GPA Group plc

PAGE	DATE	CODE
CHAPTER 49 TAB		
AIRBORNE AUXILIARY POWER		
EFFECTIVE PAGES SEE LAST PAGE OF LIST FOR NUMBER OF PAGES		
49-CONTENTS		
1	SEP 28/99	01
2	JAN 28/02	GUI
3	MAY 28/07	GUI
4	JAN 28/05	GUI
5	JAN 28/05	GUI
6	JAN 28/00	GUI
7	JAN 28/00	GUI
8	BLANK	
49-HOW TO USE THE FIM		
1	SEP 20/98	01
2	SEP 20/98	01
3	SEP 28/99	01
4	SEP 20/98	01
5	SEP 20/98	01
6	SEP 20/98	01
49-INDEX		
1	DEC 20/90	02
2	DEC 20/90	04
49-EICAS MESSAGES		
1	DEC 20/90	01
2	DEC 20/90	01
3	JAN 28/05	02
4	BLANK	
49-FAULT CODE DIAGRAM		
1	JAN 28/01	02
2	MAY 28/02	03
3	JAN 28/01	01
4	SEP 15/84	02
5	JAN 28/01	02
6	JAN 28/01	01
49-FAULT CODE INDEX		
1	SEP 20/08	01
2	SEP 20/08	02
3	SEP 20/08	08
4	SEP 20/08	09
49-BITE INDEX		
1	SEP 28/99	01
2	SEP 28/99	01
3	SEP 28/99	01
4	BLANK	

PAGE	DATE	CODE
49-11-00 CONFIG 1		
101	SEP 20/94	01
102	SEP 20/94	01
103	MAR 20/96	05
104	SEP 20/94	01
105	SEP 28/02	01
106	SEP 20/94	04
107	SEP 20/98	01
108	MAY 28/00	01
109	SEP 28/01	01
110	MAR 20/96	01
111	MAR 20/96	01
112	MAR 20/96	01
113	MAY 28/00	01
114	MAY 28/00	05
115	MAY 28/00	02
116	MAY 28/00	02
117	MAY 28/00	01
118	MAY 28/00	01
119	MAY 28/00	01
120	MAY 28/00	01
121	MAY 28/00	01
122	MAY 28/03	01
123	MAY 28/00	01
124	MAY 28/00	01
125	SEP 28/01	01
126	MAY 28/00	01
127	MAY 28/00	01
128	MAY 28/03	01
129	MAY 28/00	01
130	MAY 28/00	01
131	MAY 28/00	01
132	MAY 28/00	01
133	MAY 28/00	05
134	MAY 28/00	01
135	JAN 28/05	01
136	MAY 28/00	01
137	MAY 28/00	04
138	MAY 28/00	05
139	MAY 28/00	08
140	MAY 28/00	05
141	MAY 28/00	06
142	MAY 28/00	09
143	MAY 28/00	07
144	MAY 28/00	07
145	MAY 28/00	08
146	MAY 28/00	07
147	MAY 28/00	07
148	MAY 28/00	08
149	JAN 28/02	08
150	JAN 28/02	07
151	JAN 28/02	06
152	JAN 28/05	09
153	JAN 28/02	07
154	JAN 28/02	06
155	JAN 28/02	07
156	JAN 28/02	07
157	JAN 28/02	09
158	JAN 28/05	08

PAGE	DATE	CODE
49-11-00 CONFIG 1		CONT.
159	SEP 28/03	09
160	JAN 28/02	10
161	JAN 28/02	09
162	JAN 28/02	07
163	JAN 28/02	07
164	JAN 28/02	08
165	SEP 28/03	10
166	SEP 28/03	09
167	SEP 28/03	07
168	SEP 28/03	07
169	SEP 28/03	07
170	SEP 28/03	07
171	SEP 28/03	08
172	SEP 28/03	07
173	SEP 28/03	08
174	SEP 28/03	10
175	SEP 28/03	08
176	SEP 28/03	09
177	SEP 28/03	08
178	SEP 28/03	07
179	SEP 28/03	08
180	SEP 28/03	09
49-11-00 CONFIG 2		
101	SEP 20/94	01
102	SEP 20/94	01
103	MAY 28/00	06
104	MAY 28/04	01
105	SEP 28/02	04
106	SEP 20/98	01
107	MAY 28/00	01
108	MAY 28/04	01
109	SEP 28/01	01
110	MAR 20/96	01
111	DEC 20/94	01
112	DEC 20/94	01
113	MAY 28/00	01
114	MAY 28/00	01
115	MAY 28/00	01
116	MAY 28/00	02
117	MAY 28/00	01
118	MAY 28/00	01
119	MAY 28/00	01
120	JAN 28/06	01
121	MAY 28/03	01
122	MAY 28/07	01
123	SEP 28/01	01
124	MAY 28/00	05
125	MAY 28/00	01
126	MAY 28/00	01
127	MAY 28/00	01
128	MAY 28/00	01
129	MAY 28/07	05
130	MAY 28/07	01
131	MAY 28/07	01
132	MAY 28/00	01
133	MAY 28/00	03
134	MAY 28/00	08

GPA Group plc

PAGE	DATE	CODE
49-11-00	CONFIG 2	CONT.
135	MAY 28/00	04
136	MAY 28/00	04
137	MAY 28/00	07
138	MAY 28/00	05
139	JAN 28/05	04
140	JAN 28/05	05
141	JAN 28/05	05
142	MAY 28/05	05
143	SEP 28/06	05
144	JAN 28/05	05
145	JAN 28/05	05
146	JAN 28/05	05
147	JAN 28/05	06
148	JAN 28/05	05
149	JAN 28/05	08
150	JAN 28/05	05
151	JAN 28/05	05
152	JAN 28/05	06
153	JAN 28/05	08
154	JAN 28/05	04
155	JAN 28/05	09
156	JAN 28/05	06
157	JAN 28/05	07
158	JAN 28/05	08
159	JAN 28/05	06
160	JAN 28/05	05
161	JAN 28/05	05
162	JAN 28/05	07
163	JAN 28/05	06
164	JAN 28/05	09
165	JAN 28/05	06
166	JAN 28/05	07
167	JAN 28/05	04
168	JAN 28/05	06
169	JAN 28/05	07
170	JAN 28/05	05
171	JAN 28/05	05
172	JAN 28/05	08
173	JAN 28/05	06
174	JAN 28/05	07
175	JAN 28/05	07
176	JAN 28/05	06
177	JAN 28/05	07
178	JAN 28/05	06
179	JAN 28/05	08
180	JAN 28/05	10
180A	JAN 28/05	09
180B	JAN 28/05	10
180C	JAN 28/05	10
180D	JAN 28/05	06
180E	JAN 28/07	06
180F	JAN 28/05	08
180G	JAN 28/05	08
180H	JAN 28/05	06
180I	JAN 28/05	07
180J	JAN 28/05	08
180K	JAN 28/05	09
180L	JAN 28/05	06
180M	JAN 28/05	07
180N	JAN 28/05	11
180O	JAN 28/05	10
180P	JAN 28/05	11
180Q	JAN 28/05	12
180R	JAN 28/05	09
180S	JAN 28/05	12
180T	BLANK	
49-13-00		
101	SEP 20/94	01
102	SEP 20/94	01
49-15-00		
101	DEC 20/91	01
102	DEC 20/91	01
49-16-00		
101	DEC 20/91	06
102	DEC 20/91	01
103	SEP 20/95	04
104	BLANK	
49-27-00		
101	SEP 20/92	10
102	DEC 20/91	01
103	DEC 20/91	01
104	DEC 20/91	03
105	SEP 20/92	09
106	BLANK	
49-31-00		
101	DEC 20/91	01
102	DEC 20/91	01
103	DEC 20/91	01
104	BLANK	
49-41-00		
101	DEC 20/91	08
102	DEC 20/91	01
49-51-00		
101	SEP 20/98	01
102	SEP 20/98	01
49-52-00		
101	SEP 20/94	01
102	SEP 20/94	01
49-53-00		
101	SEP 20/94	02
102	SEP 28/04	02
49-61-00		
101	DEC 20/91	03
102	DEC 20/94	01
103	DEC 20/94	01
104	BLANK	
49-71-00		
101	SEP 20/94	01
102	SEP 20/94	01
49-72-00		
101	DEC 20/93	01
102	DEC 20/95	01
49-81-00		
101	SEP 20/94	01
102	SEP 20/94	01
49-94-00		
101	DEC 20/95	07
102	DEC 20/93	07

CHAPTER 49 – AUXILIARY POWER UNIT

TABLE OF CONTENTS

CHAPTER 49 - AUXILIARY POWER UNIT

TABLE OF CONTENTS

CHAPTER 49 - AUXILIARY POWER UNIT

TABLE OF CONTENTS

CHAPTER 49 - AUXILIARY POWER UNIT

TABLE OF CONTENTS

CHAPTER 49 - AUXILIARY POWER UNIT

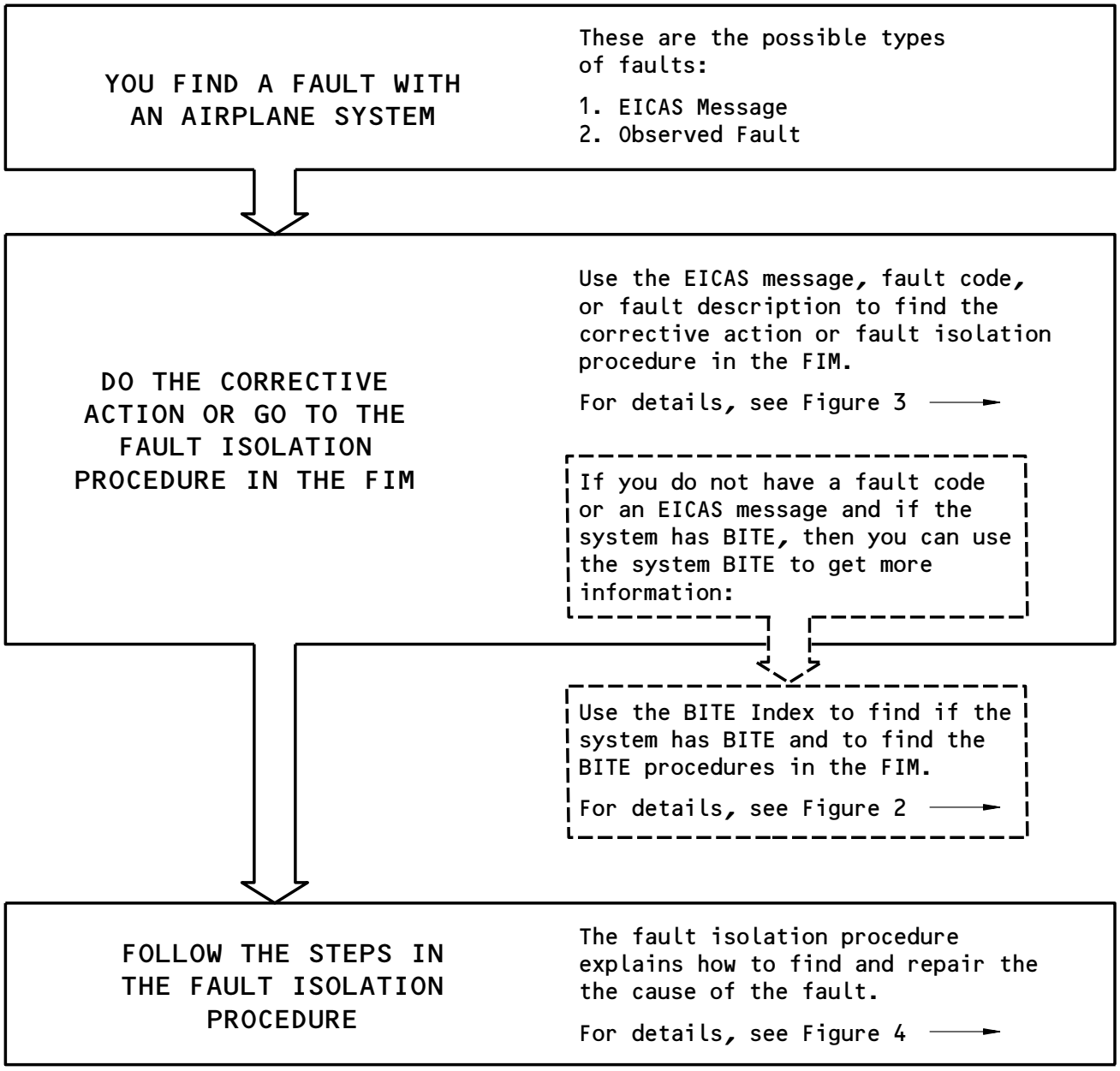
TABLE OF CONTENTS

CHAPTER 49 - AUXILIARY POWER UNIT

TABLE OF CONTENTS

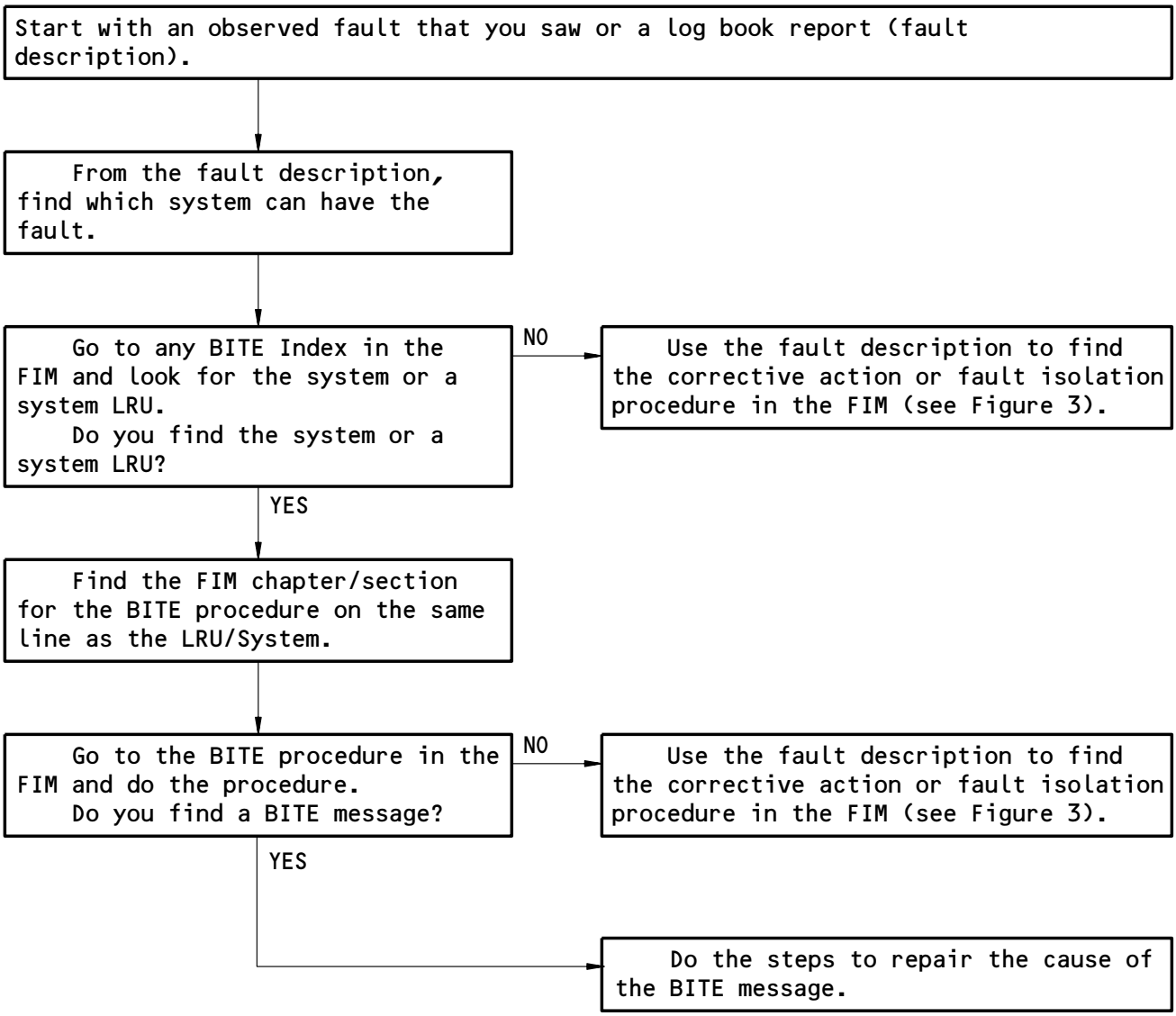
CHAPTER 49 - AUXILIARY POWER UNIT

TABLE OF CONTENTS



Basic Fault Isolation Process
Figure 1

H54429



How to Get Fault Information from BITE
Figure 2

IF YOU HAVE:	THEN DO THIS TO FIND THE CORRECTIVE ACTION OR FAULT ISOLATION PROCEDURE IN THE FIM:
FAULT CODE	1. The first two digits of the fault code are the FIM chapter that you need. Go to the Fault Code Index in that chapter and find the fault code. 2. Find the Fault Isolation Reference for the fault code and do the corrective action. If there is a FIM reference, then go to that fault isolation procedure in the FIM and do the steps in the procedure (see Figure 4).
EICAS MESSAGE TEXT (with no fault code)	1. If you know the chapter of the EICAS message, then go to the EICAS Messages section in that chapter and find the EICAS message. If you do not know the chapter of the EICAS message, then do these steps: A. Go to FIM EICAS MESSAGE LIST and find the EICAS message in the table. NOTE: The list follows the INTRODUCTION to the FIM. B. Find the chapter number on the same line as the EICAS message. Go to the EICAS Messages section in that chapter and find the EICAS message. 2. Do the corrective action in the "Procedure" column for the EICAS message. If there is a FIM reference, then go to that fault isolation procedure in the FIM and do the steps in the procedure (see Figure 4).
OBSERVED FAULT DESCRIPTION	1. Go to the Fault Code Diagram for the problem in the applicable chapter. 2. Do the fault analysis on the diagram and find the fault code. 3. The first two digits of the fault code are the FIM chapter that you need. Go to the Fault Code Index in that chapter and find the fault code. 4. Find the Fault Isolation Reference for the fault code and do the corrective action. If there is a FIM reference, then go to that fault isolation procedure in the FIM and do the steps in the procedure (see Figure 4).

How to Find the Corrective Action or Fault Isolation Procedure in the FIM
Figure 3

ASSUMED CONDITIONS AT START OF TASK

- External electrical power is OFF
- Hydraulic power and pneumatic power are OFF
- Engines are shut down
- Circuit breakers for the system are closed
- No equipment in the system is deactivated

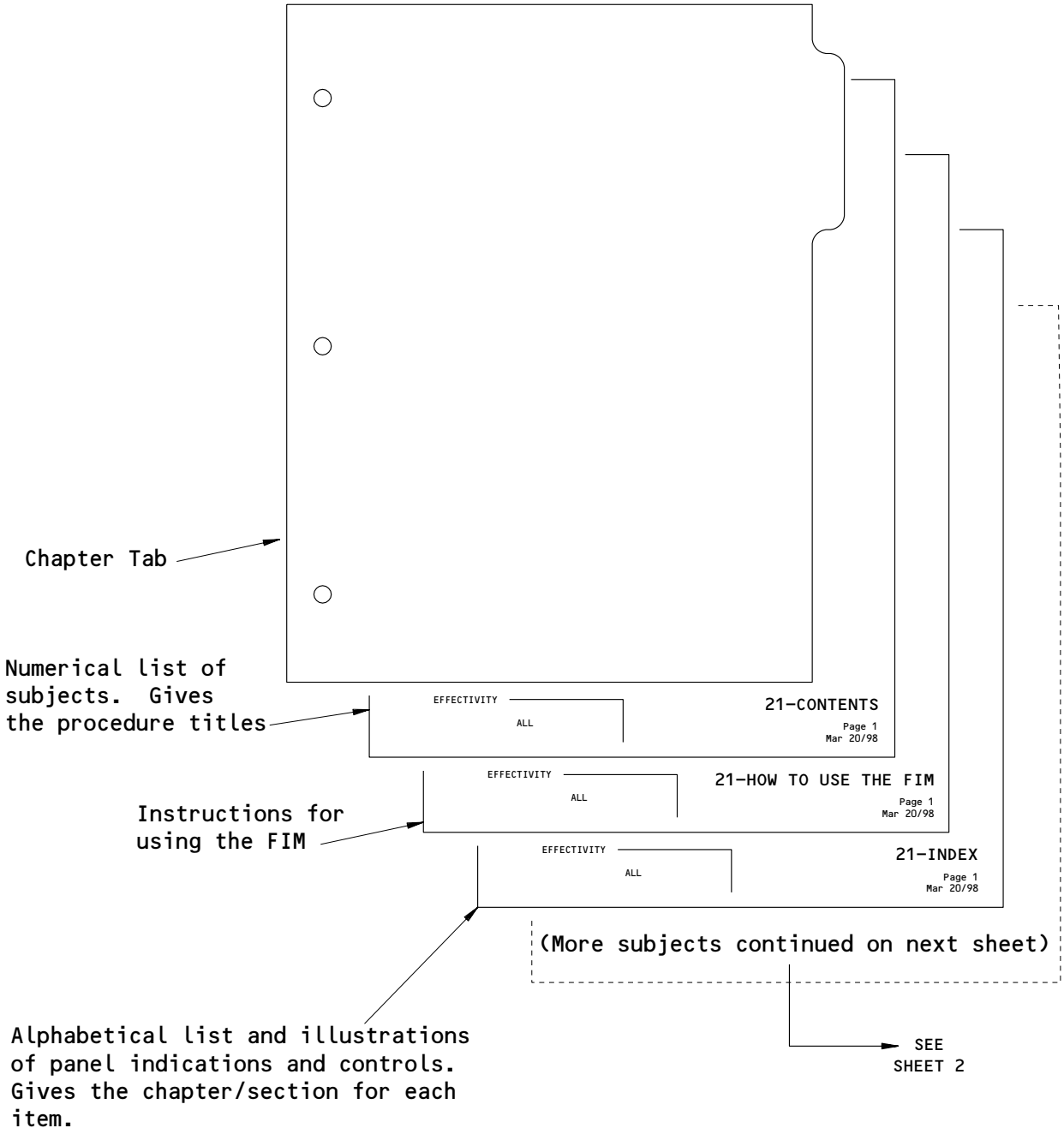
PREREQUISITES

- This box gives the steps to get the airplane from the normal shutdown condition to the configuration necessary to do the fault isolation procedure.
- The Prerequisites give procedure references, circuit breakers, and special tools and equipment requirements.

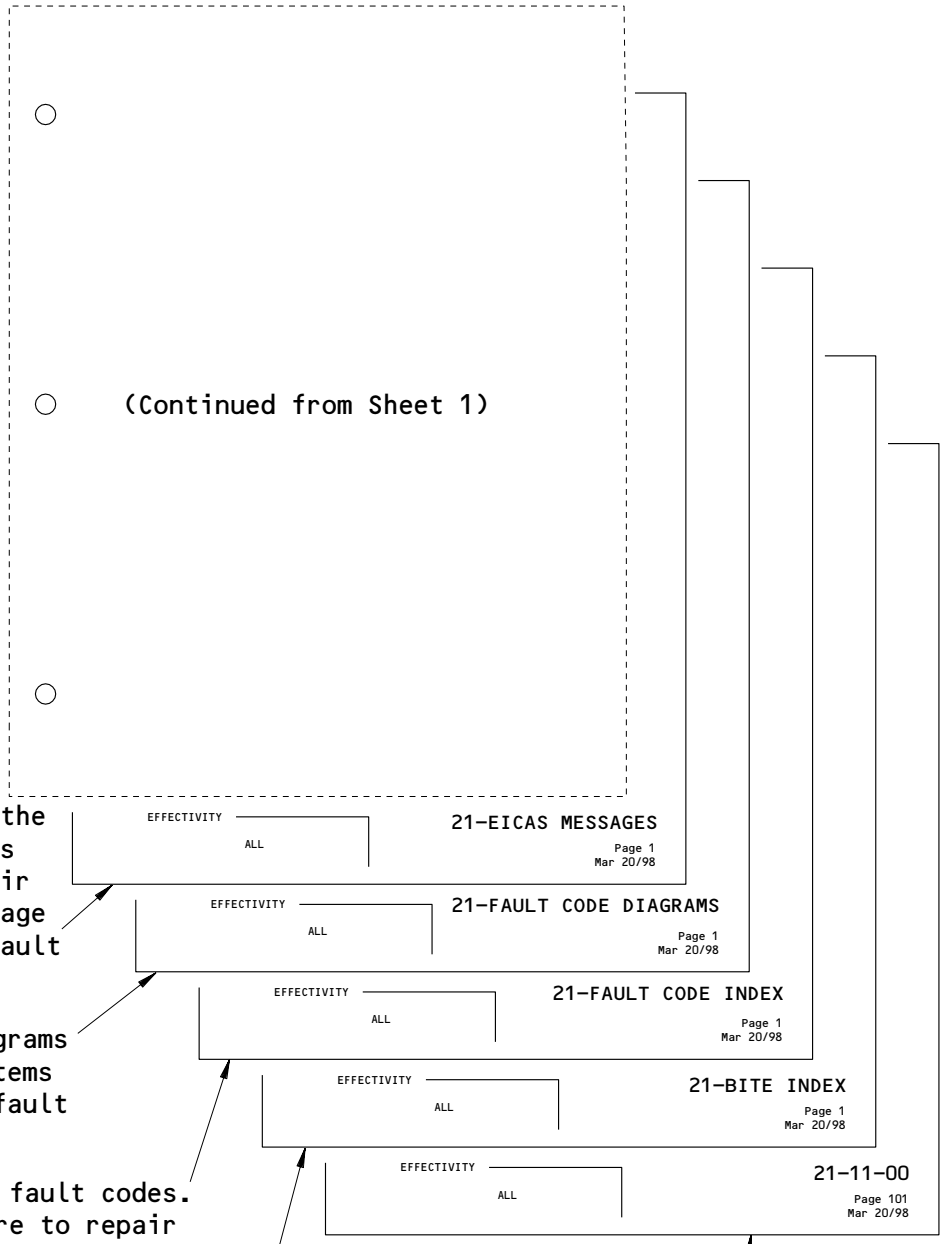
FAULT ISOLATION BLOCKS

- Start the fault isolation procedure at block 1 unless specified differently.
- Do the check to get an answer to the question in the box. Follow the arrow that applies to your answer. This will go to the next check.
- When you get to a box in the column at the right of the page, you have isolated that fault. Do the steps in that box to repair the cause of the fault.
- Make sure that fault is corrected to complete the procedure.

Do the Fault Isolation Procedure
Figure 4



Subjects in Each FIM Chapter
Figure 5 (Sheet 1)



Alphabetical list of the EICAS messages. Gives the procedure to repair the cause of the message or a reference to a fault isolation procedure.

Failure analysis diagrams for the airplane systems to find the correct fault code for the fault.

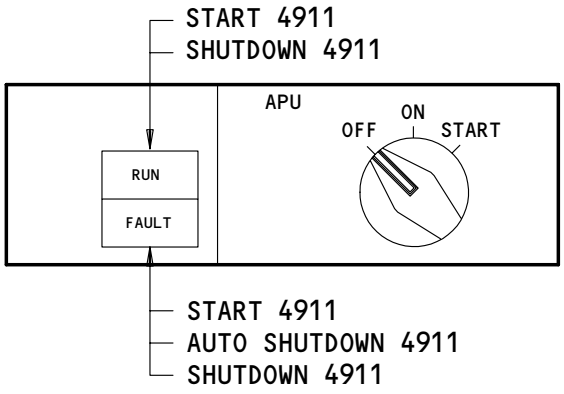
Numerical list of fault codes. Gives the procedure to repair the cause of the fault or a reference to a fault isolation procedure.

Alphabetical list of all the LRUs/systems that have BITE. Gives the chapter/section for the BITE procedure.

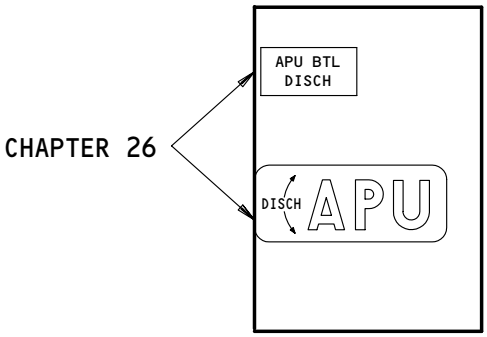
Component index, component location, and fault isolation procedures for the systems in the chapter.

