CHAPTER 24

ELECTRICAL POWER

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

24-EFFECTIVE PAGES

CHAPTER 24
ELECTRICAL POWER

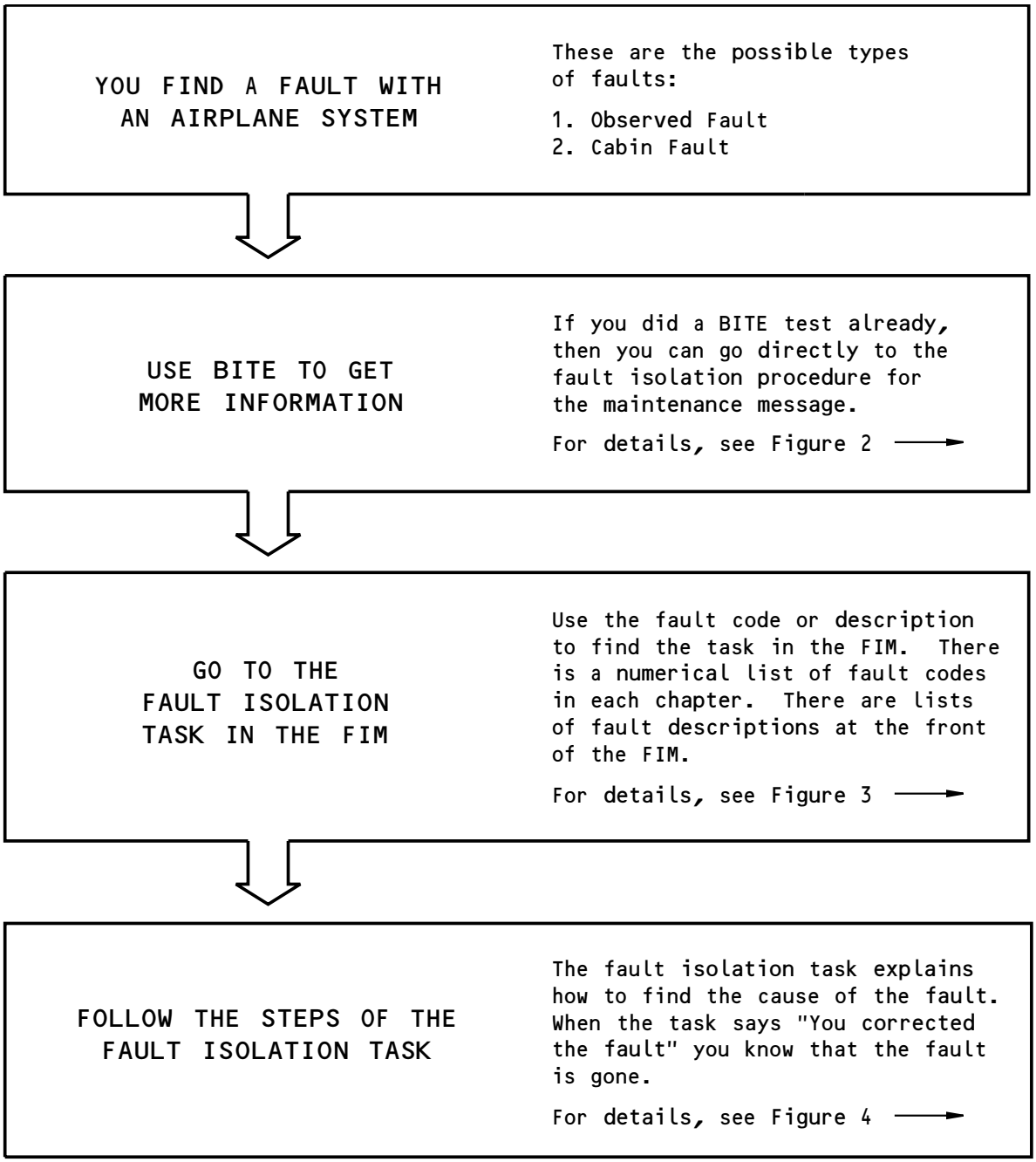
Subject/Page	Date	COC
24-21 TASKS (cont)		
280	Oct 15/2022	
281	Oct 15/2022	
282	Oct 15/2022	
283	Jun 15/2024	
284	Jun 15/2024	
285	Jun 15/2024	
286	Oct 15/2022	
287	Oct 15/2022	
288	BLANK	
24-31 TASKS		
R 201	Oct 15/2024	
202	Feb 15/2023	
203	Feb 15/2013	
204	Feb 15/2013	
R 205	Oct 15/2024	
O 206	Oct 15/2024	
R 207	Oct 15/2024	
R 208	Oct 15/2024	
R 209	Oct 15/2024	
R 210	Oct 15/2024	
R 211	Oct 15/2024	
R 212	Oct 15/2024	
R 213	Oct 15/2024	
214	Oct 15/2023	
215	Oct 15/2023	
216	Oct 15/2023	
217	Oct 15/2023	
218	Oct 15/2023	
219	Oct 15/2023	
220	Oct 15/2023	
221	Oct 15/2023	
R 222	Oct 15/2024	
R 223	Oct 15/2024	
O 224	Oct 15/2024	
O 225	Oct 15/2024	
O 226	Oct 15/2024	

Subject/Page	Date	COC
24-31 TASKS (cont)		
O 227	Oct 15/2024	
O 228	Oct 15/2024	
R 229	Oct 15/2024	
230	Jun 15/2024	
R 231	Oct 15/2024	
232	Jun 15/2024	
233	Jun 15/2024	
234	Jun 15/2024	
R 235	Oct 15/2024	
O 236	Oct 15/2024	
R 237	Oct 15/2024	
R 238	Oct 15/2024	
O 239	Oct 15/2024	
R 240	Oct 15/2024	
R 241	Oct 15/2024	
242	BLANK	
24-34 TASKS		
201	Oct 15/2020	
202	Oct 15/2020	
203	Oct 15/2020	
204	Oct 15/2020	
R 205	Oct 15/2024	
R 206	Oct 15/2024	
207	Jun 15/2019	
208	Jun 15/2019	
R 209	Oct 15/2024	
210	BLANK	
24-41 TASKS		
201	Oct 15/2021	
202	Oct 15/2021	
203	Feb 15/2013	
204	Feb 15/2013	
205	Oct 15/2016	
206	Oct 15/2022	
207	Jun 15/2019	
208	Jun 15/2019	
209	Jun 15/2019	

Subject/Page	Date	COC
24-41 TASKS (cont)		
210	Jun 15/2019	
211	Jun 15/2019	
212	Jun 15/2019	
213	Jun 15/2019	
214	Jun 15/2019	
215	Jun 15/2019	
216	Jun 15/2019	

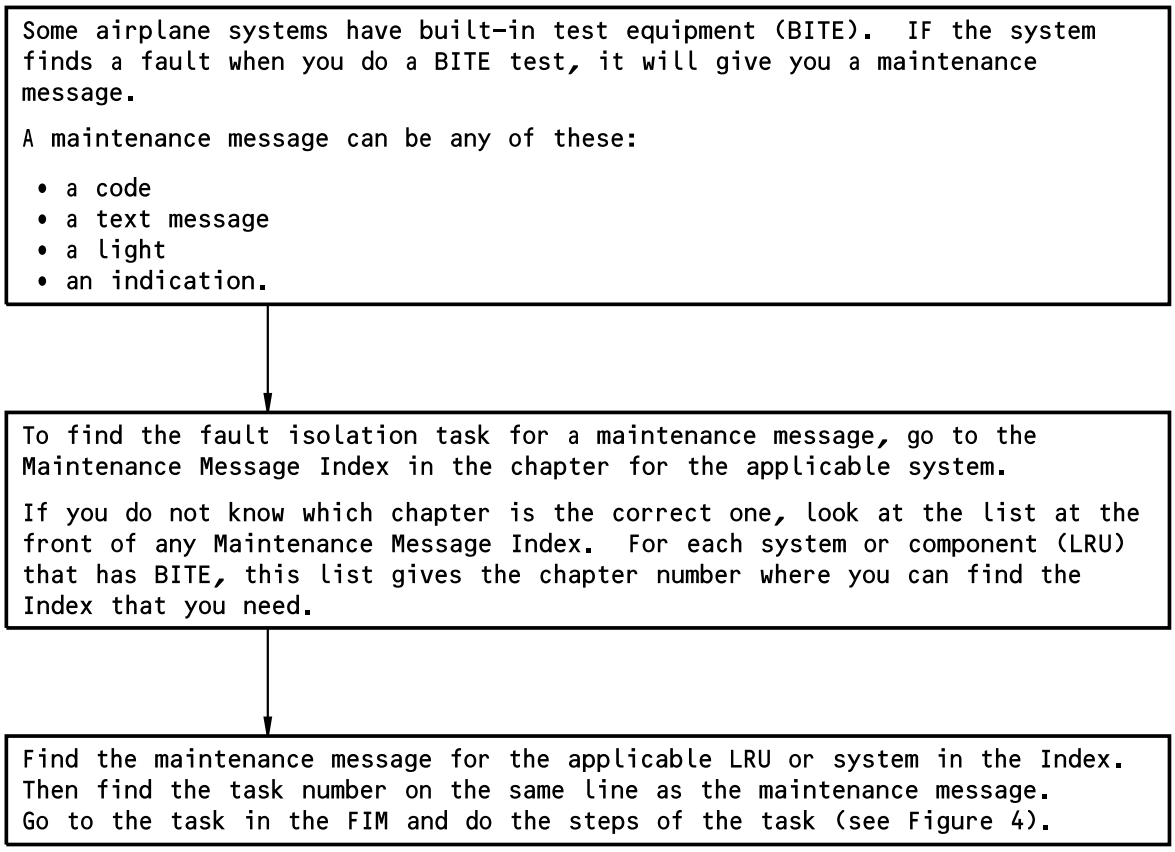
A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

24-EFFECTIVE PAGES



G04902 S0000148576_V1

Basic Fault Isolation Process
Figure 1



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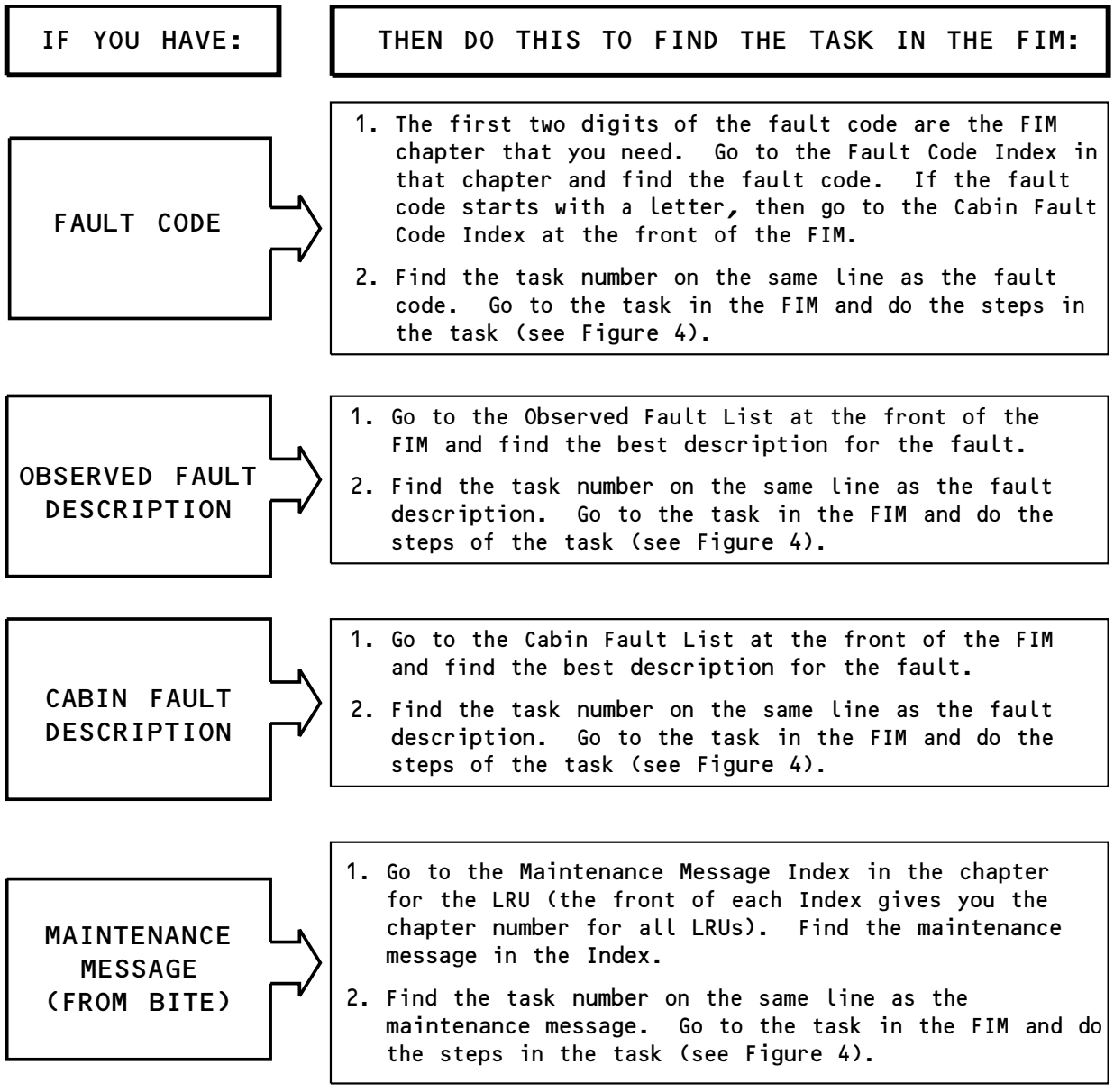
Getting Fault Information from BITE
Figure 2



G04979 S0000148579_V2

Finding the Fault Isolation Task in the FIM
Figure 3

ASSUMED CONDITIONS AT START OF TASK

- External electrical power is ON
- Hydraulic power and pneumatic power are OFF
- Engines are shut down
- No equipment in the system is deactivated

POSSIBLE CAUSES

- The list of possible causes has the most likely cause first and the least likely cause last.
- You can use the maintenance records of your airline to determine if the fault occurred before. Compare the list of possible causes to the past maintenance actions. This will help prevent repetition of the same maintenance actions.

INITIAL EVALUATION PARAGRAPH

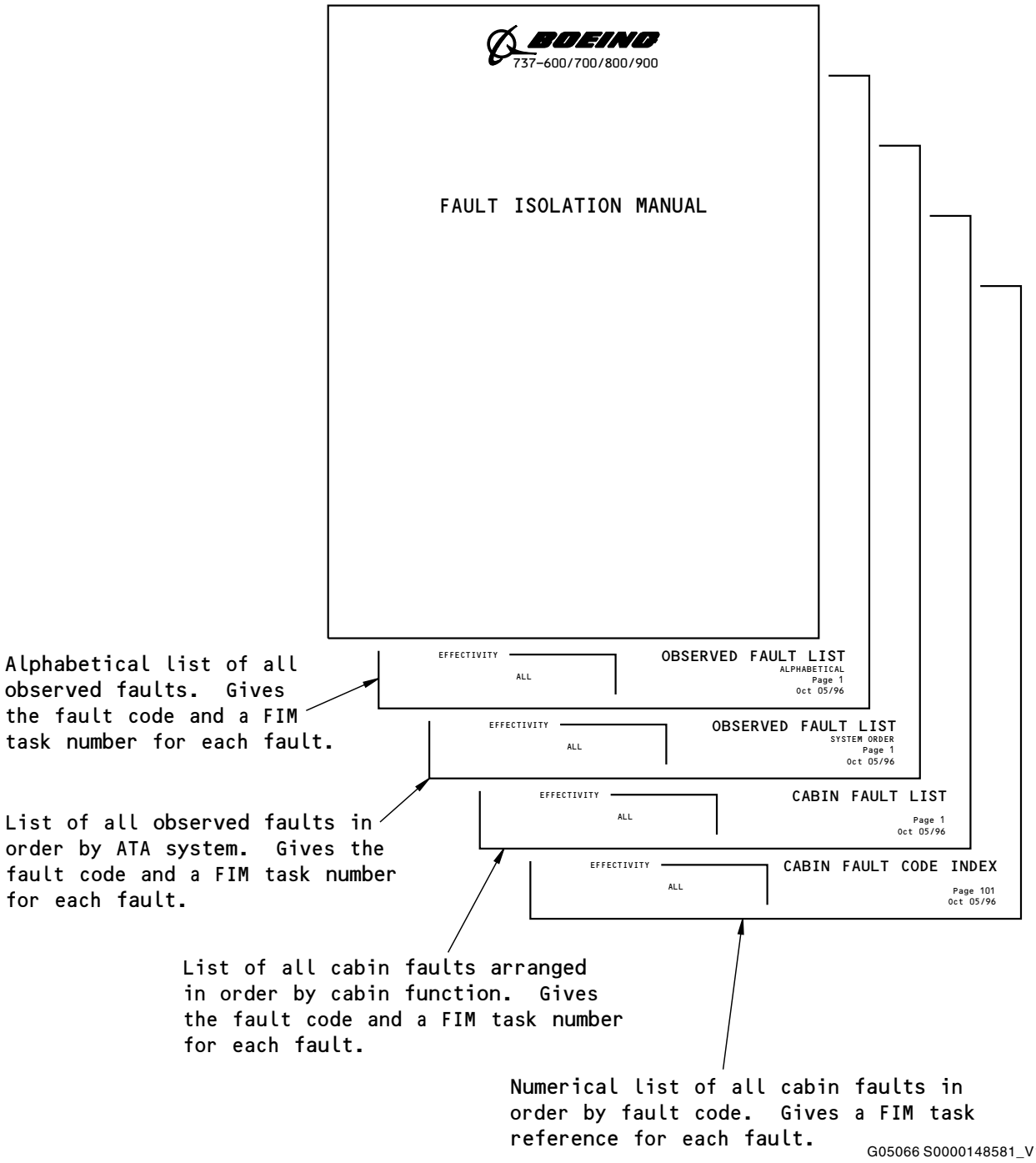
- The primary purpose of the Initial Evaluation paragraph at the start of the task is to help you find out if you can detect the fault right now:
  - If you cannot detect the fault right now, then the task cannot isolate the fault and the Initial Evaluation paragraph will say that there was an intermittent fault.
  - If you have an intermittent fault, you must use your judgement (and follow your airline's policy) to decide which maintenance action to take. Then monitor the airplane to see if the fault happens again on subsequent flights.
- The Initial Evaluation paragraph can also help you find out which Fault Isolation Procedure to use to isolate and correct the fault.

FAULT ISOLATION STEPS

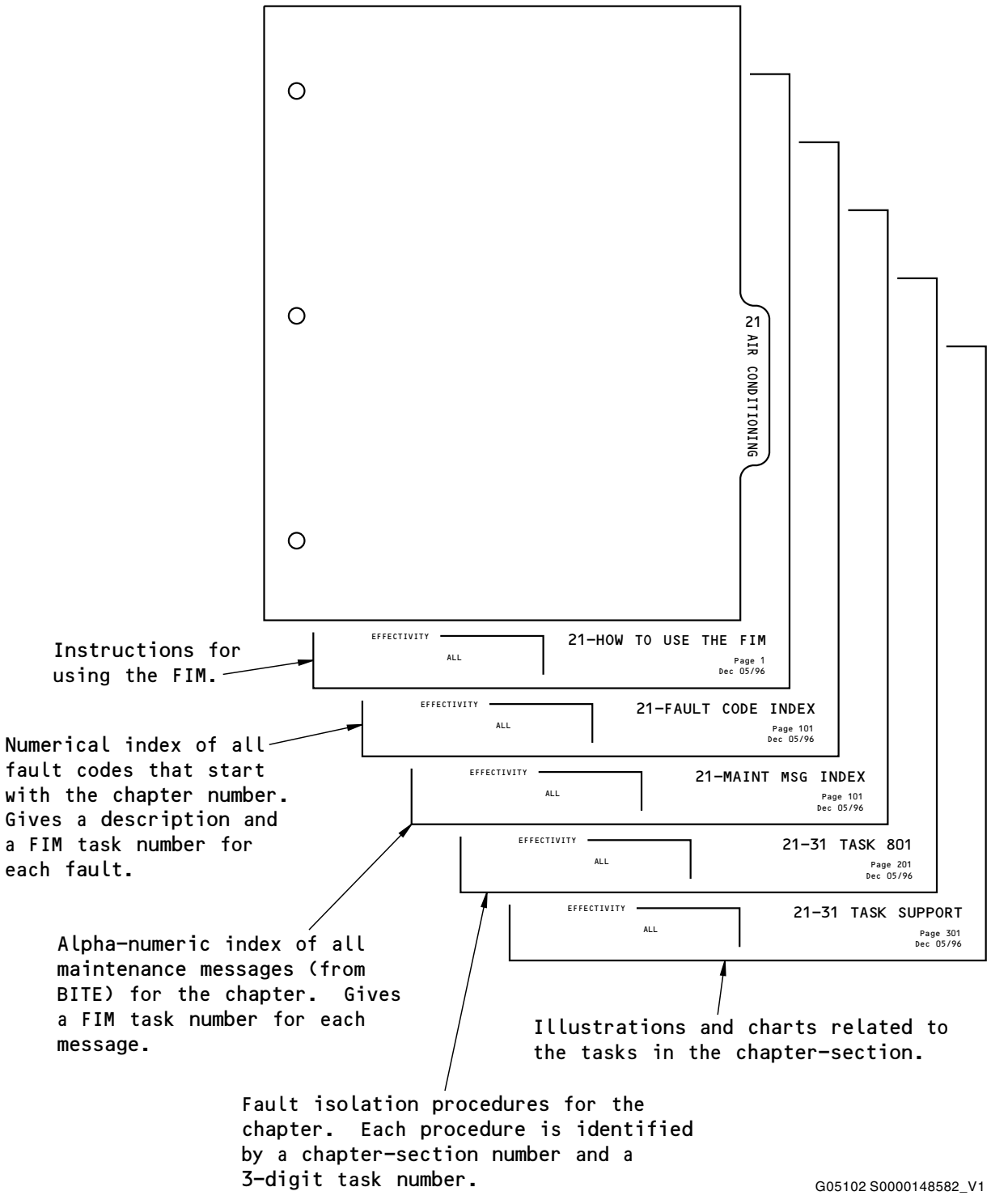
- The FIM task steps are presented in a specified order. The "If... then" statements will guide you along a logical path. But if you do not plan to follow the FIM task exactly, make sure that you read it before you start to isolate the fault. Some FIM procedures start with important steps that have an effect on the other steps in the procedure.
- When you are at the endpoint of the path, the step says "...you corrected the fault." Complete the step and exit the procedure.

G05009 S0000148580_V3

Doing the Fault Isolation Task
Figure 4



Subjects at Front of FIM
Figure 5



Subjects in Each FIM Chapter
Figure 6

FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
241 010 01	AC Generator Drive System: DRIVE Light is illuminated - GEN-1.	24-11 TASK 801
241 010 02	AC Generator Drive System: DRIVE Light is illuminated - GEN-2.	24-11 TASK 802
241 011 01	AC Generator Drive System: Red DPI Button is extended - GEN-1.	24-11 TASK 803
241 011 02	AC Generator Drive System: Red DPI Button is extended - GEN-2.	24-11 TASK 803
241 012 01	AC Generator Drive System: DRIVE Light is not illuminated - GEN-1.	24-11 TASK 804
241 012 02	AC Generator Drive System: DRIVE Light is not illuminated - GEN-2.	24-11 TASK 805
242 040 01	SOURCE OFF and GEN OFF BUS lights: lights on with IDG 1 and IDG 2 on line - no. 1.	24-21 TASK 801
242 040 02	SOURCE OFF and GEN OFF BUS lights: lights on with IDG 1 and IDG 2 on line - no. 2.	24-21 TASK 801
242 045 00	APU generator will not come on line.	24-21 TASK 820
242 050 00	APU GEN OFF BUS light: light on with APU generator on line.	24-21 TASK 801
242 060 01	TRANSFER BUS OFF and SOURCE OFF lights: lights on with the APU generator on line - no. 1.	24-21 TASK 801
242 060 02	TRANSFER BUS OFF and SOURCE OFF lights: lights on with the APU generator on line - no. 2.	24-21 TASK 801
242 070 01	TRANSFER BUS OFF light: flickers with IDG on line - generator 1.	24-21 TASK 818
242 070 02	TRANSFER BUS OFF light: flickers with IDG on line - generator 2.	24-21 TASK 819
242 075 00	TRANSFER BUS OFF light: comes on.	24-21 TASK 822
242 080 00	Generator SOURCE OFF light: light comes on and the transfer bus is not energized from the selected power source.	24-21 TASK 823
242 080 01	Generator SOURCE OFF light: light comes on but no fault light on GCU is on - GEN 1 SOURCE OFF light.	24-21 TASK 821
242 080 02	Generator SOURCE OFF light: light comes on but no fault light on GCU is on - GEN 2 SOURCE OFF light.	24-21 TASK 821
242 085 00	IDG comes on line after 20 seconds.	24-21 TASK 824
242 121 41	IDG differential pressure indicator: extended - left.	24-11 TASK 803
242 121 42	IDG differential pressure indicator: extended - right.	24-11 TASK 803
243 010 00	STANDBY PWR OFF light: light on with AC power supplied and STANDBY POWER switch at AUTO or BAT.	24-34 TASK 803
243 020 00	STANDBY PWR OFF light: light on with BAT switch at ON and STANDBY POWER switch at AUTO or BAT.	24-34 TASK 803

FAULT CODE	FAULT DESCRIPTION	GO TO FIM TASK
243 030 00	AC and DC metering panel: has missing segments.	24-31 TASK 827
243 040 00	TR UNIT light: light on.	24-31 TASK 826
243 050 00	ELEC light: light on.	24-31 TASK 801
243 121 00	BATTERY DISCHARGE light: comes on during flight.	24-31 TASK 833
243 131 00	Battery charger: CHARGER light flashes - main battery charger.	24-31 TASK 834
243 132 00	Battery charger: CHARGER light flashes - auxiliary battery charger.	24-31 TASK 835
244 010 01	TRANSFER BUS OFF and SOURCE OFF lights: lights on with GRD PWR switch at ON - no. 1.	24-41 TASK 801
244 010 02	TRANSFER BUS OFF and SOURCE OFF lights: lights on with GRD PWR switch at ON - no. 2.	24-41 TASK 801
244 010 48	TRANSFER BUS OFF and SOURCE OFF lights: lights on with GRD PWR switch at ON - no. 1 and no. 2.	24-41 TASK 801

LRU/SYSTEM	SHORT NAME	CHAPTER
Air Data Inertial Reference System	ADIRS	34
Air Traffic Controller Transponder - 1 (Left)	ATC XPDR - 1 (L)	34
Air Traffic Controller Transponder - 2 (Right)	ATC XPDR - 2 (R)	34
Airborne Vibration Monitor System Signal Conditioner	AVM SIG COND	77
Antiskid Control Unit	ANTISKID	32
Attendant Control Panel	ACP	23
Automatic Direction Finder Receiver - 1	ADF RECVR - 1	34
Automatic Direction Finder Receiver - 2	ADF RECVR - 2	34
Autothrottle Computer	A/T COMPUTER	22
Auxiliary Power Unit	APU	49
Auxiliary Power Unit Generator Control Unit	APU GCU	24
Bus Power Control Unit	BPCU	24
Cabin Pressure Controller	CAB PRESS CON	21
Cabin Temperature Controller	CAB TEMP CONT	21
Cargo Electronic Unit - Lower Aft	CEU - LWR AFT	26
Cargo Electronic Unit - Lower Forward	CEU - LWR FWD	26
Cargo Electronic Unit - Main Aft	CEU - MAIN AFT	26
Cargo Fire Control Panel	CFCP	26
Common Display System	CDS	31
Compartment Overheat Detection Control Module	WING/BODY OHT	26
Digital Flight Control System	DFCS	22
Distance Measurement Equipment Interrogator	DME INTRROGTR	34
Electrical Meters, Battery, and Galley Power Module	P5-13	24
Electronic Engine Controller - 1	ENGINE - 1	73
Electronic Engine Controller - 2	ENGINE - 2	73
Emergency Locator Transmitter	ELT	23
Engine Accessory Unit	EAU	78
Engine Accessory Unit/TR DEPLOY ENG 1	EAU/TR DPLOY-ENG 1	78
Engine Accessory Unit/TR DEPLOY ENG 2	EAU/TR DPLOY-ENG 2	78
Engine Accessory Unit/TR STOW ENG 1	EAU/TR STOW-ENG 1	78
Engine Accessory Unit/TR STOW ENG 2	EAU/TR STOW-ENG 2	78
Engine and Auxiliary Power Unit Fire Detection Control Module	ENG/APU FIRE	26
Enhanced Digital Flight Control Computer-A	EDFCC-A	22
Enhanced Digital Flight Control System	EDFCS	22
Flap/Slat Electronics Unit	FSEU	27

LRU/SYSTEM	SHORT NAME	CHAPTER
Flight Data Acquisition Unit	FDAU	31
Flight Management Computer System	FMCS	34
Fuel Quantity Indicating System	FQIS	28
Generator Control Unit - 1	GCU - 1	24
Generator Control Unit - 2	GCU - 2	24
Ground Proximity Computer	GROUND PROX	34
High Frequency Transceiver	HF XCVR	23
Low Limit (35 Degree F) Controller - Left	35 DEG CONT L	21
Low Limit (35 Degree F) Controller - Right	35 DEG CONT R	21
Multi-Mode Receiver	MMR	34
Nitrogen Generation System BITE Display Unit	NGS	47
Pack Flow Temperature Controller	PFTC	21
Pack/Zone Temperature Controller - Left	PACK/ZN CON - L	21
Pack/Zone Temperature Controller - Right	PACK/ZN CON - R	21
Proximity Switch Electronics Unit	PSEU	32
Radio Altimeter Receiver/Transmitter	RADIO ALTIMTR	34
Stall Management Yaw Damper Computer - 1	SMYD - 1	27
Stall Management Yaw Damper Computer - 2	SMYD - 2	27
Traffic Alert and Collision Avoidance System Computer	TCAS COMPUTER	34
VHF Omnidirectional Ranging Marker Beacon Receiver	VOR/MKR RCVR	34
Very High Frequency Transceiver	VHF XCVR	23
Waste Tank Logic Control Module	WASTE TANK	38
Weather Radar Receiver/Transmitter	WEATHER RADAR	34
Window Heat Control Unit - Left Forward	WHCU - L FWD	30
Window Heat Control Unit - Left Side	WHCU - L SIDE	30
Window Heat Control Unit - Right Forward	WHCU - R FWD	30
Window Heat Control Unit - Right Side	WHCU - R SIDE	30
Window Heat Control Unit 1 - Left Forward and Right Side	WHCU1 - L FWD/R SIDE	30
Window Heat Control Unit 2 - Right Forward and Left Side	WHCU2 - R FWD/L SIDE	30

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
APU GCU	DIST/BUS FAULT	24-21 TASK 817
APU GCU	FEEDER FAULT	24-21 TASK 814
APU GCU	GCB/APB FAULT	24-21 TASK 809
APU GCU	GCU FAULT	24-21 TASK 804
BPCU	BPCU FAULT	24-41 TASK 802
BPCU	EP DIST/BUS FAULT	24-41 TASK 803
BPCU	EPC FAULT	24-41 TASK 804
GCU - 1	BTB FAULT	24-21 TASK 810
GCU - 1	DIST/BUS FAULT	24-21 TASK 815
GCU - 1	FEEDER FAULT	24-21 TASK 812
GCU - 1	GCB/APB FAULT	24-21 TASK 807
GCU - 1	GCU FAULT	24-21 TASK 802
GCU - 1	IDG FAULT	24-21 TASK 805
GCU - 2	BTB FAULT	24-21 TASK 811
GCU - 2	DIST/BUS FAULT	24-21 TASK 816
GCU - 2	FEEDER FAULT	24-21 TASK 813
GCU - 2	GCB/APB FAULT	24-21 TASK 808
GCU - 2	GCU FAULT	24-21 TASK 803
GCU - 2	IDG FAULT	24-21 TASK 806
P5-13	AUX BAT CHGR INOP	24-31 TASK 825
P5-13	BAT CHGR INOP	24-31 TASK 829
P5-13	INTERFACE FAILURE	24-31 TASK 819
P5-13	SPCU INOP	24-34 TASK 802
P5-13	STAT INV INOP	24-34 TASK 801
P5-13	VOLT FILTER 1	24-31 TASK 831

801. GEN 1 DRIVE Light Illuminated - Fault Isolation

A. Description

(1) This task is for the GEN 1 DRIVE Light, located on the P5-5 Panel.

(2) The Amber DRIVE Light comes ON when the Generator Control Unit (GCU) 1 detects one of these conditions:

(a) The Integrated Drive Generator (IDG) 1 Oil Pressure is less than the operation limit.

1) This is detected by the Low Oil Pressure Switch in the IDG 1.

(b) There is an under-frequency condition while the engine operates.

(3) The Amber DRIVE Light should go OFF after the engine reaches idle speed.

NOTE: If the Amber DRIVE Light is ON when the engine is at or above idle speed, you must push the DISCONNECT Switch to prevent damage to the IDG.

B. Possible Causes

(1) IDG 1, G9

(2) GCU 1, G10

(3) Wiring

(4) Engine Wire Harness, MW0312

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	8	C01286	GENERATOR DISC 1
F	10	C01283	GENERATOR CONT UNIT 1

D. Related Data

(1) WDM 24-11-11

(2) WDM 24-21-11

E. Initial Evaluation

(1) Do the Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) If fault indications show, do the specified task(s) for the maintenance message(s), then do the Fault Isolation Procedure below.

(b) If no fault indications show, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check for fuel contamination in IDG Oil:

(a) Do a check for fuel odor or fuel contamination with either the combustible gas detector unit, STD-266 or viscometer, STD-13619:

1) If you observe an overfill condition and there is fuel in the oil, then do these steps:

NOTE: The IDG Oil Cooler may be leaking fuel into the Generator Oil Circuit.

a) Replace the IDG Oil Cooler. These are the tasks:

- IDG Oil Cooler Removal, AMM TASK 73-11-06-000-801-F00
- IDG Oil Cooler Installation, AMM TASK 73-11-06-400-801-F00

<1> Do the Repair Confirmation at the end of this task.

b) Replace IDG 1. These are the tasks:
- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

<1> Do the Repair Confirmation at the end of this task.

2) If you do not observe fuel odor or fuel contamination, then continue.

