CHAPTER

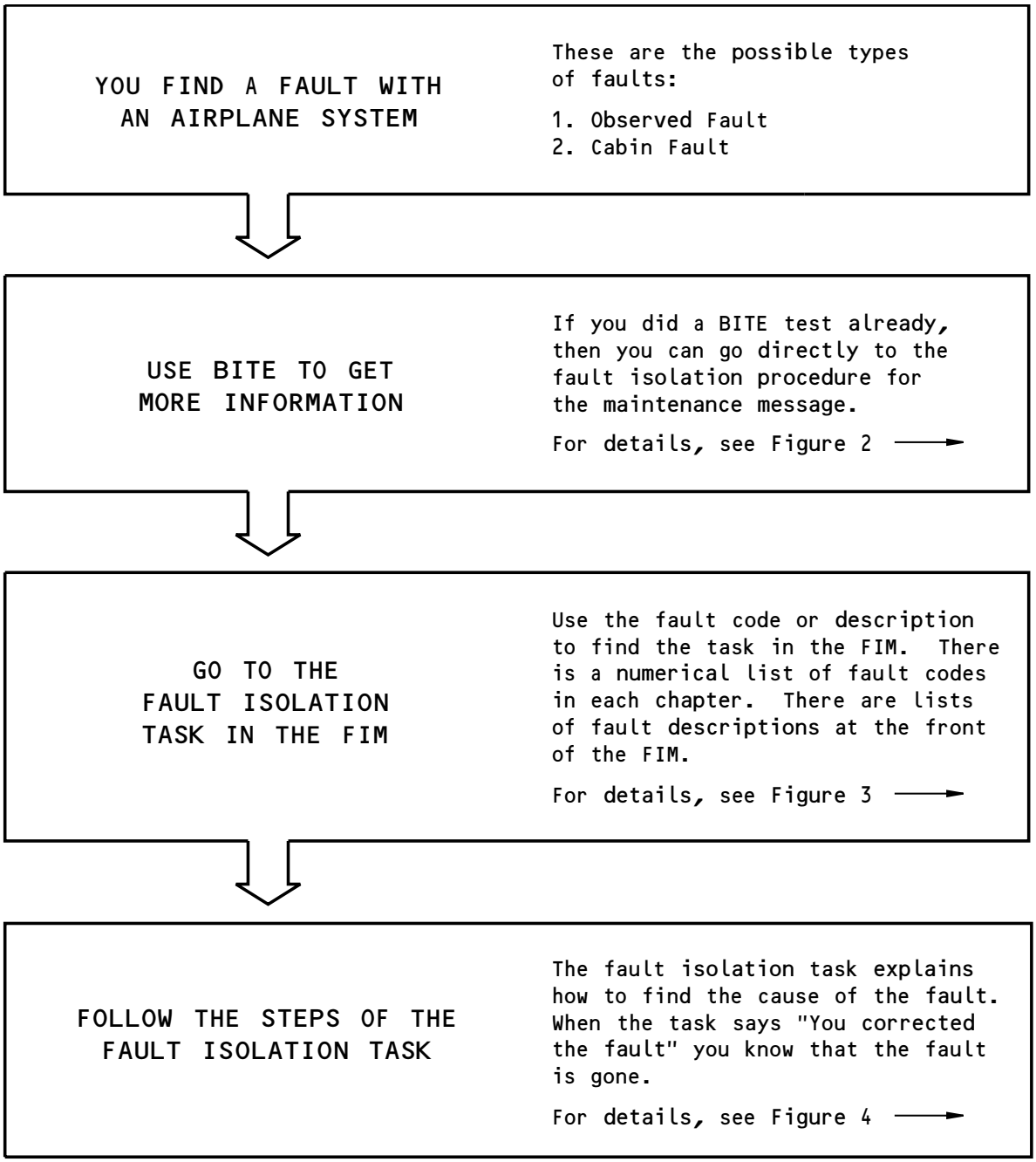
47

INERT GAS SYSTEM

CHAPTER 47
INERT GAS SYSTEM

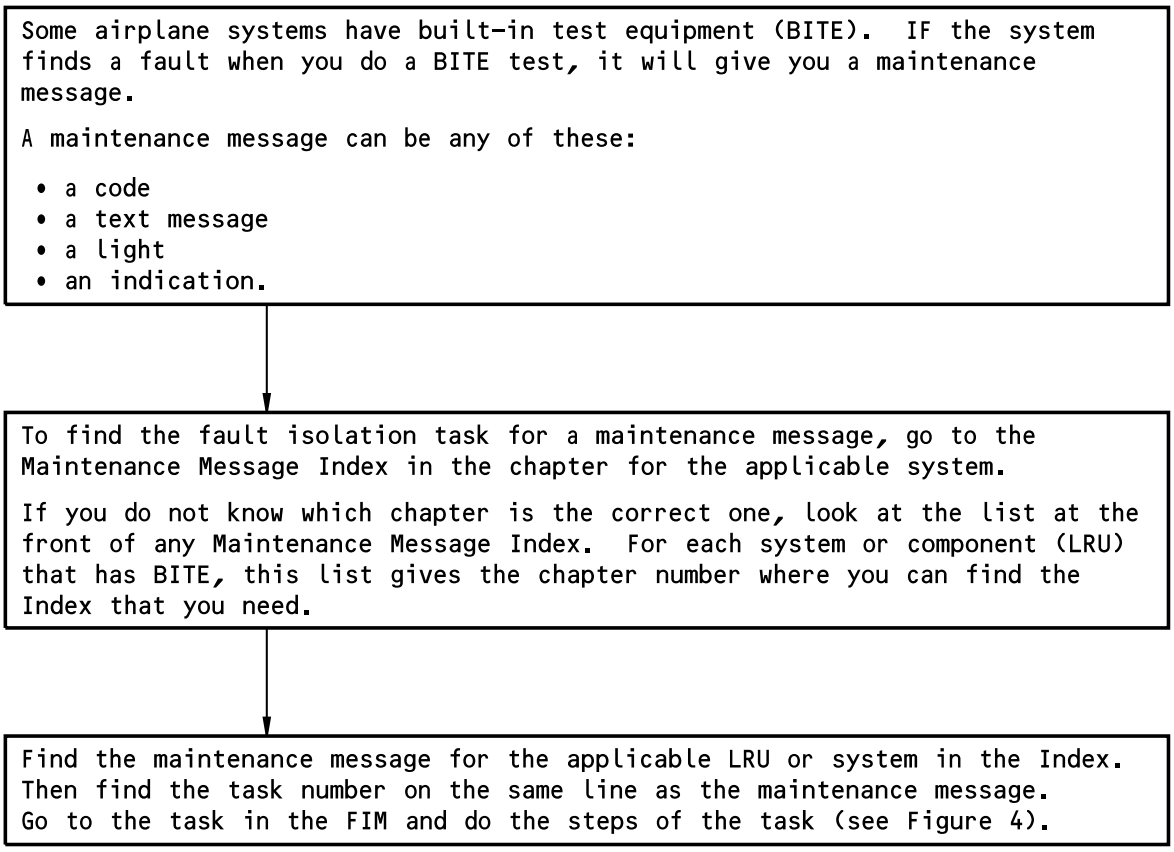
A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

47-EFFECTIVE PAGES



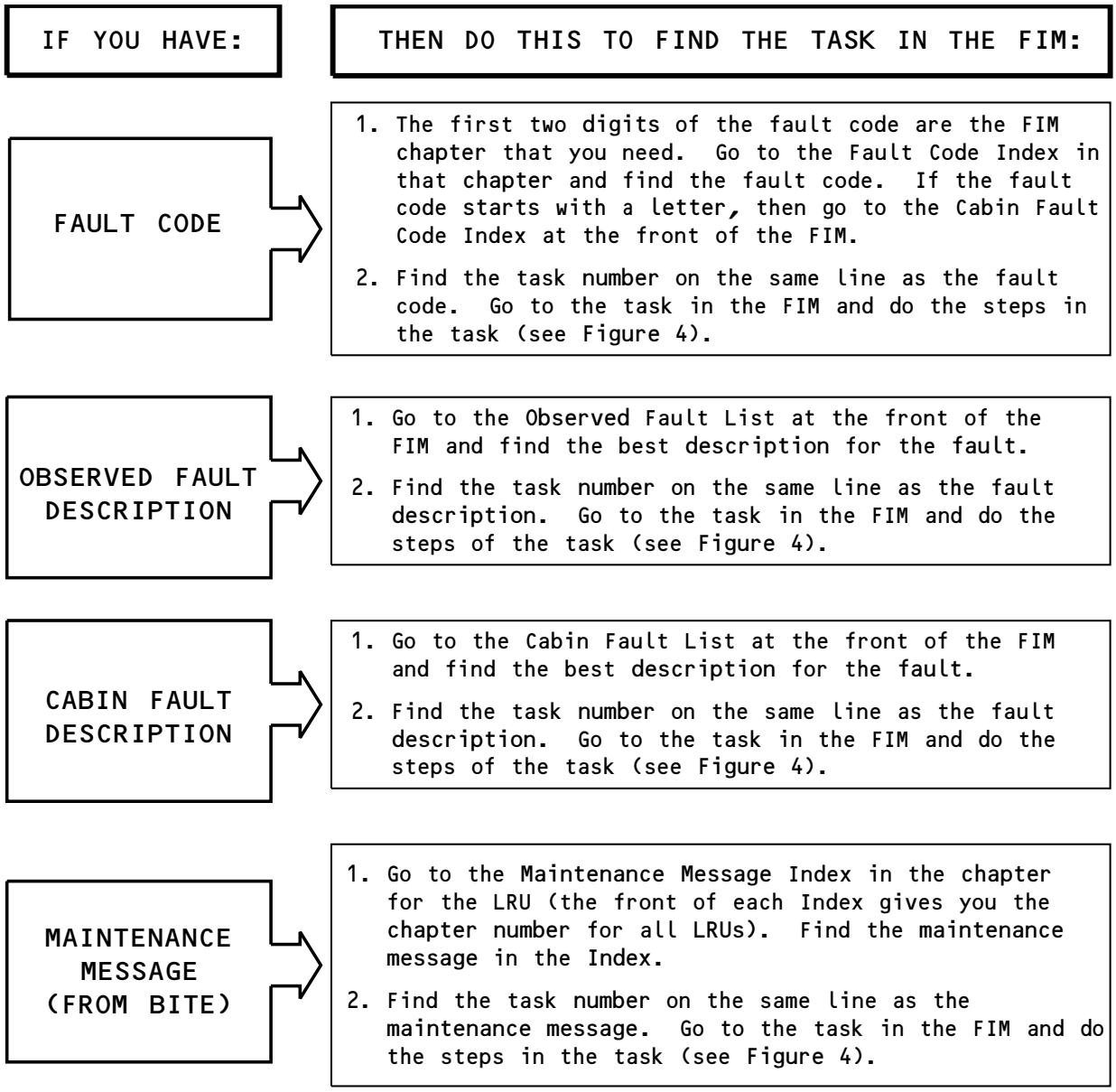
G04902 S0000148576_V1

Basic Fault Isolation Process
Figure 1



G04950 S0000148578_V1

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

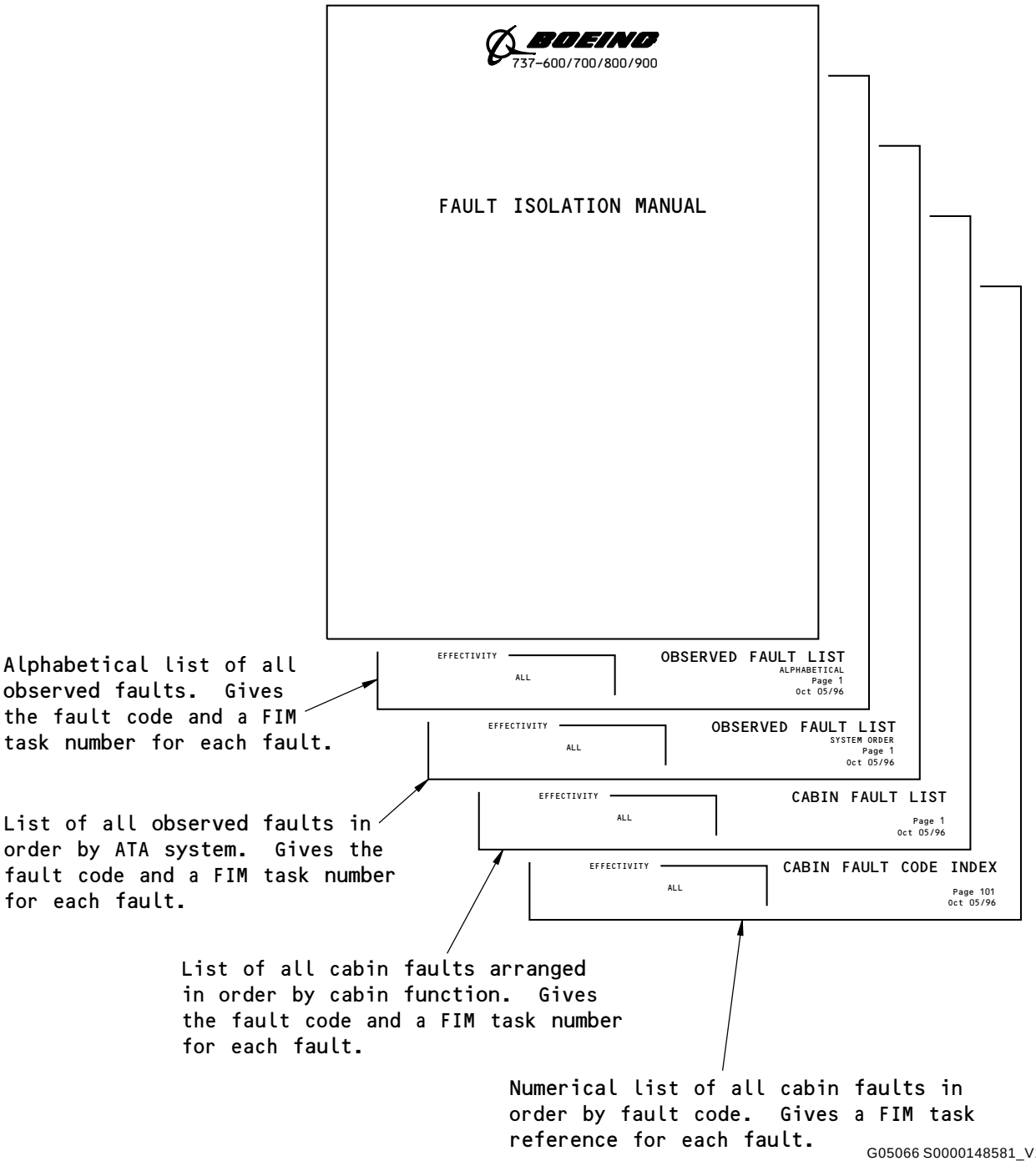
- The primary purpose of the Initial Evaluation paragraph at the start of the task is to help you find out if you can detect the fault right now:
  - If you cannot detect the fault right now, then the task cannot isolate the fault and the Initial Evaluation paragraph will say that there was an intermittent 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

