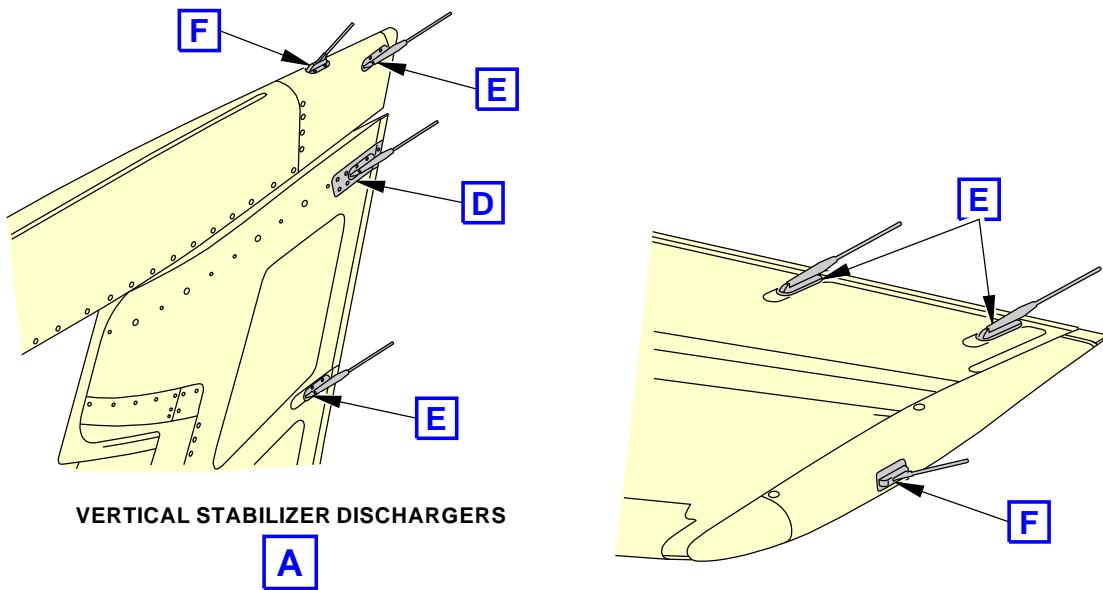
Static Discharger Installation
Figure 201/23-61-00-990-802 (Sheet 1 of 3)

EFFECTIVITY

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1 AIRPLANES WITHOUT WINGLETS

2 AIRPLANES WITH WINGLETS

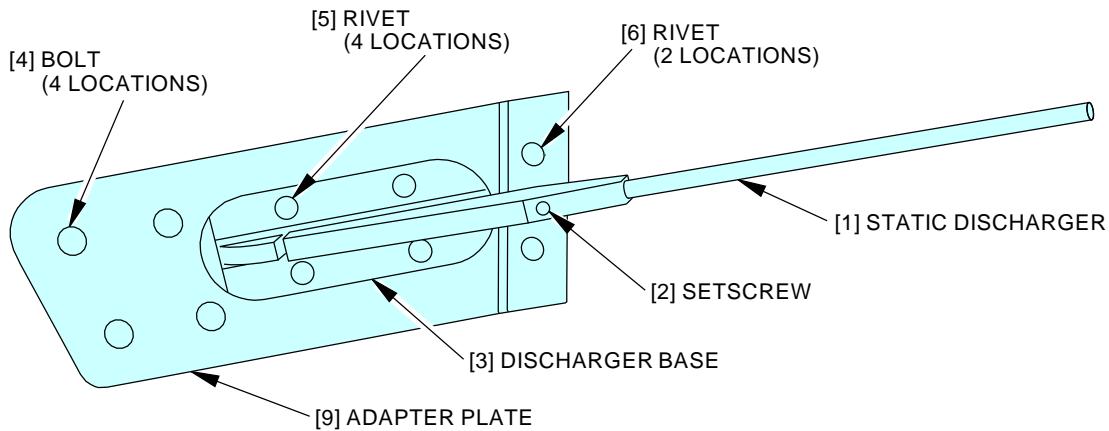
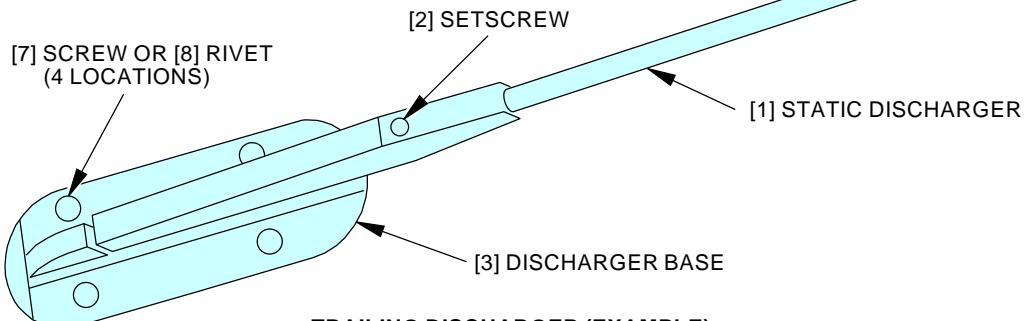
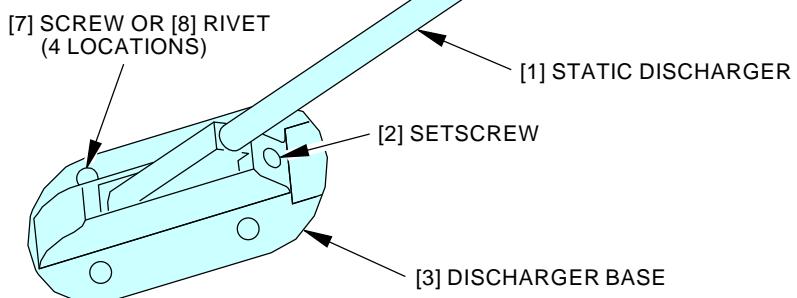
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Static Discharger Installation
Figure 201/23-61-00-990-802 (Sheet 2 of 3)

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TRAILING DISCHARGER WITH ADAPTER PLATE (EXAMPLE)
D

TRAILING DISCHARGER (EXAMPLE)
E

TIP DISCHARGER (EXAMPLE)
F

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**Static Discharger Installation
Figure 201/23-61-00-990-802 (Sheet 3 of 3)**
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TASK 23-61-00-400-801

3. Static Discharger Installation

(Figure 201)

A. References

Reference	Title
23-61-00-990-803	Figure: Chelton Static Discharger Resistance Test (P/B 601)
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)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
SWPM 20-20-00	Electrical Bonding Processes

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding 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
COM-1587	Wrench - Torque, 30 in-lbs (4 N-m) Part #: TE3FUA Supplier: 55719
COM-6457	Meter - Insulation (Range: 1-1,000 VDC or equivalent, select meter per test requirements) Part #: 1863-9700 Supplier: 62015 Part #: 1864-9700 Supplier: 62015 Part #: 1865PLUS Supplier: 62015 Part #: 1865PLUSCE Supplier: 62015 Part #: 2471F Supplier: 21844 Opt Part #: 1865-00-CE Supplier: 62015

C. Consumable Materials

Reference	Description	Specification
A00648	Compound - Retaining - Loctite 242	ASTM D5363 Grp 3 Cl 2 Gd 1 (SUPERSEDES MIL-S-46163)



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D. Prepare Procedure

SUBTASK 23-61-00-860-023

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove pressure and power from the hydraulic systems for the applicable flight control surfaces:
 - (a) Do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801, and/or
 - (b) Do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802, and/or
 - (c) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 23-61-00-860-024

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

E. Static Discharger Inspection and Test Before Installation

SUBTASK 23-61-00-210-004

- (1) Do a visual inspection for the static discharger assembly:
 - (a) Replace the static discharger assembly if you find it broken, damaged, or the metal pins are broken, blunt, or bent.

SUBTASK 23-61-00-910-001

WARNING: OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU USE A MEGOHMMETER. IF YOU DO NOT OBEY THESE PRECAUTIONS, THEN IT IS POSSIBLE THAT AN EXPLOSION OR FIRE CAN OCCUR.

- (2) Use these precautions for possible fuel vapors when you use a megohmmeter:
 - (a) Use the insulation meter, COM-6457 or equivalent meter with a 500 VDC test voltage and a maximum 5 milliamper short circuit current.
 - (b) Do not use a megohmmeter at these locations:
 - 1) A five foot (1.524 meters) diameter, vertical column areas adjacent to or below:
 - a wing fuel tank vent (from the vent to the ground).
 - open fuel tank doors (from the door to the ground).
 - open fuel tank access panels (from the panel to the ground).
 - 2) Zero to 18 inches (457 mm) above the ground in the area around the airplane.
 - (c) Make sure that:
 - 1) Area is well ventilated.
 - 2) Metal workstands are grounded.
 - 3) Megohmmeter is plugged into a grounded receptacle.
 - 4) Megohmmeter is insulated from metal work stands.
- (3) Move the static dischargers to a safe location for the test with a megohmmeter.

SUBTASK 23-61-00-910-002

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SUBTASK 23-61-00-700-001

- (4) DAYTON-GRANGER AND OTHER STATIC DISCHARGERS NOT SUPPLIED BY CHELTON;
- Use a megohmmeter to measure the resistance between the discharger tip and the discharger shank:
- (a) Set the megohmmeter to 500 VDC test voltage.
 - (b) A good electrical bond between the end of the discharger tip and the megohmmeter is necessary for a correct measure of resistance.
 - (c) To make a good connection with the end of the discharger tip, use a wet paper towel, cotton cloth or a sponge.
 - (d) Put the wet towel on the end of the discharger tip.
 - (e) Put the megohmmeter connectors on the shank of the static discharger and on the wet towel at the end of the tip.
 - 1) Make sure that the measured resistance is between 6-100 megohms.
 - 2) If the resistance measured is high, make sure that the meter lead and the end of the discharger tip touch the wet towel.
 - (f) Add more water if it is necessary and measure again.
 - 1) Use the lowest measured value.

SUBTASK 23-61-00-700-002

- (5) CHELTON SUPPLIED STATIC DISCHARGER ONLY;
- Use a megohmmeter to measure the resistance between the discharger tip and the discharger shank:
- (a) Set the megohmmeter to 500 V dc (volts direct current) test voltage.
 - (b) A good electrical bond between the end of the discharger tip and the megohmmeter is necessary for a correct measure of resistance.
 - (c) To make a good connection with the end of the discharger tip, use a wet material.
 - (d) Put the wet material on the END of the discharger tip.
- NOTE: DO NOT WRAP the wet material around the discharger tip of Chelton static dischargers. This can give incorrect resistance values that cause unnecessary removals of serviceable static dischargers. Put the wet material between the tip of the discharger and the megohmmeter probe.
- (e) Put one megohmmeter probe on the shank of the static discharger and one probe on the edge of the wet material at the end of the discharger tip. See Alternate (Off Wing) Discharger Resistance Test Detail II (Figure 23-61-00-990-803).
 - 1) Make sure that the measured resistance is between 6-100 megohms.
 - 2) If the resistance is more than 6-100 megohms, remove the wet material and put megohmmeter probe directly on the tip of the discharger core material.
 - (f) Add more water if it is necessary and measure again.
 - 1) Use the lowest measured value.

F. Installation Procedure

SUBTASK 23-61-00-420-012

- (1) Install the setscrew into the static discharger as follows:

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23-61-00



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CAUTION: DO NOT USE THIS MATERIAL WITH PLASTIC-BASED MATERIALS. IT WILL NOT BOND CORRECTLY. THE STATIC DISCHARGER WILL COME OFF. DAMAGE TO EQUIPMENT WILL OCCUR.

- (a) FOR STATIC DISCHARGERS WITHOUT NY-LOC INSERT IN THE SETSCREW AND STATIC DISCHARGERS THAT ARE NOT PLASTIC-BASED MATERIAL;

Apply a thin layer of Loctite 242 compound, A00648 to the setscrew threads.

NOTE: Do not use Loctite with the plastic-based material static discharger or with NY-LOC insert in the setscrew. Loctite reacts to the plastic materials that will cause eventual failure of the bond and result in separation of the static discharger from the airplane.

- (b) Install the setscrew on the static discharger.
(c) Adjust the setscrew until it makes a continuous surface with the static discharger casting.

SUBTASK 23-61-00-420-001

- (2) Install the static discharger [1] into the static discharger base [3]:

- (a) Hold the static discharger [1] in the correct position and tighten the setscrew [2] to this value:

AKS ALL; AIRPLANES WITH STATIC DISCHARGERS 2-14SC1, 2-16SC1, 740001, 740007, 80-1746-2, AND 80-1828-2

- 1) Tighten the setscrew [2] to 6 in-lb (0.68 N·m) -9 in-lb (1.02 N·m) using a torque wrench (30 in-lbs), COM-1587.

AKS ALL; AIRPLANES WITH STATIC DISCHARGERS 10-900-21 AND 10-900-25

- 2) Tighten the setscrew [2] to 2.5 in-lb (0.28 N·m) using a torque wrench (30 in-lbs), COM-1587.

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- (b) Make sure that the static discharger [1] is attached to its base correctly.

G. Static Discharger Installation Test

SUBTASK 23-61-00-700-003

WARNING: MAKE SURE THAT THE BONDING METER IS RESISTANT TO EXPLOSION. IF NOT, IT IS POSSIBLE THAT AN EXPLOSION OR FIRE CAN OCCUR.

- (1) STATIC DISCHARGERS WITH METALLIC SHANK;

Use a intrinsically safe approved bonding meter, COM-1550, (SWPM 20-20-00) to measure the resistance between the static discharger shank and the static discharger base.

- (a) Make sure that the resistance is not more than 1 ohm.

NOTE: A resistance of more than these values can cause damage if a lightning strike occurs.

- (2) STATIC DISCHARGERS WITH PLASTIC SHANK;

Use a intrinsically safe approved bonding meter, COM-1550, (SWPM 20-20-00) to measure the resistance between the setscrew in the static discharger shank and the static discharger base.

- (a) Make sure that the resistance is not more than 1 ohm.

NOTE: A resistance of more than these values can cause damage if a lightning strike occurs.



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H. Put the Airplane Back to Its Usual Condition

SUBTASK 23-61-00-010-003

- (1) If it is necessary, put the hydraulic systems back to the usual condition:
 - (a) Do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802, and/or
 - (b) Do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802, and/or
 - (c) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

———— END OF TASK ————

TASK 23-61-00-000-802

4. Static Discharger Base Removal (Base Attached with Screws)

(Figure 201)

A. References

Reference	Title
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)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure 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.



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Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5
STD-1053	Knife - Putty, Broad Blade

C. Location Zones

Zone	Area
300	Empennage
500	Left Wing
600	Right Wing

D. Procedure

SUBTASK 23-61-00-860-025

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove pressure and power from the hydraulic systems for the applicable flight control surfaces: do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801
or, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802
or, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 23-61-00-860-026

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

SUBTASK 23-61-00-020-003

- (3) Remove the discharger base [3]:
 - (a) Loosen the static discharger setscrew [2].

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- (b) Remove the static discharger [1] from the base.
- (c) Make a mark with a grease pencil larger than the area of the discharger base [3] be cleaned.
 - 1) Make sure that the line is parallel to the airflow.
- (d) Remove the discharger base [3]:
 - 1) Remove the weather/aerodynamic fillet seal around the edge of the discharger base [3] with a sealant removal tool, COM-2481.
 - 2) Remove the screws [7] from the discharger base [3].
 - a) Keep the screws [7] for installation.

CAUTION: BE VERY CAREFUL WITH THE PUTTY KNIFE. DAMAGE TO THE AIRPLANE SURFACES CAN OCCUR.

- 3) Put a broad blade putty knife, STD-1053 below the edge of the discharger base.
- 4) Remove the discharger base [3] from the surface.

SUBTASK 23-61-00-010-004

- (4) If it is necessary, put the hydraulic systems back to the usual condition: do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802
or, do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802
or, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

————— END OF TASK ————

TASK 23-61-00-000-803

5. Static Discharger Base Removal (Base Attached with Rivets)

(Figure 201)

A. References

Reference	Title
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)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
SRM 51-40-02	Structural Repair Manual

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B. Tools/Equipment

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

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5
STD-1053	Knife - Putty, Broad Blade

C. Location Zones

Zone	Area
300	Empennage
500	Left Wing
600	Right Wing

D. Procedure

SUBTASK 23-61-00-860-027

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove pressure and power from the hydraulic systems for the applicable flight control surfaces: do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801
or, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802
or, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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SUBTASK 23-61-00-860-028

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

SUBTASK 23-61-00-020-004

- (3) Remove the discharger base [3]:

- (a) Loosen the static discharger setscrew [2].
- (b) Remove the static discharger [1] from the base.
- (c) Make a mark with a grease pencil larger than the area of the discharger base [3] to be cleaned.
 - 1) Make sure that the line is parallel to the airflow.
- (d) Remove the discharger base [3].
 - 1) Remove the weather/aerodynamic fillet seal around the edge of the discharger base [3] with a sealant removal tool, COM-2481.
 - 2) Remove the rivets [8] from the discharger base [3] (SRM 51-40-02).

CAUTION: BE VERY CAREFUL WITH THE PUTTY KNIFE. DAMAGE TO THE AIRPLANE SURFACES CAN OCCUR.

- 3) Put a broad blade putty knife, STD-1053 below the edge of the discharger base [3].
- 4) Remove the discharger base [3] from the surface.

SUBTASK 23-61-00-010-005

- (4) If it is necessary, put the hydraulic systems back to the usual condition: do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802
or, do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802
or, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

———— END OF TASK ———

TASK 23-61-00-000-804

6. Static Discharger Base Removal (Adapter Plate Assembly)

(Figure 201)

A. References

Reference	Title
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)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

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Reference	Title
SRM 51-40-02	Structural Repair Manual

B. Tools/Equipment

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

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5
STD-1053	Knife - Putty, Broad Blade

C. Location Zones

Zone	Area
300	Empennage
500	Left Wing
600	Right Wing

D. Procedure

SUBTASK 23-61-00-860-029

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove pressure and power from the hydraulic systems for the applicable flight control surfaces: do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801
or, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802

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or, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 23-61-00-860-030

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

SUBTASK 23-61-00-020-005

- (3) Remove the discharger base assembly:
- Loosen the static discharger setscrew [2].
 - Remove the static discharger [1] from the discharger base [3].
 - Make a mark with a grease pencil larger than the area of the adapter plate [9] to be cleaned.
 - Make sure that the line is parallel to the airflow.
 - Remove the adapter plate assembly:
 - Remove the weather/aerodynamic fillet seal around the edge of the adapter plate [9] with a sealant removal tool, COM-2481.
 - Remove the bolts [4] and rivets [6] from the adapter plate [9] (SRM 51-40-02).
 - Put a broad blade putty knife, STD-1053 below the edge of the adapter plate [9].
 - Remove the adapter plate [9] from the surface.
- (e) Remove the discharger base [3] from the adapter plate [9]:
 - Remove the rivets [5] from the discharger base [3] (SRM 51-40-02).
 - Remove the discharger base [3] from the adapter plate [9].

CAUTION: BE VERY CAREFUL WITH THE PUTTY KNIFE. DAMAGE TO THE AIRPLANE SURFACES CAN OCCUR.

SUBTASK 23-61-00-010-006

- (4) If it is necessary, put the hydraulic systems back to the usual condition: do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802
or, do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802
or, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

— END OF TASK —

TASK 23-61-00-400-802

7. Static Discharger Base Installation (With Screws)

(Figure 201)

A. References

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
20-30-87-910-801	Final Cleaning of Composites Prior to Painting (Series 87) (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)

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Reference	Title
27-11-00-860-802	Pressure to the Aileron Hydraulic Systems A and B - Activation (P/B 201)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
51-21-99-300-802	Decorative Exterior Paint System Repair (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SWPM 20-20-00	Electrical Bonding Processes

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding 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



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Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5
STD-739	Respirator
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01007	Solvent - Final Cleaning Of Composites Prior To Painting (AMM 20-30-87/201) - Series 87	
B01026	Solvent - FCC-55	
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Discharger	23-61-00-02-110	AKS ALL
		23-61-00-02-160	AKS ALL
		23-61-00-02-210	AKS ALL
		23-61-00-02-305	AKS ALL



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AMM Item	Description	AIPC Reference	AIPC Effectivity
1 (cont.)		23-61-00-02-310	AKS ALL
		23-61-00-02-355	AKS ALL

E. Procedure

SUBTASK 23-61-00-860-031

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove pressure and power from the hydraulic systems for the applicable flight control surfaces: do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801
or, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802
or, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 23-61-00-860-032

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

SUBTASK 23-61-00-420-002

- (3) Prepare to install the static discharger base [3]:
 - (a) Remove the sealant with a sealant removal tool, COM-2481.

WARNING: DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (b) Clean the area to be bonded with the solvent, B00148, solvent, B00666, solvent, B00184, FCC-55 solvent, B01026, or solvent, B01054.
 - 1) Wear a respirator, STD-739 to clean with solvents.
 - 2) Apply the solvent with a cotton wiper, G00034.
- (c) Remove the solvent with cotton wiper, G00034 before it dries.
 - 1) Make sure that you do not touch the cleaned surface.
- (d) Rub the surface with the abrasive cloth, B00102 (600 grit) (TASK 20-10-34-120-801).
NOTE: Change the sandpaper frequently.
 - 1) Make sure that you have a smooth surface.
 - 2) Make sure that the surface is not shiny.
- (e) Clean with cotton wiper, G00034.
NOTE: Do not use solvent.

SUBTASK 23-61-00-420-003

- (4) Install the static discharger base [3]:

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- (a) Remove the metal discharger base from the plastic container.
 - 1) Do not touch the bottom surface of the discharger base [3] which touches the airplane surface.

CAUTION: YOU MUST INSTALL THE DISCHARGER BASE IN 5 MINUTES OR LESS AFTER IT WAS RUBBED WITH SANDPAPER. OXIDATION CAN OCCUR IF IT IS LONGER THAN 5 MINUTES.

- (b) Rub the static discharger base [3] with abrasive cloth, B00102.

NOTE: Do not rub a plated discharger base with sandpaper. A plated discharger base has a green dot for identification. Put a pair of gloves on to touch the bases.

- 1) Make sure that you have a smooth surface.

NOTE: Change the sandpaper frequently.

- 2) Make sure that the airplane surface is not shiny.

- (c) Attach the discharger base [3] to the airplane surface.

- 1) Make sure that you install the base in the same direction as the airflow.

- (d) Install the screws [7] that you removed on the removal procedure to attach the base.

- (e) Apply sealant, A00247 to the screws [7](Fastener Seal Application, TASK 51-31-00-390-805).

- (f) Apply sealant, A00247 to the edge of the discharger base [3] (TASK 51-31-00-390-804).

- (g) Make the sealant smooth with a hardwood or plastic fillet smoothing spatula, STD-810.

- (h) Make sure that you do not see cracks between the discharger base [3] and the airplane surface.

- (i) Remove the unwanted sealant, A00247 with a cotton wiper, G00034 which is moist with Series 87 solvent, B01007 (TASK 20-30-87-910-801).

SUBTASK 23-61-00-750-001

- (5) Examine the installation of the discharger base [3].
 - (a) Make sure that there are no cracks in the sealant, A00247.
 - (b) If you find a crack, fill the crack with the sealant, A00247.

SUBTASK 23-61-00-760-003

WARNING: MAKE SURE THAT THE OHMMETER IS RESISTANT TO EXPLOSION. IF NOT, IT IS POSSIBLE THAT AN EXPLOSION OR FIRE CAN OCCUR.

- (6) Use a intrinsically safe approved bonding meter, COM-1550 to measure the electrical bond between the discharger base [3] and the airplane surface (SWPM 20-20-00).

NOTE: This resistance value is for a new installed static discharger base and a new bond. The resistance value is different for an in-service bond and the discharger base.

- (a) The resistance value of a new discharger base [3] must not be more than:

NOTE: A resistance of more than these value can cause airplane equipment damage if a lightning strike occurs.

- 1) 0.01 ohms for discharger bases [3] installed on metal panels.

- 2) 0.10 ohms for discharger bases [3] installed on an aluminum flame spray on top of the fiberglass laminate or the composite panel.

NOTE: This includes discharger bases installed on aluminum-covered fabric.

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- 3) 1.0 ohms for discharger bases [3] installed on composite panels without a cover of the aluminum flame spray.