(2) If the IDG mounted to an engine is disconnected for about 50 flight hours, then do this step:

(a) Replace IDG 1. These are the tasks:
- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

1) Do the Repair Confirmation at the end of this task.

(3) Do this task: IDG Differential Pressure Indicator (DPI) Check, AMM TASK 12-13-21-200-802.

(a) If you replaced the IDG and the operational test for the IDG is satisfactory, then you corrected the problem.

(b) If the IDG Differential Pressure Indicator is not extended, then continue.

(4) Do this check for loss of IDG Oil:

(a) Visually examine the IDG and the External Cooling Circuit for indications of oil leakage.

1) If indications of oil leakage are present, then do these steps:

a) Repair the leaks.

b) Replace IDG 1. These are the tasks:
- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

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

d) If the Operational Test for the IDG is satisfactory and you find no leaks during the Static Leak Check, then you corrected the problem.

2) If indications of oil leakage are not present, then continue.

(5) Do the IDG Scavenge and Charge Filter - Inspection/Check, AMM TASK 24-11-41-200-801.

(a) If you replaced the IDG and the Operational Test for the IDG is satisfactory, then you corrected the problem.

(b) If the IDG Scavenge Filter is satisfactory, then continue.

(6) Do this wiring check (WDM 24-11-11, WDM 24-21-11):

(a) Remove GCU 1, G10. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connectors DP1205 and DP1206 from IDG 1.

(c) Disconnect connector D1086 from the P5-5 Panel.

(d) Do a wiring check between the GCU 1 connector D10890A on the E2-1 Rack and the IDG 1 connector DP1206 as follows (WDM 24-11-11):

NOTE: Do a check for a short, wire to wire, and wire to ground.

GCU 1 D10890B	IDG 1 DP1206
pin 27	pin 5
pin 15	pin 6

(e) Do a check for a short to ground in the wiring indicated below (WDM 24-11-11):

GCU 1 D10890A	GEN DRIVE & STBY PWR MODULE D1086
pin 61	pin 20

(f) Do a wiring check between the GCU 1 connector D10890A on the E2-1 Rack and the IDG 1 connector DP1205 as follows (WDM 24-21-11):

NOTE: Do a check for a short, wire to wire, and wire to ground.

GCU 1 D10890A	IDG 1 DP1205
pin 3	pin 1
pin 4	pin 6
pin 5	pin 7

(g) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
3) Re-connect connectors DP1205 and DP1206 to IDG 1.
4) Re-connect connector D1086 to the P5-5 Panel.
5) Do the Repair Confirmation at the end of this task.

(h) If there is no problem with the wiring, then do these steps:

1) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801
2) Re-connect connector D1086 to the P5-5 Panel.
3) Replace the IDG 1. These are the tasks:
   - Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
   - Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

   a) Do the Repair Confirmation at the end of this task.

(7) Replace GCU 1, G10. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801

(a) Do the Repair Confirmation at the end of this task.

(8) Examine the Engine Wire Harness, MW0312:

(a) If the harness connector is damaged, then replace the Wire Harness, MW0312. These are the tasks:

- Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
- Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00

1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Do the Number 1 IDG - Operational Test, AMM TASK 24-11-00-700-802.

(a) If the Operational Test is satisfactory, then you corrected the problem.

(b) If the Operational Test is not satisfactory, then continue the Fault Isolation Procedure at the subsequent step.

——— END OF TASK ———

802. GEN 2 DRIVE Light Illuminated - Fault Isolation

A. Description

(1) This task is for the GEN 2 DRIVE Light, located on the P5-5 Panel.

(2) The Amber DRIVE Light comes ON when the GCU 2 detects one of these conditions:

(a) The IDG 2 Oil Pressure is less than the operation limit.

1) This is detected by the Low Oil Pressure Switch in the IDG 2.

(b) There is an under-frequency condition while the engine operates.

(3) The Amber DRIVE Light should go OFF after the engine reaches idle speed.

NOTE: If the Amber DRIVE Light is ON when the engine is at or above idle speed, you must push the DISCONNECT Switch to prevent damage to the IDG.

B. Possible Causes

(1) IDG 2, G9

(2) GCU 2, G12

(3) Wiring

(4) Engine Wire Harness, MW0312

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	9	C01287	GENERATOR DISC 2
F	11	C01284	GENERATOR CONT UNIT 2

D. Related Data

(1) SSM 24-11-21

(2) WDM 24-11-21

(3) WDM 24-21-21

E. Initial Evaluation

(1) Do the Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) If fault indications show, do the specified task(s) for the maintenance message(s), then do the Fault Isolation Procedure below.

(b) If no fault indications show, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check for fuel contamination in IDG Oil:

(a) Do a check for fuel odor or fuel contamination with either the combustible gas detector unit, STD-266 or viscometer, STD-13619:

1) If you observe an overfill condition and there is fuel in the oil, then do these steps:

NOTE: The IDG Oil Cooler may be leaking fuel into the Generator Oil Circuit.

a) Replace the IDG Oil Cooler. These are the tasks:

- IDG Oil Cooler Removal, AMM TASK 73-11-06-000-801-F00
- IDG Oil Cooler Installation, AMM TASK 73-11-06-400-801-F00

<1> Do the Repair Confirmation at the end of this task.

b) Replace IDG 2. These are the tasks:

- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

<1> Do the Repair Confirmation at the end of this task.

2) If you do not observe fuel odor or fuel contamination, then continue.

(2) If the IDG mounted to an engine is disconnected for about 50 flight hours, then do this step:

(a) Replace IDG 2. These are the tasks:

- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

1) Do the Repair Confirmation at the end of this task.

(3) Do this task: IDG Differential Pressure Indicator (DPI) Check, AMM TASK 12-13-21-200-802.

(a) If you replaced the IDG and the Operational Test for the IDG was satisfactory, then you corrected the problem.

(b) If the IDG Differential Pressure Indicator is not extended, then continue.

(4) Do this check for loss of IDG Oil:

(a) Visually examine the IDG and the External Cooling Circuit for indications of oil leakage.

1) If indications of oil leakage are present, then do these steps:

a) Repair the leaks.

b) Replace IDG 2. These are the tasks:

- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

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

d) If the Operational Test for the IDG is satisfactory and you find no leaks during the Static Leak Check, then you corrected the problem.

2) If indications of oil leakage are not present, then continue.

(5) Do the IDG Scavenge and Charge Filter - Inspection/Check, AMM TASK 24-11-41-200-801.

(a) If you replaced the IDG and the Operational Test for the IDG was satisfactory, then you corrected the problem.

(b) If the IDG Scavenge Filter is satisfactory, then continue.

(6) Do this wiring check (SSM 24-11-21, WDM 24-11-21):

(a) Remove GCU 2, G12. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connectors DP1205 and DP1206 from IDG 2.

(c) Disconnect connector D636 from the P5-5 Panel.

(d) Do a wiring check between the GCU 2 connector D10892B on the E4-2 Rack and the IDG 2 connector DP1206 as follows (WDM 24-11-21):

NOTE: Do a check for a short, wire to wire, and wire to ground.

GCU 2 D10892B	IDG 2 DP1206
pin 27	pin 5
pin 15	pin 6

(e) Do a check for a short to ground in the wiring indicated below (WDM 24-11-21):

GCU 2 D10892A	GEN DRIVE & STBY PWR MODULE D636
pin 61	pin 16

(f) Do a wiring check between the GCU 2 connector D10892A on the E4-2 Rack and the IDG 2 connector DP1205 as follows (WDM 24-21-21):

NOTE: Do a check for a short, wire to wire, and wire to ground.

GCU 2 D10892A	IDG 2 DP1205
pin 3	pin 1
pin 4	pin 6
pin 5	pin 7

(g) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Re-connect connectors DP1205 and DP1206 to IDG 2.

4) Re-connect connector D636 to the P5-5 Panel.

5) Do the Repair Confirmation at the end of this task.

(h) If there is no problem with the wiring, then do these steps:

1) Re-install GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801

2) Re-connect connector D636 to the P5-5 Panel.

3) Replace the IDG 2. These are the tasks:

- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

a) Do the Repair Confirmation at the end of this task.

(7) Replace GCU 2, G12. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801

(a) Do the Repair Confirmation at the end of this task.

(8) Examine the Engine Wire Harness, MW0312:

(a) If the harness connector is damaged, then replace the Wire Harness, MW0312. These are the tasks:

- Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
- Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00

1) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Do the Number 2 IDG - Operational Test, AMM TASK 24-11-00-700-803.

(a) If the Operational Test is satisfactory, then you corrected the problem.

(b) If the Operational Test is not satisfactory, then continue the Fault Isolation Procedure at the subsequent step.

——— END OF TASK ———

803. IDG Differential Pressure Indicator (DPI) Red Button is extended - Fault Isolation

A. Description

(1) When the Differential Pressure Indicator (DPI) on the IDG is extended, the Scavenge Filter and the IDG Oil must be examined.

(a) If the Scavenge Filter and the IDG Oil condition are not satisfactory, or the DPI Resets Decal (if installed) shows it is the 4th extension, the IDG must be replaced.

B. Possible Causes

(1) Scavenge Filter

(2) Unsatisfactory IDG Oil condition

(3) IDG-1 (2), G9

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

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

D. Related Data

(1) SSM 24-11-11

(2) WDM 24-11-11

E. Initial Evaluation

(1) If the red button is not extended, then there was an intermittent problem.

(2) If the red button is extended, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do the IDG Scavenge and Charge Filter - Inspection/Check, AMM TASK 24-11-41-200-801.

(a) If the DPI on the IDG is extended, do the applicable corrective action indicated in the Aircraft Maintenance Manual (AMM).

(b) Visually examine the DPI for an extended red button.

1) If the red button is not extended, you corrected the problem.

——— END OF TASK ———

804. GEN 1 DRIVE Light Not Illuminated - Fault Isolation

A. Description

(1) This task is for the GEN 1 DRIVE Light, located on the P5-5 Panel.

(2) The Amber DRIVE Light comes ON when the GCU 1 detects one of these conditions:

(a) The IDG 1 Oil Pressure is less than the operation limit.

1) This is detected by the Low Oil Pressure Switch in the IDG 1.

(b) There is an under-frequency condition during engine operation.

(3) The Amber DRIVE Light should be OFF after the engine reaches idle speed.

NOTE: If the Amber DRIVE Light is ON when the engine is at or above idle speed, you must push the DISCONNECT Switch to prevent damage to the IDG.

B. Possible Causes

(1) IDG 1, G9

(2) GCU 1, G10

(3) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	8	C01286	GENERATOR DISC 1
F	10	C01283	GENERATOR CONT UNIT 1

D. Related Data

(1) WDM 24-11-11

E. Initial Evaluation

(1) Do the Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) If fault indications show, do the specified task(s) for the maintenance message(s), then do the Fault Isolation Procedure below.

(b) If no fault indications show, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do a check of the GEN 1 DRIVE Light lamp.

(a) Remove GCU-1, G10. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Ground pin 61 of connector D10890A.

1) If the GEN 1 DRIVE Light does not come ON when the pin 61 is grounded, then replace the lamp.

a) Re-install GCU-1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

b) Do the Repair Confirmation at the end of this task.

2) If the GEN 1 DRIVE Light comes ON when pin 61 is grounded, then continue.

(2) Do this wiring check (WDM 24-11-11):

(a) Remove GCU 1. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector DP1206 from IDG 1.

(c) Disconnect connector D1086 from the P5-5 Panel.

(d) Do a wiring check as follows:

NOTE: Do a check for a short, wire to wire, and wire to ground.

GCU 1 D10890B	**IDG 1 DP1206**
pin 27	pin 5
pin 15	pin 6

GCU 1 D10890A	**GEN DRIVE & STBY PWR MODULE D1086**
pin 61	pin 20

1) If you find a problem with the wiring, then do these steps:

a) Repair the wiring.

b) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

c) Re-connect connector DP1206 on IDG 1.

d) Re-connect connector D1086 to the P5-5 Panel.

e) Do the Repair Confirmation at the end of this task.

2) If there is no problem with the wiring, then continue.

(3) Do the check of the CHARGE PRESSURE Switch (WDM 24-11-11):

(a) Remove connector DP1206 from the IDG 1.

(b) At the CHARGE PRESSURE Switch, do a Resistance check as follows:

NOTE: The maximum Resistance of the Charge Pressure Switch is 5 Ohms.

IDG 1 DP1206		IDG 1 DP1206	Resistance
pin 5	. . . . .	pin 6	≤ 5 Ω

1) If the Resistance check is not satisfactory, then replace the IDG 1. These are the tasks:
   - Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
   - Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

   a) Do the Repair Confirmation at the end of this task.

2) If the Resistance check is satisfactory, then replace the GCU 1. These are the tasks:
   - Generator Control Unit Removal, AMM TASK 24-21-81-000-801
   - Generator Control Unit Installation, AMM TASK 24-21-81-400-801

   a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Do the Number 1 IDG - Operational Test, AMM TASK 24-11-00-700-802.

(a) If the Operational Test is satisfactory, then you corrected the problem.

(b) If the Operational Test is not satisfactory, then continue the Fault Isolation at the subsequent step.

——— END OF TASK ———

805. GEN 2 DRIVE Light Not Illuminated - Fault Isolation

A. Description

(1) This task is for the GEN 2 DRIVE Light, located on the P5-5 Panel.

(2) The Amber DRIVE Light comes ON when the GCU 2 detects one of these conditions:

(a) The IDG 2 Oil Pressure is less than the operation limit.

1) This is detected by the Low Oil Pressure Switch in the IDG 2.

(b) There is an under-frequency condition during engine operation.

(3) The Amber DRIVE Light should be OFF after the engine reaches idle speed.

NOTE: If the Amber DRIVE Light is ON when the engine is at or above idle speed, you must push the DISCONNECT Switch to prevent damage to the IDG.

B. Possible Causes

(1) IDG-2, G9

(2) GCU-2, G12

(3) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	9	C01287	GENERATOR DISC 2
F	11	C01284	GENERATOR CONT UNIT 2

D. Related Data

(1) WDM 24-11-21

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) If fault indications show, do the specified task(s) for the maintenance message(s), then do the Fault Isolation Procedure below.

(b) If no fault indications show, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do a check of GEN 2 DRIVE Light lamp.

(a) Remove GCU 2. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Ground pin 61 of connector D10892A.

(c) If GEN 2 DRIVE Light does not come ON when pin 61 is grounded, then replace the lamp.

1) Re-install GCU 2. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

2) Do the Repair Confirmation at the end of this task.

(d) If GEN 2 DRIVE Light comes ON when pin 61 is grounded, then continue.

(2) Do this wiring check (WDM 24-11-21):

(a) Remove GCU 2. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector DP1206 from IDG 2.

(c) Disconnect connector D636 from the P5-5 Panel.

(d) Do a wiring check as follows (WDM 24-11-21):

NOTE: Do a check for a short, wire to wire, and wire to ground.

GCU 2	**IDG 2**
D10892B	**DP1206**
pin 27	pin 5
pin 15	pin 6

GCU 2	**GEN DRIVE & STBY PWR MODULE**
D10892A	**D636**
pin 61	pin 16

1) If you find a problem with the wiring, then do these steps:

a) Repair the wiring.

b) Re-install GCU 2. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

c) Re-connect connector DP1206 on IDG 2.

d) Re-connect connector D636 to the P5-5 Panel.

e) Do the Repair Confirmation at the end of this task.

2) If there is no problem with the wiring, then continue.

(3) Do the check of the CHARGE PRESSURE Switch (WDM 24-11-21):

(a) Remove connector DP1206 from the IDG 2.

(b) At the CHARGE PRESSURE Switch, do a Resistance check as follows:

NOTE: The maximum Resistance of the Charge Pressure Switch is 5 Ohms.

IDG 2 DP1206		IDG 2 DP1206	Resistance
pin 5	. . . . .	pin 6	≤ 5 Ω

1) If the Resistance check is not satisfactory, then replace the IDG 2. These are the tasks:

- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

a) Do the Repair Confirmation at the end of this task.

2) If the Resistance check is satisfactory, then replace the GCU 2. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801

a) Do the Repair Confirmation at the end of this task.

(4) Do the Number 2 IDG - Operational Test, AMM TASK 24-11-00-700-803.

(a) If the Operational Test is satisfactory, then you corrected the problem.

(b) If the Operational Test is not satisfactory, then continue Fault Isolation at the subsequent step.

——— END OF TASK ———

801. Generator Control Unit BITE Procedure

A. General

(1) You do the Built-In-Test Equipment (BITE) procedure at the front panel of the Generator Control Unit (GCU). There are three GCU's on the airplane and they are installed as follows:

- GCU 1, G10 located on the E2-1 Rack
- GCU 2, G12 located on the E4-2 Rack
- APU Generator Control Unit (AGCU), G14 located on the E2-1 Rack.

(2) The GCU's are the same. This procedure is applicable for all of the GCU's.

(3) The GCU performs a self test after it is powered up or manually by pushing the GCU TEST switch. The GCU has six fault indicator lights, one GCU PASS light and one test switch on the front panel. The fault indicator lights will be referred to as maintenance messages throughout this procedure.

(4) The seven indicator lights are listed in order below, with the highest priority indicator listed first.

(a) GCU FAULT

(b) IDG FAULT - (Not applicable for AGCU, G14)

(c) GCB/APB FAULT

(d) BTB FAULT - (Not applicable for AGCU, G14)

(e) FEEDER FAULT

(f) DIST/BUS FAULT

(g) GCU PASS.

(5) The GCU will detect external faults when the applicable generator is supplying power.

NOTE: If there is more than one fault condition, only the highest priority fault indicator will be on.

(6) Use the manual BITE procedure to clear the fault indications from the GCU memory.

NOTE: Record the maintenance messages (if there are any) before you do the manual BITE procedure.

B. Prepare for the Test

(1) Make sure that power is removed from the applicable generator for the GCU being tested.

(a) If you are performing BITE on the GCU 1, G10, do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(b) If you are performing BITE on the GCU 2, G12, do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(c) If you are performing BITE on the AGCU, G14, do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

(2) Set the BAT switch, on the P5-13 panel, to the ON position.

C. BITE Procedure

(1) Do these steps to do the BITE procedure for the GCU:

(a) Record any maintenance messages (if there are any) before you push the GCU TEST switch.

NOTE: Most faults can only be detected by the GCU when the applicable generator is supplying power. If you remove power from the GCU, the faults will not be erased. However, if the fault is not presently detectable (applicable generator not supplying power) and the GCU TEST switch is pushed, the fault will be cleared.

(b) Push and hold the GCU TEST switch, on the generator control unit, for a minimum of one second and then release it.

(c) Make sure that all seven of the indicator lights come on for approximately three seconds:

1) GCU FAULT - (red)
2) IDG FAULT - (red)
3) GCB/APB FAULT - (red)
4) BTB FAULT - (red)
5) FEEDER FAULT - (red)
6) DIST/BUS FAULT - (red)
7) GCU PASS - (green).

(d) Make sure that all seven of the indicator lights go off for approximately three seconds.

(e) If no faults are detected, the GCU PASS light will come on for approximately seven seconds.

(f) If a fault is detected, the applicable red fault indicator light will come on.

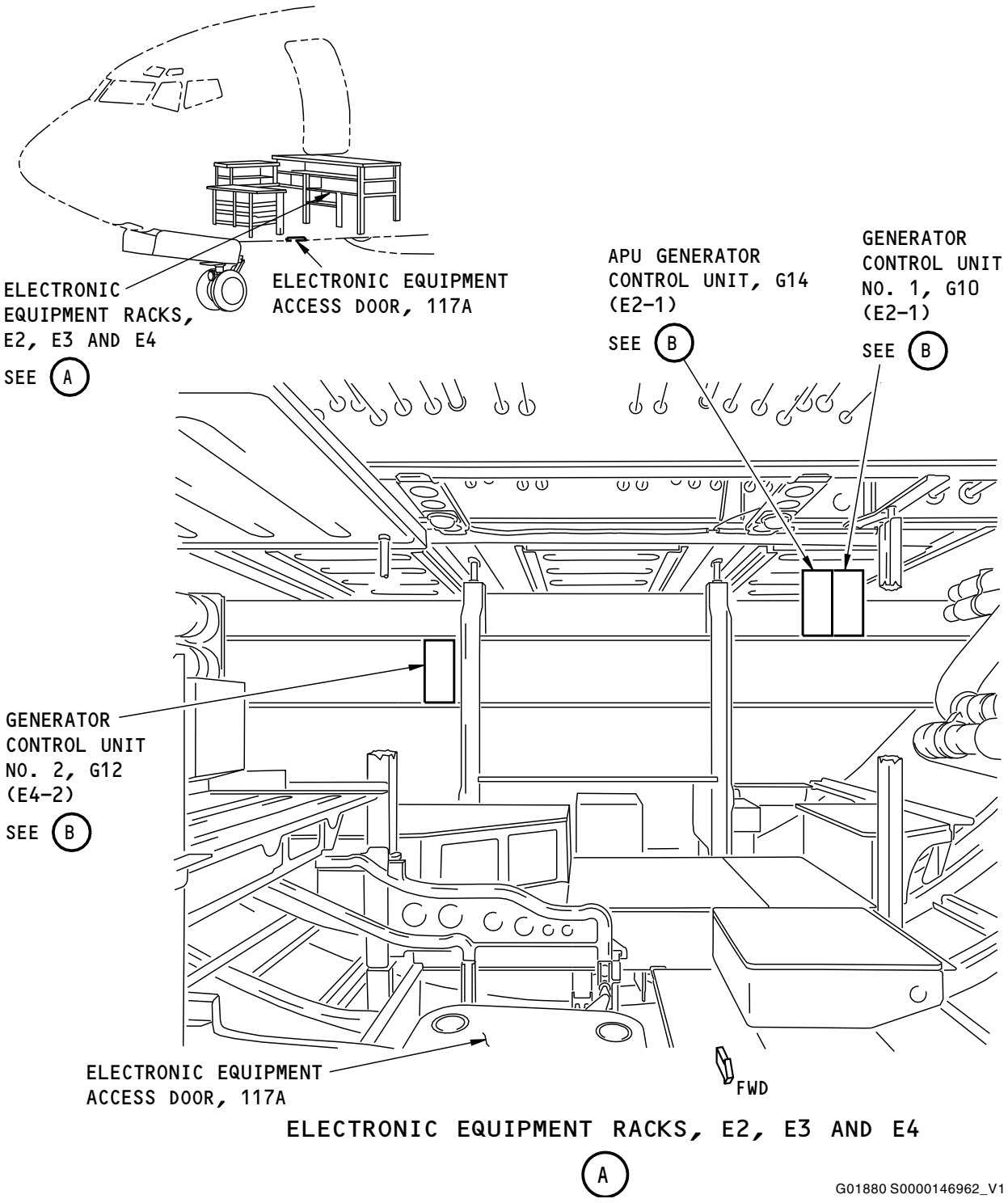
(g) If the fault indicator lights fail to respond per the steps listed above, do the applicable GCU FAULT Task.

(h) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.

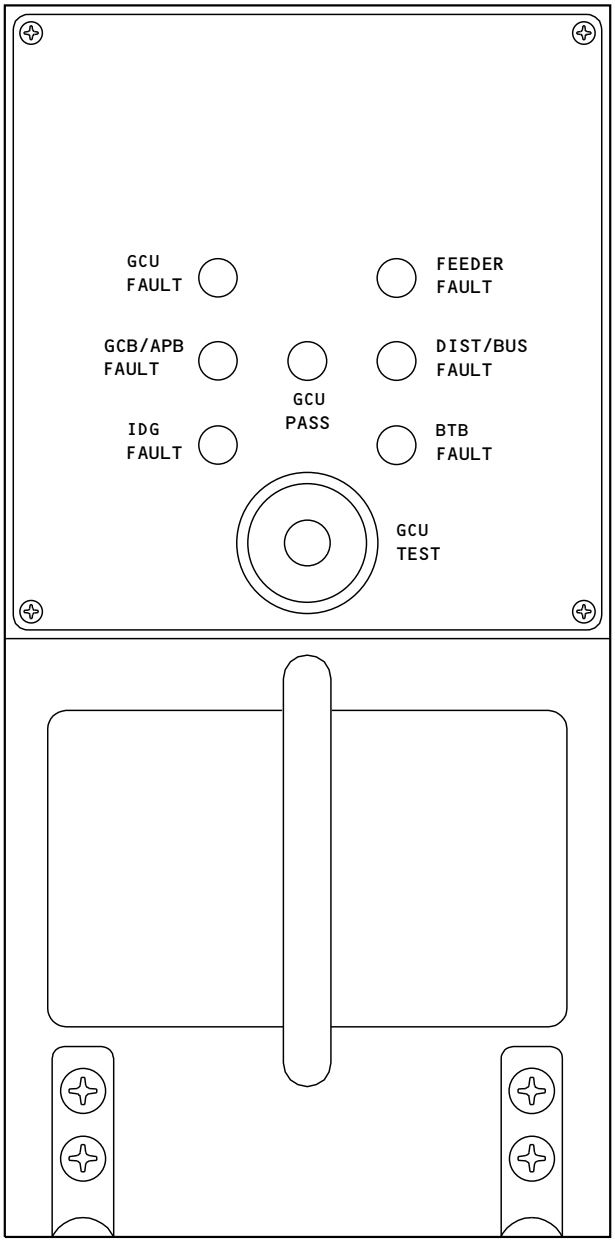
LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
APU GCU	DIST/BUS FAULT	24-21 TASK 817
APU GCU	FEEDER FAULT	24-21 TASK 814
APU GCU	GCB/APB FAULT	24-21 TASK 809
APU GCU	GCU FAULT	24-21 TASK 804
GCU - 1	BTB FAULT	24-21 TASK 810
GCU - 1	DIST/BUS FAULT	24-21 TASK 815
GCU - 1	FEEDER FAULT	24-21 TASK 812
GCU - 1	GCB/APB FAULT	24-21 TASK 807
GCU - 1	GCU FAULT	24-21 TASK 802
GCU - 1	IDG FAULT	24-21 TASK 805
GCU - 2	BTB FAULT	24-21 TASK 811
GCU - 2	DIST/BUS FAULT	24-21 TASK 816
GCU - 2	FEEDER FAULT	24-21 TASK 813

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
GCU - 2	GCB/APB FAULT	24-21 TASK 808
GCU - 2	GCU FAULT	24-21 TASK 803
GCU - 2	IDG FAULT	24-21 TASK 806

END OF TASK



Generator Control Units, G10, G12, G14
Figure 201/24-21-00-990-802 (Sheet 1 of 2)



GENERATOR CONTROL UNIT
(EXAMPLE)

B

G01882 S0000146963_V1

Generator Control Units, G10, G12, G14
Figure 201/24-21-00-990-802 (Sheet 2 of 2)

802. GCU FAULT For GCU 1 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) GCU FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects an internal problem or there is a problem with the generator switch or switch wiring.

B. Possible Causes

(1) Generator Control Unit (GCU) 1, G10

(2) AC System Generator and APU Module, P5-4

(3) Wiring

C. Circuit Breakers

(1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

D. Related Data

(1) (SSM 24-11-11, 24-22-11)

(2) (WDM 24-11-11, 24-22-11)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) If the maintenance message GCU FAULT shows, then do the Fault Isolation Procedure below.

(b) If no maintenance message shows, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace GCU 1, G10.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) If no maintenance messages show, then you corrected the fault.

(c) If the maintenance message GCU FAULT shows or the indicator lights on the GCU fail to respond per the BITE Task, then continue.

(2) Do this check of the GCU input power wiring:

(a) Remove GCU 1, G10. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

(c) Do a check for a check for 28 VDC from pin 5 on connector D10890B to pin 1 (ground) on connector D10890B.

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

(e) If 28 VDC is not present, then do these steps:

1) Repair the wiring WDM 24-11-11.

2) Re-install GCU 1, G10. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

4) If no maintenance messages show, then you corrected the fault.

5) If the maintenance message GCU FAULT shows, then continue.

(f) If 28 VDC is present, then continue.

(3) Do this check of the generator control switch:

(a) Disconnect connector D722 from the P5-4 module located on the P5 overhead panel.

(b) Make sure that pins 22, 23 and 24 of connector D722 on the P5-4 panel are isolated from each other. The generator switch should be in the center position.

NOTE: Check for shorts, pin to pin and pin to ground.

(c) If any of the pins are shorted to each other or ground, then do these steps:

1) Replace the P5-4 module.

These are the tasks:

AC System Generator and APU Module Removal, AMM TASK 24-21-51-000-801,

AC System Generator and APU Module Installation, AMM TASK 24-21-51-400-801.

2) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

3) If no maintenance messages show, then you corrected the fault.

4) If the maintenance message GCU FAULT shows, then continue.

(d) If there is no problem with any of the pins, then continue.

(4) Do this check of the generator control switch wiring:

(a) Remove GCU 1, G10. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector D722 from the P5-4 module located on the P5 overhead panel.

(c) Do a wiring check between these pins of connector D10890B at the E2-1 rack and connector D722 removed from the P5-4 panel:

NOTE: Check for shorts, wire to wire and wire to ground.

D10890B	D722
pin 64	pin 24
pin 62	pin 22
pin 63	pin 23

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring WDM 24-11-11.
2) Re-install GCU 1, G10. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
3) Re-connect connector D722 on the P5-4 panel.
4) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.
5) If no maintenance messages show, then you corrected the fault.

——— END OF TASK ———

803. GCU FAULT For GCU 2 - Fault Isolation

A. Description

(1) This task is for maintenance message:

(a) GCU FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects an internal problem or there is a problem with the generator switch or switch wiring.

B. Possible Causes

(1) Generator Control Unit (GCU) 2, G12

(2) AC System Generator and APU Module, P5-4

(3) Wiring

C. Circuit Breakers

(1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

D. Related Data

(1) (SSM 24-11-21, 24-22-21)

(2) (WDM 24-11-21, 24-22-21)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) If the maintenance message GCU FAULT shows, then do the Fault Isolation Procedure below.

(b) If no maintenance messages show, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace GCU 2, G12.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) If no maintenance messages show, then you corrected the fault.

(c) If the maintenance message GCU FAULT shows or the indicator lights on the GCU fail to respond per the BITE Task, then continue.

(2) Do this check of the GCU input power wiring:

(a) Remove GCU 2, G12. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

(c) Do a check for a check for 28 VDC from pin 5 on connector D10892B to pin 1 (ground) on connector D10892B.

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

(e) If 28 VDC is not present, then do these steps:

1) Repair the wiring WDM 24-11-21.

2) Re-install GCU 2, G12. To install the GCU, do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

4) If no maintenance messages show, then you corrected the fault.

5) If the maintenance message GCU FAULT shows, then continue.

(f) If 28 VDC is present, then continue.

(3) Do this check of the generator control switch:

(a) Disconnect connector D730 from the P5-4 module located on the P5 overhead panel.

(b) Make sure that pins 4, 13 and 14 of connector D730 on the P5-4 panel are isolated from each other. The generator switch should be in the center position.

NOTE: Check for shorts, pin to pin and pin to ground.

(c) If any of the pins are shorted to each other or ground, then do these steps:

1) Replace the P5-4 module.

These are the tasks:

AC System Generator and APU Module Removal, AMM TASK 24-21-51-000-801,

AC System Generator and APU Module Installation, AMM TASK 24-21-51-400-801.

2) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

3) If no maintenance messages show, then you corrected the fault.

4) If the maintenance message GCU FAULT shows, then continue.

(d) If there is no problem with any of the pins, then continue.

(4) Do this check of the generator control switch wiring:

(a) Remove GCU 2, G12. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector D730 from the P5-4 module located on the P5 overhead panel.

(c) Do a wiring check between these pins of connector D10892B on the E4-2 rack and connector D730 removed from the P5-4 panel:

NOTE: Check for shorts, wire to wire and wire to ground.

D10892B	D730
pin 64	pin 4
pin 62	pin 14
pin 63	pin 13

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Re-install GCU 2, G12. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
3) Re-connect connector D730 on the P5-4 panel.
4) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.
5) If no maintenance messages show, then you corrected the fault.

——— END OF TASK ———

804. GCU FAULT For APU GCU - Fault Isolation

A. Description

(1) This task is for maintenance message:

(a) GCU FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects an internal problem or there is a problem with one of the generator switches or switch wiring.

B. Possible Causes

(1) APU Generator Control Unit (GCU), G14

(2) AC System Generator and APU Module, P5-4

(3) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	12	C01285	GENERATOR APU GEN CONT UNIT

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
C	9	C01326	APU GEN CONT UNIT

D. Related Data

(1) (SSM 24-22-31)

(2) (WDM 24-22-31)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) If the maintenance message GCU FAULT shows, then do the Fault Isolation Procedure below.

(b) If no maintenance message shows, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace the APU GCU, G14.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) If no maintenance messages show, then you corrected the fault.

(c) If the maintenance message GCU FAULT shows or the indicator lights on the GCU fail to respond per the BITE Task, then continue.

(2) Do this check of the GCU input power wiring:

(a) Remove the APU GCU, G14. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	12	C01285	GENERATOR APU GEN CONT UNIT

(c) Make sure the BAT switch on the P5-13 panel is in the ON position.

(d) Do a check for a check for 28 VDC from pin 5 on connector D10896B to pin 1 (ground) on connector D10896B.

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

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	12	C01285	GENERATOR APU GEN CONT UNIT

(f) If 28 VDC is not present, then do these steps:

1) Repair the wiring (WDM 24-22-31).

2) Re-install the APU GCU, G14. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

4) If no maintenance messages show, then you corrected the fault.

5) If the maintenance message GCU FAULT shows, then continue.

(g) If 28 VDC is present, then continue.

(3) Do this check of the APU generator control switches:

(a) Disconnect connectors D722 and D634 from the P5-4 module located on the P5 overhead panel.

(b) Make sure that pins 16, 28 and 29 of connector D634 on the P5-4 panel are isolated from each other. The APU GEN 2 switch should be in the center position.

NOTE: Check for shorts, pin to pin and pin to ground.

(c) Make sure that pins 15 and 16 of connector D722 on the P5-4 panel are isolated from each other. The APU GEN 1 switch should be in the center position.

NOTE: Check for shorts, pin to pin and pin to ground.

(d) If any of the pins listed above are shorted to each other or ground, then do these steps:

1) Replace the P5-4 module.

These are the tasks:

AC System Generator and APU Module Removal, AMM TASK 24-21-51-000-801,

AC System Generator and APU Module Installation, AMM TASK 24-21-51-400-801.

2) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

3) If no maintenance messages show, then you corrected the fault.