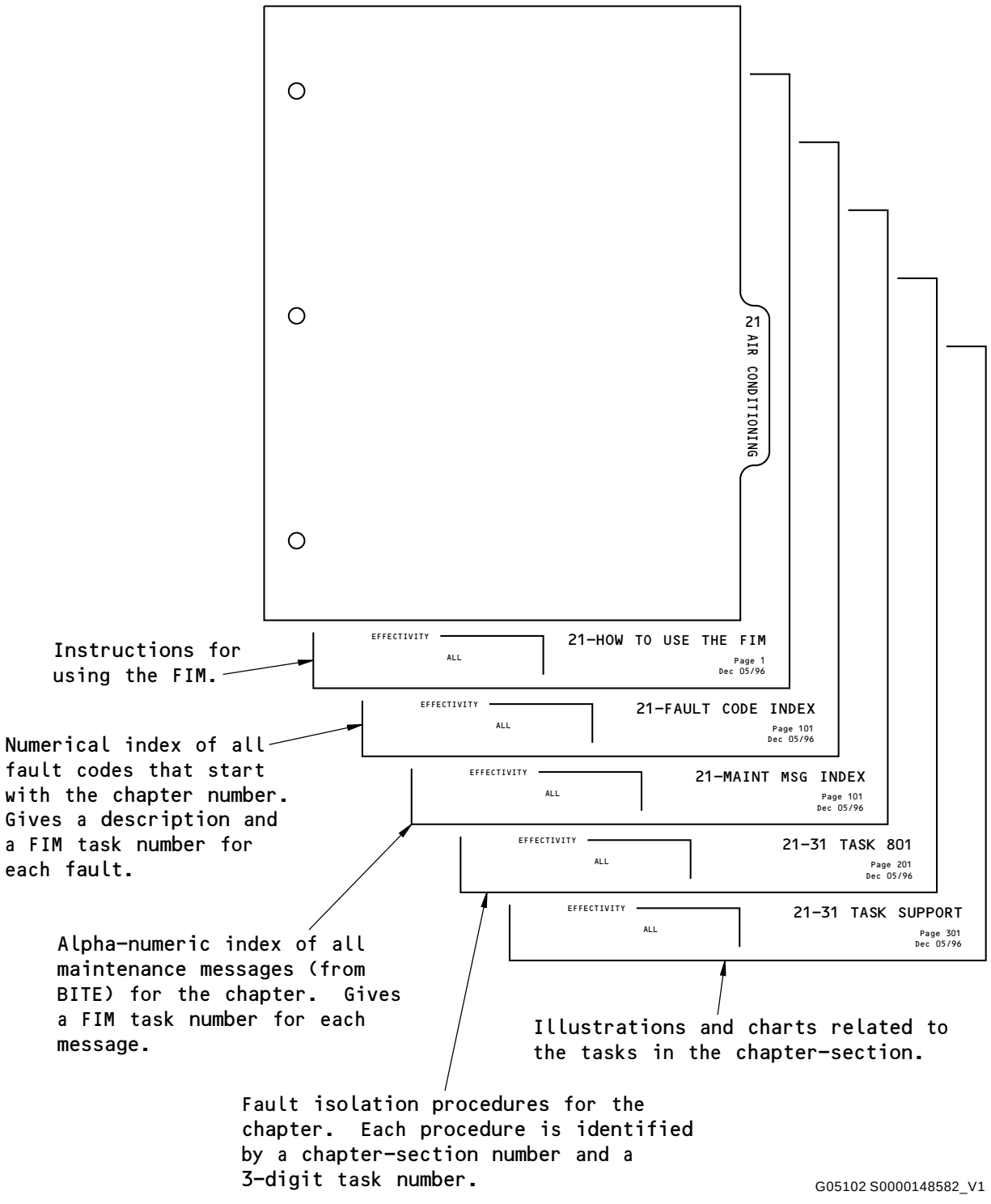
- The FIM task steps are presented in a specified order. The "If... then" statements will guide you along a logical path. But if you do not plan to follow the FIM task exactly, make sure that you read it before you start to isolate the fault. Some FIM procedures start with important steps that have an 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
470 811 00	Nitrogen generation system: operability indicator INOPERATIVE (amber) light is on.	47-31 TASK 801
470 812 00	Nitrogen generation system: operability indicator has all lights off.	47-31 TASK 801
470 813 00	Nitrogen generation system: operability indicator DEGRADED (blue) light is on.	47-31 TASK 840

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 System	A/T	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
Cargo Electronic Unit - Forward	CEU - FWD	26
Cargo Electronic Unit - Lower	CEU - LOWER	26
Cargo Electronic Unit - Main Aft	CEU - MAIN AFT	26
Cargo Electronic Unit - Main Forward	CEU - MAIN FWD	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
Flap/Slat Electronics Unit	FSEU	27
Flight Data Acquisition Unit	FDAU	31
Flight Management Computer System	FMCS	34
Fuel Quantity Indicating System	FQIS	28

LRU/SYSTEM	SHORT NAME	CHAPTER
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
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

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
NGS	47-30001 NGS CONTROLLER	47-31 TASK 802
NGS	47-30002 NGS CONTROLLER INOP	47-31 TASK 803
NGS	47-30010 NGS BLD PRESS SENSOR	47-31 TASK 804
NGS	47-30011 NGS TEMP SENSOR ELEC	47-31 TASK 805
NGS	47-30012 NGS TEMP SENSOR DRIFT	47-31 TASK 806
NGS	47-30013 DP SENSOR HI ELEC	47-31 TASK 807
NGS	47-30014 DP SENSOR HI DRIFT	47-31 TASK 808
NGS	47-30017 NGS ALT SENSOR ELEC	47-31 TASK 809
NGS	47-30018 BLD PRESS SENSOR DRIFT	47-31 TASK 811
NGS	47-30019 NGS ALT SENSOR DRIFT	47-31 TASK 810
NGS	47-30020 NGSSOV ELEC FAIL	47-31 TASK 812
NGS	47-30021 NGSSOV FAIL OPEN	47-31 TASK 813
NGS	47-30023 NGSSOV/OTSOV/HFV CLOSED	47-31 TASK 814
NGS	47-30024 OTSOV ELEC FAIL	47-31 TASK 815
NGS	47-30025 OTSOV FAIL OPEN	47-31 TASK 816
NGS	47-30026 NGSRAV ELEC FAIL	47-31 TASK 817
NGS	47-30027 NGSRAV FAIL OPEN	47-31 TASK 818
NGS	47-30028 NGSRAV FAIL CL/HX BLKD	47-31 TASK 819
NGS	47-30029 FILTER BLOCKED	47-31 TASK 820
NGS	47-30030 HFV ELEC FAIL	47-31 TASK 821
NGS	47-30031 HFV FAIL CLOSED	47-31 TASK 837
NGS	47-30032 HFV FAIL OPEN	47-31 TASK 823
NGS	47-30040 WOW SIG FAIL IN AIR	47-31 TASK 824
NGS	47-30041 WOW SIG FAIL ON GROUND	47-31 TASK 825
NGS	47-30042 FWD CGO FIRE SIG FAIL ON	47-31 TASK 826
NGS	47-30043 MN CGO FIRE SIG FAIL ON	47-31 TASK 827
NGS	47-30044 AFT CGO FIRE SIG FAIL ON	47-31 TASK 828
NGS	47-30045 FD SMK EVAC SIG FAIL ON	47-31 TASK 829
NGS	47-30050 ENG1 SIG FAIL	47-31 TASK 830
NGS	47-30051 ENG2 SIG FAIL	47-31 TASK 831
NGS	47-30054 PACK SIG FAIL OFF	47-31 TASK 832
NGS	47-30056 AIRCRAFT ID INVALID	47-31 TASK 833
NGS	47-30059 REFUEL SIG1 FAIL OPEN	47-31 TASK 834
NGS	47-30062 NGS OXYGEN SENS FAIL	47-31 TASK 838
NGS	47-30063 NGS ASM FAIL	47-31 TASK 839

801. NGS BITE - Procedure

A. General

(1) The ASM performance is measured by the purity of the Nitrogen Enriched Air (NEA) delivered to the center tank. To do a test of the purity of the NEA, it is necessary to do a check of the NGS operational temperature, pressure and the oxygen percentage in the NEA stream. The Nitrogen Generation System (NGS) temperature and pressure measurements are calculated by the NGS controller and shown on the BITE Display Unit (BDU).

(2) To do a test of the oxygen percentage, (AMM TASK 47-00-00-720-801), an oxygen analyzer, COM-7456, is connected to the GSE test port on the NEADS line. The percent oxygen (shown on the oxygen analyzer) and NGS inlet pressure (shown on the BDU) are plotted on a go-no-go graph (Figure 201).

(3) You do the NGS BITE test from the BDU found in the forward air conditioning area.

(4) The NGS BITE procedure uses these functions from the GROUND TESTS menu

(a) ELECTRICAL TEST?

(b) SYSTEM TEST?

(5) ELECTRICAL TEST

(a) The BDU ELECTRICAL TEST? is a manually initiated test done by the NGS controller to test the controller valve drivers (on and off conditions), sensor interfaces, sensor open/short conditions, solenoid or torque motor open/short conditions and airplane discrete inputs. The electrical test can be done with the NGS system in a pressurized or non-pressurized condition. The electrical test opens and closes the NGS shutoff and overtemperature shutoff valves in a timed sequence to stop the pressurization of the NGS system.

(b) The electrical test displays any faults which are currently present in the BDU system.

(6) SYSTEM TEST

(a) The BDU SYSTEM TEST? is a manually initiated test done by the NGS controller when the NGS system is pressurized. To do the system test, it is necessary to pressurize the NGS with bleed air pressure and operate the left air conditioning pack. The system test is a timed sequence test that does a check of the open and closed position of all of the electrically controlled valves.

(b) The system tests displays any faults which are currently present in the BDU system.

B. NGS BITE Procedure

(1) Do these steps to do the BDU electrical test:

(a) Make sure that the BDU is in the main menu mode.

(b) The BDU will show one of these functions:

NOTE: If the BDU does not show one of these functions, then push the MENU button until one of the following menu item shows.

1) EXISTING FAULTS?

2) FAULT HISTORY?

3) GROUND TESTS?

4) OTHER FUNCTIONS?

(c) Push the up or down arrow until the BDU shows GROUND TESTS?

1) Push the YES button on the BDU.

(d) Make sure the BDU display shows ELECTRICAL TEST?.

NOTE: If the BDU does not show "ELECTRICAL TEST?", push the up or down arrow until "ELECTRICAL TEST?" shows.

(e) Push the YES button on the BDU to start the electrical test.

(f) The BITE test will start.

NOTE: TEST IN PROGRESS XXX% COMPLETE will show on the display during the test.

The electrical test does an IBIT check of the operability indicator lights at 40 to 50 seconds after the test starts. You must witness that the 3 colored lights come on in this sequence:

Light Color	System Indication	Time Light is On
Blue	Degraded Temporaily Serviceable	12 seconds
Green	Operational	15 seconds
Amber	Inoperative - Unserviceable	21 seconds

(g) Make sure that the BITE Display Unit shows ELECTRICAL TEST PASS at the end of the test.

1) Make sure that the green OPERATIONAL light on the operability indicator is on.

(h) If the test fails, look at the BDU test results for the list of fault messages.

(2) Do these steps to do the BDU system test:

(a) Do these steps to pressurize the ECS Air Supply System:

1) Pressurize the pneumatic system (AMM TASK 36-00-00-860-801).

NOTE: Use of engine(s) air to supply pneumatic pressure for this task is not recommended. All areas around operating engines are dangerous. If you must use the engine(s) to supply pneumatic power, make sure that you obey all applicable WARNINGS.

a) Make sure that these switches on the P5–10 panel are in the positions shown:

Table 201

SWITCH	POSITION
APU Bleed	ON (if APU is running) if not, OFF
L PACK	HIGH
R PACK	OFF
Engine BLEED 1	ON (if engine is running) if not, OFF
Engine BLEED 2	ON (if engine is running) if not, OFF
Cabin Temp	AUTO
ISOLATION VALVE	OPEN
L RECIRC FAN	AUTO
R RECIRC FAN	AUTO
Gasper	AUTO

2) To supply conditioned air, do this task: Supply Conditioned Air with a Cooling Pack, AMM TASK 21-00-00-800-803.

3) Do a check of the manifold duct pressure.

a) Look at the dual duct pressure gage on the P5 panel.

b) Make sure that the L and R duct pressure is 20 psig (138 kPa) or more.

(b) Make sure the BDU display shows SYSTEM TEST?.

NOTE: If the BDU does not show ‘‘SYSTEM TEST?’’, push the up or down arrow until ‘‘SYSTEM TEST?’’ shows.

(c) Push the YES button on the BDU to start the system test.

(d) The BITE test will start.

NOTE: TEST IN PROGRESS XXX% COMPLETE will show on the display during the test.

(e) Wait until the test is complete.

NOTE: The test will take two to three minutes.

(f) If the test is satisfactory, “SYSTEM TEST PASS” shows on the display.

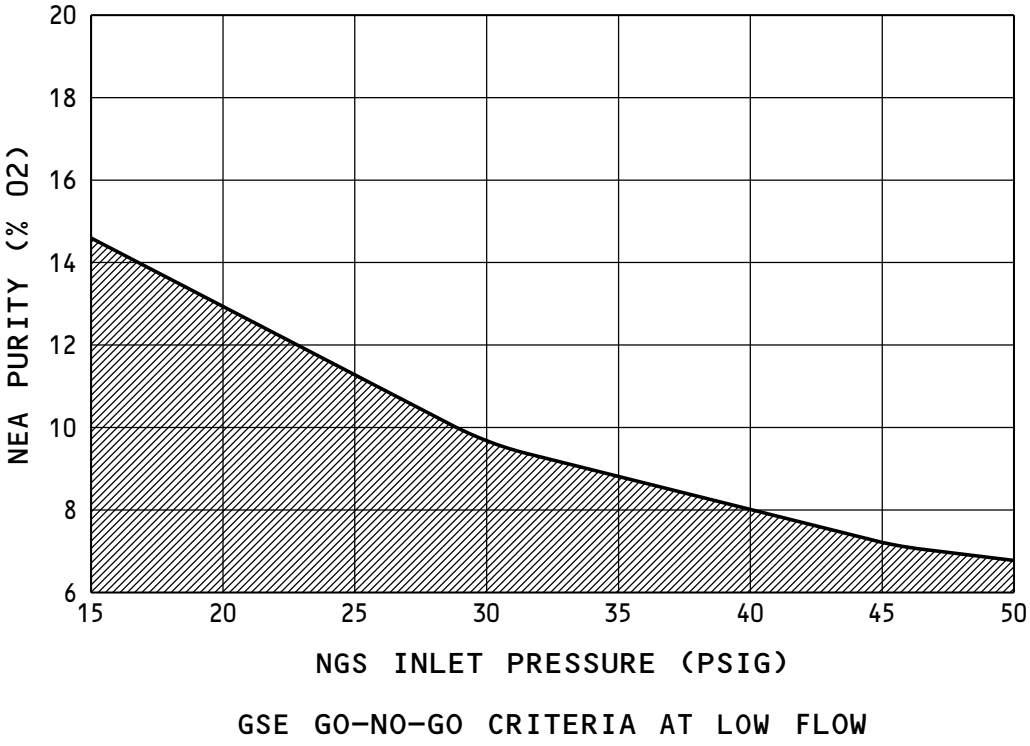
(g) If the test fails, look at the BDU test results for the list of fault messages.