Subjects in Each FIM Chapter
Figure 5 (Sheet 2)

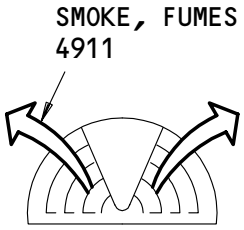
H54435



OVERHEAD PANEL

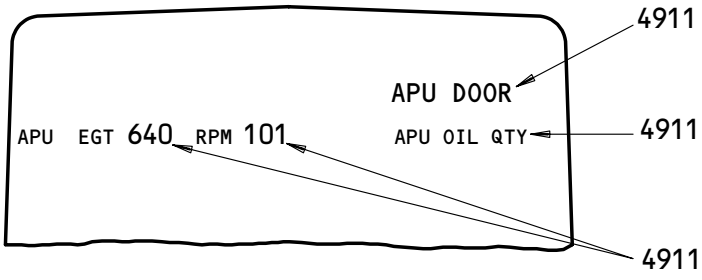


AFT ELECTRONIC CONTROL PANEL



FLT DECK & CABIN AIR OUTLETS

EICAS STATUS



PILOTS PANEL

APU – INDEX

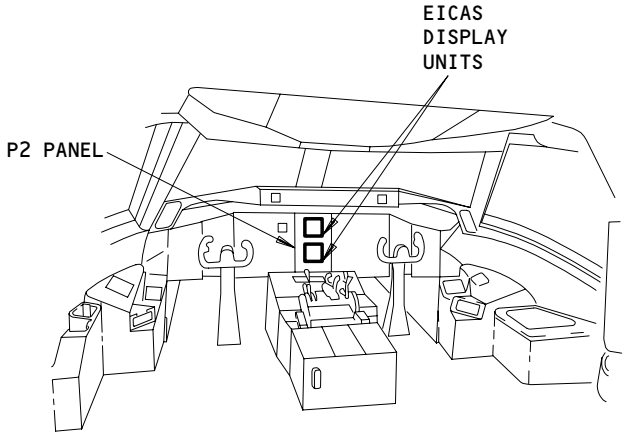
EFFECTIVITY

ALL

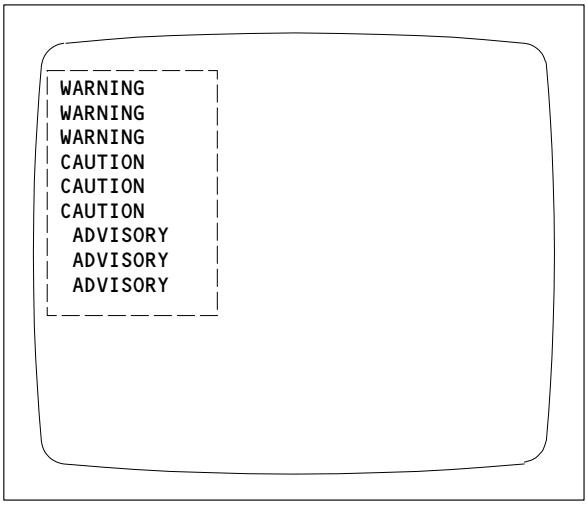
177099

AIRBORNE AUXILIARY POWER - EICAS MESSAGE LIST

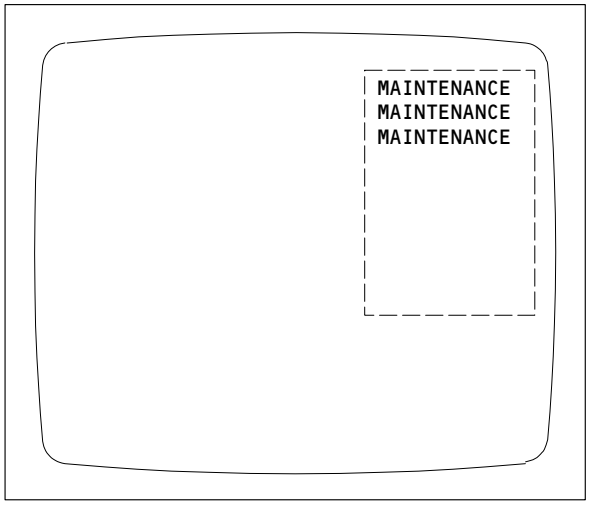
1. General
   A. This procedure shows the EICAS message locations and gives a list of procedures to find the solution for each message.
      (1) EICAS Message Locations (Fig. 1)
         (a) Figure 1 shows the location of the EICAS display units and the area where the messages show on the display units.
         (b) Each message level has a different location. The location and color of each message level is also shown.
      (2) The EICAS MESSAGE LIST gives the message, level, and procedure for each message.
         (a) The EICAS MESSAGE column lists the messages alphabetically. Messages which start with L, R, or C are put together and alphabetized at L.
         (b) The LEVEL column gives all levels for each message as follows:
            A - Warning messages
            B - Caution messages
            C - Advisory messages
            S - Status messages
            M - Maintenance messages
         (c) The PROCEDURE column gives the steps that are necessary to remove the message and includes one or more of the procedures that follow:
            1) A Fault Isolation Manual procedure reference
            2) A Maintenance Manual procedure and reference
            3) Wiring checks and a Wiring Diagram Manual reference
            4) A reference to an EICAS message list in a different chapter.
            5) A reference to a FAULT CODE INDEX and specified fault codes
            6) A step to change the airplane configuration



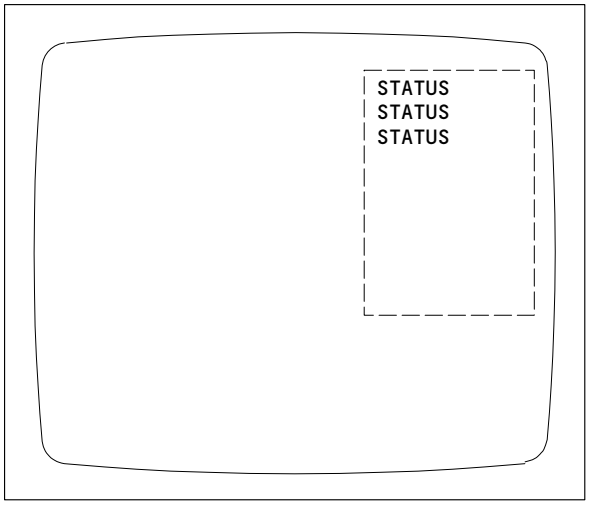
FLIGHT COMPARTMENT



ENGINE PRIMARY PAGE OR COMPACTED PAGE
(TOP DISPLAY UNIT)



ECS/MSG PAGE
(BOTTOM DISPLAY UNIT)

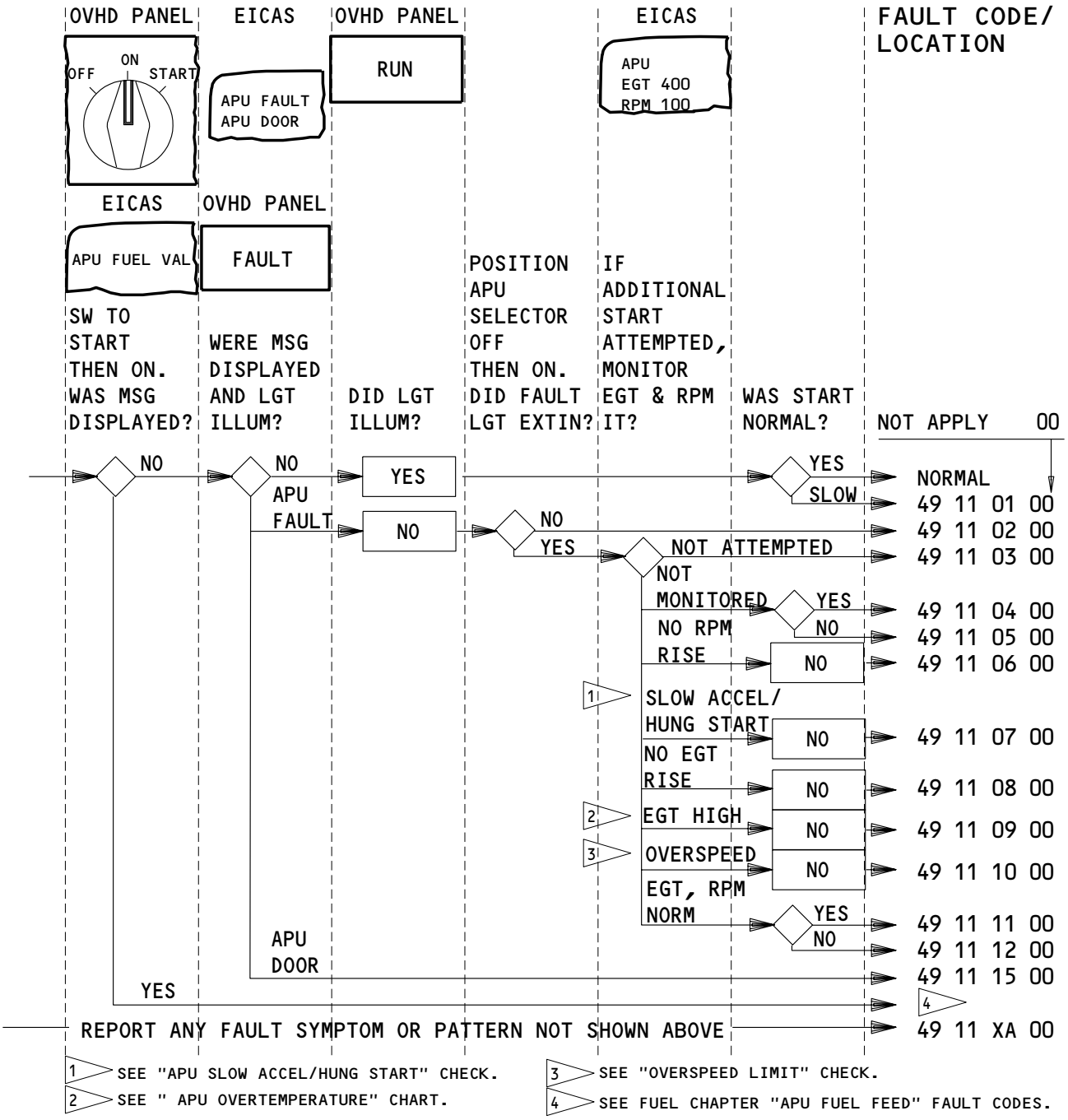


STATUS PAGE
(BOTTOM DISPLAY UNIT)

LEVEL	COLOR
A–WARNING	RED
B–CAUTION	YELLOW
C–ADVISORY	YELLOW
S–STATUS	WHITE
M–MAINTENANCE	WHITE

EICAS Message Locations
Figure 1

EICAS MESSAGE LIST		
EICAS MESSAGE	LEVEL	PROCEDURE
APU BAT CHGR	S, M	Go To 24-EICAS MESSAGES
APU BAT DISCH	C	Go To 24-EICAS MESSAGES
APU BAT NO STBY	S, M	Go To 24-EICAS MESSAGES
APU BITE	M	FIM 49-11-00/101, Fig. 103, Block 1
APU BLEED VAL	C	Go To 36-EICAS MESSAGES
APU DOOR	S, M	FIM 49-11-00/101, Fig. 104, Block 23
APU FAULT	C	FIM 49-11-00/101, Fig. 103, Block 1
APU FUEL VAL	C	Go To 28-EICAS MESSAGES
APU GEN OFF	C	Go To 24-EICAS MESSAGES
APU OIL QTY	S, M	FIM 49-11-00/101, Fig. 116, Block 1



APPLICABLE CIRCUIT BREAKERS AS INSTALLED

6E3	APU FUEL VALVES	11B34	APU (MN BAT, ALTN) CONT	11D35	DC PUMP CONT
6H12	APU START TRU CONT	11C33	DC PUMP (APU, PWR)		
6H23	L FWD FUEL BOOST PUMP	11D32	DISAGREE (ENABLE, ENBL) APU		

APU START – FAULT CODES

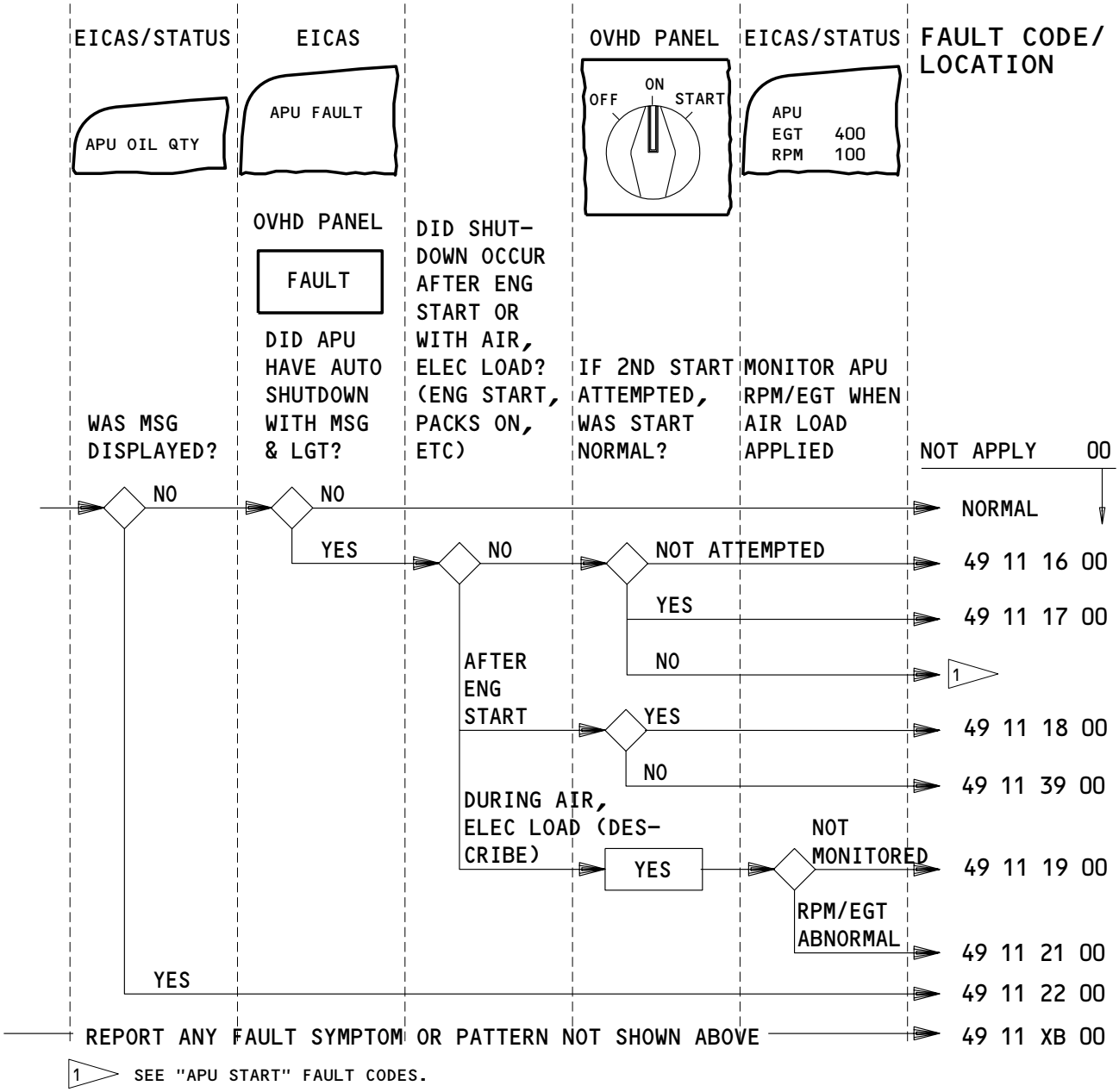
EFFECTIVITY

ALL

49-FAULT CODE DIAGRAM

02

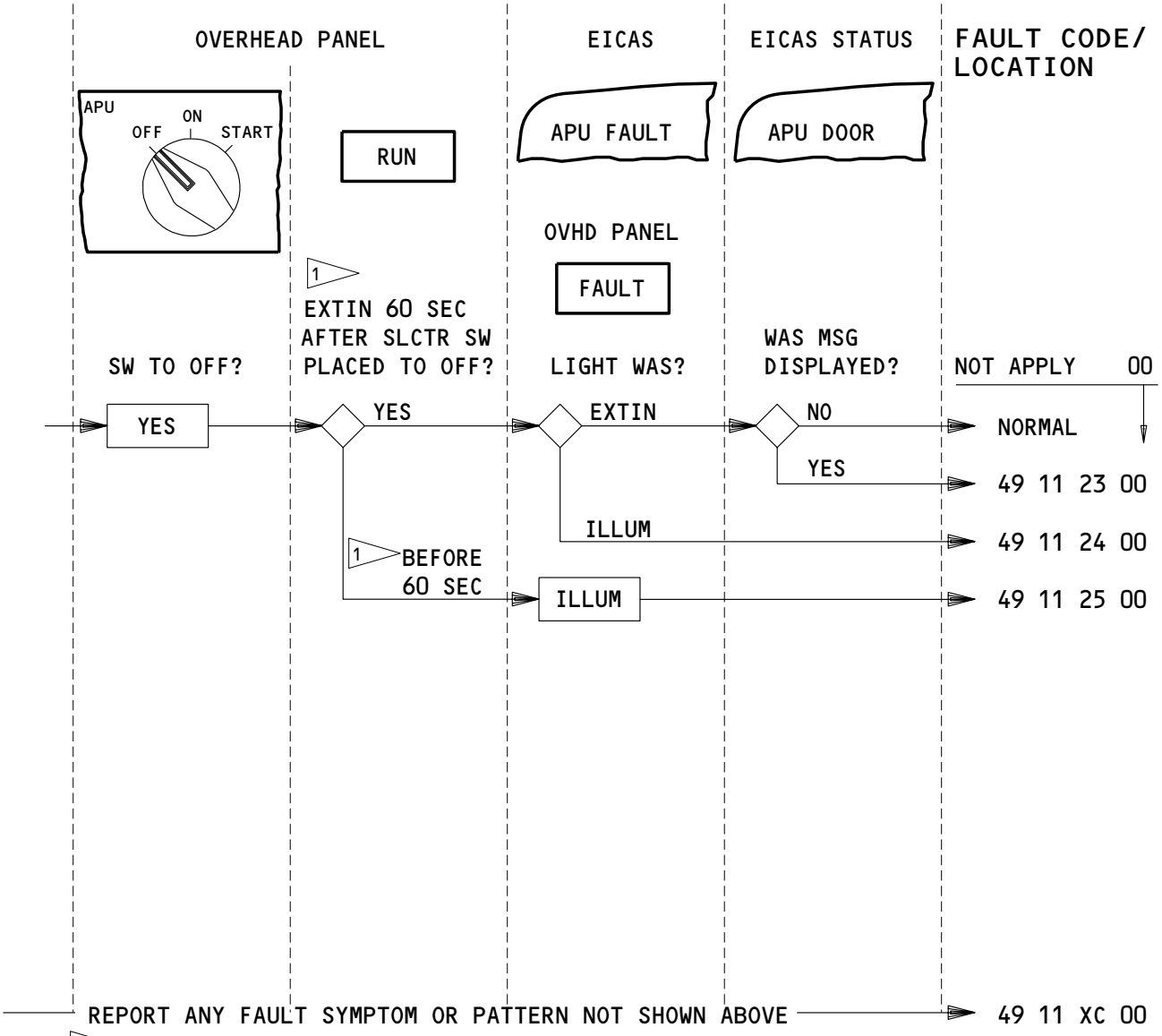
116197



APPLICABLE CIRCUIT BREAKERS AS INSTALLED

6E3	APU FUEL VALVES	11C33	DC PUMP APU	11D32	DISAGREE ENABLE APU
6H12	APU START TRU CONT	11C33	DC PUMP PWR	11D32	DISAGREE ENBL APU
11B34	APU ALTN CONT			11D35	DC PUMP CONT

APU AUTO SHUTDOWN/APU OIL QTY – FAULT CODES

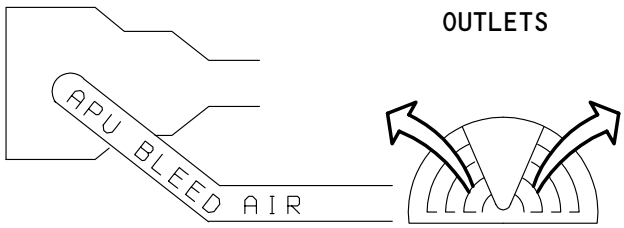


1 NOTE: CLOSING THE APU BLEED VALVE REDUCES WORKLOAD ON THE APU AND PERMITS APU COOLING BEFORE SHUTDOWN. APU RUN LIGHT WILL EXTIN BEFORE 60 SEC IF APU BLEED VALVE IS CLOSED BEFORE APU SLCTR SW IS PLACED TO OFF.

APPLICABLE CIRCUIT BREAKERS AS INSTALLED

6E3	APU FUEL VALVES	11D32	DISAGREE ENABLE APU
11B34	APU ALTN CONT	11D32	DISAGREE ENBL APU
11B34	APU MN BAT CONT	11D35	DC PUMP CONT
11C33	DC PUMP APU		
11C33	DC PUMP PWR		

APU SHUTDOWN – FAULT CODES



FAULT CODE/
LOCATION

DID APU DISCHARGE SMOKE, FUMES INTO CABIN?

NOT APPLY 00

NO

NORMAL

1

YES

49 11 26 00

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE

49 11 XD 00

1 DO NOT REPORT IF SMOKE FUMES ARE FROM OTHER SOURCES,
AS ENGINE EXHAUST, DE-ICE AGENT, ETC.

APPLICABLE CIRCUIT BREAKERS

NONE

SMOKE, FUMES FROM APU - FAULT CODES

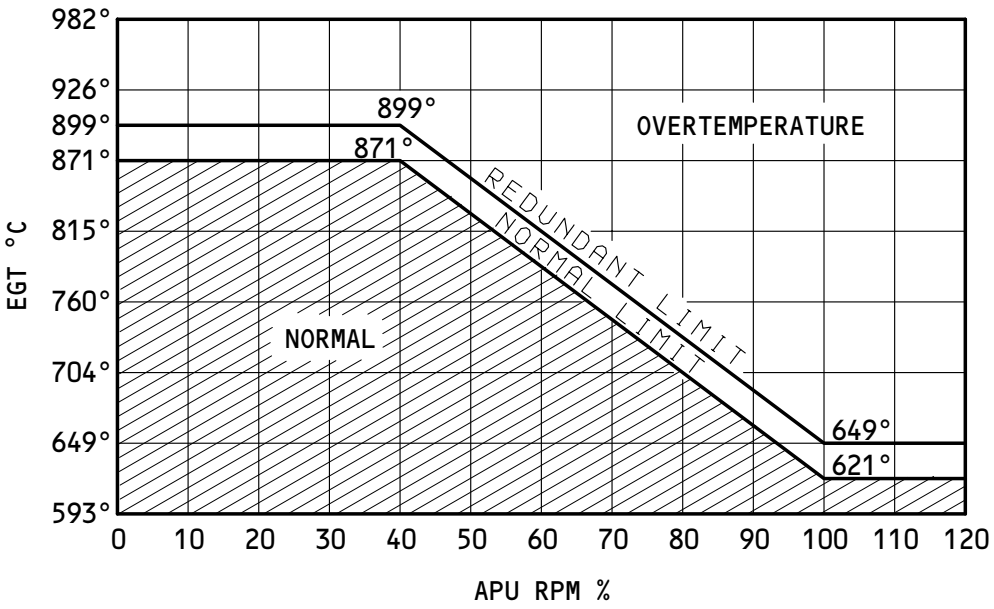
EFFECTIVITY

ALL

49-FAULT CODE DIAGRAM

CHART 1

APU OVERTEMPERATURE CHART



APU WILL SHUT DOWN AND FAULT LGT ILLUMINATE WITH EICAS MSG "APU FAULT" DISPLAYED, IF THE NORMAL LIMIT IS EXCEEDED FOR .5 SEC OR THE REDUNDANT LIMIT FOR .1 SEC.

CHARTS

CHECK 1

APU SLOW ACCEL/HUNG START CHECK

APU WILL SHUT DOWN AND FAULT LGT ILLUMINATE WITH EICAS MSG "APU FAULT" DISPLAYED IF THESE ACCELERATION LIMITS ARE NOT MET.

RPM %	TIME (SEC)	
NO ACCEL	5	
7	30	
20	50	
50	70	(ON GRD OR IN FLT BELOW 30,000')
50	100	(IN FLT ABOVE 30,000')

CHECK 2

OVERSPEED LIMIT

APU WILL SHUT DOWN AND FAULT LGT ILLUMINATE WITH EICAS MSG "APU FAULT" DISPLAYED IF 107% RPM LIMIT IS EXCEEDED.

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
49 11 XA 00	An APU start problem was encountered by the flight crew which is not covered by the fault code diagrams.	SSM 49-41-01
49 11 XB 00	An APU auto shutdown or oil quantity problem was encountered by the flight crew which is not covered by the fault code diagrams.	SSM 49-61-01
49 11 XC 00	An APU shutdown problem was encountered by the flight crew which is not covered by the fault code diagrams.	SSM 49-61-01
49 11 XD 00	An APU smoke, fumes from APU problem was encountered by the flight crew which is not covered by the fault code diagrams.	FIM 49-11-00/101, Fig. 122, Block 1
49 11 01 00	APU slow to start, ____ sec elapsed before RUN light turned on.	FIM 49-11-00/101, Fig. 104, Block 1
49 11 02 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. APU selector positioned OFF then ON, light and message remained.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 03 00	APU failed to start. RUN light off, FAULT light on and EICAS APU FAULT message displayed. (describe additional indications such as: RPM, EGT, etc.).	FIM 49-11-00/101, Fig. 103, Block 1
49 11 04 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. APU started normal on next attempt.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 05 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. Additional start attempts unsuccessful.	FIM 49-11-00/101, Fig. 103, Block 1

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
49 11 05 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. Second attempt indicates no RPM rise.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 07 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. Second attempt indicates slow accel, hung start.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 08 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. Second attempt indicates no EGT rise.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 09 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. Second attempt indicates EGT high.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 10 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. Second attempt indicates APU overspeed.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 11 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. Second start norm, EGT & RPM norm.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 12 00	APU failed to start. FAULT light on and EICAS message APU FAULT displayed. Second attempt shows norm EGT & RPM, but APU quit.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 15 00	APU failed to start. EICAS megs APU DOOR & APU FAULT displayed & FAULT lgt on when sw placed to START.	FIM 49-11-00/101, Fig. 104, Block 23
49 11 16 00	APU shutdown, FAULT light on and EICAS APU FAULT message displayed.	FIM 49-11-00/101, Fig. 103, Block 1

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
49 11 17 00	APU had auto shutdown, FAULT light on and EICAS message APU FAULT displayed. Next start attempt normal.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 18 00	APU had auto shutdown after eng start. FAULT light on and EICAS message EICAS msg APU FAULT displayed. Next start attempt normal.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 19 00	APU had auto shutdown during eng start, packs on, etc. FAULT light on and EICAS message APU FAULT displayed. Next start attempt normal.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 22 00	EICAS message APU OIL QTY displayed.	FIM 49-11-00/101, Fig. 116, Block 1
49 11 23 00	EICAS message APU DOOR remains displayed after APU shutdown.	FIM 49-11-00/101, Fig. 104, Block 23
49 11 24 00	APU fault during shutdown. FAULT light on and EICAS APU FAULT message displayed.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 25 00	APU shut down prior to 60-second cool down period. FAULT light on and EICAS APU FAULT message displayed.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 26 00	(Smoke, Fumes) Coming into cabin from APU.	FIM 49-11-00/101, Fig. 122, Block 1
49 11 27 00	EICAS APU BITE message displayed.	FIM 49-11-00/101, Fig. 103, Block 1
49 11 28 00	EICAS message APU DOOR displayed.	FIM 49-11-00/101, Fig. 104, Block 23
49 11 29 00	EICAS APU OIL QTY msg displayed.	FIM 49-11-00/101, Fig. 116, Block 1
49 11 30 --	(01=L,02=R) Engine slow to start using APU air. Duct press low, _____ psi.	FIM 49-11-00/101, Fig. 120, Block 1

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
49 11 31 --	(O1=L,O2=R) Engine N3 failed to rotate with start selector in GND, duct press was low, ___ psi with start vlv open. APU was press source.	FIM 49-11-00/101, Fig. 120, Block 1
49 11 32 --	(O1=L,O2=R) Engine low max N3 motoring speed during start, duct press was low with start vlv open.	FIM 49-11-00/101, Fig. 120, Block 1
49 11 33 00	L and R duct pressure zero with APU running, APU bleed air switch ON, and VALVE light off.	FIM 49-11-00/101, Fig. 118, Block 1
49 11 34 00	L and R duct press low with APU suppling pneumatic system.	FIM 49-11-00/101, Fig. 120, Block 1
49 11 35 00	L and R duct press fluctuates with APU supplying pneumatic system.	FIM 49-11-00/101, Fig. 119, Block 1
49 11 36 00	APU generator OFF light off and EICAS message APU GEN OFF displayed when packs operated engine started.	Replace the inlet pressure (P2) sensor YBMTS4 (AMM 49-61-04/201). If the problem continues, replace the fuel control unit YBMM4 (AMM 49-31-01/401).
49 11 39 00	APU shutdown after eng start, FAULT light on and EICAS APU FAULT message displayed. Next start attempt abnormal.	FIM 49-11-00/101, Fig. 103, Block 1
49 72 01 00	APU hours indicator does not advance normally with APU operating.	Replace the APU hourmeter (WDM 49-72-11). If the problem continues, examine circuit from the E6 rack APU TOTALIZER circuit breaker to the hourmeter terminals. Repair any problems that you find.

BITE Index

1. General
   A. Use this index to find the BITE procedure for the applicable LRU/System.
   B. The BITE procedure will provide the fault isolation instructions for the fault indications/LRU maintenance messages.