4) If the maintenance message GCU FAULT shows, then continue.

(e) If there is no problem with any of the pins, then continue.

(4) Do this check of the APU generator control switch wiring:

(a) Remove the APU GCU, G14. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connectors D722 and D634 from the P5-4 module located on the P5 overhead panel.

(c) Do a wiring check between these pins of connector D10896B on the E2-1 rack and connectors D634 and D722 removed from the P5-4 panel:

NOTE: Check for shorts, wire to wire and wire to ground.

D10896B	D634
pin 63	pin 28
pin 51	pin 16
pin 50	pin 29

D10896B	D722
pin 64	pin 15
pin 62	pin 16

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install the APU GCU, G14. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Re-connect connectors D722 and D634 on the P5-4 panel.

4) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

5) If no maintenance messages show, then you corrected the fault.

END OF TASK

805. IDG FAULT for GCU 1 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) IDG FAULT

(2) This message occurs when the GCU 1 senses one of these conditions:

(a) Integrated Drive Generator (IDG) Under Voltage

(b) IDG Over/Under Frequency

(c) Shorted Rotating Diode in the IDG

B. Possible Causes

(1) IDG, G9

(2) IDG Power Feeders

(3) GCU 1, G10

(4) Wiring

(5) Engine Wire Harness, MW0312

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

D. Related Data

(1) WDM 24-21-11

(2) WDM 31-62-14

(3) SSM 24-21-11

(4) SSM 31-62-14

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power from IDG 1. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If the IDG does not trip OFF and the maintenance message IDG FAULT does not show on the GCU Front Panel, then there was an intermittent fault.

(b) If the IDG trips OFF and/or the maintenance message IDG FAULT shows on the GCU Front Panel, then do the Fault Isolation Procedure below.

(3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

F. Fault Isolation Procedure

(1) Do this check of the Power Feeders and the POR Wiring (WDM 24-21-11):

(a) Remove the four Power Feeders from the IDG:

1) Remove the two screws that hold the IDG terminal cover.
2) Remove the IDG terminal cover.
3) Remove the two screws that hold the fanning strip to the IDG.
4) Remove the four terminal nuts that hold the Power Feeders to the IDG terminal block.
5) Remove the four Power Feeders from the IDG.

NOTE: Do not let the feeder terminations to touch each other or the airplane structure when you do the wiring checks.

(b) Remove the three IDG Power Feeders from the P91 Panel at TB5001:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P91 Terminal Block.
2) Remove the three Power Feeders from the P91.

NOTE: Do not let the feeder terminations to touch each other or the airplane structure when you do the wiring checks.

(c) Remove the GEN 1 PWR IND Lamps from the front and rear of the P91 Panel.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

(e) Remove GCU 1, G10. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(f) Examine the Power Feeder Wiring between the IDG 1 and Terminal Block TB5001 on the P91 Panel as follows:

NOTE: Use a Low Resistance Ohmmeter to measure the Resistance between the Power Feeder removed from the IDG 1 Neutral Terminal and Ground:

IDG 1 TERMINAL	P91 PNL TB5001
term T1	term A
term T2	term B
term T3	term C

IDG 1 Terminal		RESISTANCE
term N	GD3834-AC	0.1 Ohms

(g) Examine the wiring between the P91 Panel Terminal Block TB5001 and the GCU 1 connector at the E2-1 Shelf as follows:

P91 PNL	E2-1 SHELF
TB5001	D10890A
term A	pin 7
term B	pin 15
term C	pin 16

	E2-1 D10890A	RESISTANCE
GD3200-AC	pin 17	0.1 Ohms

(h) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Re-install the GEN 1 PWR IND Lamps from the front and rear of the P91 Panel.
3) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

4) Install the three IDG Power Feeders on the P91 Panel at the TB5001 studs.

NOTE: Make sure that the phase sequence is correct.

a) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

5) Install the Power Feeders on the IDG:

a) Install the four nuts and tighten the nuts to 144 in-lb (16.3 N·m) to 168 in-lb (19 N·m).
b) Install the IDG terminal cover.
c) Install the two screws on the IDG terminal cover and tighten to 20 in-lb (2.3 N·m) to 22 in-lb (2.5 N·m).
d) Attach the fanning strip to the IDG with the two screws and tighten to 26 in-lb (2.9 N·m) to 30 in-lb (3.4 N·m).

6) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
7) Do the Repair Confirmation at the end of this task.

(i) If you did not find a problem with the wiring, then continue.

1) Re-install the Power Feeder cables to the Terminal Block TB5001 and the IDG 1 per the steps above.
2) Re-install the GEN 1 PWR IND Lamps from the front and rear of the P91 Panel.
3) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

(2) Do this check of the Permanent Magnet Generator (PMG) and Exciter Wiring (WDM 24-21-11):

(a) Disconnect connector D30234 from the Engine 1 Firewall Disconnect.

(b) Examine the wiring between the Engine 1 Firewall Disconnect and the E2-1 Shelf as follows:

PMG WIRING

FIREWALL DISC ENGINE 1 D30234	**E2-1 SHELF D10890A**
pin 3	pin 3
pin 6	pin 4
pin 8	pin 5

D30234	
2	Connector Shell

EXCITER WIRING

FIREWALL DISC ENGINE 1 D30234	**E2-1 SHELF D10890B**
pin 34	pin 55
pin 33	pin 56

D30234	
17	Connector Shell

(c) Use a megohmmeter, COM-10724 and do this Wiring Insulation Check (WDM 24-21-11):

FIREWALL DISC ENGINE 1 D30234	**FIREWALL DISC ENGINE 1 D30234**
33	34
33	Connector Shell
34	Connector Shell

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
3) Re-connect connector D30234 to the Engine 1 Firewall Disconnect.
4) Do the Repair Confirmation at the end of this task.

(e) If you did not find a problem with the wiring, then continue.

(3) Do this check of the Engine 1 Wire Harness (WDM 24-21-11):

(a) Re-install the GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(b) Re-connect connector D30234 to the Engine 1 Firewall Disconnect.

(c) Disconnect connector DP1234 at the Engine 1 Firewall Disconnect.

(d) Disconnect connectors DP1205 and DP1206 at the IDG 1.

(e) Examine the Wire Harness between the IDG 1 and the Engine 1 Firewall Disconnect (WDM 24-21-11):

IDG 1 DP1205	FIREWALL DISC ENGINE 1 DP1234
1	3
6	6
7	8

IDG 1 DP1206	FIREWALL DISC ENGINE 1 DP1234
2	34
3	33

(f) Use a megohmmeter, COM-10724 and do this Wiring Insulation Check (WDM 24-21-11):

DP1206	DP1206
pin 2	pin 3
pin 2	Connector Shell
pin 3	Connector Shell

(g) If you find a problem with the wiring, then do these steps:

1) Replace the Wire Harness, MW0312. These are the tasks:
   - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
   - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
2) Re-connect connector DP1234 to the Engine 1 Firewall Disconnect.
3) Re-connect connectors DP1205 and DP1206 to the IDG 1.
4) Do the Repair Confirmation at the end of this task.

(h) If you did not find a problem with the wiring, then re-connect these connectors and continue.

1) Re-connect connector DP1234 to the Engine 1 Firewall Disconnect.
2) Re-connect connectors DP1205 and DP1206 to the IDG 1.

(4) Do this check of the Ready-to-Load (RTL) Wiring (WDM 31-62-14):

(a) Remove GCU 1, G10. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Remove the Display Electronic Unit (DEU) 1, M1808 and DEU 2, M1809. This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

(c) Examine the wiring between the he GCU 1 connector at the E2-1 Shelf and the DEU connectors at the E3-1 Shelf as follows:

NOTE: If the RTL Signal at pin 33 is shorted to a 12 - 28 VDC Source, the IDG FAULT Indicator will come ON.

DEU 1 WIRING

GCU 1	E3-1 SHELF
D10890A	D3973B
pin 33	pin H9

DEU 2 WIRING

GCU 1	E3-1 SHELF
D10890A	D3975B
pin 33	pin H9

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Re-install the DEUs. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

4) Do the Repair Confirmation at the end of this task.

(e) If you did not find any problems with the wiring, then continue.

1) Re-install the DEUs. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

(5) Replace GCU 1, G10. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801

(a) Do the Repair Confirmation at the end of this task.

(6) Replace IDG 1, G9. These are the tasks:

- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801,
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

(a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power from IDG 1. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If the IDG does not trip OFF and the maintenance message IDG FAULT does not show, then you corrected the problem.

(b) If the IDG trips OFF line and/or the maintenance message IDG FAULT still shows, then continue the Fault Isolation Procedure at the subsequent step.

(3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

——— END OF TASK ———

806. IDG FAULT For GCU 2 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) IDG FAULT

(2) This message shows when the GCU senses one or more of these conditions:

(a) IDG Under Voltage

(b) IDG Over/Under Frequency

(c) Shorted Rotating Diode in the IDG

B. Possible Causes

(1) IDG, G9

(2) IDG Power Feeders

(3) GCU 2, G12

(4) Wiring

(5) Engine Wire Harness, MW0312

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

D. Related Data

(1) SSM 24-21-21

(2) SSM 31-62-24

(3) WDM 24-21-21

(4) WDM 31-62-24

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Supply electrical power from IDG 2. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

1) If the IDG does not trip OFF and the maintenance message does not show, then there was an intermittent problem.

2) If the IDG trips OFF line or the maintenance message still shows, then do the Fault Isolation Procedure below.

(b) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

F. Fault Isolation Procedure

(1) Do this check of the Power Feeders and the POR Wiring (WDM 24-21-21):

(a) Remove the four Power Feeders from the IDG:

1) Remove the two screws that hold the IDG terminal cover
2) Remove the IDG terminal cover.
3) Remove the two screws that hold the fanning strip to the IDG.
4) Remove the four terminal nuts that hold the Power Feeders to the IDG terminal block.
5) Remove the four Power Feeders from the IDG.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(b) Remove the three IDG Power Feeders from the P92 Panel at TB5005:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P92 Terminal Block.
2) Remove the three Power Feeders from the P92.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the GEN 2 PWR IND Lamps from the front and rear of the P92 Panel.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

(e) Remove GCU 2, G12. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(f) Examine the Power Feeder Wiring between the IDG 2 and Terminal Block TB5005 on the P92 Panel as follows:

NOTE: Use a Low Resistance Ohmmeter to measure the Resistance between the Power Feeder removed from the IDG 2 Neutral Terminal and Ground.

IDG 2 TERMINAL	P92 PNL TB5005
T1	A
T2	B
T3	C

IDG 2 TERMINAL		RESISTANCE
term N	GD3934-AC	0.1 Ohms

(g) Examine the wiring between the P92 Panel Terminal Block TB5005 and the GCU 2 at the E4-2 Shelf as follows::

P92 PNL		E4-2 Shelf
TB5005		D10892A
Terminal A	. . . . .	pin 7
Terminal B	. . . . .	pin 15
Terminal C	. . . . .	pin 16

GCU-2		
D10892A		RESISTANCE
pin 17	. . . . . GD3404-AC	0.1 Ohms

(h) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Re-install the GEN 2 PWR IND Lamps at the front and rear of the P92 Panel.
3) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

4) Install the three IDG Power Feeders on the P92 Panel at the TB5005 studs.

NOTE: Make sure that the phase sequence is correct.

a) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

5) Install the Power Feeders on the IDG:

a) Install the four nuts and tighten the nuts to 144 in-lb (16.3 N·m) to 168 in-lb (19.0 N·m).
b) Install the IDG terminal cover.
c) Install the two screws on the IDG terminal cover and tighten to 20 in-lb (2.3 N·m) to 22 in-lb (2.5 N·m).
d) Attach the fanning strips to the IDG with the two screws and tighten to 26 in-lb (2.9 N·m) to 30 in-lb (3.4 N·m).

6) Re-install GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
7) Do the Repair Confirmation at the end of this task.

(i) If you did not find a problem with any of the wires, then continue.

1) Re-install the Power Feeder cables to the Terminal Block TB5005 and the IDG 2 per the steps above.
2) Re-install the GEN 2 PWR IND Lamps at the front and rear of the P92 Panel.
3) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

(2) Do this check of the PMG and Exciter Wiring (WDM 24-21-21):

(a) Disconnect connector D30434 from the Engine 2 Firewall Disconnect.

(b) Examine the wiring between the Engine 2 Firewall Disconnect and the E4-2 Shelf as follows:

PMG Wiring

FIREWALL DISC ENGINE 2 D30434	**E4-2 SHELF D10892A**
pin 3	pin 3
pin 6	pin 4
pin 8	pin 5
D30434	
pin 2	Connector Shell

Exciter Wiring

FIREWALL DISC ENGINE 2 D30434	**E4-2 SHELF D10892B**
pin 34	pin 55
pin 33	pin 56
D30434	
17	Connector Shell

(c) Use a megohmmeter, COM-10724 and do this Wiring Insulation Check (WDM 24-21-21).

FIREWALL DISC ENGINE 2 D30434	**FIREWALL DISC ENGINE 2 D30434**
pin 33	pin 34
pin 33	Connector Shell
pin 34	Connector Shell

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Re-install the GCU 2, G12. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.
3) Re-connect connector D30434 to the Engine 2 Firewall Disconnect.
4) Do the Repair Confirmation at the end of this task.

(e) If you did not find a problem with the wiring, then continue.

(3) Do this check of the Engine 2 Wire Harness (WDM 24-21-21):

(a) Re-install the GCU 2, G12. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Re-connect connector D30434 to the Engine 2 Firewall Disconnect.

(c) Disconnect connector DP1234 at the Engine 2 Firewall Disconnect.

(d) Disconnect connectors DP1205 and DP1206 at the IDG 2.

(e) Examine the Wire Harness between the IDG 2 and the Engine 2 Firewall Disconnect (WDM 24-21-21).

IDG 2 DP1205		FIREWALL DISC ENGINE 2 DP1234
pin 1	. . . . .	pin 3
pin 6	. . . . .	pin 6
pin 7	. . . . .	pin 8

IDG 2 DP1206		FIREWALL DISC ENGINE 2 DP1234
pin 2	. . . . .	pin 34
pin 3	. . . . .	pin 33

(f) Use a megohmmeter, COM-10724 and do this Wiring Insulation Check (WDM 24-21-21).

DP1206		DP1206
pin 2	. . . . .	pin 3
pin 2	. . . . .	Connector Shell
pin 3	. . . . .	Connector Shell

(g) If you find a problem with the wiring, then do these steps:

1) Replace the Wire Harness, MW0312. These are the tasks:
   - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
   - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
2) Re-connect connector DP1234 to the Engine 2 Firewall Disconnect.
3) Re-connect connectors DP1205 and DP1206 to the IDG 2.
4) Do the Repair Confirmation at the end of this task.

(h) If you did not find a problem with the wiring, then re-connect these connectors and continue.

1) Re-connect connector DP1234 to the Engine 2 Firewall Disconnect.
2) Re-connect connectors DP1205 and DP1206 to the IDG 2.

(4) Do this check of the Ready-To-Load (RTL) wiring (WDM 31-62-24):

(a) Remove GCU 2, G12. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Remove the DEU 1, M1808 and DEU 2, M1809. This is the task: Display Electronic Unit Removal, AMM TASK 31-62-21-000-801.

(c) Examine the wiring between the GCU 2 connector at the E4-2 Shelf and the DEU connectors at the E3-1 Shelf as follows:

NOTE: If the RTL signal at pin 33 is shorted to a 12 - 28 VDC source, the IDG FAULT indicator will come ON.

DEU 1 Wiring

GCU 2	E3-1 Shelf
D10892A	D3973D
pin 33	pin H9

DEU 2 Wiring

GCU 2	E3-1 Shelf
D10892A	D3975D
pin 33	pin H9

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Re-install GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
3) Re-install the DEUs. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.
4) Do the Repair Confirmation at the end of this task:

(e) If you did not find any problems with the wiring, then continue.

1) Re-install the DEUs. This is the task: Display Electronic Unit Installation, AMM TASK 31-62-21-400-801.

(5) Replace GCU 2, G12.

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801

(a) Do the Repair Confirmation at the end of this task.

(6) Replace the IDG 2, G9. These are the tasks:

- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

(a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power from IDG 2. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If the IDG does not trip OFF and the maintenance message IDG FAULT does not show, then you corrected the problem.

(b) If the IDG trips OFF, and/or the maintenance message IDG FAULT still shows, then continue the Fault Isolation Procedure at the subsequent step.

(3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

——— END OF TASK ———

807. GCB/APB FAULT For GCU 1 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) GCB/APB FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects that the applicable Generator Control Breaker (GCB) is not in the commanded position.

B. Possible Causes

(1) Generator Control Breaker (GCB) 1, C801

(2) Generator Control Unit (GCU) 1, G10

(3) Wiring

C. Circuit Breakers

(1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

D. Related Data

(1) (SSM 24-22-11)

(2) (WDM 24-22-11)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Supply electrical power from IDG 1. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(c) If the IDG does not come on line and go off line or maintenance messages show, then do the Fault Isolation Procedure below.

(d) If the IDG comes on line and goes off line and there are no maintenance messages show, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace GCB 1, C801.

These are the tasks:

Breaker Removal, AMM TASK 24-21-41-000-801,

Breaker Installation, AMM TASK 24-21-41-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) Supply electrical power from IDG 1. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(c) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(d) If the IDG comes on line and goes off line and there no maintenance messages show, then you corrected the fault.

(e) If the IDG does not come on line and go off line or maintenance messages show, then continue.

(2) Do this check of the GCB control and sense wiring:

(a) Remove GCU 1, G10. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector D340 from GCB 1, C801 located in the P91 panel.

(c) Disconnect connector D10904 from the Auxiliary Power Breaker (APB), C803 located in the P91 panel.

(d) Do a wiring check between these pins of connector D10890A on the E2-1 rack and D340 removed from GCB 1, C801:

D10890A	D340
pin 35	pin 1
pin 23	pin 11
pin 36	pin 24
pin 36	pin 14
pin 18	pin 4

(e) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(f) Do a check for continuity between connector D340 (removed from GCB 1) pin 19 and ground.

(g) If there is no continuity, then do these steps:

1) Repair the wiring.

(h) Do a check for continuity between connector D10904 (removed from the APB) pin 20 and ground.

(i) If there is no continuity, then do these steps:

1) Repair the wiring.

(j) Do a wiring check between these pins of connector D10890A on the E2-1 rack and D10904 removed from the APB, C803:

D10890A	D10904
pin 19	pin 5

(k) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(l) Re-install GCU 1, G10. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(m) Re-connect connector D340 to GCB 1, C801 located in the P91 panel.

(n) Re-connect connector D10904 to the APB, C803 located in the P91 panel.

(o) If any of the wires listed above need to be repaired, then do these steps:

1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

2) Supply electrical power from IDG 1. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

4) If the IDG comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(p) If you did not find any problems with the wiring, then continue.

(3) Replace GCU 1, G10.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) Supply electrical power from IDG 1. To supply electrical, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(c) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(d) If the IDG comes on line and goes off line and no maintenance messages show, then you corrected the fault.

——— END OF TASK ———

808. GCB/APB FAULT For GCU 2 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) GCB/APB FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects that the applicable Generator Control Breaker (GCB) is not in the commanded position.

B. Possible Causes

(1) Generator Control Breaker (GCB) 2, C802

(2) Generator Control Unit (GCU) 2, G12

(3) Wiring

C. Circuit Breakers

(1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

D. Related Data

(1) (SSM 24-22-21)

(2) (WDM 24-22-21)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Supply electrical power from IDG 2. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(c) If the IDG does not come on line and go off line or maintenance messages show, then do the Fault Isolation Procedure below.

(d) If the IDG comes on line and goes off line and no maintenance messages show, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace GCB 2, C802.

These are the tasks:

Breaker Removal, AMM TASK 24-21-41-000-801,

Breaker Installation, AMM TASK 24-21-41-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) Supply electrical power from IDG 2. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(c) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(d) If the IDG comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(e) If the IDG does not come on line and go off line or maintenance messages show, then continue.

(2) Do this check of the GCB control and sense wiring:

(a) Remove GCU 2, G12. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector D344 from GCB 2, C802 located in the P92 panel.

(c) Disconnect connector D10904 from the Auxiliary Power Breaker (APB), C803 located in the P91 panel.

(d) Do a wiring check between these pins of connector D10892A on the E4-2 rack and connector D344 removed from GCB 2, C802:

D10892A	D344
pin 35	pin 1
pin 23	pin 11
pin 36	pin 24
pin 36	pin 14
pin 18	pin 4

(e) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(f) Do a check for continuity between connector D344 (removed from GCB 2) pin 19 and ground.

(g) If there is no continuity, then do these steps:

1) Repair the wiring.

(h) Do a check for continuity between connector D10904 (removed from the APB) pin 21 and ground.

(i) If there is no continuity, then do these steps:

1) Repair the wiring.

(j) Do a wiring check between these pins of connector D10892A on the E4-2 rack and connector D10904 removed from the APB, C803:

D10892A	D10904
pin 19	pin 6

(k) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(l) Re-install GCU 2, G12. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(m) Re-connect connector D344 to GCB 2, C802 located in the P92 panel.

(n) Re-connect connector D10904 to the APB, C803 located in the P91 panel.

(o) If any of the wires listed above need to be repaired, then do these steps:

1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

2) Supply electrical power from IDG 2. To supply electrical, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

4) If the IDG comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(p) If you did not find any problems with the wiring, then continue.

(3) Replace GCU 2, G12.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) Supply electrical power from IDG 2. To supply electrical, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(c) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(d) If the IDG comes on line and goes off line and no maintenance messages show, then you corrected the fault.

——— END OF TASK ———

809. GCB/APB FAULT For APU GCU - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) GCB/APB FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects that the Auxiliary Power Breaker (APB) is not in the commanded position.

B. Possible Causes

(1) Auxiliary Power Breaker (APB), C803

(2) APU Generator Control Unit (GCU), G14

(3) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	12	C01285	GENERATOR APU GEN CONT UNIT

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
C	9	C01326	APU GEN CONT UNIT

D. Related Data

(1) (SSM 24-22-31)

(2) (WDM 24-22-31)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Supply electrical power from the APU. To supply electrical power, do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

(b) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

(c) If the APU generator does not come on line and go off line or maintenance messages show, then do the Fault Isolation Procedure below.

(d) If the APU generator comes on line and goes off line and no maintenance messages show, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace the APB, C803.

These are the tasks:

Breaker Removal, AMM TASK 24-21-41-000-801,

Breaker Installation, AMM TASK 24-21-41-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) Supply electrical power from the APU. To supply electrical power, do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

(c) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

(d) If the APU generator comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(e) If the APU generator does not come on line and go off line or maintenance messages show, then continue.

(2) Do this check of the APB control and sense wiring:

(a) Remove the APU GCU, G14. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector D10904 from the APB, C803 located in the P91 panel.

(c) Do a wiring check between these pins of connector D10896A on the E2-1 rack and connector D10904 removed from the APB, C803:

D10896A	D10904
pin 35	pin 1
pin 23	pin 11
pin 36	pin 24
pin 36	pin 14
pin 18	pin 4

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(e) Do a check for continuity between connector D10904 (removed from the APB) pin 19 and ground.

(f) If there is no continuity, then do these steps:

1) Repair the wiring.

(g) Re-install the APU GCU, G14. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(h) Re-connect connector D10904 to the APB, C803 located in the P91 panel.

(i) If any of the wires listed above need to be repaired, then do these steps:

1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

2) Supply electrical power from the APU. To supply electrical power, do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

3) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

4) If the APU generator comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(j) If you did not find any problems with the wiring, then continue.

(3) Replace the APU GCU, G14.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(b) Supply electrical power from the APU. To supply electrical power, do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

(c) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

(d) If the APU generator comes on line and goes off line and no maintenance messages show, then you corrected the fault.

——— END OF TASK ———

810. BTB FAULT For GCU 1 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) BTB FAULT.

(2) This message occurs when the generator control unit detects that the Bus Tie Breaker (BTB) is not in the commanded position.

B. Possible Causes

(1) Bus Tie Breaker (BTB) 1, C804

(2) Generator Control Unit (GCU) 1, G10

(3) Wiring

C. Circuit Breakers

(1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

D. Related Data

(1) (SSM 24-23-11)

(2) (WDM 24-23-11)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

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

(b) If both TRANSFER BUS OFF lights on the P5-4 panel do not go off when external power is applied, then do the Fault Isolation Procedure below.

(c) Set the GRD PWR switch on the P5-4 panel to the OFF position.

(d) If both TRANSFER BUS OFF lights on the P5-4 panel do not come on when external power is removed, then do the Fault Isolation Procedure below.

(e) If both TRANSFER BUS OFF lights on the P5-4 panel go off and come on and no maintenance messages show, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace BTB 1, C804.

These are the tasks:

Breaker Removal, AMM TASK 24-21-41-000-801,

Breaker Installation, AMM TASK 24-21-41-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

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

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

(d) If external power comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(e) If external power does not come on line and go off line or maintenance messages show, then continue.

(2) Do this check of the BTB control and sense wiring:

(a) Remove GCU 1, G10. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector D10908 from BTB 1, C804 located in the P91 panel.

(c) Do a wiring check between these pins of connector D10890B at the E2-1 rack and connector D10908 removed from BTB 1, C804:

D10890B	D10908
pin 54	pin 1
pin 66	pin 11
pin 53	pin 24
pin 53	pin 14
pin 29	pin 4

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(e) Do a check for continuity between connector D10908 (removed from BTB 1) pin 19 and ground.

(f) If there is no continuity, then do these steps:

1) Repair the wiring.

(g) Re-install GCU 1, G10. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(h) Re-connect connector D10908 to BTB 1, C804 located in the P91 panel.

(i) If any of the wires listed above need to be repaired, then do these steps:

1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

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

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

4) If external power comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(j) If you did not find any problems with the wiring, then continue.

(3) Replace GCU 1, G10.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

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

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

1) If external power comes on line and goes off line and no maintenance messages show, then you corrected the fault.

END OF TASK

811. BTB FAULT For GCU 2 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) BTB FAULT.

(2) This message occurs when the generator control unit detects that the Bus Tie Breaker (BTB) is not in the commanded position.

B. Possible Causes

(1) Bus Tie Breaker (BTB) 2, C805

(2) Generator Control Unit (GCU) 2, G12

(3) Wiring

C. Circuit Breakers

(1) This is the primary circuit breaker related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

D. Related Data

(1) (SSM 24-23-21)

(2) (WDM 24-23-21)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

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

(b) If both TRANSFER BUS OFF lights on the P5-4 panel do not go off when external power is applied, then do the Fault Isolation Procedure below.

(c) Set the GRD PWR switch on the P5-4 panel to the OFF position.

(d) If both TRANSFER BUS OFF lights on the P5-4 panel do not come on when external power is removed, then do the Fault Isolation Procedure below.

(e) If both TRANSFER BUS OFF lights on the P5-4 panel go off and come on and no maintenance messages show, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace BTB 2, C805.

These are the tasks:

Breaker Removal, AMM TASK 24-21-41-000-801,

Breaker Installation, AMM TASK 24-21-41-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

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

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

(d) If external power comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(e) If external power does not come on line and go off line or maintenance messages show, then continue.

(2) Do this check of the BTB control and sense wiring:

(a) Remove GCU 2, G12. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Disconnect connector D10910 from BTB 2, C805 located in the P92 panel.

(c) Do a wiring check between these pins of connector D10892B at the E4-2 rack and connector D10910 removed from BTB 2, C805:

D10892B	D10910
pin 54	pin 1
pin 66	pin 11
pin 53	pin 24
pin 53	pin 14
pin 29	pin 4

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(e) Do a check for continuity between connector D10908 (removed from BTB 1) pin 19 and ground.

(f) If there is no continuity, then do these steps:

1) Repair the wiring.

(g) Re-install GCU 2, G12. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(h) Re-connect connector D10910 to BTB 2, C805 located in the P92 panel.

(i) If any of the wires listed above need to be repaired, then do these steps:

1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

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

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

4) If external power comes on line and goes off line and no maintenance messages show, then you corrected the fault.

(j) If you did not find any problems with the wiring, then continue.

(3) Replace GCU 2, G12.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

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

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

1) If external power comes on line and goes off line and no maintenance messages show, then you corrected the fault.

END OF TASK

812. FEEDER FAULT for GCU 1 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) FEEDER FAULT

(2) This message shows when the GCU 1 detects that the Differential Fault Current is 20 ±5A or more for at least 70 ±10 mSec.

(3) This message can also show if the phase sequence has been reversed on the Power Feeders or the POR Sense Wires.

NOTE: You can use the AC Voltmeter on the P5-13 Panel to see if the Generator is being excited.

If the FEEDER FAULT message is caused by Reversed Phase Sequence, the Generator will excite when the GEN Control Switch is set to ON, but the GCB will not close.

If the FEEDER FAULT message is being caused by a Differential Current Fault, the Generator will not be excited.

B. Possible Causes

(1) IDG Power Feeders

(2) IDG, G9

(3) GEN 1 Differential Protection Current Transformer (DPCT), T374

NOTE: If the troubleshooting shows a defective Current Transformer, the airline must send the Rigid Bus Assembly back to Honeywell. Speak or write to Honeywell for more data.

(4) GCU 1, G10

(5) Wiring

(6) Engine Wire Harness, MW0312

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

D. Related Data

(1) WDM 24-21-11

(2) WDM 24-24-11

(3) SSM 24-21-11

(4) SSM 24-24-11

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power from IDG 1. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If the IDG does not trip OFF and the maintenance message FEEDER FAULT does not show on the GCU Front Panel, then there was an intermittent fault.

(b) If the IDG trips OFF and/or the maintenance message FEEDER FAULT shows on the GCU Front Panel, then do the Fault Isolation Procedure below.

(3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

F. Fault Isolation Procedure

(1) Do this check of the Power Feeders and the POR Wiring (WDM 24-21-11):

(a) Remove GCU 1, G10. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Remove the four Power Feeders from the IDG:

1) Remove the two screws that hold the IDG terminal cover.

2) Remove the IDG terminal cover.

3) Remove the two screws that hold the fanning strip to the IDG.

4) Remove the four terminal nuts that hold the Power Feeders to the IDG terminal block.

5) Remove the four Power Feeders from the IDG.

NOTE: Do not let the feeder terminations to touch each other or the airplane structure when you do the wiring checks.

(c) Remove the three IDG Power Feeders from the P91 Panel at TB5001:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P91 Terminal Block.

2) Remove the three Power Feeders from the P91.

NOTE: Do not let the feeder terminations to touch each other or the airplane structure when you do the wiring checks.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

(e) Remove the GEN 1 PWR IND Lamps from the front and rear of the P91 Panel.

(f) Examine the Power Feeder Wiring between the IDG 1 and Terminal Bock TB5001 on the P91 Panel as follows (WDM 24-21-11):

NOTE: Use a Low Resistance Ohmmeter to measure the Resistance between the Power Feeder removed from the IDG 1 Neutral Terminal and Ground:

IDG 1 TERMINAL	P91 PNL TB5001
term T1	term A
term T2	term B
term T3	term C

TERMINAL		RESISTANCE
term N	GD3834-AC	0.1 Ohms

(g) Use an insulation resistance tester, COM-1276 and do a check for isolation from Ground and other Power Feeders (WDM 24-21-11).

1) Make sure that the Resistance from Ground and other feeders is more than 40 MΩ at a Test Output Voltage of 500V DC.

(h) Examine the wiring between the P91 Panel Terminal Block TB5001 and the GCU 1 connector at the E2-1 Shelf as follows:

NOTE: Do a check for short circuits, wire to wire or wire to Ground.

P91 PNL TB5001	GCU 1 D10890A
term A	pin 7
term B	pin 15
term C	pin 16

	D10890A	RESISTANCE
GD3200-AC	pin 17	0.1 Ohms

(i) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Install the three IDG Power Feeders on the P91 Panel at the TB5001 studs.

NOTE: Make sure that the phase sequence is correct.

a) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

3) Install the Power Feeders on the IDG:

a) Install the four nuts and tighten the nuts to 144 in-lb (16.3 N·m) to 168 in-lb (19 N·m).

b) Install the IDG terminal cover.

c) Install the two screws on the IDG terminal cover and tighten to 20 in-lb (2.3 N·m) to 22 in-lb (2.5 N·m).

d) Attach the fanning strip to the IDG with the two screws and tighten to 26 in-lb (2.9 N·m) to 30 in-lb (3.4 N·m).

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

5) Re-install the GEN 1 PWR IND Lamps at the front and rear of the P91 Panel.
6) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
7) Do the Repair Confirmation at the end of this task.

(j) If you did not find a problem with the wiring, then continue.

1) Re-install the Power Feeder cables to the Terminal Block TB5001 and the IDG 1 per the steps above
2) Re-install the GEN 1 PWR IND Lamps at the front and rear of the P91 Panel.
3) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

(2) Do this check of the IDG Current Transformer (WDM 24-24-11):

(a) Disconnect connector DP1205 from the IDG 1.

(b) Measure the Resistance at the IDG 1 Receptacle as follows:

IDG 1 D1205 Receptacle	IDG 1 D1205 Receptacle
pin 12	pin 3
pin 13	pin 3
pin 14	pin 3

1) Make sure that the Resistance measurements match one of the values shown below for all three phases:

NOTE: There are two different Current Transformers that can be installed in the IDG.

- 21.5 ±3 Ohms at 77°F (25°C) or
- 12 ±2 Ohms at 77°F (25°C)

(c) If the Resistance is not in the specifications shown above, then replace the IDG.1. These are the tasks:

- Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
- Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801

1) Re-connect connector DP1205 to the IDG 1.

2) Re-install the GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Do the Repair Confirmation at the end of this task.

(d) If the resistance is in the specified range, then continue.

(3) Do this check of the Engine 1 Firewall and IDG 1 wiring (WDM 24-24-11):

(a) Disconnect connector D30234 from the Engine 1 Firewall Disconnect.

(b) Examine the wiring between the Engine 2 Firewall Disconnect and the IDG 1 as follows

Firewall Disconnect Engine 1 DP1234	IDG 1 D1205
29	3
28	14
27	13
13	12

(c) If you find a problem with the wiring, then do these steps:

1) Replace the Wire Harness, MW0312. These are the tasks:

- Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
- Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00

2) Re-connect connector D30234 to the Engine 1 Firewall Disconnect.

3) Re-install the GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

4) Do the Repair Confirmation at the end of this task.

(d) If you did not find a problem with the wiring, then continue.