(3) 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
NGS	47-30001 NGS CONTROLLER	47-31 TASK 802
NGS	47-30002 NGS CONTROLLER INOP	47-31 TASK 803
NGS	47-30010 NGS BLD PRESS SENSOR	47-31 TASK 804
NGS	47-30011 NGS TEMP SENSOR ELEC	47-31 TASK 805
NGS	47-30012 NGS TEMP SENSOR DRIFT	47-31 TASK 806
NGS	47-30013 DP SENSOR HI ELEC	47-31 TASK 807
NGS	47-30014 DP SENSOR HI DRIFT	47-31 TASK 808
NGS	47-30017 NGS ALT SENSOR ELEC	47-31 TASK 809
NGS	47-30018 BLD PRESS SENSOR DRIFT	47-31 TASK 811
NGS	47-30019 NGS ALT SENSOR DRIFT	47-31 TASK 810
NGS	47-30020 NGSSOV ELEC FAIL	47-31 TASK 812
NGS	47-30021 NGSSOV FAIL OPEN	47-31 TASK 813
NGS	47-30023 NGSSOV/OTSOV/HFV CLOSED	47-31 TASK 814
NGS	47-30024 OTSOV ELEC FAIL	47-31 TASK 815
NGS	47-30025 OTSOV FAIL OPEN	47-31 TASK 816
NGS	47-30026 NGSRAV ELEC FAIL	47-31 TASK 817
NGS	47-30027 NGSRAV FAIL OPEN	47-31 TASK 818
NGS	47-30028 NGSRAV FAIL CL/HX BLKD	47-31 TASK 819
NGS	47-30029 FILTER BLOCKED	47-31 TASK 820

LRU/SYSTEM	MAINTENANCE MESSAGE	GO TO FIM TASK
NGS	47-30030 HFV ELEC FAIL	47-31 TASK 821
NGS	47-30031 HFV FAIL CLOSED	47-31 TASK 837
NGS	47-30032 HFV FAIL OPEN	47-31 TASK 823
NGS	47-30040 WOW SIG FAIL IN AIR	47-31 TASK 824
NGS	47-30041 WOW SIG FAIL ON GROUND	47-31 TASK 825
NGS	47-30042 FWD CGO FIRE SIG FAIL ON	47-31 TASK 826
NGS	47-30043 MN CGO FIRE SIG FAIL ON	47-31 TASK 827
NGS	47-30044 AFT CGO FIRE SIG FAIL ON	47-31 TASK 828
NGS	47-30045 FD SMK EVAC SIG FAIL ON	47-31 TASK 829
NGS	47-30050 ENG1 SIG FAIL	47-31 TASK 830
NGS	47-30051 ENG2 SIG FAIL	47-31 TASK 831
NGS	47-30054 PACK SIG FAIL OFF	47-31 TASK 832
NGS	47-30056 AIRCRAFT ID INVALID	47-31 TASK 833
NGS	47-30059 REFUEL SIG1 FAIL OPEN	47-31 TASK 834
NGS	47-30062 NGS OXYGEN SENS FAIL	47-31 TASK 838
NGS	47-30063 NGS ASM FAIL	47-31 TASK 839

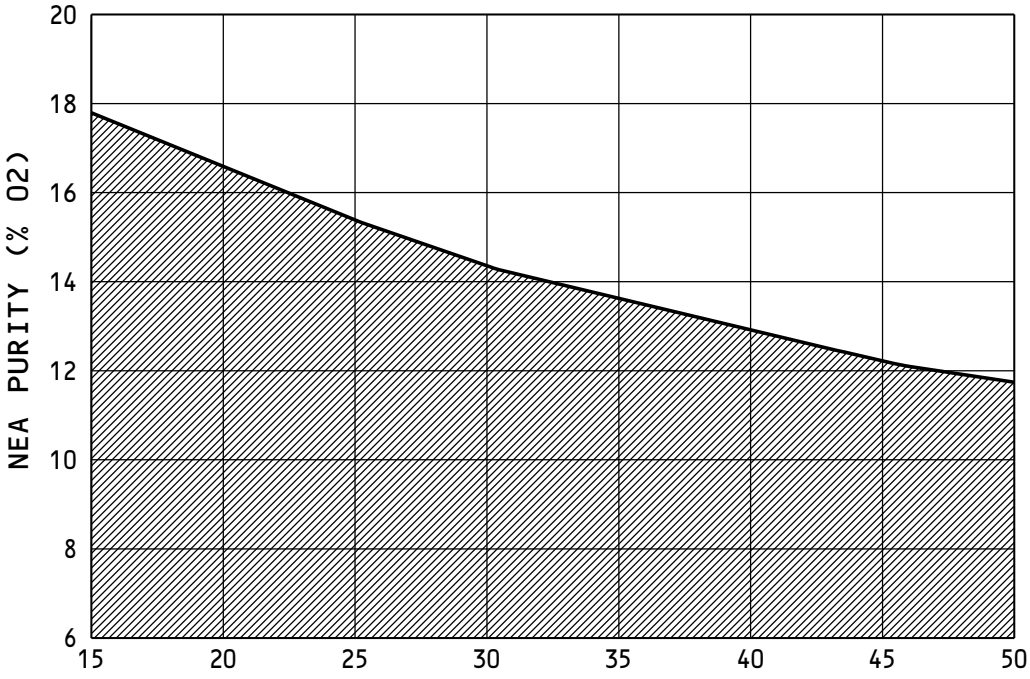
——— END OF TASK ———



LEGEND:
NEA PURITY SATISFACTORY (GO ZONE)
NEA PURITY NOT SATISFACTORY (NO–GO ZONE)

1495949 S0000271687_V1

GSE Go-No-Go Criteria
Figure 201/47-31-00-990-801 (Sheet 1 of 2)



LEGEND:
NEA PURITY SATISFACTORY (GO ZONE)
NEA PURITY NOT SATISFACTORY (NO–GO ZONE)

1495996 S0000271691_V1

GSE Go-No-Go Criteria
Figure 201/47-31-00-990-801 (Sheet 2 of 2)

802. NGS BITE Message NGS CONTROLLER - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30001 NGS CONTROLLER

(2) The operability indicator shows NGS DEGRADED (blue light). The NGS is operating below normal.

(3) This fault message shows when the NGS controller internal self-test detects a controller problem.

(4) The BITE display unit (BDU) will show the NGS CONTROLLER fault message when one or more of these conditions are true:

(a) Ram air valve driver - temperature out of range, value cannot be calulated

(b) Flow bypass valve driver fault

(c) High-flow valve driver fault

(d) NGS bleed pressure sensor interface fault

(e) NGS temperature sensor element 1 or 2 interface fault

(f) NGS altitude sensor interface fault

(g) ASM differential pressure sensor (high-flow) interface fault

(h) ASM differential pressure sensor (high-flow) interface fault

(i) Non-volatile memory (NVM) fault

(j) BDU power supply driver fault

(k) Test mode fault

(l) Mux 4, 5, 6, 7, or 8 fault

(5) To find more data about this fault message, do this task: AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Controller, M02559

(2) Oxygen Sensor, M02692

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message, ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, NGS CONTROLLER 47-30001 shows, then do the Fault Isolation Procedure for the NGS Controller below.

(c) If the Electrical Test on the BDU fails and shop code 0232 shows, then do the Fault Isolation Procedure for the NGS Controller and the Oxygen Sensor below.

F. Fault Isolation Procedure for the NGS Controller

(1) Replace the NGS controller, M02559.

(Nitrogen Generation System Controller Removal, AMM TASK 47-31-01-000-801)

(Nitrogen Generation System Controller Installation, AMM TASK 47-31-01-400-801)

G. Fault Isolation Procedure for the Oxygen Sensor

(1) Replace the Oxygen Sensor, M02692.

(NGS Oxygen Sensor Removal, AMM TASK 47-42-03-020-801)

(NGS Oxygen Sensor Installation, AMM TASK 47-42-03-420-801).

H. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

803. NGS BITE Message NGS CONTROLLER INOP - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30002 NGS CONTROLLER INOP

(2) The operability indicator shows INOPERATIVE (amber light). The NGS is offline.

(3) The NGS controller will show NGS CONTROLLER INOP when one or more of these conditions are true:

(a) NGS shutoff valve driver fault

(b) Overtemperature shutoff valve driver fault

(c) NGS controller critical fault - affects the reliability of the CPU. NGS controller software incompatibility is a critical fault.

1) If the controller finds a critical fault, it will reconfigure the system to the system fail-safe mode.

2) The fail-safe mode will cause these system conditions:

a) The NGS controller software will be disabled

b) The NGS controller will set all outputs to the OFF (fail-safe) condition

c) Communication between the NGS controller and BDU may be disabled.

3) The recovery condition to unlatch the fault is to cycle the system power. The system fail-safe mode will continue until the NGS controller passes the power-up self-test.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Controller, M02559

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Open and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

(a) The NGS controller will start the power-up self-test.

NOTE: The power-up self-test will be complete in 5 seconds.

(2) If the BDU messages are available and NGS CONTROLLER INOP 47-30002 does not show, then there was an intermittent fault.

(3) Do the fault isolation procedure if one of these conditions exist:

(a) NGS CONTROLLER INOP 47-30002 shows.

(b) No BDU menu items show.

F. Fault Isolation Procedure

(1) Replace the NGS controller, M02559.

(Nitrogen Generation System Controller Removal, AMM TASK 47-31-01-000-801)

(Nitrogen Generation System Controller Installation, AMM TASK 47-31-01-400-801)

G. Repair Confirmation

(1) Open and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

(a) The NGS controller will start the power-up self-test.

NOTE: The power-up self-test will be complete in 5 seconds.

(2) If the BDU menu items are available, and NGS CONTROLLER INOP 47-30002 does not show, then you corrected the fault.

END OF TASK

804. NGS BITE Message NGS BLD PRESS SENSOR - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30010 NGS BLD PRESS SENSOR

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) NGS BLD PRESS SENSOR shows on the display when the NGS controller finds an open or short circuit condition for the NGS pressure sensor (M02565).

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Pressure Sensor, M02565

(2) NGS wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, NGS BLD PRESS SENSOR 47-30010 shows, do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the NGS pressure sensor, M02565:

(a) Disconnect connector D13830 from the NGS Pressure Sensor, M02565.

(b) Make sure that pin 5 of D13830 goes to ground.

(c) If pin 5 of D13830 does not go to ground, then do these steps:

1) Repair the wiring from pin 5 to GD2318-ST.

2) Re-connect connector D13830 to the NGS Pressure sensor.

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

a) If the Repair Confirmation is not satisfactory, then continue.

(d) If pin 5 of D13830 goes to ground, then do these steps:

1) Replace the NGS pressure sensor, M02565.

(NGS Pressure Sensor Removal, AMM TASK 47-43-04-000-801)

(NGS Pressure Sensor Installation, AMM TASK 47-43-04-400-801)

2) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:
   (a) Disconnect connector D13830 from the NGS pressure sensor, M02565.
   (b) Disconnect connector D13804 from the NGS controller, M02559.
   (c) Do a check for an open circuit between these pins:

D13830		D13804
pin 1	. . . . .	pin 26
pin 3	. . . . .	pin 25

   (d) If there is an open circuit, then do these steps:
      1) Repair the wiring.
      2) Re-connect connector D13830 to the NGS pressure sensor.
      3) Re-connect connector D13804 to the NGS controller.
      4) Do the Repair Confirmation at the end of this task.
   (e) If there is continuity between each pin, then do these steps.
      1) Replace the NGS pressure sensor, M02565.
         (NGS Pressure Sensor Removal, AMM TASK 47-43-04-000-801)
         (NGS Pressure Sensor Installation, AMM TASK 47-43-04-400-801)
      2) Re-connect connector D13830 to the NGS pressure sensor.
      3) Re-connect connector D13804 to the NGS controller.
      4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.
   (a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

805. NGS BITE Message NGS TEMP SENSOR ELEC - Fault Isolation

A. Description

(1) This task is for fault message:
   (a) 47-30011 NGS TEMP SENSOR ELEC
(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.
(3) NGS TEMP SENSOR ELEC shows when the controller finds an open or short circuit condition for the temperature sensor, T03020.
(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Temperature Sensor, T03020
(2) NGS Wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(3) If the fault message, NGS TEMP SENSOR ELEC 47-30011 shows, do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the temperature sensor:

(a) Disconnect connector D13828 on the temperature sensor, T03020.

(b) Make sure that pin E of D13828 goes to ground.

(c) If pin E of D13828 does not go to ground, then do these steps:

1) Repair the wiring from pin E to GD109-ST.

2) Re-connect connector D13828 to the temperature sensor.

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

a) If the Repair Confirmation is not satisfactory, then continue.

(d) If pin E of D13828 goes to ground, then do these steps:

1) Replace the temperature sensor, T03020.

(Temperature Sensor Removal, AMM TASK 47-43-03-000-801)

(Temperature Sensor Installation, AMM TASK 47-43-03-400-801)

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

a) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:

(a) Disconnect the connector D13828 on the temperature sensor, T03020.

(b) Disconnect the connector D13804 on the NGS controller, M02559.

(c) Do a check for an open circuit between these pins:

D13828		D13804
pin A	. . . . .	pin 8
pin D	. . . . .	pin 7
pin B	. . . . .	pin 3
pin C	. . . . .	pin 2

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.
2) Re-connect connector D13828 to the temperature sensor.
3) Re-connect connector D13804 to the NGS controller.
4) Do the Repair Confirmation at the end of this task.

(e) If there is continuity between each pin, then do these steps.

1) Replace the temperature sensor, T03020.
(Temperature Sensor Removal, AMM TASK 47-43-03-000-801)
(Temperature Sensor Installation, AMM TASK 47-43-03-400-801)
2) Re-connect connector D13828 to the temperature sensor.
3) Re-connect connector D13804 to the NGS controller.
4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

806. NGS BITE Message NGS TEMP SENSOR DRIFT - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30012 NGS TEMP SENSOR DRIFT

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) The NGS controller compares the temperature sensor 1 signal and the temperature sensor 2 signal. If the difference is more than ±16°F (-8.9°C) and lasts for more than 2 minutes 30 seconds, then the NGS TEMP SENSOR DRIFT fault message is set. If the NGS TEMP SENSOR DRIFT fault message is set, then the NGS controller will use the higher of the two temperature signals.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Temperature Sensor, T03020

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801

(2) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(3) If the fault message, NGS TEMP SENSOR DRIFT 47-30012 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Replace the temperature sensor, T03020.

(Temperature Sensor Removal, AMM TASK 47-43-03-000-801)

(Temperature Sensor Installation, AMM TASK 47-43-03-400-801)

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

807. NGS BITE Message DP SENSOR HI ELEC - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30013 DP SENSOR HI ELEC

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) DP SENSOR HI ELEC shows when the NGS controller finds an open or short circuit condition for the high-flow differential pressure sensor (M02564).

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) High-flow valve differential pressure (DP) sensor, M02564

(2) NGS Wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do this electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, DP SENSOR HI ELEC 47-30013 shows, do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check for 16 VDC at the high-flow valve DP sensor:

(a) Disconnect connector D13824 from the high-flow valve DP sensor, M02564.

(b) Do a check for 16 VDC between pins 1 and 5 (ground) of D13824.

(c) If there is 16 VDC between pins 1 and 5 of D13824, then do these steps:

1) Replace the high-flow valve DP sensor, M02564.

(High Flow Valve Differential Pressure Sensor Removal, AMM TASK 47-42-02-020-801)

(High Flow Valve Differential Pressure Sensor Installation, AMM TASK 47-42-02-400-801)

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

a) If the Repair Confirmation is not satisfactory, then continue.

(d) If there is not 16 VDC between pins 1 and 5 of D13824, then do these steps:

1) Make sure that pin 5 of D13824 goes to ground.

2) If pin 5 of D13824 does not go to ground, then do these steps:

a) Repair the wiring from pin 5 to GD111-ST.

b) Re-connect connector D13824 to the high-flow DP sensor.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

3) If pin 5 of D13824 goes to ground, then continue.

(2) Do this check of the wiring:

(a) Disconnect connector D13824 from the high-flow valve DP sensor, M02564.

(b) Disconnect connector D13804 from the NGS controller, M02559.

(c) Do a check for an open circuit between these pins:

D13824		D13804
pin 1	. . . . .	pin 10
pin 3	. . . . .	pin 23

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.

2) Re-connect connector D13824 to the high-flow valve DP sensor.

3) Re-connect connector D13804 to the NGS controller.

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

(e) If there is continuity between each pin, then do these steps.

1) Replace the high-flow DP sensor, M02564.

(High Flow Valve Differential Pressure Sensor Removal, AMM TASK 47-42-02-020-801)

(High Flow Valve Differential Pressure Sensor Installation, AMM TASK 47-42-02-400-801)

2) Re-connect connector D13824 to the high-flow valve DP sensor.

3) Re-connect connector D13804 to the NGS controller.

4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

808. NGS BITE Message DP SENSOR HI DRIFT - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30014 DP SENSOR HI DRIFT

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) DP SENSOR HI DRIFT shows on the display when there is a pressure drift for the high-flow differential pressure sensor. The fault message is set when the NGS controller does a zero pressure test of the high-flow DP sensor when the NGS system is commanded off.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) High-flow DP Sensor, M02564

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, DP SENSOR HI DRIFT 47-30014 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Replace the High-flow DP Sensor, M02564.