LRU/System Name	Acronym	FIM Reference
Air Data Computer	ADC	34-12
Air Data Inertial Reference Unit	ADIRU	34-26
Air Traffic Control Transponder	ATC	34-53
Airborne Vibration Monitor Signal Conditioner	AVM	77-31
Antiskid/Autobrake Control Unit		32-42
APU Fire Detection System		26-15
Automatic Direction Finder Receiver	ADF	34-57
APU Control Unit	ECU	49-11
Brake Temperature Monitor Unit		32-46
Bus Power Control Unit	BPCU	24-20
Cabin Pressure Controller		21-30
Digital Flight Data Acquisition Unit	DFDAU	31-31
Distance Measuring Equipment Interrogator	DME	34-55
Duct Leak (Wing and Body)		26-18
E/E Cooling Control Card (If cards installed)		21-58
ECS Bleed Configuration Card		36-10
Electronic Engine Control (RR Engines)	EEC	73-21
Electronic Engine Control Monitor Unit (PW Engines)	EECM	71-EPCS Message Index
Electronic Flight Instrument System	EFIS	34-22
Electronic Propulsion Control System (PW Engines)	EPCS	71-EPCS Message Index
Engine Fire/Overheat Detection System		26-11
Engine Indication and Crew Alerting System Computer	EICAS	31-41

Bite Index
Figure 1 (Sheet 1)

LRU/System Name	Acronym	FIM Reference
Engine Turbine Cooling Overheat Detection System (RR Engines)		26-13
Enhanced Ground Proximity Warning Computer	EGPWC	34-46
Flap/Slat Accessory Module	FSAM	27-51
Flap/Slat Electronic Unit	FSEU	27-51
Flight Management Computer	FMC	34-61
Fuel Quantity Indicating System Processor	FQIS	28-41
Ground Proximity Warning Computer	GPWC	34-46
HF (High Frequency) Communication		23-11
Inertial Reference Unit	IRU	34-21
Instrument Comparator Unit	ICU	34-25
Instrument Landing System Receiver	ILS	34-31
Lower Cargo Compartment Smoke Detection System		26-16
Maintenance Control Display Panel	MCDP	22-00
PA (Passenger Address) Amplifier		23-31
Pack Standby Temperature Controller		21-51
Pack Temperature Controller		21-51
Passenger Entertainment System	PES	23-34
Power Supply Module (Control System Electronics Units)	PSM	27-09
Propulsion Discrete Interface Unit (PW Engines)	PDIU	73-21
Proximity Switch Electronics Unit	PSEU	32-09
Radio Altimeter Transmitter/Receiver	RA	34-33
Rudder Ratio Changer Module	RRCM	27-09
Spoiler Control Module	SCM	27-09
Stabilizer Position Module	SPM	27-48
Stabilizer Trim/Elevator Asymmetry Limit Module	SAM	27-09
Stall Warning Computer/Module (in Warning Electronic Unit)	SWC	27-32
Strut Overheat Detection System (RR Engines)		26-12

Bite Index
Figure 1 (Sheet 2)

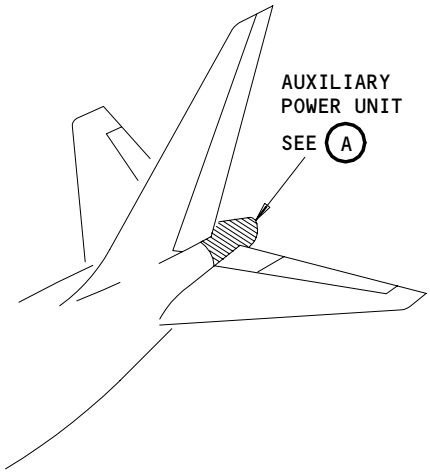
LRU/System Name	Acronym	FIM Reference
Thrust Management Computer/Autothrottle	TMC	22-00
Traffic Alert and Collision Avoidance Computer	TCAS	34-45
VHF (Very High Frequency) Communication		23-12
VOR/Marker Beacon Receiver	VOR/MKR	34-51
Warning Electronic Unit BITE Module (Stall Warning)	WEU	27-32
Weather Radar Transceiver	WXR	34-43
Wheel Well Fire Detection		26-17
Window Heat Control Unit	WHCU	30-41
Yaw Damper Module	YDM	22-21
Yaw Damper/Stabilizer Trim Module	YSM	27-09
Zone Temperature Controller		21-60

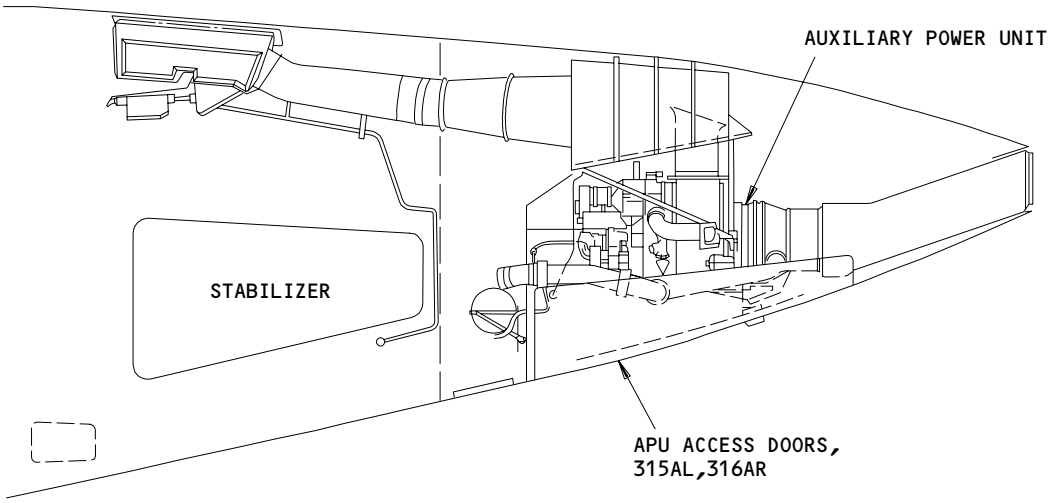
Bite Index
Figure 1 (Sheet 3)

AUXILIARY POWER UNIT

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
AUXILIARY POWER UNIT	--	1	316AR,315AL, APU COMPT	49-11-01

Auxiliary Power Unit - Component Index
Figure 101





AUXILIARY POWER UNIT

A

Auxiliary Power Unit - Component Location
Figure 102

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT,APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

APU BITE PROCEDURE

1 PUT THE APU MASTER CONTROL SWITCH ON P5 TO "OFF".
MAKE SURE THE APU SPEED IS BELOW 7%.
MOVE THE TEST SWITCH ON THE APU CONTROL UNIT (ECU), M206, IN THE AFT EQUIPMENT CENTER TO "LAMP TEST".
DO ALL LIGHTS IN THE FIVE COLUMNS OF INDICATORS COME ON, COLUMN BY COLUMN, FROM LEFT TO RIGHT?

NOTE: IF YOU HOLD THE SWITCH IN POSITION DURING THE LAMP TEST AND FOR 10 SECONDS AFTER, THE ECU WILL SHOW MINIFLAGS. THE MINI-FLAG NUMBERS WILL SHOW ON THE LAMPS ON THE ECU FRONT PANEL.

TURN YOUR HEAD CLOCK-WISE 90 DEGREES TO READ THE MINIFLAGS. THE MINIFLAGS ARE FOR INFORMATION ONLY. DO NOT USE THE MINIFLAG DATA AS AN ALTERNATIVE TO THE FAULT ISOLATION PROCEDURES. THE MINI-FLAG DESCRIPTIONS ARE IN TABLE C.

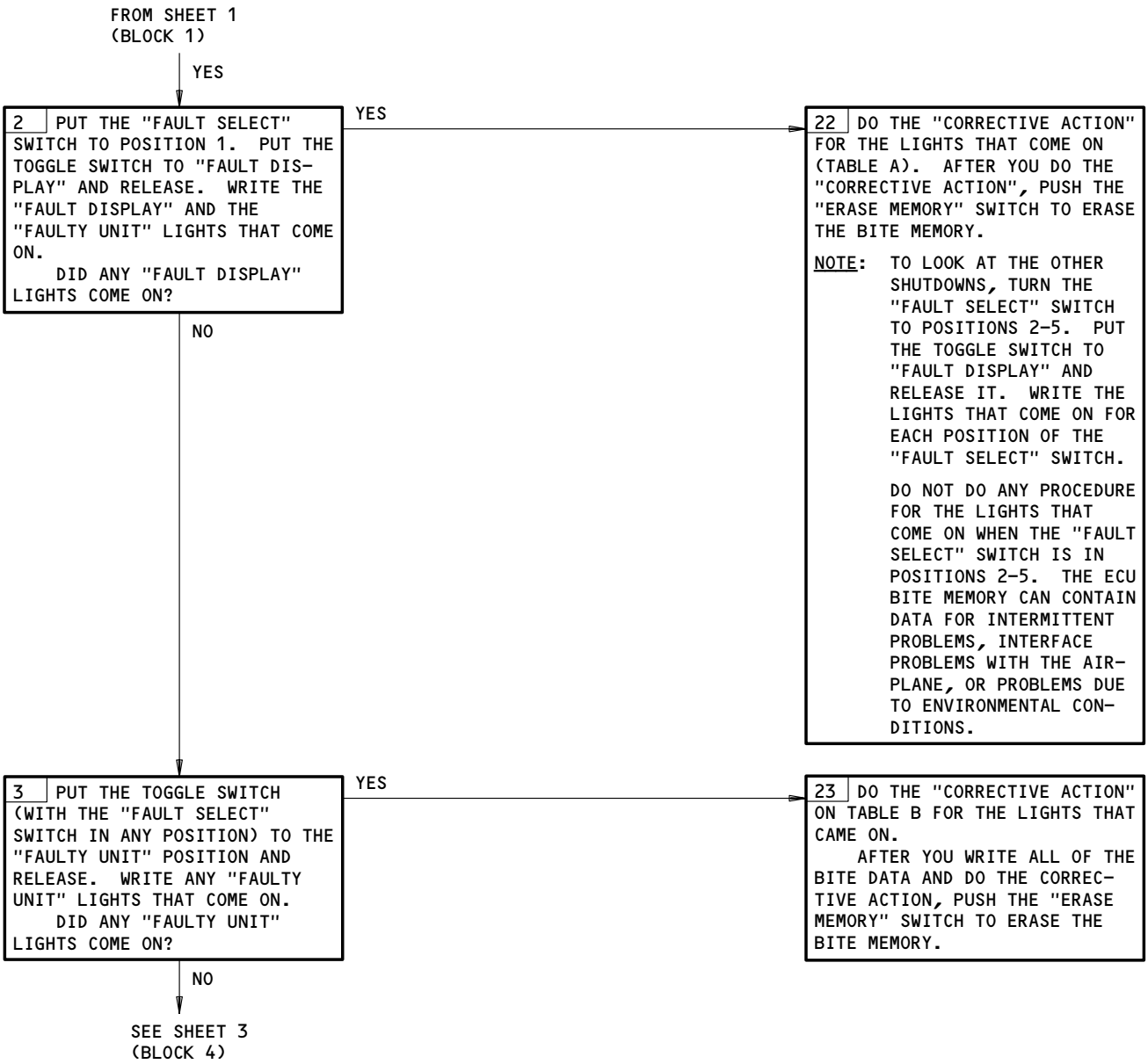
THE LAMPS THAT COME ON AFTER THE MINIFLAGS ARE USED BY THE APU MANUFACTURER ONLY.

NO → 21 IF ALL OF THE LIGHTS DO NOT COME ON, REPLACE THE ECU, M206 (AMM 49-61-05/201).
IF ONE OR TWO LIGHTS DO NOT COME ON, COMPLETE THE BITE PROCEDURE (FIG. 103, BLOCK 2) TO GET THE HISTORY DATA, THEN REPLACE THE ECU, M206 (AMM 49-61-05/201).
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUITS FROM THE ECU, CONNECTOR D1796C, PIN 9 (GND, PIN 11), TO CIRCUIT BREAKERS "APU ALTN CONT" (11B34) AND "APU CONT" ON THE E6 RACK (WDM 49-61-11).
REPAIR THE PROBLEMS THAT YOU FIND.

YES

SEE SHEET 2
(BLOCK 2)

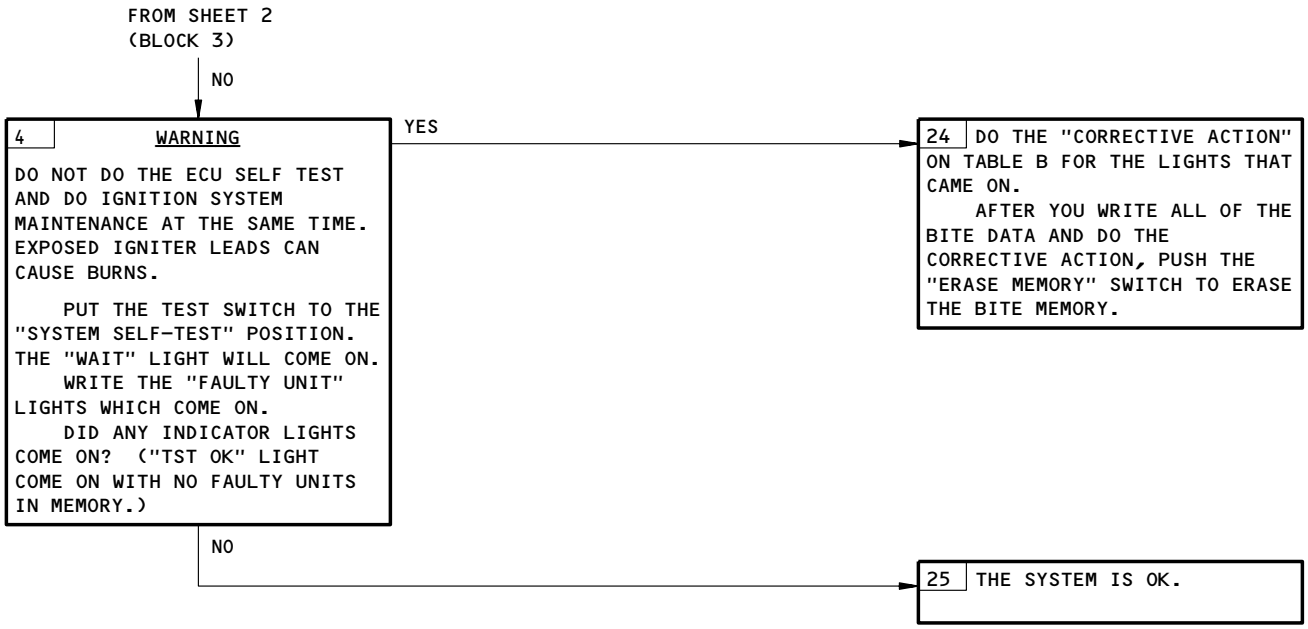
APU BITE Procedure
Figure 103 (Sheet 1)



APU BITE Procedure
Figure 103 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH THE APU
CONTROL UNIT -18 AND BEFORE

138982



MESSAGE	CORRECTIVE ACTION
ECU	REPLACE THE ECU, M206 (AMM 49-61-05/201).
NO ACCEL	FIG. 105.
SLOW START	FIG. 106.
NO FLAME	FIG. 107.
REVERSE FLOW	FOR AN APU START SHUTDOWN, TIGHTEN THE INLET TEMPERATURE SENSOR FOR THE LOAD COMPRESSOR (LCIT), YBMTS5 CONNECTIONS. IF THE PROBLEM CONTINUES, REPLACE THE SURGE VALVE, YBMM5 (AMM 49-53-01/401). FOR AN APU GOVERNED SPEED SHUTDOWN, DO THIS PROCEDURE: AUTO SHUTDOWN DURING GOVERNED SPEED - "REVERSE FLOW" ON BITE (FIG. 108).
DC PWR LOSS	FIG. 104, BLOCK 22.
LOP	FIG. 109.
INLET DOOR	FIG. 104, BLOCK 23.
S/D CIRCUIT	REPLACE THE ECU, M206 (AMM 49-61-05/201). IF THE PROBLEM CONTINUES, REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401).
HOT	FIG. 110.
OVER SPEED	FIG. 111.
GEN FILTER	FIG. 112.
FIRE EMERG	LOOK AT THE AIRPLANE LOG BOOK AND THE APU COMPARTMENT FOR SIGNS OF A REPORTED FIRE. IF FIRE DAMAGE SHOWS, REPAIR OR REPLACE THE DAMAGED COMPONENTS. MAKE SURE THAT THE APU CONTROL SWITCH ON THE P5 PANEL IS "OFF" AND MOVE THE MAIN BATTERY SWITCH ON THE P5 PANEL "ON" THEN "OFF". IF THERE IS NO LOG BOOK REPORT OR SIGNS OF FIRE DAMAGE, DO THE BITE PROCEDURE FOR THE APU FIRE DETECTION SYSTEM (FIM 26-15-00/101, FIG. 103).
OVER TEMP	FIG. 113.
FAILED SENSOR	FIG. 114.

FAULT DISPLAY REFERENCE
TABLE A

APU BITE Procedure
Figure 103 (Sheet 3)

MESSAGE	CORRECTIVE ACTION	IF PROBLEM CONTINUES
LCIT SENSOR	REPLACE THE LCIT SENSOR, YBMTS5 (AMM 49-61-03/401). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS E6 AND E7, TO THE INLET TEMPERATURE SENSOR (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
FUEL SOL	REPLACE THE FUEL SOLENOID VALVE, YBMV1 (AMM 49-31-02/401).	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS F6 AND F7, TO THE VALVE CONNECTOR, PINS 1,2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
PT SENSOR	REPLACE THE FLOW SENSING MODULE (AMM 49-53-08/401).	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A1,A2,A3, AND A4, TO THE PT TRANSDUCER CONNECTOR, PINS 1,2,3, AND 4 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
ΔP SENSOR	REPLACE THE FLOW SENSING MODULE (AMM 49-53-08/401).	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A1,A2,B3, AND B4, TO THE ΔP TRANSDUCER CONNECTOR, PINS 1,2,3, AND 4 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
NO. 1 SPD SENSOR	REPLACE THE RIGHT MONOPOLE, YBMTS8 (AMM 49-61-02/401). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A10 AND A11, TO THE MONOPOLE CONNECTOR, PINS 1,2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
NO. 2 SPD SENSOR	REPLACE THE LEFT MONOPOLE, YBMTS9 (AMM 49-61-02/401). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS B5 AND B6, TO THE MONOPOLE CONNECTOR, PINS 1 AND 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
LOP SWITCH	REPLACE THE LOP SWITCH, YBMS2 (AMM 49-94-02/401). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN C5, TO THE LOP SWITCH CONNECTOR, PIN 1. EXAMINE THE CIRCUIT FROM THE LOP SWITCH CONNECTOR, PIN 2, TO GROUND (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
FUEL CONTROL	REPLACE THE FUEL CONTROL UNIT (THE TORQUE MOTOR, YBMM4, HAS A PROBLEM) (AMM 49-31-01/401).	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS H10 AND H11, TO THE TORQUE MOTOR CONNECTOR, PINS 1 AND 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
SURGE VALVE	REPLACE THE SURGE VALVE, YBMM5 (AMM 49-53-01/401).	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS G6 AND G7, TO THE TORQUE MOTOR CONNECTOR, PINS 1 AND 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
NO. 1 T/C RAKE	REPLACE THE LEFT SIDE THERMOCOUPLES, YBMTS6 (AMM 49-71-01/201). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A6 AND A7, TO THE THERMOCOUPLE RAKE NO. 1 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
NO. 2 T/C RAKE	REPLACE THE RIGHT SIDE THERMOCOUPLES, YBMTS7 (AMM 49-71-01/201). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A8 AND A9, TO THE THERMOCOUPLE RAKE NO. 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.

FAULTY UNIT REFERENCE
TABLE B

1 ERASE THE "APU BITE" MESSAGE IF IT SHOWS (FIM 31-41-00/101, FIG. 109).

APU BITE Procedure
Figure 103 (Sheet 4)

MESSAGE	CORRECTIVE ACTION	IF PROBLEM CONTINUES
IGV ACT	REPLACE THE IGV ACTUATOR, YBMM6 (AMM 49-52-02/401).	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS G8,G9,F9,F10,F11, AND F8, TO THE ACTUATOR CONNECTOR, PINS 1,2,3, 4,5, AND 6 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
IGN UNIT	REPLACE THE IGNITION UNIT, YBMM1 (AMM 49-41-03/401).	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796C, PINS 4 AND 6, TO THE IGNITION UNIT CONNECTOR, PINS 1 AND 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
DEOIL SOL	REPLACE THE DEOIL SOLENOID VALVE, YBMM3 (AMM 49-27-08/401). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS J4 AND J5, TO THE SOLENOID CONNECTOR, PINS 1 AND 2. EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN J10, TO THE OIL TEMP SWITCH, YBMS5, CONNECTOR, PIN 1 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
FLOW DIV SOL	REPLACE THE FUEL FLOW DIVIDER SOLENOID VALVE, YBMM2 (AMM 49-31-03/401). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS J7 AND J8, TO THE SOLENOID CONNECTOR, PINS 1 AND 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
ECS CONTROL	REPLACE THE ZONE TEMPERATURE CONTROL, M195 (AMM 21-61-03/401).	
APU STARTER	REPLACE THE APU STARTER MOTOR, M893 (AMM 49-41-01/201).	
STARTER CIRCUIT	SEE FIG. 106A.	
HOT SENSOR	REPLACE THE OIL TEMPERATURE (HOT) SENSOR, YBMTS1 (AMM 49-94-01/401). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS E4 AND E5, TO THE HOT SENSOR CONNECTOR, PINS A AND B (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
P2 SENSOR	REPLACE THE INLET PRESSURE (P2) SENSOR, YBMTS4 (AMM 49-61-04/201). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A1,A2,C8, AND C9, TO THE P2 SENSOR CONNECTOR, PINS 1,2,3, AND 4 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
ECU	REPLACE THE APU CONTROL UNIT (ECU), M206 (AMM 49-61-05/201).	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN J10, TO THE OIL TEMP SWITCH, YBMS5, CONNECTOR, PIN 1 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.

FAULTY UNIT REFERENCE
TABLE B

APU BITE Procedure
Figure 103 (Sheet 5)

MESSAGE	CORRECTIVE ACTION	IF PROBLEM CONTINUES
FAN VALVE	APU WITHOUT THE FAN ISOLATION VALVE (POST-ALLIEDSIGNAL-SB 49-7391); IGNORE THIS MESSAGE, IT IS A NUISANCE MESSAGE. 1 APU WITH THE FAN ISOLATION VALVE (PRE-ALLIEDSIGNAL-SB 49-7391); REPLACE THE FAN ISOLATION VALVE, YBMS4 (AMM 49-51-02/401). 1	APU WITH THE FAN ISOLATION VALVE CONNECTED TO THE FIRST-STAGE COMPRESSOR (PRE-ALLIEDSIGNAL-SB 49-7391; POST-ALLIEDSIGNAL-SB 49-7192); EXAMINE THE CONDITION OF THE LINE FROM THE FAN ISOLATION VALVE TO THE FIRST-STAGE COMPRESSOR. REPAIR THE LINE IF IT IS NECESSARY. 1 APU WITH THE FAN ISOLATION VALVE CONNECTED TO THE SURGE VALVE (PRE-ALLIEDSIGNAL-SB 49-7391; PRE-ALLIEDSIGNAL-SB 49-7192); EXAMINE THE CONDITION OF THE LINE FROM THE FAN ISOLATION VALVE TO THE SURGE VALVE. REPAIR THE LINE IF IT IS NECESSARY. 1 IF THE PROBLEM CONTINUES, REPLACE THE SURGE CONTROL VALVE FILTER (AMM 49-53-06/201). EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D408B, PIN B10, TO THE FAN VALVE SWITCH CONNECTOR, PIN 1. EXAMINE THE CIRCUIT FROM THE SWITCH CONNECTOR, PIN 2, TO GROUND (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND. IF THERE WAS A HEAT PROBLEM, EXAMINE THE FAN INLET DUCT FOR DAMAGE. REPAIR THE PROBLEMS THAT YOU FIND.
FILTER SWITCH	REPLACE THE GENERATOR ΔP SWITCH, YBMS1 (AMM 49-27-15/401). 1	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN D11, TO THE FILTER SWITCH CONNECTOR, PIN 1. EXAMINE THE CIRCUIT FROM THE SWITCH CONNECTOR, PIN 2, TO GROUND (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
A/C RELAY	REPLACE RELAY, K175 (WDM 49-61-11).	REPLACE RELAY, K176 (WDM 49-61-11).

FAULTY UNIT REFERENCE
TABLE B

APU BITE Procedure
Figure 103 (Sheet 6)

NOTE: THE MINIFLAGS ARE FOR INFORMATION ONLY. DO NOT USE THE MINIFLAG DATA AS AN ALTERNATIVE TO THE FAULT ISOLATION PROCEDURES.

NUMBER	DESCRIPTION
1	SPEED SIGNAL NO. 1 IS NOT FUNCTIONING. THE SPEED SENSOR NO. 1 OR WIRING IS NOT PROVIDING PROPER INPUT AT SPEEDS GREATER THAN 50%.
2	SPEED SIGNAL NO. 2 IS NOT FUNCTIONING. THE SPEED SENSOR NO. 2 OR WIRING IS NOT PROVIDING PROPER INPUT AT SPEEDS GREATER THAN 50%.
3	ECU SPEED CONVERTER CIRCUIT IS FAILED. THE ECU SPEED CONVERTER CIRCUIT DOES NOT INTERPRET THE SPEED SIGNAL PROPERLY WHEN THE APU IS OPERATING AT SPEEDS GREATER THAN 50%.
4	FAILED ECU N/DC CONVERTER NO. 1 CIRCUIT. THE ECU CIRCUIT THAT CONVERTS THE NO. 1 SPEED SIGNAL TO A DC VOLTAGE IS NOT FUNCTIONING PROPERLY.
5	FAILED ECU N/DC CONVERTER NO. 2 CIRCUIT. THE ECU CIRCUIT THAT CONVERTS THE NO. 2 SPEED SIGNAL TO A DC VOLTAGE IS NOT FUNCTIONING PROPERLY.
6	FAILED ECU N/DC CONVERTER NO. 3 CIRCUIT. THE ECU REDUNDANT CIRCUIT THAT CONVERTS THE HIGHEST SPEED SIGNAL TO A DC VOLTAGE IS NOT FUNCTIONING PROPERLY.
9	LCIT SENSOR SIGNAL OUT OF RANGE. THE LCIT SENSOR CIRCUIT READS LESS THAN −100°F.
10	OIL TEMPERATURE SENSOR RESISTANCE OUT OF RANGE. THE OIL TEMPERATURE RESISTANCE IS NOT WITHIN THE RANGE OF 65 TO 208 OHMS (−110 TO +482°F).
11	FAILED EGT THERMOCOUPLE CIRCUIT NO. 1 SIGNAL OUT OF RANGE. THE THERMOCOUPLE CIRCUIT READS LESS THAN −100°F ABSOLUTE OR EGT THERMOCOUPLE NO. 2 READS +150°F MORE THAN EGT NO. 1. SEVERE POWER SECTION DISTRESS CAN ALSO CAUSE A LARGE VARIATION IN EGT NO. 1 AND NO. 2 READINGS.
12	FAILED EGT THERMOCOUPLE CIRCUIT NO. 2 SIGNAL OUT OF RANGE. THE THERMOCOUPLE CIRCUIT READS LESS THAN −100°F ABSOLUTE OR EGT THERMOCOUPLE NO. 1 READS +150°F MORE THAN EGT NO. 2. SEVERE POWER SECTION DISTRESS CAN ALSO CAUSE A LARGE VARIATION IN EGT NO. 1 AND NO. 2 READINGS.
14	FAILED TOTAL PRESSURE SENSOR/CIRCUIT. THE PT VALUE IS OUT OF ITS NORMAL OPERATING RANGE OR DIFFERS BY MORE THAN 3 PSIG FROM THE P2 SENSOR READING ON THE GROUND AT SPEEDS LESS THAN 12%. A MODERATELY SHIFTED P2 SENSOR OUTPUT COULD ALSO CAUSE THIS MINIFLAG.
15	FAILED DIFFERENTIAL PRESSURE SENSOR/CIRCUIT. THE DP VALUE IS OUT OF ITS NORMAL OPERATING RANGE.
16	FAILED AMBIENT PRESSURE (P2) SENSOR/CIRCUIT. THE P2 VALUE IS OUT OF ITS NORMAL OPERATING RANGE.
17	GENERATOR OIL FILTER SWITCH FAILED OPEN. THE NORMALLY CLOSED GENERATOR OIL FILTER SWITCH IS OPEN PRIOR TO APU OPERATION.
18	COOLING FAN ISOLATION VALVE FAILED. THE NORMALLY OPEN COOLING FAN ISOLATION VALVE SWITCH IS CLOSED PRIOR TO OPERATION OR OPEN DURING APU OPERATION.
19	LOP SWITCH CIRCUIT FAILED CLOSED. THE LOP SWITCH CIRCUIT IS CLOSED (SHORTED) PRIOR TO START.
21	ECU FLOW DIVIDER DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
22	CLOGGED GENERATOR FILTER.
23	ECS DEMAND SIGNAL OUT OF RANGE. THE ECS DEMAND SIGNAL IS LESS THAN −0.3V DC OR GREATER THAN 9.9V DC DURING APU OPERATION IN ECS MODE.
25	FUEL SOLENOID CIRCUIT FAILED. THE FUEL SOLENOID CIRCUIT IS OPEN OR SHORTED.
26	DEOIL SOLENOID CIRCUIT FAILED. THE DEOIL SOLENOID CIRCUIT IS OPEN OR SHORTED.