(4) Do this check of the IDG Current Transformer Wiring (WDM 24-24-11):

(a) Examine the wiring between the IDG 1 connector and the GCU 1 connector at the E2-1 Shelf as follows:

IDG 1 - AS0001L FIREWALL D30234	**GCU 1 D10890A**
pin 29	pin 53
pin 28	pin 54
pin 27	pin 42
pin 13	pin 41

(b) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Re-connect connector D30234 to the Engine 1 Firewall Disconnect (AS0001L Firewall).

4) Do the Repair Confirmation at the end of this task.

(c) If you did not find any problems with the wiring or the IDG, then continue.

(5) Do this check of the GEN 1 DPCT, T374 Wiring (WDM 24-24-11).

(a) Re-connect connector D30234 to the Engine 1 Firewall Disconnect (AS0001L Firewall).

(b) Remove the GEN 1 DPCT, T374. This is the task: Current Transformer Removal, AMM TASK 24-21-71-000-801.

(c) Examine the wiring between the GEN 1 DPCT connector and the GCU 1 connector at the E2-1 Shelf as follows:

GEN 1 DPCT D11746	**GCU 1 D10890A**
pin 1	pin 38
pin 2	pin 39
pin 3	pin 51
pin 4	pin 52
pin 5	pin 52
pin 6	pin 52

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install GEN 1 DPCT, T374. This is the task: Current Transformer Installation, AMM TASK 24-21-71-400-801.

3) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

4) Do the Repair Confirmation at the end of this task.

(e) If you do not find a problem with the wiring, then do these steps:

1) Install a new GEN 1 DPCT, T374. This is the task: Current Transformer Installation, AMM TASK 24-21-71-400-801.

2) Re-install GCU 1, G10. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Do the Repair Confirmation at the end of this task.

(6) Replace GCU 1, G10. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801

(a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power from IDG 1. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If the IDG does not trip OFF and the maintenance message FEEDER FAULT does not show, then you corrected the problem.

(b) If the IDG trips OFF line and/or the maintenance message FEEDER FAULT still shows, then continue the Fault Isolation Procedure at the subsequent step.

(3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

——— END OF TASK ———

813. FEEDER FAULT For GCU 2 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) FEEDER FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects that the differential fault current is 20 +/- 5A or greater for at least 70 +/- 10mSec.

(3) This message can also occur if the phase sequence has been reversed on the feeders or the POR sense wires.

NOTE: If the FEEDER FAULT message is caused by reversed phase sequence, the generator will excite when the GEN Control Switch is set to ON, but the GCB will not close. You can use the AC voltmeter on the P5-13 panel to see if the generator is being excited. If the FEEDER FAULT message is being caused by a differential current fault, the generator will not be excited.

B. Possible Causes

(1) IDG Power Feeders

(2) Integrated Drive Generator (IDG), G9

(3) GEN 2 Differential Protection Current Transformer (DPCT), T375

NOTE: If the troubleshooting shows a defective current transformer, the airline must send the rigid bus assembly back to Honeywell. Speak or write to Honeywell for more data.

(4) Wiring

(5) Generator Control Unit (GCU) 2, G12

(6) Engine wire harness, MW0312

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

D. Related Data

(1) (SSM 24-21-21)

(2) (SSM 24-24-21)

(3) (WDM 24-21-21)

(4) (WDM 24-24-21)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Supply electrical power from IDG 2. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

1) If the IDG does not trip OFF and the maintenance message FEEDER FAULT does not show on the GCU Front Panel, then there was an intermitten fault.

2) If the IDG trips OFF and/or the maintenance message FEEDER FAULT shows on the GCU Front Panel, then do the Fault Isolation Procedure below.

(b) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

F. Fault Isolation Procedure

(1) Do this check of the IDG Power Feeders and the POR wiring (WDM 24-21-21):

(a) Remove GCU 2, G12. This is the task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Remove the four Power Feeders from the IDG:

1) Remove the two screws that hold the IDG terminal cover.

2) Remove the IDG terminal cover.

3) Remove the two screws that hold the fanning strip to the IDG.

4) Remove the four terminal nuts that hold the Power Feeders to the IDG terminal block.

5) Remove the four Power Feeders from the IDG.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the three IDG Power Feeders from the P92 Panel at TB5005:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P91 Terminal Block.

2) Remove the three Power Feeders from the P92.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

(e) Remove the GEN 2 PWR Lamps from the front and rear of the P92 Panel.

(f) Examine the Power Feeder wiring between the IDG 2 and Terminal Block TB5005 on the P92 Panel as follows (WDM 24-21-21):

NOTE: Use a Low Resistance Ohmmeter to measure the Resistance between the Power Feeder removed from the IDG 2 Neutral Terminal and Ground.

IDG 2 Terminal	P92 PNL TB5005
T1	A
T2	B
T3	C

TERMINAL		RESISTANCE
N	GD3934-AC	0.1 Ohms

(g) Use an insulation resistance tester, COM-1276 and do a check for isolation from Ground and other Power Feeders (WDM 24-21-21).

1) Make sure that the resistance from ground and other feeders is more than 40 MegaOhms at a test output voltage of 500 VDC.

(h) Examine the wiring between the P92 Panel Terminal Block TB5005 and the GCU 2 connector at the E4-2 Shelf as follows:

NOTE: Do a check for short circuits, wire to wire or wire to ground.

P92 PNL D10892A	GCU 2 TB5005
pin 7	A
pin 15	B
pin 16	C

D10892A		RESISTANCE
pin 17	GD3404-AC	0.1 Ohms

(i) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Install the three IDG Power Feeders on the P92 Panel at the TB5005 studs.

NOTE: Make sure that the phase sequence is correct.

a) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

3) Install the Power Feeders on the IDG:

a) Install the four nuts and tighten the nuts to 144 in-lb (16.3 N·m) to 168 in-lb (19 N·m).

b) Install the IDG terminal cover.

c) Install the two screws on the IDG terminal cover and tighten to 20 in-lb (2.3 N·m) to 22 in-lb (2.5 N·m).

d) Attach the fanning strip to the IDG with the two screws and tighten to 26 in-lb (2.9 N·m) to 30 in-lb (3.4 N·m).

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

5) Re-install the GEN 2 PWR Lamps at the front and rear of the P92 Panel.

6) Re-install the GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

7) Do the Repair Confirmation at the end of the task.

(j) If you did not find a problem with the wiring, then continue.

1) Re-install the Power Feeder cables to the Terminal Block TB5005 and the IDG 2 per the steps above.

2) Re-install the GEN 2 PWR Lamps at the front and rear of the P92 Panel.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

(2) Do this check of the IDG Current Transformer (WDM 24-24-21):

(a) Disconnect connector DP1205 from IDG 2.

(b) Measure the Resistance at the IDG 2 Receptacle as follows:

IDG 2 D1205 Receptacle	IDG 2 D1205 Receptacle
pin 12	pin 3
pin 13	pin 3
pin 14	pin 3

1) Make sure that the Resistance measurements match one of the values shown below for all three phases:

NOTE: There are two different Current Transformers that can be installed in the IDG.

- 21.5 ±3 Ohms at 77°F (25°C) or
- 12 ±2 Ohms at 77°F (25°C)

2) If the Resistance is not in the specifications shown above, then replace the IDG 2. These are the tasks:
   - Integrated Drive Generator (IDG) Removal, AMM TASK 24-11-11-000-801
   - Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801
   a) Reconnect connector DP1205 to IDG 2.
   b) Re-install the GCU2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
   c) Do the Repair Confirmation at the end of the task.

(c) If the resistance is in the specified range, then continue.

(3) Do this check of the Engine 2 Firewall and IDG 2 wiring (WDM 24-24-21).

(a) Disconnect connector D30434 from the Engine 2 Firewall Disconnect.

(b) Examine the wiring between the Engine 2 Firewall Disconnect and the IDG 2 as follows:

Firewall Disconnect DP1234	IDG 2 DP1205
29	3
28	14
27	13
13	12

(c) If you find a problem with the wiring, then do these steps:

1) Replace the Wire Harness, MW0312. These are the tasks:
   - Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00
   - Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00
2) Re-connect connector D30434 to the Engine 2 Firewall Disconnect.
3) Re-install the GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.
4) Do the Repair Confirmation at the end of this task.

(d) If you did not find a problem with the wiring, then continue.

(4) Do a check of the IDG Current Transformer Wiring (WDM 24-24-21).

(a) Examine the wiring between the IDG 2 connector and the GCU 2 connector at the E4-2 Shelf as follows:

IDG 2 - AS0001R FIREWALL D30434	GCU 2 D10892A
pin 29	pin 53
pin 28	pin 54
pin 27	pin 42
pin 13	pin 41

(b) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install the GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Re-connect connector D30434 to the Engine 2 Fire Disconnect (AS0001R Firewall).

4) Do the Repair Confirmation at the end of this task.

(c) If you did not find any problems with the wiring or the IDG, then continue.

(5) Do this check of the wiring for the GEN 2 DPCT, T375 Wiring (WDM 24-24-21):

(a) Re-connect connector D30434 to the Engine 2 Firewall Disconnect (AS0001R Firewall).

(b) Remove the GEN 2 DPCT, T375. This is the task: Current Transformer Removal, AMM TASK 24-21-71-000-801.

(c) Examine the wiring between the GEN 2 DPCT connector and the GCU 2 connector at the E4-2 Shelf as follows:

GEN 2 DPCT	**GCU 2**
D11748	**D10892A**
pin 4	pin 52
pin 5	pin 52
pin 6	pin 52
pin 3	pin 51
pin 2	pin 39
pin 1	pin 38

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install GEN 2 DPCT, T375. To install the DPCT, do this task: Current Transformer Installation, AMM TASK 24-21-71-400-801.

3) Re-install the GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

4) Do the Repair Confirmation at the end of this task.

(e) If you do not find a problem with the wiring, then do these steps:

1) Install a new GEN 2 DPCT, T375. To install the DPCT, do this task: Current Transformer Installation, AMM TASK 24-21-71-400-801

2) Re-install GCU 2, G12. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Do the Repair Confirmation at the end of this task.

(6) Replace GCU 2, G12. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801,
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power from IDG 2. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If the IDG does not trip OFF and the maintenance message FEEDER FAULT does not show, then you corrected the problem.

(b) If the IDG trips OFF line and/or the maintenance message FEEDER FAULT still shows, then continue the Fault Isolation Procedure at the subsequent step.

(3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

——— END OF TASK ———

814. FEEDER FAULT For APU GCU - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) FEEDER FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects that the differential fault current is 20 +/- 5A or greater for at least 70 +/- 10mSec.

(3) This message can also occur if the phase sequence has been reversed on the feeders or the POR sense wires.

NOTE: If the FEEDER FAULT message is caused by reversed phase sequence, the generator will excite when the APU GEN Control Switch is set to ON, but the APB will not close. You can use the AC voltmeter on the P5-13 panel to see if the generator is being excited. If the FEEDER FAULT message is being caused by a differential current fault, the generator will not be excited.

B. Possible Causes

(1) Auxiliary Power Unit (APU) power feeders

(2) APU Generator, G13

(3) APU Differential Protection Current Transformer (DPCT), T376

NOTE: If the troubleshooting shows a defective current transformer, the airline must send the rigid bus assembly back to Honeywell. Speak or write to Honeywell for more data.

(4) Wiring

(5) APU Generator Control Unit (GCU), G14

(6) APU Wire Harness

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	12	C01285	GENERATOR APU GEN CONT UNIT

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	11	C00015	AC APU GEN IND

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
C	9	C01326	APU GEN CONT UNIT

D. Related Data

(1) (SSM 24-21-31)

(2) (SSM 24-24-31)

(3) (WDM 24-21-31)

(4) (WDM 24-24-31)

E. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Supply electrical power from the APU. This is the task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

(b) If the APU generator comes on line and goes off line and the maintenance message FEEDER FAULT does not show, then there was an intermittent fault.

(c) If the APU generator does not come on line and/or the maintenance message FEEDER FAULT shows, then do the Fault Isolation Procedure below.

(d) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

F. Fault Isolation Procedure

(1) Do this check of the APU power feeders and the POR wiring (WDM 24-21-31):

(a) Remove the APU GCU, G14. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Remove the four power feeders from the APU Generator, G13:

1) Gain access to the APU Generator, G13 through the APU Cowl Door.

2) Remove the APU generator terminal cover.

3) Remove the four terminal nuts and washers that hold the power feeders to the APU Generator terminal block.

4) Remove the four power feeders from the APU Generator, G13.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the three APU generator power feeders from the P91 panel at TB5002:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the power feeders to the P91 terminal block.

2) Remove the three power feeders from the P91.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	11	C00015	AC APU GEN IND

(e) Remove the APU PWR IND Lamps from the front and rear of the P91 Panel.

(f) Examine the wiring between the APU Generator and the Terminal Block TB5002 on the P91 Panel as follows:

NOTE: Use a Low Resistance Ohmmeter to measure the Resistance between the Power Feeder removed from the APU Generator Neutral Terminal and Ground.

APU Generator	TB5002
Terminal	TB5002
T1	A
T2	B
T3	C

TERMINAL		RESISTANCE
N	GD2564-AC	0.1 Ohms

(g) Use the insulation resistance tester, COM-1276 to check for isolation from ground and other Power Feeders.

1) Make sure the resistance from ground and other feeders is more than 40 MegaOhms at a test output voltage of 500 VDC.

(h) Examine the wiring between the P91 Panel Terminal Block TB5002 and the APU GCU connect on the E2-1 Shelf as follows:

P91 PNL	APU GCU
TB5002	D10896A
A	pin 7
B	pin 15
C	pin 16

	D10896A	RESISTANCE
GD276-ST	pin 17	0.1 Ohms

(i) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Install the three APU Generator Power Feeders on the P91 Panel at the TB5002 studs.

NOTE: Make sure that the phase sequence is correct.

a) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

3) Install the Power Feeders on the APU Generator, G13:

a) Install the Power Feeders on the APU Generator terminal studs.

b) Install the four nuts and washers and tighten the nuts to 125 in-lb (14.1 N·m).

c) Install the APU Generator terminal cover.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	11	C00015	AC APU GEN IND

5) Re-install the APU PWR IND Lamps at the front and rear of the P91 Panel.

6) Re-install the APU GCU, G14. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

7) Do the Repair Confirmation at the end of this task.

(j) If you did not find any problems with the wiring, then continue.

1) Re-install the Power Feeder cables to the Terminal Block TB5002 and the APU Generator per the steps above.

2) Re-install the APU PWR IND Lamps at the front and rear of the P91 Panel.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	11	C00015	AC APU GEN IND

(2) Do this check of the APU Generator Current Transformer (WDM 24-24-31).

(a) Measure the Resistance at the APU Generator Receptacle as follows:

Receptacle		Receptacle
pin 4	. . . . .	pin 1
pin 4	. . . . .	pin 2
pin 4	. . . . .	pin 3

1) Make sure the resistance is 10.5 +/- 1 ohms.

(b) If the Resistance is not in the specifications shown above, then replace the APU Generator. These are the tasks:

- Starter-Generator Removal, AMM TASK 49-41-21-000-801
- Starter-Generator Installation, AMM TASK 49-41-21-400-801

1) Re-install the APU GCU, G14. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

2) Do the Repair Confirmation at the end of this task.

(c) If the resistance is in the specified range, then continue.

(3) Do this check of the APU Generator Current Transformer and wiring (WDM 24-24-31):

(a) Disconnect connector D11118 from the APU Firewall Disconnect.

(b) Examine the wiring between the APU GCU and the APU Generator as follows:

E2-1 PNL D10896A		APU FIREWALL DISCONNECT D11118
pin 53	. . . . .	pin 4
pin 54	. . . . .	pin 23
pin 42	. . . . .	pin 22
pin 41	. . . . .	pin 3

(c) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install the APU GCU, G14. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Re-connect connector D11118 to the APU Firewall Disconnect.

4) Do the Repair Confirmation at the end of this task.

(d) If you did not find any problems with the wiring or the APU Generator, then continue.

(4) Do this check of the wiring for the APU DPCT, T376 (WDM 24-24-31):

(a) Remove the APU DPCT, T376. This is the task: Current Transformer Removal, AMM TASK 24-21-71-000-801.

(b) Examine the wiring between the APU DPCT connector and the APU GCU connector at the E2-1 Shelf as follows:

P91 PNL D11750	E2-1 Shelf D10896A
pin 4	pin 52
pin 5	pin 52
pin 6	pin 52
pin 3	pin 51
pin 2	pin 39
pin 1	pin 38

(c) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install the APU DPCT, T376. This is the task: Current Transformer Installation, AMM TASK 24-21-71-400-801.

3) Re-install the APU GCU, G14. This is the task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

4) Do the Repair Confirmation at the end of this task.

(d) If you do not find a problem with the wiring, then do these steps:

1) Install a new APU DPCT, T376. To install the DPCT, do this task: Current Transformer Installation, AMM TASK 24-21-71-400-801.

2) Re-install the APU GCU, G14. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

3) Do the Repair Confirmation at the end of this task.

(5) Replace the APU GCU, G14. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801,
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do the Repair Confirmation at the end of this task.

(6) Examine the APU Wire Harness. This is the task: Wire Harness Inspection, AMM TASK 49-11-01-200-801.

(a) If the harness is damaged, then repair or replace the APU Wire Harness. These are the tasks:

- APU Harness Repair, AMM TASK 49-11-01-300-801
- Starter-Generator Wire Harness Removal, AMM TASK 49-11-01-000-801
- Starter-Generator Wire Harness Installation, AMM TASK 49-11-01-400-801

(b) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power from the APU Generator. This is the task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

(a) If the APU Generator does not trip OFF and the maintenance message FEEDER FAULT does not show, then you corrected the problem.

(b) If the APU Generator trips OFF and/or the maintenance message FEEDER FAULT shows, then continue the Fault Isolation Procedure at the subsequent step.

(3) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

END OF TASK

815. DIST/BUS FAULT For GCU 1 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) DIST/BUS FAULT

(2) This message shows when the GCU 1 detects an Overcurrent condition or an unbalanced Phase Current condition.

B. Possible Causes

(1) Tie Bus Power Feeders

(2) IDG Power Feeders

(3) Rigid Bus Assembly - P91 Panel

(4) Rigid Bus Assembly - P92 Panel

(5) Power Distribution Panel (PDP) 1, P91

(6) Power Distribution Panel (PDP) 2, P92

(7) GCU 1, G10

(8) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

D. Related Data

(1) WDM 24-21-11

(2) WDM 24-23-31

(3) WDM 24-51-11

(4) SSM 24-21-11

(5) SSM 24-23-31

(6) SSM 24-51-11

E. Initial Evaluation

(1) Make sure that the BAT Switch on the P5-13 Panel is in the ON position.

(2) Open and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1

NOTE: The GCU locks out the BTB for a DIST/BUS fault. When the DIST/BUS maintenance message shows on the GCU, you must cycle the power to the GCU to clear the lockout.

(3) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(4) Supply Electrical Power to both Transfer Buses from IDG 1 for at least 5 minutes. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If BTB 1 and GCB 1 do not trip open and the DIST/BUS FAULT maintenance message does not show on the GCU Front Panel, then there was an intermittent fault.

(b) If GCB 1 trips, (1 GEN OFF BUS Light on the P5-4 Panel comes ON), and the DIST/BUS FAULT maintenance message shows on the GCU Front Panel, then do the Fault Isolation Procedure - GCB 1 Trips Open below.

(c) If BTB 1 trips, (2 TRANSFER BUS OFF Light on the P5-4 Panel comes ON), and the DIST/BUS FAULT maintenance message shows on the GCU Front Panel, then do the Fault Isolation Procedure - BTB 1 Trips Open below.

(5) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

F. Fault Isolation Procedure - GCB 1 Trips Open

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

(1) Do these checks of the IDG power feeders and the rigid bus assembly (WDM 24-21-11):

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

WARNING MAKE SURE THAT YOU REMOVE ALL ELECTRICAL POWER BEFORE YOU DISCONNECT OR CONNECT POWER FEEDERS. HIGH VOLTAGE CAN CAUSE INJURY TO PERSONS.

(b) Remove the three IDG Power feeders from the P91 panel at TB5001 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the power feeders to the P91 terminal block TB5001.

2) Remove the three Power Feeders from the P91.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the four Power Feeders from the IDG:

1) Remove the two screws that hold the IDG terminal cover.

2) Remove the IDG terminal cover.

3) Remove the two screws that hold the fanning strip to the IDG.

4) Remove the four terminal nuts that hold the Power Feeders to the IDG terminal block.

5) Remove the four Power Feeders from the IDG.

NOTE: Do not let the feeder terminations to touch each other or the airplane structure when you do the wiring checks.

(d) Do a check for continuity between these terminations on the IDG and the feeders that you removed from TB5001 on the P91 panel:

IDG 1 TERMINAL	P91 PNL TERMINAL
T1	A
T2	B
T3	C

TERMINAL		RESISTANCE
N	GD3834-AC	0.1 Ohms

1) If the feeders do not have continuity, then repair the Power Feeders.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

(f) Remove the GEN1 PWR IND Lamps from the front and rear of the P91 Panel.

(g) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5001 on the P91 Panel and GCB 1, C801 in the P91 Panel:

NOTE: Make sure that there is continuity between these points and that they are isolated from each other and ground.

P91 PNL TB5001 TERMINAL	P91 PNL C801 TERMINAL
A	A1
B	B1
C	C1

1) If you find a problem with the Rigid Bus Assembly in the P91 Panel, then replace it. These are the tasks:

- Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801
- Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

(i) Install the GEN1 PWR IND Lamps at the front and rear of the P91 Panel.

(j) Install the three IDG Power Feeders on the P91 Panel as follows:

1) Install the three IDG Power Feeders on the P91 Panel at the TB5001 studs.

NOTE: Make sure that the phase sequence is correct.

a) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

(k) Install the Power Feeders on the IDG:

1) Install the four nuts and tighten the nuts to 144 in-lb (16.3 N·m) to 168 in-lb (19 N·m).

2) Install the IDG terminal cover.

3) Install the two screws on the IDG terminal cover and tighten to 20 in-lb (2.3 N·m) to 22 in-lb (2.5 N·m).

4) Attach the fanning strip to the IDG with the two screws and tighten to 26 in-lb (2.9 N·m) to 30 in-lb (3.4 N·m).

(l) If you replaced the Rigid Bus Assembly or repaired the Power Feeders, then do these steps:

1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

2) Supply Electrical Power to both Transfer Buses from IDG 1 for at least 5 minutes. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

3) If GCB 1 does not trip open and no maintenance messages show, then you corrected the fault.

a) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(m) If you do not find a problem with the Rigid Bus Assembly or with the Power Feeders, then continue.

1) Re-install the Power Feeder cables to the TB5001 and the IDG 1 per the steps above.

2) Re-install the GEN1 PWR IND Lamps at the front and rear of the P91 Panel.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	12	C00014	AC GEN 1 IND

(2) Replace GCU 1, G10. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801

(a) Do the Repair Confirmation at the end of this task.

NOTE: If GCB 1 continues to trip open, the problem is in the P91 Panel, on the Load side of GCB 1.

(3) Replace PDP 1, P91. These are the tasks:

- Power Distribution Panel Removal, AMM TASK 24-21-21-000-801
- Power Distribution Panel Installation, AMM TASK 24-21-21-400-801

(a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - BTB 1 Trips Open

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

(1) Do these checks of the tie bus and the rigid bus assemblies (WDM 24-23-31):

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

WARNING MAKE SURE THAT YOU REMOVE ALL ELECTRICAL POWER BEFORE YOU DISCONNECT OR CONNECT POWER FEEDERS. HIGH VOLTAGE CAN CAUSE INJURY TO PERSONS.

(b) Remove the three tie Bus Power Feeders from the P91 Panel at TB5004 as follows:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P91 Terminal Block TB5004.

2) Remove the three Power Feeders from the P91 Panel.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the three Tie Bus Power Feeders from the P92 panel at TB5008 as follows:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P92 Terminal Block TB5008.

2) Remove the three Power Feeders from the P92 Panel.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(d) Remove the TIE BUS PWR IND Lamps from the front and rear of the P91 and P92 Panels.

(e) Do a continuity check for the Power Feeders that were removed from TB5004 on the P91 panel and TB5008 on the P92 Panel:

TB5004	TB5008
A	A
B	B
C	C

1) If the feeders do not have continuity, then repair the Power Feeders.

(f) Do an isolation check of these Power Feeders that were removed from TB5004 on the P91 Panel and TB5008 on the P92 Panel. Use an insulation resistance tester, COM-1276 to do a check for isolation from ground and other feeders:

1) Make sure that the Resistance from ground and other feeders is more than 40 MΩ at a test output voltage of 500V DC.

TB5004	TB5008
A	A
B	B
C	C

2) If you find a problem with the Power Feeders, then repair the feeders.

(g) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5004 on the P91 panel and BTB 1, C804 in the P91 Panel:

NOTE: Make sure that there is continuity between these points and that they are isolated from each other and ground.

TB5004	C804
A	A2
B	B2
C	C2

(h) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5008 on the P92 Panel and BTB 2, C805 in the P92 Panel:

NOTE: Make sure that there is continuity between these points and that they are isolated from each other and ground.

TB5008	C805
A	A2
B	B2
C	C2

1) If you find a problem with one of the Rigid Bus Assemblies, then replace the applicable assembly. These are the tasks:
   - Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801
   - Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801

(i) Install the three tie Bus Power Feeders on the P91 Panel at TB5004 as follows:
1) Install the three Power Feeders on the terminal studs and make sure that the phase sequence is correct.
2) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

(j) Install the three Tie Bus Power Feeders on the P92 Panel at TB5008 as follows:
1) Install the three Power Feeders on the terminal studs, make sure that the phase sequence is correct.
2) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

(k) Install the TIE BUS PWR IND Lamps at the front and rear of the P91 and P92 Panels.

(l) If you replaced a Rigid Bus Assembly or repaired the Power Feeders, then do these steps:
1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.
2) Supply Electrical Power to both Transfer Buses from IDG 1 for at least 5 minutes. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.
3) If BTB 1 does not trip open and no maintenance messages show, then you corrected the fault.
   a) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(m) If you did not find a problem with a Rigid Bus Assembly or the Power Feeders, then continue.

(2) Replace GCU 1, G10. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801

(a) Do the Repair Confirmation at the end of this task.

NOTE: If BTB 1 continues to trip open, the problem is in the P92 Panel, on the Load side of BTB 2.

(3) Replace PDP 2, P92. These are the tasks:

- Power Distribution Panel Removal, AMM TASK 24-21-21-000-801
- Power Distribution Panel Installation, AMM TASK 24-21-21-400-801

(a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power to both Transfer Buses from IDG 1 for at least 5 minutes. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If BTB 1 and GCB 1 do not trip open and the DIST/BUS FAULT maintenance message does not show on the GCU Front Panel, then you corrected the problem.

(b) If GCB 1 or BTB 1 trips, and/or the maintenance message DIST/BUS FAULT still shows, then continue the applicable Fault Isolation Procedure at the subsequent step.

(3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

——— END OF TASK ———

816. DIST/BUS FAULT For GCU 2 - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) DIST/BUS FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects an overcurrent condition or an unbalanced phase current condition.

B. Possible Causes

(1) Tie Bus Power Feeders
(2) IDGPower Feeders
(3) Rigid Bus Assembly - P91 Panel
(4) Rigid Bus Assembly - P92 Panel
(5) Power Distribution Panel (PDP) 1, P91
(6) Power Distribution Panel (PDP) 2, P92
(7) GCU 2, G12
(8) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

D. Related Data

(1) (SSM 24-21-21)

(2) (SSM 24-23-31)

(3) (SSM 24-51-21)

(4) (WDM 24-21-21)

(5) (WDM 24-23-31)

(6) (WDM 24-51-21)

E. Initial Evaluation

(1) Make sure the BAT switch on the P5-13 panel is in the ON position.

(2) Open and close this circuit breaker:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	11	C01284	GENERATOR CONT UNIT 2

NOTE: The GCU locks out the BTB for a DIST/BUS fault. When the DIST/BUS maintenance message shows on the GCU, you must cycle the power to the GCU to clear the lockout.

(3) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Supply electrical power to both transfer buses from IDG 2 for at least 5 minutes. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) If Generator Control Breaker (GCB) 2 trips, (2 GEN OFF BUS light on the P5-4 panel comes on), then do the Fault Isolation Procedure - GCB 2 Trips Open below.

(c) If BTB 2 trips, (1 TRANSFER BUS OFF light on the P5-4 panel comes on), the do the Fault Isolation Procedure - BTB 2 Trips Open below.

(d) If BTB 2 and GCB 2 do not trip open and no maintenance messages show, then there was an intermittent fault.

NOTE: Feeder faults can be intermittent, you may want to do a check of the feeders even if you are not able to reproduce the DIST/BUS fault.

(e) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

F. Fault Isolation Procedure - GCB 2 Trips Open

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

(1) Do this check of the IDG Power Feeders and the Rigid Bus Assembly (WDM 24-21-21):

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

WARNING MAKE SURE THAT YOU REMOVE ALL ELECTRICAL POWER BEFORE YOU DISCONNECT OR CONNECT POWER FEEDERS. HIGH VOLTAGE CAN CAUSE INJURY TO PERSONS.

(b) Remove the three IDG Power Feeders from the P92 panel at TB5005 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P92 terminal block TB5005.

2) Remove the three Power Feeders from the P92.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the four Power Feeders from the IDG:

1) Remove the two screws that hold the IDG terminal cover.

2) Remove the IDG terminal cover.

3) Remove the two screws that hold the fanning strip to the IDG.

4) Remove the four terminal nuts that hold the Power Feeders to the IDG terminal block.

5) Remove the four Power Feeders from the IDG.

NOTE: Do not let the feeder terminations to touch each other or the airplane structure when you do the wiring checks.

(d) Do a check for continuity between these terminations on the IDG and the feeders that were removed from TB5005 on the P92 panel:

IDG 2 TERMINAL	P92 PNL TERMINAL
T1	A
T2	B
T3	C

TERMINAL		RESISTANCE
N	GD3934-AC	0.1 Ohms

1) If the feeders do not have continuity, then repair the feeders.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

(f) Remove the GEN2 PWR IND Lamps from the front and rear of the P92 Panel.

(g) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5005 on the P92 panel and GCB 2, C802 in the P92 panel:

NOTE: Make sure that there is continuity between these points and that they are isolated from each other and ground.

P92 PNL TB5005 TERMINAL	P92 PNL C802 TERMINAL
A	A1
B	B1
C	C1

1) If you find a problem with the Rigid Bus Assembly in the P92 panel, then replace it. These are the tasks:
   - Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
   - Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

(i) Re-install the GEN2 PWR IND Lamps at the front and rear of the P92 Panel.

(j) Re-install the three IDG Power Feeders on the P92 Panel as follows:

1) Install the three IDG Power Feeders on the P92 Panel at the TB5005 studs.

   NOTE: Make sure that the phase sequence is correct.

   a) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

(k) Re-install the Power Feeders on the IDG:

1) Install the four nuts and tighten the nuts to 144 in-lb (16.3 N·m) to 168 in-lb (19 N·m).
2) Install the IDG terminal cover.
3) Install the two screws on the IDG terminal cover and tighten to 20 in-lb (2.3 N·m) to 22 in-lb (2.5 N·m).
4) Attach the fanning strip to the IDG with the two screws and tighten to 26 in-lb (2.9 N·m) to 30 in-lb (3.4 N·m).

(l) If you replaced the Rigid Bus Assembly or repaired the Power Feeders, then do these steps:

1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.
2) Supply electrical power to both transfer buses from IDG 2 for at least 5 minutes. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.
3) If GCB 2 does not trip open and no maintenance messages show, then you corrected the fault.
   a) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(m) If you do not find a problem with the Rigid Bus Assembly or the Power Feeders, then continue.

1) Re-install the Power Feeder cables to the TB5005 and the IDG 2 per the steps above.
2) Re-install the GEN2 PWR IND Lamps at the front and rear of the P91 Panel.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
B	12	C00016	AC GEN 2 IND

(2) Replace the GCU 2, G12.

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801,
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do the Repair Confirmation at the end of this task.

NOTE: If GCB 2 continues to trip open after you did the above listed checks, the problem is in the P92 panel on the load side of GCB 2.

(3) Replace the PDP 2, P92. These are the tasks:

- Power Distribution Panel Removal, AMM TASK 24-21-21-000-801,
- Power Distribution Panel Installation, AMM TASK 24-21-21-400-801.

(a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - BTB 2 Trips Open

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

(1) Do this check of the tie bus and the Rigid Bus Assemblies (WDM 24-23-31):

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

WARNING MAKE SURE THAT YOU REMOVE ALL ELECTRICAL POWER BEFORE YOU DISCONNECT OR CONNECT POWER FEEDERS. HIGH VOLTAGE CAN CAUSE INJURY TO PERSONS.

(b) Remove the three tie bus Power Feeders from the P91 panel at TB5004 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P91 terminal block.

2) Remove the three Power Feeders from the P91.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the three tie bus Power Feeders from the P92 panel at TB5008 as follows:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P92 terminal block.

2) Remove the three Power Feeders from the P92.

NOTE: Do not allow the feeder terminations to touch each other or the airplane structure when you do the wiring checks.

(d) Remove the TIE BUS PWR IND Lamps from the front and rear of the P91 and P92 Panels.

(e) Do a continuity check of the Power Feeders removed from TB5004 on the P91 panel and TB5008 on the P92 panel:

TB5004	TB5008
A	A
B	B
C	C

1) If the feeders do not have continuity, then repair the Power Feeders.

(f) Do an isolation check of the Power Feeders that were removed from TB5004 on the P91 panel and TB5008 on the P92 panel. Use a insulation resistance tester, COM-1276 to check for isolation from ground and other feeders.

1) Make sure the resistance from ground and other feeders is more than 40 MegaOhms at a test output voltage of 500 VDC.

TB5004	TB5008
A	A
B	B
C	C

2) If you find a problem with the Power Feeders, repair the feeders.

(g) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5004 on the P91 panel and BTB 1, C804 in the P91 panel:

NOTE: Check that there is continuity between these points and that they are isolated from each other and ground.

TB5004	C804
A	A2
B	B2
C	C2

(h) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5008 on the P92 panel and BTB 2, C805 in the P92 panel:

NOTE: Check that there is continuity between these points and that they are isolated from each other and ground.

TB5008	C805
A	A2
B	B2
C	C2

1) If you find a problem with one of the Rigid Bus Assemblies, then replace the applicable assembly. These are the tasks:
   - Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
   - Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

(i) Install the three tie bus Power Feeders on the P91 panel at TB5004 per the steps that follow:

1) Install the three Power Feeders on the terminal studs, make sure phase sequence is correct.

2) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

(j) Install the three tie bus Power Feeders on the P92 panel at TB5008 per the steps that follow:

1) Install the three Power Feeders on the terminal studs, make sure phase sequence is correct.

2) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

(k) Install the TIE BUS PWR IND Lamps at the front and rear of the P91 and P92 Panels.

(l) If you replaced a Rigid Bus Assembly or repaired the Power Feeders, then do these steps:

1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

2) Supply electrical power to both transfer buses from IDG 2 for at least 5 minutes. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

3) If BTB 2 does not trip open and no maintenance messages show, then you corrected the fault.

a) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(m) If you do not find a problem with one of the rigid bus assemblies or with the Power Feeders, then continue.

(2) Replace GCU 2, G12. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801,
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do the Repair Confirmation at the end of this task.

NOTE: If BTB 2 continues to trip open after you did the above listed checks, the problem is in the P91 panel on the load side of BTB 1.

(3) Replace the PDP 1, P91. These are the tasks:

- Power Distribution Panel Removal, AMM TASK 24-21-21-000-801,
- Power Distribution Panel Installation, AMM TASK 24-21-21-400-801.

(a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(2) Supply Electrical Power to both Transfer Buses from IDG 1 for at least 5 minutes. This is the task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If BTB 2 and GCB 2 do not trip open and the DIST/BUS FAULT maintenance message does not show on the GCU Front Panel, then you corrected the problem.

(b) If GCB 2 or BTB 2 trips, and/or the maintenance message DIST/BUS FAULT still shows, then continue the applicable Fault Isolation Procedure at the subsequent step.

(3) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

END OF TASK

817. DIST/BUS FAULT For APU GCU - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) DIST/BUS FAULT.

(2) This message occurs when the Generator Control Unit (GCU) detects an overcurrent condition or an unbalanced phase current condition.

B. Possible Causes

(1) Tie Bus Power Feeders

(2) APU Generator Power Feeders

(3) Rigid Bus Assembly - P91 Panel

(4) Rigid Bus Assembly - P92 Panel

(5) Power Distribution Panel (PDP) 1, P91

(6) Power Distribution Panel (PDP) 2, P92

(7) APU Generator Control Unit (GCU), G14

(8) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	12	C01285	GENERATOR APU GEN CONT UNIT
F	13	C01290	GENERATOR BUS PWR CONT UNIT

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	11	C00015	AC APU GEN IND
C	10	C01327	BUS PWR CONT UNIT

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	12	C00936	EXT PWR BPCU
C	9	C01326	APU GEN CONT UNIT

D. Related Data

(1) (SSM 24-21-31)

(2) (SSM 24-23-31)

(3) (SSM 24-51-11)

(4) (SSM 24-51-21)

(5) (WDM 24-21-31)

(6) (WDM 24-23-31)

(7) (WDM 24-51-11)

(8) (WDM 24-51-21)

E. Initial Evaluation

(1) Make sure external power is removed.

(2) Make sure the BAT switch on the P5-13 panel is in the ON position.

(3) Open and close these circuit breakers:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	13	C01290	GENERATOR BUS PWR CONT UNIT

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
C	10	C01327	BUS PWR CONT UNIT

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	12	C00936	EXT PWR BPCU

NOTE: The BPCU locks out the BTB's for a DIST/BUS fault. When the DIST/BUS maintenance message shows on the APU GCU, you must cycle power to the BPCU to clear the lockout.

(4) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

(b) If either BTB 1 or BTB 2 trips, (1 or 2 TRANSFER BUS OFF lights on the P5-4 panel comes on), and the APB does not trip, (APU GEN OFF BUS light on the P5-4 panel stays off), then do the Fault Isolation Procedure - BTB 1 or BTB 2 Trips Open below.

(c) If the Auxiliary Power Breaker (APB) trips, (APU GEN OFF BUS light on the P5-4 panel comes on), then do the Fault Isolation Procedure - APB Trips Open below.

(d) If BTB 1, BTB 2 and the APB do not trip open and no maintenance messages show, then there was an intermittent fault.

NOTE: Feeder faults can be intermittent, you may want to do a check of the feeders even if you are not able to reproduce the DIST/BUS fault.

1) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

F. Fault Isolation Procedure - BTB 1 or BTB 2 Trips Open

(1) Replace the APU GCU, G14. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801,
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do the Repair Confirmation at the end of this task.

NOTE: If BTB 1 continues to trip open after you did the above listed checks, the problem is in the P91 panel on the load side of BTB 1. If BTB 2 continues to trip open after you did the above listed checks, the problem is in the P92 panel on the load side of BTB 2.

(2) Replace the applicable Power Distribution Panel; PDP 1, P91 or PDP 2, P92. These are the tasks:

- Power Distribution Panel Removal, AMM TASK 24-21-21-000-801,
- Power Distribution Panel Installation, AMM TASK 24-21-21-400-801.

(a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - APB Trips Open

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

(1) Do these checks of the tie bus and the Rigid Bus Assemblies (WDM 24-23-31):

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

WARNING MAKE SURE THAT YOU REMOVE ALL ELECTRICAL POWER BEFORE YOU DISCONNECT OR CONNECT POWER FEEDERS. HIGH VOLTAGE CAN CAUSE INJURY TO PERSONS.

(b) Remove the three tie bus Power Feeders from the P91 panel at TB5004 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P91 Terminal Block.

2) Remove the three Power Feeders from the P91.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the three tie bus Power Feeders from the P92 panel at TB5008 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P92 Terminal Block.

2) Remove the three Power Feeders from the P92.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(d) Remove the TIE BUS PWR IND Lamps from the front and rear of the P91 and P92 Panels.

(e) Do a continuity check of the feeders that were removed from TB5004 on the P91 panel and TB5008 on the P92 panel:

TB5004	TB5008
A	A
B	B
C	C

1) If the feeders do not have continuity, then repair the Power Feeders.

(f) Do an isolation check of the Power Feeders that were removed from TB5004 on the P91 panel and TB5008 on the P92 panel. Use a insulation resistance tester, COM-1276 to check for isolation from ground and other feeders.

1) Make sure the resistance from ground and other feeders is more than 40 MegaOhms at a test output voltage of 500 VDC.

TB5004	TB5008
A	A
B	B
C	C

2) If you find a problem with the Power Feeders, then repair the feeders.

(g) Do a check of the Rigid Bus Assembly between these terminations of Terminal Block TB5004 on the P91 panel and BTB 1, C804 in the P91 panel:

NOTE: Make sure there is continuity between these points and that they are isolated from each other and ground.

TB5004	C804
A	A2
B	B2
C	C2

1) If you find a problem with the Rigid Bus Assembly, then replace the Rigid Bus Assembly in the P91 Panel. These are the tasks:

- Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
- Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

(h) Do a check of the Rigid Bus Assembly between these terminations of Terminal Block TB5004 on the P91 panel and the APB, C803 in the P91 panel:

NOTE: Make sure there is continuity between these points and that they are isolated from each other and ground.

TB5004	C803
A	A2
B	B2
C	C2

1) If you find a problem with the Rigid Bus Assembly, then replace the Rigid Bus Assembly in the P91 Panel. These are the tasks:

- Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
- Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

(i) Do a check of the Rigid Bus Assembly between these terminations of Terminal Block TB5008 on the P92 panel and BTB 2, C805 in the P92 panel:

NOTE: Make sure there is continuity between these points and that they are isolated from each other and ground.

TB5008	C805
A	A2
B	B2
C	C2

1) If you find a problem with the Rigid Bus Assembly, then replace the Rigid Bus Assembly in the P92 Panel. These are the tasks:

- Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,

- Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

(j) Install the three tie bus Power Feeders on the P91 panel at TB5004 per the steps that follow:

1) Install the three Power Feeders on the terminal studs, make sure phase sequence is correct.

2) Install the three washers and nuts and tighten the nuts to 180-200 pound-inches (20.3-22.6 Newton Meters).

(k) Install the three tie bus Power Feeders on the P92 panel at TB5008 per the steps that follow:

1) Install the three Power Feeders on the terminal studs, make sure phase sequence is correct.

2) Install the three washers and nuts and tighten the nuts to 180-200 pound-inches (20.3-22.6 Newton Meters).

(l) Install the TIE BUS PWR IND Lamps at the front and rear of the P91 and P92 Panels.

(m) If you replaced a Rigid Bus Assembly or repaired the Power Feeders, then do the Repair Confirmation at the end of this task.

(n) If you did not find a problem with one of the Rigid Bus Assemblies or with the Power Feeders, then continue.

(2) Do this check of the APU generator Power Feeders and the Rigid Bus Assembly (WDM 24-21-31):

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

WARNING MAKE SURE THAT YOU REMOVE ALL ELECTRICAL POWER BEFORE YOU DISCONNECT OR CONNECT POWER FEEDERS. HIGH VOLTAGE CAN CAUSE INJURY TO PERSONS.

(b) Remove the three APU Power Feeders from the P91 panel at TB5002 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P91 Terminal Block.

2) Remove the three Power Feeders from the P91.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the four power feeders from the APU Generator, G13:

1) Gain access to the APU Generator, G13 through the APU Cowl Door.

2) Remove the APU generator terminal cover.

3) Remove the four terminal nuts and washers that hold the power feeders to the APU Generator terminal block.

4) Remove the four power feeders from the APU Generator, G13.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(d) Do a continuity check for between these terminations on the APU generator and the feeders that were removed from TB5002 on the P91 panel (WDM 24-21-31):

APU GEN TERMINAL		P91 PNL TB5002 TERMINAL
T1	. . . . .	A
T2	. . . . .	B
T3	. . . . .	C

TERMINAL			RESISTANCE
N	. . . . .	GD2564-AC	0.1 Ohms

1) If you find a problem with the Power Feeders, then repair the feeders.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	11	C00015	AC APU GEN IND

(f) Remove the APU PWR IND Lamps from the front and rear of the P91 Panel.

(g) Do a check of the rigid bus assembly between these terminations of Terminal Block TB5002 on the P91 panel and the APB, C803 in the P91 panel:

NOTE: Make sure there is continuity between these points and that they are isolated from each other and ground.

P91 PNL TB5002 TERMINAL		P91 PNL C803 TERMINAL
A	. . . . .	A1
B	. . . . .	B1
C	. . . . .	C1

1) If you find a problem with the Rigid Bus Assembly, then replace the Rigid Bus Assembly in the P91 Panel. These are the tasks:
   - Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
   - Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
B	11	C00015	AC APU GEN IND

(i) Install the APU PWR IND Lamps at the front and rear of the P91 Panel.

(j) Install the three APU generator Power Feeders on the P91 panel at TB5002 per the steps that follow:

1) Install the three Power Feeders on the terminal studs, make sure phase sequence is correct.

2) Install the three washers and nuts and tighten the nuts to 180-200 pound-inches (20.3-22.6 Newton Meters).

(k) Install the Power Feeders on the APU Generator, G13.

1) Install the Power Feeders on the APU Generator terminal studs.
2) Install the four nuts and washers and tighten the nuts to 125 in-lb (14.1 N·m).
3) Install the APU Generator terminal cover.

(l) If you replaced the Rigid Bus Assembly or repaired the Power Feeders, then do the Repair Confirmation at the end of this task.

(m) If you did not find a problem with the Rigid Bus Assembly or with the Power Feeders, then continue.

(3) Replace the APU GCU, G14. These are the tasks:

- Generator Control Unit Removal, AMM TASK 24-21-81-000-801,
- Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) Do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

1) If the BTB 1, BTB 2, or APB do not trip open and the maintenance messages DIST/BUS FAULT does not show, then you corrected the problem.

2) If either BTB 1, BTB 2, or APB trips open, and/or the maintenance message DIST/BUS FAULT still shows, then continue the applicable Fault Isolation Procedure at the subsequent step.

(b) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

——— END OF TASK ———

818. Number 1 TRANSFER BUS OFF Light Flickering - Fault Isolation

A. Description

(1) This observed fault can occur when the Generator Control Unit (GCU) senses any of these conditions:

(a) An open PMG.

B. Possible Causes

(1) Wiring
(2) Generator Control Unit (GCU) 1, G10
(3) Integrated Drive Generator (IDG) 1, G9
(4) Engine wire harness, MW0312

C. Related Data

(1) (SSM 24-11-11)
(2) (SSM 24-21-11)
(3) (SSM 24-22-11)
(4) (WDM 24-11-11)
(5) (WDM 24-21-11)
(6) (WDM 24-22-11)

D. Initial Evaluation

(1) Do the steps that follow:

(a) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) Open these circuit breakers:

F/O Electrical System Panel, P6-4

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

(c) Put the GEN 2 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 2 come on.

1) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights come on or flicker, then do the fault isolation procedure below for IDG 1.

2) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then there was an intermittent fault.

(d) Close these circuit breakers:

F/O Electrical System Panel, P6-4

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

(e) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

E. Fault Isolation Procedure

(1) Do this check of the Permanent Magnet Generator (PMG) wiring:

(a) Disconnect connector DP1205 from IDG 1.

(b) Do a check of the resistance between these pins of connector DP1205 removed from IDG 1:

1) The resistance of the three checks must be within +/- 0.2 ohms of each other.

2) The maximum resistance value for each check is 4 ohms.

DP1205		DP1205
pin 1	. . . . .	pin 6
pin 6	. . . . .	pin 7
pin 7	. . . . .	pin 1

(c) If you do not find a problem with the resistance measurements, then "Do the check of the PMG winding in the IDG" below.

(d) If you find a problem with the resistance measurements, then continue.

(e) Remove GCU 1, G10. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(f) Do a wiring check between these pins of connector D10890A on the E2-1 rack and connector DP1205 removed from IDG 1:

D10890A		DP1205
pin 3	. . . . .	pin 1
pin 4	. . . . .	pin 6
pin 5	. . . . .	pin 7

(g) If you find a problem with the wiring, then repair the wiring.

(h) Re-install GCU 1, G10. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(i) Re-connect connector DP1205 to the IDG 1.

(j) If you repaired any of the wires listed above, then do these steps:

1) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

2) Open these circuit breakers:

F/O Electrical System Panel, P6-4

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

3) Put the GEN 2 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 2 come on.

4) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then you corrected the fault.

5) Close these circuit breakers:

F/O Electrical System Panel, P6-4

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

6) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(k) If you did not find any problems with the wiring, then continue.

(2) Replace GCU 1, G10.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) Open these circuit breakers:

F/O Electrical System Panel, P6-4

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

(c) Put the GEN 2 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 2 come on.

(d) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then you corrected the fault.

(e) Close these circuit breakers:

F/O Electrical System Panel, P6-4

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

(f) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(3) Do this check of the PMG winding in the IDG:

(a) Disconnect connector DP1205 from IDG 1.

(b) Do a check of the resistance between these sockets on the IDG receptacle:

1) The resistance of the three checks must be within +/- 0.2 ohms of each other.

2) The maximum resistance value for each check is 1.6 ohms.

IDG Receptacle		IDG Receptacle
pin 1	. . . . .	pin 6
pin 6	. . . . .	pin 7
pin 7	. . . . .	pin 1

(c) If you find a problem with the resistance, then replace IDG 1. To replace the IDG,

These are the tasks:

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

Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801.

1) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

2) Open these circuit breakers:

F/O Electrical System Panel, P6-4

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

3) Put the GEN 2 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 2 come on.

4) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then you corrected the fault.

(d) Close these circuit breakers:

F/O Electrical System Panel, P6-4

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

(e) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(f) If you did not find any problems with the winding, then continue.

(4) Examine the engine wire harness, MW0312:

(a) If the harness connector is damaged, then replace the wire harness, MW0312. These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

1) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817

2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-4

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

3) Put the GEN 2 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 2 come on.

4) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then you corrected the fault.

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

F/O Electrical System Panel, P6-4

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

6) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

——— END OF TASK ———

819. Number 2 TRANSFER BUS OFF Light Flickering - Fault Isolation

A. Description

(1) This observed fault can occur when the Generator Control Unit (GCU) senses any of these conditions:

(a) An open PMG.

B. Possible Causes

(1) Wiring

(2) Generator Control Unit (GCU) 2, G12

(3) Integrated Drive Generator (IDG) 2, G9

(4) Engine wire harness, MW0312

C. Related Data

(1) (SSM 24-11-21)

(2) (SSM 24-21-21)

(3) (SSM 24-22-21)

(4) (WDM 24-11-21)

(5) (WDM 24-21-21)

(6) (WDM 24-22-21)

D. Initial Evaluation

(1) Do the steps that follow:

(a) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) Open these circuit breakers:

F/O Electrical System Panel, P6-4

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

(c) Put the GEN 1 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 1 come on.

1) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights come on or flicker, then do the fault isolation procedure below for IDG 2.

2) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then there was an intermittent fault.

(d) Close these circuit breakers:

F/O Electrical System Panel, P6-4

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

(e) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

E. Fault Isolation Procedure

(1) Do this check of the Permanent Magnet Generator (PMG) wiring:

(a) Disconnect connector DP1205 from IDG 2.

(b) Do a check of the resistance between these pins of connector DP1205 removed from IDG 2:

1) The resistance of the three checks must be within +/- 0.2 ohms of each other.

2) The maximum resistance value for each check is 4 ohms.

DP1205		DP1205
pin 1	. . . . .	pin 6
pin 6	. . . . .	pin 7
pin 7	. . . . .	pin 1

(c) If you do not find a problem with the resistance measurements, then "Do the check of the PMG winding in the IDG" below.

(d) If you find a problem with the resistance measurements, then continue.

(e) Remove the GCU 2, G12. To remove it, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(f) Do a wiring check between these pins of connector D10892A on the E4-2 rack and connector DP1205 removed from IDG 2:

D10892A		DP1205
pin 3	. . . . .	pin 1
pin 4	. . . . .	pin 6
pin 5	. . . . .	pin 7

(g) If you find a problem with the wiring, then repair the wiring.

(h) Re-install GCU 2, G12. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(i) Re-connect connector DP1205 to the IDG 2.

(j) If you repaired any of the wires listed above, then do these steps:

1) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

2) Open these circuit breakers:

F/O Electrical System Panel, P6-4

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

3) Put the GEN 1 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 1 come on.

4) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then you corrected the fault.

5) Close these circuit breakers:

F/O Electrical System Panel, P6-4

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

6) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(k) If you did not find any problems with the wiring, then continue.

(2) Replace GCU 2, G12.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) Open these circuit breakers:

F/O Electrical System Panel, P6-4

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

(c) Put the GEN 1 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 1 come on.

(d) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then you corrected the fault.

(e) Close these circuit breakers:

F/O Electrical System Panel, P6-4

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

(f) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(3) Do this check of the PMG winding in the IDG:

(a) Disconnect connector DP1205 from IDG 2.

(b) Do a check of the resistance between these sockets on the IDG receptacle:

1) The resistance of the three checks must be within +/- 0.2 ohms of each other.

2) The maximum resistance value for each check is 1.6 ohms.

IDG Receptacle		IDG Receptacle
pin 1	. . . . .	pin 6
pin 6	. . . . .	pin 7
pin 7	. . . . .	pin 1

(c) If you find a problem with the resistance, then replace IDG 2. To replace the IDG,

These are the tasks:

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

Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801.

1) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

2) Open these circuit breakers:

F/O Electrical System Panel, P6-4

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

3) Put the GEN 1 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 1 come on.

4) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then you corrected the fault.

(d) Close these circuit breakers:

F/O Electrical System Panel, P6-4

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

(e) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

(f) If you did not find any problems with the winding, then continue.

(4) Examine the engine wire harness, MW0312:

(a) If the harness connector is damaged, then replace the wire harness, MW0312. These are the tasks:

Nacelle Wiring Harnesses Removal, AMM TASK 71-51-03-000-801-F00,

Nacelle Wiring Harnesses Installation, AMM TASK 71-51-03-400-801-F00.

1) Supply electrical power from the two IDGs. To supply electrical power, do this task: Supply IDG Power, AMM TASK 24-22-00-860-817

2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-4

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

3) Put the GEN 1 switch to OFF and make sure the GEN OFF BUS and SOURCE OFF lights for GEN 1 come on.

4) If the GEN 1 and GEN 2 TRANSFER BUS OFF lights remain off, then you corrected the fault.

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

F/O Electrical System Panel, P6-4

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

6) Do this task: Remove IDG Power, AMM TASK 24-22-00-860-818.

——— END OF TASK ———

820. APU Generator will not come on line - Fault Isolation

A. Description

(1) This observed fault occurs as follows, the APU starts ok, the APU GEN OFF BUS light comes on, but the APU generator will not come on line.

B. Possible Causes

(1) Wiring

C. Related Data

(1) (SSM 24-22-31)

(2) (WDM 24-22-31)

D. Initial Evaluation

(1) Supply electrical power from the APU generator. To supply electrical power, do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

(a) If the APU GEN BUS OFF light comes on but the generator will not come on line, then do the Fault Isolation Procedure below.

(b) If the APU GEN BUS OFF light comes on and the generator comes on line, then there was an intermittent fault.

(c) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

E. Fault Isolation Procedure

(1) Do this wiring check of the APU Remote Fire switch, S16:

(a) In the main wheel well, disconnect connector D48080P from the Remote APU Fire Control Panel, P28.

(b) Do a check for continuity between these pins of connector D48080J on the Remote APU Fire Control Panel, P28:

D48080J	D48080J
pin 15	pin 16

(c) If you do not find continuity between the two pins, then do these steps:

1) Replace the Remote APU Fire Control Panel, P28.

These are the tasks:

Remote APU Control Panel Removal, AMM TASK 26-22-03-000-801,

Remote APU Control Panel Installation, AMM TASK 26-22-03-400-801.

2) Supply electrical power from the APU generator. To supply electrical power, do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

3) If the APU GEN BUS OFF light comes on and the generator comes on line, then you corrected the fault.

4) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

(d) If you find continuity between the two pins, then continue.

(2) Do this check of the APU Remote Fire SW input wiring:

(a) Remove APU GCU, G14. To remove the GCU, do this task: Generator Control Unit Removal, AMM TASK 24-21-81-000-801.

(b) Do a wiring check between these pins of connector D10896A on the E2-1 rack and connector D48080P removed from the APU Fire Control Panel, P28:

D10896A	D48080P
pin 44	pin 16
pin 56	pin 15

(c) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(d) Re-install the APU GCU, G14. To install the GCU, do this task: Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(e) Re-connect connector D48080P to the APU Fire Control Panel, P28.

(f) If any of the wires listed above need to be repaired, then do these steps:

1) Supply electrical power from the APU generator. To supply electrical power, do this task: Supply APU Generator Power, AMM TASK 24-22-00-860-815.

2) If the APU GEN BUS OFF light comes on and the generator comes on line, then you corrected the fault.

3) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816.

(g) If you did not find any problems with the wiring, then, do this task: APU BITE Procedure, AMM TASK 49-61-00-700-801.

END OF TASK

821. IDG drop offline and no fault indicated on the GCU - Fault Isolation

A. Description

(1) This observed fault occurs when IDG drop offline in these cases:

(a) Switch power from one transfer bus to power both transfer buses

(b) Switch power from both transfer buses to power one transfer bus

B. Possible Causes

(1) Integrated Drive Generator (IDG)

C. Initial Evaluation

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

(a) If GEN 1 or GEN 2 source off light is ON and there is no fault indication on the GCU, then do the Fault Isolation Procedure below.

(b) If GEN 1 or GEN 2 source off light is ON and there is fault indication on the GCU, then do the Fault Isolation Procedure for that fault.

(c) If GEN 1 or GEN 2 source off light is not ON and there is no fault indication on the GCU, then there was an intermittent fault.

D. Fault Isolation Procedure

(1) Replace IDG.

These are the tasks:

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

Integrated Drive Generator (IDG) Installation, AMM TASK 24-11-11-400-801.

(a) If GEN 1 or GEN 2 source off light is not ON and there is no fault indication on the GCU, then you corrected the fault.

——— END OF TASK ———

822. TRANSFER BUS OFF Light Illuminates - Fault Isolation

A. Description

(1) This observed fault occurs when the TRANSFER BUS OFF light comes on and power is not available.

(2) The AC Transfer Bus receives power directly from either the IDG, APU, or external power.

(3) The AC Transfer Bus will not allow two AC power sources to supply power to the same transfer bus at the same time. One AC power source can supply power to both transfer buses through the bus tie breakers.

B. Possible Causes

(1) Master Test Relay (R33)

(2) Integrated Drive Generator (IDG)

(3) External Power

(4) Bus Tie Breaker (BTB)

(5) Generator Control Unit (GCU)

(6) Generator Control Breaker (GCB)

C. Related Data

(1) WDM 24-11-11

(2) WDM 24-21-11

(3) WDM 24-28-21

(4) SSM 24-23-11

(5) SSM 24-23-21

(6) SSM 24-22-11

(7) SSM 24-22-21

(8) SSM 24-28-21

D. Initial Evaluation

(1) Do this task: Generator Control Unit BITE Procedure, 24-21 TASK 801.

(a) If a GCU related maintenance message shows, then do the applicable Fault Isolation Procedure.

(b) If no related maintenance messages show, then supply electrical power (AMM PAGEBLOCK 24-22-00/201).

(c) If the applicable TRANSFER BUS OFF light does illuminate, then do the fault isolation procedure below.

(d) If the applicable TRANSFER BUS OFF light does not illuminate, then there was an intermittent fault.

E. Fault Isolation Procedure

(1) Visually examine the Master Test Relay (R33) located on the P6 panel (SSM 24-28-21).

(a) Make sure the Master Test Relay (R33) is in the NORM position.

1) If the Master Test Relay (R33) is in the TEST position, then put the relay in the NORM position.

a) If the applicable TRANSFER BUS OFF light extinguishes, then you corrected the fault.

(b) If the Master Test Relay (R33) is in the NORM position and the applicable TRANSFER BUS OFF light illuminates, then replace the Master Test Relay (R33).

1) If the applicable TRANSFER BUS OFF light does not illuminate, then you corrected the fault.

2) If the applicable TRANSFER BUS OFF light illuminates, then continue.

(2) Check the applicable Bus Tie Breaker (BTB) and the Generator Control Breaker (GCB)(SSM 24-23-11, SSM 24-23-21, SSM 24-22-11, SSM 24-22-21).

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

(b) Check auxiliary contacts of applicable BTB as following and replace the BTB as required (Breaker Removal, AMM TASK 24-21-41-000-801, Breaker Installation, AMM TASK 24-21-41-400-801).

1) PDP1 D11432 (or PDP2 D11454) pin 29 to BTB pin 22 should be grounded.

2) PDP1 D11432 (or PDP2 D11454) pin 50 to BTB pin 19 should be opened.

(c) Check auxiliary contacts of applicable GCB as following and replace the GCB as required (Breaker Removal, AMM TASK 24-21-41-000-801, Breaker Installation, AMM TASK 24-21-41-400-801).

1) PDP1 D11418 pin 21 (or PDP2 D11448 pin 23) to GCB pin 16 should be grounded.
2) PDP1 D11432 pin 33 (or PDP2 D11454 pin 33) to GCB pin 19 should be opened.
3) PDP1 D11432 pin 32 (or PDP2 D11454 pin 32) to GCB pin 22 should be grounded.

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

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

(5) If there are no maintenance messages and the TRANSFER BUS OFF light does not illuminate, then you corrected the fault.

END OF TASK

823. SOURCE OFF Light Illuminates - Fault Isolation

A. Description

(1) This observed fault occurs when the SOURCE OFF Light comes on and the transfer bus is not energized from the selected power source.

(2) The SOURCE OFF Light is related to these power sources:

(a) Integrated Drive Generator (IDG)

(b) Auxiliary Power Unit (APU)

(c) External Power

B. Possible Causes

(1) Master Test Relay, R33

(2) Bus Tie Breaker (BTB)

(3) Auxiliary Power Breaker (APB)

(4) External Power Contactor (EPC)

(5) Generator Control Breaker (GCB)

(6) Bus Power Control Unit (BPCU)

(7) Wiring

(8) AC System Generator and APU Module, P5-4

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
---	---	C00803	AUXILIARY POWER BREAKER
---	---	C00804	BUS TIE BREAKER 1
---	---	C00801	GENERATOR BREAKER 1

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
---	---	C00805	BUS TIE BREAKER 2
---	---	C00937	EXTERNAL POWER CONTACTOR
---	---	C00802	GENERATOR BREAKER 2

D. Related Data

(1) WDM 24-22-11

(2) WDM 24-22-21

(3) WDM 24-28-21

(4) SSM 24-22-11

(5) SSM 24-22-21

(6) SSM 24-28-21

E. Initial Evaluation

(1) Make sure the BAT switch on the P5-13 panel is in the ON position.

(2) Set the BUS TRANS switch on the P5-4 panel to the AUTO position.

(3) Make sure the applicable TRANSFER BUS OFF Light on the P5-4 panel is on.

(4) Connect external power to the P19 panel.

(5) Make sure the blue GRD POWER AVAILABLE Light on the P5-4 panel is on.

(6) Set the GRD PWR switch on the P5-4 panel to the ON position.

(7) Make sure the SOURCE OFF Light on the P5-4 panel does not illuminate.

(a) If the SOURCE OFF Light does illuminate, then do the Fault Isolation Procedure below.

(8) Do this task: APU Starting and Operation, AMM TASK 49-11-00-860-801.

(9) Make sure the APU GEN OFF BUS Light on the P5-4 panel comes on (approximately 50 seconds) after APU start.

(10) Set the applicable APU GEN switch on the P5-4 panel to the ON position.

(11) Make sure the SOURCE OFF Light on the P5-4 panel does not illuminate.

(a) If the SOURCE OFF Light does illuminate, then do the Fault Isolation Procedure below.

(12) Do this task: Remove APU Generator Power, AMM TASK 24-22-00-860-816

(13) Start the applicable engine, do this task: Start the Engine Procedure (Selection), AMM TASK 71-00-00-800-807-F00.

(a) Make sure the blue GEN OFF BUS Light on the P5-4 panel is on.

(b) Set the GEN control switch on the P5-4 panel to the ON position.

(c) Make sure the SOURCE OFF Light on the P5-4 panel does not illuminate.

1) If the SOURCE OFF Light does illuminate, then do the Fault Isolation Procedure below.

(d) Stop the applicable engine, do this task: Stop the Engine Procedure (Usual Engine Stop), AMM TASK 71-00-00-700-819-F00.

(14) If the SOURCE OFF Light does not illuminate, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Visually examine the Master Test Relay System to ensure the Master Test Relay, R33, is functioning properly.

(a) Make sure that the Master Dim and Test Switch, S3, located on the P1-3 Main Instrument Panel, is set to either the DIM or BRT position.

1) If the Master Dim and Test Switch, S3, is set to the TEST position, then put the switch in either the BIM or BRT position.

a) If the applicable SOURCE OFF Light extinguishes, then you corrected the problem.

b) If the Master Dim and Test Switch, S3, is set to either the DIM or BRT position and the related lights on the P5-4 Panel remain illuminated, then replace the Master Test Relay, R33, in the P6 Panel.

NOTE: Related Lights: GEN 1 and 2 BUS OFF, GEN 1 and 2 XFR BUS OFF, GEN 1 and 2 SOURCE OFF, APU GEN OFF BUS, APU DOOR, APU LOW OIL PRESS, APU FAULT, APU OVERSPEED, GND POWER AVAILABLE.

c) If only the related SOURCE OFF Light remains illuminated, then continue with further troubleshooting.

(2) Disconnect the applicable connector from the GCU.

GCU 1 - D10890A

GCU 2 - D10892A

(a) If the applicable SOURCE OFF Light illuminates, then do a check for ground at pin 46 of the applicable connector.

(b) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-connect the applicable connector.

(c) If the applicable SOURCE OFF Light does not illuminate, then continue.

(3) Visually examine the applicable BTB and the GCB (SSM 24-11-11, 24-22-11).

(a) If either BTB or GCB is not closed, then do the applicable task:

1) DIST/BUS FAULT For GCU 1 - Fault Isolation, 24-21 TASK 815

2) DIST/BUS FAULT For GCU 2 - Fault Isolation, 24-21 TASK 816

(b) Do the Repair Confirmation at the end of this task.

(4) Visually examine the APB (SSM 24-11-11, 24-22-11).

(a) If the APB is not closed, then do this task: DIST/BUS FAULT For APU GCU - Fault Isolation, 24-21 TASK 817.

(b) Do the Repair Confirmation at the end of this task.

(c) Replace the AC System Generator and APU Module, P5–4. These are the tasks:

- AC System Generator and APU Module Removal, AMM TASK 24-21-51-000-801,
- AC System Generator and APU Module Installation, AMM TASK 24-21-51-400-801.

(d) Do the Repair Confirmation at the end of this task.

(5) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

(6) If there are no maintenance messages and the SOURCE OFF Light does not illuminate, then you corrected the problem.

G. Repair Confirmation

(1) If the applicable SOURCE OFF light does not illuminate, then you corrected the problem.

(2) If the applicable SOURCE OFF light illuminates, then continue.

END OF TASK

824. IDG Comes Online After 20 Seconds - Fault Isolation

A. Description

- This task is for the IDG comes online after 20 seconds.

B. Possible Causes

- Wiring
- Generator Control Unit (GCU)

C. Related Data

- WDM 24-22-11
- WDM 24-22-21
- WDM 31-62-14
- WDM 31-62-24

D. Initial Evaluation

(1) Do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(a) If the IDGs come online within 20 seconds, then there was an intermittent fault.

(b) If the IDG 1 comes online after 20 seconds, then do the Fault Isolation Procedure I below.

(c) If the IDG 2 comes online after 20 seconds, then do the Fault Isolation Procedure II below.

E. Fault Isolation Procedure I

(1) Do a check for 28 VDC ready to load signal at GCU 1 (WDM 24-22-11).

(a) Do a check for 28 VDC at GCU 1 connector D10890A pin 33.

(b) If 28 VDC is not present, then do these steps:

(WDM 24-22-11, WDM 31-62-14)

1) Do a wiring check between these pins of connector D10890A and D3973B:

D10890A	D3973B
33	H9

2) Do a wiring check between these pins of connector D10890A and D3975B:

D10890A	D3975B
33	H9

3) If you find a problem with the wiring, then do these steps:

a) Repair the wiring.

b) Do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

c) If the IDG 1 come online within 20 seconds, then you corrected the fault.

(c) If 28 VDC is present, then continue.

(2) Replace the GCU 1.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) If the IDG 1 come online within 20 seconds, then you corrected the fault.

F. Fault Isolation Procedure II

(1) Do a check for 28 VDC ready to load signal at GCU 2 (WDM 24-22-21).