SUBTASK 23-61-00-410-001

- (7) To install the static discharger [1] into the discharger base [3], do this task: Static Discharger Installation, TASK 23-61-00-400-801.

SUBTASK 23-61-00-370-001

- (8) Paint the area around the discharger base [3] (Decorative Exterior Paint System Repair, TASK 51-21-99-300-802).

SUBTASK 23-61-00-010-007

- (9) Put the hydraulic systems back to the usual condition: do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802
or, do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802
or, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

———— END OF TASK ——

TASK 23-61-00-400-803

8. Static Discharger Base Installation (With Rivets)

(Figure 201)

A. References

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
20-30-87-910-801	Final Cleaning of Composites Prior to Painting (Series 87) (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)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
51-21-99-300-802	Decorative Exterior Paint System Repair (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SRM 51-40-02	Structural Repair Manual
SWPM 20-20-00	Electrical Bonding Processes

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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
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5
STD-739	Respirator
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01007	Solvent - Final Cleaning Of Composites Prior To Painting (AMM 20-30-87/201) - Series 87	
B01026	Solvent - FCC-55	



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(Continued)

Reference	Description	Specification
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Discharger	23-61-00-02-110	AKS ALL
		23-61-00-02-160	AKS ALL
		23-61-00-02-210	AKS ALL
		23-61-00-02-305	AKS ALL
		23-61-00-02-310	AKS ALL
		23-61-00-02-355	AKS ALL
8	Rivet	55-10-00-08A-040	AKS ALL
		57-50-00-13-115	AKS ALL

E. Procedure

SUBTASK 23-61-00-860-033

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove pressure and power from the hydraulic systems for the applicable flight control surfaces: do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801
or, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802
or, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 23-61-00-860-034

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

SUBTASK 23-61-00-420-004

- (3) Prepare to install the static discharger base [3]:
(a) Remove the sealant with a sealant removal tool, COM-2481.

WARNING: DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (b) Clean the area to be bonded with solvent, B00148, solvent, B00666, solvent, B00184, FCC-55 solvent, B01026, or solvent, B01054.

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- 1) Wear a respirator, STD-739 to clean with solvent.
- 2) Apply the solvent with a cotton wiper, G00034.
- (c) Remove the solvent with cotton wiper, G00034 before it dries.
 - 1) Make sure that you do not touch the cleaned surface.
- (d) Rub the surface with the abrasive cloth, B00102 (600 grit) 1183 (TASK 20-10-34-120-801).

NOTE: Change the sandpaper frequently.

 - 1) Make sure that you have a smooth surface.
 - 2) Make sure that the surface is not shiny.
- (e) Clean with cotton wiper, G00034.

NOTE: Do not use solvent.

SUBTASK 23-61-00-420-005

- (4) Install the static discharger base [3]:

- (a) Remove the metal discharger base [3] from the plastic container.
 - 1) Do not touch the bottom surface of the discharger base [3] which touches the airplane surface.

CAUTION: YOU MUST INSTALL THE DISCHARGER BASE IN 5 MINUTES OR LESS AFTER IT WAS RUBBED WITH SANDPAPER. OXIDATION CAN OCCUR IF IT IS LONGER THAN 5 MINUTES.

- (b) Rub the static discharger base [3] with abrasive cloth, B00102.

NOTE: Do not rub a plated base with sandpaper. A plated discharger base has a green dot for identification. Put a pair of gloves on to touch the bases.

- 1) Make sure that you have a smooth surface.

NOTE: Change the sandpaper frequently.

- 2) Make sure that the airplane surface is not shiny.

- (c) Attach the discharger base [3] to the airplane surface.

- 1) Make sure that you install the base in the same direction as the airflow.

- (d) Install the rivets [8] to the base (SRM 51-40-02).

- (e) Apply sealant, A00247 to the rivet (TASK 51-31-00-390-805).

- (f) Apply sealant, A00247 to the edge of the discharger base (TASK 51-31-00-390-804).

- (g) Make the sealant smooth with a hardwood or plastic fillet smoothing spatula, STD-810.

- (h) Make sure that you do not see cracks between the discharger base [3] and the airplane surface.

- (i) Remove the unwanted sealant, A00247 with a cotton wiper, G00034 which is moist with Series 87 solvent, B01007 (TASK 20-30-87-910-801).

SUBTASK 23-61-00-750-002

- (5) Examine the installation of the discharger base [3].

- (a) Make sure that there are no cracks in the sealant, A00247.

- (b) If you find a crack, fill the crack with the sealant, A00247.

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SUBTASK 23-61-00-760-004

WARNING: MAKE SURE THAT THE OHMMETER IS RESISTANT TO EXPLOSION. IF NOT, IT IS POSSIBLE THAT AN EXPLOSION OR FIRE CAN OCCUR.

- (6) Use a intrinsically safe approved bonding meter, COM-1550 to measure the electrical bond between the discharger base [3] and the airplane surface (SWPM 20-20-00).

NOTE: This resistance value is for a new installed static discharger base and a new bond. An in-service bond and the discharger base will have a different resistance value.

- (a) The resistance value of a new discharger base [3] must not be more than:

NOTE: A resistance of more than these values can cause airplane equipment damage if a lightning strike occurs.

- 1) 0.01 ohms for discharger bases [3] installed on metal panels.
- 2) 0.10 ohms for discharger bases [3] installed on a fiberglass laminate or a composite panel with a cover of the aluminum flame spray.

NOTE: This includes discharger bases installed on aluminum-covered fabric.

- 3) 1.0 ohms for discharger bases [3] installed on composite panels without a cover of the aluminum flame spray.

SUBTASK 23-61-00-410-002

- (7) To install the static discharger [1] into the discharger base [3], do this task: Static Discharger Installation, TASK 23-61-00-400-801.

SUBTASK 23-61-00-370-002

- (8) Paint the area around the discharger base [3] (TASK 51-21-99-300-802).

SUBTASK 23-61-00-010-008

- (9) Put the hydraulic systems back to the usual condition: do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802

or, do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802

or, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

————— END OF TASK ————

TASK 23-61-00-400-805

9. **Static Discharger Base Installation (Adapter Plate Assembly With Rivets and Screws)**
(Figure 201)

A. References

Reference	Title
20-10-34-120-801	Hand Clean Metal Surfaces with Abrasives (P/B 701)
20-30-87-910-801	Final Cleaning of Composites Prior to Painting (Series 87) (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)

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Reference	Title
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
51-21-99-300-802	Decorative Exterior Paint System Repair (P/B 701)
51-31-00-390-804	Fillet Seal Application (P/B 201)
51-31-00-390-805	Fastener Seal Application (P/B 201)
SRM 51-40-02	Structural Repair Manual
SWPM 20-20-00	Electrical Bonding Processes

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding 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
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 235072 Supplier: \$0857 Part #: 235073 Supplier: \$0857 Part #: 235074 Supplier: \$0857 Part #: 235075 Supplier: \$0857 Part #: 235076 Supplier: \$0857 Part #: 235077 Supplier: \$0857 Part #: 235078 Supplier: \$0857 Part #: 235079 Supplier: \$0857 Part #: 235080 Supplier: \$0857 Part #: 235081 Supplier: \$0857 Part #: 311 Supplier: KA861 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 3Z323 Part #: TS1275-4 Supplier: 1DWR5

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Reference	Description
STD-739	Respirator
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01007	Solvent - Final Cleaning Of Composites Prior To Painting (AMM 20-30-87/201) - Series 87	
B01026	Solvent - FCC-55	
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Discharger	23-61-00-02-110	AKS ALL
		23-61-00-02-160	AKS ALL
		23-61-00-02-210	AKS ALL
		23-61-00-02-305	AKS ALL
		23-61-00-02-310	AKS ALL
		23-61-00-02-355	AKS ALL
		55-40-00-08-015	AKS 001-027
4	Bolt	55-40-00-08-020	AKS 001-027
		55-40-00-08-230	AKS 001-027
5	Rivet		

E. Procedure

SUBTASK 23-61-00-860-035

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove pressure and power from the hydraulic systems for the applicable flight control surfaces: do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801
or, do this task: Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802
or, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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SUBTASK 23-61-00-860-036

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

SUBTASK 23-61-00-420-009

- (3) Prepare to install the static discharger base [3]:

- (a) Remove the sealant with a sealant removal tool, COM-2481.

WARNING: DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (b) Clean the adapter plate [9] to be bonded with solvent, B00148, solvent, B00666, solvent, B00184, FCC-55 solvent, B01026, or solvent, B01054.

- 1) Wear a respirator, STD-739 to clean with solvent.

- 2) Apply the solvent with a cotton wiper, G00034.

- (c) Remove the solvent with cotton wiper, G00034 before it dries.

- 1) Make sure that you do not touch the cleaned surface.

- (d) Rub the adapter plate [9] surface with the abrasive cloth, B00102 (600 grit) (TASK 20-10-34-120-801).

NOTE: Change the sandpaper frequently.

- 1) Make sure that you have a smooth surface.

- 2) Make sure that the surface is not shiny.

- (e) Clean with cotton wiper, G00034.

NOTE: Do not use solvent.

SUBTASK 23-61-00-420-010

- (4) Install the static discharger base [3]:

- (a) Remove the metal discharger base [3] from the plastic container.

- 1) Do not touch the surface of the discharger base [3] which touches the adapter plate [9].

CAUTION: YOU MUST INSTALL THE DISCHARGER BASE IN 5 MINUTES OR LESS AFTER IT WAS RUBBED WITH SANDPAPER. OXIDATION CAN OCCUR IF IT IS LONGER THAN 5 MINUTES.

- (b) Rub the discharger base [3] with abrasive cloth, B00102.

NOTE: Do not rub a plated base with sandpaper. A plated discharger base has a green dot for identification. Put a pair of gloves on to touch the bases.

- 1) Make sure that you have a smooth surface.

NOTE: Change the sandpaper frequently.

- 2) Make sure that the adapter plate [9] is not shiny.

- (c) Attach the discharger base [3] to the adapter plate [9].

- (d) Install the rivets [5] which attaches the base to the adapter plate [9] (SRM 51-40-02).

- (e) Apply sealant, A00247 to the rivets [5] (TASK 51-31-00-390-805).

- (f) Apply sealant, A00247 to the edge of the discharger base [3] (TASK 51-31-00-390-804).

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- (g) Make the sealant smooth with a hardwood or plastic fillet smoothing spatula, STD-810.
- (h) Make sure that you do not see cracks between the discharger base [3] and the adapter plate [9] surface.
- (i) Remove the unwanted sealant, A00247 with a cotton wiper, G00034 which is moist with Series 87 solvent, B01007 (TASK 20-30-87-910-801).

SUBTASK 23-61-00-420-011

- (5) Install the adapter plate assembly:
 - (a) Rub the airplane surface with abrasive cloth, B00102.
 - 1) Make sure that you have a smooth surface.
NOTE: Change the sandpaper frequently.
 - 2) Make sure that the airplane surface is not shiny.
 - (b) Attach the adapter plate assembly to the airplane surface.
 - 1) Make sure that you install the adapter plate assembly in the same direction as the airflow.
 - (c) Install the bolts [4] that attaches the adapter plate assembly.
 - (d) Install the rivets [6] that attach the adapter plate assembly (SRM 51-40-02).
 - (e) Apply sealant, A00247 to the rivets [6] and bolts [4] (TASK 51-31-00-390-805).
 - (f) Apply sealant, A00247 to the edge of the adapter plate [9] (TASK 51-31-00-390-804).
 - (g) Make the sealant smooth with a hardwood or plastic fillet smoothing spatula, STD-810.
 - (h) Make sure that you do not see cracks between the adapter plate [9] and the airplane surface.
 - (i) Remove the unwanted sealant, A00247 with a cotton wiper, G00034 which is moist with solvent, B00148 :

SUBTASK 23-61-00-750-004

- (6) Examine the installation of the discharger base [3].
 - (a) Make sure that there are no cracks in the sealant, A00247.
 - (b) If you find a crack, fill the crack with the sealant, A00247.

SUBTASK 23-61-00-760-006

WARNING: MAKE SURE THAT THE OHMMETER IS RESISTANT TO EXPLOSION. IF NOT, IT IS POSSIBLE THAT AN EXPLOSION OR FIRE CAN OCCUR.

- (7) Use a intrinsically safe approved bonding meter, COM-1550 to measure the electrical bond between the discharger base [3] and the airplane surface (SWPM 20-20-00).

NOTE: This resistance value is for a new installed static discharger base and a new bond. An in-service bond and the discharger base will have a different resistance value.

- (a) The resistance value of a new discharger base [3] must not be more than:

NOTE: A resistance of more than these values can cause airplane equipment damage if a lightning strike occurs.

- 1) 0.01 ohms for discharger bases [3] installed on metal panels.
- 2) 0.10 ohms for discharger bases [3] installed on an aluminum flame spray on top of the fiberglass laminate or the composite panel.

NOTE: This includes discharger bases installed on aluminum-covered fabric.

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- 3) 1.0 ohms for discharger bases [3] installed on composite panels without a cover of the aluminum flame spray.

SUBTASK 23-61-00-410-004

- (8) To install the static discharger [1] into the discharger base [3], do this task: Static Discharger Installation, TASK 23-61-00-400-801.

SUBTASK 23-61-00-370-004

- (9) Paint the area around the discharger base [3] (TASK 51-21-99-300-802).

SUBTASK 23-61-00-010-009

- (10) Put the hydraulic systems back to the usual condition: do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802
or, do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802
or, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

———— END OF TASK ————



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STATIC DISCHARGER - INSPECTION/CHECK

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has two tasks:
 - (1) An inspection of the static dischargers.
 - (2) A resistance check of the static dischargers.
- C. You must do a check of the static dischargers regularly to prevent static interference and bad radio operation.

TASK 23-61-00-210-801

2. Static Discharger Inspection

(Figure 601)

A. References

Reference	Title
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)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Location Zones

Zone	Area
300	Empennage
500	Left Wing
600	Right Wing

C. Prepare Procedure

SUBTASK 23-61-00-860-037

WARNING: MAKE SURE THAT PRESSURE IS REMOVED FROM THE HYDRAULIC SYSTEM AND HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF YOU HAVE HYDRAULIC PRESSURE OR HYDRAULIC/ELECTRICAL POWER IS ON, THE FLIGHT CONTROL SURFACES CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove the hydraulic pressure and power from the hydraulic systems for the applicable flight control surfaces:
 - For the aileron hydraulic systems, do this task: Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.
 - For the rudder and standby hydraulic systems, do this task: Pressure from the Rudder



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Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.

- For the elevator hydraulic systems, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 23-61-00-860-038

- (2) Remove the electrical power (TASK 24-22-00-860-812).

D. Procedure

SUBTASK 23-61-00-210-001

- (1) Make sure that at least 12 static dischargers are installed correctly in the locations that follow:

NOTE: There are 18 static dischargers installed on airplanes without winglets. There are 14 static dischargers installed on airplanes with winglets.

- Make sure at least two dischargers are installed on each horizontal stabilizer.
 - 1) Make sure that one is in the tip position or in the outermost trailing position.
- Make sure that at least two static dischargers are installed on the vertical stabilizer and that one of the two must be in the top-most position.
- AIRPLANES WITH WINGLETS;
Make sure that the static discharger in the outermost trailing position is installed on each wing.
- AIRPLANES WITHOUT WINGLETS;
Make sure that at least two static dischargers are installed on each wing.
 - 1) If there are only two static dischargers on a wing, then at least one must be in the tip position or in the outermost trailing position.

SUBTASK 23-61-00-210-003

- (2) Make sure that there is no lightning damage.

NOTE: This damage will be seen as a burned or a rough area on the black conductive surfaces.

- You could also find damage as pits on the discharger base.
- Replace the discharger if it is necessary.

SUBTASK 23-61-00-210-002

- (3) Do a visual check for erosion of the discharger surface:

- The leading edge erosion on the discharger must not extend more than 1/3 of the discharger width.
- Replace all dischargers that show damage.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 23-61-00-010-010

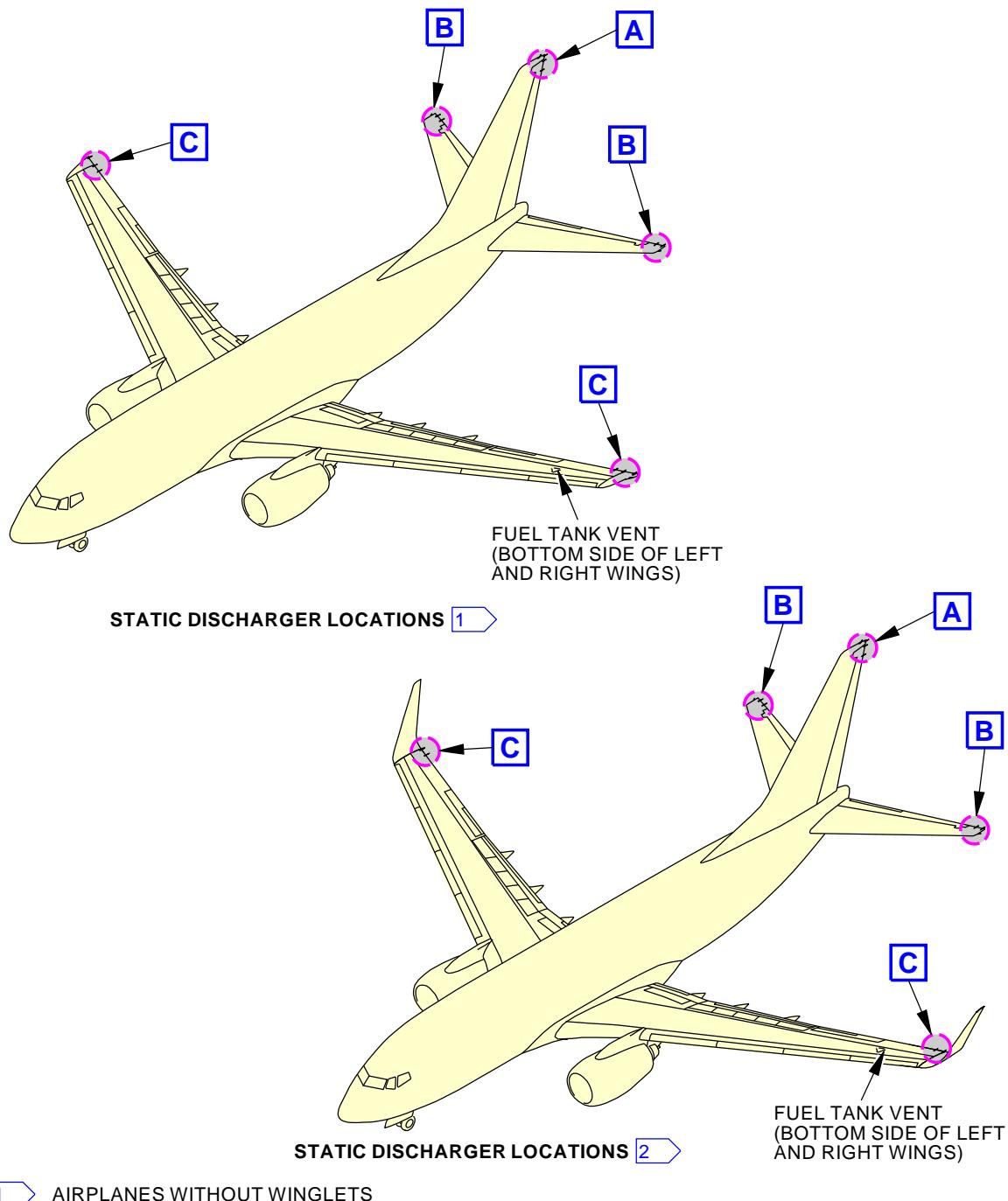
- (1) If it is necessary, put the applicable hydraulic systems back to the usual condition:

- For the aileron hydraulic systems, do this task: Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802.
- For the rudder and standby hydraulic systems, do this task: Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802.
- For the elevator hydraulic systems, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

———— END OF TASK ————

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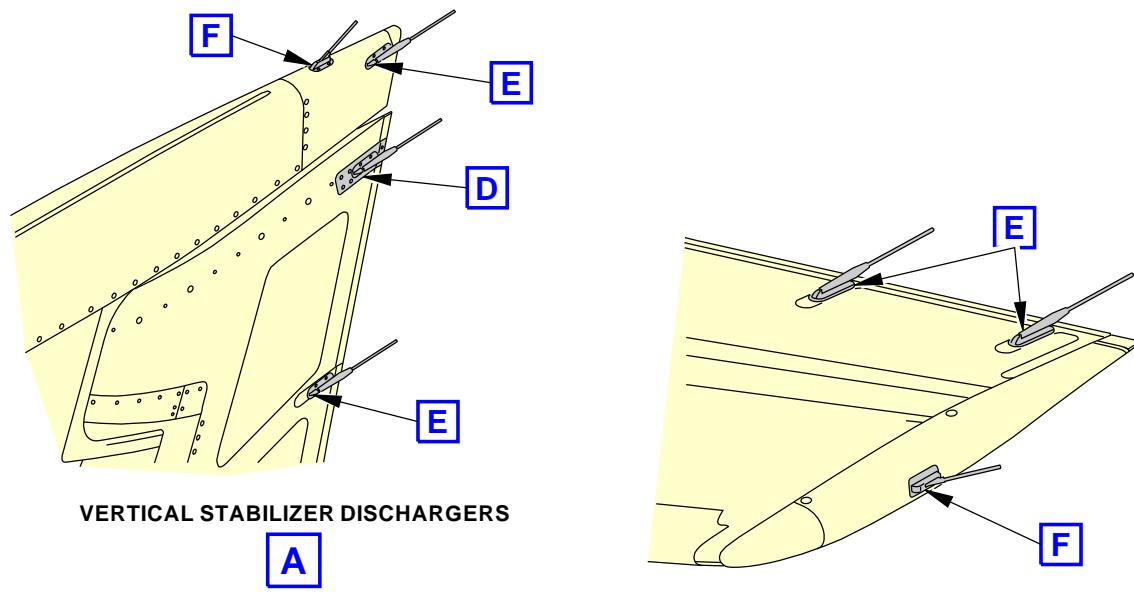


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Static Discharger Inspection
Figure 601/23-61-00-990-801 (Sheet 1 of 3)

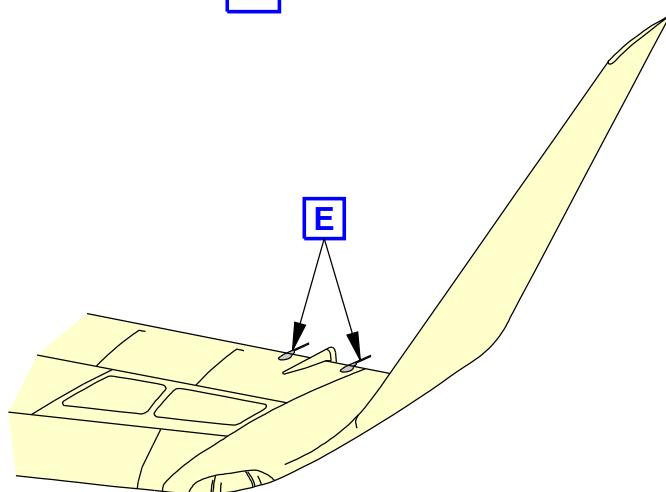
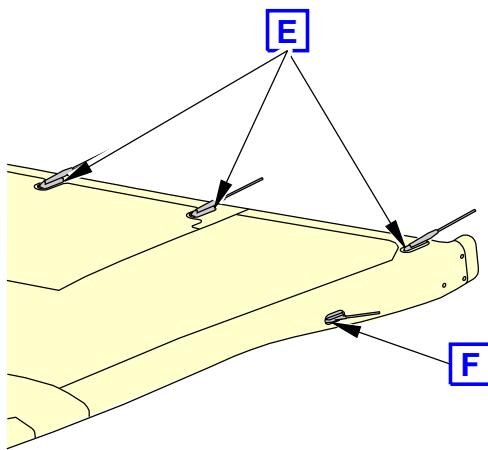
EFFECTIVITY	
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**LEFT HORIZONTAL STABILIZER DISCHARGERS
(RIGHT HORIZONTAL STABILIZER
DISCHARGERS ARE OPPOSITE)**

B



- 1 AIRPLANES WITHOUT WINGLETS
2 AIRPLANES WITH WINGLETS

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Static Discharger Inspection
Figure 601/23-61-00-990-801 (Sheet 2 of 3)