ECU MINIFLAG DESCRIPTION
TABLE C

APU BITE Procedure
Figure 103 (Sheet 7)

F55466

NUMBER	DESCRIPTION
27	FLOW DIVIDER SOLENOID CIRCUIT FAILED. THE FLOW DIVIDER SOLENOID CIRCUIT IS OPEN OR SHORTED.
28	IGNITION UNIT CIRCUIT FAILED. THE IGNITION UNIT CIRCUIT IS OPEN OR SHORTED.
29	ECU DEOIL SOLENOID DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
30	ECU FUEL SOLENOID DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
32	ECU IGNITION UNIT DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
33	ECU STARTER CIRCUIT DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
34	AIRPLANE STARTER CIRCUIT FAILED. VOLTAGE WAS FOUND AT THE START MOTOR AT GREATER THAN 95% SPEED OR NO START MOTOR VOLTAGE IS FOUND DURING START CYCLE.
35	START MOTOR FAILED. VOLTAGE EXISTS ON THE START MOTOR BUT NO APU ROTATION IS FOUND AFTER 30 SECONDS.
36	ECU SCV DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
37	ECU FUEL CONTROL TORQUE MOTOR DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
38	ECU IGV ACTUATOR DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER WAS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
39	ECU FUEL CONTROL TORQUE MOTOR DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
41	FUEL CONTROL TORQUE MOTOR FAILED. THE FUEL CONTROL TORQUE MOTOR CIRCUIT IS OPEN OR SHORTED.
42	IGV ACTUATOR FAILED. THE IGV TORQUE MOTOR OR LVDT IS SHORTED OR OPEN OR COMMANDED IGV POSITION DOES NOT AGREE WITH ACTUAL IGV POSITION BY 10 DEGREES FOR MORE THAN 6 SECONDS (SEE MINIFLAGS 106,126, AND 127 FIRST IF PRESENT).
43	SURGE CONTROL VALVE TORQUE MOTOR FAILED. THE SURGE CONTROL VALVE TORQUE MOTOR CIRCUIT IS OPEN OR SHORTED.
44	ECU EGT NO. 1 SIGNAL CONDITIONER FAILED. INTERNAL ECU FAILURE WAS FOUND.
45	ECU EGT NO. 2 SIGNAL CONDITIONER FAILED. INTERNAL ECU FAILURE WAS FOUND.
46	ECU OVERTEMPERATURE TEST FAILURE. INTERNAL ECU FAILURE WAS FOUND DURING APU SHUTDOWN.
47	INLET DOOR RELAY FAILED. AN OVERCURRENT WAS FOUND ON THE INLET DOOR RELAY CIRCUIT.
48	ECU FAILED. THIS MINIFLAG INDICATES INTERNAL ECU FAILURES AND IS SET BY MINIFLAGS 3-6,21, 29-33,39,44,45,46,65,83-89,92-100,105,107,112,116-119,121-124 OR 128. IT CAN ALSO BE SET BY MINIFLAGS 36,37, OR 38.
65	ECU HI-WINS SPEED CIRCUIT FAILURE. INTERNAL ECU FAILURE WAS FOUND.
75	AIRPLANE MAINTENANCE LAMP CIRCUIT OVERCURRENT
76	AIRPLANE BLEED AIR RELAY OVERCURRENT
77	AIRPLANE GENERATOR AVAILABLE RELAY OVERCURRENT
78	AIRPLANE FAULT RELAY OVERCURRENT

ECU MINIFLAG DESCRIPTION
TABLE C

APU BITE Procedure
Figure 103 (Sheet 8)

NUMBER	DESCRIPTION
80	LOP LAMP OVERCURRENT
81	HOT LAMP OVERCURRENT
83	ECU LCIT CONDITIONER FAILED. INTERNAL ECU FAILURE WAS FOUND.
84	ECU DEOIL SOLENOID DRIVER FAILED OPEN. INTERNAL ECU FAILURE WAS FOUND.
86	ECU AIRPLANE BLEED RELAY OPEN. INTERNAL ECU FAILURE WAS FOUND.
89	ECU FUEL SOLENOID DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
92	ECU IGNITION UNIT DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
94	ECU BLEED AIR DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
95	ECU FLOW DIVIDER DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
97	ECU STARTER RELAY DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
99	ECU BLEED AIR DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
100	ECU BLEED AIR DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
102	FAILED FUEL D/A CONVERTER. INTERNAL ECU FAILURE WAS FOUND.
103	FAILED IGV D/A CONVERTER. INTERNAL ECU FAILURE WAS FOUND.
104	FAILED SCV D/A CONVERTER. INTERNAL ECU FAILURE WAS FOUND.
105	ECU IGV ACTUATOR DRIVER FAILED OPEN. INTERNAL ECU FAILURE WAS FOUND.
106	IGV ACTUATOR TORQUE MOTOR FAILED. THE IGV ACTUATOR TORQUE MOTOR IS FAILED OPEN OR SHORT CIRCUIT.
107	ECU SCV DRIVER FAILED OPEN. INTERNAL ECU FAILURE WAS FOUND.
109	FAILED FUEL TORQUE MOTOR DRIVER WRAP AROUND. INTERNAL ECU FAILURE WAS FOUND.
110	FAILED IGV ACTUATOR DRIVER WRAP AROUND. INTERNAL ECU FAILURE WAS FOUND.
111	FAILED SCV TORQUE MOTOR DRIVER WRAP AROUND. INTERNAL ECU FAILURE WAS FOUND.
112	ECU MAGNETIC RELAY FAILED. THE ECU MAGNETIC LATCH WAS FOUND FAILED DURING SHUTDOWN.
114	FAILED STOP TIMER (N > 7% 120 SECONDS AFTER STOP OR SHUTDOWN).
116	ECU FAILED +15V DC POWER SUPPLY. INTERNAL ECU FAILURE WAS FOUND.
117	ECU FAILED -10V DC POWER SUPPLY. INTERNAL ECU FAILURE WAS FOUND.
118	ECU FAILED -15V DC POWER SUPPLY. INTERNAL ECU FAILURE WAS FOUND.
119	ECU FAILED +5V DC POWER SUPPLY. INTERNAL ECU FAILURE WAS FOUND.
120	ECU PRESSURE REFERENCE POWER SUPPLY FAILED LOW. 0V DC WAS FOUND ON THE REFERENCE POWER SUPPLY. THERE IS A POSSIBLE ECU FAILURE OR AN EXTERNAL SHORT.

ECU MINIFLAG DESCRIPTION
TABLE C

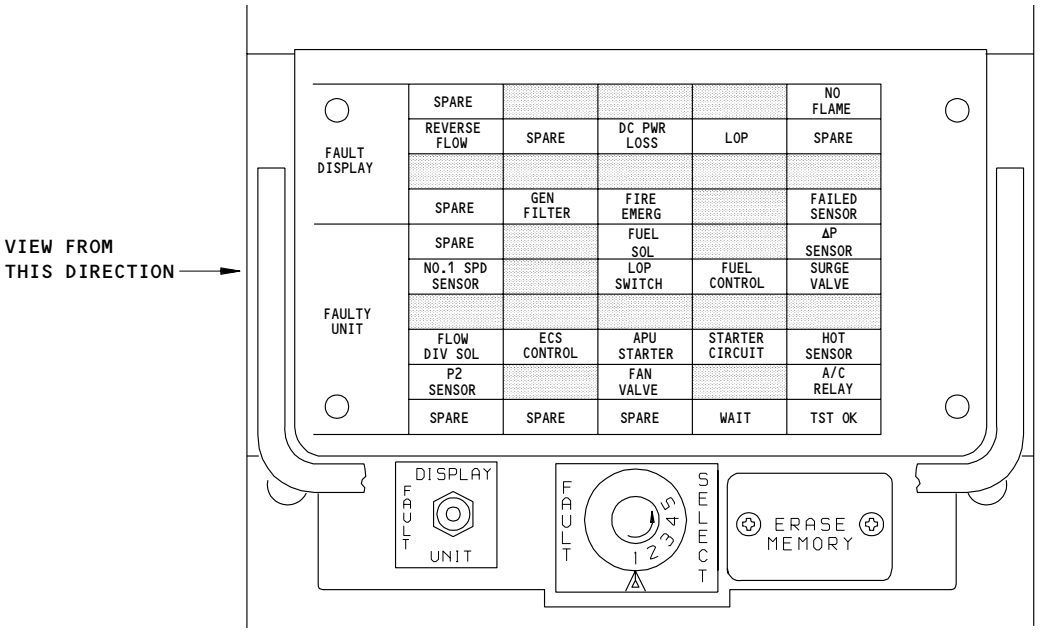
APU BITE Procedure
Figure 103 (Sheet 9)

F55472

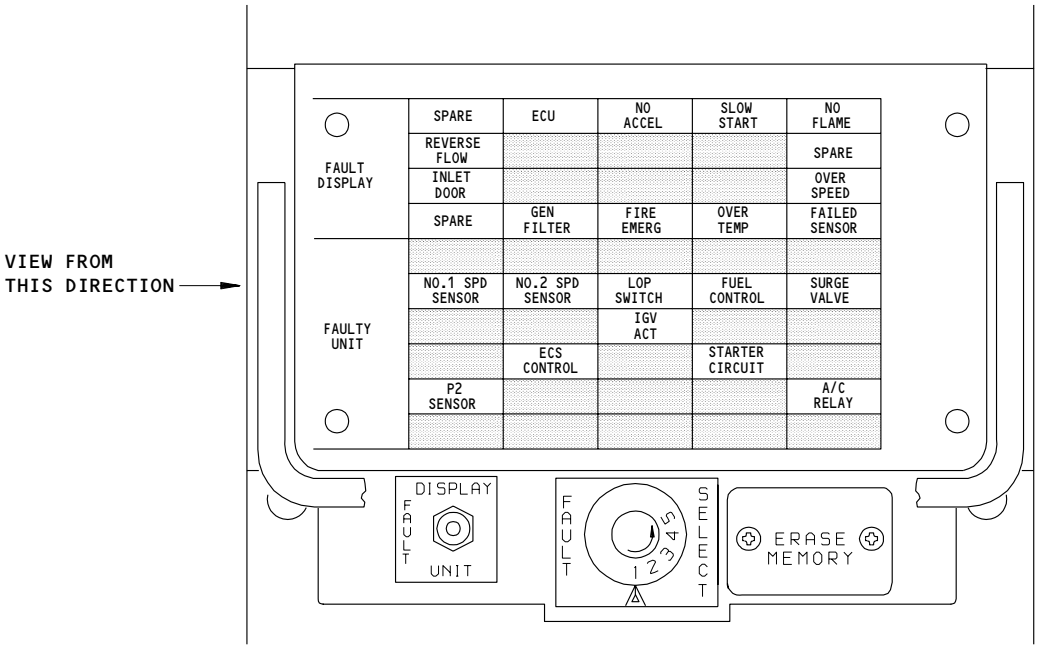
NUMBER	DESCRIPTION
121	ECU +10V A/D CONVERTER POWER SUPPLY FAILED LOW. INTERNAL ECU FAILURE WAS FOUND.
122	ECU +10V A/D CONVERTER POWER SUPPLY FAILED HIGH. INTERNAL ECU FAILURE WAS FOUND.
123	ECU 0V A/D CONVERTER REFERENCE FAILED LOW. INTERNAL ECU FAILURE WAS FOUND.
124	ECU 0V A/D CONVERTER REFERENCE FAILED HIGH. INTERNAL ECU FAILURE WAS FOUND.
126	IGV ACTUATOR LVDT VOLTAGE OUT OF RANGE. THE IGV ACTUATOR LVDT VOLTAGE IS OUT OF ITS EXPECTED RANGE.
127	IGV ACTUATOR LVDT SECONDARY VOLTAGE OUT RANGE. THE IGV ACTUATOR LVDT SECONDARY VOLTAGE IS OUT OF ITS EXPECTED RANGE.
128	IGV ACTUATOR LVDT PRIMARY VOLTAGE OUT OF RANGE. THE IGV ACTUATOR LVDT PRIMARY VOLTAGE IS OUT OF ITS EXPECTED RANGE.
	APU CONTROL UNIT -18 AND BEFORE; THERE ARE NO DIAGNOSTIC MINIFLAGS THAT ARE ACTIVE DURING APU OPERATION.

ECU MINIFLAG DESCRIPTION
TABLE C

APU BITE Procedure
Figure 103 (Sheet 10)



MINIFLAG "128"
(EXAMPLE OF A MINIFLAG DISPLAY ON ECU)



MINIFLAG "OK"
(EXAMPLE OF A MINIFLAG DISPLAY ON ECU)

APU BITE Procedure
Figure 103 (Sheet 11)

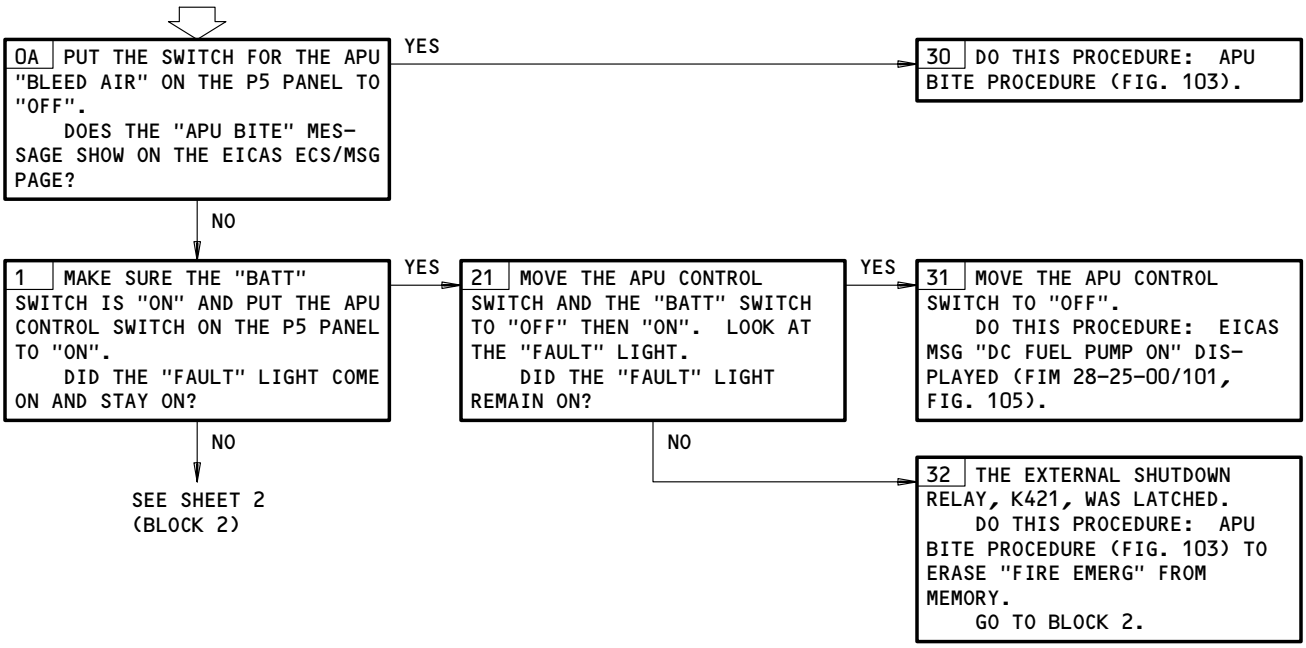
PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

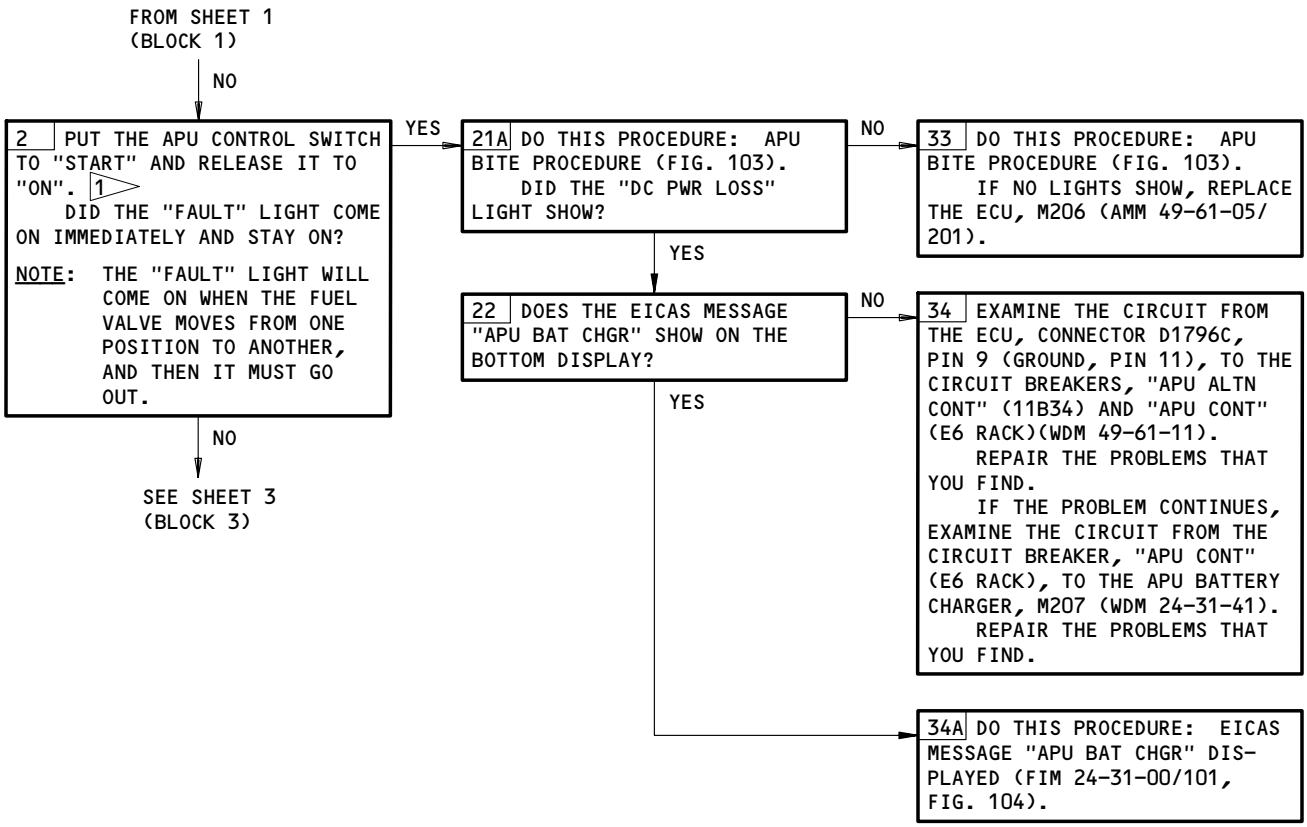
APU STARTING PROBLEMS



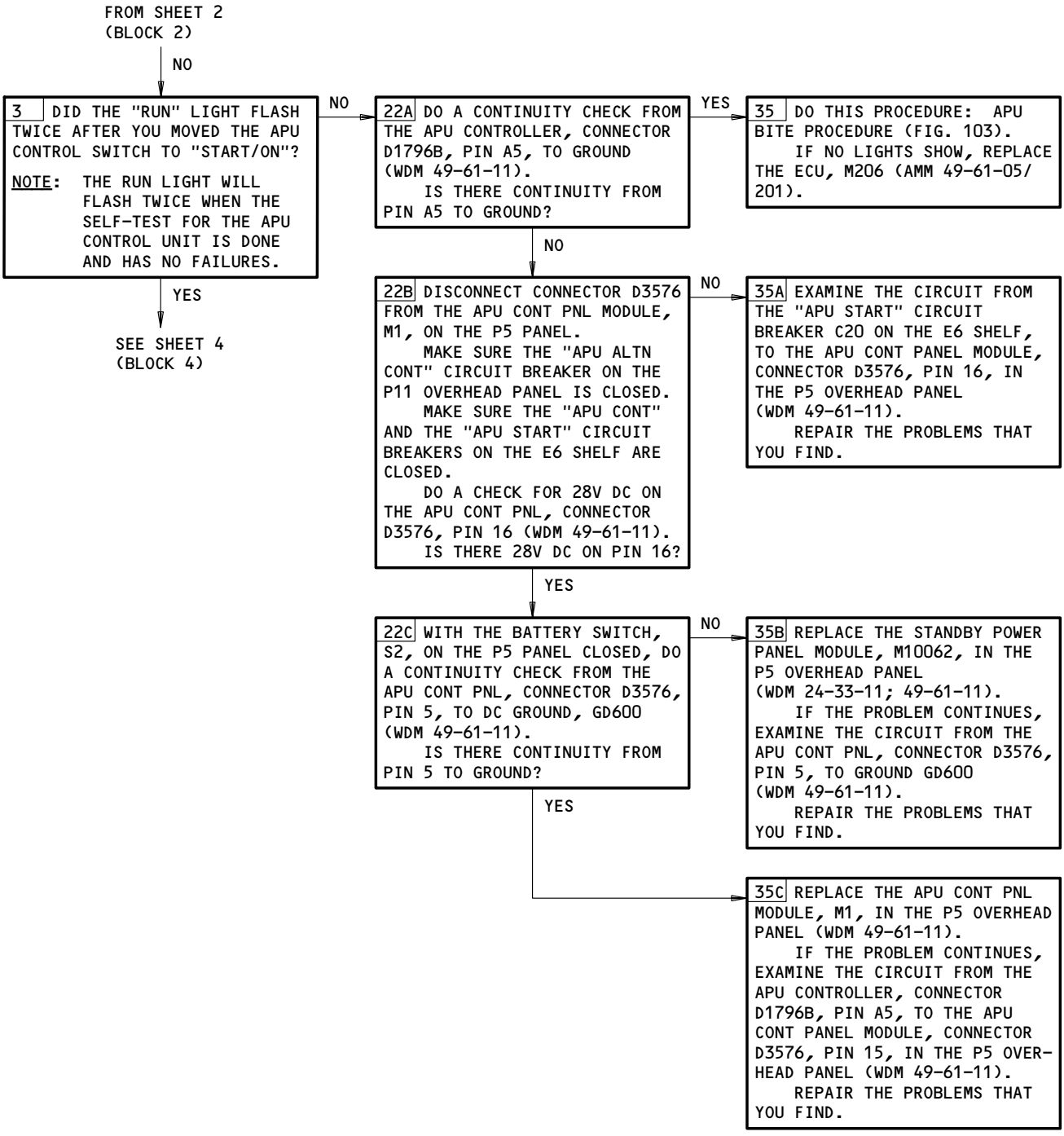
1 WHEN YOU START THE APU, LOOK AT THE APU BATTERY VOLTAGE AND THE CURRENT ON THE EICAS "ELEC/HYD" DISPLAY. LOOK AT THE APU RPM AND THE EGT ON THE EICAS "PERF/APU" DISPLAY.

2 PUSH THE "ECS/MSG" SWITCH ON THE EICAS PANEL, P61, AND MAKE SURE "APU DOOR" MESSAGE DOES NOT SHOW.

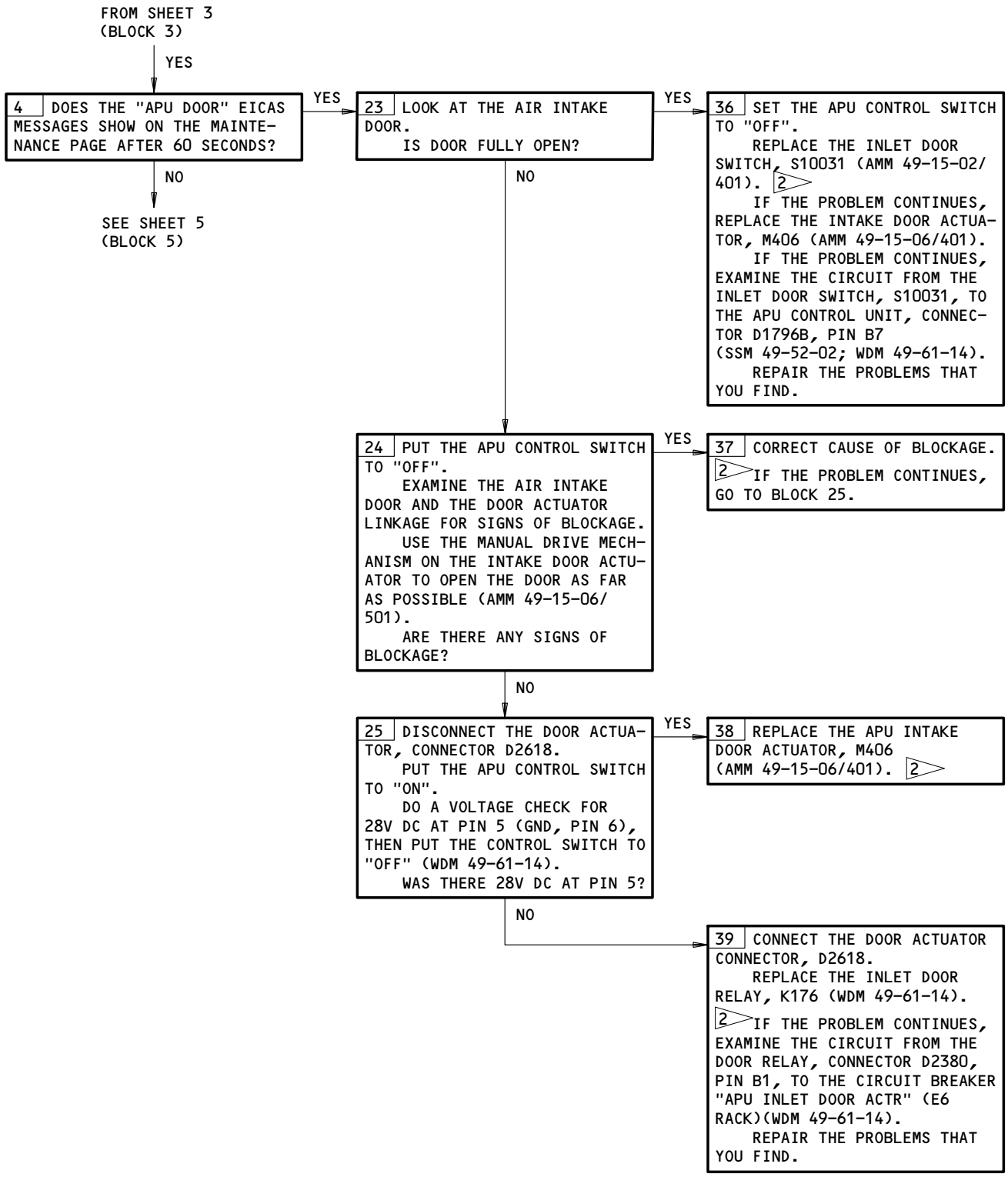
APU Starting Problems
Figure 104 (Sheet 1)



APU Starting Problems
Figure 104 (Sheet 2)



APU Starting Problems
Figure 104 (Sheet 3)



APU Starting Problems
Figure 104 (Sheet 4)

138996

FROM SHEET 4
(BLOCK 4)

NO

5 OPEN THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER AND OPERATE THE APU (AMM 49-11-00/201).
DID THE APU OPERATE NORMALLY?

YES → 40 CLOSE THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER.
REPLACE THE APU BATTERY CHARGER, M207 (AMM 24-31-04/401).

NO

6 CLOSE THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER.
DID THE "FAULT" LIGHT AND THE "APU FAULT" MESSAGE COME ON?

NOTE: THE "FAULT" LIGHT WILL COME ON WHEN THE FUEL VALVE MOVES FROM ONE POSITION TO ANOTHER, AND THEN IT MUST GO OUT.

YES → 41 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103), TO FIND THE CAUSE OF THE APU PROTECTIVE SHUTDOWN.

NOTE: IF THE EGT AND THE RPM DO NOT INCREASE, THERE MUST BE A "NO FLAME" SHUTDOWN.

IF THE RPM DOES NOT INCREASE, THERE MUST BE A "NO ACCEL" OR A "SLOW START" SHUTDOWN.

NO

7 MONITOR THE RPM AND THE EGT ON PERF/APU EICAS PAGE. THE "RUN" LIGHT WILL COME ON AT 95%.

NOTE: MONITOR THE "RUN" LIGHT FOR 30 SECONDS. THE "LOP" LIGHT COMES ON IF THE SHUTDOWN OCCURS 15 SECONDS AFTER THE "RUN" LIGHT COMES ON.

IS THE APU SPEED WITHIN THE LIMITS? (REF "FAULT CODE DIAGRAM", CHART 1.)

NO → 42 REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401).
IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201).
IF THE PROBLEM CONTINUES, REPLACE THE FUEL FLOW DIVIDER, YBMM2 (AMM 49-31-03/401).

YES

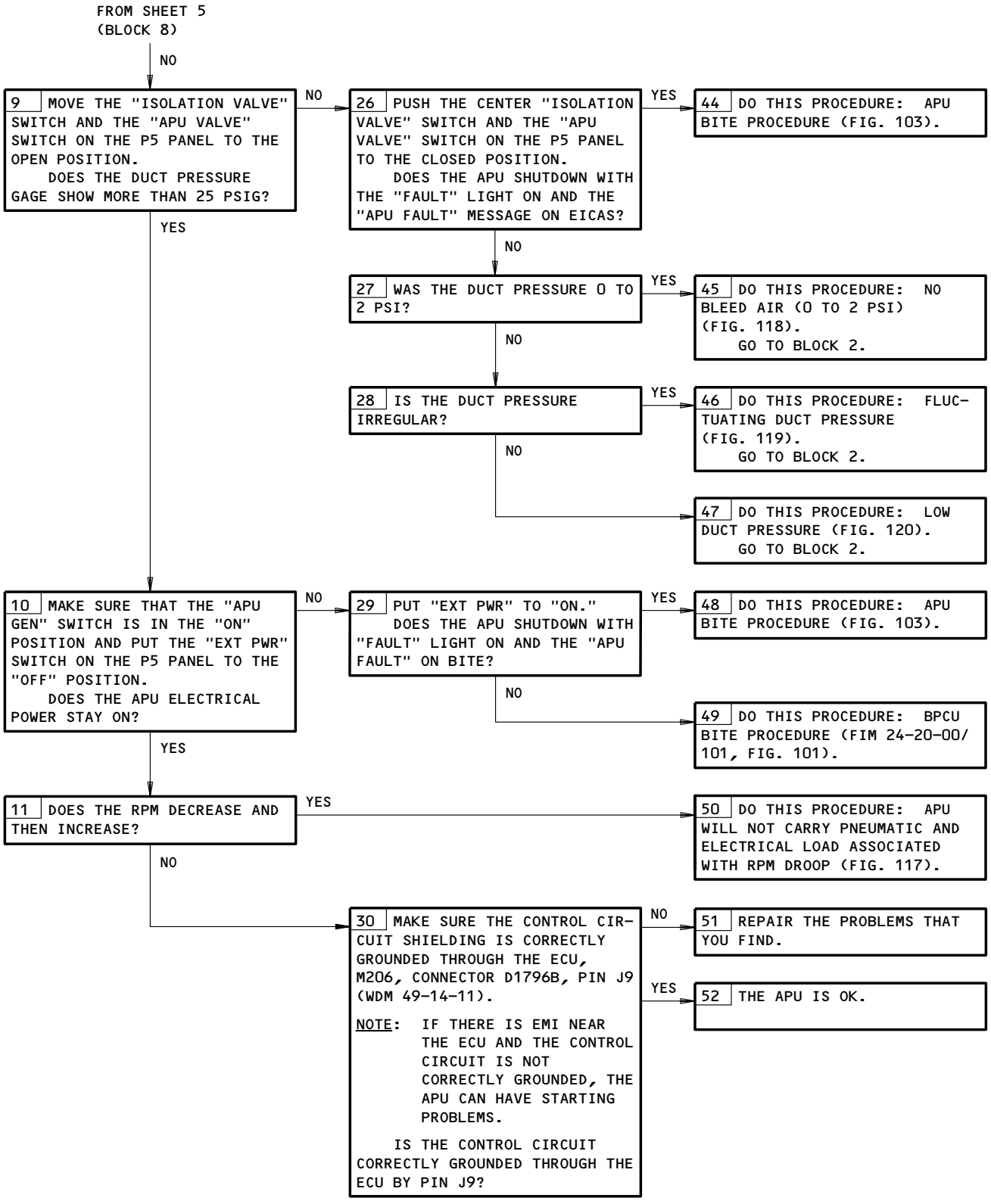
8 PUSH THE "ISOLATION VALVE" SWITCH AND THE "APU VALVE" SWITCH ON THE P5 TO THE OPEN POSITION.
DID THE "VALVE" LIGHT STAY ON AND THE EICAS "APU BLEED VAL" MESSAGE SHOW?