(a) Do a check for 28 VDC at GCU 2 connector D10892A pin 33.

(b) If 28 VDC is not present, then do these steps:

(WDM 24-22-21, WDM 31-62-24)

1) Do a wiring check between these pins of connector D10892A and D3973D:

D10892A	D3973D
33	H9

2) Do a wiring check between these pins of connector D10892A and D3975D:

D10892A	D3975D
33	H9

3) If you find a problem with the wiring, then do these steps:

a) Repair the wiring.

b) Do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

c) If the IDG 2 come online within 20 seconds, then you corrected the fault.

(c) If 28 VDC is present, then continue.

(2) Replace the GCU 2.

These are the tasks:

Generator Control Unit Removal, AMM TASK 24-21-81-000-801,

Generator Control Unit Installation, AMM TASK 24-21-81-400-801.

(a) Do this task: Supply IDG Power, AMM TASK 24-22-00-860-817.

(b) If the IDG 2 come online within 20 seconds, then you corrected the fault.

——— END OF TASK ———

801. P5-13 ELEC Light Message BITE Procedure

Figure 201

A. General

(1) You do the BITE procedure at the front panel of the electrical meters, battery and galley power module (P5-13). The P5-13 module is located on the P5 overhead panel in the flight compartment.

(2) The P5-13 module does a self test at power up. If the module has internal faults, preventing normal operation, the meter will display all dashes.

(3) The P5-13 module has an ELEC light which indicates that faults are detected and that the associated maintenance messages are stored in the P5-13.

(4) The maintenance messages show in the order that they occur, except for INTERFACE FAILURE which will show first. The maintenance messages are listed as follows:

NOTE: There can be multiple effects of ELEC light related maintenance messages due to the same root cause.

NOTE: For multiple ELEC light related maintenance messages. Start by troubleshooting the first maintenance message indicated.

(a) INTERFACE FAILURE

(b) BAT CHGR INOP

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(c) AUX BAT CHGR INOP

SHZ ALL

(d) STAT INV INOP

(e) SPCU INOP

(f) VOLT FILTER 1

(5) If any of the maintenance messages are intermittent and no longer exist, the maintenance message is followed by a blank space and the letter "I".

(6) The ELEC light comes on if a fault is detected and the airplane is on the ground. The ELEC light will not come on when the airplane is in air mode.

(7) The maintenance messages are stored in memory even when power is removed from the panel. Messages are cleared manually by using the MAINT switch.

NOTE: Maintenance messages can not be cleared if the fault condition still exists.

B. Prepare for Test

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

C. BITE Procedure

(1) Do the BITE procedure for the P5-13 module:

(a) Set the AC meter selector switch and the DC meter selector switch on the P5-13 front panel to the TEST position.

(b) Push and release the MAINT switch on the P5-13 front panel to start the display test.

NOTE: The display test makes all of the segments of the alphanumeric display show. This lets you make sure the display operates correctly. The display test automatically stops after a complete test cycle.

1) After the display test, the maintenance messages (if there are any), will show on the meter. The maintenance messages show one at a time.

2) Record all ELEC light INOP related maintenance messages.

NOTE: Cycling through the maintenance messages more than once will help to make sure all faults are recorded.

3) Press the MAINT switch again to go to the next maintenance message.

4) After the last maintenance message, make sure this message shows: HOLD BUTTON CLEAR FAULTS.

NOTE: With the AC and DC meter selector switches still in the TEST position, pressing the MAINT switch during the message, FAULTS NOT CLEARED will show and disappear. Afterwards, pressing and releasing the MAINT switch will start the display test followed by showing the maintenance messages.

(c) To save the maintenance messages, do these steps:

1) Push and release the MAINT switch.

2) Make sure the display changes to meter format.

(d) To clear the maintenance messages, do these steps:

NOTE: If there is a trend of a specific INOP-I message, perform the related FIM task even though the fault can be cleared.

1) Push and hold the MAINT switch for 6 +/- 0.2 seconds.

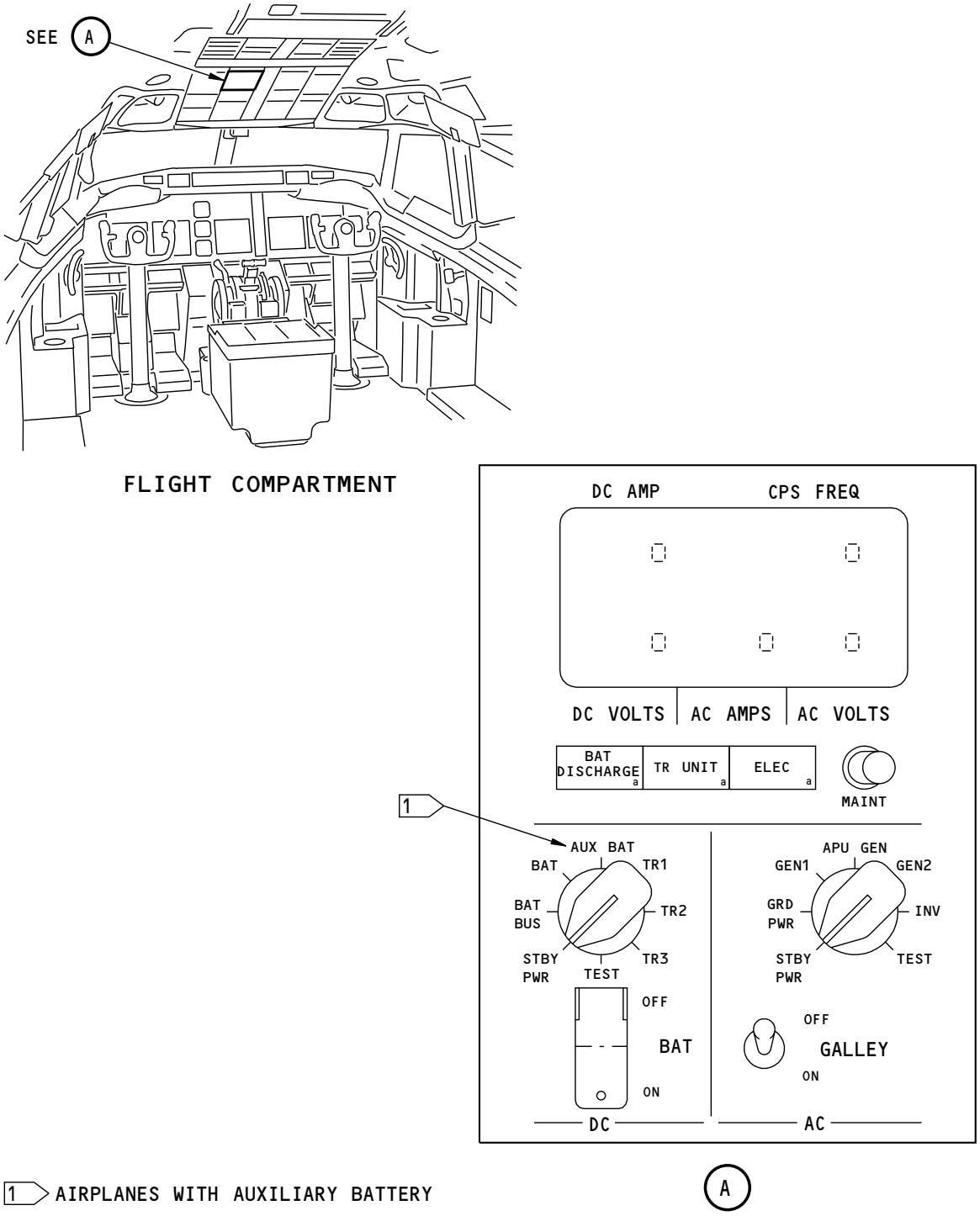
2) Make sure this message shows: FAULTS CLEARED.

NOTE: Maintenance messages can not be cleared if the fault condition still exists.

(e) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
P5-13	AUX BAT CHGR INOP	24-31 TASK 825
P5-13	BAT CHGR INOP	24-31 TASK 829
P5-13	INTERFACE FAILURE	24-31 TASK 819
P5-13	SPCU INOP	24-34 TASK 802
P5-13	STAT INV INOP	24-34 TASK 801
P5-13	VOLT FILTER 1	24-31 TASK 831

——— END OF TASK ———



H71945 S0000146964_V1

Electrical Meters, Battery and Galley Power Module (P5-13)
Figure 201/24-31-00-990-802

819. INTERFACE FAILURE Message - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) INTERFACE FAILURE

(2) This message occurs when the electrical meters, battery and galley power module, P5-13 detects a problem with the wiring going to the program pins on the panel.

B. Possible Causes

(1) Electrical meters, battery and galley power module, P5-13

(2) Wiring

C. Related Data

(1) (SSM 24-28-11)

(2) (SSM 24-33-11)

(3) (WDM 24-28-11)

(4) (WDM 24-33-11)

D. Initial Evaluation

(1) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801

(a) If the maintenance message INTERFACE FAILURE shows, then do the Fault Isolation Procedure below.

(b) If no maintenance messages show, then there was an intermittent fault.

E. Fault Isolation Procedure

(1) Do this check of the P5-13 module:

(a) Make sure the P5-13 module part number is correct for the airplane configuration.

NOTE: The single battery option and the dual battery option require different P5-13 module part numbers.

(b) If an incorrect P5-13 module is installed, then do these steps:

1) Replace the P5-13 module.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

2) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801

3) If the maintenance message INTERFACE FAILURE does not show, then you corrected the fault.

4) If the maintenance message INTERFACE FAILURE shows, then continue.

(c) If the correct P5-13 module is installed, then continue.

(2) Do this check of the program pin wiring for the P5-13 module:

(a) Make sure program pins are wired correctly (SSM 24-28-11) (WDM 24-28-11).

(b) If there is a problem with the wiring, then do these steps:

1) Repair the wiring.
2) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801
3) If the maintenance message INTERFACE FAILURE does not show, then you corrected the fault.

END OF TASK

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

825. AUX BAT CHGR INOP Message - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) AUX BAT CHGR INOP

(2) This message occurs when the electrical meters, battery and galley power module, P5-13, detects the following:

(a) The auxiliary battery charger, M3055, is supplying a fault signal.

(b) Transfer bus 1 is supplying 115 VAC, 400 HZ.

(c) The Auxiliary Power Unit (APU) is not being started.

B. Possible Causes

(1) Auxiliary battery charger, M3055

(2) Auxiliary battery, M3054 and related wiring

(3) Wiring

(4) Electrical meters, battery and galley power module, P5-13

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

D. Related Data

(1) (SSM 24-31-11)

(2) (WDM 24-31-12)

E. Initial Evaluation

(1) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(a) If the maintenance message AUX BAT CHGR INOP shows, then do these steps:

1) Get access to the auxiliary battery charger in the electronic equipment area.

NOTE: Leave external power supplied when you view the battery charger. Use caution when in the electronic equipment area.

2) Look at the two indicator lights on the front panel of the auxiliary battery charger.

NOTE: There are two indicator lights on the front panel of the battery charger that read as follows:

CHARGER

BATTERY

These two lights will be green when the battery and charger are in normal operation.

3) If only the BATTERY indicator light is gray, then do the Fault Isolation Procedure below. Start at this step: "Do this check of the auxiliary battery, M3054 and related wiring:".

4) If only the CHARGER indicator light is gray, the two lights are gray or the two lights are flashing then do the Fault Isolation Procedure below.

(b) If no maintenance messages show, there was an intermittent fault.

(c) If no maintenance messages show and the two indicator lights on the front panel of the battery charger are green, there was an intermittent fault.

F. Fault Isolation Procedure

(1) Do a check of the battery charge. Do this task: Battery Discharge Check, AMM TASK 24-31-11-710-801.

(a) If the discharge amperage is high, then do these steps:

1) Do a check of the wiring between the power module panel, P5–13 and the auxiliary battery (WDM 24-31-12).

P5-13 and Aux Battery

P5-13		**M3054**
D652		**D10328**
Pin 54	. . . . .	Pin (-)
Pin 36	. . . . .	Ground GD3256-DC
Ground GD3256-DC	. . . . .	Pin (-)

a) If you find a problem with the wiring, then do these steps:

<1> Repair the wiring.

<2> Do the Repair Confirmation at the end of this task.

b) If you did not find a problem with the wiring, then continue.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

2) If battery discharge amperage still remains high, disassemble and physically inspect the ground for any signs of contamination, looseness or discoloration. Clean and re-assemble the ground per SWPM.

(2) Replace the auxiliary battery charger, M3055.

These are the tasks:

Auxiliary Battery Charger Removal, AMM TASK 24-31-31-000-801,

Auxiliary Battery Charger Installation, AMM TASK 24-31-31-400-801.

(a) Do the Repair Confirmation at the end of this task.

(b) If the maintenance message AUX BAT CHGR INOP shows, then continue.

(3) Do this check for auxiliary battery charger input power:

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

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(b) Disconnect connector D10342 from the front of the auxiliary battery charger, M3055.

(c) Supply external power to the ground service buses. Do this task: Supply External Power, AMM TASK 24-22-00-860-813.

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

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

(e) Do a check for 3 phase, 115 VAC from pins 4, 7 and 10 to pin 2 at connector D10342 removed from the auxiliary battery charger.

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

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(g) Remove external power from the ground service buses. Do this task: Remove External Power, AMM TASK 24-22-00-860-814.

(h) If 3 phase, 115 VAC was not present, then do these steps:

1) Repair the wiring from the P91 panel.

2) Re-connect connector D10342 to the auxiliary battery charger, M3055.

3) Remove the safety tags and close these circuit breakers:

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

4) Do the Repair Confirmation at the end of this task.

(i) If 3 phase, 115 VAC was present, then continue.

(4) Do this check of the auxiliary battery charger grounding:

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

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

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(b) Disconnect connector D10342 from the front of the auxiliary battery charger, M3055.

(c) Do a check of the wiring between the auxiliary battery charger, M3055 and airplane ground (WDM 24-31-12).

M3055 D10342	**Ground Terminal/Stud**
Pin 2	Ground GD3200-ST
Pin (-)	Ground GD3308-DC

1) If you find a problem with the wiring, then do these steps:

a) Repair the wiring.

b) Re-connect connector D10342.

c) Remove the safety tags and close these circuit breakers:

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

d) Do the Repair Confirmation at the end of this task.

2) If you did not find a problem with the wiring, then continue.

(5) Do this check of the auxiliary battery, M3054 and related wiring:

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

(a) Do these steps if they are not already done:

1) Open these circuit breakers and install safety tags:

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

2) Disconnect connector D10342 from the front of the auxiliary battery charger, M3055.

(b) Measure the voltage between pins 1 (pos) and 3 (neg) on connector D10342 removed from the auxiliary battery charger.

NOTE: The voltage measured at pins 1 and 3 should be the same as the voltage at the battery terminals.

(c) If the voltage is less than 20 Volts Direct Current (VDC), then do these steps:

1) Get access to the forward cargo area.

2) Remove the access panel to get access to the auxiliary battery.

3) Remove connector D10330 from the auxiliary battery, M3054.

4) Do a wiring check between these pins of connector D10342 removed from the auxiliary battery charger and connector D10330 removed from the auxiliary battery.

D10342		D10330
pin 1	. . . . .	pin 1
pin 3	. . . . .	pin 3

5) If you find a problem with the wiring, then do these steps:

a) Repair the wiring.

6) If you do not find a problem with the wiring, then do these steps:

a) Replace the auxiliary battery, M3054.

These are the tasks:

Battery Removal, AMM TASK 24-31-11-000-802-002,

Battery Installation, AMM TASK 24-31-11-400-802-002.

7) Re-connect connector D10342 to the auxiliary battery charger, M3055.

8) If it is disconnected, re-connect connector D10330 to the auxiliary battery, M3054.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

9) Remove the safety tags and close these circuit breakers:

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

10) Do the Repair Confirmation at the end of this task.

(d) If the voltage is 20-28 VDC, then continue.

(e) Measure the resistance between pins 11 and 12 on connector D10342 removed from the auxiliary battery charger.

1) Make sure that the resistance is between 283Ω - 39.86 kΩ.

NOTE: For additional troubleshooting references, the thermistor resistance equates to some of the following temperatures:

-76°F (-60°C) to -22°F (-30°C): 316.5kΩ to 39.86kΩ

0°F (-18°C) to 32°F (0°C): 19.5kΩ to 7.36kΩ

68°F (20°C) to 104°F (40°C): 2.81kΩ to 1.2kΩ

158°F (70°C) to 176°F (80°C): 394.5Ω to 283Ω

NOTE: The charger will trigger an open thermistor fault at 39.8kΩ or higher (-22°F (-30°C) or lower).

NOTE: The charger will trigger an shorted thermistor fault at a resistance of 283Ω or lower (176°F (80°C) or higher).

NOTE: The charger will trigger an over-temperature fault and shutdown the charger when the battery temperature is higher than 158°F (70°C) (394.5Ω or lower).

NOTE: It is possible for an overheat event to have triggered a BAT CHGR INOP related ELEC light which would not be indicated via the Battery Charger light front panel if the battery has had significant time to cool after the trigger. An over-temperature fault will clear once the battery temperature drops below the 158°F (70°C) threshold and also automatically start a new charge cycle.

a) If the resistance is not in the specified range, then do these steps:

<1> Get access to the forward cargo area.

<2> Remove the access panel to get access to the battery.

<3> Remove connector D10330 from the auxiliary battery, M3054.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

<4> Do a wiring check between these pins of connector D10342 removed from the auxiliary battery charger and connector D10330 removed from the auxiliary battery.

D10342	D10330
pin 11	pin 11
pin 12	pin 12

<a> If you find a problem with the wiring, repair the wiring.

<b> If you do not find a problem with the wiring, then replace the auxiliary battery, M3054. These are the tasks:

- Battery Removal, AMM TASK 24-31-11-000-802-002
- Battery Installation, AMM TASK 24-31-11-400-802-002

b) Re-connect connector D10342 to the auxiliary battery charger, M3055.

c) If it is disconnected, re-connect connector D10330 to the auxiliary battery, M3054.

d) Remove the safety tags and close these circuit breakers:

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

e) Do the Repair Confirmation at the end of this task.

2) If the resistance is in the specified range of 283Ω - 39.86kΩ, then continue.

(6) Do this check of the electrical meters, battery and galley power module, P5-13 and related wiring:

(a) Disconnect connector D652 from the electrical meters, battery and galley power module, P5-13.

(b) Do a wiring check between these pins of connector D10342 removed from the auxiliary battery charger and connector D652 removed from the P5-13 panel.

D10342	D652
pin 9	pin 8

(c) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

(d) Re-connect connector D10342 to the auxiliary battery charger, M3055.

(e) If it is disconnected, re-connect connector D652 to the electrical meters, battery and galley power module, P5-13.

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

Battery Shield, J9

Row	Col	Number	Name
A	3	C01209	AUX BAT CHARGER

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(g) Do the Repair Confirmation at the end of this task.

(h) If the maintenance message AUX BAT CHGR INOP shows, then continue.

(i) Replace the electrical meters, battery and galley power module, P5-13.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

(j) Do the Repair Confirmation at the end of this task.

G. Repair Confirmation

(1) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(a) If the maintenance message AUX BAT CHGR INOP does not show and the two lights on the front panel of the battery charger are green, then you corrected the fault.

(b) If the Operational Test is not satisfactory, then continue the Fault Isolation procedure at the subsequent step.

SHZ ALL

END OF TASK

826. TR UNIT Light - Fault Isolation

A. Description

(1) This task is for the TR UNIT light, located on the electrical meters, battery and galley power module, P5-13.

(2) This fault occurs when the electrical meters, battery and galley power module, P5-13 detects any of these three conditions:

(a) Transformer rectifier unit (TRU) 1, T11 current is less than 5 Amps and transfer bus 1 is supplying 115 VAC, 400 HZ.

(b) TRU 2, T12 current is less than 5 amps and transfer bus 2 is supplying 115 VAC, 400 HZ.

(c) TRU 3, T13 voltage is less than 18 VDC and transfer buses 1 and 2 are supplying 115 VAC, 400 HZ.

B. Possible Causes

(1) Transformer rectifier unit 1, T11

(2) Transformer rectifier unit 2, T12

(3) Transformer rectifier unit 3, T13

(4) Standby power control unit, M1720

(5) TR3 transfer relay, R622

(6) Electrical meters, battery and galley power module, P5-13

(7) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
A	4	C00941	TRU 3 ALTN
A	6	C00806	TRU 1

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	1	C01066	DC BUS 2 XFR
A	4	C00807	TRU 2
A	6	C00808	TRU 3

D. Related Data

(1) (SSM 24-32-11)

(2) (SSM 24-33-11)

(3) (WDM 24-32-11)

(4) (WDM 24-33-11)

E. Initial Evaluation

(1) Do this check for the TR UNIT light:

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

(b) Make sure the BAT switch on the P5-13 front panel is in the ON position.

(c) If the TR UNIT light is OFF, then there was an intermittent fault.

(d) If the TR UNIT light is ON, then continue.

(2) Do this check to identify which TRU has the fault:

(a) Set the BUS TRANS switch on the P5-4 panel to the OFF position.

(b) Set DC meter selector switch on the P5-13 front panel to the TR 1 position.

(c) Make sure the DC meter shows these values:

1) DC VOLTS = 22-30

2) DC AMPS = More than 5

3) If the DC meter does not show these values, then do the Fault Isolation Procedure - TRU 1.

(d) Set DC meter selector switch on the P5-13 front panel to the TR 2 position.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	1	C01066	DC BUS 2 XFR

(f) Make sure the DC meter shows these values:

1) DC VOLTS = 22-30

2) DC AMPS = More than 5

3) If the DC meter does not show these values, then do the Fault Isolation Procedure - TRU 2.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	1	C01066	DC BUS 2 XFR

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	4	C00807	TRU 2

(i) Set DC meter selector switch on the P5-13 front panel to the TR 3 position.

(j) Make sure the DC meter shows these values:

1) DC VOLTS = 22-30

2) DC AMPS = More than 5

3) If the DC meter does not show these values, then do the Fault Isolation Procedure - TRU 3.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	4	C00807	TRU 2

(l) Set the BUS TRANS switch on the P5-4 panel to the AUTO position.

F. Fault Isolation Procedure - TRU 1

(1) Do these steps to replace TRU 1:

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

(b) Replace TRU 1, T11.

These are the tasks:

Transformer Rectifier Unit Removal, AMM TASK 24-32-11-000-801,

Transformer Rectifier Unit Installation, AMM TASK 24-32-11-400-801.

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

(d) Make sure the BAT switch on the P5-13 front panel is in the ON position.

(e) If the TR UNIT light is OFF, then you corrected the fault.

(f) If the TR UNIT light is ON, then continue.

(2) Do this check of the wiring:

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

(b) Remove TRU 1, T11. To remove the TRU, do this task: Transformer Rectifier Unit Removal, AMM TASK 24-32-11-000-801.

(c) Disconnect connector D652 from the electrical meters, battery and galley power module, P5-13.

(d) Do a wiring check between these pins of connector D102 on the E2-1 rack and circuit breaker C806 in the P91 panel:

D102		**C806**
pin 1	. . . . .	pin C
pin 2	. . . . .	pin B
pin 3	. . . . .	pin A
pin 6	. . . . .	ground

(e) Do a wiring check between these pins of connector D102 on the E2-1 rack and circuit breaker C1065 (or 28V DC BUS 1) in the P91 panel:

D102		**P91**
pin 7	. . . . .	C1065
pin 4	. . . . .	ground

(f) Do a wiring check between these pins of connector D102 on the E2-1 rack and connector D652 removed from the P5-13 module:

D102		**D652**
pin 5	. . . . .	pin 35
pin 8	. . . . .	pin 53

(g) Do a wiring check between these pins of connector D11712B from Standby Power Control Unit and D652 removed from the P5-13 module.

D11712B		**D652**
pin 7	. . . . .	pin 11

(h) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(i) Re-install TRU 1, T11. To install the TRU, do this task: Transformer Rectifier Unit Installation, AMM TASK 24-32-11-400-801.

(j) Re-connect connector D652 to the electrical meters, battery and galley power module, P5-13.

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

(l) Make sure the BAT switch on the P5-13 front panel is in the ON position.

(m) If the TR UNIT light is OFF, then you corrected the fault.

(n) If the TR UNIT light is ON, then continue.

(3) Replace the electrical meters, battery and galley power module, P5-13.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

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

(b) Make sure the BAT switch on the P5-13 front panel is in the ON position.

(c) If the TR UNIT light is OFF, then you corrected the fault.

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

G. Fault Isolation Procedure - TRU 2

(1) Do these steps to replace TRU 2:

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

(b) Replace TRU 2, T12.

These are the tasks:

Transformer Rectifier Unit Removal, AMM TASK 24-32-11-000-801,

Transformer Rectifier Unit Installation, AMM TASK 24-32-11-400-801.

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

(d) Make sure the BAT switch on the P5-13 front panel is in the ON position.

(e) If the TR UNIT light is OFF, then you corrected the fault.

(f) If the TR UNIT light is ON, then continue.

(2) Do this check of the wiring:

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

(b) Remove TRU 2, T12. To remove the TRU, do this task: Transformer Rectifier Unit Removal, AMM TASK 24-32-11-000-801.

(c) Disconnect connector D652 from the electrical meters, battery and galley power module, P5-13.

(d) Do a wiring check between these pins of connector D104 on the E4-2 rack and circuit breaker C807 in the P92 panel:

D104		C807
pin 1	. . . . .	pin C
pin 2	. . . . .	pin B
pin 3	. . . . .	pin A
pin 6	. . . . .	ground

(e) Do a wiring check between these pins of connector D104 on the E4-2 rack and circuit breaker C1066 (or 28V DC BUS 2) in the P92 panel:

D104		P92
pin 7	. . . . .	C1066
pin 4	. . . . .	ground

(f) Do a wiring check between these pins of connector D104 on the E4-2 rack and connector D652 removed from the P5-13 module:

D104		D652
pin 5	. . . . .	pin 34
pin 8	. . . . .	pin 52

(g) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(h) Re-install TRU 2, T12. To install the TRU, do this task: Transformer Rectifier Unit Installation, AMM TASK 24-32-11-400-801.

(i) Re-connect connector D652 to the electrical meters, battery and galley power module, P5-13.

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

(k) Make sure the BAT switch on the P5-13 front panel is in the ON position.

(l) If the TR UNIT light is OFF, then you corrected the fault.

(m) If the TR UNIT light is ON, then continue.

(3) Replace the electrical meters, battery and galley power module, P5-13.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

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

(b) Make sure the BAT switch on the P5-13 front panel is in the ON position.

(c) If the TR UNIT light is OFF, then you corrected the fault.

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

H. Fault Isolation Procedure - TRU 3

(1) Do these steps to replace TRU 3:

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

(b) Replace TRU 3, T13.

These are the tasks:

Transformer Rectifier Unit Removal, AMM TASK 24-32-11-000-801,

Transformer Rectifier Unit Installation, AMM TASK 24-32-11-400-801.

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

(d) Make sure the BAT switch on the P5-13 front panel is in the ON position.

(e) If the TR UNIT light is OFF, then you corrected the fault.

(f) If the TR UNIT light is ON, then continue.

(2) Do this check for power at the TRU:

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

(b) Remove TRU 3, T13. To remove the TRU, do this task: Transformer Rectifier Unit Removal, AMM TASK 24-32-11-000-801.

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

(d) Make sure the BUS TRANS switch on the P5-4 panel is set to the AUTO position.

(e) Set the BAT switch on the P5-13 panel to the ON position.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	6	C00808	TRU 3

(g) Do a check for 115 VAC between pins 1, 2 and 3 and pin 6 at connector D106.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
A	4	C00941	TRU 3 ALTN

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	6	C00808	TRU 3

(j) Do a check for 115 VAC between pins 1, 2 and 3 and pin 6 at connector D106.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
A	4	C00941	TRU 3 ALTN

(l) If 115 VAC is not present for both voltage checks listed above, then do these steps:

1) Replace the TR3 transfer relay, R622, located in the P92 panel.

2) Re-install TRU 3, T13. To install the TRU, do this task: Transformer Rectifier Unit Installation, AMM TASK 24-32-11-400-801.

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

4) Make sure the BAT switch on the P5-13 panel is in the ON position.

5) If the TR UNIT light is OFF, then you corrected the fault.

(m) If 115 VAC is present for both voltage checks listed above, then continue.

(3) Do these steps to replace SPCU, M1720:

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

(b) Replace the SPCU.

These are the tasks:

SPCU Removal, AMM TASK 24-34-11-000-801

SPCU Installation, AMM TASK 24-34-11-400-801.

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

(d) Make sure the STANDBY POWER switch on the P5-5 panel is in the AUTO position.

(e) If the TR UNIT light is OFF, then you corrected the fault.

(f) If the TR UNIT light is ON, then continue.

(4) Do these checks of the wiring:

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

(b) Remove the TRU3, T13. To remove the TRU, do this task: Transformer Rectifier Unit Removal, AMM TASK 24-32-11-000-801.

(c) Remove connector D652 from the electrical meters, battery and galley power module, P5-13.

(d) Do a wiring check between these pins of connector D106 on the E4-2 rack and connector D11712B on the P6 panel:

D106		D11712B
pin 7	. . . . .	pin A3
pin 4	. . . . .	ground

(e) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(f) Do a wiring check between these pins of connector D106 on the E4-2 rack and diode M1220 on the E4-2 rack:

D106		M1220
pin 7	. . . . .	pin A

(g) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(h) Do a wiring check between these pins of diode M1220 on the E4-2 rack and circuit breaker C1066 on the P92 panel:

M1220		P92 PANEL
pin C	. . . . .	C1066

(i) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(j) Do a wiring check between these pins of connector D11714B on the P6 panel and circuit breaker C808 on the P92 panel:

D11714B	C808
pin 24	pin A

(k) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(l) Do a wiring check between these pins of connector D11714B on the P6 panel and circuit breaker C941 on the P91 panel:

D11714B	C941
pin 42	pin A

(m) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(n) Do a wiring check between these pins of connector D106 on the E4-2 rack and connector D652 removed from the P5-13 module:

D106	D652
pin 5	pin 33
pin 8	pin 51

(o) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(p) Re-install TRU 3, T13. To install the TRU, do this task: Transformer Rectifier Unit Installation, AMM TASK 24-32-11-400-801.

(q) Re-connect connector D652 to the electrical meters, battery and galley power module, P5-13.

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

(s) Make sure the BAT switch on the P5-13 panel is in the ON position.

(t) If the TR UNIT light is OFF, then you corrected the fault.

(u) If the TR UNIT light is ON, then continue.

(5) Replace the electrical meters, battery and galley power module, P5-13.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

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

(b) Make sure the BAT switch on the P5-13 panel is in the ON position.

(c) If the TR UNIT light is OFF, then you corrected the fault.

END OF TASK

827. AC/DC Meter Display Missing Segments - Fault Isolation

A. Description

(1) This task is for missing segments on the AC/DC meter display.

B. Possible Causes

(1) Electrical meters, battery and galley power module, P5-13

C. Initial Evaluation

(1) Do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(a) If all of the segments on the alphanumeric display do not show during the display test, then do the Fault Isolation Procedure below.

(b) If all of the segments on the alphanumeric display show during the display test, then there was an intermittent fault.

D. Fault Isolation Procedure

(1) Replace the P5-13 module.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

(a) If the P5-13 module passed the post installation test, then you corrected the fault.

——— END OF TASK ———

829. BAT CHGR INOP Message - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) BAT CHGR INOP

SHZ 002, 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(2) This message occurs when the Electrical Meters, Battery and Galley Power Module senses that the:

(a) Battery Charger, M5, supplies a fault signal.

(b) Transfer Bus 2 supplies 115 VAC, 400 HZ.

(c) APU does not start.

SHZ ALL

B. Possible Causes

(1) Battery Charger, M5

(2) Battery, M6 and associated wiring

(3) Wiring

(4) Electrical Meters, Battery and Galley Power Module, P5-13

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

D. Related Data

(1) SSM 24-31-11

(2) WDM 24-31-11

E. Initial Evaluation

SHZ 002, 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(1) Do the P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(a) If the maintenance message BAT CHGR INOP shows, then do these steps:

1) Get access to the Battery Charger in the Electronic Equipment area.

NOTE: Leave External Power supplied when you view the Battery Charger. Use caution when in the Electronic Equipment area.

2) Look at the two Indicator Lights on the Battery Charger front panel.

NOTE: There are two Indicator Lights on the Battery Charger Front Panel:

CHARGER

BATTERY

These two lights will be Green when the Battery and Charger are in normal operation.

a) If no maintenance messages show and the two Indicator Lights on the Battery Charger front panel are Green, there was an intermittent problem.

b) If only the BATTERY Indicator Light is Gray, then do the Fault Isolation Procedure below. Start at this step:

<1> "Do this check of the Battery, M6 and related wiring:"

c) If only the CHARGER Indicator Light is Gray, both the CHARGER and BATTERY Indicator Lights are Gray or the two lights are flashing, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure - Single or Dual Large Battery Charger

(1) Do a check of the battery charge. This is the task: Battery Discharge Check, AMM TASK 24-31-11-710-801.

(a) If the discharge amperage is high, then do these steps to check the battery current sensing wiring:

1) Do a check of the wiring between the power module panel, P5-13 and the Main Battery (WDM 24-31-11).

P5-13		**M6**
D652		**D44**
Pin 50	. . . . .	Pin (-)
Pin 32	. . . . .	Ground GD3252-DC
Ground GD3252-DC	. . . . .	Pin (-)

a) If you find a problem with the wiring, then do these steps:

<1> Repair the wiring

<2> Do the Repair Confirmation at the end of this task.

b) If you did not find a problem with the wiring, then continue.

2) If battery discharge amperage still remains high, disassemble and physically inspect the ground for any signs of contamination, looseness or discoloration. Clean and re-assemble the ground per SWPM.

(2) Do this check of the Battery Charger Input Power (WDM 24-31-11):

(a) Remove the Battery Charger, M5. This is the task: Main Battery Charger Removal, AMM TASK 24-31-21-000-802-002.

(b) Supply External Power to the Ground Service Buses. This is the task: Supply External Power, AMM TASK 24-22-00-860-813.

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

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

(d) Do a check for 3-phase, 115V AC between pins 4, 7 and 10 and pin 2 of connector D42 on the E2-1 Rack (WDM 24-31-11).