(High Flow Valve Differential Pressure Sensor Removal, AMM TASK 47-42-02-020-801)

(High Flow Valve Differential Pressure Sensor Installation, AMM TASK 47-42-02-400-801)

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

809. NGS BITE Message NGS ALT SENSOR ELEC - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30017 NGS ALT SENSOR ELEC

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) NGS ALT SENSOR ELEC shows on the display when the NGS controller finds an open or a short circuit condition with the NGS altitude sensor.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Altitude Sensor, M02562

(2) NGS Wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, NGS ALT SENSOR ELEC 47-30017 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the NGS shutoff valve:

(a) Disconnect connector D13818 from the NGS altitude sensor, M02562.

(b) Do a check for 16 VDC between pins 1 and 5 (ground) of D13818.

(c) If there is 16 VDC between pins 1 and 5 of D13818, then do these steps:

1) Replace the NGS altitude sensor, M02562.

(Altitude Sensor Removal, AMM TASK 47-42-01-000-801)

(Altitude Sensor Installation, AMM TASK 47-42-01-400-801)

2) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(d) If there is not 16 VDC between pins 1 and 5 of D13818, then do these steps:
1) Make sure that pin 5 of D13818 goes to ground.
2) If pin 5 of D13818 does not go to ground, then do these steps:
   a) Repair the wiring from pin 5 to GD109-ST.
   b) Re-connect connector D13818 to the NGS altitude sensor.
   c) Do the Repair Confirmation at the end of this task.
      <1> If the Repair Confirmation is not satisfactory, then continue.
3) If pin 5 of D13818 goes to ground, then continue.

(2) Do this check of the wiring:
(a) Disconnect connector D13818 on the NGS altitude sensor, M02562.
(b) Disconnect connector D13804 on the NGS controller, M02559.
(c) Do a check for an open circuit between these pins:

D13818		D13804
pin 1	. . . . .	pin 11
pin 3	. . . . .	pin 24

(d) If there is an open circuit, then do these steps:
1) Repair the wiring.
2) Re-connect connector D13818 to the NGS altitude sensor.
3) Re-connect connector D13804 to the NGS controller.
4) Do the Repair Confirmation at the end of this task.

(e) If there is continuity between each pin, then do these steps.
1) Replace the NGS altitude sensor, M02562.
(Altitude Sensor Removal, AMM TASK 47-42-01-000-801)
(Altitude Sensor Installation, AMM TASK 47-42-01-400-801)
2) Re-connect connector D13818 to the NGS altitude sensor.
3) Re-connect connector D13804 to the NGS controller.
4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.
(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

810. NGS BITE Message NGS ALT SENSOR DRIFT - Fault Isolation

A. Description

(1) This task is for fault message:
(a) 47-30019 NGS ALT SENSOR DRIFT
(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) NGS ALT SENSOR DRIFT shows shows when the NGS controller finds an altitude sensor range fault. If the fault occurs in flight, the system defaults to the low flow mode.

(4) The fault confirmation time for this fault exceeds both the electrical test time and the system test time. The NGS ALT SENSOR DRIFT fault will never be validated in IBIT. The result is that the fault message will be cleared by selecting either IBIT. The fault is redetected in CBIT if the fault is still present.

(5) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Altitude Sensor, M02562

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(3) If the fault message, NGS ALT SENSOR DRIFT 47-30019 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Push the ON/OFF pushbutton on the BDU.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(2) Select the OTHER FUNCTION? menu.

(a) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.

(b) Push the YES pushbutton.

(3) Select the I/O MONITOR? menu.

(a) Push the up or down arrow pushbutton until I/O MONITOR? shows.

(b) Push the YES pushbutton.

(4) Select the ANALOG INPUTS? menu.

(a) Push the up or down arrow pushbutton until ANALOG INPUTS? shows.

(b) Push the YES pushbutton.

(5) Select the PALT:

(a) Push the up or down arrow pushbutton until PALT: XXXX.X FT/ PB: YYY.Y PSIG shows on the display.

1) Make a note of the altitude: _____

(6) Go to the flight compartment.

(a) Make sure that the barometric altimeter has the correct altimeter setting in the baro window.

1) Make a note of the barometric altitude.

(7) Compare the barometric altitude with the altitude shown on the BDU.

(a) If the altitude readings differ by 100 ft (30 m) or more, then do these steps:

1) Replace the altitude sensor, M02562.

(Altitude Sensor Removal, AMM TASK 47-42-01-000-801)

(Altitude Sensor Installation, AMM TASK 47-42-01-400-801)

CAUTION: TO STOP THE GROUND TEST, PUSH THE MENU BUTTON THEN THE NO BUTTON ON THE BDU. IF THE SHUTOFF VALVE STAYS OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(8) Push the MENU pushbutton to stop the test.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

811. NGS BITE Message BLD PRESS SENSOR DRIFT - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30018 BLD PRESS SENSOR DRIFT

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) BLD PRESS SENSOR DRIFT shows when NGS bleed pressure exceeded 67 psig (462 kPa) for more than 60 seconds during descent or cruising altitude. The fault message can show if the NGS bleed pressure is more than the overpressure limit for 60 seconds during the BDU system test.

(4) To find more data about this fault , do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Bleed air system over-pressurization (ATA 36)

(2) NGS pressure sensor, M02565

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) ATA 36

(2) SSM 47-30-11

(3) WDM 47-30-11

E. Initial Evaluation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the BDU message SYSTEM TEST PASS shows, then there was an intermittent fault.

(3) If the fault message, BLD PRESS SENSOR DRIFT 47-30018 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Look for over-pressure condition(s) in the bleed air system (ATA 36).

(a) If the bleed air system is satisfactory, then continue.

(2) Push the ON/OFF pushbutton on the BDU.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(3) Select the OTHER FUNCTION? menu.

(a) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.

(b) Push the YES pushbutton.

(4) Select the I/O MONITOR? menu.

(a) Push the up or down arrow pushbutton until I/O MONITOR? shows.

(b) Push the YES pushbutton.

(5) Select the ANALOG INPUTS? menu.

(a) Push the up or down arrow pushbutton until ANALOG INPUTS? shows.

(b) Push the YES pushbutton.

(6) Select the PALT:

(a) Push the up or down arrow pushbutton until PALT: XXXX.X FT/ PB: YYY.Y PSIG shows on the display.

1) Make a note of the bleed pressure (PB): _____

(7) Go to the flight compartment.

(a) Look at the dual duct pressure gage.

1) Make a note of the duct pressure.

(8) Compare the dual duct pressure gage reading with the bleed pressure (PB) reading on the BDU.

(a) If the pressure readings differ by ±2 psig (14 kPa) or more, then replace the NGS pressure sensor, M02565.

(NGS Pressure Sensor Removal, AMM TASK 47-43-04-000-801)

(NGS Pressure Sensor Installation, AMM TASK 47-43-04-400-801)

CAUTION: TO STOP THE GROUND TEST, PUSH THE MENU BUTTON THEN THE NO BUTTON ON THE BDU. IF THE SHUTOFF VALVE STAYS OPEN, DAMAGE TO EQUIPMENT CAN OCCUR.

(9) Push the MENU pushbutton to stop the test.

G. Repair Confirmation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the SYSTEM TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

812. NGS BITE Message NGSSOV ELEC FAIL - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30020 NGSSOV ELEC FAIL

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) NGSSOV ELEC FAIL shows when the NGS controller finds an open or a short circuit condition with the NGS shutoff valve.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Shutoff Valve, V00172

(2) NGS Wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, NGSSOV ELEC FAIL 47-30020 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the NGS shutoff valve:

(a) Disconnect connector D13810 from the NGS shutoff valve, V00172.

(b) Do a check for 28 VDC between pins A and D (ground) of D13810.

(c) If there is 28 VDC between pins A and D of D13810, then do these steps:

1) Replace the NGS shutoff valve, V00172.

(NGS Shutoff Valve Removal, AMM TASK 47-32-01-000-801)

(NGS Shutoff Valve Installation, AMM TASK 47-32-01-400-801)

2) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(d) If there is not 28 VDC between pins A and D of D13810, then do these steps:
1) Make sure that pin D of D13810 goes to ground.
2) If pin D of D13810 does not go to ground, then do these steps:
   a) Repair the wiring from pin D to GD2318-ST.
   b) Re-connect connector D13810 to the NGS shutoff valve.
   c) Do the Repair Confirmation at the end of this task.
      <1> If the Repair Confirmation is not satisfactory, then continue.
3) If pin D of D13810 goes to ground, then do these steps:
   a) Repair the wiring between pin A of D13810 and this circuit breaker, C01657.
      <1> Circuit Breaker List

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL

   b) Re-connect connector D13810 to the NGS shutoff valve.
   c) Do the Repair Confirmation at the end of this task.
      <1> If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:
(a) Disconnect connector D13810 from the NGS shutoff valve, V00172.
(b) Disconnect connector D13806 from the NGS controller, M02559.
(c) Do a check for an open circuit between these pins:

D13810		D13806
pin B	. . . . .	pin 31

(d) If there is an open circuit, then do these steps:
1) Repair the wiring.
2) Re-connect connector D13810 to the NGS shutoff valve.
3) Re-connect connector D13806 to the NGS controller.
4) Do the Repair Confirmation at the end of this task.

(e) If there is continuity between pin B of D13810 and pin 31 of D13806, then do these steps.
1) Replace the NGS shutoff valve, V00172.
   (NGS Shutoff Valve Removal, AMM TASK 47-32-01-000-801)
   (NGS Shutoff Valve Installation, AMM TASK 47-32-01-400-801)
2) Re-connect connector D13810 to the NGS shutoff valve.
3) Re-connect connector D13806 to the NGS controller.
4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

813. NGS BITE Message NGSSOV FAIL OPEN - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30021 NGSSOV FAIL OPEN

(2) The operability indicator shows INOPERATIVE (amber light). The NGS is offline.

(3) The BDU display shows NGSSOV FAIL OPEN fault message when the NGS shutoff valve does not close in 10 seconds when commanded closed.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Shutoff Valve, V00172

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the BDU message SYSTEM TEST PASS shows, then there was an intermittent fault.

(3) If the fault message NGSSOV FAIL OPEN 47-30021 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test operates for 4 minutes.

(a) While the system test operates, have a second person monitor the position indicator on the NGS shutoff valve.

1) Make sure that the NGS shutoff valve opens, then closes, during the system test.

(b) If the position indicator is stuck in the open position during the system test, then do these steps:

1) Replace the NGS shutoff valve, V00172.

(NGS Shutoff Valve Removal, AMM TASK 47-32-01-000-801)

(NGS Shutoff Valve Installation, AMM TASK 47-32-01-400-801)

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

(c) If the NGS shutoff valve opens, then closes, during the system test, the NGS shutoff valve is serviceable.

NOTE: If the valve moves to the closed position slowly, this can be the cause of the fault. The system only allows 10 seconds for the valve to close after the command is given.

G. Repair Confirmation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the SYSTEM TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

814. NGS BITE Message NGSSOV / OTSOV / HFV CLOSED - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30023 NGSSOV/OTSOV/HFV CLOSED

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) NGSSOV/OTSOV/HFV CLOSED shows when the NGS is on. The NGS shutoff valve (SOV), overtemperature (OT) SOV, and high flow valve (HFV) are commanded open, but a no-flow condition is sensed by the NGS controller for 30 seconds.

(a) The controller logic includes these five components: NGS SOV, OT SOV, HFV, ASM differential pressure sensor (Hi-Flow), and the NGS pressure sensor.

NOTE: Fault detection logic:

[(NGS SOV CMD = ON) AND (OTSOV CMD = ON) AND

(ASM HFV CMD = ON) AND (DPHI < 5 psid) AND

(PB > 15 psig) AND (DPHI_INVALID = FALSE) AND

(PB_INVALID = FALSE)] for 30 seconds

(4) To find more data about this maintenance message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS shutoff valve, V00172

(2) Overtemperature shutoff valve, V00175

(3) High flow valve, V00174

(4) Backflow prevention check valves (primary, secondary)

(5) Tubes have blockage or are bent.

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Push the ON/OFF pushbutton on the BDU.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(2) Select the EXISTING FAULTS? menu.

(a) Push the up or down arrow pushbutton until EXISTING FAULTS? shows.

(b) Push the YES pushbutton.

(3) If the fault message NGSSOV/OTSOV/HFV CLOSED shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test operates for 4 minutes.

(a) While the system test operates, have a second person monitor the position indicator on the NGS shutoff valve and the high flow valve.

1) Make sure that the NGS shutoff valve and high flow valve opens, then closes, during the system test.

(2) Do this check of the NGS shutoff valve:

(a) If the NGS shutoff valve does not open during the system test, then do these steps:

1) Replace the NGS shutoff valve, V00172.

(NGS Shutoff Valve Removal, AMM TASK 47-32-01-000-801)

(NGS Shutoff Valve Installation, AMM TASK 47-32-01-400-801)

2) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test operates for 4 minutes.

3) If the SYSTEM TEST PASS shows on the BDU display, then you corrected the fault.

4) If the fault message NGSSOV/OTSOV/HFV CLOSED 47-30023 shows, then continue.

(b) If the NGS shutoff valve opens, then closes, during the system test, the NGS shutoff valve is serviceable.

(3) Do this check of the high flow valve, V00174:

(a) If the high flow valve does not open during the system test, then do these steps:

1) Replace the high flow valve, V00174.

(High Flow Valve Removal, AMM TASK 47-11-02-000-801)

(High Flow Valve Installation, AMM TASK 47-11-02-420-801)

2) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test operates for 4 minutes.

a) Make sure that the high flow valve opens, then closes, during the system test.

3) If the SYSTEM TEST PASS shows on the BDU display, then you corrected the fault.

4) If the fault message NGSSOV/OTSOV/HFV CLOSED 47-30023 shows, then continue.

(b) If the high flow valve opens, then closes, during the system test, the high flow valve is serviceable.

(4) Do this check of the overtemperature shutoff valve, V00175:

(a) Replace the overtemperature shutoff valve, V00175.

(Overtemperature Shutoff Valve Removal, AMM TASK 47-11-04-000-801)

(Overtemperature Shutoff Valve Installation, AMM TASK 47-11-04-400-801)

(b) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test runs for 4 minutes.

1) If the SYSTEM TEST PASS shows on the BDU display, then you corrected the fault.

2) If the fault message NGSSOV/OTSOV/HFV CLOSED 47-30023 shows, then continue.

(5) Do this check of the backflow prevention check valve:

(a) Replace the primary prevention check valve.

(Primary Backflow Prevention Check Valve Removal, AMM TASK 47-21-04-000-801)

(Primary Backflow Prevention Check Valve Installation, AMM TASK 47-21-04-400-801)

(b) Replace the secondary prevention check valve.

(Secondary Backflow Prevention Check Valve Removal, AMM TASK 47-21-04-000-803)

(Secondary Backflow Prevention Check Valve Installation, AMM TASK 47-21-04-400-803)

(c) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test runs for 4 minutes.

1) If the BDU message SYSTEM TEST PASS shows, then you corrected the fault.

(6) Do an air pressure test check:

(a) Do these steps to prepare the airplane:

1) Install the downlock pins at the main landing gears: Landing Gear Downlock Pins Installation, AMM TASK 32-00-01-480-801.

2) Do the static grounding of the airplane: Static Grounding, AMM TASK 20-40-11-910-801.

3) Remove fuel from the fuel tanks: DEFUELING - MAINTENANCE PRACTICES, AMM 28-26-00/201.

4) Remove electrical power from the airplane: Remove Electrical Power, AMM TASK 24-22-00-860-812.

5) Prepare for fuel tank entry into the center fuel tank: FUEL TANKS - MAINTENANCE PRACTICES, AMM 28-11-00/201

6) Open this access panel:

Number	Name/Location
192CL	ECS Access Door

(b) Make sure that the air pressure source can supply pressure at 7.0 psig (48.3 kPa) and 30 ft^3 (850 l) per minute with an in-line shutoff valve.