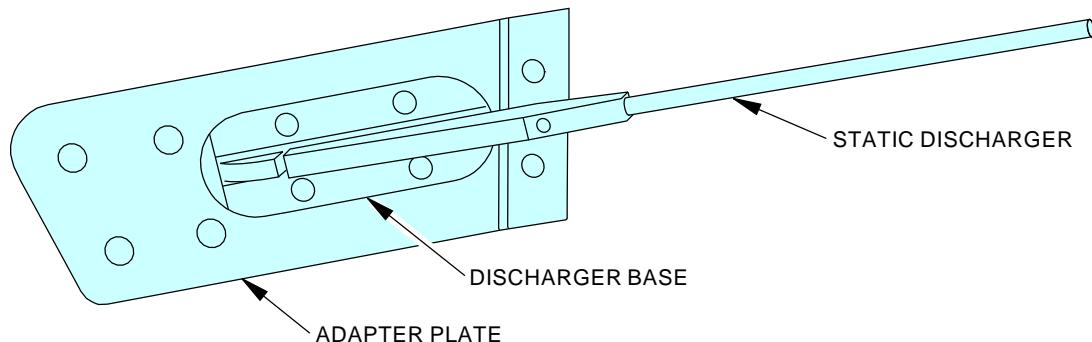
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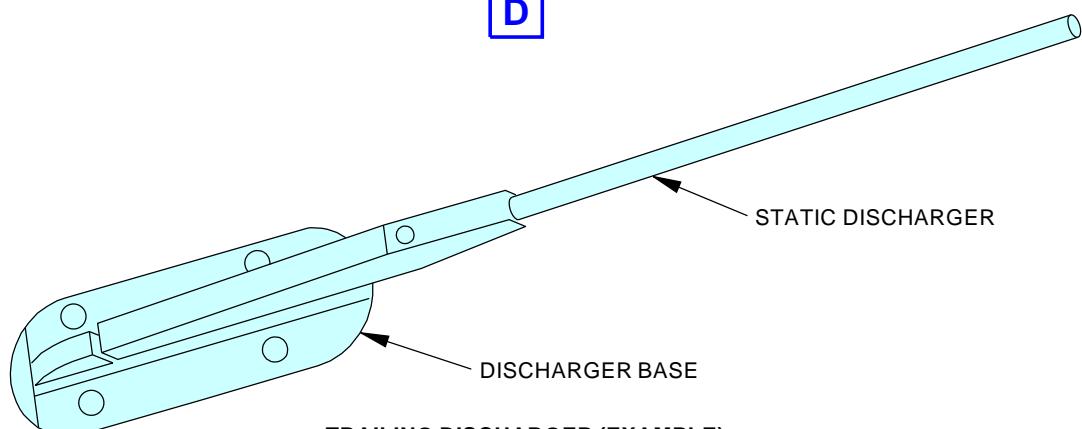


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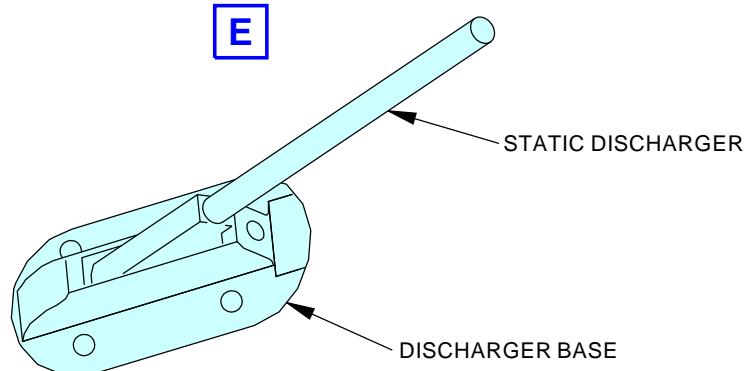
TRAILING DISCHARGER WITH ADAPTER PLATE (EXAMPLE)

D



TRAILING DISCHARGER (EXAMPLE)

E



TIP DISCHARGER (EXAMPLE)

F

F85121 S0006566067_V2

Static Discharger Inspection
Figure 601/23-61-00-990-801 (Sheet 3 of 3)

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TASK 23-61-00-760-801

3. Static Discharger Resistance Measurement

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
23-61-00-000-801	Static Discharger Removal (P/B 201)
23-61-00-000-802	Static Discharger Base Removal (Base Attached with Screws) (P/B 201)
23-61-00-000-803	Static Discharger Base Removal (Base Attached with Rivets) (P/B 201)
23-61-00-000-804	Static Discharger Base Removal (Adapter Plate Assembly) (P/B 201)
23-61-00-400-801	Static Discharger Installation (P/B 201)
23-61-00-400-802	Static Discharger Base Installation (With Screws) (P/B 201)
23-61-00-400-803	Static Discharger Base Installation (With Rivets) (P/B 201)
23-61-00-400-805	Static Discharger Base Installation (Adapter Plate Assembly With Rivets and Screws) (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)
27-21-00-800-802	Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation (P/B 201)
27-21-00-840-802	Pressure to the Rudder Systems A, B, and Standby - Activation (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
51-21-99-300-802	Decorative Exterior Paint System Repair (P/B 701)
SWPM 20-20-00	Electrical Bonding Processes

B. Tools/Equipment

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

Reference	Description
COM-1550	Bonding 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



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(Continued)

Reference	Description
COM-6457	Meter - Insulation (Range: 1-1,000 VDC or equivalent, select meter per test requirements) Part #: 1863-9700 Supplier: 62015 Part #: 1864-9700 Supplier: 62015 Part #: 1865PLUS Supplier: 62015 Part #: 1865PLUSCE Supplier: 62015 Part #: 2471F Supplier: 21844 Opt Part #: 1865-00-CE Supplier: 62015

C. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Location Zones

Zone	Area
300	Empennage
500	Left Wing
600	Right Wing

E. Prepare Procedure

SUBTASK 23-61-00-860-039

WARNING: MAKE SURE PRESSURE IS REMOVED FROM HYDRAULIC SYSTEMS. MAKE SURE HYDRAULIC POWER AND ELECTRICAL POWER ARE NOT SUPPLIED. IF HYDRAULIC PRESSURE IS PRESENT OR HYDRAULIC/ELECTRICAL POWER IS SUPPLIED, THE FLIGHT CONTROL SURFACE CAN MOVE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) To remove pressure and power from the hydraulic systems for the applicable flight control surfaces, do the applicable tasks as follow:
 - (a) Pressure from the Aileron Hydraulic Systems A and B - Deactivation, TASK 27-11-00-860-801.
 - (b) Pressure from the Rudder Hydraulic Systems A, B, and Standby - Deactivation, TASK 27-21-00-800-802.
 - (c) Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 23-61-00-860-040

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

F. Resistance Test for Static Discharger

WARNING: OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU USE A MEGOHMMETER. IF YOU DO NOT OBEY THESE PRECAUTIONS, THEN IT IS POSSIBLE THAT AN EXPLOSION OR FIRE CAN OCCUR.

SUBTASK 23-61-00-760-010

- (1) If you must do a resistance check for a static discharger that is in a five foot diameter area around a fuel tank vent, open fuel tank doors or open fuel tank access panels, then do the Alternative Discharger Resistance Test procedures below.



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SUBTASK 23-61-00-760-001

- (2) Use these precautions for possible fuel vapors when you use a megohmmeter to measure the discharger resistance.
 - (a) Use a insulation meter, COM-6457 or equivalent meter with a 500 VDC test voltage and a maximum 5 milliamper short circuit current.
 - (b) Do not use a megohmmeter at these locations:
 - 1) A five foot (1.524 meters) diameter, vertical column areas adjacent to or below:
 - a wing fuel tank vent (from the vent to the ground).
 - open fuel tank doors (from the door to the ground).
 - open fuel tank access panels (from the panel to the ground).
 - 2) Zero to 18 inches (457 mm) above the ground in the area around the airplane.
 - (c) Make sure that:
 - 1) Area is well ventilated.
 - 2) Metal workstands are grounded.
 - 3) Megohmmeter is plugged into a grounded receptacle.
 - 4) Megohmmeter is insulated from metal work stand.

SUBTASK 23-61-00-760-009

- (3) DAYTON-GRANGER AND OTHER STATIC DISCHARGERS NOT SUPPLIED BY CHELTON;
Use a megohmmeter to measure the resistance between the discharger tip and the discharger base:
 - (a) Set the megohmmeter to 500 VDC test voltage.
 - (b) Make a good surface bond with the end of the static discharger:
NOTE: A good connection between the discharger end and the megohmmeter is necessary for a correct resistance value.
 - 1) Use water to make a cotton wiper, G00034 wet.
 - 2) Make sure that the full end of the discharger touches the wet cotton wiper, G00034.
 - (c) Put one lead of the megohmmeter on the discharger base.
 - (d) Put the other lead of the megohmmeter on the wet cotton wiper, G00034.
 - (e) Measure the resistance value.
 - (f) Make sure that the resistance value is in a range of 6-100 megohms for dischargers.
NOTE: If the measured value is too high, add water to the wet material and then measure the resistance value again.
 - (g) For a discharger that does not agree with the correct resistance value, replace the static discharger (Static Discharger Removal, TASK 23-61-00-000-801, Static Discharger Installation, TASK 23-61-00-400-801).

SUBTASK 23-61-00-760-011

- (4) CHELTON SUPPLIED STATIC DISCHARGERS ONLY;
Use a megohmmeter to measure the resistance between the discharger tip and the discharger base:
 - (a) Set the megohmmeter to 500 VDC test voltage.
 - (b) A good electrical bond between the end of the discharger tip and the megohmmeter is necessary for a correct measure of resistance.

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- (c) To make a good connection with the end of the discharger tip, use a wet material.
- (d) Put the wet material on the END of the discharger tip.
NOTE: DO NOT WRAP the wet material around the discharger tip of Chelton static dischargers. This can give incorrect resistance values that cause unnecessary removals of serviceable static dischargers. Put the wet material between the tip of the discharger and the megohmmeter probe
- (e) Put one megohmmeter probe on the base and one probe on the wet material at the end of the discharger tip. See On Wing Discharger Resistance Test Detail I (Figure 602).
 - 1) Make sure that the measured resistance is between 6-100 megohms.
 - 2) If the resistance is more than 6-100 megohms, remove the wet material and put megohmmeter probe directly on the tip of the discharger core material.
- (f) Add more water if it is necessary and measure again.
 - 1) Use the lowest measured value.

G. Alternative Static Discharger Resistance Test

SUBTASK 23-61-00-020-007

- (1) Do this task: Static Discharger Removal, TASK 23-61-00-000-801.

SUBTASK 23-61-00-760-012

- (2) DAYTON-GRANGER AND OTHER STATIC DISCHARGERS NOT SUPPLIED BY CHELTON; Use a megohmmeter to measure the resistance between the discharger tip and the discharger shank:

- (a) Set the megohmmeter to 500 VDC test voltage.
- (b) A good electrical bond between the end of the discharger tip and the megohmmeter is necessary for a correct measure of resistance.
- (c) To make a good connection with the end of the discharger tip, use a wet paper towel, cotton cloth or a sponge.
- (d) Put the wet towel on the end of the discharger tip.
- (e) Put the megohmmeter connectors on the shank of the static discharger and on the wet towel at the end of the tip.
 - 1) Make sure that the measured resistance is between 6-100 megohms.
 - 2) If the resistance measured is high, make sure that the meter lead and the end of the discharger tip touch the wet towel.
- (f) Add more water if it is necessary and measure again.
 - 1) Use the lowest measured value.

SUBTASK 23-61-00-760-014

- (3) CHELTON SUPPLIED STATIC DISCHARGER ONLY;

Use a megohmmeter to measure the resistance between the discharger tip and the discharger shank:

- (a) Set the megohmmeter to 500 V dc (volts direct current) test voltage.
- (b) A good electrical bond between the end of the discharger tip and the megohmmeter is necessary for a correct measure of resistance.
- (c) To make a good connection with the end of the discharger tip, use a wet material.



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- (d) Put the wet material on the END of the discharger tip.

NOTE: DO NOT WRAP the wet material around the discharger tip of Chelton static dischargers. This can give incorrect resistance values that cause unnecessary removals of serviceable static dischargers. Put the wet material between the tip of the discharger and the megohmmeter probe.

- (e) Put one megohmmeter probe on the shank of the static discharger and one probe on the edge of the wet material at the end of the discharger tip. See Alternate (Off Wing) Discharger Resistance Test Detail II (Figure 602).

- 1) Make sure that the measured resistance is between 6-100 megohms.
- 2) If the resistance is more than 6-100 megohms, remove the wet material and put megohmmeter probe directly on the tip of the discharger core material.

- (f) Add more water if it is necessary and measure again.

- 1) Use the lowest measured value.

SUBTASK 23-61-00-420-013

- (4) Do this task: Static Discharger Installation, TASK 23-61-00-400-801.

H. Resistance Test for Static Discharger Installation

SUBTASK 23-61-00-760-016

WARNING: MAKE SURE THAT THE BONDING METER IS RESISTANT TO EXPLOSION. IF NOT, IT IS POSSIBLE THAT AN EXPLOSION OR FIRE CAN OCCUR.

- (1) Do the resistance test between the static discharger shank and the static discharger base:

- (a) STATIC DISCHARGERS WITH METALLIC SHANK;

Use a intrinsically safe approved bonding meter, COM-1550, (SWPM 20-20-00) to measure the resistance between the static discharger shank and the static discharger base.

- 1) Make sure that the resistance is not more than 1 ohm.

NOTE: A resistance of more than these values can cause damage if a lightning strike occurs.

- (b) STATIC DISCHARGERS WITH PLASTIC SHANK;

Use a intrinsically safe approved bonding meter, COM-1550, (SWPM 20-20-00) to measure the resistance between the set screw in the static discharger shank and the static discharger base.

- 1) Make sure that the resistance is not more than 1 ohm.

NOTE: A resistance of more than these values can cause damage if a lightning strike occurs.

I. Resistance Test for Static Discharger Base

SUBTASK 23-61-00-760-002

WARNING: MAKE SURE THAT THE BONDING METER IS RESISTANT TO EXPLOSION. IF NOT, IT IS POSSIBLE THAT AN EXPLOSION OR FIRE CAN OCCUR.

- (1) Use Method 1 or Method 2 to do a check of the electrical bond between the static discharger bases and the airplane surface:

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- (a) Method 1 - Measure the bond resistance from the discharger base to its mounting surface.

NOTE: It may be necessary to scratch the paint on the mounting surface to get a good connection.

- 1) Use a intrinsically safe approved bonding meter, COM-1550 to measure the bond between the static discharger base and the airplane surface (SWPM 20-20-00).

NOTE: This resistance value is for an in-service discharger. There is a different value for a new installed discharger base.

- 2) Put one lead on the static discharger base.

- 3) Put the other lead on the airplane surface.

- 4) Make sure that the two leads touch bare metal. If it is necessary, remove a small quantity of paint or use a sharp probe to go into the paint.

- 5) Make sure the resistance value for an in-service static discharger base is not more than:

NOTE: A resistance of more than these values can cause damage if a lightning strike occurs. Take the resistance measurement between the discharger base and the discharger mounting surface.

- a) 0.05 ohms for the discharger base installed on the metal panels.

- b) 0.5 ohms for the discharger base installed on an aluminum flame spray on top of the fiberglass laminate or the composite panels.

- c) 0.5 ohms for the discharger base installed on an aluminum-covered fabric.

- d) 5.0 ohms for the discharger base installed on a composite panels that do not have an aluminum layer.

- (b) Method 2 - Measure the bond resistance between two adjacent discharger bases.

- 1) Use a intrinsically safe approved bonding meter, COM-1550 to measure the bond between a static discharger base and an adjacent static discharger base (SWPM 20-20-00).

NOTE: This resistance value is for an in-service discharger. There is a different value for a new installed discharger base.

- 2) Make sure that the resistance between the two adjacent static discharger bases is not more than:

NOTE: A resistance of more than these values can cause damage if a lightning strike occurs. Take the resistance measurement between two discharger bases.

- a) 0.05 ohms for the discharger base installed on the metal panels.

- b) 0.5 ohm for the discharger base installed on an aluminum flame spray on top of the fiberglass laminate or the composite panels.

- c) 0.5 ohm for the discharger base installed on an aluminum-covered fabric.

- d) 5.0 ohms for the discharger base installed on a composite panels that do not have an aluminum layer.

- 3) If the resistance shows more than the resistance values in Method 2, then do the procedure in Method 1 to find the defective static discharger base.

- (c) For a static discharger base that shows more than the resistance value in Method 1, replace the static discharger base:

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- 1) For a static discharger base attached with screws, do these tasks:
 - a) Static Discharger Base Removal (Base Attached with Screws),
TASK 23-61-00-000-802.
 - b) Static Discharger Base Installation (With Screws), TASK 23-61-00-400-802.
 - 2) For a static discharger base attached with rivets, do these tasks:
 - a) Static Discharger Base Removal (Base Attached with Rivets),
TASK 23-61-00-000-803.
 - b) Static Discharger Base Installation (With Rivets), TASK 23-61-00-400-803.
 - 3) For a static discharger adapter plate assembly attached with rivets and screws, do these tasks:
 - a) Static Discharger Base Removal (Adapter Plate Assembly),
TASK 23-61-00-000-804.
 - b) Static Discharger Base Installation (Adapter Plate Assembly With Rivets and Screws), TASK 23-61-00-400-805.
- (d) To paint the area where the paint was removed for the surface resistance test, do this task:
- 1) Decorative Exterior Paint System Repair, TASK 51-21-99-300-802.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 23-61-00-010-011

- (1) To put the hydraulic systems back to the usual condition, do the applicable tasks as follow:
 - (a) Pressure to the Aileron Hydraulic Systems A and B - Activation, TASK 27-11-00-860-802.
 - (b) Pressure to the Rudder Systems A, B, and Standby - Activation, TASK 27-21-00-840-802.
 - (c) Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

———— END OF TASK ———

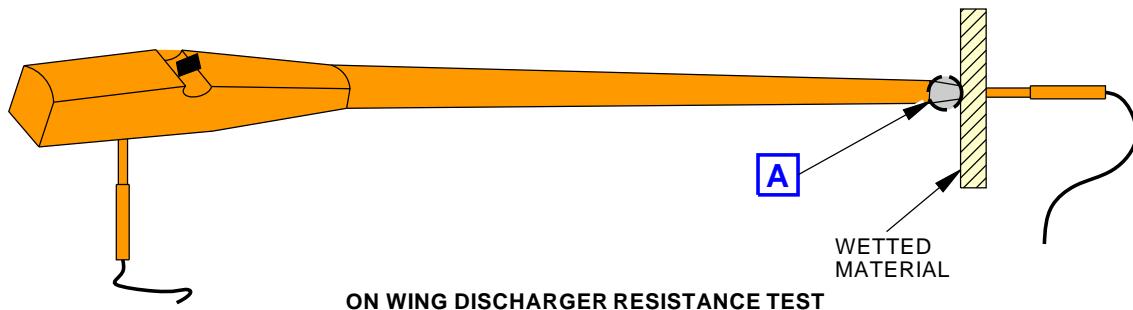


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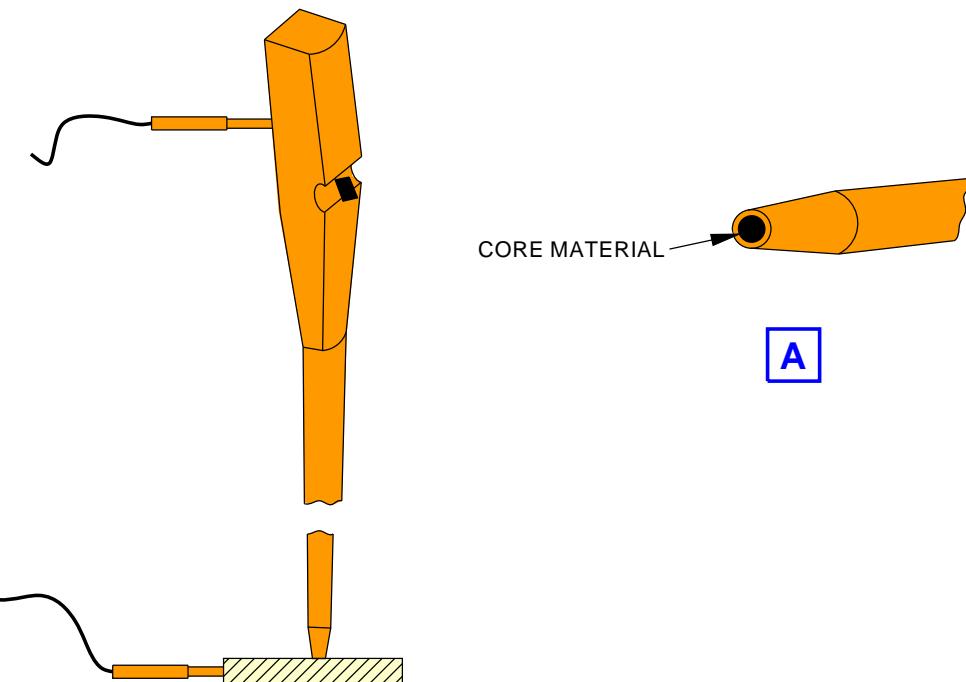
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ON WING DISCHARGER RESISTANCE TEST



ALTERNATE (OFF WING) DISCHARGER RESISTANCE TEST

NOTE:

TEST PROCEDURES FOR THE TRAILING EDGE AND
WING TIP DISCHARGERS ARE THE SAME.

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Chelton Static Discharger Resistance Test
Figure 602/23-61-00-990-803



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VOICE RECORDER SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
 - (1) Voice Recorder System Deactivation
 - (2) Voice Recorder System Activation

TASK 23-71-00-040-801

2. Voice Recorder System - Deactivation

(Figure 201)

A. General

- (1) This procedure removes electrical power to the Cockpit Voice Recorder (CVR) system.

B. Tools/Equipment

Reference	Description
STD-1390	Headphone - 600 Ohm, with 1/4 Inch Mono RCA Audio Plug

C. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 23-71-00-860-037

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	7	C00107	VOICE RCDR

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	6	C01948	VOICE RCDR/RIPS (INOP)

E. Voice Recorder System - Tryout

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

SUBTASK 23-71-00-860-038

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	7	C00107	VOICE RCDR

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	6	C01948	VOICE RCDR/RIPS (INOP)



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SUBTASK 23-71-00-860-040

- (2) Set the CVR AUTO/ON switch (P5) to the ON position.

SUBTASK 23-71-00-420-003

- (3) Connect a headphone, STD-1390 to the voice recorder control panel at the pilot's overhead panel, P5.

SUBTASK 23-71-00-710-016

- (4) Push the TEST switch on the voice recorder control panel for approximately five seconds.
- (a) Make sure that you can't hear a tone in the headphone.
 - (b) As applicable make sure of the following while the TEST switch is pushed:
 - 1) TEST light does not come on.
 - 2) Needle on the control panel meter does not move and is not in the green.