YES → 43 DO THIS PROCEDURE: EICAS MESSAGE "APU BLEED VAL" DISPLAYED. "VALVE" LIGHT ILLUMINATED (FIM 36-10-00/101, FIG. 114).

NO

SEE SHEET 6
(BLOCK 9)

APU Starting Problems
Figure 104 (Sheet 5)



APU Starting Problems
Figure 104 (Sheet 6)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

138999

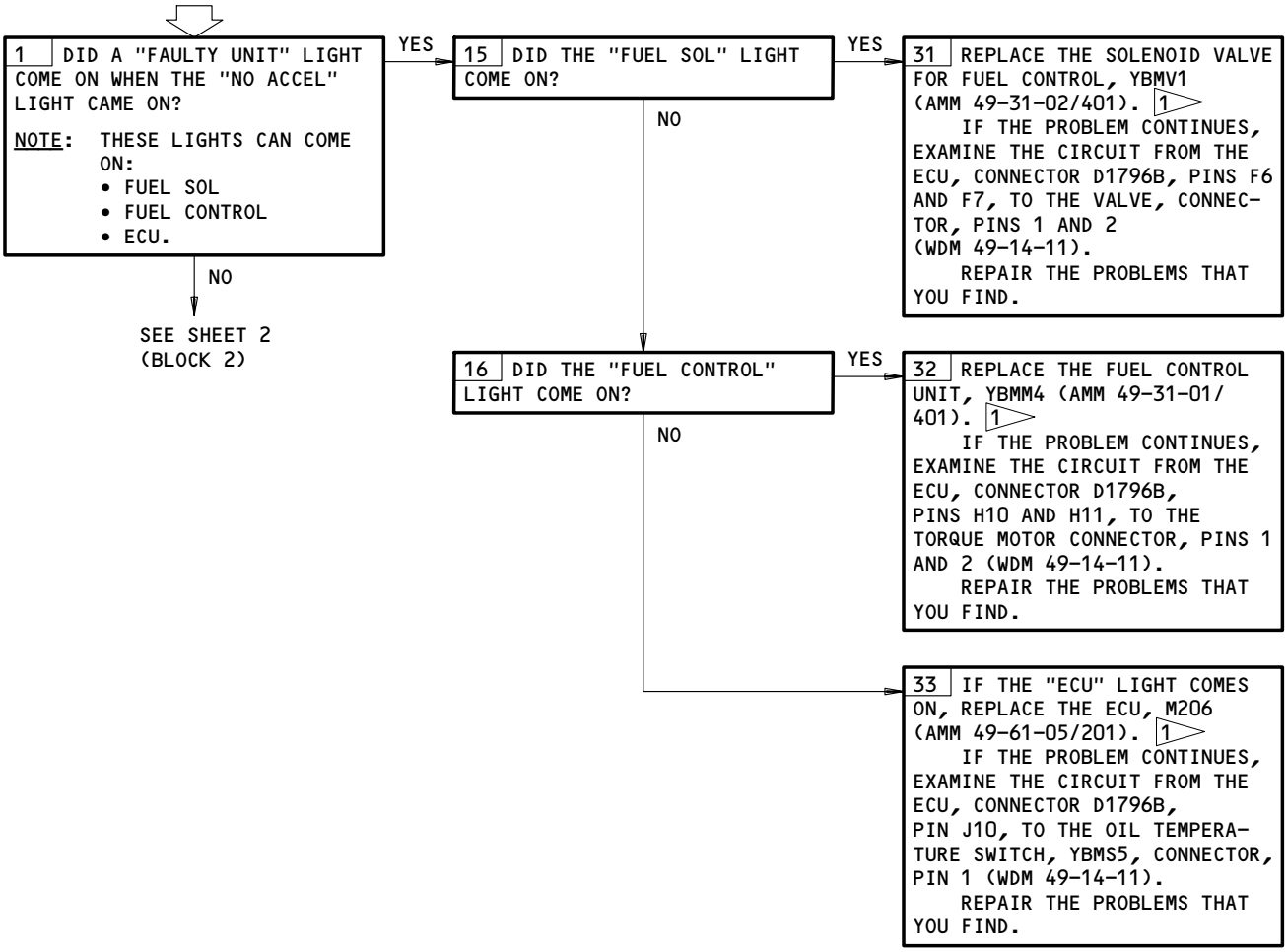
PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D34,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

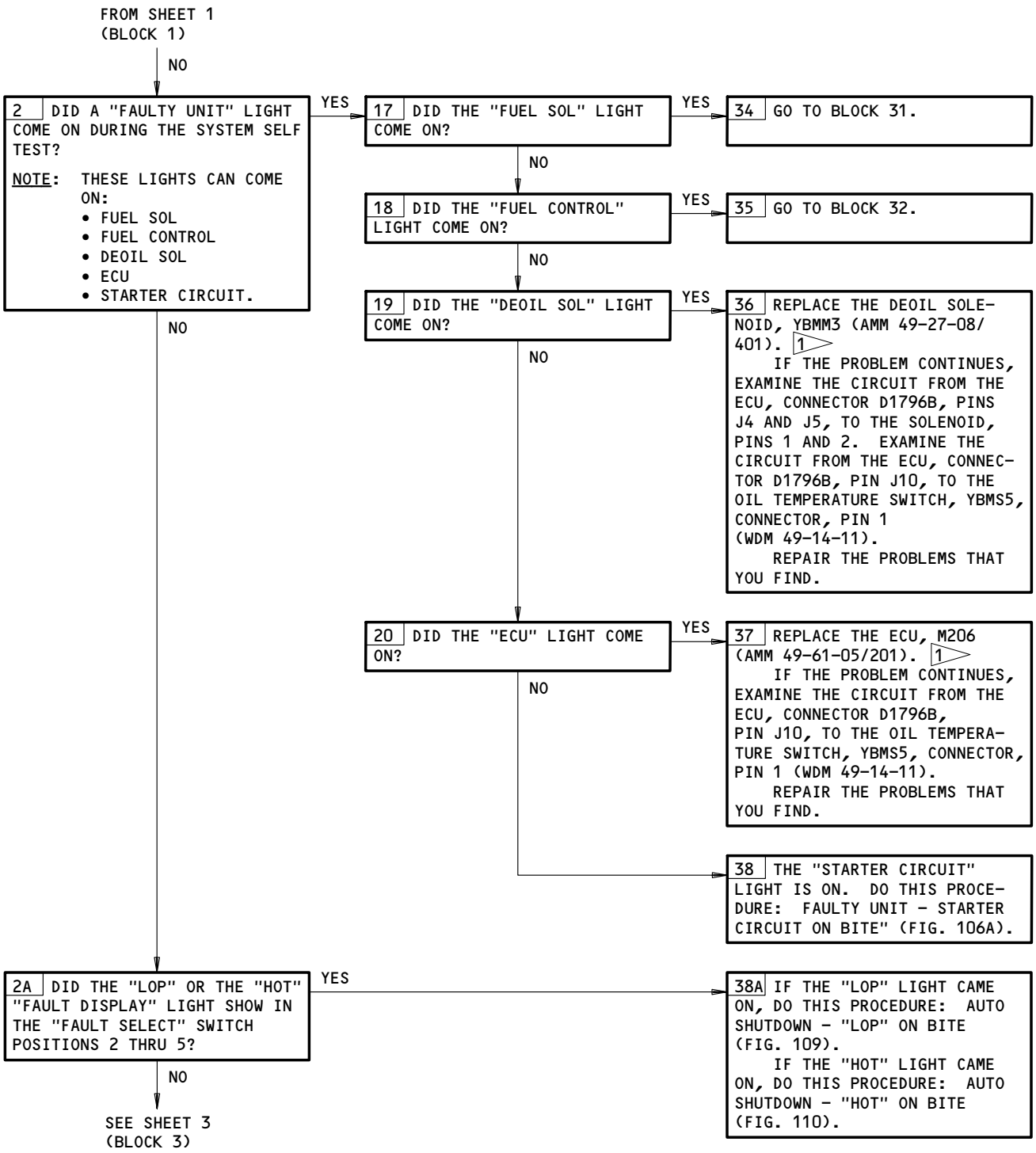
AUTO SHUTDOWN - "NO ACCEL" ON BITE



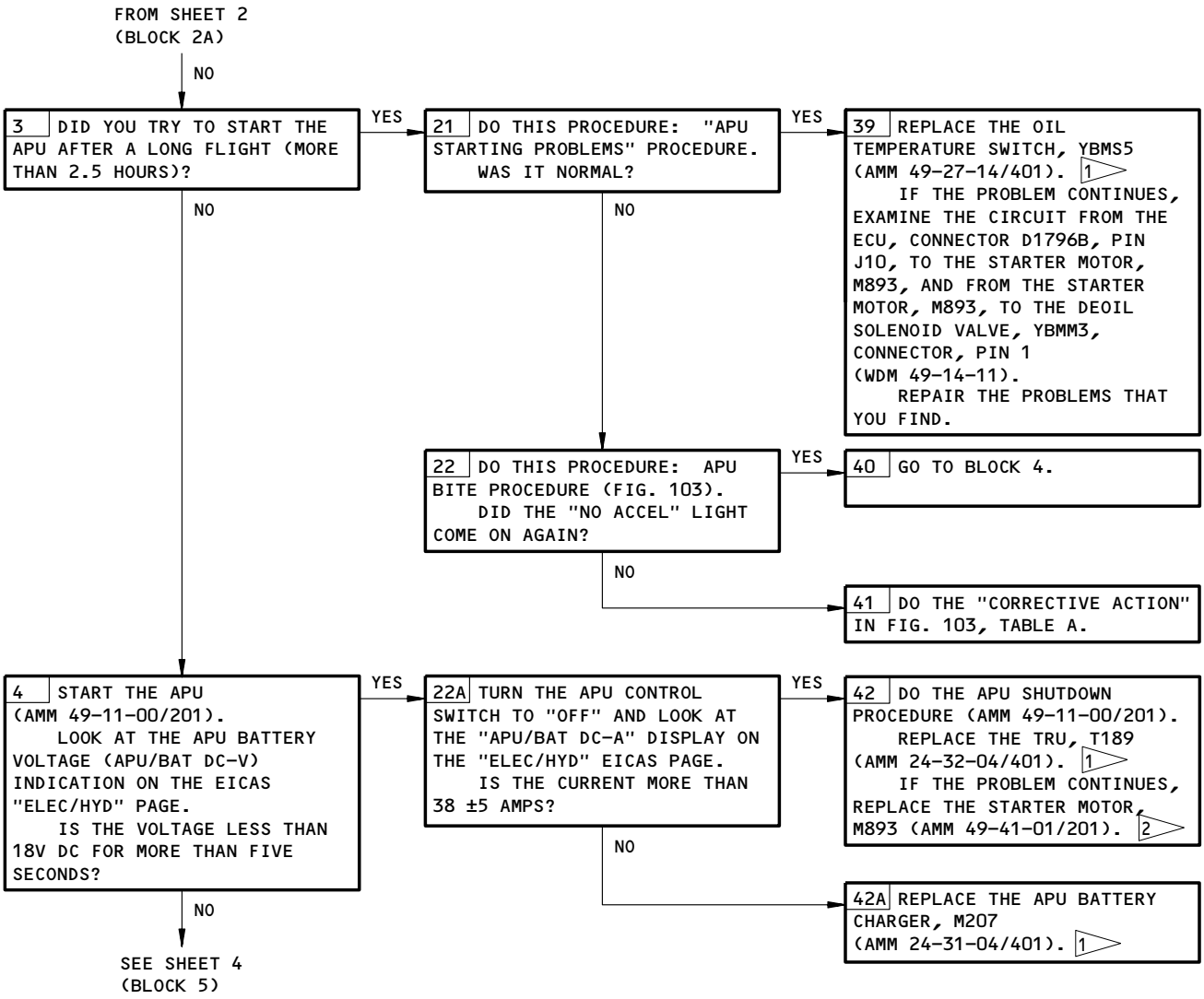
1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 IF TWO APU STARTER MOTORS ARE REPLACED IN LESS THAN 30 DAYS, REPLACE THE APU STARTER MOTOR, M893 (AMM 49-41-01/201), AND THE APU STARTER CLUTCH (AMM 49-41-06/201).

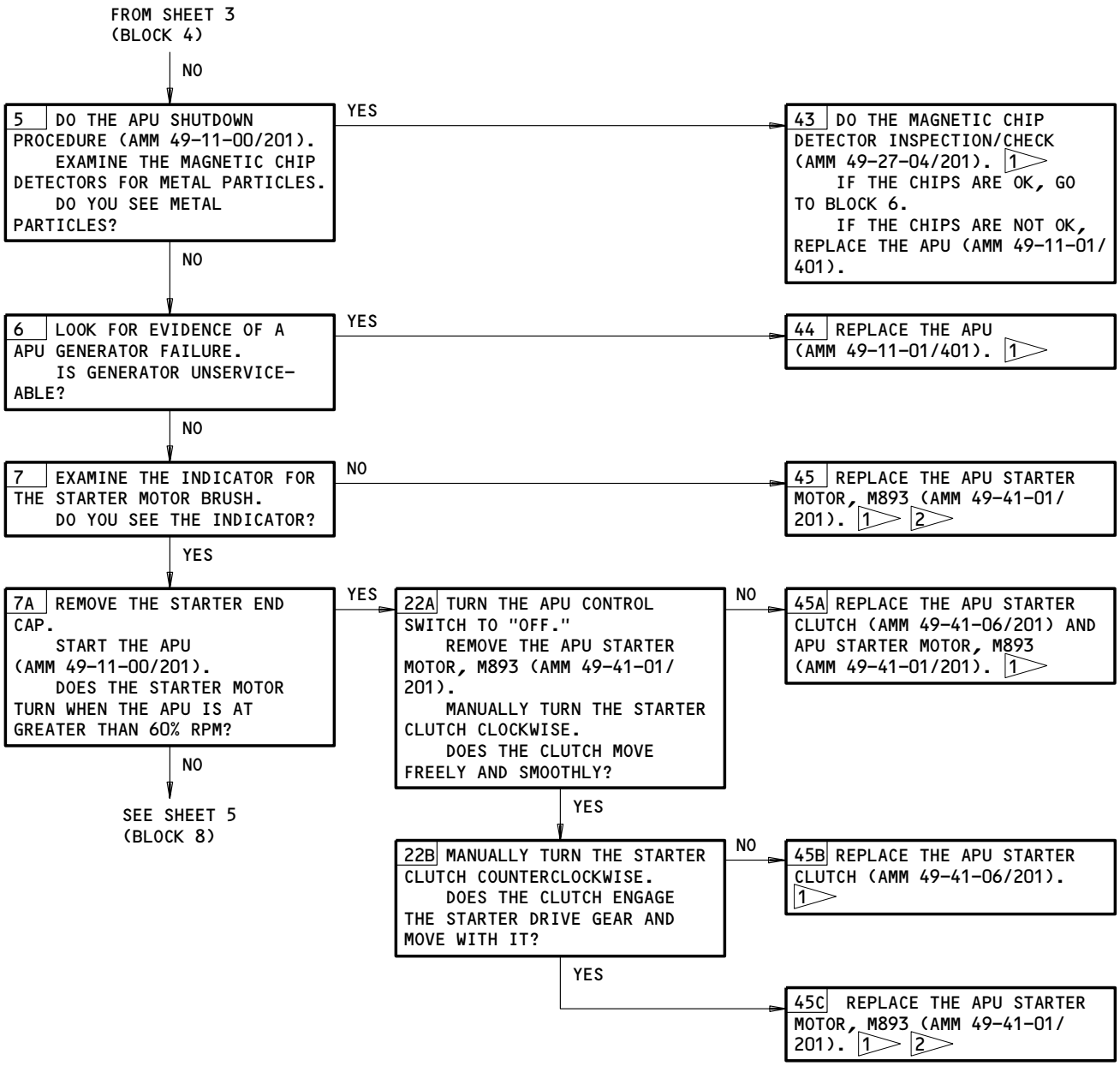
Auto Shutdown - NO ACCEL on BITE
Figure 105 (Sheet 1)



Auto Shutdown - NO ACCEL on BITE
Figure 105 (Sheet 2)



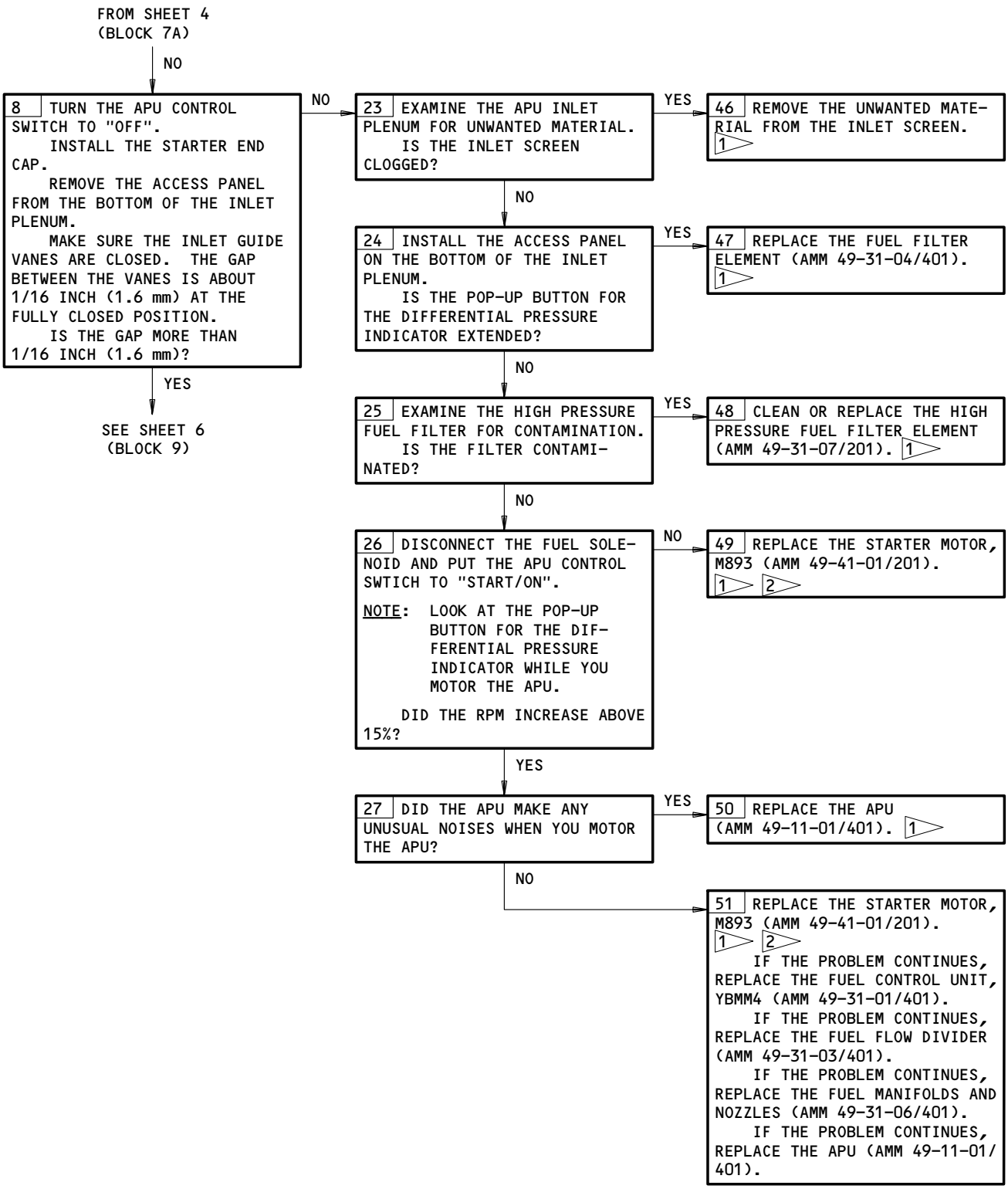
Auto Shutdown - NO ACCEL on BITE
Figure 105 (Sheet 3)



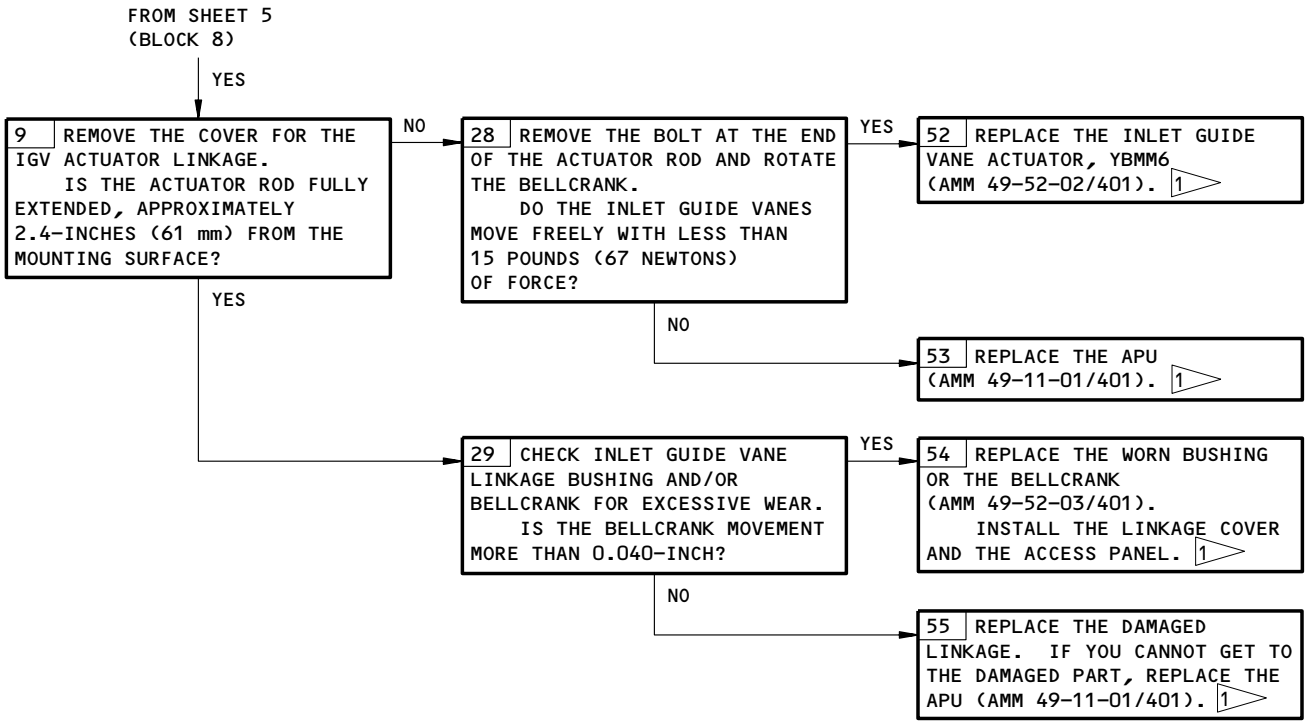
Auto Shutdown - NO ACCEL on BITE
Figure 105 (Sheet 4)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

139013



Auto Shutdown - NO ACCEL on BITE
Figure 105 (Sheet 5)



Auto Shutdown - NO ACCEL on BITE
Figure 105 (Sheet 6)

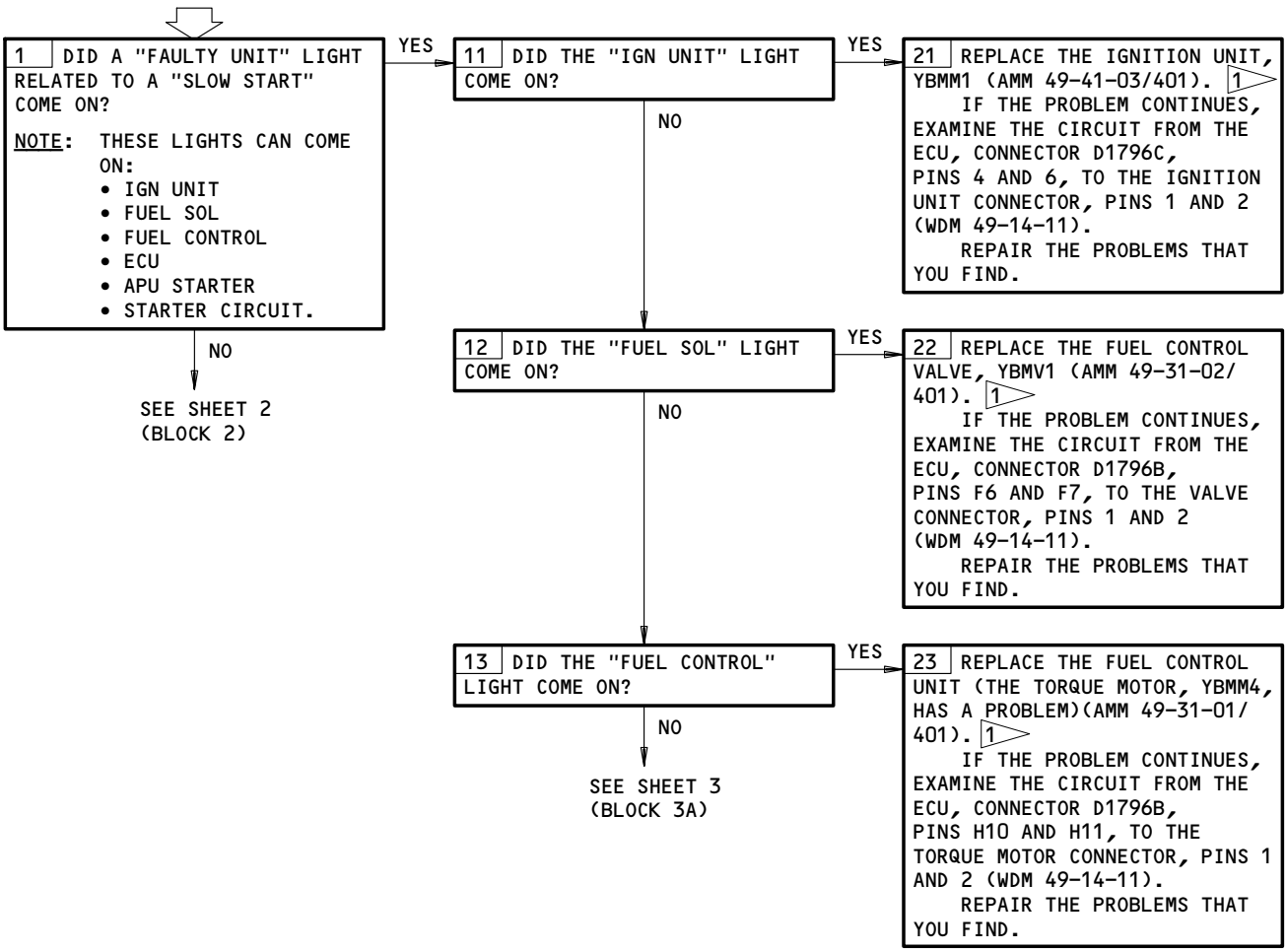
PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

AUTO SHUTDOWN - "SLOW START" ON BITE 3

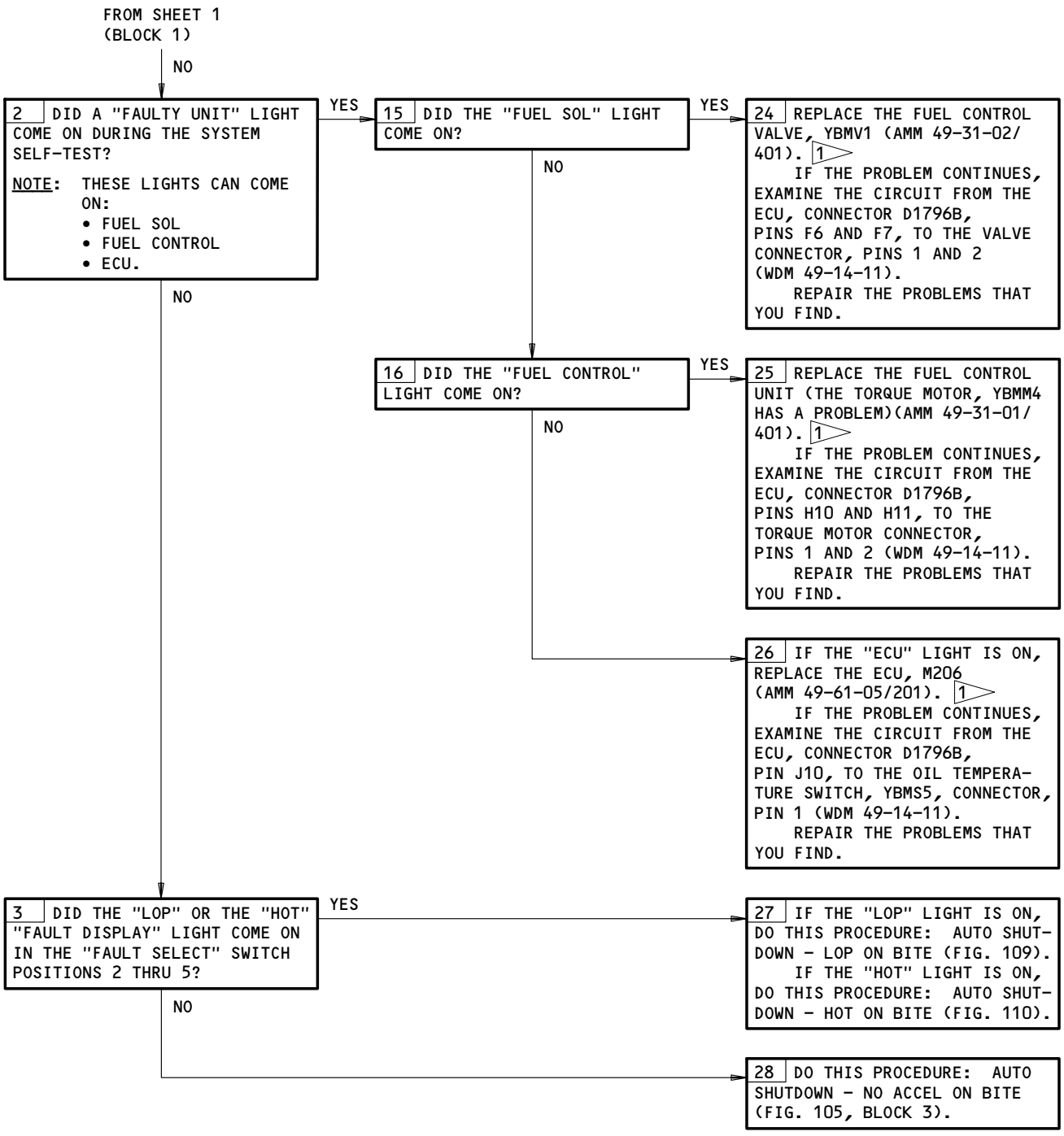


1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 IF TWO APU STARTER MOTORS ARE REPLACED IN LESS THAN 30 DAYS, REPLACE THE APU STARTER MOTOR, M893 (AMM 49-41-01/201), AND THE APU STARTER CLUTCH (AMM 49-41-06/201).