1) If you find 3-phase, 115 VAC at all three pins, do these steps:

a) Open these circuit breakers and install safety tags:

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

b) Remove External Power from the Ground Service Buses. This is the task: Remove External Power, AMM TASK 24-22-00-860-814.

c) Install a new Battery Charger, M5. This is the task: Main Battery Charger Installation, AMM TASK 24-31-21-400-802-002.

d) Do the Repair Confirmation at the end of this task.

2) If you do not find 3-phase, 115V AC, do these steps:

a) Open these circuit breakers and install safety tags:

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

b) Remove External Power from the Ground Service Buses. This is the task: Remove External Power, AMM TASK 24-22-00-860-814.

c) Disconnect connector D11738 from the P92 Panel.

d) Do a wiring check between the D11738 connector and the Battery Charger connector D42 as follows (WDM 24-31-11):

D11738	D42
pin 16	pin 10
pin 17	pin 7
pin 18	pin 4

<1> If you find a wiring problem, repair it as necessary.

<2> Reconnect connector D11738 to the P92 Panel.

<3> Re-install the Battery Charger, M5. This is the task: Main Battery Charger Installation, AMM TASK 24-31-21-400-802-002.

<4> Do the Repair Confirmation at the end of this task.

(3) Do this check of the battery charger grounding:

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

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

(b) Disconnect connector D42 from the front of the battery charger, M5.

(c) Do a check of the wiring between the Battery Charger, M5 and airplane grounds (WDM 24-31-11).

M5 D42	Ground Terminal/Stud
Pin 2	Ground GD3200-ST
Pin (-)	Ground GD752-DC

1) If you find a problem with the wiring, then do these steps:

a) Repair the wiring.

b) Re-connect connector D42.

c) Remove the safety tags and close these circuit breakers:

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

d) Do the Repair Confirmation at the end of this task.

2) If you did not find a problem with the wiring, then continue.

(4) Do this check of the Battery, M6 and related wiring (WDM 24-31-11):

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

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

(b) Disconnect connector D42 from the front of the Battery Charger, M5.

(c) Measure the Voltage between pins 1 (Pos) and 3 (Neg) on connector D42.

NOTE: The voltage measured at pins 1 and 3 should be the same as the voltage at the Battery Terminals.

1) If the voltage is less than 20V DC, then do these steps:

a) Get access to the FWD Cargo Area.

b) Remove the access panel to get access to the Battery, M6.

c) Remove connector D2936 from the Battery.

d) Do a wiring check between these pins of connector D42 removed from the battery charger and connector D2936 removed from the battery.

D42		D2936
pin 1	. . . . .	pin 1
pin 3	. . . . .	pin 3

<1> If you find a problem with the wiring, repair the wiring.

<2> If you do not find a problem with the wiring, then replace the Battery, M6. These are the tasks:

- Battery Removal, AMM TASK 24-31-11-000-801-001 or Battery Removal, AMM TASK 24-31-11-000-802-002
- Battery Installation, AMM TASK 24-31-11-400-801-001 or Battery Installation, AMM TASK 24-31-11-400-802-002

e) Re-connect connector D42 to the Battery Charger, M5.

f) Re-connect connector D2936 to the Battery, M6.

g) Remove the safety tags and close these circuit breakers:

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

h) Do the Repair Confirmation at the end of this task.

2) If the voltage is 20-28V DC, then continue.

(d) Measure the resistance between pins 11 and 12 on the Battery Charger connector D42 (WDM 24-31-11).

1) Make sure that the resistance is between 283Ω - 39.86kΩ.

NOTE: For additional troubleshooting references, the thermistor resistance equates to some of the following temperatures:

-76°F (-60°C) to -22°F (-30°C): 316.5kΩ to 39.86kΩ

0°F (-18°C) to 32°F (0°C): 19.5kΩ to 7.36kΩ

68°F (20°C) to 104°F (40°C): 2.81kΩ to 1.2kΩ

158°F (70°C) to 176°F (80°C): 394.5Ω to 283Ω

NOTE: The charger will trigger an open thermistor fault at 39.8kΩ or higher (-22°F (-30°C) or lower).

NOTE: The charger will trigger an shorted thermistor fault at a resistance of 283Ω or lower (176°F (80°C) or higher).

NOTE: The charger will trigger an over-temperature fault and shutdown the charger when the battery temperature is higher than 158°F (70°C) (394.5Ω or lower).

NOTE: It is possible for an overheat event to have triggered a BAT CHGR INOP related ELEC light which would not be indicated via the Battery Charger light front panel if the battery has had significant time to cool after the trigger. An over-temperature fault will clear once the battery temperature drops below the 158°F (70°C) threshold and also automatically start a new charge cycle.

a) If the resistance is not in the specified range, then do these steps:

<1> Get access to the FWD Cargo area.

<2> Remove the access panel to get access to the Battery.

<3> Remove connector D2936 from the Battery.

<4> Do a wiring check between the Battery Charger connector D42 and Battery connector D2936 as follows:

D42		D2936
pin 11	. . . . .	pin 11
pin 12	. . . . .	pin 12

<a> If you find a problem with the wiring, repair the wiring.

<b> If you do not find a problem with the wiring, then replace the Battery, M6. These are the tasks:

- Battery Removal, AMM TASK 24-31-11-000-801-001 or Battery Removal, AMM TASK 24-31-11-000-802-002
- Battery Installation, AMM TASK 24-31-11-400-801-001 or Battery Installation, AMM TASK 24-31-11-400-802-002

b) Re-connect connector D42 to the Battery Charger, M5.

c) Re-connect connector D2936 to the Battery, M6.

d) Remove the safety tags and close these circuit breakers:

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

e) Do the Repair Confirmation at the end of this task.

2) If the resistance is in the specified range of 283Ω - 39.86kΩ, then continue.

(5) Do this check of the Electrical Meters, Battery and Galley Power Module, P5-13 and related wiring (WDM 24-31-11):

(a) Disconnect connector D10596 from the Electrical Meters, Battery and Galley Power Module, P5-13.

(b) Do a wiring check between the Battery Charger connector D42 and connector D10596 as follows:

D42		D10596
pin 9	. . . . .	pin 52

1) If you find a problem with the wiring, repair the wiring.

2) If you do not find a problem with the wiring, replace the Electrical Meters, Battery and Galley Power Module, P5-13. These are the tasks:

- Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801
- Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801

(c) Re-connect connector D10596 to the Electrical Meters, Battery and Galley Power Module, P5-13.

SHZ 002, 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

(d) Re-connect connector D42 to the Battery Charger, M5.

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

Battery Shield, J9

Row	Col	Number	Name
A	4	C00142	BATTERY CHARGER

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

(f) Do the Repair Confirmation at the end of this task.

SHZ ALL

G. Repair Confirmation

SHZ 002, 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(1) Do the P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(a) If the maintenance message BAT CHGR INOP does not show and both the CHARGER and BATTERY Indicator Lights on the Battery Charger front panel are Green, then you corrected the problem.

(b) If the maintenance message BAT CHGR INOP shows, then continue the Fault Isolation Procedure at the subsequent step.

SHZ ALL

END OF TASK

831. VOLT FILTER 1 Message - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) VOLT FILTER 1

(2) This message occurs when the electrical meters, battery and galley power module, P5-13 detects a problem with the wiring going to the program pins on the panel.

B. Possible Causes

(1) Wiring

(2) Electrical meters, battery and galley power module, P5-13

C. Related Data

(1) (SSM 24-33-12)

(2) (WDM 24-28-11)

D. Initial Evaluation

(1) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801

(a) If the maintenance message VOLT FILTER 1 shows, then do the Fault Isolation Procedure below.

(b) If no maintenance messages show, then there was an intermittent fault.

E. Fault Isolation Procedure

(1) Do this check of the P5-13 module:

(a) Make sure the P5-13 module part number is correct for the airplane configuration.

NOTE: The single battery option and the dual battery option require different P5-13 module part numbers.

(b) If an incorrect P5-13 module is installed, then do these steps:

1) Replace the P5-13 module.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

2) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801

3) If the maintenance message VOLT FILTER 1 does not show, then you corrected the fault.

4) If the maintenance message VOLT FILTER 1 shows, then continue.

(2) Do this check of the program pin wiring for the P5-13 module:

(a) Make sure that the pin 38 at connector D652 is open.

(b) If it is not open, then do these steps:

1) Repair the wiring.

2) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801

——— END OF TASK ———

833. BAT DISCHARGE Light - Fault Isolation

A. Description

(1) This task is for the Amber BAT DISCHARGE Light, located on the Electrical Meters, Battery and Galley Power Module, P5-13.

(2) The BAT DISCHARGE light will illuminate if the battery discharge is greater than 5 Amps but less than 10 Amps for 95 seconds or longer.

(a) The BAT DISCHARGE light may appear until the charger output and battery voltage equalizes.

(b) When the switch is in the BAT position, and the charger switches from the main mode (approximately 31VDC) to TR mode (27.5VDC), the P5-13 display can show a discharge of 5 Amps or greater until the voltage of the charger and battery equalize.

(c) Installation of a new or restored battery may take longer for the voltages to equalize.

(3) The ammeter value of -450 amps or if the battery amperage remains high indicates the failure of the battery current sensing wiring.

(a) Use the multimeter with Low/ High Z Impedance functions, COM-13811, or equivalent, for resistance check of the battery current sensing wiring, and ensure readings are stable within 10 seconds.

B. Possible Causes

(1) Main Battery Charger, M5

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(2) Auxiliary Battery Charger, M3055

SHZ ALL

(3) Wiring

C. Related Data

(1) WDM 24-31-11

(2) WDM 24-31-12

D. Initial Evaluation

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

(2) Make sure that the BAT switch, on the P5-13 panel, is set to the ON position.

(3) Set the GRD PWR switch, on the P5-4 panel, to the OFF position.

(4) Make sure that the BAT DISCHARGE light, on the P5-13 panel, comes ON.

(5) Set the GRD PWR switch, on the P5-4 panel, to the ON position.

(6) Make sure that the BAT DISCHARGE light, on the P5-13 panel, goes OFF.

(a) If the BAT DISCHARGE light goes off, then there was an intermittent problem.

(b) If the BAT DISCHARGE light does not go off, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure for the Main Battery Charger

(1) Do this check of the wiring:

(a) Set the DC meter selector switch on the P5-13 panel to the BAT position.

(b) Disconnect connector D44 from the battery, M6.

(c) Disconnect connector D652 from the electric meter/battery/galley power panel, P5-13.

(d) Do a wiring check between this pin of connector D44 at the battery and this pin of connector D652 at the electric meter/battery/galley power panel (WDM 24-31-11):

D44		D652
(-)	. . . . .	pin 50

(e) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-connect connector D44 to the battery, M6.

3) Re-connect connector D652 to the electric meter/battery/galley power panel, P5-13.

4) Do this test: Main Battery Charger Operational Test, AMM TASK 24-31-21-710-801.

a) If the test is satisfactory, then you corrected the fault.

b) If the test is not satisfactory, then continue.

(f) If you do not find a problem with the wiring, then continue.

(g) Re-connect connector D652 to the electric meter/battery/galley power panel, P5-13.

(2) Do this check of the resistance of the battery:

(a) Measure the resistance between these pins of connector D44 at the battery (WDM 24-31-11):

1) Pin (-) to ground, specified resistance near 0.001 ohm.

(b) If the resistance is not in the specified range, then do these steps:

1) Replace the battery, M6. These are the tasks:

- Battery Removal, AMM TASK 24-31-11-000-801-001 or Battery Removal, AMM TASK 24-31-11-000-802-002,
- Battery Installation, AMM TASK 24-31-11-400-801-001 or Battery Installation, AMM TASK 24-31-11-400-802-002.

2) Do this test: Main Battery Charger Operational Test, AMM TASK 24-31-21-710-801.

a) If the test is satisfactory, then you corrected the fault.

b) If the test is not satisfactory, then continue.

(c) If the resistance is in the specified range, then continue.

(d) Re-connect connector D44 to the battery, M6.

(3) Do this check of the wiring:

(a) Disconnect connector D652 from the electric meter/battery/galley power panel, P5-13.

(b) Do a wiring check to make sure that pin 32 of D652 has continuity to ground (WDM 24-31-11).

(c) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-connect connector D652 to the electric meter/battery/galley power panel, P5-13.

3) Do this test: Main Battery Charger Operational Test, AMM TASK 24-31-21-710-801.

a) If the test is satisfactory, then you corrected the fault.

b) If the test is not satisfactory, then continue.

(d) If you do not find a problem with the wiring, then continue.

(e) Re-connect connector D652 to the electric meter/battery/galley power panel, P5-13.

(4) Replace the battery charger, M5. These are the tasks:

- Main Battery Charger Removal, AMM TASK 24-31-21-000-802-002
- Main Battery Charger Installation, AMM TASK 24-31-21-400-802-002

(a) Do this test: Main Battery Charger Operational Test, AMM TASK 24-31-21-710-801.

1) If the test is satisfactory, then you corrected the fault.

2) If the test is not satisfactory, then continue.

(5) Do this check for the battery charger input power:

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

(b) Disconnect connect, or D42 from the front of the Battery Charger, M5.

(c) Supply external power to the Ground Service Buses. This is the task: Supply External Power, AMM TASK 24-22-00-860-813.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

(e) Do a check for 3-phase, 115V AC from pins 4, 7 and 10 to pin 2 at connector D42 removed from the Battery Charger.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

(g) Remove external power from the Ground Service Buses. This is the task: Remove External Power, AMM TASK 24-22-00-860-814.

(h) If 3 phase, 115V AC was not present, then do these steps:

1) Repair the wiring from the P92 panel.

2) Re-connect connector D42 to the Battery Charger, M5.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

4) Do this test: Main Battery Charger Operational Test, AMM TASK 24-31-21-710-801.

a) If the test is satisfactory, then you corrected the fault.

b) If the test is not satisfactory, then continue.

(i) If 3-phase, 115V AC was present, then continue.

(6) Do this check of the Battery, M6 and related wiring:

(a) Do these steps if they are not already done:

1) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

2) Disconnect connector D42 from the front of the Battery Charger, M5.

(b) Measure the voltage between pins 1 (pos) and 3 (neg) on connector D42 removed from the Battery Charger.

NOTE: The voltage measured at pins 1 and 3 should be the same as the voltage at the Battery terminals.

(c) If the voltage is less than 20V DC, then do these steps:

1) Get access to the Forward Cargo Area.
2) Remove the access panel to get access to the battery.
3) Remove connector D2936 from the battery.
4) Do a wiring check between these pins of connector D42 removed from the Battery Charger and connector D2936 removed from the Battery.

D42		D2936
pin 1	. . . . .	pin 1
pin 3	. . . . .	pin 3

5) If you find a problem with the wiring, then do these steps:
   a) Repair the wiring.
6) If you do not find a problem with the wiring, then do these steps:
   a) Replace the Battery, M6. These are the tasks:
      - Battery Removal, AMM TASK 24-31-11-000-801-001 or Battery Removal, AMM TASK 24-31-11-000-802-002
      - Battery Installation, AMM TASK 24-31-11-400-801-001 or Battery Installation, AMM TASK 24-31-11-400-802-002
7) Re-connect connector D42 to the battery charger, M5.
8) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

9) Re-connect connector D2936 to the battery.
10) Do this test: Main Battery Charger Operational Test, AMM TASK 24-31-21-710-801.
    a) If the test is satisfactory, then you corrected the fault.
    b) If the test is not satisfactory, then continue.

(d) If the voltage is 20-28V DC, then continue.

(e) Measure the Resistance between pins 11 and 12 on connector D42 removed from the Battery Charger.

NOTE: The Resistance should be between 394.5 - 150,000 ohms.

(f) If the resistance measured is outside this range, then do these steps:

1) Get access to the Forward Cargo Area.
2) Remove the access panel to get access to the battery.
3) Remove connector D2936 from the battery.
4) Do a wiring check between these pins of connector D42 removed from the Battery Charger and connector D2936 removed from the Battery.

D42	D2936
pin 11	pin 11
pin 12	pin 12

5) If you find a problem with the wiring, then do these steps:
   a) Repair the wiring.
6) If you do not find a problem with the wiring, then do these steps:
   a) Replace the Battery, M6. These are the tasks:
      - Battery Removal, AMM TASK 24-31-11-000-801-001 or Battery Removal, AMM TASK 24-31-11-000-802-002
      - Battery Installation, AMM TASK 24-31-11-400-801-001 or Battery Installation, AMM TASK 24-31-11-400-802-002
7) Re-connect the connector D42 to the Battery Charger, M5.
8) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
E	1	C00809	BAT CHGR

9) Re-connect connector D2936 to the Battery.
10) Do this test: Main Battery Charger Operational Test, AMM TASK 24-31-21-710-801.
    a) If the test is satisfactory, then you corrected the problem.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

F. Fault Isolation Procedure for the Auxiliary Battery Charger

(1) Do this check of the wiring:
   (a) Set the DC meter selector switch on the P5-13 panel to the AUX BAT position.
   (b) Disconnect connector D10328 from the auxiliary battery, M3054.
   (c) Disconnect connector D652 from the electric meter/battery/galley power panel, P5-13.
   (d) Do a wiring check between this pin of connector D10328 at the auxiliary battery and this pin of connector D652 at the electric meter/battery/galley power panel (WDM 24-31-12):

D10328	D652
(-)	pin 54

   (e) If you find a problem with the wiring, then do these steps:
      1) Repair the wiring.
      2) Re-connect connector D10328 to the auxiliary battery, M3054.
      3) Re-connect connector D652 to the electric meter/battery/galley power panel, P5-13.
      4) Do this test: Auxiliary Battery Charger Operational Test, AMM TASK 24-31-31-710-801.
         a) If the test is satisfactory, then you corrected the fault.
         b) If the test is not satisfactory, then continue.
   (f) If you do not find a problem with the wiring, then continue.

(g) Re-connect connector D652 to the electric meter/battery/galley power panel, P5-13.

(2) Do this check of the resistance of the auxiliary battery:

(a) Measure the resistance between these pins of connector D10328 at the auxiliary battery (WDM 24-31-12):

1) Pin (-) to ground, specified resistance near 0.001 ohm.

(b) If the resistance is not in the specified range, then do these steps:

1) Replace the auxiliary battery, M3054. These are the tasks:

- Battery Removal, AMM TASK 24-31-11-000-802-002,
- Battery Installation, AMM TASK 24-31-11-400-802-002.

2) Do this test: Auxiliary Battery Charger Operational Test, AMM TASK 24-31-31-710-801.

a) If the test is satisfactory, then you corrected the fault.

b) If the test is not satisfactory, then continue.

(c) If the resistance is in the specified range, then continue.

(d) Re-connect connector D10328 to the auxiliary battery, M3054.

(3) Do this check of the wiring:

(a) Disconnect connector D652 from the electric meter/battery/galley power panel, P5-13.

(b) Do a wiring check to make sure that pin 36 of D652 has continuity to ground (WDM 24-31-12).

(c) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-connect connector D652 to the electric meter/battery/galley power panel, P5-13.

3) Do this test: Auxiliary Battery Charger Operational Test, AMM TASK 24-31-31-710-801.

a) If the test is satisfactory, then you corrected the fault.

b) If the test is not satisfactory, then continue.

(d) If you do not find a problem with the wiring, then continue.

(e) Re-connect connector D652 to the electric meter/battery/galley power panel, P5-13.

(4) Replace the Auxiliary Battery Charger, M3055. These are the tasks:

- Auxiliary Battery Charger Removal, AMM TASK 24-31-31-000-801
- Auxiliary Battery Charger Installation, AMM TASK 24-31-31-400-801

(a) Do this test: Auxiliary Battery Charger Operational Test, AMM TASK 24-31-31-710-801.

1) If the test is satisfactory, then you corrected the fault.

2) If the test is not satisfactory, then continue.

(5) Do this check for Auxiliary Battery Charger input power:

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(b) Disconnect connector D10342 from the front of the Auxiliary Battery Charger, M3055.

(c) Supply external power to the Ground Service Buses. This is the task: Supply External Power, AMM TASK 24-22-00-860-813.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(e) Do a check for 3-phase, 115V AC from pins 4, 7 and 10 to pin 2 at connector D10342 removed from the Auxiliary Battery Charger.

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(g) Remove external power from the Ground Service Buses. This is the task: Remove External Power, AMM TASK 24-22-00-860-814.

(h) If 3-phase, 115V AC was not present, then do these steps:

1) Repair the wiring from the P91 panel.

2) Re-connect connector D10342 to the Auxiliary Battery Charger, M3055.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

3) Remove the safety tags and close these circuit breakers:

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

4) Do this test: Auxiliary Battery Charger Operational Test, AMM TASK 24-31-31-710-801.

a) If the test is satisfactory, then you corrected the problem.

b) If the test is not satisfactory, then continue.

(i) If 3-phase, 115V AC was present, then continue.

(6) Do this check of the Auxiliary Battery, M3054 and related wiring:

(a) Do these steps if they are not already done:

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

2) Disconnect connector D10342 from the front of the Auxiliary Battery Charger, M3055.

(b) Measure the voltage between pins 1 (pos) and 3 (neg) on connector D10342 removed from the Auxiliary Battery Charger.

NOTE: The voltage measured at pins 1 and 3 should be the same as the voltage at the battery terminals.

(c) If the voltage is less than 20V DC, then do these steps:

1) Get access to the Forward Cargo Area.

2) Remove the access panel to get access to the Auxiliary Battery.

3) Remove connector D10330 from the Auxiliary Battery, M3054.

4) Do a wiring check between these pins of connector D10342 removed from the Auxiliary Battery Charger and connector D10330 removed from the Auxiliary Battery.

D10342	D10330
pin 1	pin 1
pin 3	pin 3

5) If you find a problem with the wiring, then do these steps:
   a) Repair the wiring.
6) If you do not find a problem with the wiring, then do these steps:
   a) Replace the auxiliary battery, M3054. These are the tasks:
      • Battery Removal, AMM TASK 24-31-11-000-802-002
      • Battery Installation, AMM TASK 24-31-11-400-802-002
7) Re-connect connector D10330 to the Auxiliary Battery, M3054.
8) Do this test: Auxiliary Battery Charger Operational Test, AMM TASK 24-31-31-710-801.
   a) If the test is satisfactory, then you corrected the problem.
   b) If the test is not satisfactory, then continue.

(d) If the voltage is 20-28 V DC, then continue.

(e) Measure the Resistance between pins 11 and 12 on connector D10342 removed from the Auxiliary Battery Charger.

NOTE: The Resistance should be between 394.5 - 150,000 ohms.

(f) If the resistance measured is outside this range, then do these steps:
1) Get access to the Forward Cargo Area.
2) Remove the access panel to get access to the battery.
3) Remove connector D10330 from the Auxiliary Battery, M3054.
4) Do a wiring check between these pins of connector D10342 removed from the Auxiliary Battery Charger and connector D10330 removed from the Auxiliary Battery.

D10342	D10330
pin 11	pin 11
pin 12	pin 12

5) If you find a problem with the wiring, then do these steps:
   a) Repair the wiring.
6) If you do not find a problem with the wiring, then do these steps:
   a) Replace the Auxiliary Battery, M3054. These are the tasks:
      • Battery Removal, AMM TASK 24-31-11-000-802-002
      • Battery Installation, AMM TASK 24-31-11-400-802-002
7) Re-connect connector D10342 to the Auxiliary Battery Charger, M3055.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152 (Continued)

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

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999			
E	3	C00922	AUX BAT CHGR
SHZ 706 POST SB 737-24-1152			
E	3	C00922	AUXILIARY BATTERY CHARGER

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

9) Re-connect connector D10330 to the Auxiliary Battery, M3054.

10) Do this test: Auxiliary Battery Charger Operational Test, AMM TASK 24-31-31-710-801.

a) If the test is satisfactory, then you corrected the problem.

——— END OF TASK ———

SHZ 002, 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

834. Battery Charger CHARGER Light is OFF - Fault Isolation

A. Description

(1) This task is for the CHARGER Status Indicator Light on the front panel of the Battery Charger.

B. Initial Evaluation

(1) Do this task: Main Battery Charger Operational Test, AMM TASK 24-31-21-710-801.

NOTE: There are two Indicator Lights on the Battery Charger Front Panel:

CHARGER

BATTERY

These two lights will be Green when the Battery and Charger are in normal operation.

(a) If the Status CHARGER and BATTERY Indicator Lights on the Battery Charger front panel are ON, there was an intermittent problem.

(b) If the CHARGER indicator light flashes or is OFF, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

(1) Do the Fault Isolation Procedure in this task: BAT CHGR INOP Message - Fault Isolation, 24-31 TASK 829.

——— END OF TASK ———

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

835. Auxiliary Battery Charger CHARGER Light - Fault Isolation

A. Description

- This task is for the status CHARGER indicator light on the front panel of the battery charger.

B. Initial Evaluation

(1) Do this task: Auxiliary Battery Charger Operational Test, AMM TASK 24-31-31-710-801.

NOTE: There are two indicator lights on the front panel of the battery charger that read as follows:

CHARGER

BATTERY

These two lights will be green when the battery and charger are in normal operation.

(a) If status CHARGER indicator light and BATTERY light on the battery charger are on, there was an intermittent fault.

(b) If the CHARGER indicator light flashes or is off, then do the Fault Isolation Procedure below.

C. Fault Isolation Procedure

(1) Do the Fault Isolation Procedure in this task: AUX BAT CHGR INOP Message - Fault Isolation, 24-31 TASK 825.

END OF TASK

801. STAT INV INOP - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) STAT INV INOP

(2) This message occurs when the Electrical Meters, Battery and Galley Power Module, P5-13, senses that the Static Inverter, M9, Output Voltage is less than 100 ± 3 VAC and the Static Inverter RCCB, C1341, has been commanded CLOSED.

B. Possible Causes

SHZ ALL; AIRPLANES WITH STATIC INVERTER P/N 1-002-0102-2170

(1) INVERTER REMOTE Circuit Breaker, C1343

SHZ ALL

(2) Static Inverter, M9

(3) Static Inverter RCCB, C1341

(4) Standby Power Control Unit (SPCU), M1720

(5) Wiring

(6) Electrical Meters, Battery and Galley Power Module, P5-13

C. Related Data

(1) WDM 24-34-11

(2) SSM 24-34-11

D. Initial Evaluation

(1) Do the P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801 to do a test of the Electric Meter/Battery/Galley Power Panel.

(a) If the maintenance message show does not show, then there was an intermittent fault.

(b) If the maintenance message STAT INV INOP shows, then do the Fault Isolation Procedure below.

E. Fault Isolation Procedure

SHZ ALL; AIRPLANES WITH STATIC INVERTER P/N 1-002-0102-2170

(1) Open this circuit breaker, wait at least 5 seconds, then close this circuit breaker:

Standby Power Control Unit, M01720

Row	Col	Number	Name
A	5	C01343	INVERTER REMOTE

NOTE: The INVERTER REMOTE Circuit Breaker is located on the Standby Power Control Unit, on the P6 Panel.

(a) Do the Repair Confirmation at the end of this task.

SHZ ALL

(2) Do this check of the Static Inverter:

(a) Set the BAT Switch on the P5-13 Panel to the ON position.

(b) Set the STANDBY POWER switch on the P5-5 Panel to the AUTO position.

WARNING BE CAREFUL WHEN YOU DO A TEST IN THE ELECTRICAL PANELS. THE POWER IS ON THE METER TERMINALS AND THE WIRES IN THE PANELS. AN ELECTRICAL SHOCK CAN CAUSE INJURIES.

(c) Do a check for 28 VDC between the positive and negative terminals on the front of the Static Inverter, M9, located on the E2-2 shelf in the main equipment center (WDM 24-34-11).

1) If 28 VDC is not present, then do the check for the Static Inverter RCCB and associated wiring below.

2) If 28 VDC is present, then continue.

(d) Set the STANDBY POWER Switch on the P5-5 Panel to the OFF position.

(e) Remove the connector D46 from the front panel of the Static Inverter, M9.

(f) Set the STANDBY POWER switch on the P5-5 Panel to the AUTO position.

(g) Do a check for 115 VAC, 400 HZ between pin 1 and pin 3 of D46 on the front panel of the Static Inverter, M9.

1) If 115 VAC, 400 HZ is present, then do the check of the SPCU and associated wiring.

2) If 115 VAC, 400 HZ is not present, then do these steps:

a) Replace the Static Inverter, M9. These are the tasks:

- Static Inverter Removal, AMM TASK 24-34-21-000-801
- Static Inverter - Installation, AMM TASK 24-34-21-400-801

b) Do the Repair Confirmation at the end of this task.

(3) Do this check of the Static Inverter RCCB and associated wiring (WDM 24-34-11):

(a) Open the access cover on the J9 Battery Shield in the Main Equipment Center to get access to the Static Inverter RCCB.

WARNING BE CAREFUL WHEN YOU DO A TEST IN THE ELECTRICAL PANELS. THE POWER IS ON THE METER TERMINALS AND THE WIRES IN THE PANELS. AN ELECTRICAL SHOCK CAN CAUSE INJURIES.

(b) Do a check for 28 VDC between terminal A1 on the Static Inverter RCCB in the J9 Battery Shield and ground.

1) If 28 VDC is not present, then do these steps:

a) Repair the wiring from A1 to the hot battery bus.

2) If 28 VDC is present, then continue

(c) Remove the wire at pin 3 on the Static Inverter RCCB.

(d) Do a check for continuity between the wire removed from pin 3 and Ground.

1) If the wire has continuity to Ground, then do these steps:

a) Replace the Static Inverter RCCB, C1341. These are the tasks:

- Static Inverter RCCB Removal, AMM TASK 24-34-31-000-803-002 or Static Inverter RCCB Removal, AMM TASK 24-34-31-000-801-001
- Static Inverter RCCB Installation, AMM TASK 24-34-31-400-803-002 or Static Inverter RCCB Installation, AMM TASK 24-34-31-400-801-001

b) Do the Repair Confirmation at the end of this task.

2) If the wire does not have continuity to ground, then continue.

(e) Do this task: SPCU Removal, AMM TASK 24-34-11-000-801.

(f) Do a wiring check between connector D11714A on the P6 Panel and the wire removed from pin 3 on the Static Inverter RCCB, C1341 as follows:

D11714A	C1341
pin 10	pin 3

(g) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install the SPCU. This is the task: SPCU Installation, AMM TASK 24-34-11-400-801.

3) Do the Repair Confirmation at the end of this task.

(h) If you did not find a problem with the wiring, then do these steps:

1) Install a new SPCU. This is the task: SPCU Installation, AMM TASK 24-34-11-400-801.

2) Do the Repair Confirmation at the end of this task.

(4) Do this check of the SPCU and associated wiring (WDM 24-34-11):

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

(b) Do this task: SPCU Removal, AMM TASK 24-34-11-000-801.

(c) Disconnect connector D10596 from the P5-13 Module located on the P5 Overhead Panel.

(d) Disconnect connector D46 from the front of the Static Inverter, M9, located on the E2-2 shelf in the Main Equipment Center.

(e) Examine the wiring between connector D11712A on the P6 Panel and the Static Inverter connector D46 as follows:

D11712A	D46
pin 1	pin 1

(f) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Do the Repair Confirmation at the end of this task.

(g) Do a wiring check between this pin of connector D46 removed from the Static Inverter and ground:

D46	GROUND
pin 3	GROUND

(h) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Do the Repair Confirmation at the end of this task.

(i) Do a wiring check between these pins of connector D11714 on the P6 panel and connector D10596 removed from the P5-13 Module:

D11714B	D10596
pin 26	pin 38

D11714A	D10596
pin 14	pin 30

(j) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

2) Re-install the SPCU. This is the task: SPCU Installation, AMM TASK 24-34-11-400-801.

3) Do the Repair Confirmation at the end of this task.

(k) If you do not find a problem with the wiring, then do these steps:

1) Install a new SPCU. This is the task: SPCU Installation, AMM TASK 24-34-11-400-801.

2) Re-connect connector D10596 on the P5-13 panel located on the P5 overhead panel in the flight compartment.

3) Re-connect connector D46 on the front of the Static Inverter, M9, located on the E2-2 shelf in the main equipment center.

4) Do the Repair Confirmation at the end of this task.

(5) Replace the Electrical Meters, Battery and Galley Power Module, P5-13. These are the tasks:

- Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801
- Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801

(a) Do the Repair Confirmation at the end of this task.

F. Repair Confirmation

(1) Do the P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(a) If the maintenance message STAT INV INOP does not show, then you corrected the fault.

(b) If the maintenance message STAT INV INOP still shows, then continue the Fault Isolation Procedure at the subsequent step.

——— END OF TASK ———

802. SPCU INOP - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) SPCU INOP.

(b) This message occurs when the Standby Power Control Unit (SPCU), M1720, detects an internal fault.

B. Possible Causes

(1) Standby Power Control Unit, M1720

(2) Wiring

(3) Electrical Meters, Battery and Galley Power Module, P5-13

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(4) Dual Battery Remote Control Circuit Breaker (RCCB), C01212

SHZ ALL

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

Standby Power Control Unit, M01720

Row	Col	Number	Name
B	1	C01410	SPCU NORMAL
B	2	C01411	SPCU STANDBY

D. Related Data

(1) SSM 24-34-11

(2) WDM 24-34-11

E. Initial Evaluation.

(1) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(a) If the maintenance message SPCU INOP does not show, then there was an intermittent fault.

(b) If the maintenance message SPCU INOP shows, then continue.

(2) Cycle the SPCU normal and SPCU STBY circuit breakers.

(a) Open and close these circuit breakers:

Standby Power Control Unit, M01720

Row	Col	Number	Name
B	1	C01410	SPCU NORMAL
B	2	C01411	SPCU STANDBY

(b) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(c) If the maintenance message SPCU INOP does not show, then there was an intermittent fault.

(d) If the maintenance message SPCU INOP shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do a check of the battery charge. This is the task: Battery Discharge Check, AMM TASK 24-31-11-710-801.

(2) Inspect the conditions of the SPCU connector pin/sockets.

(3) Make sure the SPCU is properly engaged.

(4) Replace the SPCU, M1720.

These are the tasks:

SPCU Removal, AMM TASK 24-34-11-000-801,

SPCU Installation, AMM TASK 24-34-11-400-801.

(a) Do the Repair Confirmation at the end of the task.

1) If the repair Confirmation is not satisfactory, then continue.

(5) Do this check:

(a) Remove the SPCU, M1720. To remove it, do this task: SPCU Removal, AMM TASK 24-34-11-000-801.

(b) Disconnect connector D652 from the P5-13 module located on the P5 overhead panel in the flight compartment.

(c) Do a wiring check between these pins of connector D11714A and connector D652 removed from the P5-13 module:

D11714A	D652
pin 25	pin 22

(d) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(e) Re-install the SPCU. To install the SPCU, do this task: SPCU Installation, AMM TASK 24-34-11-400-801.