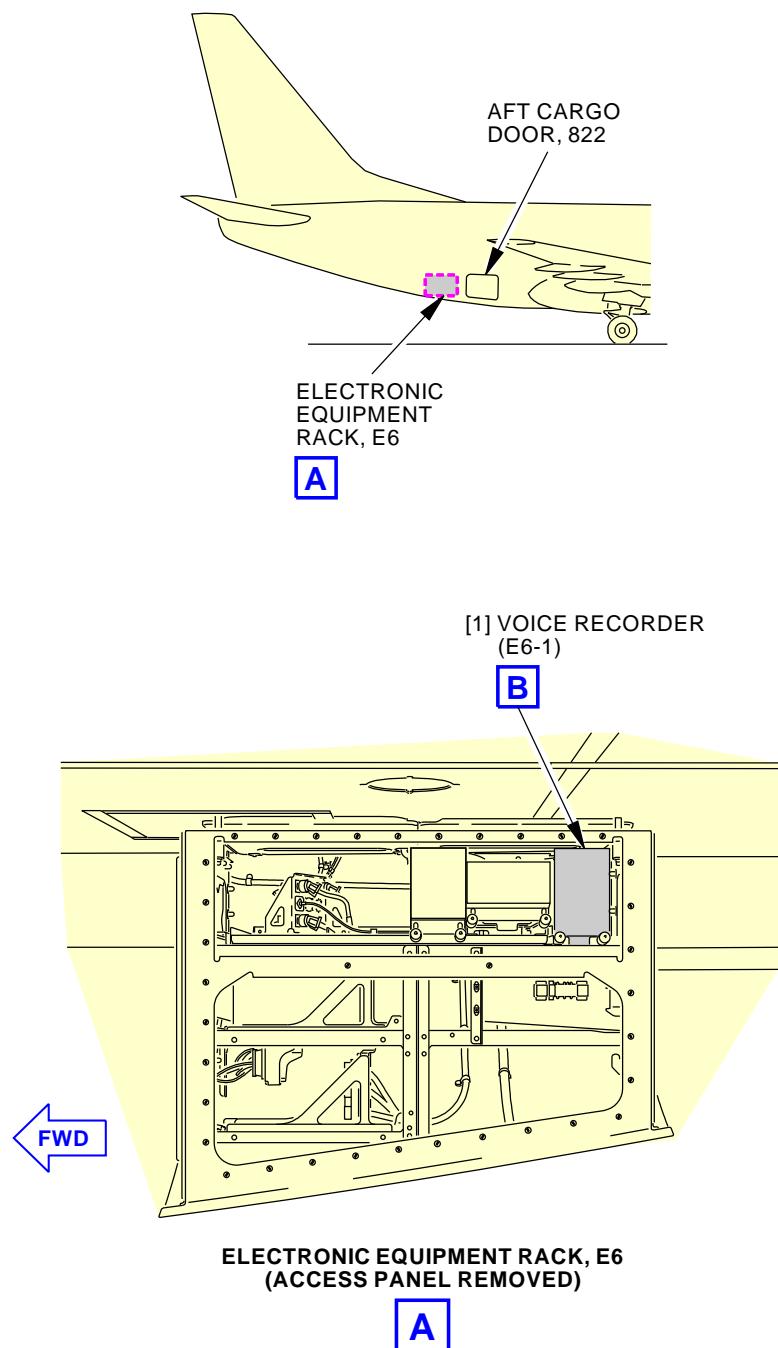
———— END OF TASK ————

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Cockpit Voice Recorder
Figure 201/23-71-00-990-801



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TASK 23-71-00-440-801

3. Voice Recorder System - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Cockpit Voice Recorder.

B. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-71-00-860-039

- (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>
D	7	C00107	VOICE RCDR

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C01948	VOICE RCDR/RIPS (INOP)

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-71-00



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VOICE RECORDER SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks for the voice recorder system:
 - (1) An operational test
 - (2) An audio fidelity test
 - (3) A system test.

TASK 23-71-00-710-801

2. Voice Recorder System - Operational Test

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
23-27-00-740-814-009	ACARS - Operational 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)

B. Tools/Equipment

Reference	Description
STD-1390	Headphone - 600 Ohm, with 1/4 Inch Mono RCA Audio Plug

C. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 23-71-00-860-001

- (1) Make sure that the airplane has electrical power.
 - (a) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-71-00-860-034

- (2) Make sure that the ACARS system is serviceable (ACARS - Operational Test, TASK 23-27-00-740-814-009).

SUBTASK 23-71-00-860-032

- (3) Set the airplane's parking brake.

SUBTASK 23-71-00-420-001

- (4) Connect a headphone, STD-1390 to the voice recorder control panel at the pilot's overhead panel, P5.

SUBTASK 23-71-00-860-003

- (5) Set the volume control switches on the audio control panels (ACP) to the off position.

SUBTASK 23-71-00-710-014

- (6) Make sure that you can hear the flight deck conversation in the headphone.

E. Operational Test

SUBTASK 23-71-00-700-001

- (1) Do the Operational Test as follows:

EFFECTIVITY
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AKS ALL; AIRPLANES WITH HONEYWELL VOICE RECORDER

- (a) Push the TEST switch on the voice recorder control panel for approximately one half second.
 - 1) Make sure that you hear a tone in the headphone.
 - 2) Make sure that the STATUS light comes on once.

AKS ALL

F. Put the Airplane Back to Its Usual Condition

SUBTASK 23-71-00-080-002

- (1) Disconnect the headphone from the voice recorder's control panel.

SUBTASK 23-71-00-860-010

- (2) If electrical power for the airplane is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

TASK 23-71-00-730-801

3. Voice Recorder System - Audio Fidelity Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure contains a task for the four-channel microphone test of the voice recorder system using the flight crew's microphones and the area microphone.

B. References

Reference	Title
23-51-00-710-801	Flight Interphone System - Operational 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)

C. Tools/Equipment

Reference	Description
STD-1390	Headphone - 600 Ohm, with 1/4 Inch Mono RCA Audio Plug
STD-13898	Headset with Boom Mic and two-prong plug (For use on Flight Deck during CVR testing)

D. Location Zones

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

E. Prepare for the Test

SUBTASK 23-71-00-760-002

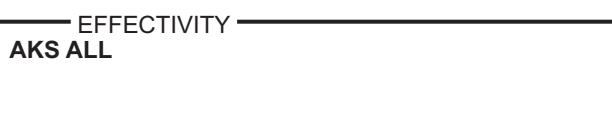
- (1) Make sure that the airplane has electrical power.
 - (a) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-71-00-760-003

- (2) Make sure that the Flight Interphone System is serviceable (TASK 23-51-00-710-801).

SUBTASK 23-71-00-480-001

- (3) Connect a headphone, STD-1390 to the voice recorder control panel at the pilot's overhead panel, P5.



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SUBTASK 23-71-00-860-008

- (4) Set the volume control switches on the audio control panels (ACP) to the off position.

F. Audio Fidelity Test

SUBTASK 23-71-00-710-015

- (1) Do an operational test for the voice recorder system:

AKS ALL; AIRPLANES WITH HONEYWELL VOICE RECORDER

- (a) Push the TEST switch on the voice recorder control panel for approximately one half second.
- 1) Make sure that you hear a tone in the headphone.
 - 2) Make sure that the STATUS light comes on once.

AKS ALL

SUBTASK 23-71-00-860-013

- (2) Put a cover on the area microphone for the voice recorder system.

SUBTASK 23-71-00-710-001

- (3) Do a test for the voice recorder microphone at the captain's position:
- (a) Connect a boom microphone (on-board boom microphone headset, STD-13898) to the captain's jack panel.
- (b) If the captain's ACP has a BOOM microphone switch, then make sure it is set to the BOOM position.
- (c) Speak into the boom microphone.
- 1) Make sure that you hear your voice through the headphone at the voice recorder control panel.

NOTE: When you test the digital or solid state voice recorder you will hear your voice in the headset as you speak. When you test the analog or tape based voice recorder you will hear your voice in the headset after approximately a 0.5 second delay.

- (d) Disconnect the boom microphone from the captain's jack panel.

SUBTASK 23-71-00-710-002

- (4) Do a test for the voice recorder microphone at the first officer's position:

- (a) Connect a boom microphone to the first officer's jack panel.
- (b) If the first officer's ACP has a BOOM microphone switch, then make sure it is set to the BOOM position.
- (c) Speak into the boom microphone.
- 1) Make sure that you hear your voice through the headphone at the voice recorder control panel.

NOTE: When you test the digital or solid state voice recorder you will hear your voice in the headset as you speak. When you test the analog or tape based voice recorder you will hear your voice in the headset after approximately a 0.5 second delay.

- (d) Disconnect the boom microphone from the first officer's jack panel.

SUBTASK 23-71-00-700-003

- (5) Remove the cover from the area microphone for the voice recorder system.

EFFECTIVITY
AKS ALL

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SUBTASK 23-71-00-710-005

- (6) Do a test for the area microphone of the voice recorder system:

- (a) Speak in an usual voice to the area microphone.

NOTE: Keep 3 to 4 feet (1 meter) away from the area microphone for the voice recorder.

- 1) Make sure that you hear your voice through the headphone at the voice control panel.

NOTE: When you test the digital or solid state voice recorder you will hear your voice in the headset as you speak. When you test the analog or tape based voice recorder you will hear your voice in the headset after approximately a 0.5 second delay.

SUBTASK 23-71-00-860-014

- (7) Do these steps to erase the memory for the voice recorder:

- (a) Set the airplane's parking brake.

- (b) Push and hold the ERASE switch on the voice recorder control panel for a minimum of 3 seconds. Then release it.

- 1) Make sure that you hear a tone through the headphone at the voice recorder control panel.

G. Put the Airplane Back to the Usual Condition

SUBTASK 23-71-00-020-003

- (1) Disconnect the headphone from the voice recorder control panel.

SUBTASK 23-71-00-860-002

- (2) If electrical power for the airplane is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

TASK 23-71-00-730-802

4. Voice Recorder System - System Test

A. General

- (1) This procedure contains a task for the system test of the voice recorder system.

- (2) The system test includes these tests:

- (a) Operational test

- (b) Audio fidelity test

- (c) Bulk erasure test

B. References

Reference	Title
10-11-05 P/B 201	CHOCK INSTALLATION
23-51-00-710-801	Flight Interphone System - Operational 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)
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)



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C. Tools/Equipment

Reference	Description
STD-1390	Headphone - 600 Ohm, with 1/4 Inch Mono RCA Audio Plug

D. Location Zones

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

E. Prepare for the Test

SUBTASK 23-71-00-760-007

- (1) Make sure that the airplane has electrical power.
 - (a) If it is necessary, do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-71-00-860-024

- (2) Make sure that the Flight Interphone System is serviceable (TASK 23-51-00-710-801).

SUBTASK 23-71-00-860-025

- (3) Connect a headphone, STD-1390 to the voice recorder's control panel at the pilot's overhead panel, P5.

SUBTASK 23-71-00-860-026

- (4) Set the volume control switches on the audio control panels (ACP) to the off position.

F. Operational Test

SUBTASK 23-71-00-710-009

- (1) Do this task: Voice Recorder System - Operational Test, TASK 23-71-00-710-801.

G. Audio Fidelity Test

SUBTASK 23-71-00-710-012

- (1) Do this task: Voice Recorder System - Audio Fidelity Test, TASK 23-71-00-730-801.

H. Bulk Erasure Test

SUBTASK 23-71-00-710-013

- (1) Do a test for the Bulk Erasure of the voice recorder as follows:
 - (a) Make sure that the airplane wheels have chocks installed around them (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).
 - (b) Make sure that a headphone connected to the voice recorder's control panel.

WARNING: BEFORE RELEASING PARKING BRAKE, VERIFY THAT WHEELS ARE CHOCKED AND CLEAR ALL PERSONNEL FROM WHEEL AREAS.

- (c) Release the parking brake.
 - (d) Push and hold the ERASE switch on the voice recorder's control panel for a minimum of 3 seconds. Then release it.
 - 1) Make sure that you do not hear a tone in the headphone.
 - (e) Set the parking brake.
 - (f) Push and hold the ERASE switch on the voice recorder's control panel for a minimum of 3 seconds. Then release it.
 - 1) Make sure that you hear a tone in the headphone.



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WARNING: MAKE SURE THAT YOU INSTALL CHOCKS AT THE WHEELS. THE BRAKES WILL RELEASE WHEN YOU PUT THE AIRPLANE IN AIR MODE. THIS CAN CAUSE THE AIRPLANE TO MOVE SUDDENLY. IF YOU DO NOT INSTALL THE CHOCKS, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (g) Do the PSEU BITE procedure to put the No. 1 air/ground system in air mode. To do the BITE procedure, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.
- (h) Push and hold the ERASE switch on the voice recorder's control panel for a minimum of 3 seconds. Then release it.
 - 1) Make sure that you do not hear a tone in the headphone.
- (i) Put the airplane back to the ground mode:
 - 1) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.
- (j) Push and hold the ERASE switch on the voice recorder's control panel for a minimum of 3 seconds. Then release it.
 - 1) Make sure that you hear a tone in the headphone.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 23-71-00-860-027

- (1) Disconnect the headphone from the voice recorder's control panel.

SUBTASK 23-71-00-760-008

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

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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VOICE RECORDER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the voice recorder
 - (2) An installation of the voice recorder.
- B. The voice recorder is installed in the voice recorder rack in the aft cargo compartment.

TASK 23-71-11-000-801

2. Voice Recorder Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
23-71-21-000-801	Underwater Locator Beacon (ULB) Removal (P/B 201)

B. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right

C. Removal Procedure

SUBTASK 23-71-11-860-001

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	7	C00107	VOICE RCDR

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	6	C01948	VOICE RCDR/RIPS (INOP)

SUBTASK 23-71-11-010-001

- (2) Open the access door on the voice recorder rack to get access to the VOICE RECORDER [1].

SUBTASK 23-71-11-020-006

- (3) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-71-11-020-001

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

- (4) To remove the VOICE RECORDER [1], do this task: E/E Box Removal, TASK 20-10-07-000-801.



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SUBTASK 23-71-11-020-002

- (5) Remove the underwater locator beacon (ULB) from the VOICE RECORDER [1] if the replacement VOICE RECORDER [1] does not have a ULB installed, do this task: Underwater Locator Beacon (ULB) Removal, TASK 23-71-21-000-801.

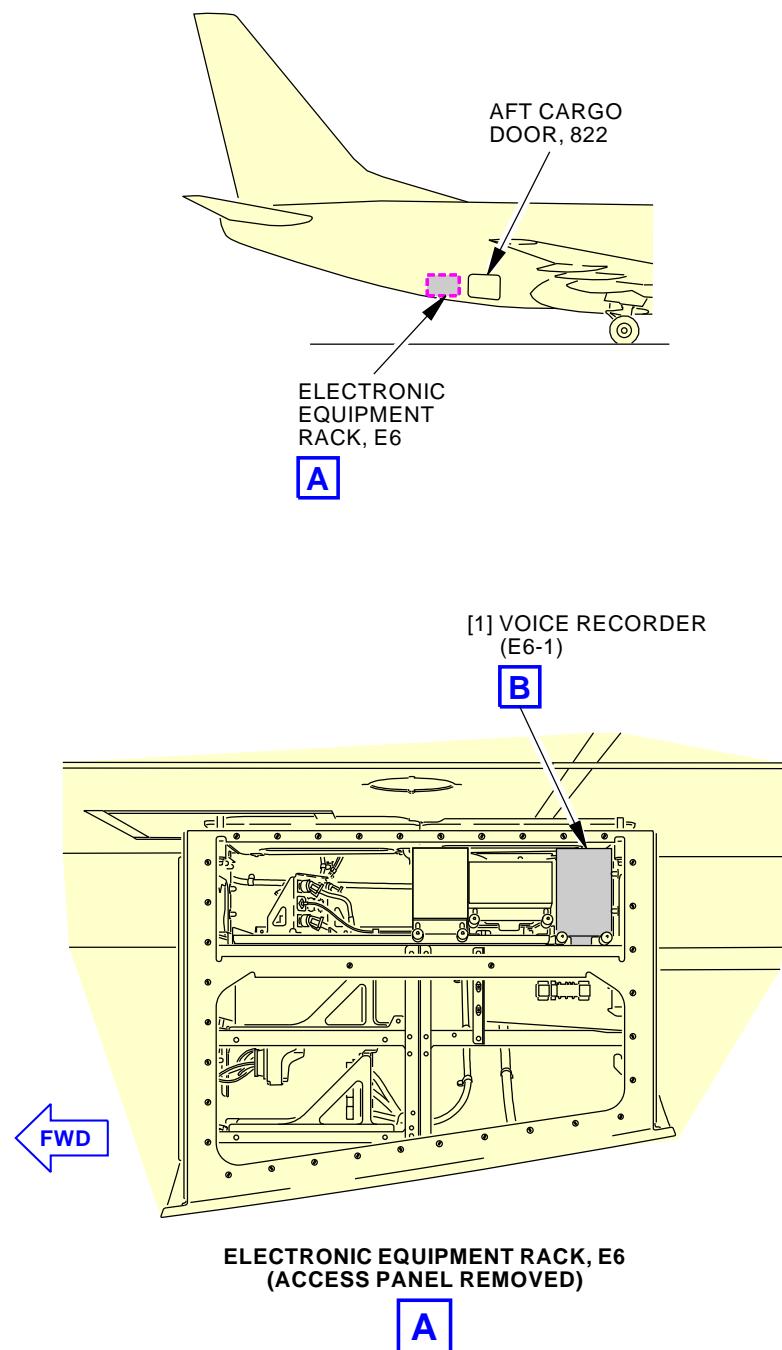
———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-71-11



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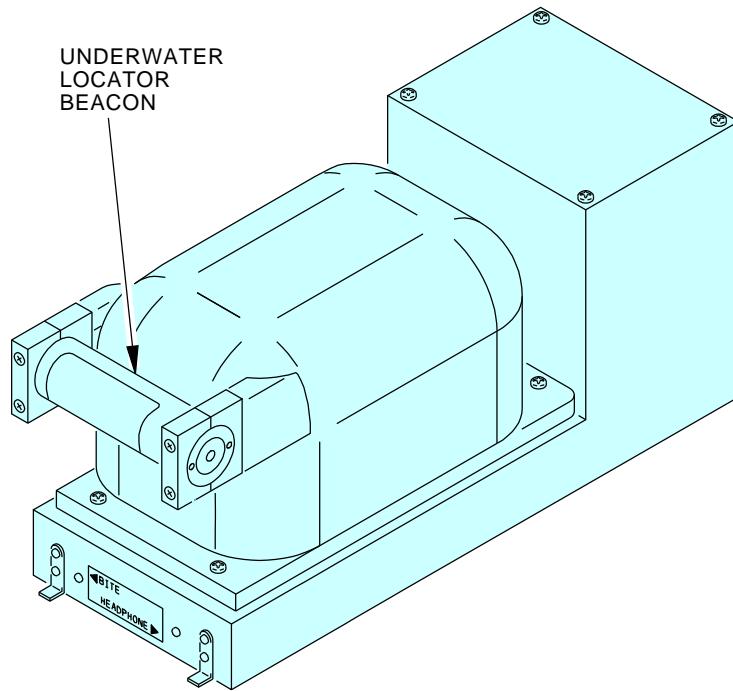
Voice Recorder Installation
Figure 401/23-71-11-990-801 (Sheet 1 of 2)

EFFECTIVITY
AKS ALL

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VOICE RECORDER

B

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Voice Recorder Installation
Figure 401/23-71-11-990-801 (Sheet 2 of 2)

EFFECTIVITY
AKS ALL

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TASK 23-71-11-400-801

3. Voice Recorder Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
23-71-00-710-801	Voice Recorder System - Operational Test (P/B 501)
23-71-21-400-801	Underwater Locator Beacon (ULB) Installation (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	VOICE RECORDER	23-71-11-05-005	AKS ALL

C. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right

D. Installation Procedure

SUBTASK 23-71-11-420-001

- (1) Install an underwater locator beacon (ULB) if the VOICE RECORDER [1] does not have a ULB installed, do this task: Underwater Locator Beacon (ULB) Installation, TASK 23-71-21-400-801.

SUBTASK 23-71-11-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	7	C00107	VOICE RCDR

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	6	C01948	VOICE RCDR/RIPS (INOP)

SUBTASK 23-71-11-420-005

- (3) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 23-71-11-420-002

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

- (4) To install the VOICE RECORDER [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 23-71-11-410-001

- (5) Close the access door on the voice recorder rack.



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SUBTASK 23-71-11-860-003

- (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>
D	7	C00107	VOICE RCDR

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C01948	VOICE RCDR/RIPS (INOP)

E. Installation Test

SUBTASK 23-71-11-710-008

- (1) Do this task: Voice Recorder System - Operational Test, TASK 23-71-00-710-801.

———— END OF TASK ————

— EFFECTIVITY —
AKS ALL

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VOICE RECORDER CONTROL PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the voice recorder control panel.
 - (2) An installation of the voice recorder control panel.
- B. The voice recorder control panel is installed in the pilot's overhead panel P5.

TASK 23-71-12-000-801

2. Voice Recorder Control Panel Removal

(Figure 401)

A. Location Zones

<u>Zone</u>	<u>Area</u>
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 23-71-12-860-001

- (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>
D	7	C00107	VOICE RCDR

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C01948	VOICE RCDR/RIPS (INOP)

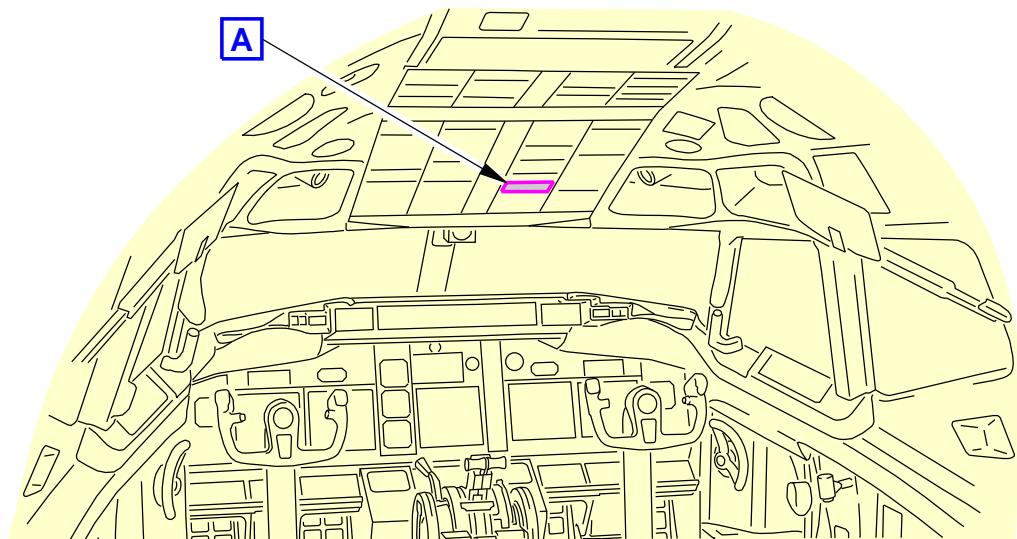
SUBTASK 23-71-12-000-001

- (2) Remove the voice recorder control panel [1]:
 - (a) Loosen the quarter-turn fasteners [2] on the voice recorder control panel [1].
 - (b) Remove the voice recorder control panel [1] to get access to the connector [3].
 - (c) Disconnect the electrical connector [3] from the voice recorder control panel [1].
 - (d) Put a protective cover on the electrical connector.

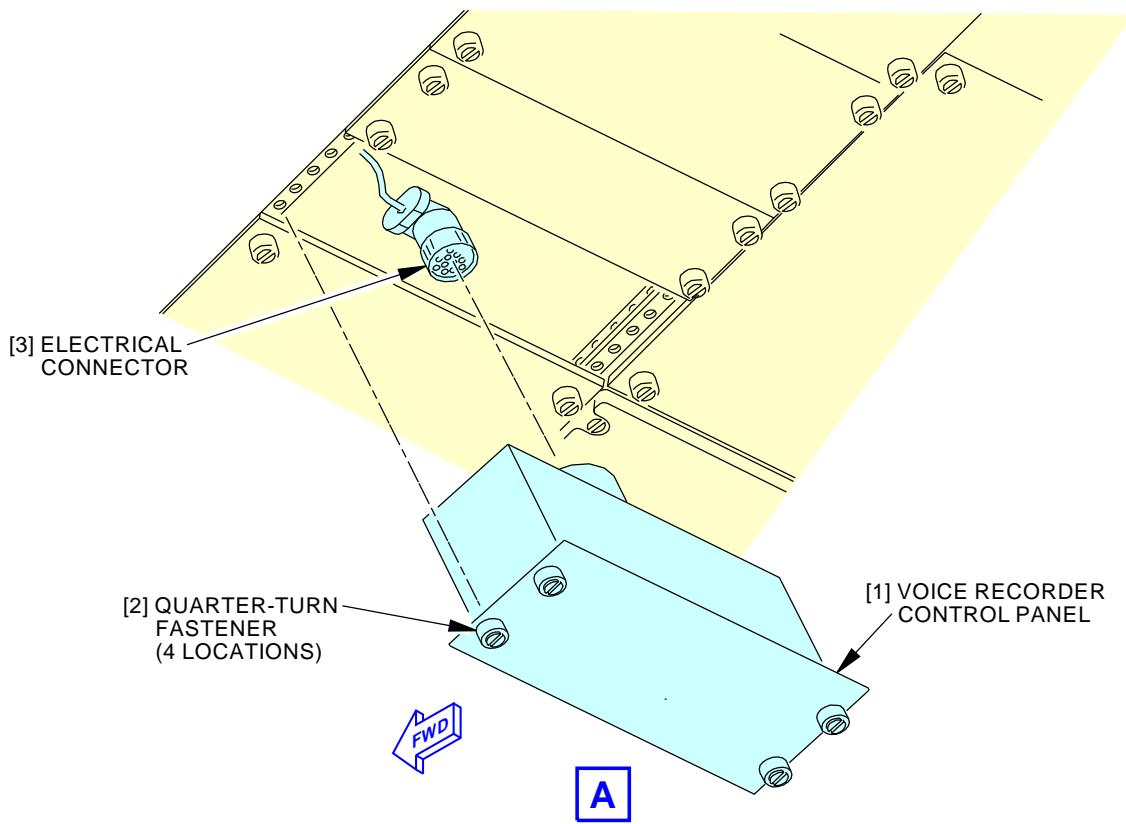
———— END OF TASK ————



23-71-12



FLIGHT COMPARTMENT



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Voice Recorder Control Panel Installation
Figure 401/23-71-12-990-801EFFECTIVITY
AKS ALL**23-71-12**

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AIRCRAFT MAINTENANCE MANUAL

TASK 23-71-12-400-801

3. Voice Recorder Control Panel Installation

(Figure 401)

A. References

Reference	Title
23-71-00-710-801	Voice Recorder System - Operational Test (P/B 501)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1390	Headphone - 600 Ohm, with 1/4 Inch Mono RCA Audio Plug

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Panel	23-71-12-03-020	AKS ALL

D. Location Zones

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

E. Installation Procedure

SUBTASK 23-71-12-860-002

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	7	C00107	VOICE RCDR

This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	6	C01948	VOICE RCDR/RIPS (INOP)

SUBTASK 23-71-12-400-001

- (2) Install the voice recorder control panel [1]:

- Remove the protective cover from the electrical connector.
- Examine the electrical connectors for bent or broken pins, dirt, and damage.
- Connect the electrical connector [3] to the voice recorder control panel [1].
- Install the voice recorder control panel [1].
- Tighten the quarter-turn fasteners [2] on the voice recorder control panel [1].