3 IF THE SLOW START CONTINUES, THE PROBLEM MAY BE AN APU LOW OUTPUT DEFECT. EXAMINE THE TRU FOR SIGNS THAT IT HAS BECOME TOO HOT.

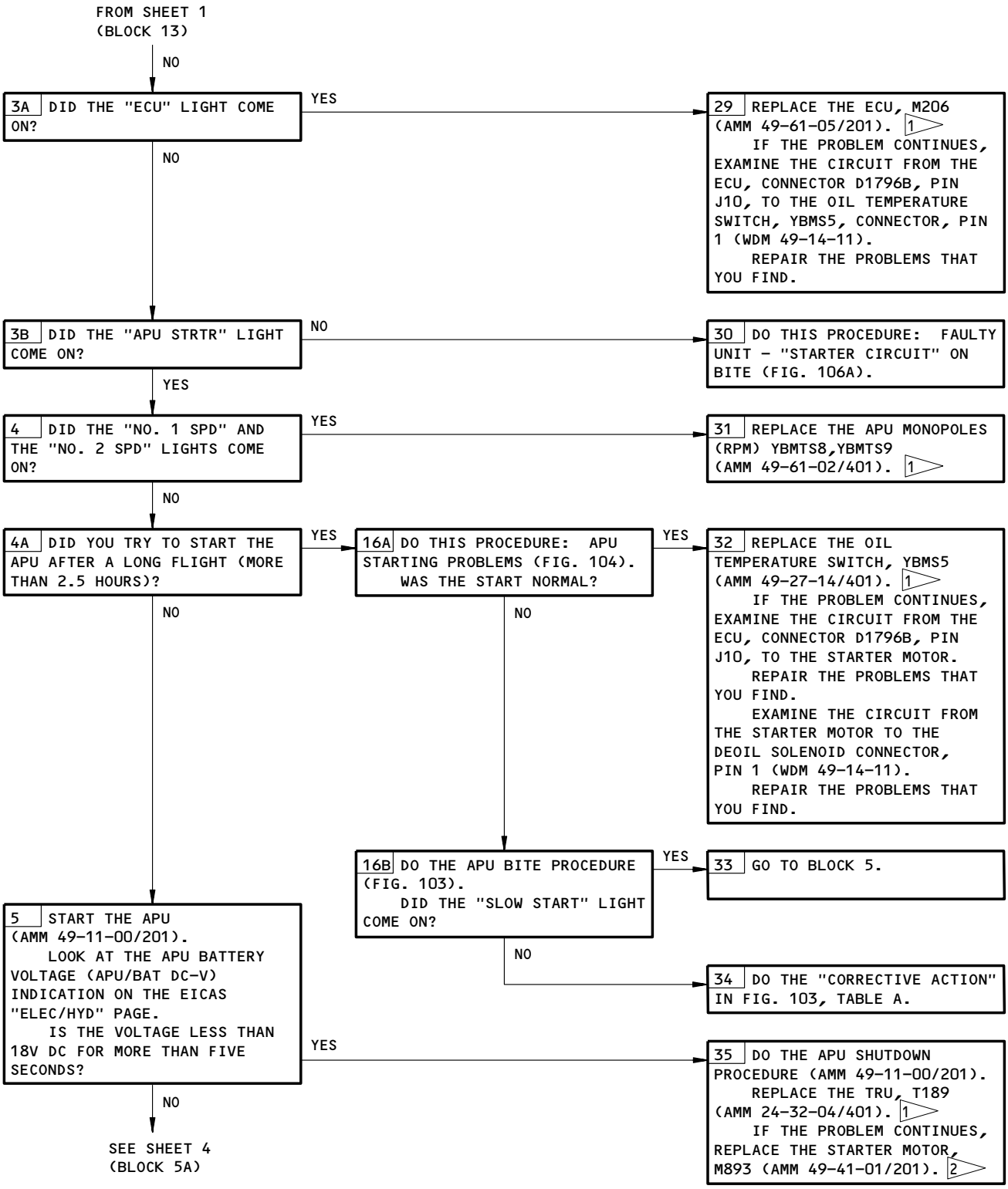
Auto Shutdown - SLOW START on BITE 3
Figure 106 (Sheet 1)



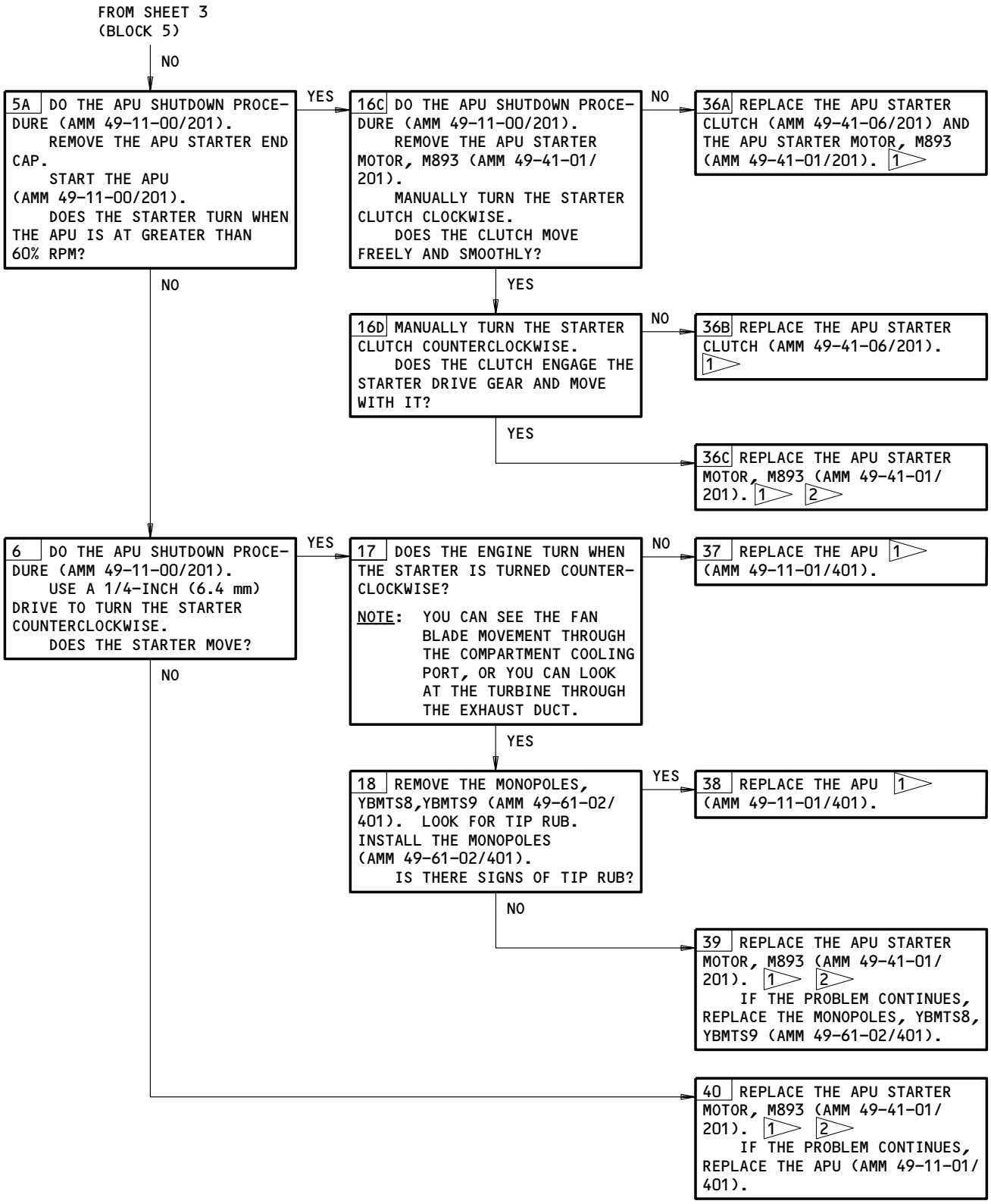
Auto Shutdown - SLOW START on BITE
Figure 106 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH THE APU
CONTROL UNIT -18 AND BEFORE

139020



Auto Shutdown - SLOW START on BITE
Figure 106 (Sheet 3)



Auto Shutdown - SLOW START on BITE
Figure 106 (Sheet 4)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

239884

PREREQUISITES

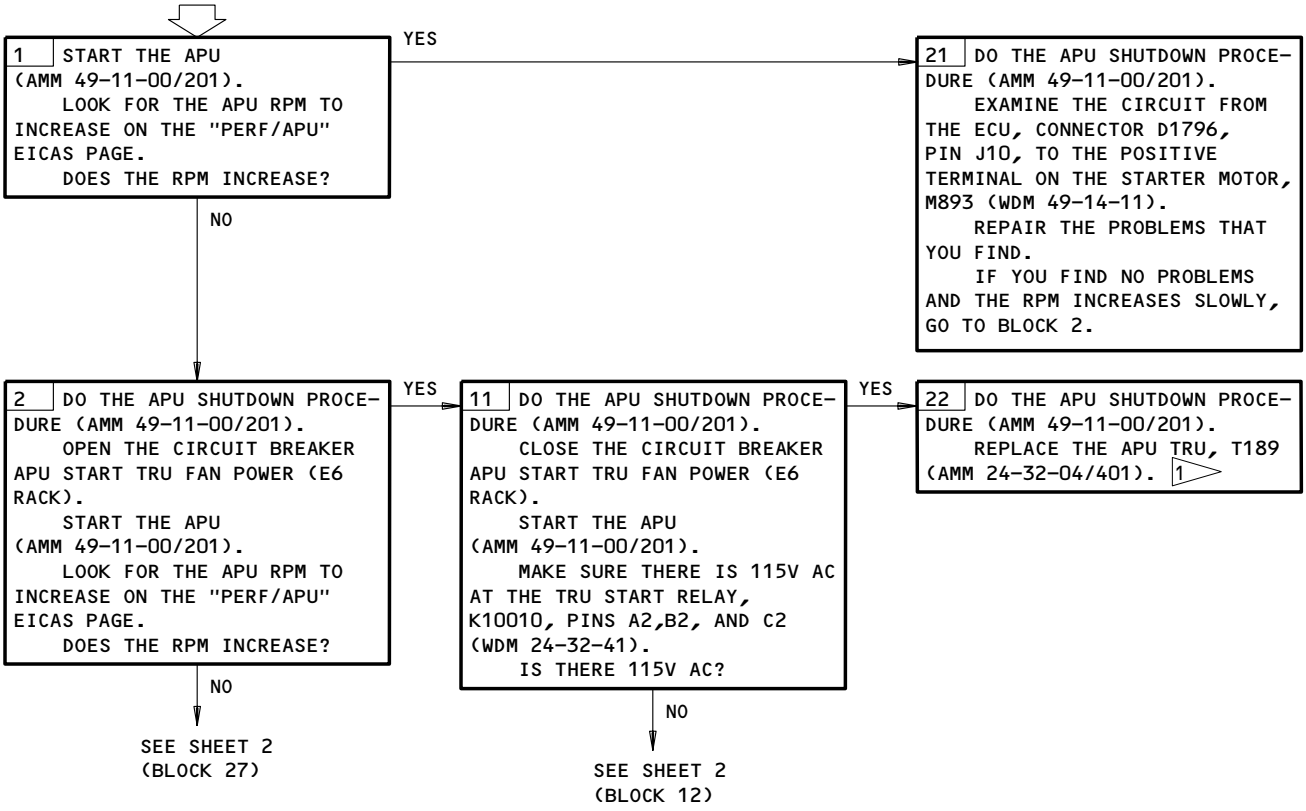
MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT,APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

FAULTY UNIT - "STARTER CIRCUIT" ON BITE

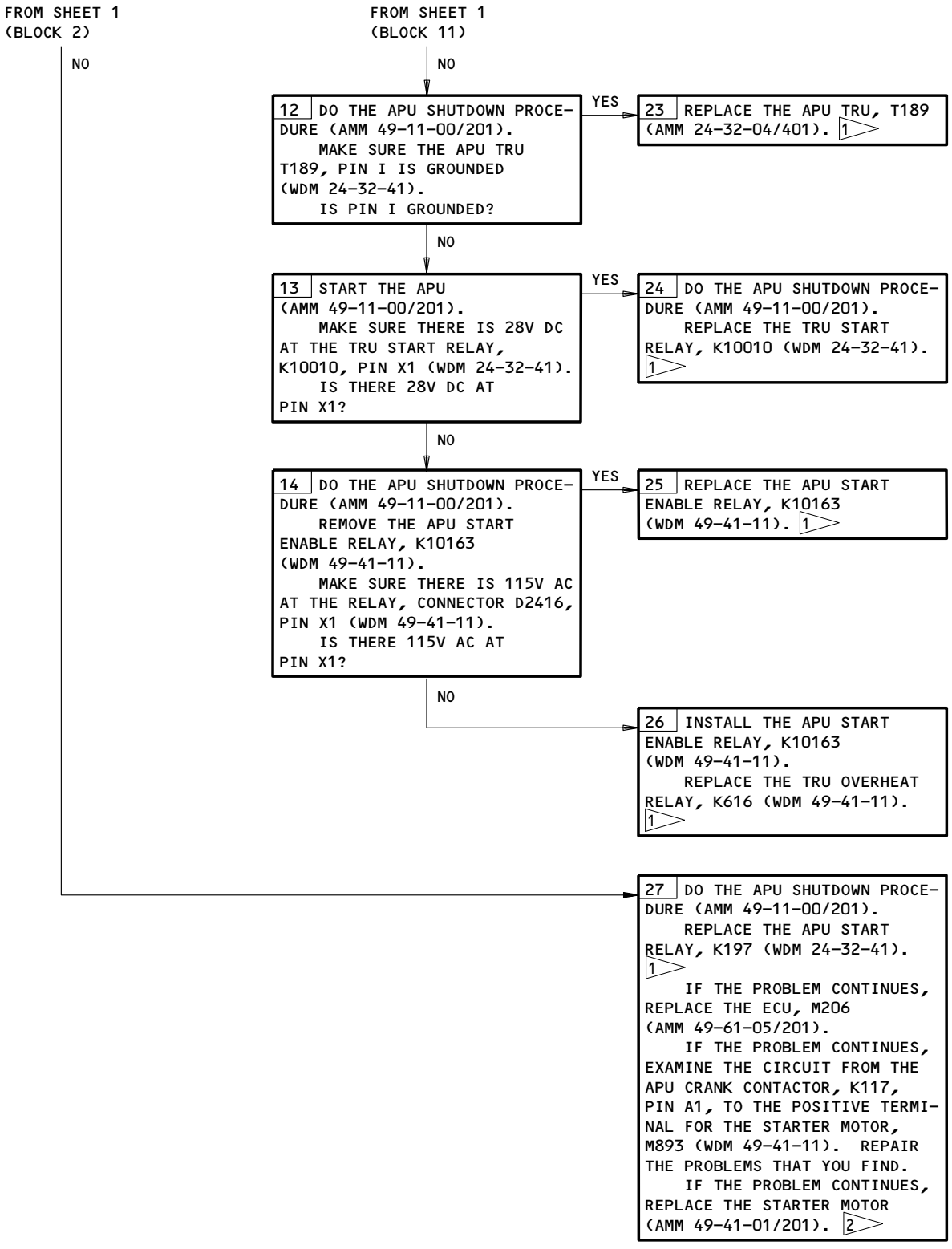
CAUTION: MAKE SURE YOU OBEY THE STARTER DUTY CYCLE IN THE APU OPERATION LIMITS (AMM 49-11-00/201). IF YOU DO NOT OBEY THESE INSTRUCTIONS, YOU CAN CAUSE DAMAGE TO THE APU.



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 IF TWO APU STARTER MOTORS ARE REPLACED IN LESS THAN 30 DAYS, REPLACE THE APU STARTER MOTOR, M893 (AMM 49-41-01/201), AND THE APU STARTER CLUTCH (AMM 49-41-06/201).

Faulty Unit - STARTER CIRCUIT on BITE
Figure 106A (Sheet 1)



Faulty Unit - STARTER CIRCUIT on BITE
Figure 106A (Sheet 2)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

320167

AUTO SHUTDOWN – "NO FLAME" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DID A "FAULTY UNIT" LIGHT THAT IS RELATED TO "NO FLAME" COME ON?

NOTE: THESE LIGHTS CAN COME ON:
- IGN UNIT
- FUEL SOL
- FUEL CONTROL.

YES → 11 DID THE "IGN UNIT" LIGHT COME ON?

NO → SEE SHEET 2 (BLOCK 2)

11 DID THE "IGN UNIT" LIGHT COME ON?

YES → 21 REPLACE THE IGNITION UNIT, YBMM1 (AMM 49-41-03/401). 1
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR, D1796C, PINS 4 AND 6, TO THE IGNITION UNIT CONNECTOR, PINS 1 AND 2 (WDM 49-14-11).
REPAIR THE PROBLEMS THAT YOU FIND.

NO → 12 DID THE "FUEL SOL" LIGHT COME ON?

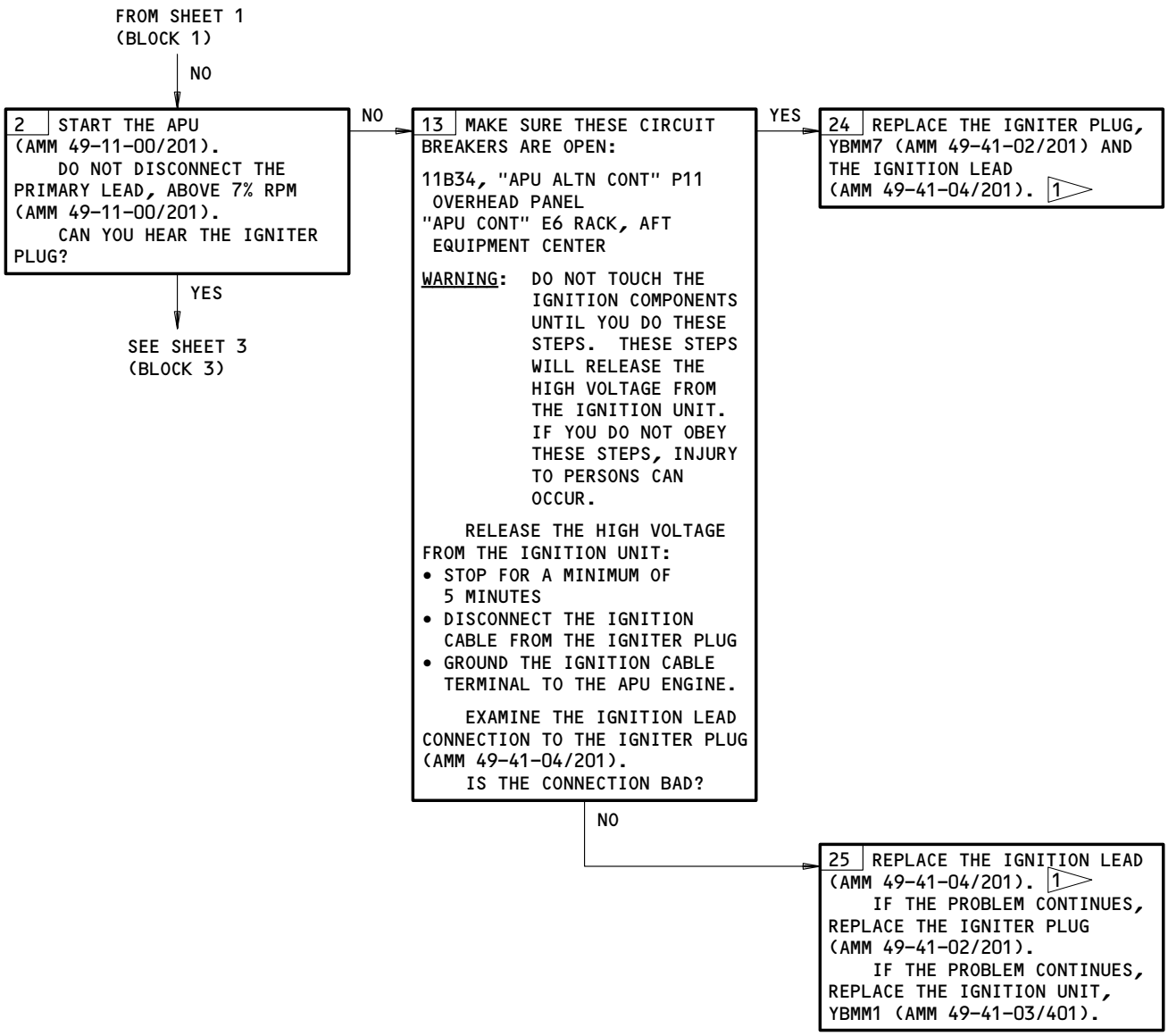
12 DID THE "FUEL SOL" LIGHT COME ON?

YES → 22 REPLACE THE FUEL CONTROL SOLENOID VALVE, YBMV1 (AMM 49-31-02/401). 1
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS F6 AND F7, TO THE VALVE CONNECTOR, PINS 1 AND 2 (WDM 49-14-11).
REPAIR THE PROBLEMS THAT YOU FIND.

NO → 23 THE "FUEL CONTROL" LIGHT CAME ON.
REPLACE THE FUEL CONTROL UNIT (THE TORQUE MOTOR, YBMM4, HAS A PROBLEM)(AMM 49-31-01/401). 1
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS H10 AND H11, TO THE TORQUE MOTOR CONNECTOR, PINS 1 AND 2 (WDM 49-14-11).
REPAIR THE PROBLEMS THAT YOU FIND.

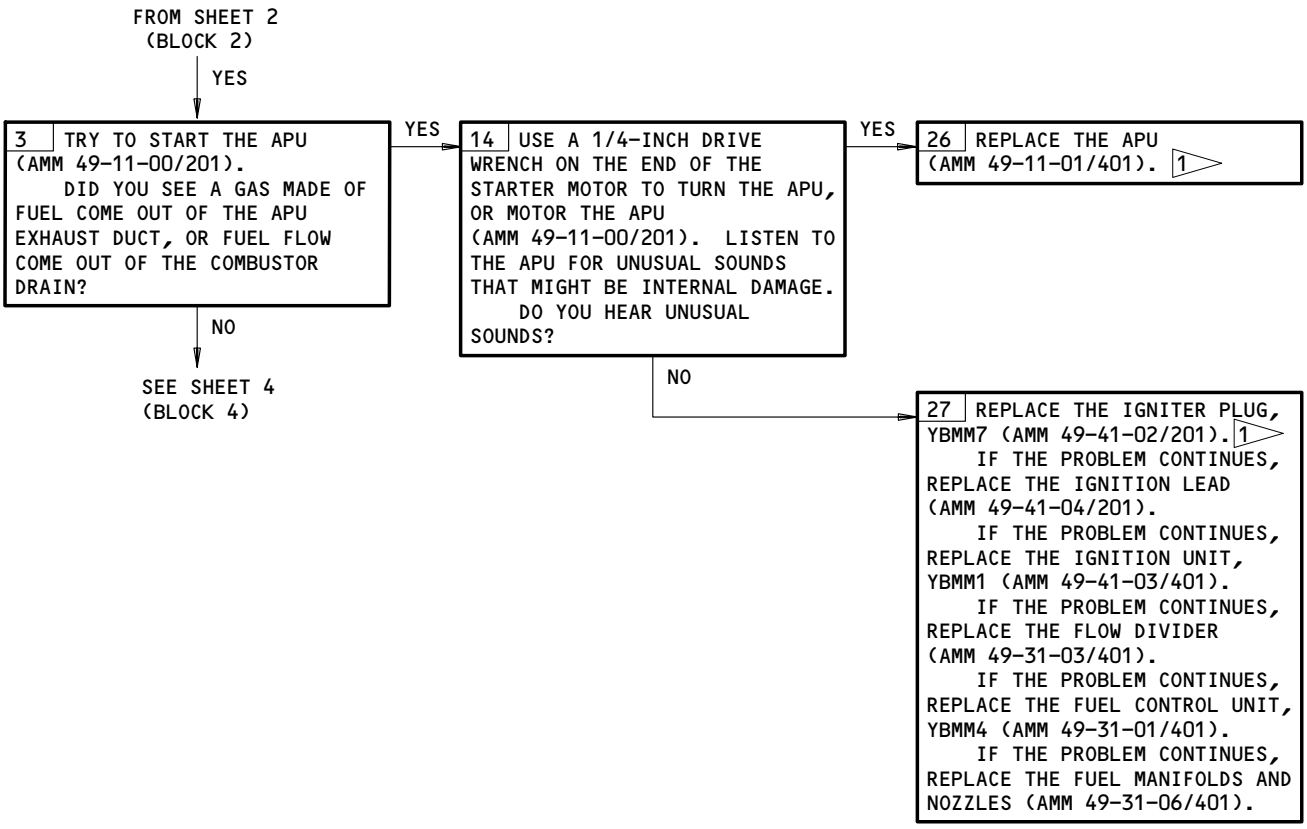
1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown – NO FLAME on BITE
Figure 107 (Sheet 1)



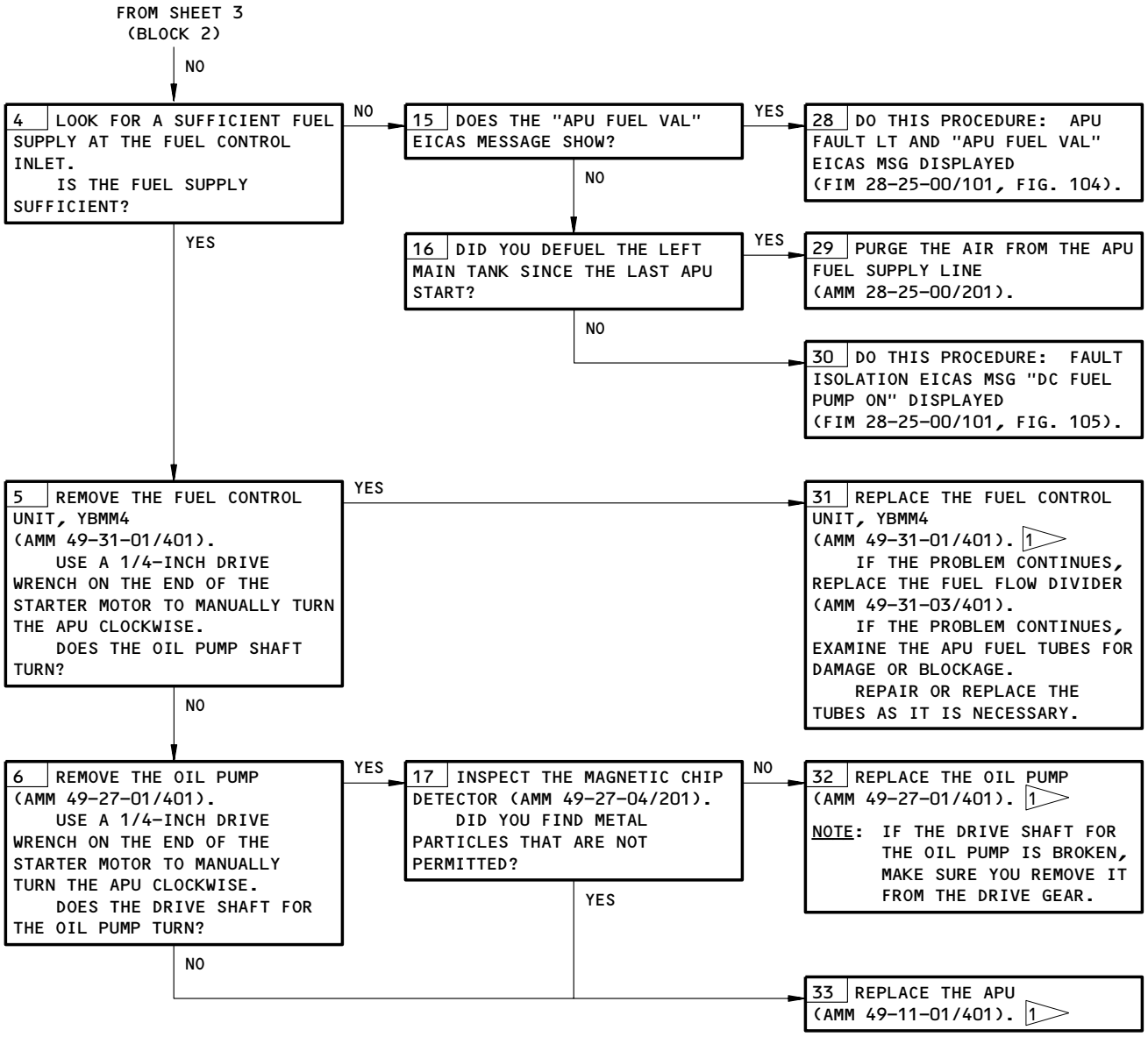
1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - NO FLAME on BITE
Figure 107 (Sheet 2)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - NO FLAME on BITE
Figure 107 (Sheet 3)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER YOU CORRECT THE PROBLEM, PUSH THE "PERF/APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. HOLD THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS GONE.