(c) Use a pressure gauge that shows changes in air pressure of 0.25 psig (1.72 kPa).

(d) Use a flow meter that can show air flow from 0.0 to 30 ft^3 (850 l) per minute.

(e) Use an air inlet adapter for connection to the flame arrestor fitting or bulkhead fitting on the rear spar.

NOTE: If it is necessary to connect a hose between the flame arrestor fitting or bulkhead fitting and pressure gauge, the hose's minimum inside diameter is 0.5 in. (1.3 cm) and maximum hose length is 18 in. (46 cm)inches.

CAUTION: TOO MUCH PRESSURE CAN CAUSE DAMAGE TO THE NGS TUBES. YOU MUST USE AN APPLICABLE PRESSURE LIMIT DEVICE TO PREVENT TOO MUCH PRESSURE INSIDE THE NGS TUBES. THE MAXIMUM PRESSURE PUT INTO THE NGS TUBES DURING THE PRESSURE TEST IS +5.2 PSIG OR +144.2 INCHES OF WATER. ADJUST THE AIR PRESSURE IF NECESSARY BEFORE CONNECT THE TEST EQUIPMENT TO THE AIRPLANE.

(f) Connect it to the air pressure supply and keep the shutoff valve in the Open position to allow air to go into the NGS tubes.

(g) Turn on the air pressure source and apply positive air pressure of 1.0 psig (6.9 kPa) to 2.0 psig (13.8 kPa) through the Nitrogen Enriched Air Distribution System (NEADS) tubes. Wait between 30 seconds and one minute to allow the air flow to stabilize.

1) If the air flow meter shows at or more than 10 ft^3 (283 l) per minute, do these steps:

a) Make sure that the air pressure is less than 5 psig (34 kPa).

NOTE: Do not put more than 5 psig (34 kPa) air pressure into the Nitrogen Enriched Air (NEA) tubes. If air pressure of 5 psig (34 kPa) gives a reading on the flow meter of less than 10 ft^3 (283 l) per minute, then the in-tank NEA tubes possibly have a blockage or bent tubing. Repair any blockage or bent tubing as necessary and then do this pressure test again.

b) Turn off the air pressure supply source.

2) If the air flow meter shows less than 10 ft^3 (283 l) per minute, do these steps.

a) Increase the air pressure in increments of 1.0 psig (6.9 kPa) to 1.5 psig (10.3 kPa) again and wait between 30 seconds and one minute between each air pressure increase until the flow meter shows a minimum of 10 ft^3 (283 l) per minute. Maximum air pressure put into the NEA tubes is 5 psig (34 kPa).

NOTE: Do not put more than 5 psig (34 kPa) air pressure into the NEA tubes. If air pressure of 5 psig (34 kPa) gives a reading on the flow meter of less than 10 ft^3 (283 l) per minute, then the in-tank NEA tubes possibly have a blockage or bent tubing. Repair any blockage or bent tubing as necessary and then do this pressure test again.

b) When the flow meter shows at or more than 10 ft^3 (283 l) per minute, make sure that the air pressure is less than 5 psig (34 kPa).

c) Turn off the air pressure supply source.

3) Release any air pressure from the NEA tubes and air flow meter.

(h) Disconnect the air source, shutoff valve, flow meter, and pressure gauge from the inlet adapter.

(i) On the rear spar, remove the inlet adapter from the flame arrestor fitting or bulkhead fitting.

(j) At the flame arrestor fitting or bulkhead fitting, install the kept protective cap if it was removed.

(k) Put the Airplane back to a serviceable condition:

1) Put fuel into the fuel tank: FUEL - SERVICING, AMM 12-11-00/301
2) Make sure there are no fuel leaks: FUEL TANKS - INSPECTION/CHECK, AMM 28-11-00/601
3) If necessary apply electrical power to the airplane:Supply Electrical Power, AMM TASK 24-22-00-860-811
4) Make sure that this access panel is closed:

Number	Name/Location
192CL	ECS Access Door

END OF TASK

815. NGS BITE Message OTSOV ELEC FAIL - Fault Isolation

A. Description

(1) This task is for fault message:
   (a) 47-30024 OTSOV ELEC FAIL
(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.
(3) OTSOV ELEC FAIL shows on the display if the NGS controller finds one of these problems:
   (a) NGS thermal switch does not operate.
   (b) The overtemperature shutoff valve (OTSOV) does not operate.
   (c) There is a short circuit.
   (d) There is an open circuit.
   (e) Temperature sensor does not operate.
(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Thermal Switch, S01129
(2) OTSOV, V00175
(3) NGS Wiring
(4) NGS Temperature Sensor, T03020

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11
(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, OTSOV ELEC FAIL 47-30024 shows, do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the NGS thermal switch:

(a) Disconnect connector D13816 from the NGS thermal switch, S01129.

(b) Do a check for 28 VDC between pins A and C (ground) of D13816.

(c) If there is 28 VDC between pins A and C of D13816, then do these steps:

1) Replace the NGS thermal switch, S01129.

(Thermal Switch Removal, AMM TASK 47-43-02-000-801)

(Thermal Switch Installation, AMM TASK 47-43-02-400-801)

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

a) If the Repair Confirmation is not satisfactory, then continue.

(d) If there is not 28 VDC between pins A and C of D13816, then do these steps:

1) Make sure that pin C of D13816 goes to ground.

2) If pin C of D13816 does not go to ground, then do these steps:

a) Repair the wiring from pin C to GD109-ST.

b) Re-connect connector D13816 to the NGS thermal switch.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

3) If pin C of D13816 goes to ground, then do these steps:

a) Repair the wiring between pin A of D13816 and circuit breaker C01657:

<1> Circuit Breaker List

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL

b) Re-connect connector D13816 to the NGS thermal switch.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the overtemperature shutoff valve (OTSOV):

(a) Disconnect connector D13826 from the OTSOV, V00175.

(b) Do a check for 28 VDC between pins A and B (ground) of D13826.

(c) If there is 28 VDC between pins A and B of D13826, then do these steps:

1) Replace the OTSOV, V00175.

(Overtemperature Shutoff Valve Removal, AMM TASK 47-11-04-000-801)

(Overtemperature Shutoff Valve Installation, AMM TASK 47-11-04-400-801)

2) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(d) If there is not 28 VDC between pins A and B of D13826, then do these steps:
1) Make sure that pin B of D13826 goes to ground.
2) If pin B of D13826 does not go to ground, then do these steps:
   a) Repair the wiring from pin B to GD109-ST.
   b) Re-connect connector D13826 to the OTSOV.
   c) Do the Repair Confirmation at the end of this task.
      <1> If the Repair Confirmation is not satisfactory, then continue.
3) If pin B of D13826 goes to ground, then do this step and continue:
   a) Re-connect connector D13826 to the OTSOV.

(3) Do this check of the wiring:
(a) Disconnect connector D13816 from the NGS thermal switch, S01129.
(b) Disconnect connector D13826 from the OTSOV, V00175.
(c) Disconnect connector D13806 from the NGS controller, M02559.
(d) Do a check for an open circuit between these pins:

D13826		**D13816**
pin A	. . . . .	pin B

D13826		**D13806**
pin C	. . . . .	pin 30

(e) If there is an open circuit, then do these steps:
1) Repair the wiring.
2) Re-connect connector D13826 to the OTSOV.
3) Re-connect connector D13806 to the NGS controller.
4) Re-connect connector D13816 to the NGS thermal switch.
5) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(f) If there is continuity, then do these steps and continue.
1) Re-connect connector D13826 to the OTSOV.
2) Re-connect connector D13806 to the NGS controller.
3) Re-connect connector D13816 to the NGS thermal switch.
4) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(4) Replace the NGS temperature sensor, T03020:
(Temperature Sensor Removal, AMM TASK 47-43-03-000-801)
(Temperature Sensor Installation, AMM TASK 47-43-03-400-801)
(5) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

816. NGS BITE Message OTSOV FAIL OPEN - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30025 OTSOV FAIL OPEN

(2) The operability indicator shows INOPERATIVE (amber light). The NGS is offline.

(3) OTSOV FAIL OPEN shows when the NGS controller finds that the Overtemperature Shutoff Valve is in the incorrect open position.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Overtemperature Shutoff Valve - OTSOV, V00175

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message SYSTEM TEST PASS shows, then there was an intermittent problem.

(b) If the fault message, OTSOV FAIL OPEN 47-30025 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Replace the Overtemperature Shutoff Valve, V00175. These are the tasks:

- Overtemperature Shutoff Valve Removal, AMM TASK 47-11-04-000-801
- Overtemperature Shutoff Valve Installation, AMM TASK 47-11-04-400-801

G. Repair Confirmation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the SYSTEM TEST PASS shows on the display, then you corrected the problem.

——— END OF TASK ———

817. NGS BITE Message NGSRAV ELEC FAIL - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30026 NGSRAV ELEC FAIL

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) NGSRAV ELEC FAIL shows when the NGS controller finds an open or short circuit condition for the NGS ram air valve.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS ram air valve, V00173

(2) NGS wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, NGSRAV ELEC FAIL 47-30026 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the NGS ram air valve:

(a) Disconnect connector D13812 from the NGS ram air valve, V00173.

(b) Make sure that pin C of D13812 goes to ground.

(c) If pin C of D13812 does not go to ground, then do these steps:

1) Repair the wiring from pin C to GD113-ST.

2) Re-connect connector D13812 to the NGS ram air valve.

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

a) If the Repair Confirmation is not satisfactory, then continue.

(d) If pin C of D13812 goes to ground, then do these steps:

1) Replace the NGS ram air valve, V00173.

(AMM PAGEBLOCK 47-32-05/401)

(AMM PAGEBLOCK 47-32-05/401)

2) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:
   (a) Disconnect connector D13812 from the NGS ram air valve, V00173.
   (b) Disconnect connector D13806 from the NGS controller, M02559.
   (c) Do a check for an open circuit between these pins:

D13812		D13806
pin B	. . . . .	pin 34
pin A	. . . . .	pin 35

   (d) If there is an open circuit, then do these steps:
      1) Repair the wiring.
      2) Re-connect connector D13812 to the NGS ram air valve.
      3) Re-connect connector D13806 to the NGS controller.
   (e) If there is continuity between each pin, then do these steps.
      1) Replace the NGS ram air valve, V00173.
         (AMM PAGEBLOCK 47-32-05/401)
         (AMM PAGEBLOCK 47-32-05/401)
      2) Re-connect connector D13812 to the NGS ram air valve.
      3) Re-connect connector D13806 to the NGS controller.
      4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.
   (a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

818. NGS BITE Message NGSRAV FAIL OPEN - Fault Isolation

A. Description

(1) This task is for fault message:
   (a) 47-30027 NGSRAV FAIL OPEN
(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.
(3) The NGS controller detected that the bleed air temperature went below 110°F (43°C) and the bleed pressure was more than 15 psig (103 kPa). If these conditions last for more than 20 minutes during flight, the NGSRAV FAIL OPEN fault message is set.
(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Air leak in the muscle air line on the NGS ram air valve.
(2) NGS ram air valve, V00173
(3) Precooler control valve stuck open.

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(3) If the fault message, NGSRAV FAIL OPEN 47-30027 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test operates for 4 minutes.

(a) Have a second person examine the NGS Ram Air Valve during the system test.

1) Make sure that the NGS Ram Air Valve opens, then closes, during the system test.

(b) If the position indicator on the NGS Ram Air Valve is stuck in the open position during the system test, then do these steps:

1) Replace the NGS Ram Air Valve, V00173.

(Ram Air Valve Removal, AMM TASK 47-32-05-000-801)

(Ram Air Valve Installation, AMM TASK 47-32-05-400-801)

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

a) If the Repair Confirmation is not satisfactory, then continue.

(c) If the NGS Ram Air Valve opens, then closes, during the system test, the NGS Ram Air Valve is serviceable.

(2) Do the leak check in this task: Leak Check of the Nitrogen Generation System, AMM TASK 47-00-00-790-801.

(a) If there is a leak, then repair the leaks that you find.

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

a) If the Repair Confirmation is not satisfactory, then continue.

(b) If you do not find an air leak in the NGS ram air valve muscle air line, then continue.

(3) Do this task: Precooler Control Valve System Health Check, AMM TASK 36-12-00-700-801.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

END OF TASK

819. NGS BITE Message NGSRAV FAIL CL/HX BLKD - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30028 NGSRAV FAIL CL/HX BLKD

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) The BDU display shows NGSRAV FAIL CL/HX BLKD fault message when there is an overtemperature condition. An overtemperature condition occurs when the system temperature remains above 175°F (79.4°C) for a given period of time.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS Air Separation module (ASM)

(2) Ram air valve, V00173, failed in the closed position.

(3) The heat exchanger is blocked.

(4) High bleed air temperature

(5) Ambient temperature above 120°F (48.9°C)

(6) Flow control and shutoff valve for the left pack

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the fault message NGSRAV FAIL CL/HX BLKD 47-30028 does not show, then there was an intermittent fault.

(3) If the fault message NGSRAV FAIL CL/HX BLKD 47-30028 shows, then do the Fault Isolation Procedure.

F. Fault Isolation Procedure

(1) If the fault message NGSRAV FAIL CL/HX BLKD 47-30028 shows on the ground, replace the flow control and shutoff valve for the left pack. Do these tasks:

Left Flow Control and Shutoff Valve Removal, AMM TASK 21-51-01-000-802-002 or Left Flow Control and Shutoff Valve Removal, AMM TASK 21-51-01-000-806-003

Left Flow Control and Shutoff Valve Installation, AMM TASK 21-51-01-400-805-002 or Left Flow Control and Shutoff Valve Installation, AMM TASK 21-51-01-400-807-003.

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

1) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the ram air valve:

(a) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

1) Have a second person examine the NGS ram air valve during the system test.

(b) If the ram air valve does not open during the system test, then do these steps:

1) Replace the ram air valve, V00173. Do these tasks:

Ram Air Valve Removal, AMM TASK 47-32-05-000-801

Ram Air Valve Installation, AMM TASK 47-32-05-400-801.

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

(c) If the NGS ram air valve opens during the system test, then do these steps:

1) Replace the ASM. Do these tasks:

Air Separation Module (ASM) Removal, AMM TASK 47-11-01-000-801

Air Separation Module (ASM) Installation, AMM TASK 47-11-01-420-801.

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

a) If the Repair Confirmation is not satisfactory, then continue.

3) Do this task: Precooler Control Valve System Health Check, AMM TASK 36-12-00-700-801.

NOTE: Sensors cannot be tested on-wing. It is recommended to replace the 390 degree sensor if the Health Check is good.

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

a) If the Repair Confirmation is not satisfactory, then continue.

5) Replace the heat exchanger. Do these tasks:

Heat Exchanger Removal, AMM TASK 47-32-03-000-801

Heat Exchanger Installation, AMM TASK 47-32-03-400-801.

6) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the display, then you corrected the fault.

——— END OF TASK ———

820. NGS BITE Message FILTER BLOCKED - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30029 FILTER BLOCKED

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) The NGS controller does a filter BIT to find a blocked or defective filter. The filter BIT sets the FILTER BLOCKED message when all of these conditions are true:

(a) The filter differential pressure switch senses high pressure

(b) The NGS system is on

(c) The airplane is in the climb condition

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Air Separation Module

NOTE: Only if the NGS filter has been installed for 12,000 flight hours or less.

(2) Filter DP switch, M02561

(3) NGS filter

(4) Airplane wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801

(a) If the BDU message SYSTEM TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, FILTER BLOCKED 47-30029 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) If the NGS filter has been installed for less than 12,000 flight hours.

(a) Replace the NGS ASM.

(Air Separation Module (ASM) Removal, AMM TASK 47-11-01-000-801)

(Air Separation Module (ASM) Installation, AMM TASK 47-11-01-420-801)

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

1) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the filter DP switch:

(a) Disconnect connector D13814 from the filter DP switch, M02561.