(f) Re-connect connector D652 on the P5-13 module located on the P5 overhead panel in the flight compartment.

(g) If you repaired any of the wiring listed above, then do these steps:

1) Do the Repair Confirmation at the end of the task.

a) If the repair Confirmation is not satisfactory, then continue.

(6) Replace the Electrical Meters, Battery and Galley Power Module, P5-13.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

(a) Do the Repair Confirmation at the end of the task.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

1) If the repair Confirmation is not satisfactory, then continue.

(7) Replace the Dual Battery Remote Control Circuit Breaker (RCCB), C01212.

These are the tasks:

Dual Battery RCCB Removal, AMM TASK 24-31-41-000-801,

Dual Battery RCCB Installation, AMM TASK 24-31-41-400-801.

(a) Do the Repair Confirmation at the end of the task.

SHZ ALL

G. Repair Confirmation

(1) Try to clear the maintenance message. To clear the message, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801.

(2) If the maintenance message SPCU INOP does not show, then you corrected the fault.

END OF TASK

803. STANDBY PWR OFF Light - Fault Isolation

A. Description

(1) This task is for the STANDBY PWR OFF light located on the generator drive and standby power module, P5-5.

(2) The STANDBY PWR OFF light comes on when one of the following conditions occurs:

(a) The 115V AC standby bus voltage is less than 110 +/- 3V AC for 2 +/- .2 sec.

(b) The 28V DC standby bus voltage is less than 17.5V DC for 2 +/- .2 sec.

(c) The 28V DC bat bus voltage is less than 17.5V DC for 2 +/- .2 sec and the BAT switch on the P5-13 panel is ON.

B. Possible Causes

(1) Standby power control unit, M1720

(2) Wiring

(3) Electrical meters, battery and galley power module, P5-13

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
D	16	C00072	AC BUS STBY BUS 115V AC IND
E	18	C00136	DC BUS INDICATION STBY
F	14	C00026	DC BUS INDICATION BAT

D. Related Data

(1) (SSM 24-28-11)

(2) (SSM 24-33-11)

(3) (SSM 24-34-11)

(4) (SSM 24-52-11)

(5) (SSM 24-54-11)

(6) (SSM 24-61-11)

(7) (WDM 24-28-11)

(8) (WDM 24-33-11)

(9) (WDM 24-34-11)

(10) (WDM 24-52-11)

(11) (WDM 24-54-11)

(12) (WDM 24-61-11)

E. Initial Evaluation

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

(a) If both TRANSFER BUS OFF lights on the P5-4 panel do not go off, the do these steps:

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

2) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

(b) If both TRANSFER BUS OFF lights on the P5-4 panel go off, then continue.

(c) Do a check of the ELEC light on the P5-13 panel.

1) If the ELEC light is on, do this task: P5-13 ELEC Light Message BITE Procedure, 24-31 TASK 801

2) If the ELEC light is off, then continue.

(d) Do a check of the TR UNIT light on the P5-13 panel.

1) If the TR UNIT light is on, do this task: TR UNIT Light - Fault Isolation, 24-31 TASK 826

2) If the TR UNIT light is off, then continue.

(2) Do this check of the STANDBY PWR OFF light:

(a) Make sure the BAT switch on the P5-13 panel is set to the ON position.

(b) Make sure the STANDBY POWER switch on the P5-5 panel is set to the AUTO position.

(c) Do a check of the STANDBY PWR OFF light on the P5-5 panel.

1) If the STANDBY PWR OFF light is on, then do the Fault Isolation Procedure below.

2) If the STANDBY PWR OFF light is off, then continue.

(d) Set the STANDBY POWER switch on the P5-5 panel is set to the OFF position.

(e) Do a check of the STANDBY PWR OFF light on the P5-5 panel.

1) If the STANDBY PWR OFF light is off, then do the Fault Isolation Procedure below.

2) If the STANDBY PWR OFF light is on, then continue.

(f) Set the STANDBY POWER switch on the P5-5 panel is set to the BAT position.

(g) Do a check of the STANDBY PWR OFF light on the P5-5 panel.

1) If the STANDBY PWR OFF light is on, then do the Fault Isolation Procedure below.

2) If the STANDBY PWR OFF light is off, then there was an intermittent fault.

F. Fault Isolation Procedure

(1) Replace the SPCU, M1720.

These are the tasks:

SPCU Removal, AMM TASK 24-34-11-000-801,

SPCU Installation, AMM TASK 24-34-11-400-801.

(a) If the STANDBY PWR OFF light works correctly in the SPCU installation test, then you corrected the fault.

(b) If the STANDBY PWR OFF light does not work correctly, then continue.

(2) Do this check of standby bus and battery bus voltage:

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

(b) Set the BAT switch on the P5-13 panel to the ON position.

(c) Open P6-4 panel to get access to the circuit breakers.

(d) Do a check for 115V AC between circuit breaker C72 on the P6-4 panel and ground.

(e) If 115V AC is not present, then do these steps:

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

2) Repair the wiring (SSM 24-28-11), (SSM 24-54-11).

(f) If 115V AC is present, then continue.

(g) Do a check for 28V DC between circuit breaker C136 on the P6-4 panel and ground.

(h) If 28V DC is not present, then do these steps:

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

2) Repair the wiring (SSM 24-33-11), (SSM 24-52-11).

(i) If 28V DC is present, then continue.

(j) Do a check for 28V DC between circuit breaker C26 on the P6-4 panel and ground.

(k) If 28V DC is not present, then do these steps:

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

2) Repair the wiring (SSM 24-33-11), (SSM 24-61-11).

(l) If 28V DC is present, then continue.

(m) If you repaired any of the wiring listed above, then do these steps:

SHZ 002

1) Do this task: The Operational Test of the Standby Power System, AMM TASK 24-34-00-710-801.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

2) Do this task: The Operational Test of the Standby Power System, AMM TASK 24-34-00-710-802.

SHZ ALL

3) If the STANDBY PWR OFF light works correctly, then you corrected the fault.

(n) If you did not repair any of the wiring listed above, then continue:

(3) Replace the electrical meters, battery and galley power module, P5-13.

These are the tasks:

Electrical Meters, Battery and Galley Power Module Removal, AMM TASK 24-21-53-000-801,

Electrical Meters, Battery and Galley Power Module Installation, AMM TASK 24-21-53-400-801.

SHZ 002

(a) Do this task: The Operational Test of the Standby Power System, AMM TASK 24-34-00-710-801.

SHZ 009-699, 721-799, 801-825, 827-847, 850-852, 855-863, 865, 866, 871-874, 876-899, 901-999; SHZ 706 POST SB 737-24-1152

(b) Do this task: The Operational Test of the Standby Power System, AMM TASK 24-34-00-710-802.

SHZ ALL

(c) If the STANDBY PWR OFF light works correctly, then you corrected the fault.

END OF TASK

801. Bus Power Control Unit BITE Procedure

Figure 201

A. General

(1) You do the BITE procedure at the front panel of the Bus Power Control Unit (BPCU).

(2) The BPCU, G15 is installed on the E4-2 rack in the main equipment center.

(3) The BPCU performs a self test after it is powered up or manually by pushing the BPCU TEST switch. The BPCU has three fault indicator lights, one BPCU PASS light and one test switch on the front panel. The fault indicator lights will be referred to as maintenance messages throughout this procedure.

(4) The four indicator lights are listed in order below, with the highest priority indicator listed first.

NOTE: If there is more than one fault condition, only the highest priority fault indicator light will be on.

(a) BPCU FAULT

(b) EP DIST/BUS FAULT

(c) EPC FAULT

(d) BPCU PASS

(5) The BPCU will detect the external faults when external power is being supplied.

NOTE: The EP DIST/BUS FAULT can be detected and shown by the BPCU when the APU generator is supplying power.

(6) Use the manual BITE procedure to clear the fault indications from the BPCU memory.

NOTE: Record the maintenance messages (if any) before you do the manual BITE procedure.

B. Prepare for Test

(1) Turn the BAT switch on the P5-13 panel to the ON position.

NOTE: The BPCU BITE procedure can be run with external power. If you unable to apply external power the procedure can be run with battery power.

C. BITE Procedure

(1) Do these steps to do the BITE procedure for the BPCU:

(a) Record any maintenance messages (if there are any) before you push the BPCU TEST switch.

NOTE: If you remove and reapply power, this will not erase any of the faults that were detected by the BPCU. However, if the fault is no longer present and the BPCU TEST switch is pushed, the fault will be cleared.

(b) Push and hold the BPCU TEST switch on the BPCU for a minimum of one second and then release it.

(c) Make sure all four of the indicator lights come on for approximately three seconds:

1) BPCU FAULT - (red)

2) EP DIST/BUS FAULT - (red)

3) EPC FAULT - (red)

4) BPCU PASS - (green)

(d) Make sure all four of the indicator lights go off for approximately three seconds.

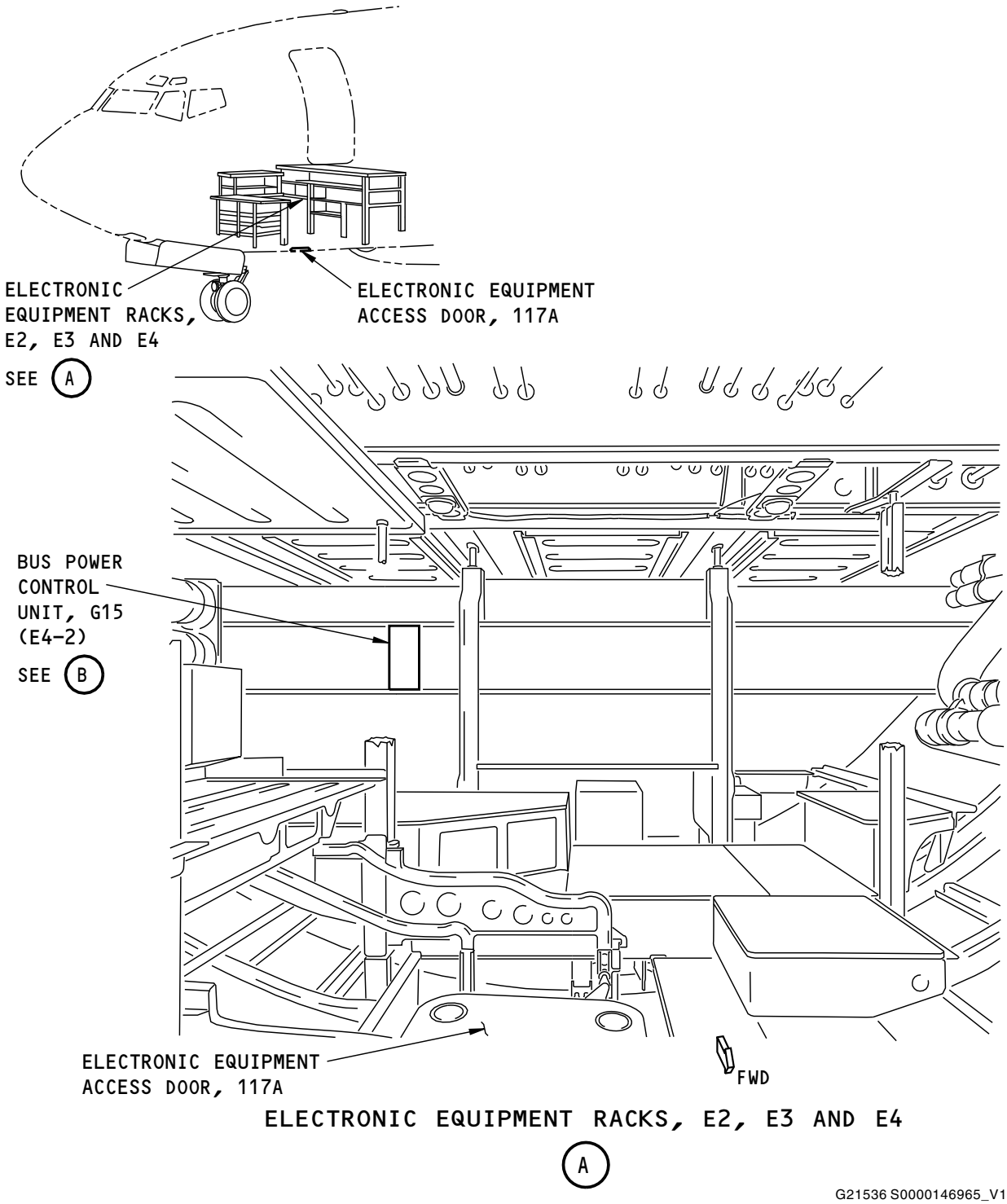
(e) If no faults were detected, the BPCU PASS light will come on for approximately seven seconds.

(f) If a fault is detected, then the applicable red fault indicator light will come on.

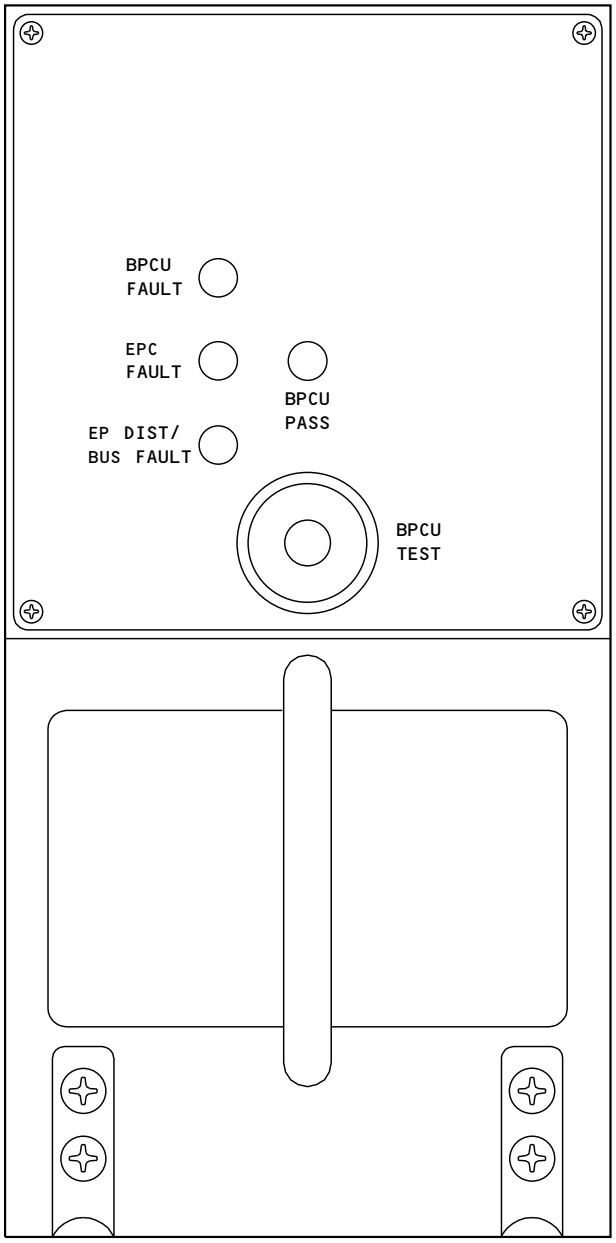
1) Refer to the table at the end of this task to find the fault isolation task for the applicable maintenance message.

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
BPCU	BPCU FAULT	24-41 TASK 802
BPCU	EP DIST/BUS FAULT	24-41 TASK 803
BPCU	EPC FAULT	24-41 TASK 804

——— END OF TASK ———



Bus Power Control Unit (BPCU), G15
Figure 201/24-41-00-990-802 (Sheet 1 of 2)



BUS POWER CONTROL UNIT, G15

B

G21532 S0000146966_V1

Bus Power Control Unit (BPCU), G15
Figure 201/24-41-00-990-802 (Sheet 2 of 2)

802. BPCU FAULT - Fault Isolation

A. Description

(1) This task is for this Maintenance Message:

(a) Bus Power Control Unit (BPCU) FAULT.

(2) This message occurs when the BPCU detects an internal problem or there is a problem with the Ground Power Switch or Switch Wiring.

B. Possible Causes

(1) BPCU, G00015

(2) AC System Generator and Auxiliary Power Unit (APU) Module G00014

(3) Wiring

C. Related Data

(1) WDM 24-41-11

(2) SSM 24-41-11

D. Initial Evaluation

(1) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

(a) If the Maintenance Message BPCU FAULT shows, then do the Fault Isolation Procedure.

(b) If no Maintenance Message shows, then there was an intermittent problem.

E. Fault Isolation Procedure

(1) Replace the BPCU, G00015. These are the tasks:

- BPCU Removal, AMM TASK 24-41-21-000-801
- BPCU Installation, AMM TASK 24-41-21-400-801

(a) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

(2) Do this check of the Ground Power Switch (WDM 24-41-11):

(a) At the P5-4 overhead panel, on the APU Module, G00014, disconnect the Connector D634.

(b) At the P5-4 overhead panel, Connector D634 make sure that pins 13, 25 and 26 are isolated from each other and ground. The Ground Power Switch should be in the center position.

NOTE: Check for short circuit, pin-to-pin and pin-to-ground.

(c) If any of the pins are shorted to each other or ground, then do these steps:

1) Replace the APU Module, G00014. These are the tasks:

- AC System Generator and APU Module Removal, AMM TASK 24-21-51-000-801
- AC System Generator and APU Module Installation, AMM TASK 24-21-51-400-801

2) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

(d) If there is no problem with any of the pins, then continue.

(3) Do this check of the Ground Power Control Switch Wiring (WDM 24-41-11):

(a) At the E4-2 shelf, on the BPCU, G00015, disconnect Connector D10898A.

(b) At the P5 overhead panel, on the APU Module, G00014, disconnect Connector D634.

(c) Do a Wiring check between these pins of Connector D10898A on the E4-2 shelf and Connector D634 removed from the P5-4 panel:

NOTE: Do a check for shorts, wire-to-wire and wire-to-ground.

BPCU D10898A	GND PWR SW D634
pin 59	pin 13
pin 46	pin 25
pin 58	pin 26

(d) If you find a problem with the Wiring, then do these steps:

1) Repair the wiring as necessary (SWPM 20-10-13).
2) At the P5-4 overhead panel, on the APU Module, G00014, connect Connector D634.
3) At the E4-2 shelf, on the BPCU, G00015, connect Connector D10898A.

(e) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

(4) Do this check of the Wiring (WDM 24-28-41):

(a) At the E4-2 shelf, on the BPCU, G00015, disconnect Connector D10898A.

(b) On the Proximity Switch Electronic Unit (PSEU), M2061, disconnect Connector D11138.

(c) Examine the Wiring between the BPCU and the PSEU as follows:

BPCU D10898A	PSEU D11138
57	32
44	31

(d) If you find a problem with the Wiring then do these steps:

1) Repair the Wiring as necessary (SWPM 20-10-13).
2) At the E4-2 shelf, on the BPCU, G00015, connect Connector D10898A.
3) On the PSEU, M2061, connect Connector D11138.

——— END OF TASK ———

803. EP DIST/BUS FAULT - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) EP DIST/BUS FAULT.

(2) This message occurs when the Bus Power Control Unit (BPCU) detects an overcurrent condition or an unbalanced phase current condition.

(3) This message also occurs when the Bus Power Control Unit (BPCU) detects a reversed phase sequence condition.

NOTE: The fault will occur when external power is plugged in, the external power contactor will not close and the GRD PWR AVAILABLE light will not come on.

(4) This message will also occur on the BPCU when the APU generator is supplying power to the transfer busses and the BTB's and/or the APB is tripped (due to DIST/BUS fault condition).

B. Possible Causes

(1) Tie Bus Power Feeders

(2) External Power Feeders

(3) Rigid Bus Assembly - P91 Panel

(4) Rigid Bus Assembly - P92 Panel

(5) External power sensing relay, R47

(6) Power Distribution Panel (PDP) 1, P91

(7) Power Distribution Panel (PDP) 2, P92

(8) External Power Current Transformer (EPCT), T378

(9) Bus Power Control Unit (BPCU), G15

(10) Wiring

C. Circuit Breakers

(1) These are the primary circuit breakers related to the fault:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	13	C01290	GENERATOR BUS PWR CONT UNIT

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
C	10	C01327	BUS PWR CONT UNIT

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	12	C00936	EXT PWR BPCU
A	15	C02812	EXT PWR 2
A	18	C00812	EXT PWR 1

D. Related Data

(1) (SSM 24-23-31)

(2) (SSM 24-41-11)

(3) (SSM 24-52-11)

(4) (WDM 24-23-31)

(5) (WDM 24-41-11)

(6) (WDM 24-52-11)

E. Initial Evaluation

(1) Make sure the BAT switch on the P5-13 panel is in the ON position.

(2) Open and close these circuit breakers:

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	13	C01290	GENERATOR BUS PWR CONT UNIT

Power Distribution Panel Number 1, P91

Row	Col	Number	Name
C	10	C01327	BUS PWR CONT UNIT

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	12	C00936	EXT PWR BPCU

NOTE: The BPCU locks out the Bus Tie Breakers (BTB) for an EP DIST/BUS fault. When the EP DIST/BUS maintenance message shows on the BPCU, you must cycle power to the BPCU to clear the lockout.

(3) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

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

(b) If BTB 1 or BTB 2 trips, (1 or 2 TRANSFER BUS OFF lights on the P5-4 panel comes on), and the EPC does not trip, then do the Fault Isolation Procedure - BTB 1 or BTB 2 Trips Open below.

(c) If the External Power Contactor (EPC), C937 trips, then do the Fault Isolation Procedure - EPC Trips Open below.

(d) If BTB 1, BTB 2 and the EPC do not trip open and no maintenance messages show, then there was an intermittent fault.

NOTE: Feeder faults can be intermittent, you may want to do a check of the feeders even if you are not able to reproduce the EP DIST/BUS fault.

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

F. Fault Isolation Procedure - BTB 1 or BTB 2 Trips Open

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

(1) Replace the BPCU, G15. These are the tasks:

- BPCU Removal, AMM TASK 24-41-21-000-801,
- BPCU Installation, AMM TASK 24-41-21-400-801.

(a) Do the Repair Confirmation at the end of this task.

(2) Replace the External Power Sensing Relay, R47.

(a) Do the Repair Confirmation at the end of this task.

NOTE: If BTB 1 continues to trip open after you did the above listed checks, then the problem is in the P91 panel on the load side of BTB 1. If BTB 2 continues to trip open after you did the above listed checks, then the problem is in the P92 panel on the load side of BTB 2.

(3) Replace the applicable Power Distribution Panel; PDP 1, P91 or PDP 2, P92. These are the tasks:

- Power Distribution Panel Removal, AMM TASK 24-21-21-000-801,
- Power Distribution Panel Installation, AMM TASK 24-21-21-400-801.

NOTE: Replace Power Distribution Panel 1, P91 when BTB 1 trips open. Replace Power Distribution Panel 2, P92 when BTB 2 trips open.

(a) Do the Repair Confirmation at the end of this task.

G. Fault Isolation Procedure - EPC Trips Open

NOTE: You must do the steps in the Initial Evaluation before you can do these steps.

(1) Do these checks of the Tie Bus and the Rigid Bus Assemblies:

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

WARNING MAKE SURE THAT YOU REMOVE ALL ELECTRICAL POWER BEFORE YOU DISCONNECT OR CONNECT POWER FEEDERS. HIGH VOLTAGE CAN CAUSE INJURY TO PERSONS.

(b) Remove the three tie bus Power Feeders from the P91 panel at TB5004 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P91 terminal block.

2) Remove the three Power Feeders from the P91.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Remove the three tie bus Power Feeders from the P92 panel at TB5008 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P92 terminal block.

2) Remove the three Power Feeders from the P92.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(d) Remove the TIE BUS PWR IND Lamps from the front and rear of the P91 and P92 Panels.

(e) Do a check for an open circuit between these Power Feeders that were removed from TB5004 on the P91 panel and TB5008 on the P92 panel (WDM 24-23-31):

TB5004 P91 PANEL	TB5008 P92 PANEL
A	A
B	B
C	C

1) If you find an open circuit, then repair the Power Feeders.

(f) Do an isolation check of the Power Feeders that were removed from TB5004 on the P91 panel and TB5008 on the P92 panel. Use a insulation resistance tester, COM-1276 to check for isolation from ground and other feeders.

1) Make sure the resistance from ground and other feeders is more than 40 MegaOhms at a test output voltage of 500 VDC.

TB5004 P91 PANEL	TB5008 P92 PANEL
A	A
B	B
C	C

2) If you find a problem with the Power Feeders, then repair the feeders.

(g) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5004 on the P91 panel and BTB 1, C804 in the P91 panel:

NOTE: Make sure there is continuity between these points and that they are isolated from each other and ground.

TB5004 P91 PANEL	C804 P91 PANEL
A	A2
B	B2
C	C2

1) If you find a problem with the Rigid Bus Assembly, then the Rigid Bus Assembly in the P91 panel. These are the tasks:

- Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
- Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

(h) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5008 on the P92 panel and BTB 2, C805 in the P92 panel:

NOTE: Make sure there is continuity between these points and that they are isolated from each other and ground.

TB5008 P92 PANEL	C805 P92 PANEL
A	A2
B	B2
C	C2

1) If you find a problem with the Rigid Bus Assembly, then the Rigid Bus Assembly in the P92 panel. These are the tasks:

- Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
- Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

(i) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5008 on the P92 panel and the EPC, C937 in the P92 panel:

NOTE: Make sure there is continuity between these points and that they are isolated from each other and ground.

TB5008 P92 PANEL	C937 P92 PANEL
A	A2
B	B2
C	C2

1) If you find a problem with the Rigid Bus Assembly, then replace the Rigid Bus Assembly in the P92 panel. These are the tasks:
   - Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
   - Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

(j) Install the three tie bus Power Feeders on the P91 panel at TB5004 per the steps that follow:
1) Install the three Power Feeders on the terminal studs, make sure phase sequence is correct.
2) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

(k) Install the three tie bus Power Feeders on the P92 panel at TB5008 per the steps that follow:
1) Install the three Power Feeders on the terminal studs, make sure phase sequence is correct.
2) Install the three washers and nuts and tighten the nuts to 180 in-lb (20.3 N·m) to 200 in-lb (22.6 N·m).

(l) Install the TIE BUS PWR IND Lamps at the front and rear of the P91 and P92 Panels.

(m) If you replaced a Rigid Bus Assembly or repaired the Power Feeders, then do the Repair Confirmation at the end of this task.

(n) If you did not find a problem with one of the Rigid Bus Assemblies or with the Power Feeders, then continue.

(2) Do this check of the external Power Feeders and the rigid bus assembly (WDM 24-41-11):

(a) Remove the external power plug, (if installed), from the external power receptacle at the P19 panel.

(b) Remove the three external Power Feeders from the Power Distribution Panel 2, P92 panel at TB5006 per the steps that follow:

NOTE: Use identification tags on feeders for correct installation later.

1) Remove the three terminal nuts and washers that hold the Power Feeders to the P92 terminal block.
2) Remove the three Power Feeders from the P92.

NOTE: Do not let the feeder terminations touch each other or the airplane structure when you do the wiring checks.

(c) Do a check for an open circuit between these Power Feeders that were removed from TB5006 on the P92 panel and the external power receptacle, D48 at the P19 panel:

P19 PANEL	P92 PANEL TB5006
D48 TERMINAL	TERMINAL
A	A
B	B
C	C

D48 TERMINAL		RESISTANCE
N	GD38-AC	0.1 Ohms

1) If there is an open circuit, then repair the Power Feeders.

(d) Do an isolation check between the Power Feeders removed from TB5006 on the P92 panel and the external power receptacle, D48 at the P19 panel. Use insulation resistance tester, COM-1276 to check for isolation from ground and other feeders.

1) Make sure the resistance from ground and other feeders is more than 40 MegaOhms at a test output voltage of 500 VDC.

D48 P19 PANEL	TB5006 P92 PANEL
A	A
B	B
C	C

2) If you find a problem with the Power Feeders, then repair the feeders.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	12	C00936	EXT PWR BPCU
A	15	C02812	EXT PWR 2
A	18	C00812	EXT PWR 1

(f) Remove the EXT PWR IND Lamps from the front and rear of the P92 Panel.

(g) Do a check of the Rigid Bus Assembly between these terminations of terminal block TB5006 on the P92 panel and the EPC, C937 in the P92 panel (WDM 24-23-31):

NOTE: Make sure there is continuity between these points and that they are isolated from each other and ground.

TB5006 P92 PANEL	C937 P92 PANEL
A	A1
B	B1
C	C1

1) If you find a problem with the Rigid Bus Assembly, then replace the Rigid Bus Assembly in the P92 panel. These are the tasks:

- Rigid Bus Assembly Removal, AMM TASK 24-21-22-000-801,
- Rigid Bus Assembly Installation, AMM TASK 24-21-22-400-801.

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

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
A	12	C00936	EXT PWR BPCU
A	15	C02812	EXT PWR 2
A	18	C00812	EXT PWR 1

(h) Install the EXT PWR IND Lamps at the front and rear of the P92 Panel.

(i) Install the three external Power Feeders on the P92 panel at TB5006 per the steps that follow:

1) Install the three Power Feeders on the terminal studs, make sure phase sequence is correct.

2) Install the three washers and nuts and tighten the nuts to 180-200 pound-inches (20.3-22.6 Newton Meters).

(j) If you replaced the Rigid Bus Assembly or repaired the Power Feeders, then do the Repair Confirmation at the end of this task.

(k) If you did not find a problem with the Rigid Bus Assembly or with the Power Feeders, then continue.

(3) Do this check of the EPCT, T378 and wiring (WDM 24-41-11):

(a) Remove the EPCT, T378. To remove it, do this task: Current Transformer Removal, AMM TASK 24-21-71-000-801.

(b) Remove the BPCU. To remove it, do this task: BPCU Removal, AMM TASK 24-41-21-000-801.

(c) Do a check for an open circuit between these pins of connector D10898A at the E4-2 rack and connector D11754 removed from the EPCT the P92 panel:

D10898A	D11754
pin 17	pin 4
pin 17	pin 5
pin 17	pin 6
pin 16	pin 3
pin 15	pin 2
pin 7	pin 1

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.

2) Re-install the EPCT, T378. To install it, do this task: Current Transformer Installation, AMM TASK 24-21-71-400-801.

(e) If there was no problems with the wiring listed above, then do these steps:

1) Install a new EPCT, T378. To install it, do this task: Current Transformer Installation, AMM TASK 24-21-71-400-801.

(f) Re-install the BPCU. To install it, do this task: BPCU Installation, AMM TASK 24-41-21-400-801.

(g) Do the Repair Confirmation at the end of this task.

(4) Replace the BPCU, G15. These are the tasks:

- BPCU Removal, AMM TASK 24-41-21-000-801,
- BPCU Installation, AMM TASK 24-41-21-400-801.

(a) Do the Repair Confirmation at the end of this task.

H. Repair Confirmation

(1) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

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

1) If BTB 1, BTB 2, and the EPC do not trip open and the maintenance message EP DIST/FAULT does not show, then you corrected the problem.

2) If either BTB 1, BTB 2, or the EPC trips open, and/or the maintenance message EP DIST/FAULT still shows, then continue the applicable Fault Isolation Procedure at the subsequent step.

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

——— END OF TASK ———

804. EPC FAULT - Fault Isolation

A. Description

(1) This task is for this maintenance message:

(a) EPC FAULT.

(2) This message occurs when the Bus Power Control Unit (BPCU) detects that the External Power Contactor (EPC) is not in the commanded position.

B. Possible Causes

(1) External Power Contactor (EPC), C937

(2) Bus Power Control Unit (BPCU), G15

(3) Wiring

C. Related Data

(1) (SSM 24-23-11)

(2) (SSM 24-23-21)

(3) (SSM 24-41-11)

(4) (WDM 24-23-11)

(5) (WDM 24-23-21)

(6) (WDM 24-41-11)

D. Initial Evaluation

(1) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

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

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

(c) If external power does not come on line and go off line or there are maintenance messages the Fault Isolation Procedure below.

(d) If external power comes on line and goes off line and there are no maintenance messages on the front panel of the BPCU, then there was an intermittent fault.

E. Fault Isolation Procedure

(1) Replace the EPC, C937.

These are the tasks:

External Power Contactor Removal, AMM TASK 24-41-12-000-801,

External Power Contactor Installation, AMM TASK 24-41-12-400-801.

(a) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

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

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

(d) If external power comes on line and goes off line and there are no maintenance messages on the front panel of the BPCU, then you corrected the fault.

(e) If external power does not come on line and go off line or there are maintenance messages on the front panel of the BPCU, then continue.

(2) Do this check of the EPC, C937 control and sense wiring:

(a) Remove the BPCU, G15. To remove the BPCU, do this task: BPCU Removal, AMM TASK 24-41-21-000-801.

(b) Disconnect connector D10906 from the EPC, C937 located in the P92 panel.

(c) Disconnect connector D10904 from the Auxiliary Power Breaker (APB), C803 located in the P91 panel.

(d) Do a wiring check between these pins of connector D10898A on the E4-2 rack and connector D10906 removed from the EPC:

D10898A	D10906
pin 1	pin 1
pin 2	pin 14
pin 18	pin 3

(e) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(f) Do a check for continuity between connector D10906 (removed from the EPC) pin 23 and ground.

(g) If there is no continuity, then do these steps:

1) Repair the wiring.

(h) Do a wiring check between these pins of connector D10898A on the E4-2 rack and connector D10904 removed from the APB:

D10898A	D10904
pin 19	pin 7

(i) If you find a problem with the wiring, then do these steps:

1) Repair the wiring.

(j) Re-install the BPCU, G15. To install the BPCU, do this task: BPCU Installation, AMM TASK 24-41-21-400-801.

(k) Re-connect connector D10906 on the EPC, C937 located in the P92 panel.

(l) Re-connect connector D10904 on the APB, C803 located in the P91 panel.

(m) If any of the wires listed above need to be repaired, then do these steps:

1) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

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

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

4) If external power comes on line and goes off line and there are no maintenance messages on the front panel of the BPCU, then you corrected the fault.

(n) If you did not find any problems with the wiring, then continue:

(3) Replace BPCU, G15.

These are the tasks:

BPCU Removal, AMM TASK 24-41-21-000-801,

BPCU Installation, AMM TASK 24-41-21-400-801.

(a) Do this task: Bus Power Control Unit BITE Procedure, 24-41 TASK 801.

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

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

(d) If external power comes on line and goes off line and there are no maintenance messages on the front panel of the BPCU, then you corrected the fault.

——— END OF TASK ———