SUBTASK 23-71-12-860-003

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
D	7	C00107	VOICE RCDR

EFFECTIVITY	AKS ALL
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This circuit breaker is inoperative and should remain open:

CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C01948	VOICE RCDR/RIPS (INOP)

F. Installation Test

SUBTASK 23-71-12-710-007

- (1) Do this task: Voice Recorder System - Operational Test, TASK 23-71-00-710-801.

SUBTASK 23-71-12-860-006

- (2) Make sure that the airplane's parking brake is set.

SUBTASK 23-71-12-860-010

- (3) Make sure that a headphone is connected to the voice recorder's control panel [1], at P5.

SUBTASK 23-71-12-730-002

- (4) Push the ERASE switch on the voice recorder's control panel [1] for at least one half second.
 - (a) Make sure that you hear a tone in the headphone, STD-1390 until you release the ERASE switch.

SUBTASK 23-71-12-020-001

- (5) Disconnect the headphone from the voice recorder's control panel [1].

SUBTASK 23-71-12-860-004

- (6) If electrical power for the airplane is not necessary, 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 voice recorder. The voice recorder is located in the voice recorder rack at the aft cargo compartment.

TASK 23-71-21-000-801

2. Underwater Locator Beacon (ULB) Removal

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The ULB [4] has a battery as the power source. The ULB [4] has no external electrical connections.

B. References

Reference	Title
23-71-11-000-801	Voice Recorder Removal (P/B 401)

C. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right

D. Removal Procedure

SUBTASK 23-71-21-020-001

- (1) Do this task: Voice Recorder Removal, TASK 23-71-11-000-801.

SUBTASK 23-71-21-020-003

- (2) Remove the ULB [4] from the voice recorder:
 - (a) Loosen the four screws [1] that hold the ULB [4].
 - (b) Remove the two screws [1] and the clamp from one end of the ULB.
 - (c) Remove the ULB [4].
 - (d) Keep the screws [1] and the clamp.

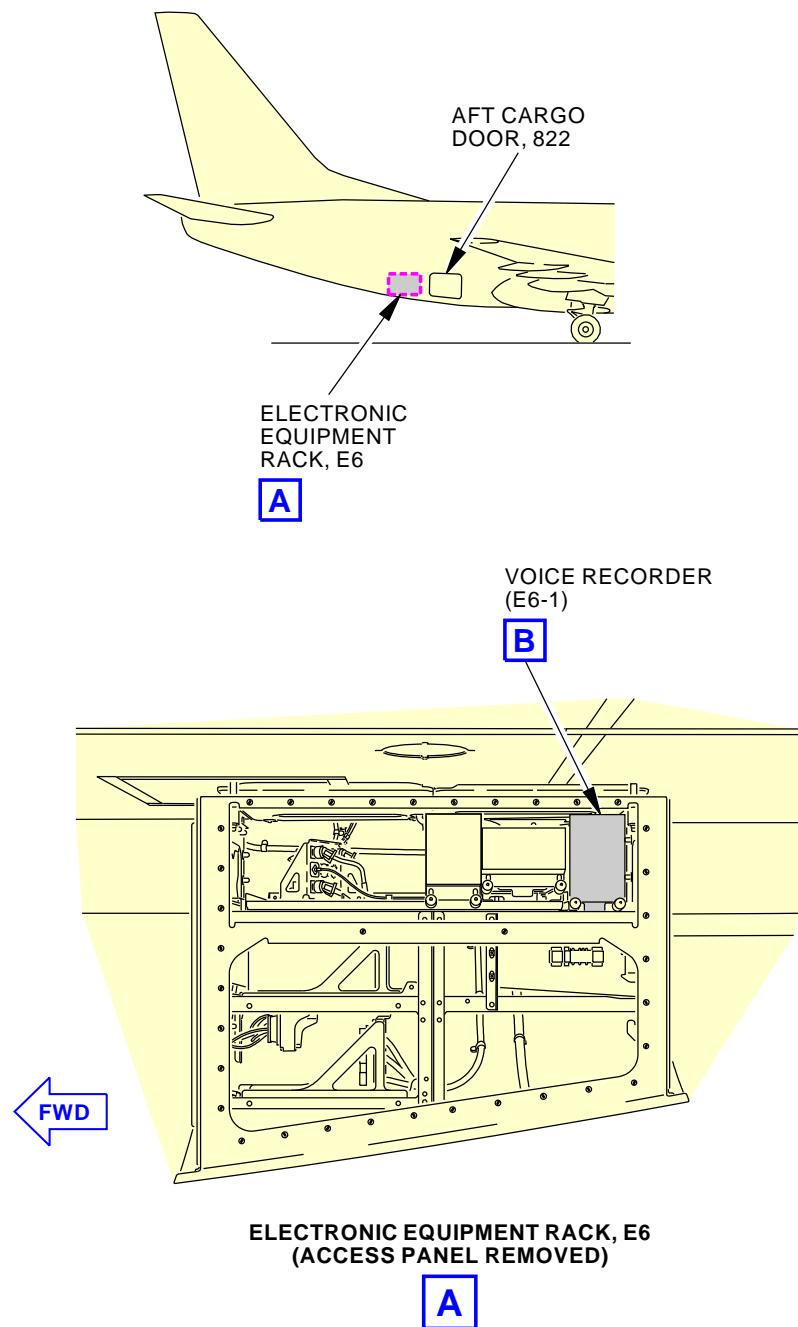
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EFFECTIVITY
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H94847 S0006566096_V2

Underwater Locator Beacon Installation
Figure 201/23-71-21-990-801 (Sheet 1 of 2)

EFFECTIVITY
AKS ALL

23-71-21

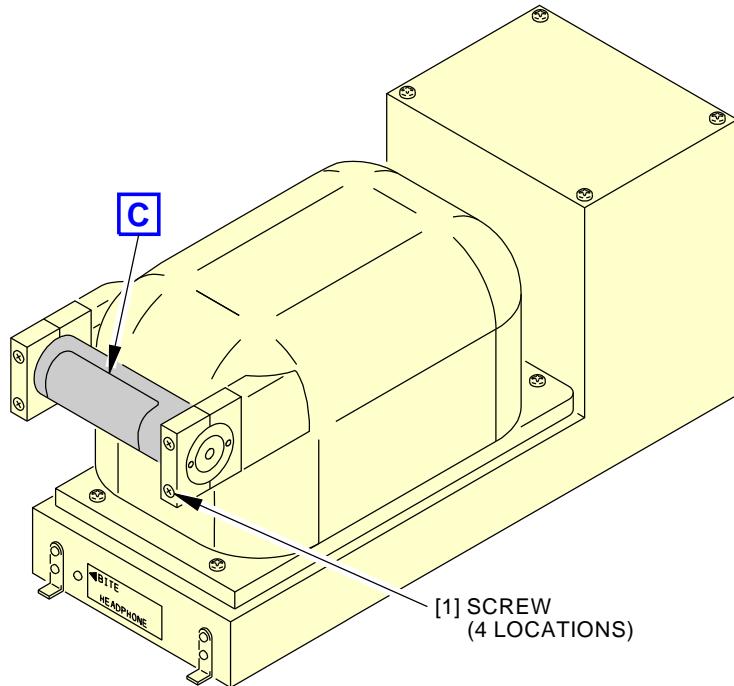
D633A101-AKS

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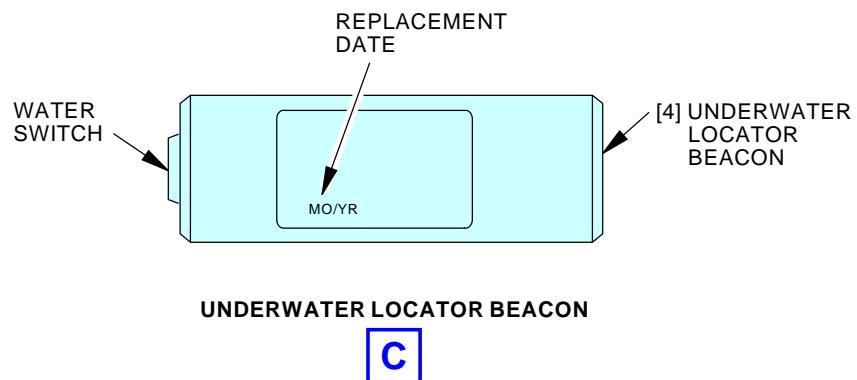
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AIRCRAFT MAINTENANCE MANUAL



VOICE RECORDER



F68969 S0006566098_V2

Underwater Locator Beacon Installation
Figure 201/23-71-21-990-801 (Sheet 2 of 2)

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TASK 23-71-21-960-801

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	



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D. Removal Procedure

SUBTASK 23-71-21-800-001

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 23-71-21-020-006

- (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 23-71-21-420-006

- (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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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].

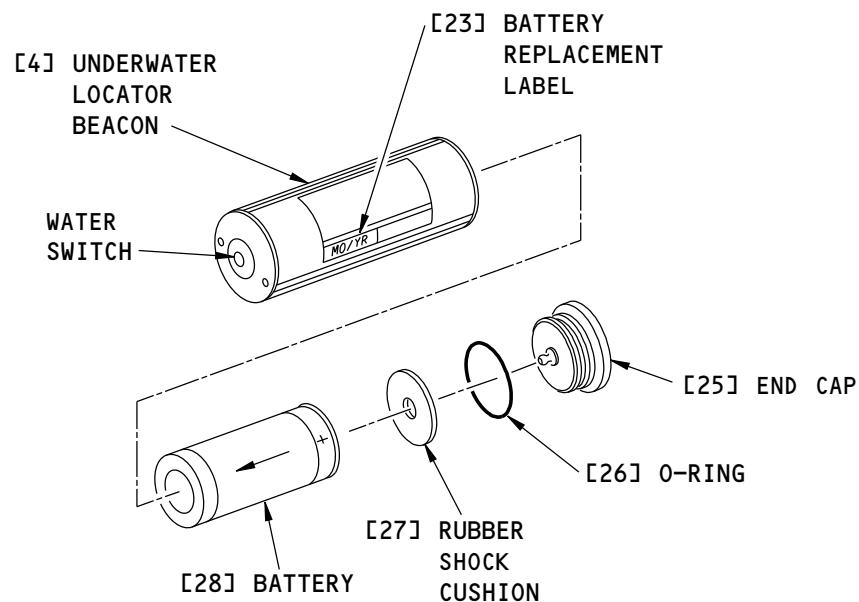
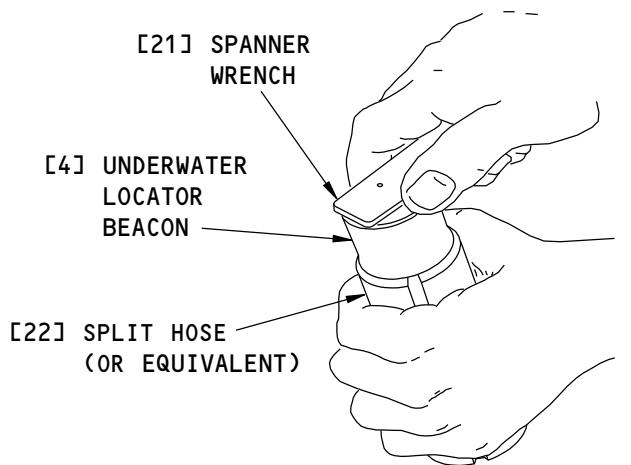
———— END OF TASK ————

EFFECTIVITY
AKS ALL

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E11040 S0006417281_V2

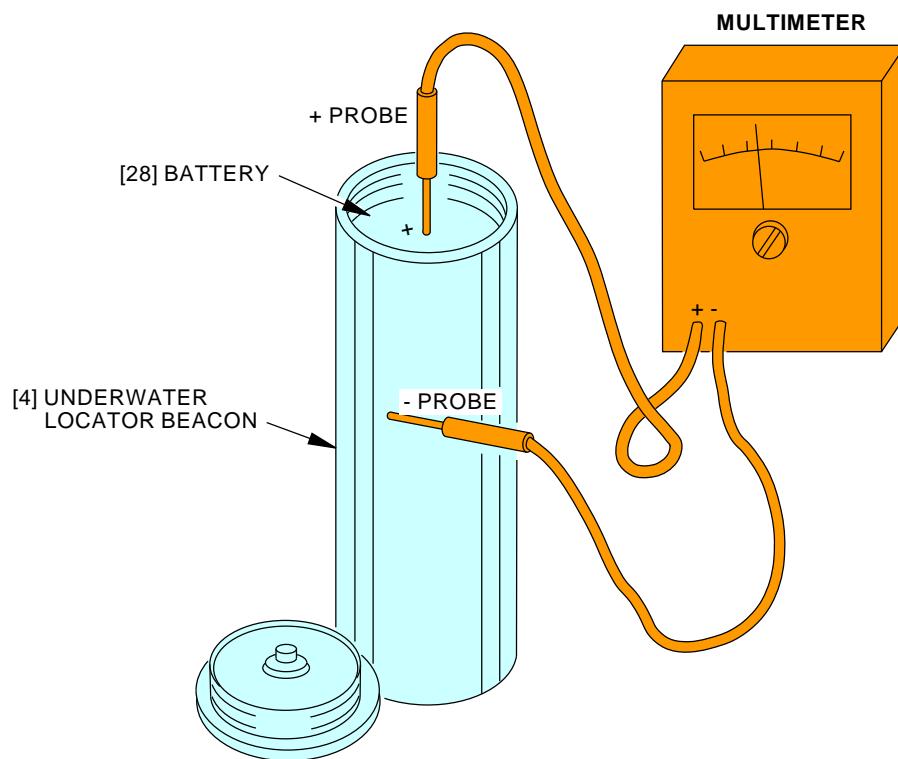
Underwater Locator Beacon Battery Replacement
Figure 202/23-71-21-990-802

EFFECTIVITY
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23-71-21



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2279078 S0000514233_V2

Beacon Off-Current Test
Figure 203/23-71-21-990-804

EFFECTIVITY
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TASK 23-71-21-960-802

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-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
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 23-71-21-860-001

- (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.
- Put the negative meter lead on the water switch.
 - Put the positive meter lead on the bare aluminum surface of the beacon housing.
 - Read the voltmeter.

E. Removal Procedure

SUBTASK 23-71-21-510-002

- (1) If the measured voltage is less than 6.0 Volts, send the ELP-362D ULB [4] to the manufacturer for servicing.

SUBTASK 23-71-21-020-005

- (2) If the measured voltage is 6.0 Volts or more, remove the battery [28] from the ELP-362D ULB [4]:

CAUTION: DO NOT HOLD THE ULB [4] WITH A VISE. THIS CAN CAUSE DAMAGE TO THE ULB [4].

- Hold the ULB [4] body with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066.
- Use the underwater locator beacon torque adapter, COM-2543 to remove the end-cap [25] identified as "BATTERY ACCESS".
- Turn the housing up to remove the battery [28] from the unit.

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- (d) Discard the battery [28].

NOTE: Refer to local instructions when you discard the battery [28].

F. Installation Procedure

SUBTASK 23-71-21-420-002

- (1) Install the ULB battery, G50272 [28]:

NOTE: The Teledyne Benthos C362-04270-2 is a six year battery.

- (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: INSTALL THE ULB BATTERY [28] CORRECTLY. INCORRECT POLARITY WILL CAUSE PERMANENT DAMAGE TO THE ULB [4].

- (c) Put the new battery, G50272 [28] in the ULB [4] with the end identified INSERT THIS END in first.

- (d) Remove the O-ring [26] from its groove in the end-cap [25].

CAUTION: DIRT OR OTHER UNWANTED MATERIALS CAN CAUSE DAMAGE TO THE THREADS AND THE O-RING SEAL. THIS CAN PERMIT WATER LEAKAGE.

- (e) Clean the O-ring groove of dirt, lint, and other unwanted materials.

- (f) Apply the O-ring lubricant to the new O-ring [26].

- (g) Put the lubricated o-ring, G50273 [26] in the end-cap groove.

- (h) Attach the end-cap [25] to the housing.

- (i) 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.

- (j) Torque the end-cap [25] to 25 to 30 inch pounds.

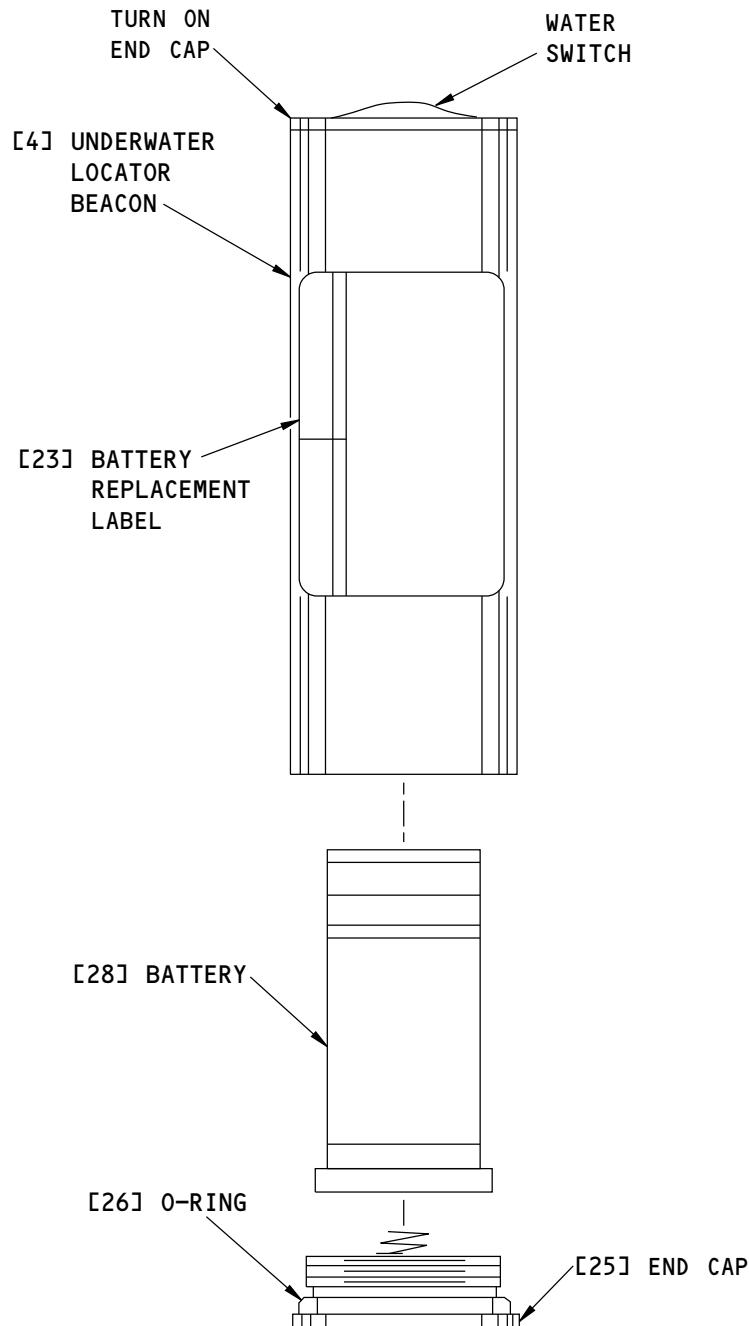
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1578730 S0000296580_V1

Underwater Locator Beacon Battery Replacement
Figure 204/23-71-21-990-803

EFFECTIVITY
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TASK 23-71-21-700-801

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 23-71-21-720-008

- (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.
2) Dry the switch with a clean cloth.

— END OF TASK —

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TASK 23-71-21-700-802

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 23-71-21-720-009

- (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 —

TASK 23-71-21-700-803

7. Underwater Locator Beacon Test with a PL3 Test Set

NOTE: This procedure is a scheduled maintenance task.

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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 23-71-21-720-003

- (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) Push and hold the ULB test set, COM-10772 against the ULB [4] water switch.
 - 1) Make sure that you hear a pulse sound.
 - 2) Make sure that you see the LED light comes on and off.
- (b) Remove the ULB test set, COM-10772.
- (c) Make sure that the water switch end of the ULB [4] has no grease or dirt.
- (d) 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 23-71-21-700-804

8. Underwater Locator Beacon Test with an 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 23-71-21-720-004

- (1) If you have a 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 [4] water switch.
 - 1) Make sure that a green light (LED) shows.
 - 2) Make sure that you can hear sounds from the ATS-260 ULB test set, COM-978 and/or the amber light (LED) flashes.

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- (d) Release the PUSH TO TEST button.
- (e) Remove the ATS-260 ULB test set, COM-978.
- (f) Make sure that the water switch end of the ULB [4] 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 ————

TASK 23-71-21-700-805

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 23-71-21-720-005

- (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 [4] in its mount.
- (b) Slide the switch on the side of the TS100 ULB Test Set, COM-10769 housing to ON.
 - 1) Make sure that the LCD display shows "TESTING".
- (c) Press the button in the center of the TS100 ULB Test Set, COM-10769 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
Need Service	Beacon is NOT operating properly
Open Probe/Batt.	Probe head is not properly attached or the beacon battery is dead.

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- 1) 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".

- (e) Remove the TS100 ULB Test Set, COM-10769.
- (f) Make sure that the water switch end of the ULB [4] 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 ————

TASK 23-71-21-700-806

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 23-71-21-720-010

- (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.
 - (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:

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- 1) Clean the switch with water and detergent.
- 2) Dry the switch with a clean cloth.

———— END OF TASK ——

TASK 23-71-21-400-801

11. Underwater Locator Beacon (ULB) Installation

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
23-71-11-400-801	Voice Recorder Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

C. Location Zones

Zone	Area
142	Aft Cargo Compartment - Right

D. Installation Procedure

SUBTASK 23-71-21-420-004

- (1) Install the ULB [4] on the voice recorder:
 - (a) Make sure that the water switch end of the Underwater Locator Beacon [4] has no grease or dirt.
 - 1) Clean the water switch with a weak general purpose household detergent cleaner, B00541.
 - (b) Put the Underwater Locator Beacon [4] into the bracket.
 - (c) Install the clamp on the end of the Underwater Locator Beacon [4] with the two screws [1].
 - (d) Make sure that you can read the replacement date on the Underwater Locator Beacon [4].
 - (e) Tighten the four screws [1].