(b) Do a check for 28 VDC between pins A and B (ground) of D13814.

(c) If there is 28 VDC between pins A and B of D13814, then do these steps:

1) Replace the filter DP switch, M02561.

(Filter Differential Pressure Switch Removal, AMM TASK 47-43-01-000-801)

(Filter Differential Pressure Switch Installation, AMM TASK 47-43-01-400-801)

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

a) If the Repair Confirmation is not satisfactory, then continue.

(d) If there is not 28 VDC at pin A of D13814, then do these steps:

1) Make sure that pin B of D13814 goes to ground.

2) If pin B of D13814 does not go to ground, then do these steps:

a) Repair the wiring from pin B to GD121-DC.

b) Re-connect connector D13814 to the filter DP switch.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

3) If pin B of D13814 does go to ground, then do these steps:

a) Disconnect connector D13806 from the NGS controller, M02559.

b) Repair the wiring from pin A of D13814 to pin 6 of D13806.

c) Re-connect connector D13814 to the filter DP switch.

d) Re-connect connector D13806 to the NGS controller.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

(3) Replace the NGS filter.

(NGS Filter Element- Removal, AMM TASK 47-32-04-000-802)

(NGS Filter Element- Installation, AMM TASK 47-32-04-400-802)

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

G. Repair Confirmation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the SYSTEM TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

821. NGS BITE Message HFV ELEC FAIL - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30030 HFV ELEC FAIL

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) HFV ELEC FAIL shows on the display when the NGS controller finds a problem with high-flow valve, an open circuit, or a short circuit in the high-flow valve circuit.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) High-flow valve, V00174

(2) Airplane wiring

(3) Circuit breaker - Nitrogen Generation Control (C01657).

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message HFV ELEC FAIL 47-30030 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the high flow shutoff valve:

(a) Disconnect connector D13820 from the high-flow valve, V00174.

(b) Do a check for 28 VDC between pins 1 and 3 (ground) of D13820.

(c) If there is 28 VDC between pins 1 and 3 of D13820, then do these steps:

1) Replace the high-flow valve.

(High Flow Valve Removal, AMM TASK 47-11-02-000-801)

(High Flow Valve Installation, AMM TASK 47-11-02-420-801)

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

a) If the Repair Confirmation is not satisfactory, then continue.

(d) If there is not 28 VDC between pins 1 and 3 of D13820, then do these steps:

1) Make sure that pin 3 of D13820 goes to ground.

2) If pin 3 of D13820 does not go to ground, then do these steps:

a) Repair the wiring from pin 3 to GD111-ST.

b) Re-connect connector D13820 to the high-flow valve.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

3) If pin 3 of D13820 does go to ground, then do these steps:

a) Repair the wiring between pin 1 of D13820 and circuit breaker C01657:

Circuit Breaker List

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL

b) Re-connect connector D13820 to the high-flow valve.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:

(a) Disconnect connector D13820 from the high-flow valve V00174.

(b) Disconnect connector D13806 from the NGS controller, M02559.

(c) Do a check for an open circuit between these pins:

D13820		D13806
pin 2	. . . . .	pin 14

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.
2) Re-connect connector D13820 to the high-flow valve.
3) Re-connect connector D13806 to the NGS controller.
4) Do the Repair Confirmation at the end of this task.

(e) If there is continuity, then do these steps:

1) Replace the high-flow valve.
(High Flow Valve Removal, AMM TASK 47-11-02-000-801)
(High Flow Valve Installation, AMM TASK 47-11-02-420-801)
2) Re-connect connector D13820 to the high-flow valve.
3) Re-connect connector D13806 to the NGS controller.
4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

823. NGS BITE Message HFV FAIL OPEN - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30032 HFV FAIL OPEN

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) The BDU display shows HFV FAIL OPEN when the NGS controller finds that the hardware for the ASM high-flow valve is failed in the open position.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) High-flow valve, V00174

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the BDU message SYSTEM TEST PASS shows, then there was an intermittent fault.

(3) If the fault message HFV FAIL OPEN 47-30032 shows, then do the Fault Isolation Procedure.

F. Fault Isolation Procedure

(1) Have a person check the position indicator on the high flow valve.

(2) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test operates for 4 minutes.

(a) While the system test operates, have a second person monitor the position indicator on the high flow valve.

1) Make sure that the high flow valve opens, then closes, during the system test.

(3) If the position indicator is stuck in the open position during the system test, then do these steps:

(a) Replace the high flow valve, V00174.

(High Flow Valve Removal, AMM TASK 47-11-02-000-801)

(High Flow Valve Installation, AMM TASK 47-11-02-420-801)

(4) If the high flow valve opens, then closes, during the system test, the valve is serviceable.

G. Repair Confirmation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the SYSTEM TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

824. NGS BITE Message WOW SIG FAIL IN AIR - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30040 WOW SIG FAIL IN AIR

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) WOW SIG FAIL IN AIR shows on the display when the NGS controller senses that the AIR/GROUND relay system is in the incorrect air condition for more than 10 seconds.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Primary air/ground relay system

(2) Airplane wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 32-09-11

(2) SSM 32-09-12

(3) SSM 47-30-11

(4) WDM 32-09-11

(5) WDM 32-09-12

(6) WDM 47-30-11

E. Initial Evaluation

(1) Make sure that the airplane is in the ground mode (AMM TASK 32-09-00-860-802).

(2) Push the ON/OFF pushbutton on the BDU.

(a) The BDU will show IN AIR for one second then go off.

(3) If the message IN AIR shows, then do the Fault Isolation Procedure below.

(4) If the BDU menu is available, then do these steps:

(a) Select the EXISTING FAULTS? menu.

1) Push the up or down arrow pushbutton until EXISTING FAULTS? shows.

2) Push the YES pushbutton.

(b) If the fault messge WOW SIG FAIL IN AIR 47-30040 does not show, then there was an intermittent fault.

(c) If the fault message WOW SIG FAIL IN AIR 47-30040 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the proximity switch electronics unit:

(a) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.

NOTE: Look for maintenance message 32–06001 AIR/GND R584 FLT on the PSEU.

(b) If the maintenance message 32–06001 AIR/GND R584 FLT shows on the PSEU display, then do these steps:

1) Do the applicable fault isolation procedure(s) for this fault.

2) Make sure that the messages related to the AIR / GROUND relay system are corrected.

(c) After you repair the problem, do these steps to make sure that you repaired the problem:

1) Make sure that the airplane is in the ground mode (AMM TASK 32-09-00-860-802).

2) Push the ON/OFF pushbutton on the BDU.

a) If the BDU menu is available, then you repaired the problem.

b) If the BDU shows IN AIR for one second then goes off, continue with the fault isolation procedure.

(2) Do this check of the wiring:

(a) Disconnect connector D13806 on the NGS controller, M02559.

(b) Disconnect connector D11002 on the AIR/GND relay, R584, in the J22 Panel.

(c) Do a check for an open circuit between these pins:

D11002		D13806
pin D3	. . . . .	pin 12

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.
2) Make sure that pin D2 of D11002 goes to ground.
3) If pin D2 of D11002 does not go to ground, then do the next step and continue.
   a) Repair the wiring from pin D2 to GD532-DC.
4) If pin D2 of D11002 goes to ground, then continue.
5) Re-connect connector D11002 to the AIR/GND relay.
6) Re-connect connector D13806 to the NGS controller.
7) Do the Repair Confirmation at the end of this task.

(e) If there is continuity between each pin, then do these steps:

1) Replace the AIR/GND relay, R584.
2) Re-connect connector D11002 to the AIR/GND relay.
3) Re-connect connector D13806 to the NGS controller.
4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Make sure that the airplane is in the ground mode (AMM TASK 32-09-00-860-802).

(2) Push the ON/OFF pushbutton on the BDU.

(a) If the BDU menu is available, then you repaired the problem.

——— END OF TASK ———

825. NGS BITE Message WOW SIG FAIL ON GROUND - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30041 WOW SIG FAIL ON GROUND

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) WOW SIG FAIL ON GROUND shows on the display when the NGS controller senses that the AIR/GROUND relay system is in the incorrect ground state for more than 10 seconds.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Primary air/ground relay system

(2) Airplane Wiring.

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL

(Continued)

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
E	15	C01680	NGS ALT PWR

D. Related Data

(1) WDM 32-09-11

(2) WDM 32-09-12

(3) WDM 47-30-11

E. Initial Evaluation

(1) Do this task: Prepare to Put the Airplane in the Air Mode, AMM TASK 32-09-00-840-801.

(2) Do this task: Put the Airplane in the Air Mode, AMM TASK 32-09-00-860-801.

(3) Do these steps to navigate to the DIGITAL INPUTS? menu:

(a) Push the ON/OFF pushbutton on the BDU.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(b) Select the OTHER FUNCTION? menu.

1) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.

2) Push the YES pushbutton.

(c) Select the I/O MONITOR? menu.

1) Push the up or down arrow pushbutton until I/O MONITOR? shows.

2) Push the YES pushbutton.

(d) Select the DIGITAL INPUTS? menu.

1) Push the up or down arrow pushbutton until DIGITAL INPUTS? shows.

2) Push the YES pushbutton.

(e) Select WOW:

(f) If the message WOW: ON GROUND shows, then do the Fault Isolation Procedure below.

(g) If the message WOW: IN AIR shows, then there was an intermittent fault.

1) Put the airplane in the ground mode (Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802).

F. Fault Isolation Procedure

(1) Do this check of the proximity switch electronics unit:

(a) Do this task: Proximity Switch Electronics Unit (PSEU) BITE Procedure, 32-09 TASK 801.

NOTE: Look for maintenance message 32–06001 AIR/GND R584 FLT on the PSEU.

(b) If the maintenance message 32–06001 AIR/GND R584 FLT shows on the PSEU display, then do these steps:

1) Do the applicable fault isolation procedure(s) for this fault.

2) Make sure that the messages related to the AIR/GND relay system are corrected.

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

a) If the Repair Confirmation is not satisfactory, then continue.

(c) If maintenance message 32-06001 AIR/GND R584 FLT does not show on the PSEU display, then continue.

(2) Do this check of the wiring:

Do these steps to do a check for a short circuit between the NGS controller (M02559) and the R584 System 1 AIR/GND relay:

(a) Disconnect connector D13806 from the NGS controller, M02559.

(b) Disconnect connector D11002 from the AIR/GND relay, R584, in the J22 Panel.

(c) Do a check for an open circuit between these pins:

D11002		D13806
pin D3	. . . . .	pin 12

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.

2) Make sure that pin D2 of D11002 goes to ground.

3) If pin D2 of D11002 does not go to ground, then do the next step and continue.

a) Repair the wiring from pin D2 to GD532-DC.

4) If pin D2 of D11002 goes to ground, then continue.

5) Re-connect connector D11002 to the AIR/GND relay.

6) Re-connect connector D13806 to the NGS controller.

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

(e) If there is continuity between each pin, then do these steps:

1) Replace the AIR/GND relay, R584.

2) Re-connect connector D11002 to the AIR/GND relay.

3) Re-connect connector D13806 to the NGS controller.

4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) After you repair the problem, do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.

NOTE: Make sure that the airplane is in the ground mode for ten minutes to reset the air/ground mode signal.

(2) Do this task: Prepare to Put the Airplane in the Air Mode, AMM TASK 32-09-00-840-801.

(3) Do these steps to make sure that you repaired the problem:

(a) Push the ON/OFF button on the BDU.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(b) Select the OTHER FUNCTION? menu.

1) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.

2) Push the YES pushbutton.

(c) Select the I/O MONITOR? menu.

1) Push the up or down arrow pushbutton until I/O MONITOR? shows.

2) Push the YES pushbutton.

(d) Select the DIGITAL INPUTS? menu.

1) Push the up or down arrow pushbutton until DIGITAL INPUTS? shows.

2) Push the YES pushbutton.

(e) Select WOW:

(f) If WOW: IN AIR shows on the display, then you repaired the problem.

(4) Do this task: Return the Airplane to the Ground Mode, AMM TASK 32-09-00-860-802.

——— END OF TASK ———

826. NGS BITE Message FWD CGO FIRE SIG FAIL ON - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30042 FWD CGO FIRE SIG FAIL ON

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) FWD CGO FIRE SIG FAIL ON shows on the display when the NGS controller senses that the forward cargo fire signal is in the incorrect ON state.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Forward cargo fire signal system

(2) Airplane wiring.

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) WDM 21-31-23

(2) WDM 26-11-21

(3) WDM 26-16-21

(4) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, FWD CGO FIRE SIG FAIL ON 47-30042 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the cargo electronic unit:

(a) Do the BITE procedure:

(Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801)

(b) If the test fails then do the applicable fault isolation procedure.

1) Repair the problems that you find.
   a) Make sure that the BITE messages related to the forward cargo fire signal system are corrected.
2) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(c) If the test passes, then continue.

(2) Do this check of the wiring:
(a) Disconnect connector D13806 from the NGS controller, M02559.
(b) Disconnect connector D40426P from the E3-2 shelf.
(c) Do a check for an open circuit between these pins:

D13806	D40426P
Pin 3	Pin 15

(d) If there is an open circuit, then do these steps:
1) Repair the wiring.
2) Re-connect connector D40426P to the E3-2 shelf.
3) Re-connect connector D13806 to the NGS controller.
4) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(e) If there is continuity between each pin, then do these steps and continue.
1) Re-connect connector D40426P to the E3-2 shelf.
2) Re-connect connector D13806 to the NGS controller.

(3) Do this check of the wiring:
(a) Disconnect connector D40426P from the E3-2 shelf.
(b) Do a check for wire W0321-0499-20 from pin 15 of D40426J and wire splice SM48.
(c) If there is an open circuit, then do these steps:
1) Repair the wiring.
2) Re-connect connector D40426P to the E3-2 shelf.
3) Do the Repair Confirmation at the end of this task.

(d) If there is continuity between each pin, then do these steps.
1) Re-connect connector D40426P to the E3-2 shelf.
2) Re-connect connector D13806 to the NGS controller.

G. Repair Confirmation

(1) Do the electrical test in this task: Ground Operation of the Nitrogen Generation System, AMM TASK 47-00-00-800-801.
(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

827. NGS BITE Message MN CGO FIRE SIG FAIL ON - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30043 MN CGO FIRE SIG FAIL ON

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) MN CGO FIRE SIG FAIL ON shows on the display when the NGS controller senses that the main deck cargo fire signal is in the incorrect ON state.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Main deck fire signal system

(2) Airplane wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) WDM 21-31-23

(2) WDM 26-11-21

(3) WDM 26-16-21

(4) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message MN CGO FIRE SIG FAIL ON 47-30043 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the cargo electronic unit:

(a) Do the cargo electronic unit BITE task.

(Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801)

(b) If the test fails then do the applicable fault isolation procedure.

1) Repair the problems that you find.

a) Make sure that the BITE messages related to the main cargo fire signal system are corrected.

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

a) If the Repair Confirmation is not satisfactory, then continue.

(c) If the test passes, then continue.

(2) Do this check of the wiring:

(a) Disconnect connector D13806 from the NGS controller, M02559.

(b) Disconnect connector D40426P from the E3-2 shelf.

(c) Do a check for an open circuit between these pins:

D13806		D40426P
Pin 8	. . . . .	Pin 15

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.
2) Re-connect connector D40426P to the E3-2 shelf.
3) Re-connect connector D13806 to the NGS controller.
4) Do the Repair Confirmation at the end of this task.
a) If the Repair Confirmation is not satisfactory, then continue.

(e) If there is continuity between each pin, then do these steps and continue.

1) Re-connect connector D40426P to the E3-2 shelf.
2) Re-connect connector D13806 to the NGS controller.

(3) Do this check of the wiring:

(a) Disconnect connector D40426P from the E3-2 shelf.
(b) Do a check for wire W0321-0499-20 from pin 15 of D40426J and wire splice SM48.
(c) If there is an open circuit, then do these steps:

1) Repair the wiring.
2) Re-connect connector D40426P to the E3-2 shelf.
3) Do the Repair Confirmation at the end of this task.