Auto Shutdown - NO FLAME on BITE
Figure 107 (Sheet 4)

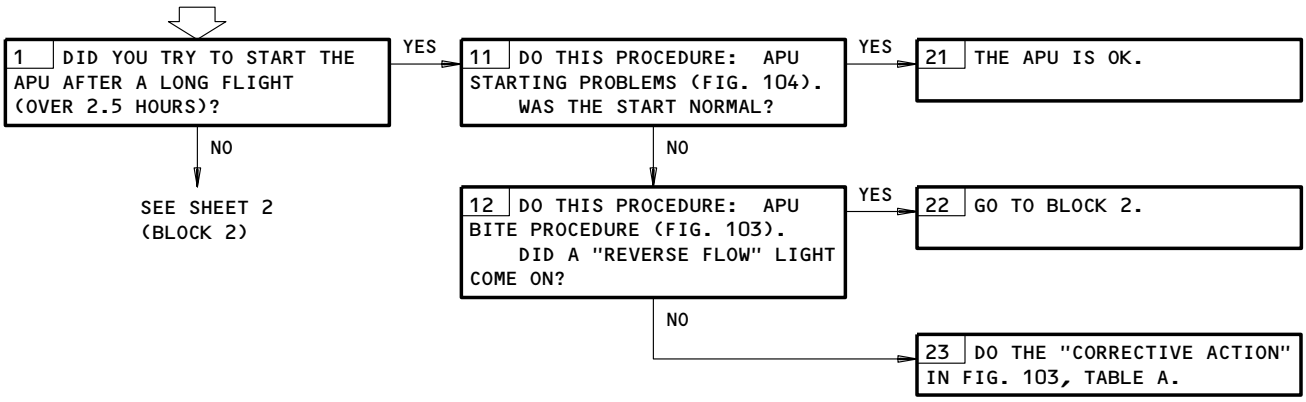
AUTO SHUTDOWN DURING GOVERNED SPEED – "REVERSE FLOW" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

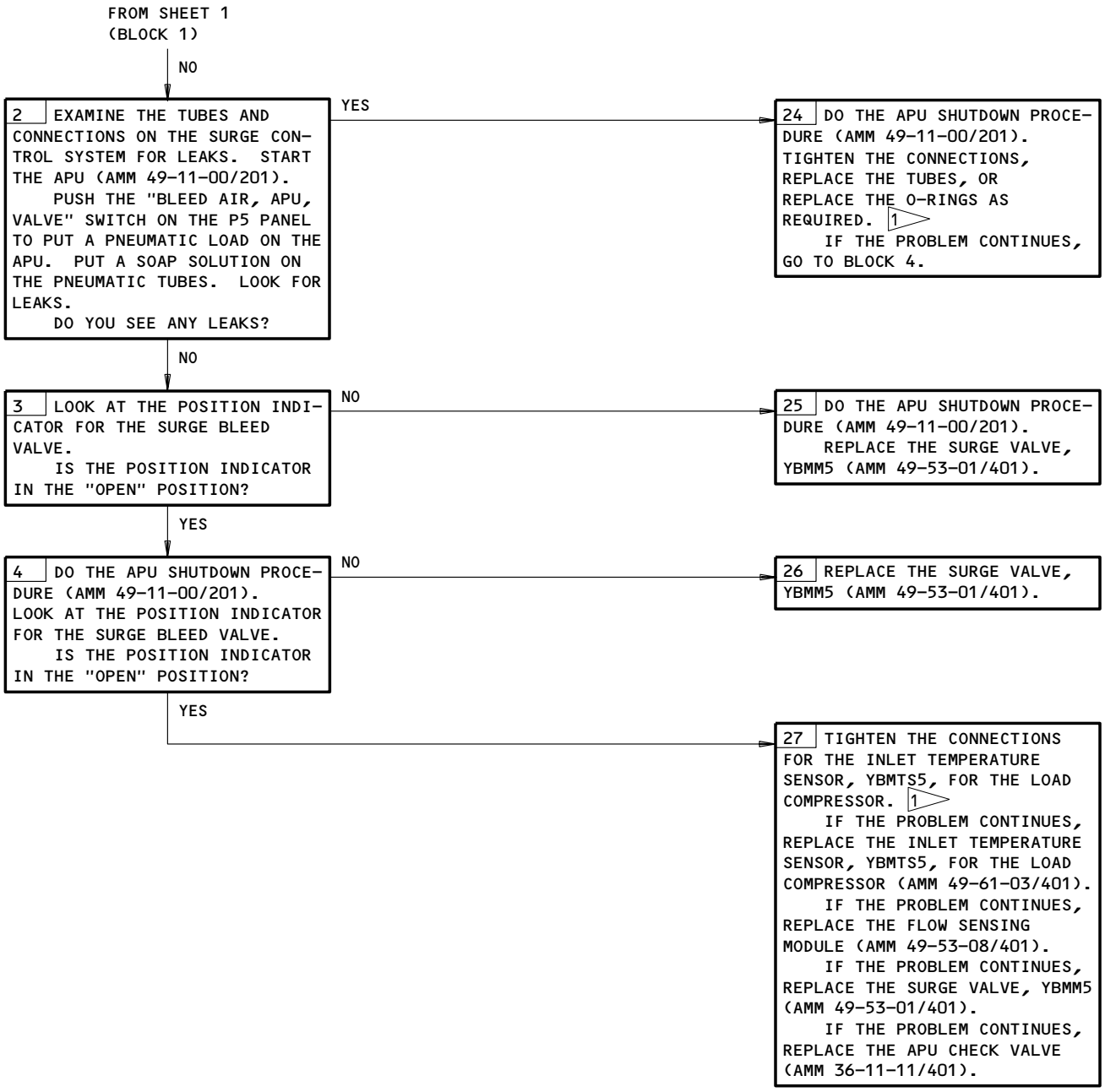
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown During Governed Speed – REVERSE FLOW on BITE
Figure 108 (Sheet 1)



Auto Shutdown During Governed Speed – REVERSE FLOW on BITE
Figure 108 (Sheet 2)

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

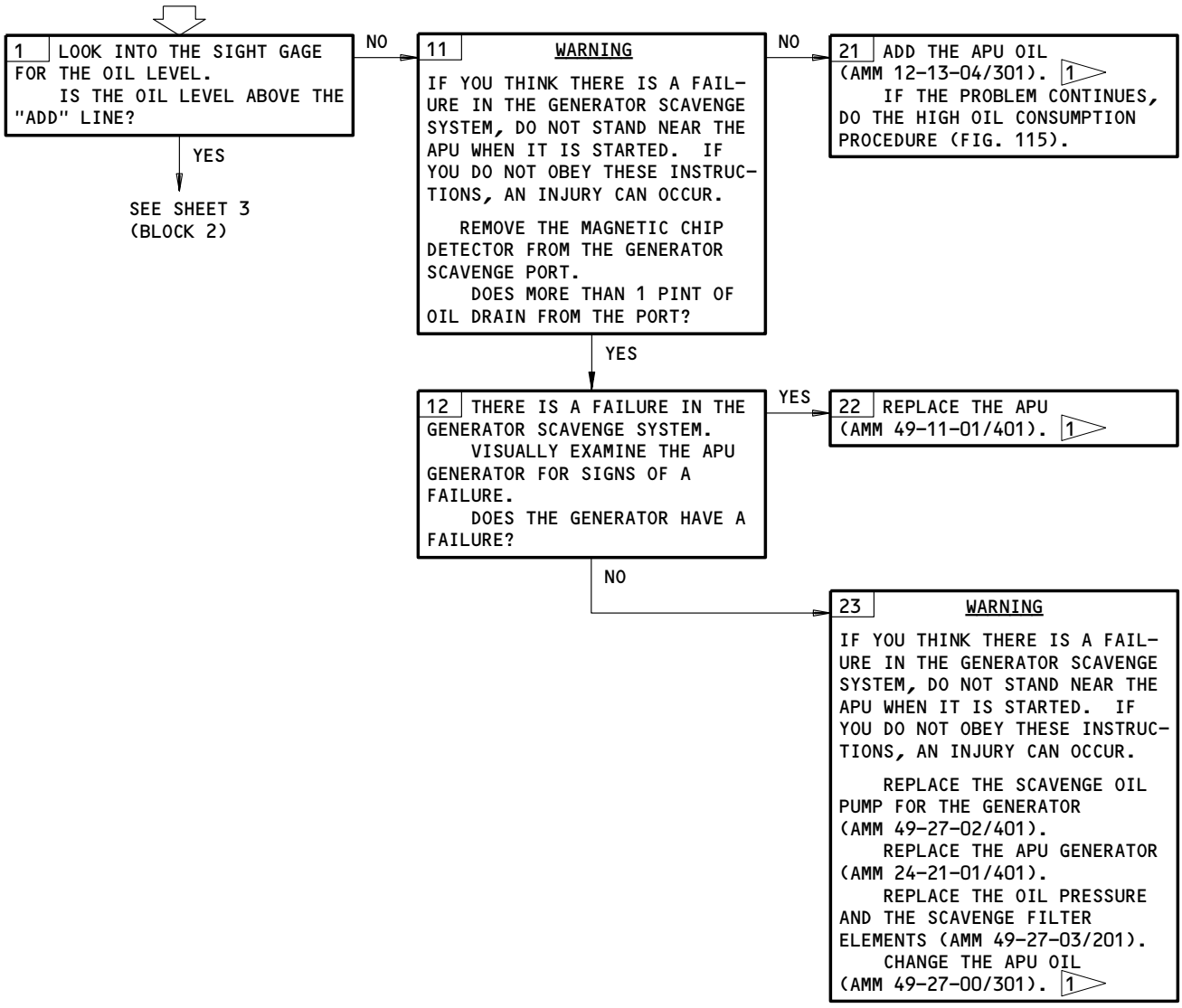
NOTE: AIRPLANES WITH AN S351T020-18 APU CONTROL UNIT (ECU);
THE "LOP" LIGHT ON THE ECU WILL FLASH WHEN AN "LOP" SHUTDOWN OCCURS ON THE THIRD TRY TO START THE APU WITH THE AIRPLANE ON THE GROUND. THE "LOP" LIGHT WILL ONLY FLASH IF THE ECU MEMORY WAS NOT ERASED AFTER THE FIRST TWO "LOP" SHUTDOWNS.

AIRPLANES WITH A -18 APU CONTROL UNIT WITH AIRESEARCH SB 2117342-49-2195;
IF THE APU IS INITIALLY STARTED WITH LOW OIL PRESSURE, THE APU WILL SHUTDOWN 15.5 SECONDS AFTER IT GETS TO 95% RPM (OR ONE SECOND IF THE APU OIL TEMPERATURE IS GREATER THAN 20°F). THE SUBSEQUENT START WITH LOW OIL PRESSURE WILL CAUSE A SHUTDOWN ONE SECOND AFTER THE APU GETS TO 95% RPM. THE APU WILL THEN NOT START IF THERE IS LOW OIL PRESSURE.

1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

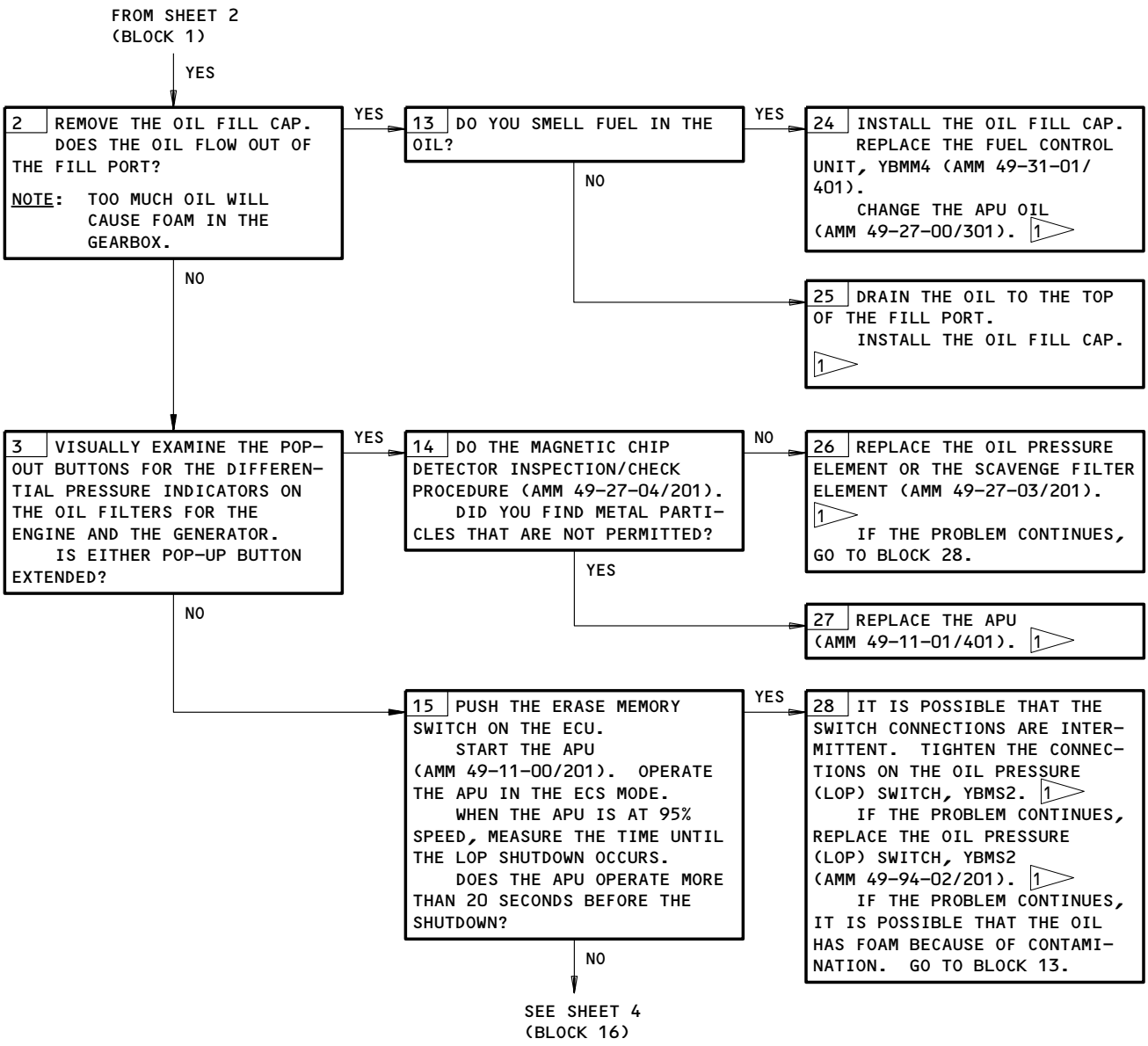
Auto Shutdown - LOP on BITE
Figure 109 (Sheet 1)

AUTO SHUTDOWN – "LOP" ON BITE



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown – LOP on BITE
Figure 109 (Sheet 2)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - LOP on BITE
Figure 109 (Sheet 3)

FROM SHEET 3
(BLOCK 15)

NO

16 IT IS POSSIBLE THAT THERE IS OIL FILTER BLOCKAGE. EXAMINE THE OIL PRESSURE FILTER AND THE GENERATOR SCAVENGE FILTER FOR CONTAMINATION (AMM 49-27-03/201)(IF YOU DID NOT EXAMINE IT BEFORE). 1

IF THE PROBLEM CONTINUES, CONNECT A PRESSURE GAGE (0-150 PSIG) TO THE OIL PRESSURE TEST PORT (SEE SHEET 5).

START THE APU (AMM 49-11-00/201). OPERATE THE APU IN THE ECS MODE.

IS THE OIL PRESSURE GREATER THAN 40 PSIG?

NO

29 THERE IS A PERFORMANCE PROBLEM IN THE OIL SYSTEM. REPLACE THE APU OIL PUMP (AMM 49-27-01/401). 1

NOTE: IF THE DRIVE SHAFT FOR THE OIL PUMP IS BROKEN, MAKE SURE YOU REMOVE IT FROM THE DRIVE GEAR.

IF THE PROBLEM CONTINUES, REMOVE THE DE-OIL SOLENOID VALVE (AMM 49-27-08/401) TO SEE IF IT IS STUCK OPEN. 1

IF THE PROBLEM CONTINUES, EXAMINE THE OIL COOLER, THE LINES AND THE CHECK VALVES FOR BLOCKAGE. 1

IF THE PROBLEM CONTINUES, THE APU HAS AN INTERNAL LEAK. REPLACE THE APU (AMM 49-11-01/401). 1

YES

17 IS THE OIL PRESSURE LESS THAN 60 PSI?

YES

30 IT IS POSSIBLE THAT THERE IS A PERFORMANCE PROBLEM IN THE OIL SYSTEM. REPLACE THE APU OIL PUMP (AMM 49-27-01/401). 1

NOTE: IF THE DRIVE SHAFT FOR THE OIL PUMP IS BROKEN, MAKE SURE YOU REMOVE IT FROM THE DRIVE GEAR.

IF THE PROBLEM CONTINUES, REMOVE THE DE-OIL SOLENOID VALVE (AMM 49-27-08/401) TO SEE IF IT IS STUCK OPEN. 1

IF THE PROBLEM CONTINUES, EXAMINE THE OIL COOLER, THE LINES AND THE CHECK VALVES FOR BLOCKAGE. 1

IF THE PROBLEM CONTINUES, THE APU HAS AN INTERNAL LEAK. REPLACE THE APU (AMM 49-11-01/401). 1

IF THE PROBLEM CONTINUES, THERE IS AN INDICATION PROBLEM. EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN C5 TO THE LOW OIL PRESSURESWITCH, YBMS2, CONNECTOR P6, PIN 1 (GROUND, PIN 2) (WDM 49-14-11).

REPAIR THE PROBLEMS THAT YOU FIND. 1

IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

NO

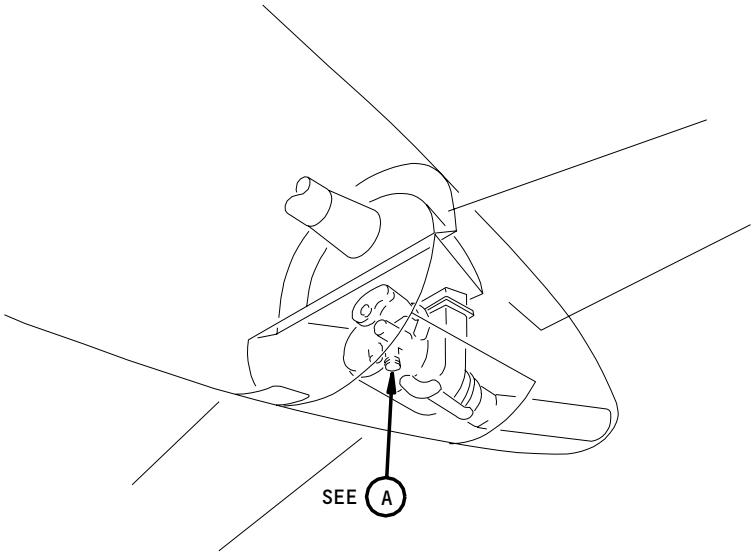
18 THERE IS AN INDICATION PROBLEM. IT IS POSSIBLE THAT THERE IS A CALIBRATION SHIFT IN THE OIL PRESSURE (LOP) SWITCH. REPLACE THE OIL PRESSURE (LOP) SWITCH, YBMS2 (AMM 49-94-02/201). 1

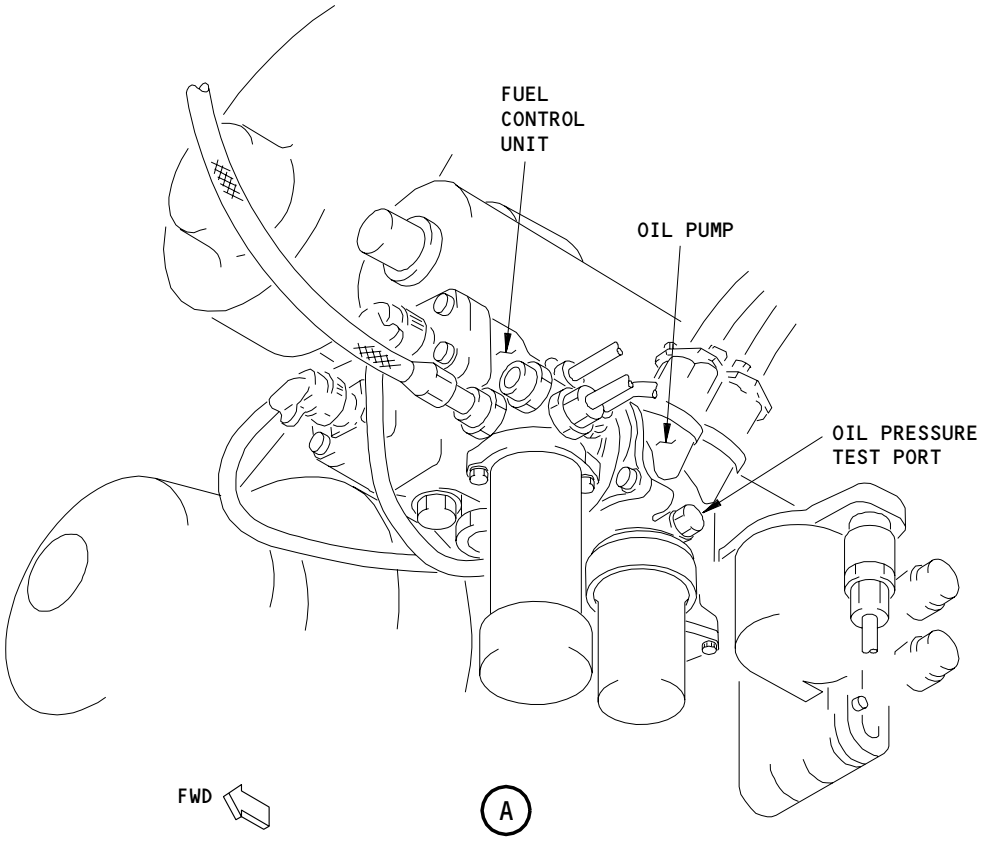
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN C5, TO THE LOW OIL PRESSURE SWITCH, YBMS2, CONNECTOR P6, PIN 1 (GROUND, PIN 2) (WDM 49-14-11).

REPAIR THE PROBLEMS THAT YOU FIND. 1

IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

Auto Shutdown - LOP on BITE
Figure 109 (Sheet 4)





Auto Shutdown - LOP on BITE
Figure 109 (Sheet 5)

AUTO SHUTDOWN – "HOT" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DID A "FAULTY UNIT" LIGHT COME ON DURING THE SYSTEM SELF-TEST?

NOTE: THESE LIGHTS CAN COME ON:
- FAN VALVE
- HOT SENSOR
- ECU.

YES → 10 DID THE "FAN VALVE" LIGHT COME ON?

NO → SEE SHEET 2 (BLOCK 2)

10 DID THE "FAN VALVE" LIGHT COME ON?

YES → 20 APUs WITH THE FAN ISOLATION VALVE CONNECTED TO THE FIRST STAGE COMPRESSOR; EXAMINE THE LINE FROM THE FAN ISOLATION VALVE TO THE FIRST STAGE COMPRESSOR. REPAIR OR REPLACE THE LINE IF IT IS NECESSARY. 1

IF THE PROBLEM CONTINUES, REPLACE THE FAN ISOLATION VALVE, YBMS4 (AMM 49-51-02/401).

EXAMINE THE FAN INLET DUCT FOR DAMAGE.

APUs WITH THE FAN ISOLATION VALVE CONNECTED TO THE SURGE VALVE; REPLACE THE FILTER ELEMENT FOR THE SURGE VALVE (AMM 49-53-06//201).

EXAMINE THE LINE FROM THE SURGE VALVE TO THE FAN ISOLATION VALVE. REPAIR OR REPLACE THE LINE IF IT IS NECESSARY. 1

IF THE PROBLEM CONTINUES, REPLACE THE FAN ISOLATION VALVE, YBMS4 (AMM 49-51-02/401).

EXAMINE THE FAN INLET DUCT FOR DAMAGE.

IF THE PROBLEM CONTINUES, REPLACE THE SURGE VALVE, YBMM5 (AMM 49-53-01/401).

NO

11 DID THE "HOT SENSOR" LIGHT COME ON?

YES → 21 REPLACE THE OIL TEMPERATURE (HOT) SENSOR, YBMTS1 (AMM 49-94-01/401). 1

IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS E4 AND E5, TO THE HOT SENSOR CONNECTOR, PINS A AND B (WDM 49-14-11).

REPAIR THE PROBLEMS THAT YOU FIND.

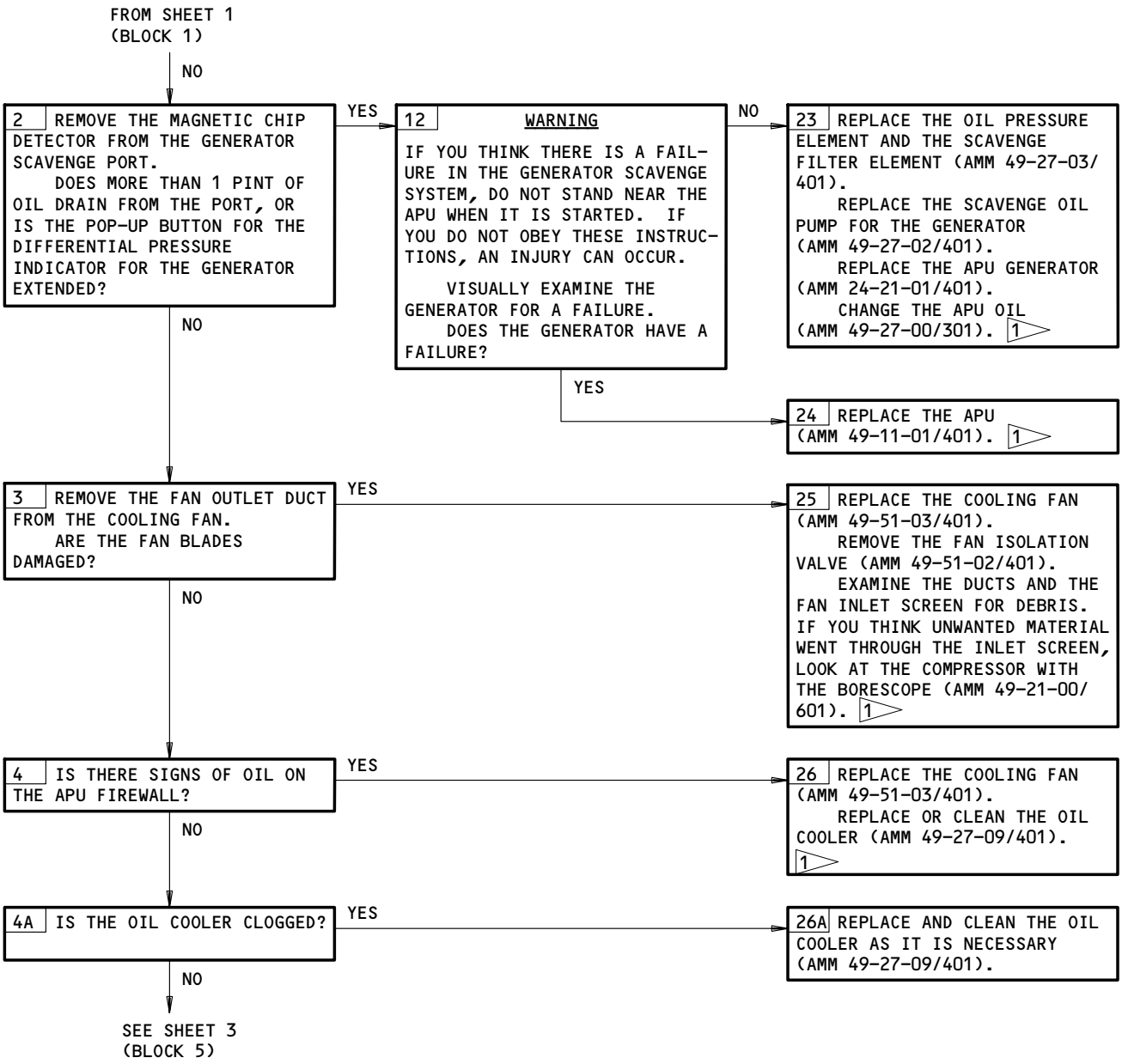
NO → 22 REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown – HOT on BITE
Figure 110 (Sheet 1)

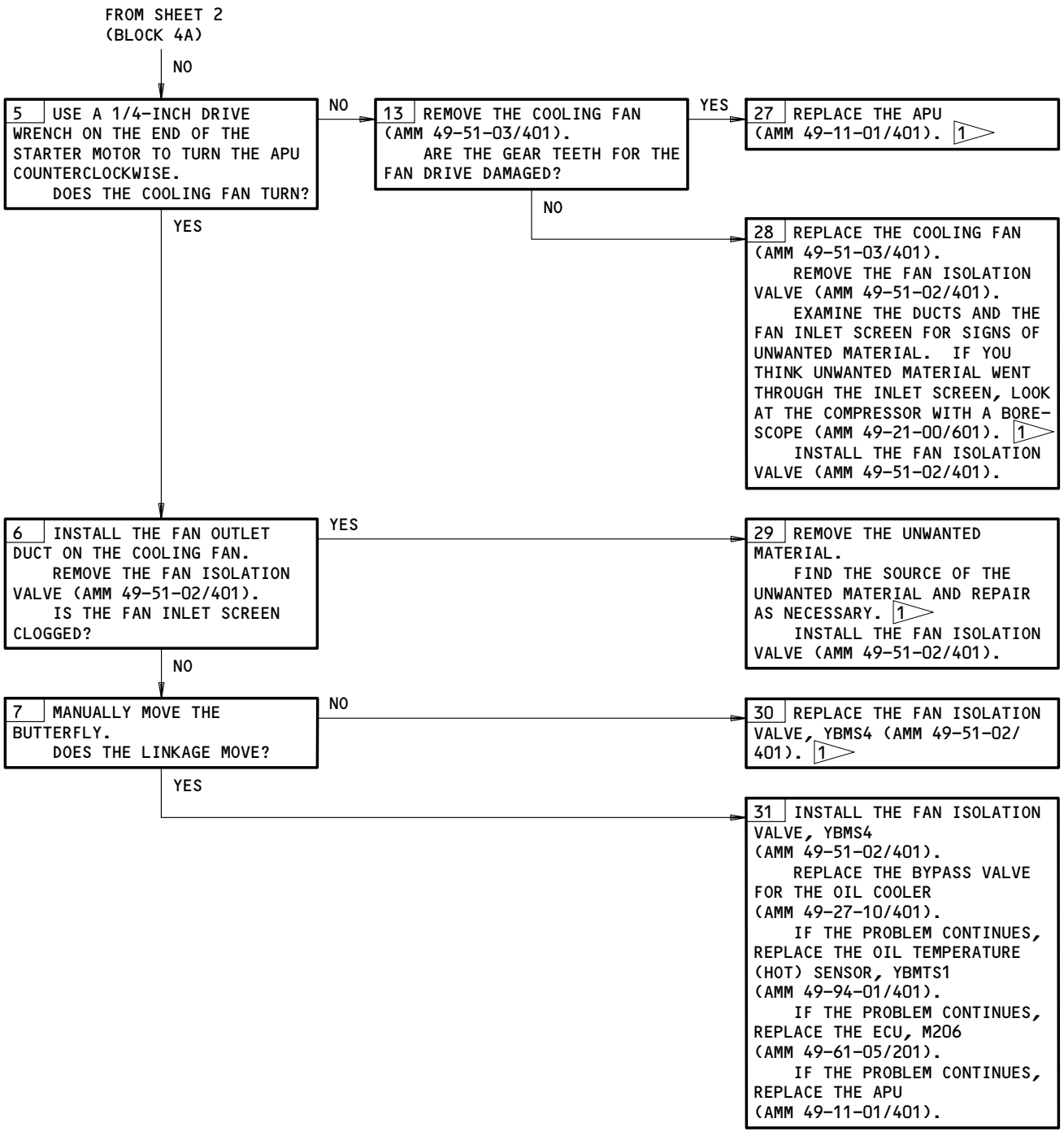
EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

156374



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - HOT on BITE
Figure 110 (Sheet 2)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - HOT on BITE
Figure 110 (Sheet 3)

AUTO SHUTDOWN – "OVER SPEED" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DID A "FAULTY UNIT" LIGHT COME ON DURING THE SYSTEM SELF-TEST?