SUBTASK 23-71-21-700-004

- (2) Do one of these tasks to test the ULB:

Underwater Locator Beacon Test with a 42A12 Series Test Set, TASK 23-71-21-700-801 or
Underwater Locator Beacon Test with a PL1 Test Set, TASK 23-71-21-700-802 or Underwater
Locator Beacon Test with an ATS-260 Test Set, TASK 23-71-21-700-804 or Underwater
Locator Beacon Test with a PL3 Test Set, TASK 23-71-21-700-803 or Underwater Locator
Beacon Test with a Seacom TS100 Test Set, TASK 23-71-21-700-805 or Underwater Locator
Beacon Test with a TS200 Test Set, TASK 23-71-21-700-806

SUBTASK 23-71-21-420-005

- (3) Do this task: Voice Recorder Installation, TASK 23-71-11-400-801.

———— END OF TASK ——

EFFECTIVITY
AKS ALL

23-71-21



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FLIGHT DECK ENTRY VIDEO SURVEILLANCE SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
 - (1) Video Surveillance System Deactivation
 - (2) Video Surveillance System Activation

TASK 23-75-00-040-801

2. Video Surveillance System - Deactivation

(Figure 201)

A. General

- (1) This procedure removes the electrical power to the Video Surveillance System.

B. Location Zones

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

C. Procedure

SUBTASK 23-75-00-860-008

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

D. Video Surveillance System - Tryout

SUBTASK 23-75-00-211-001

NOTE: This tryout is to make sure the Video Surveillance system is in a zero energy state.

- (1) Do the following steps to verify the Video System is off:
 - (a) Select a camera on the Camera Control Panel.
 - (b) View the Multifunctional Display or Electronic Flight Bag.
- (2) If the Video Surveillance System is off there will be no display from any of the cameras.

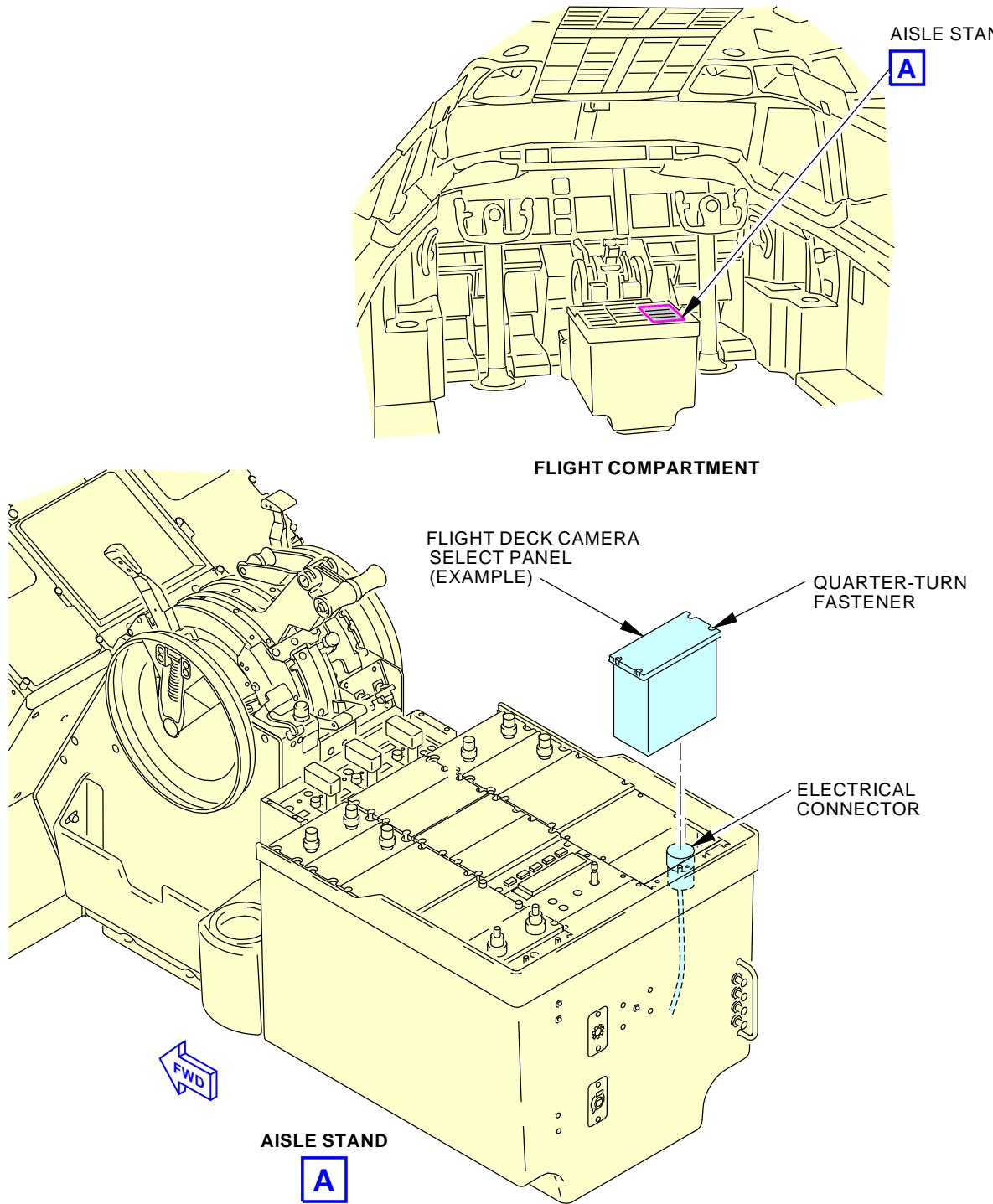
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EFFECTIVITY
AKS ALL

23-75-00



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Video Control Panel
Figure 201/23-75-00-990-802 (Sheet 1 of 2)

EFFECTIVITY
AKS ALL

23-75-00

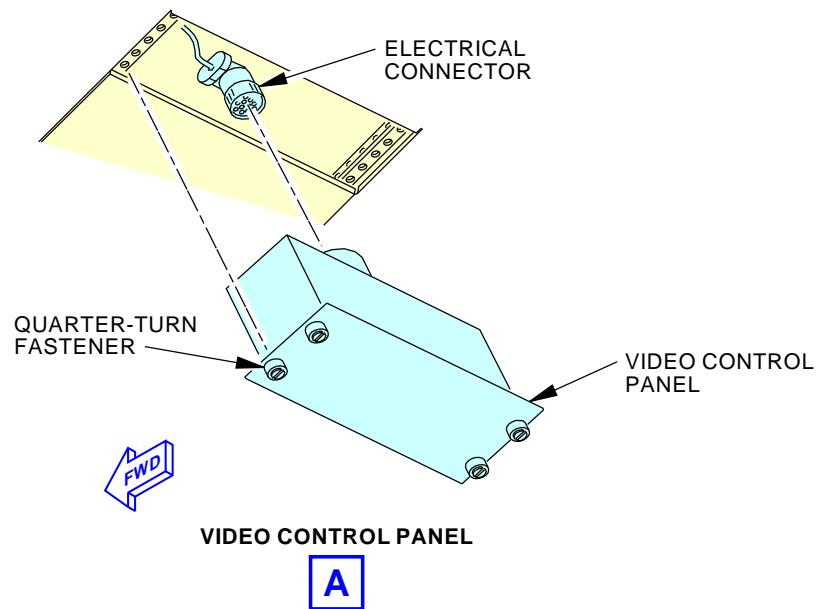
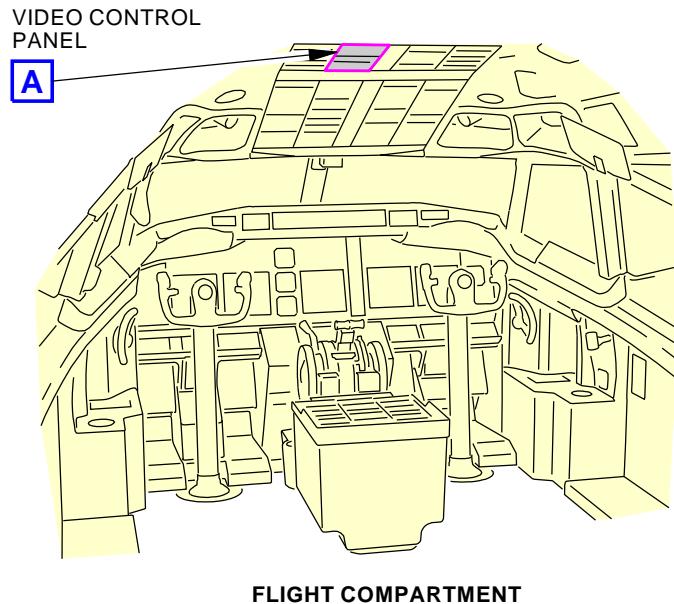
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2360810 S0000539356_V2

Video Control Panel
Figure 201/23-75-00-990-802 (Sheet 2 of 2)

EFFECTIVITY
AKS ALL

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TASK 23-75-00-440-801

3. Video Surveillance System - Activation

(Figure 201)

A. General

- (1) This procedure adds electrical power to the Video Surveillance System.

B. Location Zones

Zone	Area
-------------	-------------

211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 23-75-00-860-009

- (1)

Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

———— END OF TASK ————

EFFECTIVITY
AKS ALL

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FLIGHT DECK ENTRY VIDEO SURVEILLANCE SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has one task:
- (1) System test.

TASK 23-75-00-730-804

2. Flight Deck Entry Video Surveillance System - System Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
31-62-00 P/B 501	COMMON DISPLAY SYSTEM - ADJUSTMENT/TEST

B. Location Zones

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

C. Prepare for the Procedure

SUBTASK 23-75-00-861-002

- (1) If the aircraft is not energized, supply electrical power. Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 23-75-00-865-002

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
E	12	C01373	DISPLAY CTR LWR

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
A	8	C01627	CABIN UTIL RLY PWR

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-00-860-006

- (3) On the electric meters, battery and galley power module, P5-13, make sure that the IFE/PASS SEAT switch is set to ON.

SUBTASK 23-75-00-860-004

- (4) Make sure the Common Display System (CDS) is serviceable, (COMMON DISPLAY SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 31-62-00/501).

D. Test Procedure

SUBTASK 23-75-00-710-012

- (1) Set the rotary switch on the camera control panel, M3000, to C (center), and push the DSPL (display) button.



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- (a) Make sure that the lower center multi-function display, N190, shows video from camera 1, M3002.

NOTE: Camera 1 is installed at approximately STA 285, BL 0.

SUBTASK 23-75-00-710-018

- (2) Set the rotary switch on the camera control panel, M3000, to L (left), and push the DSPL button.
(a) Make sure that the lower center multi-function display, N190, shows video from camera 2, M3026.

NOTE: Camera 2 is installed at approximately STA 338, LBL 28.

SUBTASK 23-75-00-710-019

- (3) Set the rotary switch on the camera control panel, M3000, to R (right), and push the DSPL button.
(a) Make sure that the lower center multi-function display, N190, shows video from camera 3, M3004.

NOTE: Camera 3 is installed at approximately STA 300, RBL 23.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 23-75-00-862-002

- (1) Remove electrical power if it is not necessary for other tasks. Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ————

EFFECTIVITY
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VIDEO CAMERAS - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) Removal of the cameras for the flight deck entry video surveillance system (FDEVSS).
 - (2) Installation of the cameras for the FDEVSS.
- B. The camera assemblies are installed in the ceiling above the flight compartment, and the aft of the flight deck security door.

TASK 23-75-02-000-804

2. Video Camera - Removal

(Figure 401 or Figure 402)

A. General

- (1) This removal task is for these cameras:
 - (a) Camera 1, M3002, is at STA 285, BL 0, installed on the back-side of the forward lowered ceiling close-out.
 - (b) Camera 2, M3026, is at STA 338 LBL 28, installed aft of door 1L.
 - (c) Camera 3, M3004, is at STA 300, RBL 23, installed forward of door 1R, in the ceiling panel.

NOTE: On the camera Control Panel (CP), position R is camera 3, position C is camera 1, and position L is camera 2.

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
25-21-71-000-805	Close Out Panel Removal, Forward Lowered Ceiling (P/B 401)

C. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00

D. Prepare for Removal

SUBTASK 23-75-02-865-006

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-02-010-002

- (2) Get access to the applicable camera:

- (a) To get access to camera 1, do this task: Close Out Panel Removal, Forward Lowered Ceiling, TASK 25-21-71-000-805



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E. Removal Procedure

SUBTASK 23-75-02-020-005

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

- (1) Before you touch the camera, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-75-02-020-010

- (2) Remove the camera [14] as follows:
 - (a) Remove the camera wire from the loop attachment, on the hidden-side of the panel.
 - (b) At the camera control unit, disconnect the camera connector.
 - (c) Remove the two washers and screws, and remove the camera [14] from the applicable support: support [12], support [13], or support [17]

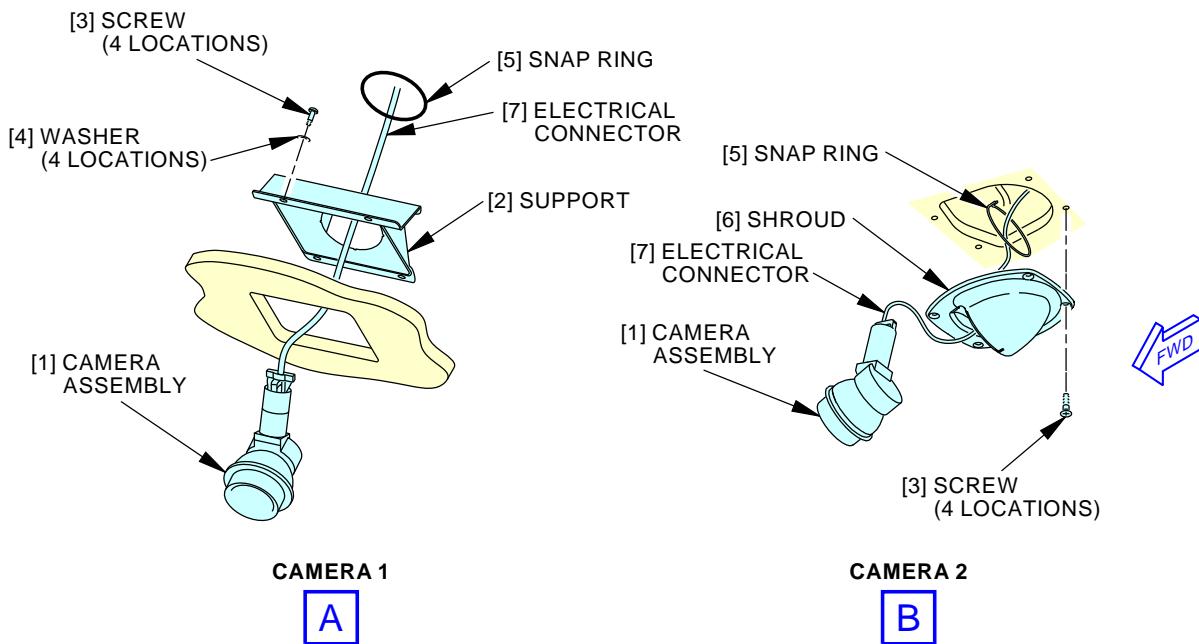
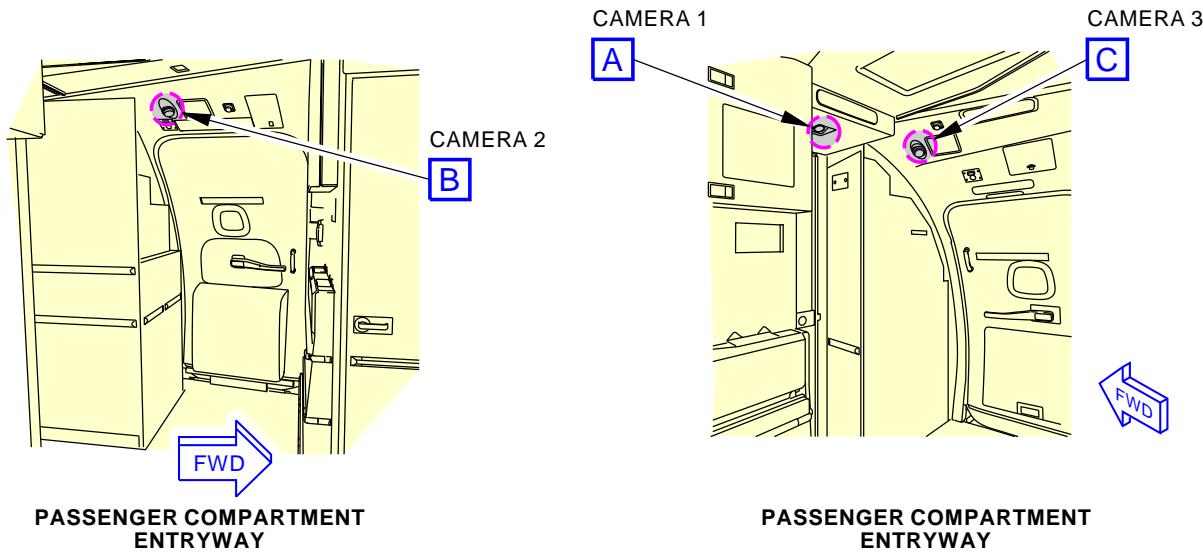
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EFFECTIVITY
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FDEVSS Camera Installations
Figure 401/23-75-02-990-807 (Sheet 1 of 2)

EFFECTIVITY

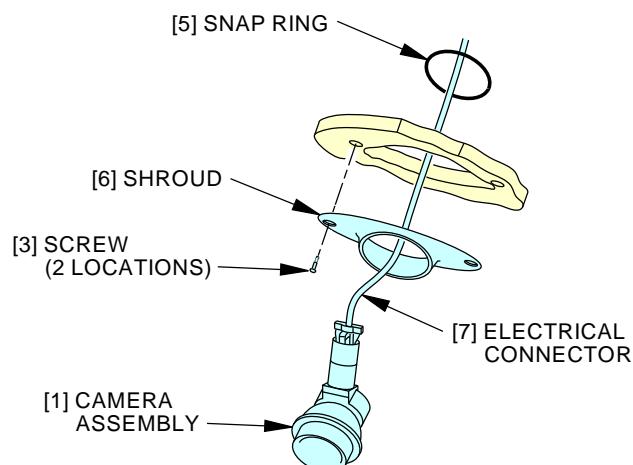
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CAMERA 3

C

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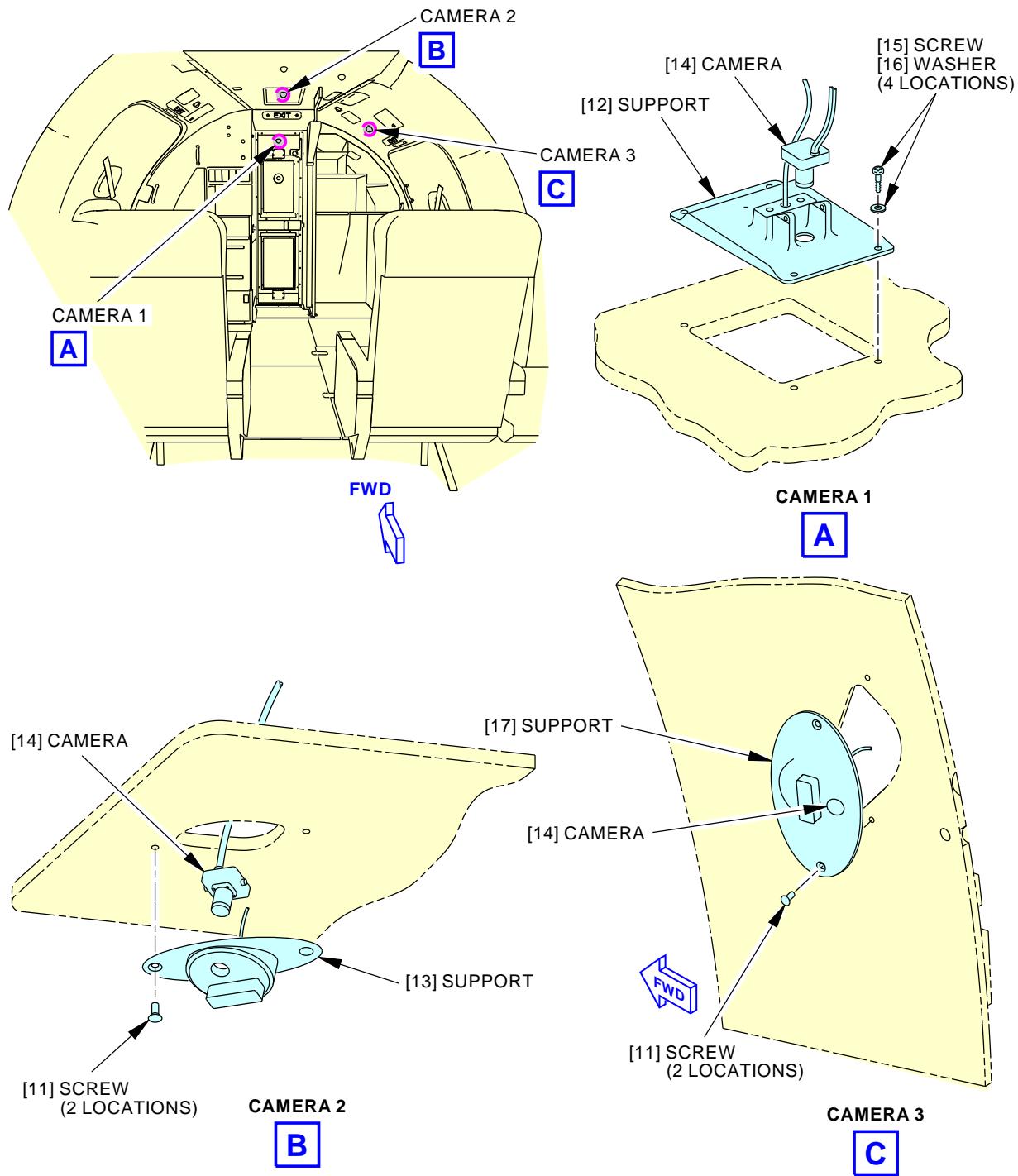
FDEVSS Camera Installations
Figure 401/23-75-02-990-807 (Sheet 2 of 2)

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AKS ALL

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FDEVSS Camera Installation
Figure 402/23-75-02-990-808

EFFECTIVITY
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TASK 23-75-02-400-804

3. Video Camera - Installation

(Figure 401 or Figure 402)

A. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
23-75-00-730-804	Flight Deck Entry Video Surveillance System - System Test (P/B 501)
24-22-00-860-812	Remove Electrical Power (P/B 201)
25-21-31-420-802	Forward Entry Doorway Sidewall Lining Panel - Installation (P/B 401)
25-21-71-400-801	Lowered Ceiling Installation (P/B 401)

B. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00

C. Installation Procedure

SUBTASK 23-75-02-865-009

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-02-869-001

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

- (2) Before you touch the component, do this task:

ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-75-02-420-012

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

- (3) To install camera 1, M3002, do the steps that follow:

CAUTION: DO NOT PULL, TWIST, OR BEND THE CAMERA CABLE MORE THAN THE MINIMUM RADIUS OF 1 IN. (25 MM). IF YOU BEND, PULL, OR TWIST THE CABLE TOO MUCH, DAMAGE TO THE CABLE CAN OCCUR.

- (a) Attach the camera [9] to the support [8].

NOTE: The two screws (M2 x 4), two metal, and two nylon washers (M2.5), are details of the camera assembly. Put the nylon washers adjacent to the plastic camera housing.

- (b) If applicable, attach the support [8] to the ceiling panel with two screws [11].

- (c) Connect the camera electrical connector to the camera control unit.

- (d) Connect the camera electrical connector to camera control unit (CCU) 1, M3005.



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- (e) On non-appearance side of the ceiling panel, attach the camera electrical cable to the bonded retainer strap [10].

SUBTASK 23-75-02-420-011

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

- (4) To install camera 2, M3003, do the steps that follow:

- (a) On non-appearance side of the ceiling panel, connect the camera electrical connector to CCU 2, M3007.

CAUTION: DO NOT PULL, TWIST, OR BEND THE CAMERA CABLE MORE THAN THE MINIMUM RADIUS OF 1 IN. (25 MM). IF YOU BEND, PULL, OR TWIST THE CABLE TOO MUCH, DAMAGE TO THE CABLE CAN OCCUR.

- (b) From the appearance-side of the ceiling panel, attach the camera [9] to the support [12].