(d) If there is continuity between each pin, then do these steps.

1) Re-connect connector D40426P to the E3-2 shelf.
2) Re-connect connector D13806 to the NGS controller.

G. Repair Confirmation

(1) Do the electrical test in this task: Ground Operation of the Nitrogen Generation System, AMM TASK 47-00-00-800-801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

828. NGS BITE Message AFT CGO FIRE SIG FAIL ON - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30044 AFT CGO FIRE SIG FAIL ON

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) AFT CGO FIRE SIG FAIL ON shows on the display when the NGS controller senses that the aft cargo fire signal is in the incorrect ON state.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Main deck fire signal system

(2) Airplane wiring.

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) WDM 21-31-23

(2) WDM 26-11-21

(3) WDM 26-16-21

(4) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: Ground Operation of the Nitrogen Generation System, AMM TASK 47-00-00-800-801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, AFT CGO FIRE SIG FAIL ON 47-30044 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the cargo electronic unit:

(a) Do the cargo electronic unit BITE task.

(Cargo Electronic Unit (CEU) BITE Procedure, 26-16 TASK 801)

(b) If the test fails then do the applicable fault isolation procedure.

1) Repair the problems that you find.

a) Make sure that the BITE messages related to the aft cargo fire signal system are corrected.

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

a) If the Repair Confirmation is not satisfactory, then continue.

(c) If the test passes, then continue.

(2) Do this check of the wiring:

(a) Disconnect connector D13806 from the NGS controller, M02559.

(b) Disconnect connector D40426P from the E3-2 shelf.

(c) Do a check for an open circuit between these pins:

D13806		D40426P
Pin 27	. . . . .	Pin 15

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.

2) Re-connect connector D40426P to the E3-2 shelf.

3) Re-connect connector D13806 to the NGS controller.

4) Do the Repair Confirmation at the end of this task.
   a) If the Repair Confirmation is not satisfactory, then continue.

(e) If there is continuity between each pin, then do these steps and continue:
   1) Re-connect connector D40426P to the E3-2 shelf.
   2) Re-connect connector D13806 to the NGS controller.

(3) Do this check of the wiring:
   (a) Disconnect connector D40426J from the E3-2 shelf.
   (b) Do a check for wire W0321-0499-20 from pin 15 of D40426J and wire splice SM48.
   (c) If there is an open circuit, then do these steps:
      1) Repair the wiring.
      2) Re-connect connector D40426P to the E3-2 shelf.
      3) Do the Repair Confirmation at the end of this task.
         a) If the Repair Confirmation is not satisfactory, then continue.
   (d) If there is continuity between each pin, then do these steps and continue:
      1) Re-connect connector D40426P to the E3-2 shelf.
      2) Re-connect connector D13806 to the NGS controller.

G. Repair Confirmation

(1) Do the electrical test in this task: Ground Operation of the Nitrogen Generation System, AMM TASK 47-00-00-800-801.
   (a) If the ELECTRICAL TEST PASS shows on the BDU display, then you corrected the fault.

——— END OF TASK ———

829. NGS BITE Message FD SMK EVAC SIG1 FAIL ON - Fault Isolation

A. Description

(1) This task is for fault message:
   (a) 47-30045 FD SMK EVAC SIG1 FAIL ON

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) FD SMK EVAC SIG1 FAIL ON shows on the display when the NGS controller finds that the forward smoke evacuation signal is in the incorrect ON condition.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Flight deck smoke evacuation system

(2) Airplane wiring.

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) WDM 21-43-21

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message, FD SMK EVAC SIG1 FAIL ON 47-30045 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do a check of the overboard evacuation valve.

(a) If the overboard evacuation valve is in the SMOKE position, then do this task: Equipment Cooling Overboard Exhaust Valve - Functional Test, AMM TASK 21-27-00-700-803.

(b) If the test fails, then do the applicable fault isolation procedure.

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

(a) If the Repair Confirmation is not satisfactory, then continue.

(3) Make sure that the overboard evacuation valve is in the NORMAL position.

(4) Do these steps to do a check for a short to ground between the NGS controller and the overboard exhaust valve relay:

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

(b) Disconnect the electrical connector D13806 at the NGS controller.

(c) Disconnect the electrical connector D11880 at the overboard exhaust valve (V157).

(d) Do a check of the wire from connector D13806 pin 41 to the airplane structure.

NOTE: If pin 41 and the airplane structure are connected, then there is a short circuit to ground.

1) Repair the problems that you find.

(e) Connect the connectors D13806 and D11880.

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you correct the fault.

END OF TASK

830. NGS BITE Message ENG1 SIG FAIL - Fault Isolation

A. Description

(1) This task is for fault 47-30050.

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) ENG1 SIG FAIL shows on the display when the NGS controller detects an incorrect engine 1 running relay open circuit.

B. Possible Causes

(1) Engine 1 Running Relay (R564)

(2) Airplane wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
B	3	C01312	ENGINE 1 RUN/PWR

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

(3) SSM 73-22-31

(4) WDM 73-22-31

E. Initial Evaluation

(1) Do the electrical test (47-31 TASK 801).

(2) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent problem.

(3) If the fault message, ENG1 SIG FAIL 47-30050 shows, then continue:

(a) Do these steps to simulate the engine running:

1) Make sure that there is no pneumatic power to the engine starters.

a) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806.

2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

3) Make sure that the ENGINE START 1 switch, on the P5 panel, is in the OFF position.

4) Set the engine 1 start lever, on the Control Stand, to the IDLE position.

a) Wait a minimum of 5 minutes before proceeding.

NOTE: The engine running controls and relays require 5 minutes to change state.

(b) Make sure that the fire handles are in the NORMAL position.

(c) Navigate to the DISCRETE INPUTS? menu on the BDU:

1) Push the ON/OFF pushbutton.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

2) Select the OTHER FUNCTION? menu.

a) Push the (↑) up or (↓) down arrow pushbutton or the NO pushbutton until OTHER FUNCTIONS? shows.

b) Push the YES pushbutton.

3) Select the I/O MONITOR? menu.

a) Push the (↑) up or (↓) down arrow pushbutton or the NO pushbutton until I/O MONITOR? shows.

b) Push the YES pushbutton.

4) Select the DISCRETE INPUTS? menu.

a) Push the (↑) up or (↓) down arrow pushbutton until ENGINE 1 SIG: XXX shows on the display.

5) If the message ENGINE 1 SIG: ON shows, there was an intermittent problem and continue.

6) If the message ENGINE 1 SIG: OFF shows, then do the Fault Isolation Procedure below.

(d) Do these steps to return the engine running relays back to the not running condition:

1) Set the engine 1 start lever to the CUTOFF position.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

F. Fault Isolation Procedure

(1) Do these steps to replace the Engine 1 Running Relay, R564:

NOTE: Engine 1 running relay is in junction box, J22.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
B	3	C01312	ENGINE 1 RUN/PWR

(b) Replace the Engine 1 Running Relay, R564 (WDM 47-30-11).

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
B	3	C01312	ENGINE 1 RUN/PWR

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

1) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:

(a) Set the engine 1 start lever, on the Control Stand, to the CUTOFF position.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
B	3	C01312	ENGINE 1 RUN/PWR

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

(c) Disconnect the connector, D13806, from the NGS Controller, M2559.

(d) Disconnect the connector, D10918, from the Engine 1 Running Relay, R564.

(e) Do a continuity check from the NGS Controller connector D13806, to the panel connector D10918: pin 52 to pin D1 (WDM 47-30-11).

(f) If there is an open circuit, then do these steps:

1) Repair the wiring.

2) Re-connect the connector, D10918, to the Engine 1 Running Relay, R564.

3) Re-connect the connector, D13806, to the NGS Controller, M2559.

(g) If there is continuity between pin 52 and pin D1, then continue.

1) Re-connect the connector, D10918, to the Engine 1 Running Relay, R564.

2) Re-connect the connector, D13806, to the NGS Controller, M2559.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
B	3	C01312	ENGINE 1 RUN/PWR

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

(4) Set the engine 1 start lever to the IDLE position.

NOTE: You must wait five minutes or more for the engine running controls and relays to change state.

G. Repair Confirmation

(1) Do these steps to simulate the engine running:

(a) Make sure that there is no pneumatic power to the engine starters.

1) Do this task: (Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806)

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

(c) Make sure that the ENGINE START 1 switch, on the P5 panel, is in the OFF position.

(d) Set the engine 1 start lever, on the Control Stand, to the IDLE position.

1) Wait a minimum of 5 minutes before proceeding.

NOTE: The engine running controls and relays require 5 minutes to change state.

(2) Make sure that the fire handles are in the NORMAL position.

(3) Navigate to the DISCRETE INPUTS? menu on the BDU:

(a) Push the ON/OFF pushbutton.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(b) Select the OTHER FUNCTION? menu.

1) Push the (↑) up or (↓) down arrow pushbutton or the NO pushbutton until OTHER FUNCTIONS? shows.

2) Push the YES pushbutton.

(c) Select the I/O MONITOR? menu.

1) Push the (↑) up or (↓) down arrow pushbutton or the NO pushbutton until I/O MONITOR? shows.

2) Push the YES pushbutton.

(d) Select the DISCRETE INPUTS? menu.

1) Push the (↑) up or (↓) down arrow pushbutton until ENGINE 1 SIG: XXX shows on the display.

(e) If message ENGINE 1 SIG: ON shows, then you corrected the fault.

(4) Do these steps to return the engine running relays back to the not running condition:

(a) Set the engine 1 start lever to the CUTOFF position.

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

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

——— END OF TASK ———

831. NGS BITE Message ENG2 SIG FAIL - Fault Isolation

A. Description

(1) This task is for fault 47-30051.

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) ENG2 SIG FAIL shows on the display when the NGS controller detects an incorrect engine 2 running relay open circuit.

B. Possible Causes

(1) Engine 2 running relay (R563)

(2) Airplane wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

(3) SSM 73-22-31

(4) WDM 73-22-31

E. Initial Evaluation

(1) Do the electrical test (47-31 TASK 801).

(2) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent problem.

(3) If the fault message, ENG2 SIG FAIL 47-30051 shows, then continue:

(a) Do these steps to simulate the engine running:

1) Make sure that there is no pneumatic power to the engine starters.

a) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806

2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

3) Make sure that the ENGINE START 2 switch, on the P5 panel, is in the OFF position.

4) Set the engine 2 start lever, on the Control Stand, to the IDLE position.

a) Wait a minimum of 5 minutes before proceeding.

NOTE: The engine running controls and relays require 5 minutes to change state.

(b) Make sure that the fire handles are in the NORMAL position.

(c) Navigate to the DISCRETE INPUTS? menu on the BDU:

1) Push the ON/OFF pushbutton.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

2) Select the OTHER FUNCTION? menu.

a) Push the (↑) up or (↓) down arrow pushbutton or the NO pushbutton until OTHER FUNCTIONS? shows.

b) Push the YES pushbutton.

3) Select the I/O MONITOR? menu.

a) Push the (↑) up or (↓) down arrow pushbutton or the NO pushbutton until I/O MONITOR? shows.

b) Push the YES pushbutton.

4) Select the DISCRETE INPUTS? menu.

a) Push the (↑) up or (↓) down arrow pushbutton until ENGINE 2 SIG: XXX shows on the display.

5) If the message ENGINE 2 SIG: ON shows, there was an intermittent problem and continue.

6) If the message ENGINE 2 SIG: OFF shows, then do the Fault Isolation Procedure below.

(d) Do these steps to return the engine running relays back to the not running condition:

1) Set the engine 2 start lever to the CUTOFF position.

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

F. Fault Isolation Procedure

(1) Do these steps to replace the Engine 2 Running Relay, R563:

NOTE: Engine 2 running relay is in junction box, J24.

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

(b) Replace the Engine 2 Running Relay, R563 (WDM 47-30-11).

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

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

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

1) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:

(a) Set the engine 2 start lever, on the Control Stand, to the CUTOFF position.

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR

(c) Disconnect the connector, D13806, from the NGS controller, M2559.

(d) Disconnect the connector, D10916, from the Engine 2 Running Relay, R563.

(e) Do a continuity check from the NGS Controller connector D13806, to the panel connector D10916: pin 16 to pin D1 (WDM 47-30-11).

(f) If there is an open circuit, then do these steps:

1) Repair the wiring.

2) Re-connect the connector, D10916, to the Engine 2 Running Relay, R563.

3) Re-connect the connector, D13806, to the NGS Controller, M2559.

(g) If there is continuity between pin 16 and pin D1, then continue.

1) Re-connect the connector, D10916, to the Engine 2 Running Relay, R563.

2) Re-connect the connector, D13806, to the NGS Controller, M2559.

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR

(4) Set the engine 2 start lever to the IDLE position.

NOTE: You must wait five minutes or more for the engine running controls and relays to change state.

G. Repair Confirmation

(1) Do these steps to simulate the engine running:

(a) Make sure that there is no pneumatic power to the engine starters.

1) Do this task: Remove Pressure from the Pneumatic System, AMM TASK 36-00-00-860-806

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

(c) Make sure that the ENGINE START 2 switch, on the P5 panel, is in the OFF position.

(d) Set the engine 2 start lever, on the Control Stand, to the IDLE position.

1) Wait a minimum of 5 minutes before proceeding.

NOTE: The engine running controls and relays require 5 minutes to change state.

(2) Make sure that the fire handles are in the NORMAL position.

(3) Navigate to the DISCRETE INPUTS? menu on the BDU:

(a) Push the ON/OFF pushbutton.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(b) Select the OTHER FUNCTION? menu.

1) Push the (↑) up or (↓) down arrow pushbutton or the NO pushbutton until OTHER FUNCTIONS? shows.

2) Push the YES pushbutton.

(c) Select the I/O MONITOR? menu.

1) Push the (↑) up or (↓) down arrow pushbutton or the NO pushbutton until I/O MONITOR? shows.

2) Push the YES pushbutton.

(d) Select the DISCRETE INPUTS? menu.

1) Push the (↑) up or (↓) down arrow pushbutton until ENGINE 2 SIG: XXX shows on the display.

(e) If message ENGINE 2 SIG: ON shows, then you corrected the fault.

(4) Do these steps to return the engine running relays back to the not running condition:

(a) Set the engine 2 start lever to the CUTOFF position.

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

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

——— END OF TASK ———

832. NGS BITE Message PACK SIG FAIL OFF - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30054 PACK SIG FAIL OFF

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) PACK SIG FAIL OFF shows on the display when the controller finds that the PACK signal is failed OFF.

(4) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Air conditioning pack signal

(2) Airplane wiring.

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL

(Continued)

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
E	15	C01680	NGS ALT PWR

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
C	6	C00262	AIR CONDITIONING PACK CONT VALVES L

D. Related Data

(1) WDM 21-51-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the fault message PACK SIG FAIL OFF 47-30054 shows, then do these steps:

(a) Put the L PACK switch on the P-5 panel to the HIGH or AUTO position.

1) Make sure that the R PACK switch is OFF.

(b) Navigate to the DISCRETE INPUTS? menu on the BDU:

1) Push the ON/OFF pushbutton.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

2) Select the OTHER FUNCTIONS? menu.

a) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.

b) Push the YES pushbutton.

3) Select the I/O MONITOR? menu.

a) Push the up or down arrow pushbutton until I/O MONITOR? shows.

b) Push the YES pushbutton.

4) Select the DISCRETE INPUTS? menu.

a) Push the up or down arrow pushbutton until PACK SIG 1: shows on the display.

(c) If the message PACK SIG 1: ON shows, there was an intermittent problem.

(d) If the message PACK SIG 1: OFF shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check of the left pack flow control and shutoff valve:

(a) Do this task: Pack Flow Control Valve - Operational Test, AMM TASK 21-51-00-700-802 or Pack Flow Control Valve - Operational Test, AMM TASK 21-51-00-710-801.