NOTE: The two screws (M2 x 4), two metal, and two nylon washers (M2.5), are details of the camera assembly. Put the nylon washers adjacent to the plastic camera housing.

- (c) Attach the support [12] to the ceiling panel with two screws [11].

- (d) On non-appearance side of the ceiling panel, attach the camera electrical cable to the bonded retainer strap [10].

SUBTASK 23-75-02-420-013

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

- (5) To install camera 3, M3004, do the steps that follow:

- (a) On non-appearance side of the doorway liner, connect the camera electrical connector to CCU 3, M3009.

CAUTION: DO NOT PULL, TWIST, OR BEND THE CAMERA CABLE MORE THAN THE MINIMUM RADIUS OF 1 IN. (25 MM). IF YOU BEND, PULL, OR TWIST THE CABLE TOO MUCH, DAMAGE TO THE CABLE CAN OCCUR.

- (b) From the appearance-side of the doorway liner, attach the camera [9] to the support [13].

NOTE: The two screws (M2 x 4), two metal, and two nylon washers (M2.5), are details of the camera assembly. Put the nylon washers adjacent to the plastic camera housing.

- (c) Attach the support [13] to the doorway liner with two screws [11].

- (d) On non-appearance side of the ceiling panel, attach the camera electrical cable to the bonded retainer strap [10].

SUBTASK 23-75-02-865-010

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01641	SURVEILLANCE CAMERA





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D. Installation Test

SUBTASK 23-75-02-700-001

- (1) Do an operational check: Flight Deck Entry Video Surveillance System - System Test, TASK 23-75-00-730-804.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 23-75-02-410-005

- (1) Put the applicable ceiling panels, and doorway liner back to their usual condition. These are the tasks:
Forward Entry Doorway Sidewall Lining Panel - Installation, TASK 25-21-31-420-802, and
Lowered Ceiling Installation, TASK 25-21-71-400-801.

SUBTASK 23-75-02-862-001

- (2) Remove electrical power if it is not necessary for other tasks, (Remove Electrical Power, TASK 24-22-00-860-812).

———— END OF TASK ————



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CAMERA CONTROL PANEL ASSEMBLY- REMOVAL/INSTALLATION

1. General

- A. This procedure has the these tasks:
 - (1) Removal of the camera control panel.
 - (2) Installation of the camera control panel.
- B. The camera control panel is installed on the aisle stand P8 panel, in the flight compartment.

TASK 23-75-03-000-803

2. Control Panel - Removal

Figure 401

A. General

- (1) This task shows how to remove the camera control panel for the flight deck entry video surveillance system.

B. Location Zones

<u>Zone</u>	<u>Area</u>
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Removal Procedure

SUBTASK 23-75-03-865-004

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-03-030-001

- (2) Loosen the captive fasteners [2] on the control panel [1].

SUBTASK 23-75-03-020-003

- (3) Lift the control panel [1] to get access to the electrical connector [3].

SUBTASK 23-75-03-030-002

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

- (4) Disconnect the electrical connector [3] from the control panel [1].

SUBTASK 23-75-03-869-001

- (5) Put a protective cover on the electrical connector [3].

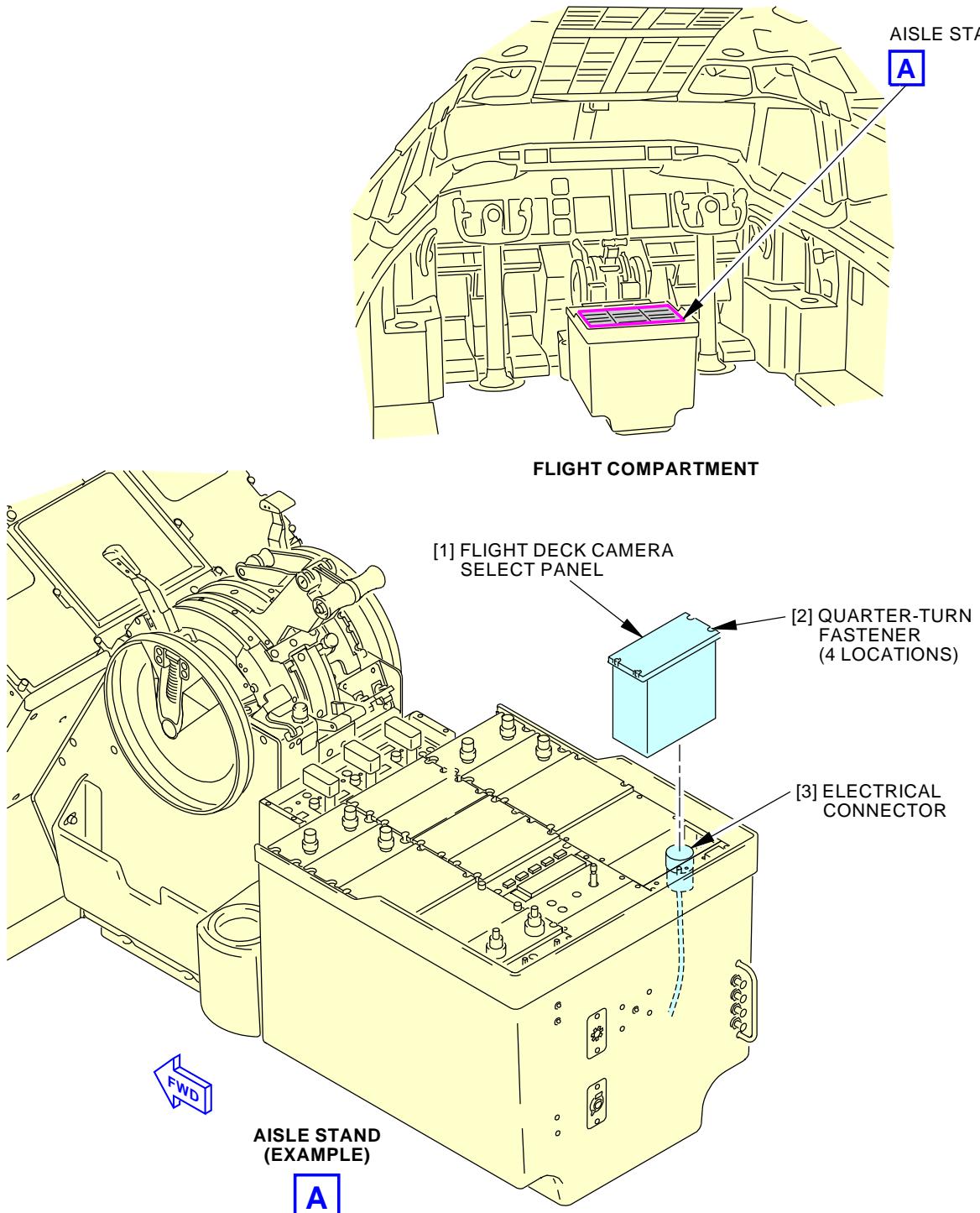
———— END OF TASK ————



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Camera Control Panel
Figure 401/23-75-03-990-803

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TASK 23-75-03-400-803

3. Camera Control Panel - Installation

A. General

- (1) This task shows how to install the camera control panel for the flight deck entry video surveillance system.

B. References

Reference	Title
23-75-00-730-804	Flight Deck Entry Video Surveillance System - System Test (P/B 501)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Control panel	31-11-91-89V-605	AKS ALL

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Installation Procedure

SUBTASK 23-75-03-865-005

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-03-420-002

- (2) Install the camera control panel as follows:
- Remove the protective cover from the electrical connector [3].
 - Examine the electrical connector [3] for dirt, broken pins, and damage.
 - Connect the electrical connector [3] to the control panel [1].
 - Lower the control panel [1] into the aisle stand.
 - Tighten the captive fasteners [2] on the control panel [1].

SUBTASK 23-75-03-865-006

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-03-710-002

- (4) Do this task: Flight Deck Entry Video Surveillance System - System Test, TASK 23-75-00-730-804.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 23-75-03-840-002

- (1) Remove electrical power if it is not necessary for other tasks. This is the task:



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Remove Electrical Power, TASK 24-22-00-860-812.

———— END OF TASK ——

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VIDEO SWITCH - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) Removal of the video switch.
 - (2) Installation of the video switch.
- B. The video switch, M3001, is installed in a frame, above the ceiling panel, at STA 344, RBL 3.

TASK 23-75-07-000-801

2. Video Switch - Removal

A. General

- (1) The video switch, M3001, is a component of the flight deck entry video system.

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
25-21-71-000-801	Lowered Ceiling Removal (P/B 401)
25-21-71-840-801	Prepare to Remove the Lowered Ceiling Panels (P/B 401)

C. Location Zones

Zone	Area
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right

D. Prepare for Removal

SUBTASK 23-75-07-865-002

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-07-010-001

- (2) Get access to the video switch. Remove the lowered ceiling panel at STA 340, BL3. These are the tasks:

Prepare to Remove the Lowered Ceiling Panels, TASK 25-21-71-840-801, and
Lowered Ceiling Removal, TASK 25-21-71-000-801.

E. Removal Procedure

SUBTASK 23-75-07-865-001

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA



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SUBTASK 23-75-07-800-001

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

- (2) Before you touch the component, do this task:

ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-75-07-030-001

- (3) On the video switch [1], disconnect the electrical connector from the J2 receptacle.

SUBTASK 23-75-07-030-002

- (4) On the video switch [1], disconnect the electrical bond cable from the bond stud.

SUBTASK 23-75-07-020-003

- (5) Remove the four captive screws that attach the video switch [1] to the support, and remove the video switch.

- (a) Put protective covers on the J2 receptacle, and electrical cable connector.

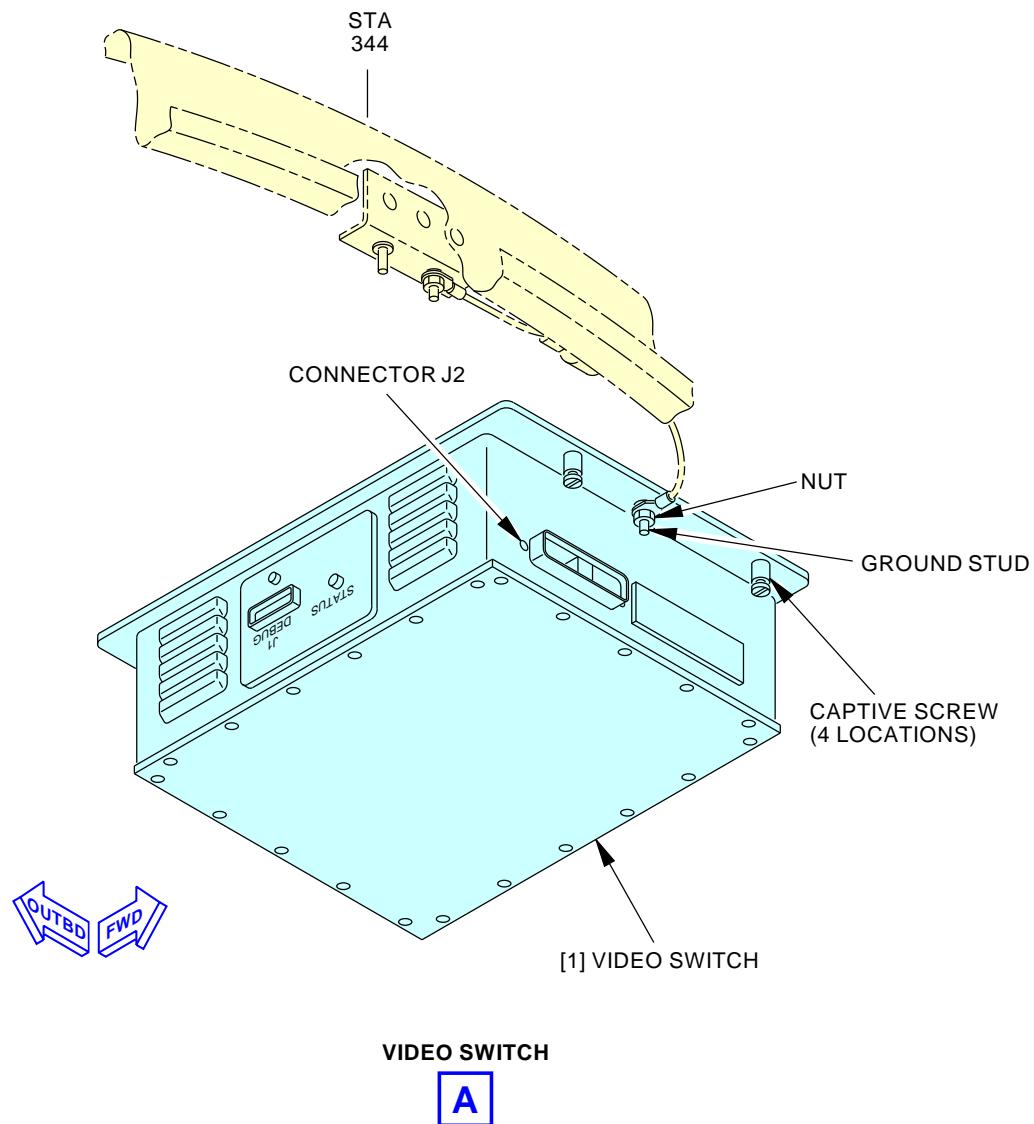
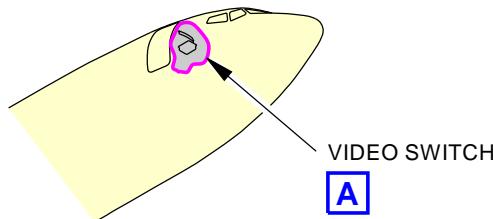
———— END OF TASK ————

EFFECTIVITY
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23-75-07



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1346479 S0000240336_V2

Video Switch Installation
Figure 401/23-75-07-990-802

EFFECTIVITY
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23-75-07



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AIRCRAFT MAINTENANCE MANUAL

TASK 23-75-07-400-801

3. Video Switch - Installation

A. General

- (1) The video switch, M3001, is a component of the flight deck entry video surveillance system (FDEVSS).

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
23-75-00-730-804	Flight Deck Entry Video Surveillance System - System Test (P/B 501)
25-21-71-000-801	Lowered Ceiling Removal (P/B 401)
25-21-71-400-801	Lowered Ceiling Installation (P/B 401)

C. Location Zones

Zone	Area
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right

D. Prepare for Installation

SUBTASK 23-75-07-865-003

- (1) Open this circuit breaker:

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-07-010-002

- (2) Make sure you have access to the installation area at STA 340, RBL3, above the ceiling panel.
(Lowered Ceiling Removal, TASK 25-21-71-000-801).

E. Installation Procedure

SUBTASK 23-75-07-865-004

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-07-800-002

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

- (2) Before you touch the component, do this task:

ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-75-07-420-001

- (3) Put the video switch [1] in the support, and attach with the four captive screws on the base.

SUBTASK 23-75-07-430-001

- (4) On the video switch [1], connect the electrical bonding cable to the bonding stud.

EFFECTIVITY
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23-75-07



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SUBTASK 23-75-07-430-002

- (5) On the video switch [1], connect the electrical connector to the 80-pin J2 receptacle.

SUBTASK 23-75-07-865-005

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-07-710-001

- (7) Do the FDEVSS system test. This is the task:

Flight Deck Entry Video Surveillance System - System Test, TASK 23-75-00-730-804.

F. Put the Airplane Back to its Usual Condition

SUBTASK 23-75-07-410-001

- (1) Install the applicable ceiling panels. This is the task:

Lowered Ceiling Installation, TASK 25-21-71-400-801.

———— END OF TASK ————



23-75-07



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CAMERA CONTROL UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of the video switch.
 - (2) Installation of the video switch.

TASK 23-75-11-000-801

2. Camera Control Unit - Removal

(Figure 401)

A. General

- (1) The camera control units are components of the flight deck entry video surveillance system.

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
25-21-31-420-801	Forward Entry Doorway Sidewall Lining Panel - Removal (P/B 401)
25-21-71-000-801	Lowered Ceiling Removal (P/B 401)
25-21-71-840-801	Prepare to Remove the Lowered Ceiling Panels (P/B 401)

C. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right

D. Prepare for Removal

SUBTASK 23-75-11-865-001

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-11-010-001

- (2) Get access to each camera control unit to be removed. These are the tasks:

Prepare to Remove the Lowered Ceiling Panels, TASK 25-21-71-840-801, and

Lowered Ceiling Removal, TASK 25-21-71-000-801.

Forward Entry Doorway Sidewall Lining Panel - Removal, TASK 25-21-31-420-801

E. Removal Procedure

SUBTASK 23-75-11-865-002

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA



23-75-11



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SUBTASK 23-75-11-869-001

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

- (2) Before you touch the component, do this task:

ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-75-11-030-001

- (3) Disconnect the camera electrical connector from the camera control unit [1].

SUBTASK 23-75-11-030-002

- (4) Disconnect connector D12491 from the camera control unit [1]

SUBTASK 23-75-11-020-001

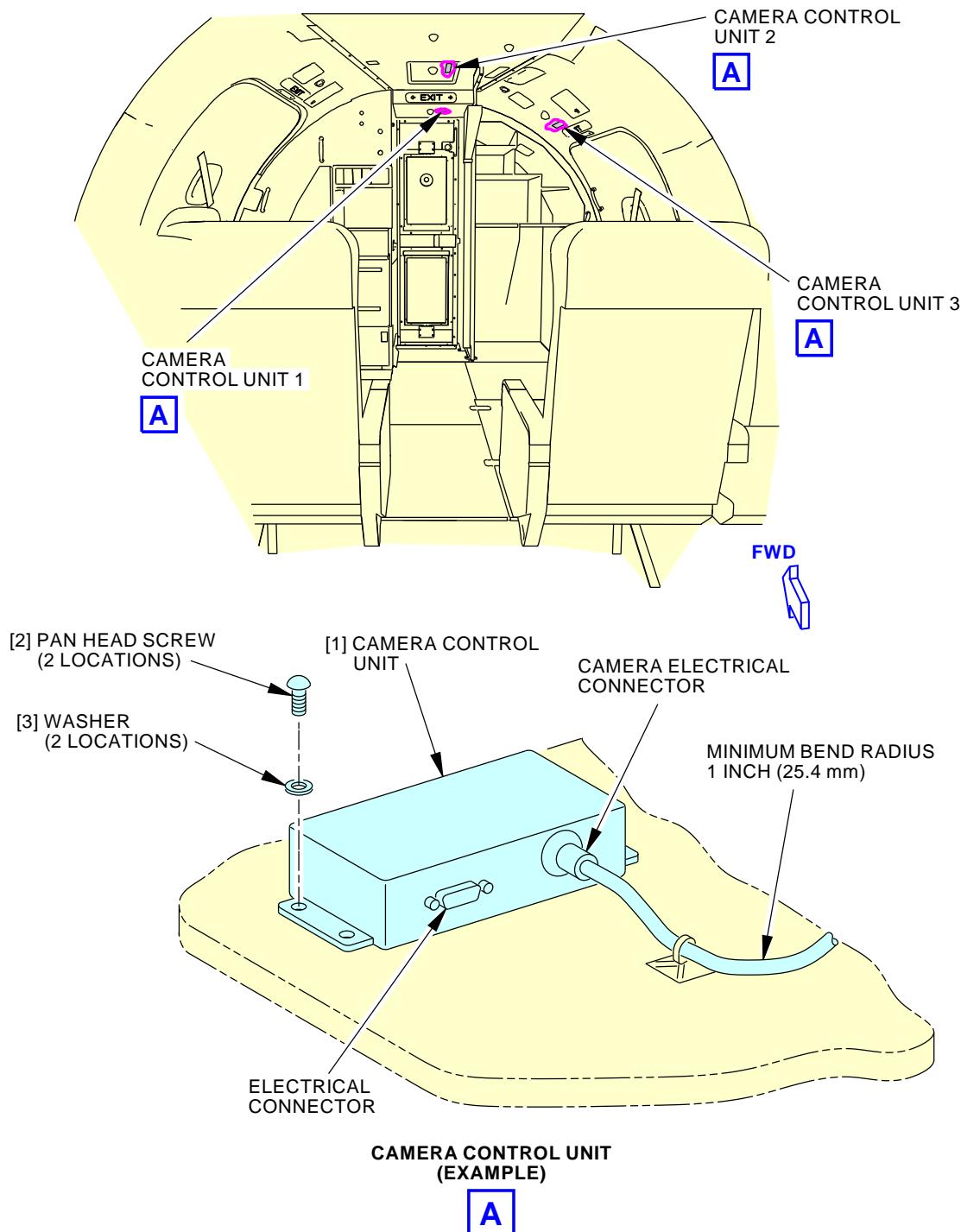
- (5) Remove the two pan head screws [2] and two washers [3], and then remove the camera control unit [1] from the panel.

- (a) Put protective covers on the wire connectors, and CCU receptacles.

———— END OF TASK ————

EFFECTIVITY
AKS ALL

23-75-11



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Camera Control Unit Installation
Figure 401/23-75-11-990-801

EFFECTIVITY
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23-75-11



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TASK 23-75-11-400-801

3. Camera Control Unit - Installation

Figure 401

A. General

- (1) The three camera control units, M3005, M3007, and M3009, are components of the flight deck entry video surveillance system.

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
23-75-00-730-804	Flight Deck Entry Video Surveillance System - System Test (P/B 501)
25-21-31-420-801	Forward Entry Doorway Sidewall Lining Panel - Removal (P/B 401)
25-21-31-420-802	Forward Entry Doorway Sidewall Lining Panel - Installation (P/B 401)
25-21-71-000-801	Lowered Ceiling Removal (P/B 401)
25-21-71-000-805	Close Out Panel Removal, Forward Lowered Ceiling (P/B 401)
25-21-71-400-801	Lowered Ceiling Installation (P/B 401)
25-21-71-400-805	Close Out Panel Installation, Forward Lowered Ceiling (P/B 401)

C. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right

D. Prepare for Installation

SUBTASK 23-75-11-865-003

- (1) Open this circuit breaker:

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-11-010-002

- (2) Get access to the applicable camera control unit [1]. These are the tasks:

Lowered Ceiling Removal, TASK 25-21-71-000-801,

Close Out Panel Removal, Forward Lowered Ceiling, TASK 25-21-71-000-805,

Forward Entry Doorway Sidewall Lining Panel - Removal, TASK 25-21-31-420-801.

E. Installation Procedure

SUBTASK 23-75-11-865-004

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA



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SUBTASK 23-75-11-869-002

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

- (2) Before you touch the electrical components, do this task:

ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-75-11-420-001

CAUTION: DO NOT PULL, TWIST, OR BEND THE CAMERA CABLE MORE THAN THE MINIMUM RADIUS OF 1 IN. (25 MM). IF YOU BEND, PULL, OR TWIST THE CABLE TOO MUCH, DAMAGE TO THE CABLE CAN OCCUR.

- (3) Install the illuminator. These are the steps:

- (a) Put the camera control unit [1] against the far-side of the applicable ceiling panel, or doorway liner, and align with the insert holes. Attach with two pan head screws [2] and two washers [3].

SUBTASK 23-75-11-430-001

- (4) Connect the camera electrical camera to the camera control unit [1].

SUBTASK 23-75-11-430-002

- (5) Connect the applicable electrical connector, D12491, D12493, or D12495, to the camera control unit [1].

SUBTASK 23-75-11-865-005

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-11-710-001

- (7) Make sure that all three camera control units operate correctly. Do this task: Flight Deck Entry Video Surveillance System - System Test, TASK 23-75-00-730-804.

F. Put the Airplane Back to its Usual Condition

SUBTASK 23-75-11-410-001

- (1) If access for additional tasks is not required, install the applicable ceiling and close-out panels, or door liners. These are the tasks:

Lowered Ceiling Installation, TASK 25-21-71-400-801,

Close Out Panel Installation, Forward Lowered Ceiling, TASK 25-21-71-400-805,

Forward Entry Doorway Sidewall Lining Panel - Installation, TASK 25-21-31-420-802.

———— END OF TASK ————



23-75-11



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ILLUMINATOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) Removal of the three infrared illuminators.
 - (2) Installation of the three infrared illuminators.
- B. One illuminator is installed adjacent to each video camera. These are the locations:
 - (1) Illuminator 1, M3006, is above the ceiling panel at approximately STA 292, RBL 2, WL 285.
 - (2) Illuminator 2, M3008, is surface-mounted to the ceiling panel, at approximately STA 340, LBL2, WL 289.
 - (3) Illuminator 3, M3010, is surface-mounted to the door liner, at approximately STA 301, RBL 21, WL 286.