(b) If a FAIL indication for the pack flow control valve operational test shows, then do these steps:

1) Do the applicable fault isolation procedures.

2) Repair the problems that you find.

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

a) If the Repair Confirmation is not satisfactory, then continue.

(c) If the FAIL indication does not show, then continue.

(2) Do these steps to do a check of the airplane wiring:

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
C	6	C00262	AIR CONDITIONING PACK CONT VALVES L

(b) Disconnect the connector D13806 from the NGS controller.

(c) Disconnect the connector D458B from the air conditioning relay 1 (M00324).

(d) Do a check of the wiring between connector D13806 pin 23 and connector D458B, pin 43.

(e) Repair the problems that you find.

(f) Connect the connector D13806 to the NGS controller.

(g) Connect the connector D458B to the air conditioning relay 1.

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
C	6	C00262	AIR CONDITIONING PACK CONT VALVES L

G. Repair Confirmation

(1) Navigate to the I/O Monitor DISCRETE/ inputs screen on the BDU.

(a) Push the ON/OFF pushbutton.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(b) Select the OTHER FUNCTIONS? menu.

1) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.

2) Push the YES pushbutton.

(c) Select the I/O MONITOR? menu.

1) Push the up or down arrow pushbutton until I/O MONITOR? shows.

2) Push the YES pushbutton.

(d) Select the DISCRETE INPUTS? menu.

1) Push the up or down arrow pushbutton until PACK SIG 1: shows on the display.

(e) Push the up or down arrow until PACK SIG 1: XXX shows on the display.

1) If PACK SIG 1: ON shows on the display, then you repaired the problem.

——— END OF TASK ———

833. NGS BITE Message AIRCRAFT ID INVALID - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30056 AIRCRAFT ID INVALID

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) AIRCRAFT ID INVALID shows on the display when the NGS controller detects an incorrect aircraft ID signal.

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) Airplane wiring

(2) NGS Controller, M02559

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) WDM 47-30-11

E. Initial Evaluation

(1) Open and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

(2) Push the ON/OFF pushbutton on the BDU.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(3) Select the EXISING FAULTS? menu.

(a) Push the up or down arrow pushbutton until EXISTING FAULTS? shows.

(b) Push the YES button.

(4) If the fault message AIRCRAFT ID INVALID 47-30056 does not show, then there was an intermittent fault.

(5) If the fault message AIRCRAFT ID INVALID 47-30056 shows, then do these steps:

(a) Push the ON/OFF pushbutton on the BDU.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(b) Select the OTHER FUNCTION? menu.

1) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.
2) Push the YES pushbutton.

(c) Select the SYSTEM CONFIG? menu.
1) Push the up or down arrow pushbutton until SYSTEM CONFIG? shows.
2) Push the YES pushbutton.

(d) Select AIRCRAFT ID:

(e) If the message AIRCRAFT ID: 737 shows, there was an intermittent problem.

(f) If the message AIRCRAFT ID: NOT ENABLED shows, then do the Fault Isolation Procedure below.

(g) If the message AIRCRAFT ID: UNDEFINED shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Replace the NGS controller, M02559.

(Nitrogen Generation System Controller Removal, AMM TASK 47-31-01-000-801)

(Nitrogen Generation System Controller Installation, AMM TASK 47-31-01-400-801)

(2) Do the Repair Confirmation at the end of this task.
(a) If the Repair Confirmation is not satisfactory, then continue.

(3) Do this check of the wiring:
(a) Disconnect connector D13804 from the NGS controller, M02559.
(b) Do a check for an open circuit between these pins:

D13804	D13804
pin 30	pin 47
pin 29	pin 47
pin 46	pin 47

(c) If there is an open circuit, then do these steps:
1) Repair the wiring.
2) Re-connect connector D13804 to the NGS controller.
3) Do the Repair Confirmation at the end of this task.

(d) If there is continuity between pin 47 of D13804 and pins 29, 30, 46 of D13804, then do this step:
1) Re-connect connector D11740 to the NGS controller.

G. Repair Confirmation

(1) Open and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

(2) Push the ON/OFF pushbutton on the BDU.

NOTE: The BDU automatically shutdowns after five minutes of inactivity.

(3) Select the OTHER FUNCTION? menu.
  (a) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.
  (b) Push the YES pushbutton.
(4) Select the SYSTEM CONFIG? menu.
  (a) Push the up or down arrow pushbutton until SYSTEM CONFIG? shows.
  (b) Push the YES pushbutton.
(5) Select AIRCRAFT ID:
(6) If the message AIRCRAFT ID: 737 shows, then you corrected the fault.

——— END OF TASK ———

834. NGS BITE Message REFUEL SIG1 FAIL OPEN - Fault Isolation

A. Description

(1) This task is for fault message:
  (a) 47-30059 REFUEL SIG1 FAIL OPEN
(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.
(3) REFUEL SIG1 FAIL OPEN 47-30059 shows on the display when the controller senses that the center tank refuel valve is in the incorrect open position.

B. Possible Causes

(1) Center tank refuel valve relay, R951
(2) Airplane wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) WDM 28-44-11
(2) WDM 47-30-11

E. Initial Evaluation

(1) Push the ON/OFF pushbutton on the BDU.

  NOTE: The BDU automatically shutsdown after five minutes of inactivity.

(2) Select the EXISTING FAULTS? menu.
  (a) Push the up or down arrow pushbutton until EXISTING FAULTS? shows.
  (b) Push the YES pushbutton.
(3) If the fault message REFUEL SIG1 FAIL 47-30059 does not show, then there was an intermittent fault.
(4) If the fault message REFUEL SIG1 FAIL 47-30059 shows, then do these steps:

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	3	C00032	FUEL FUELING CONT

(b) Push the ON/OFF pushbutton.

(c) Select the OTHER FUNCTION? menu.

1) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.

2) Push the YES pushbutton.

(d) Select the I/O MONITOR? menu.

1) Push the up or down arrow pushbutton until I/O MONITOR? shows.

2) Push the YES pushbutton.

(e) Select DISCRETE INPUTS OR ARINC INPUTS? menu.

1) Push the up or down arrow push-button until DISCRETE INPUTS OR ARINC INPUTS? shows.

2) Push the YES pushbutton.

(f) Select REFUEL VLV SIG1:

(g) If the message REFUEL VLV SIG1: VALVE CLOSED shows, there was an intermittent problem.

(h) If the message REFUEL VLV SIG1: VALVE OPEN shows, then do the Fault Isolation Procedure below.

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	3	C00032	FUEL FUELING CONT

F. Fault Isolation Procedure

(1) Do this check of the NGS center tank refuel valve relay:

(a) Replace the NGS center tank refuel valve relay, R951.

NOTE: The center tank refuel valve relay is in the J20 junction box.

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

1) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:

(a) Disconnect connector D13806 from the NGS controller, M02559.

(b) Remove the NGS center tank refuel valve relay, R951.

(c) Do a check for an open circuit between these pins:

D13804	D13842
pin 33	pin 2

(d) If there is an open circuit, then do these steps:

1) Repair the wiring.

2) Make sure that pin 5 of D13842 goes to ground.

3) If pin 5 of D13842 does not go to ground, then do this step and continue:
   a) Repair the wiring from pin 5 to GD3704-DC.
4) If pin 5 of D13842 goes to ground, then continue.
5) Re-connect connector D13806 to the NGS controller.
6) Remove the NGS center tank refuel valve relay.
7) Do the Repair Confirmation at the end of this task.

(e) If there is continuity, then do these steps:
1) Make sure that pin 5 of D13842 goes to ground.
2) If pin 5 of D13842 does not go to ground, then do this step and continue:
   a) Repair the wiring from pin 5 to GD3704-DC.
3) If pin 5 of D13842 goes to ground, then continue.
4) Re-connect connector D13806 to the NGS controller.
5) Remove the NGS center tank refuel valve relay.
6) Do the Repair Confirmation below.

G. Repair Confirmation

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	3	C00032	FUEL FUELING CONT

(2) Push the ON/OFF pushbutton on the BDU.

NOTE: The BDU automatically shutsdown after five minutes of inactivity.

(3) Select the OTHER FUNCTION? menu.
   (a) Push the up or down arrow pushbutton until OTHER FUNCTIONS? shows.
   (b) Push the YES pushbutton.

(4) Select the I/O MONITOR? menu.
   (a) Push the up or down arrow pushbutton until I/O MONITOR? shows.
   (b) Push the YES pushbutton.

(5) Select DISCRETE INPUTS OR ARINC INPUTS? menu.
   (a) Push the up or down arrow push-button until DISCRETE INPUTS OR ARINC INPUTS? shows.
   (b) Push the YES pushbutton.

(6) Select REFUEL VLV SIG1:

(7) If the message REFUEL VLV SIG1: VALVE CLOSED shows, then you corrected the problem.

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

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	3	C00032	FUEL FUELING CONT

END OF TASK

837. NGS BITE Message HFV FAIL CLOSED - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30031 HFV FAIL CLOSED

(2) The BDU display shows HFV FAIL CLOSED fault message when the NGS controller finds that the hardware for the ASM high flow valve is failed in the closed position.

(3) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803

B. Possible Causes

(1) High flow valve (V00174)

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the BDU message SYSTEM TEST PASS shows, then there was an intermittent fault.

(3) If the fault message HFV FAIL CLOSED 47-30031 shows, then do the Fault Isolation Procedure.

F. Fault Isolation Procedure

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

NOTE: The system test operates for 4 minutes.

(a) While the system test operates, have a person monitor the position indicator on the high flow valve.

1) Make sure that the high flow valve opens, then closes, during the system test.

(2) If the high flow valve does not open during the system test, then do these steps:

(a) Replace the high flow valve, V00174. These are the tasks:

1) High Flow Valve Removal, AMM TASK 47-11-02-000-801

2) High Flow Valve Installation, AMM TASK 47-11-02-420-801

(3) If the high flow valve opens, then closes, during the system test, the valve is serviceable.

G. Repair Confirmation

(1) Do the system test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the SYSTEM TEST PASS shows on the display, then you corrected the fault.

END OF TASK

838. NGS BITE Message NGS OXYGEN SENS FAIL - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30062 NGS OXYGEN SENS FAIL

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) NGS OXYGEN SENS FAIL shows when the controller finds an open or short circuit condition for the NGS oxygen sensor (M2692).

(4) To find more data about this fault message, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS oxygen sensor, M02692

(2) NGS wiring

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(2) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(3) If the fault message, NGS OXYGEN SENSOR ELEC 47-30062 shows, then do the Fault Isolation Procedure below.

F. Fault Isolation Procedure

(1) Do this check for 28 VDC at the NGS oxygen sensor:

(a) Disconnect connector D14200 from the NGS oxygen sensor, M02692.

(b) Do a check for 28 VDC between pins F and C (ground) of D14200.

(c) If there is 28 VDC between pins F and C of D14200, then do these steps:

1) Replace the NGS oxygen sensor, M2692.
(NGS Oxygen Sensor Removal, AMM TASK 47-42-03-020-801)
(NGS Oxygen Sensor Installation, AMM TASK 47-42-03-420-801).

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

a) If the Repair Confirmation is not satisfactory, then continue.

(d) If there is not 28 VDC between pins F and C of D14200, then do these steps:

1) Make sure that pin C of D14200 goes to ground.

2) If pin C of D14200 does not go to ground, then do these steps:

a) Repair the wiring from pin C to GD129-ST.

b) Re-connect connector D14200 to the NGS oxygen sensor.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

3) If pin C of D14200 goes to ground, then do these steps:

a) Repair the wiring between pin F of D14200 and this circuit breaker, C01657.

Circuit Breaker List

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL

b) Re-connect connector D14200 to the NGS oxygen sensor.

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

<1> If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the wiring:

(a) Disconnect the connector D14200 on the NGS oxygen sensor.

(b) Disconnect the connector D13804 on the NGS controller.

(c) Disconnect the connector D13806 on the NGS controller.

(d) Do a check for an open circuit between these pins:

D14200		D13804
pin E	. . . . .	pin 44
pin D	. . . . .	pin 42

D14200		D13806
pin G	. . . . .	pin 15

(e) If there is an open circuit, then do these steps:

1) Repair the wiring.

2) Re-connect connector D14200 to the NGS oxygen sensor.

3) Re-connect connector D13804 to the NGS controller.

4) Re-connect connector D13806 to the NGS controller.

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

(f) If there is continuity between the pins, then do these steps:

1) Replace the NGS oxygen sensor, M2692.

(NGS Oxygen Sensor Removal, AMM TASK 47-42-03-020-801)

(NGS Oxygen Sensor Installation, AMM TASK 47-42-03-420-801).

2) Re-connect connector D13804 to the NGS controller.

3) Re-connect connector D13806 to the NGS controller.

4) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the BDU display, then you correct the fault.

——— END OF TASK ———

839. NGS BITE Message NGS ASM FAIL - Fault Isolation

A. Description

(1) This task is for fault message:

(a) 47-30063 NGS ASM FAIL

(2) The operability indicator shows DEGRADED (blue light). The NGS is operating below normal.

(3) The fault message, NGS ASM FAIL, shows when the oxygen level is too high or an overtemperature occurs.

(4) If there is not enough time to complete the ASM performance test on five or more flights in a row, because of short flight lengths, a nuisance fault message, NGS ASM FAIL, can show. The operability indicator shows NGS DEGRADED (blue light).

(5) To find more data about this fault, do this task: BDU Fault History Menu, AMM TASK 47-31-02-740-803.

B. Possible Causes

(1) NGS ASM

(2) NGS Oxygen Sensor, M02692

(3) Short flight durations (5 or more flights in a row)

C. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

D. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

E. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If the fault message NGS ASM FAIL 47-30063 shows, then do the Fault Isolation Procedure.

F. Fault Isolation Procedure

(1) Do this check of the air separation module:

(a) Do this task: Functional Test of the Nitrogen Generation System, AMM TASK 47-00-00-720-801.

(b) If the NGS inlet pressure/NEA purity data point is in the go-zone area, then the problem is corrected.

(c) If the NGS inlet pressure/NEA purity data point is in the no-go-zone area, then do these steps:

1) Replace the ASM.

(Air Separation Module (ASM) Removal, AMM TASK 47-11-01-000-801)

(Air Separation Module (ASM) Installation, AMM TASK 47-11-01-420-801)

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

a) If the Repair Confirmation is not satisfactory, then continue.

(2) Do this check of the NGS oxygen sensor, M02692:

(a) Do this task: Functional Test of the Nitrogen Generation System, AMM TASK 47-00-00-720-801.

(b) If the NGS inlet pressure/NEA purity data point is in the go-zone area, then the problem is corrected.

(c) If the NGS inlet pressure/ NEA purity data point is in the no-go-zone area, then do these steps:

1) Replace the NGS oxygen sensor, M02692.

(NGS Oxygen Sensor Removal, AMM TASK 47-42-03-020-801)

(NGS Oxygen Sensor Installation, AMM TASK 47-42-03-420-801)

2) Do the Repair Confirmation below.

G. Repair Confirmation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the ELECTRICAL TEST PASS shows on the display, then you corrected the fault.

——— END OF TASK ———

840. Operability Indicator DEGRADED (Blue) Light is On - Fault Isolation

A. Description

(1) The operability indicator shows DEGRADED (blue light). The nitrogen generation system (NGS) is operating below normal.

B. Circuit Breakers

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

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	17	C01657	NITROGEN GENERATION CONTROL
E	15	C01680	NGS ALT PWR

C. Related Data

(1) SSM 47-30-11

(2) WDM 47-30-11

D. Initial Evaluation

(1) Do the electrical test in this task: NGS BITE - Procedure, 47-31 TASK 801.

(a) If the BDU message ELECTRICAL TEST PASS shows, then there was an intermittent fault.

(b) If a fault message shows, do the Fault Isolation procedure for the applicable fault message.

E. Fault Isolation Procedure

(1) No additional maintenance action is necessary.

——— END OF TASK ———