TASK 23-75-12-000-801

2. Illuminator - Removal

(Figure 401)

A. General

- (1) The illuminators are components of the flight deck entry video surveillance system.
- (2) To remove the illuminator from the support, you must cut the wires on the aircraft-side of the splice.

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
25-21-31-420-801	Forward Entry Doorway Sidewall Lining Panel - Removal (P/B 401)
25-21-71-000-801	Lowered Ceiling Removal (P/B 401)
25-21-71-840-801	Prepare to Remove the Lowered Ceiling Panels (P/B 401)

C. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right

D. Prepare for Removal

SUBTASK 23-75-12-865-001

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-12-010-001

- (2) Make sure you have access to the applicable illuminator, support, and connector splice. These are the tasks:

Prepare to Remove the Lowered Ceiling Panels, TASK 25-21-71-840-801, and
Lowered Ceiling Removal, TASK 25-21-71-000-801, and

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Forward Entry Doorway Sidewall Lining Panel - Removal, TASK 25-21-31-420-801.

E. Removal Procedure

SUBTASK 23-75-12-865-002

- (1) 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

SUBTASK 23-75-12-869-001

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

- (2) Before you touch the component, do this task:

ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-75-12-030-001

- (3) To remove the illuminator adjacent to camera 1, do the steps that follow:

- (a) From above the ceiling panel, remove two self-locking nuts [2] and two washers [3] that attach the illuminator to the support [6].
- (b) Cut the illuminator cable on each side of the splice connector.
 - 1) Discard the splice connector.
- (c) From below the support, remove the illuminator with the attached wire.

SUBTASK 23-75-12-030-002

- (4) To remove the illuminator adjacent to camera 2, do the steps that follow:

- (a) Remove two screws [8] that attach the support [9] to the panel.
- (b) Remove two self-locking nuts [2] and two washers [3] that attach the illuminator to the support [9].
- (c) Cut the illuminator cable on each side of the splice.
 - 1) Discard the splice connector.
- (d) Remove the illuminator [1] and wire from the support [9].

SUBTASK 23-75-12-030-003

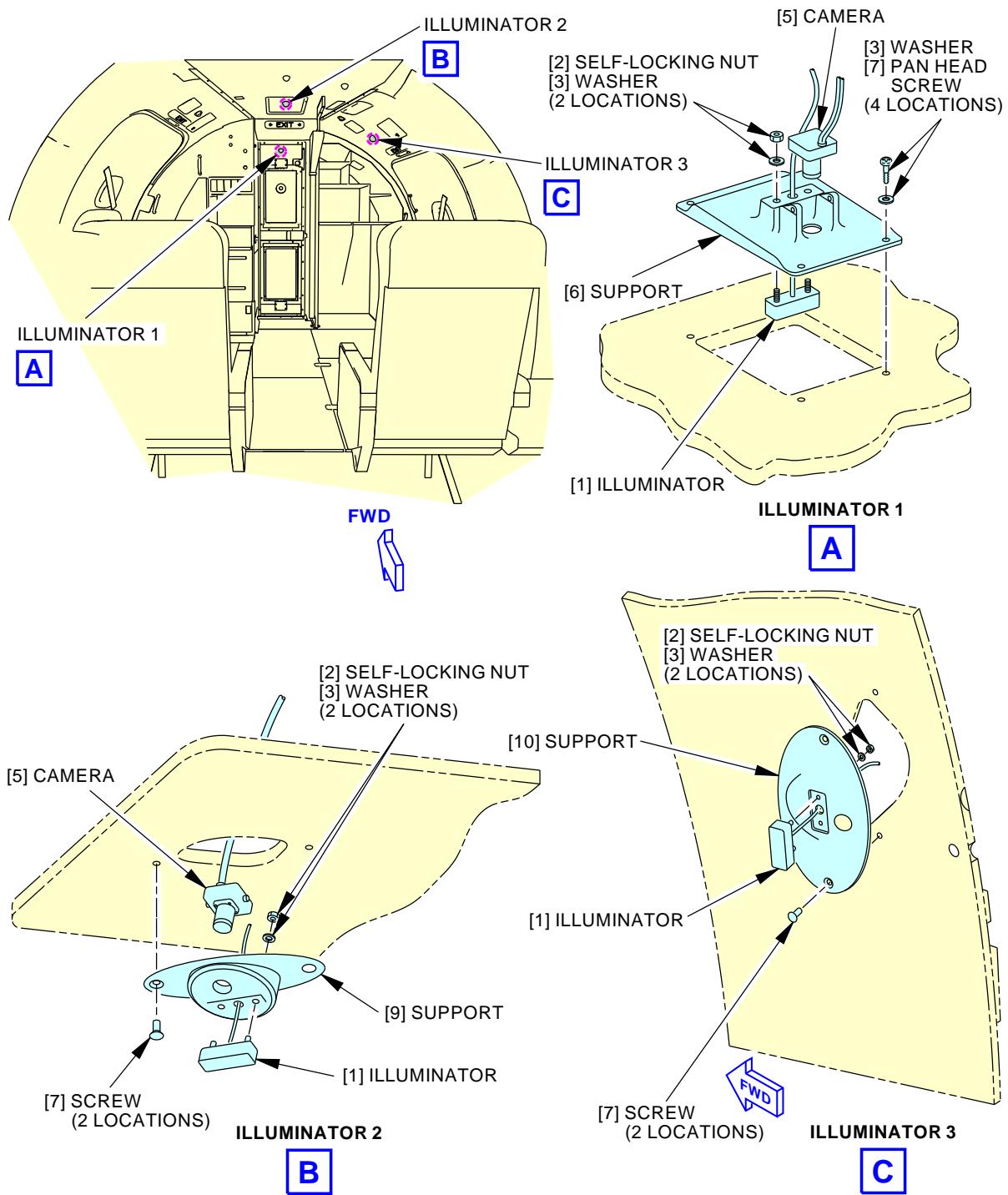
- (5) To remove the illuminator adjacent to camera 3, do the steps that follow:

- (a) Remove two screws [8] that attach the support [10] to the panel.
- (b) Remove two self-locking nuts [2] and two washers [3] that attach the illuminator to the support [10].
- (c) Cut the illuminator cable on each side of the splice.
 - 1) Discard the splice connector.
- (d) Remove the illuminator [1] and wire from the support [10].

———— END OF TASK ————



23-75-12

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**Illuminator Installation
Figure 401/23-75-12-990-801**

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TASK 23-75-12-400-801

3. Illuminator - Installation

(Figure 401)

A. General

- (1) The three illuminators, M3006, M3008, and M3010, are components of the flight deck entry video surveillance system.
- (2) You must install a new electrical splice on the illuminator after the cable is fed through the support.

B. References

Reference	Title
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
23-75-00-730-804	Flight Deck Entry Video Surveillance System - System Test (P/B 501)
25-21-31-420-801	Forward Entry Doorway Sidewall Lining Panel - Removal (P/B 401)
25-21-31-420-802	Forward Entry Doorway Sidewall Lining Panel - Installation (P/B 401)
25-21-71-000-805	Close Out Panel Removal, Forward Lowered Ceiling (P/B 401)
25-21-71-400-801	Lowered Ceiling Installation (P/B 401)
25-21-71-400-805	Close Out Panel Installation, Forward Lowered Ceiling (P/B 401)
25-21-71-840-801	Prepare to Remove the Lowered Ceiling Panels (P/B 401)
SWPM 20-30-12	Assembly of Splices

C. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right

D. Prepare for Installation

SUBTASK 23-75-12-865-004

- (1) Open this circuit breaker:

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-12-010-002

- (2) Make sure you have access to the illuminator splice connector, behind the applicable ceiling panel or door liner, for each illuminator to be installed. These are the tasks:
Prepare to Remove the Lowered Ceiling Panels, TASK 25-21-71-840-801,
Close Out Panel Removal, Forward Lowered Ceiling, TASK 25-21-71-000-805,
Forward Entry Doorway Sidewall Lining Panel - Removal, TASK 25-21-31-420-801.



23-75-12



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E. Installation Procedure

SUBTASK 23-75-12-865-003

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-12-869-002

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

- (2) Before you touch the component, do this task:

ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 23-75-12-420-001

CAUTION: DO NOT PULL, TWIST, OR BEND THE CAMERA CABLE MORE THAN THE MINIMUM RADIUS OF 1 IN. (25 MM). IF YOU BEND, PULL, OR TWIST THE CABLE TOO MUCH, DAMAGE TO THE CABLE CAN OCCUR.

- (3) Install the illuminator. These are the steps:

- From the appearance-side of the support, insert the illuminator cable through center hole, and seat the illuminator [1] completely against the support, with the two mounting studs inserted through the attachment holes.
- From the far-side of the support, attach the illuminator [1] to the support with two washers [3] and self-locking nuts [2].
- Connect the illuminator wires to the aircraft wiring with two splices [4], (SWPM 20-30-12).
NOTE: 24V dc (volts direct current) from the VS goes to RED.
- If applicable, install the support to the ceiling panel.

SUBTASK 23-75-12-865-005

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01641	SURVEILLANCE CAMERA

SUBTASK 23-75-12-710-001

- (5) Make sure that all three illuminators operate correctly. Do this task: Flight Deck Entry Video Surveillance System - System Test, TASK 23-75-00-730-804.

F. Put the Airplane Back to its Usual Condition

SUBTASK 23-75-12-410-001

- (1) If access for additional tasks is not required, install the applicable ceiling and close-out panels, or door liners. These are the tasks:

Lowered Ceiling Installation, TASK 25-21-71-400-801,

Close Out Panel Installation, Forward Lowered Ceiling, TASK 25-21-71-400-805,

Forward Entry Doorway Sidewall Lining Panel - Installation, TASK 25-21-31-420-802.

———— END OF TASK ————

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FLIGHT COMPARTMENT PC POWER SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains an operational test for the Flight Compartment PC Power System. Do this test when you replace a PC Power System component.

TASK 23-82-00-710-801

2. Flight Compartment PC Power System - Operational Test

A. References

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

B. Location Zones

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

C. Procedure

SUBTASK 23-82-00-861-001

- (1) Supply Electrical Power, TASK 24-22-00-860-811

SUBTASK 23-82-00-865-001

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
A	3	C01643	FD - PC POWER

SUBTASK 23-82-00-200-002

- (3) Do the steps that follow:

- (a) Lift up the Outlet unit LED cover.
- (b) Examine the outlet unit LEDs on the P6 and P18 panels.
- (c) Make sure that the outlet unit status LEDs are on and green in color. This shows that there were no faults during the BITE test.

———— END OF TASK ————

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OUTLET UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) The removal of an outlet unit.
 - (2) The installation of an outlet unit.
- B. The outlet units are installed on the P6 and P18 panels, behind the captain and first officer seats.

TASK 23-82-01-000-801

2. Outlet Unit Removal

Figure 401

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Removal Procedure

SUBTASK 23-82-01-865-001

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01643	FD - PC POWER

SUBTASK 23-82-01-020-001

- (2) Do these steps to remove the outlet unit (OU) [1] from the P6 or P18 panel:

- (a) Remove the cover plate from the panel:

- 1) Remove the fasteners that attach the cover plate to the panel.
 - 2) Pull the cover plate out of the panel surface.

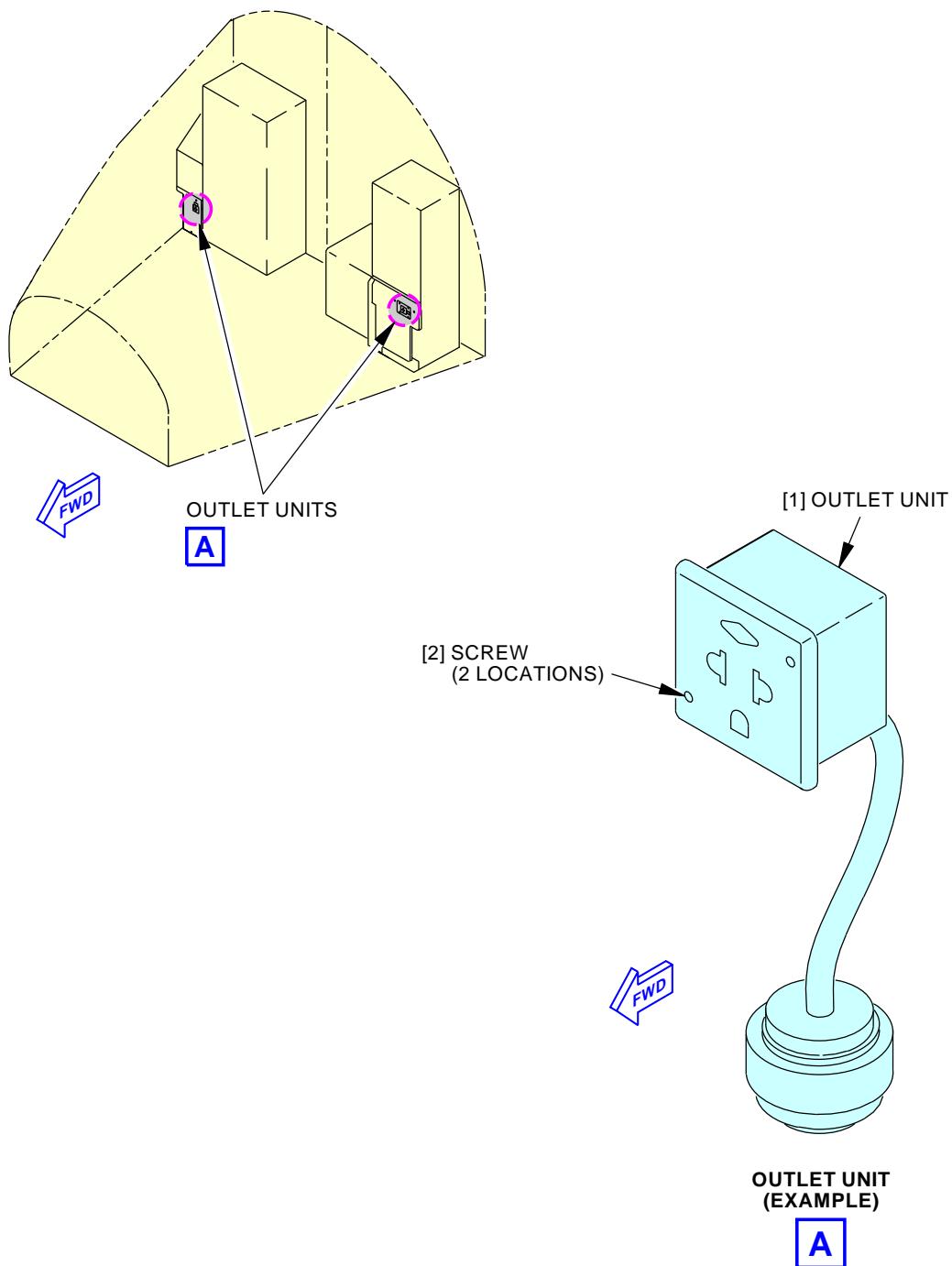
NOTE: Do not pull out too hard, the wires are still attached to the back of the outlet.

- (b) Disconnect the electrical connectors.
 - (c) Put protective covers on the electrical connectors.
 - (d) Lift the outlet unit LED cover flap.
 - (e) Loosen the screws [2] on the front panel of the OU [1].
 - (f) Remove the OU [1] from the cover plate.

———— END OF TASK ————



23-82-01



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Outlet Unit Installation
Figure 401/23-82-01-990-801

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23-82-01

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TASK 23-82-01-400-801

3. Outlet Unit Installation

Figure 401

A. References

Reference	Title
23-82-00-710-801	Flight Compartment PC Power System - Operational Test (P/B 501)

B. Location Zones

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

C. Installation Procedure

SUBTASK 23-82-01-865-002

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
A	3	C01643	FD - PC POWER

SUBTASK 23-82-01-400-001

- (2) Do the steps that follow to install the outlet unit (OU) [1]:

- (a) Attach the OU [1] to the cover plate:

- 1) Lift the outlet unit LED cover flap.
- 2) Put the OU [1] into the cutout in the cover plate.
- 3) Tighten the screws [2] on the front panel of the OU [1] to 5 ± 1 in-lb (1 ± 1 N·m).

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

- (b) Remove the electrical connector covers.
(c) Connect the electrical connectors to the OU [1].
(d) Install the cover plate to the panel.

- 1) Install the fasteners.

SUBTASK 23-82-01-865-003

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
A	3	C01643	FD - PC POWER

D. Installation Test

SUBTASK 23-82-01-710-001

- (1) Do an operational test of the PC power system:

- (a) Do this task: Flight Compartment PC Power System - Operational Test, TASK 23-82-00-710-801.

———— END OF TASK ————

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IN-SEAT POWER SUPPLY - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) The removal of an In-Seat Power Supply (ISPS).
 - (2) The installation of an In-Seat Power Supply (ISPS).
- B. The ISPS is installed in the EE bay.

TASK 23-82-02-000-801

2. In-Seat Power Supply Removal

Figure 401

A. Location Zones

<u>Zone</u>	<u>Area</u>
118	Electrical and Electronics Compartment - Right

B. Removal Procedure

SUBTASK 23-82-02-865-001

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01643	FD - PC POWER

SUBTASK 23-82-02-010-001

- (2) Remove the floor panel in the EE compartment to get access to the ISPS [1]:
 - (a) Remove the fasteners.
 - (b) Remove the floor panel.

SUBTASK 23-82-02-020-001

- (3) Do the steps that follow to remove the ISPS [1]:

CAUTION: DO NOT TOUCH THE ELECTRICAL CONNECTOR CONTACT PINS. STATIC ELECTRICAL CHARGES THAT COLLECT ON THE SKIN CAN CAUSE DAMAGE TO THE ELECTROSTATIC SENSITIVE COMPONENTS INSTALLED IN THIS DEVICE.

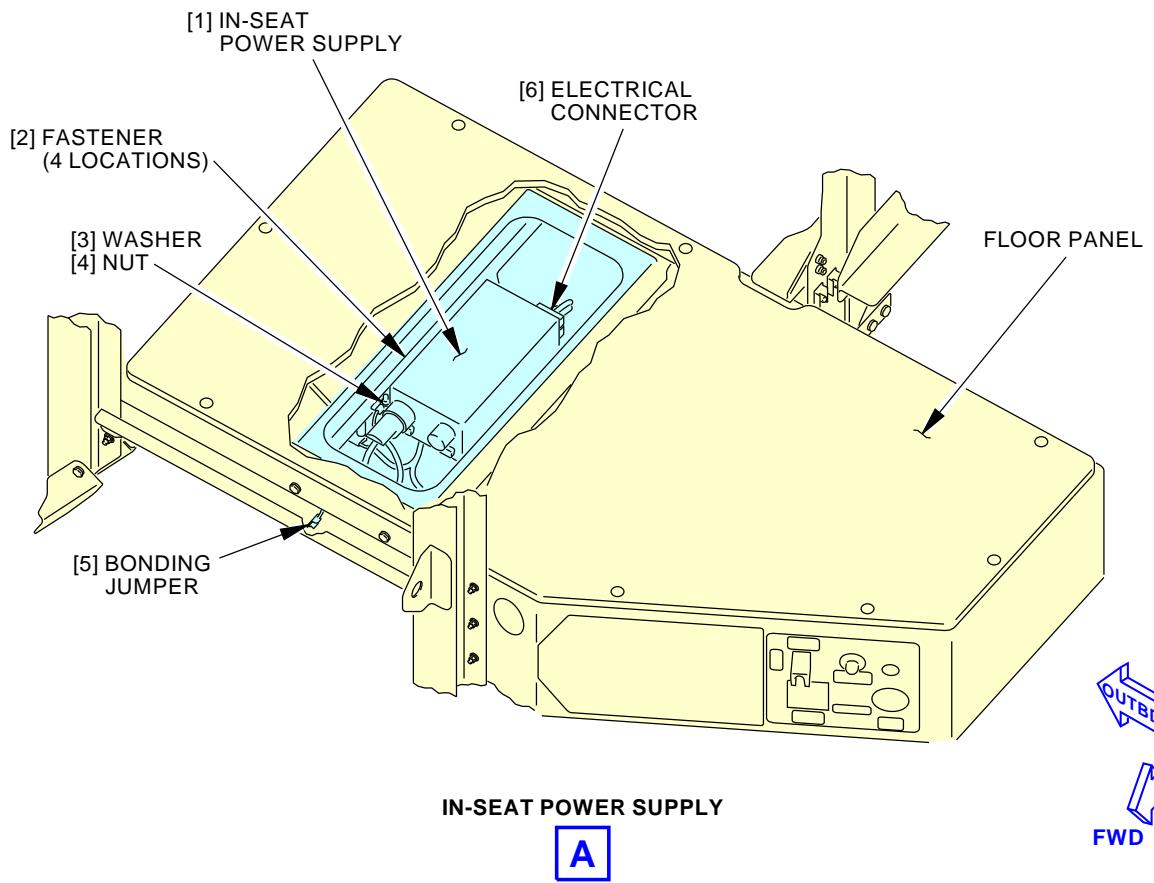
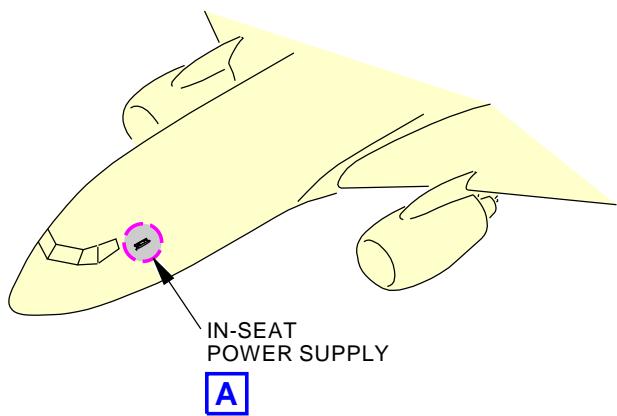
- (a) Disconnect the electrical connectors [6] from the ISPS [1].
- (b) Disconnect the bonding jumper [5] from the ISPS [1]:
 - 1) Remove the nut [4] and washer [3] that attach the bonding jumper [5] to the ISPS [1].
 - 2) Keep the nut [4] and washer [3] for ISPS installation.
- (c) While you hold the ISPS [1], pull the quick release fasteners [2].
- (d) Remove the ISPS [1] from the mounting bracket.
- (e) If termination plugs are installed, remove and keep the termination plugs.
- (f) Put protective covers on the electrical connectors [6].

———— END OF TASK ————

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In-Seat Power Supply Installation
Figure 401/23-82-02-990-801

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AIRCRAFT MAINTENANCE MANUAL

TASK 23-82-02-400-801

3. In-Seat Power Supply Installation

Figure 401

A. References

Reference	Title
23-82-00-710-801	Flight Compartment PC Power System - Operational Test (P/B 501)
SWPM 20-20-00	Standard Wiring Practices Manual

B. Tools/Equipment

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

Reference	Description
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. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Installation Procedure

SUBTASK 23-82-02-865-002

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

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
A	3	C01643	FD - PC POWER

SUBTASK 23-82-02-420-001

- (2) Do the steps that follow to install the ISPS [1]:

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

- (a) Remove the electrical connector covers.
- (b) Examine the electrical connectors [6] for bent or broken pins, dirt, and damage.
- (c) Put the ISPS [1] in the correct position and lock the quick release fasteners [2.]
- (d) Connect the electrical connectors [6] to the ISPS [1].
- (e) Connect the bonding jumper [5] to the ISPS [1]:
 - 1) Install the washer [3] and nut [4].
 - 2) Use a intrinsically safe approved bonding meter, COM-1550 to measure the resistance between the ISPS [1] and the airplane structure (SWPM 20-20-00).
 - a) Make sure that the resistance is not more than 0.0025 ohms.

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SUBTASK 23-82-02-865-003

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

F/O Electrical System Panel, P6-12

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	3	C01643	FD - PC POWER

E. Installation Test

SUBTASK 23-82-02-710-001

- (1) Do the Operational Test for the Flight Compartment PC Power system.
(a) Do this task: Flight Compartment PC Power System - Operational Test, TASK 23-82-00-710-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 23-82-02-410-001

- (1) Install the floor panel that you removed for access:
(a) Install the fasteners.

———— END OF TASK ————

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