NOTE: THESE LIGHTS CAN COME ON:
- P2 SENSOR
- FUEL CONTROL
- ECU.

YES → 6 DID THE "P2 SENSOR" LIGHT COME ON?

YES → 11 REPLACE THE P2 SENSOR, YBMTS4 (AMM 49-61-04/201). 1
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A1,A2,C8, AND C9, TO THE P2 SENSOR, CONNECTOR, PINS 1, 2,3, AND 4 (WDM 49-14-11).
REPAIR THE PROBLEMS THAT YOU FIND.

NO → 7 DID THE "FUEL CONTROL" LIGHT COME ON?

YES → 12 REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401). 1
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS H10 AND H11, TO THE TORQUE MOTOR, CONNECTOR, PINS 1 AND 2 (WDM 49-14-11).
REPAIR THE PROBLEMS THAT YOU FIND.

NO → 13 REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

NO → 2 EXAMINE THE TUBES FOR THE INLET PRESSURE (P2) SENSOR FOR BLOCKAGE.

NOTE: IF THE P2 SENSOR HAS A DEFECT, OR IF THE TUBES FOR THE P2 SENSOR ARE CLOGGED, AN OVERSPEED SHUTDOWN CAN OCCUR DURING A FLIGHT.

ARE THE TUBES CLOGGED?

YES → 14 REMOVE THE BLOCKAGE OR REPLACE THE TUBES. 1
IF THE PROBLEM CONTINUES, DO THE STEPS IN BLOCK 15.

NO → 15 REPLACE THE P2 SENSOR, YBMTS4 (AMM 49-61-04/201). 1
IF THE PROBLEM CONTINUES, REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401)
IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201).

1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown – OVER SPEED on BITE
Figure 111

AUTO SHUTDOWN – "GEN FILTER" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 LOOK AT THE POP-OUT BUTTON FOR THE DIFFERENTIAL PRESSURE INDICATOR FOR THE GENERATOR.
IS THE POP-OUT BUTTON EXTENDED?

YES → 9 INSPECT THE MAGNETIC CHIP DETECTOR (AMM 49-27-04/201).
DID YOU FIND METAL PARTICLES THAT ARE NOT PERMITTED?

YES → 20 REPLACE THE APU (AMM 49-11-01/401). 1

NO → 10 LOOK FOR SIGNS OF A GENERATOR FAILURE.
DOES THE GENERATOR HAVE A FAILURE?

YES → 20A REPLACE THE APU (AMM 49-11-01/401). 1

NO → 11 EXAMINE THE GENERATOR SCAVENGE FILTER FOR CONTAMINATION (AMM 49-27-03/201).
IS THE FILTER CONTAMINATED?

YES → 21 REPLACE THE OIL PRESSURE ELEMENT AND THE SCAVENGE FILTER ELEMENT (AMM 49-27-03/401).
REPLACE THE SCAVENGE OIL PUMP (AMM 49-27-02/401).
REPLACE THE APU GENERATOR (AMM 24-21-01/401).
CHANGE THE APU OIL (AMM 49-27-00/301).

NO → 22 REPLACE THE GENERATOR ΔP INDICATOR (AMM 49-27-16/401). 1
GO TO BLOCK 2.

NO → 2 REMOVE THE CONNECTOR AT THE GENERATOR ΔP SWITCH.
USE THE LOW CURRENT OHMMETER (10 MA MAXIMUM) TO MEASURE THE RESISTANCE FROM PIN 1 TO PIN 2 (WDM 49-14-11).
IS THE RESISTANCE MORE THAN 1.0 OHM?

YES → 23 REPLACE THE GENERATOR ΔP SWITCH, YBMS1 (AMM 49-27-15/401). 1

NO → 12 EXAMINE THE WIRING FROM THE ECU, CONNECTOR D1796B, PIN D11, TO THE ΔP SWITCH, PIN 1 (WDM 49-14-11).
IS THERE CONTINUITY?

NO → 24 REPAIR THE CIRCUIT IF IT IS NECESSARY. 1

YES → 25 REPLACE THE ECU, M206 (AMM 49-61-05/401). 1

1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown – GEN FILTER on BITE
Figure 112

PREREQUISITES

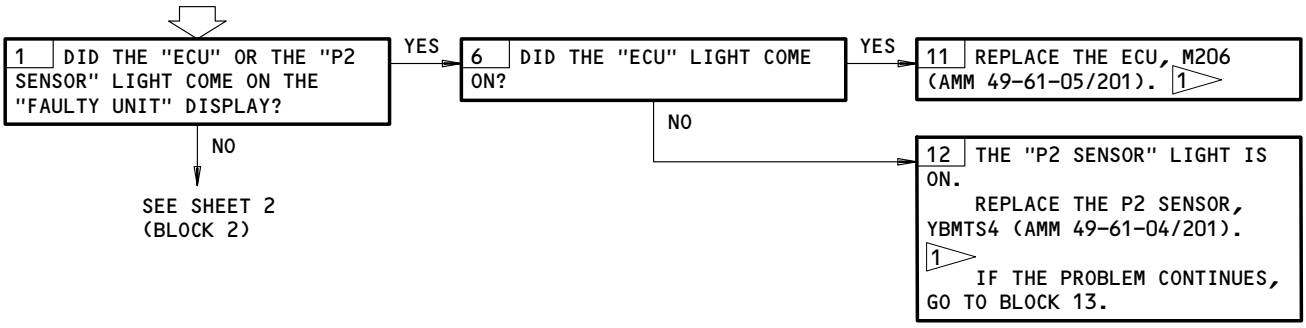
MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

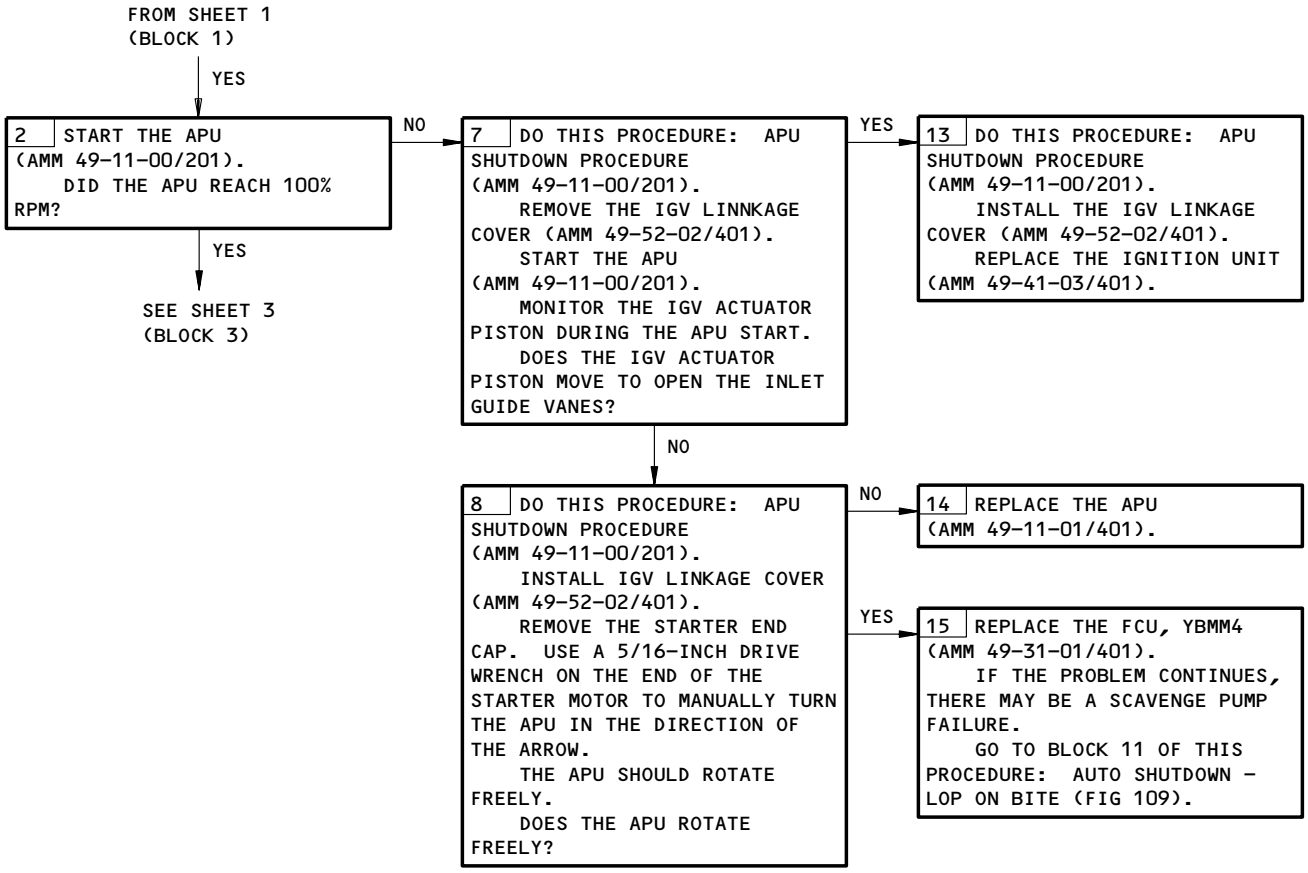
AUTO SHUTDOWN - "OVER TEMP" ON BITE

NOTE: IF THE APU HAS A START PROBLEM ("NO FLAME", "SLOW START", OR "NO ACCEL") AND THE AUTOMATIC SHUTDOWN "OVER TEMP", THERE IS A DEFECT IN THE FLOW DIVIDER OR THE PRIMARY FUEL NOZZLE.

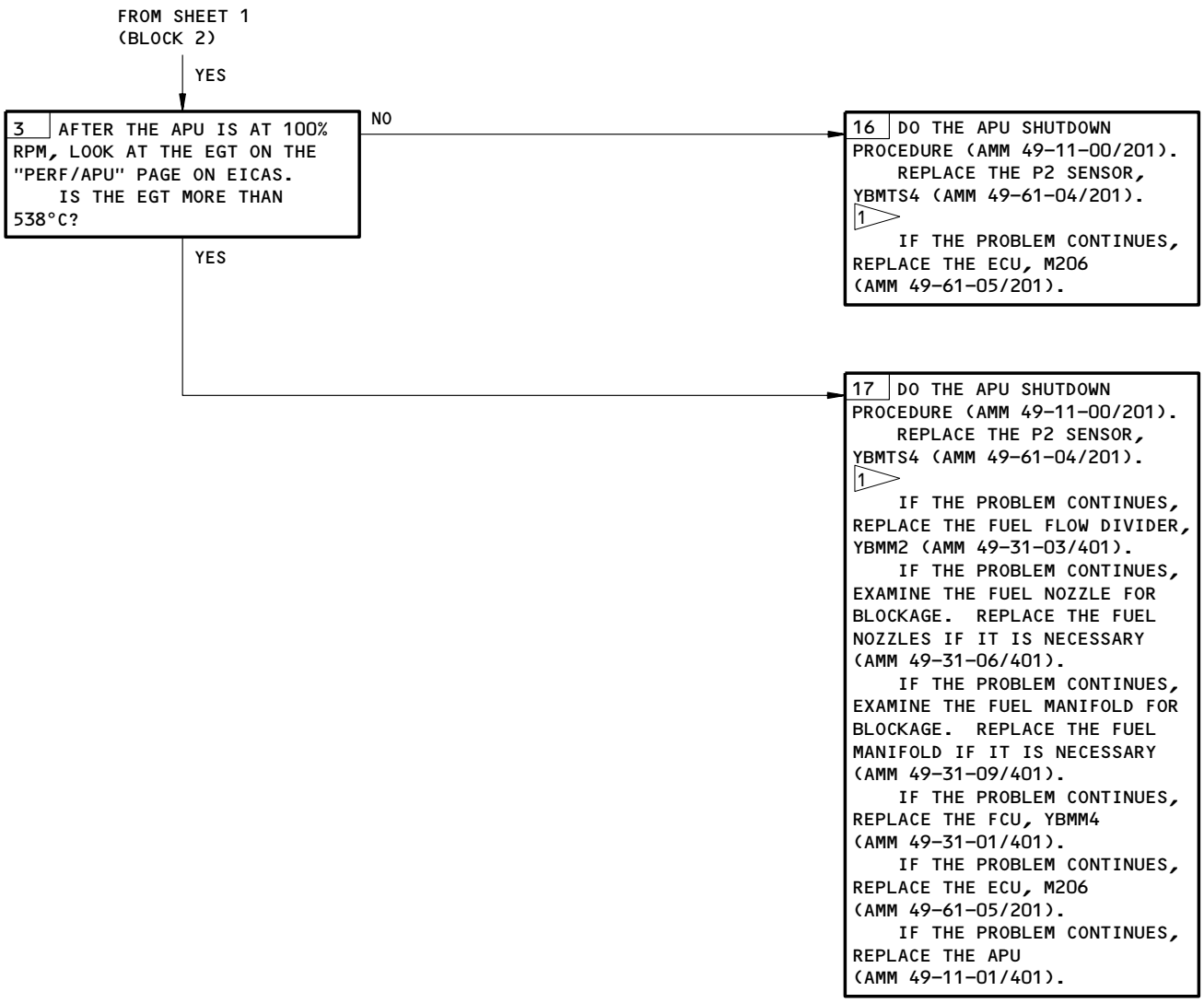


1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - OVER TEMP on BITE
Figure 113 (Sheet 1)



Auto Shutdown - OVER TEMP on BITE
Figure 113 (Sheet 2)



Auto Shutdown - OVER TEMP on BITE
Figure 113 (Sheet 3)

AUTO SHUTDOWN – "FAILED SENSOR" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DID THE "NO. 1 T/C RAKE" AND THE "NO. 2 T/C RAKE" LIGHTS COME ON?

NOTE: THE ECU MONITORS BOTH OF THE THERMOCOUPLE RAKES. IF THE DIFFERENCE BETWEEN THE SIGNALS OF RAKE 1 AND 2 IS MORE THAN 150°F (66.6°C), THE LIGHT FOR THE RAKE WITH THE LOWEST TEMPERATURE WILL COME ON. BOTH RAKES MUST HAVE A FAILURE TO CAUSE AN AUTOMATIC SHUTDOWN.

YES → 11 DISCONNECT THE APU HARNESS CONNECTOR (P2) AT THE FIREWALL.
MEASURE THE LOOP RESISTANCE FROM PINS 10 TO 24 AND PINS 11 TO 25. THE RESISTANCE MUST BE LESS THAN 5.0 OHMS.
IS THE RESISTANCE WITHIN THE LIMITS?

YES → 21 EXAMINE THE CIRCUIT FROM THE FIREWALL CONNECTOR TO THE ECU, M206 (WDM 49-14-11). 1
REPAIR THE PROBLEMS THAT YOU FIND.
IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201).

NO → 12 MEASURE THE RESISTANCE OF EACH THERMOCOUPLE.
IS THE RESISTANCE OF ANY THERMOCOUPLE MORE THAN 0.5 OHMS (AT 70 ±20°F)?

YES → 22 REPLACE THE THERMOCOUPLE, EGT NO. 1 (NO. 2), YBMTS6, (YBMTS7)(AMM 49-71-01/201). 1

NO → 23 REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

NO → 2 DID THE "NO. 1 SPD SENSOR" AND THE "NO. 2 SPD SENSOR" LIGHTS COME ON?

NOTE: THE ECU MONITORS BOTH OF THE MONOPOLES. A SIGNAL LOSS FROM BOTH MONOPOLES WILL CAUSE AN AUTOMATIC SHUTDOWN FOR "FAILED SENSOR". IF YOU TRY TO START THE APU, IT WILL SHUT DOWN. THE "FAILED SENSOR" WILL MOVE TO THE NEXT MEMORY LOCATION. THE "SLOW START" LIGHT WILL SHOW ON THE "FAULT DISPLAY", AND THE "APU STARTER" LIGHT WILL SHOW ON THE "FAULTY UNIT" DISPLAY.

YES → 13 REMOVE BOTH OF THE APU MONOPOLES (RPM), YBMTS6, YBMTS7 (AMM 49-61-02/401).
LOOK AT THE TIPS FOR DAMAGE.

NOTE: YOU CAN PUT A BOROSCOPE INTO THE MONOPOLE OPENINGS TO LOOK AT THE ENGINE BEARINGS.

DO THE MONOPOLE TIPS HAVE DAMAGE?

YES → 25 REPLACE THE APU (AMM 49-11-01/401).

NO → 24 REPLACE BOTH OF THE APU MONOPOLES (RPM), YBMTS8, YBMTS9 (AMM 49-61-02/401). 1
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU TO THE MONOPOLES.
REPAIR THE PROBLEMS THAT YOU FIND.
IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

NO → 26 REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown – FAILED SENSOR on BITE
Figure 114

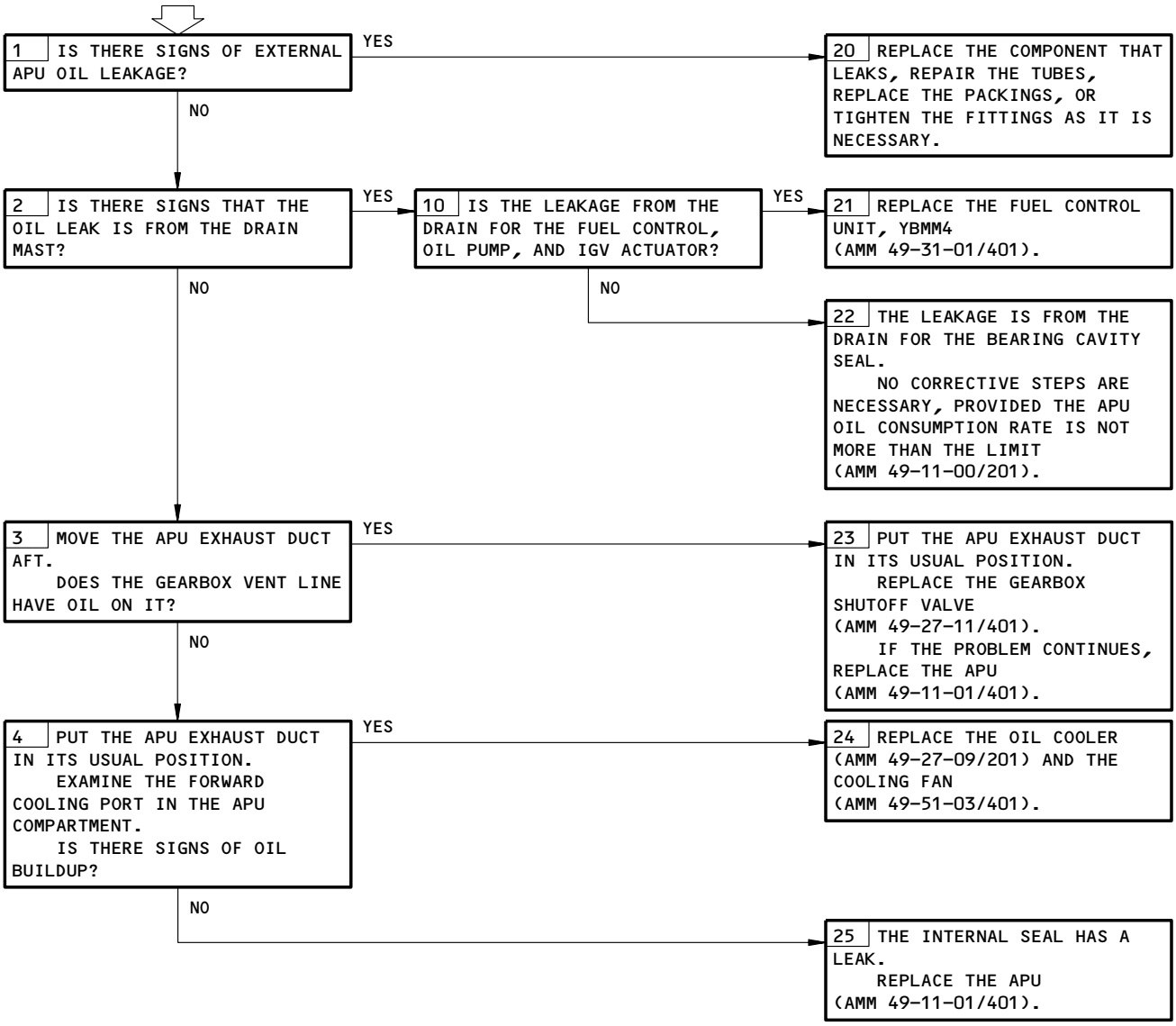
EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

139044

HIGH OIL CONSUMPTION

PREREQUISITES

NONE



High Oil Consumption
Figure 115

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THIS CIRCUIT BREAKER IS CLOSED:
11A33

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

EICAS MSG "APU OIL QTY" DISPLAYED

1 START THE APU (AMM 49-11-00/201.
OPERATE THE APU FOR 5 MINUTES. DO THIS PROCEDURE: MAINTENANCE MESSAGE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).
DOES THE "APU OIL QTY" MESSAGE SHOW IMMEDIATELY?

NO → 20 THE SYSTEM IS OK.
DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).

YES ↓

2 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REMOVE FILL CAP AND CHECK OIL LEVEL IN RESERVOIR BY ADDING APPROVED OIL UNTIL IT IS FULL (OVERFLOWS)(AMM 12-13-04/301).
DID THE APU NEED MORE THAN 2 QUARTS OF OIL TO BE FULL?

NO → 10 [1] ;
GO TO BLOCK 21.
[2] ;
REMOVE THE CONNECTOR FROM THE OIL QUANTITY TRANSMITTER, YBMS3. CLEAN THE CONNECTOR AND THE TRANSMITTER. REMOVE ALL CONTAMINATION SUCH AS OIL OR GREASE. REPLACE THE CONNECTOR ON THE TRANSMITTER.
START THE APU (AMM 49-11-00/201).
OPERATE THE APU FOR 5 MINUTES. DO THIS PROCEDURE: MAINTENANCE MESSAGE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).
DOES THE "APU OIL QTY" MESSAGE SHOW IMMEDIATELY?

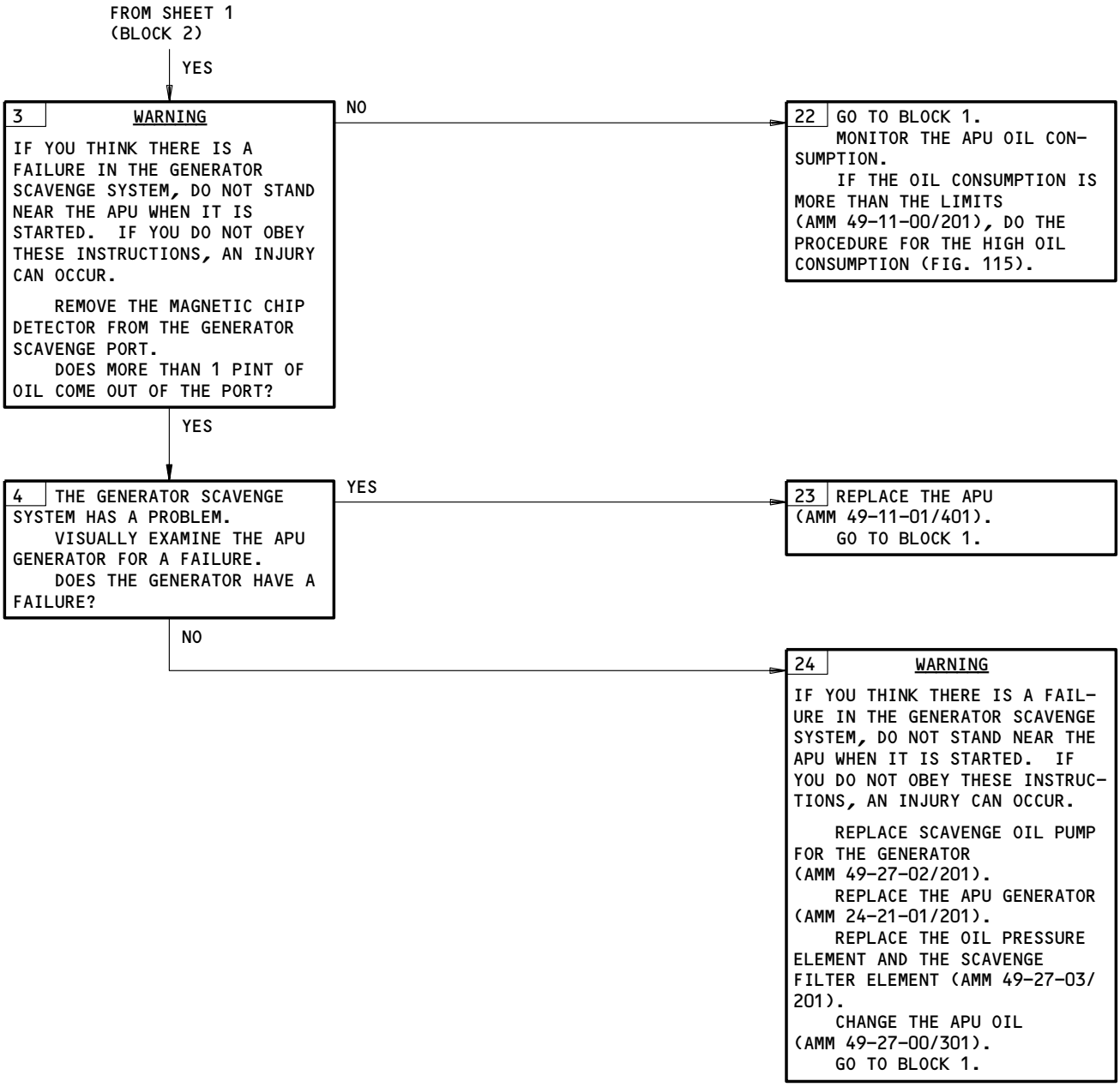
YES → 21 REPLACE THE OIL LEVEL SWITCH, YBMS3 (AMM 49-94-03/201). [1]
REPLACE THE OIL QUANTITY TRANSMITTER, YBMS3 (AMM 49-94-04/201). [2]
DO THIS PROCEDURE: MAINTENANCE MESSAGE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).

NO → 21A THE SYSTEM IS OK.
DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).

SEE SHEET 2
(BLOCK 3)

[1] GUI 001-114,116-999
[2] GUI 115

EICAS Msg APU OIL QTY Displayed
Figure 116 (Sheet 1)



EICAS Msg APU OIL QTY Displayed
Figure 116 (Sheet 2)

APU WILL NOT CARRY PNEUMATIC AND ELECTRICAL LOAD ASSOCIATED WITH RPM DROOP

PREREQUISITES
NONE

1	REPLACE THE P2 SENSOR (AMM 49-61-04/201). IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201). IF THE PROBLEM CONTINUES, REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401). IF THE PROBLEM CONTINUES, REPLACE THE FUEL FLOW DIVIDER (AMM 49-31-02/401). IF THE PROBLEM CONTINUES, REPLACE THE SECONDARY FUEL MANIFOLDS AND NOZZLES (AMM 49-31-06/401).

APU Will Not Carry Pneumatic and Electrical Load Associated with RPM Droop
Figure 117

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

NO DUCT PRESSURE IN ANY MODE (0-2 PSIG)

1 EITHER APU COMPONENT OR PNEUMATIC SYSTEM COMPONENT MAY BE AT FAULT.
PUSH THE TWO BLEED AIR L (R) ENG SWITCHES ON THE P5 PANEL TO THE "OFF" POSITION.
PUSH THE BLEED AIR ISOLATION VALVE SWITCH TO THE OPEN POSITION.
PUSH THE BLEED AIR APU VALVE SWITCH TO THE OPEN POSITION.
IDENTIFY IF THE APU SHUTOFF VALVE OPENED: DID THE "BLEED AIR, APU, VALVE" LIGHT COME ON, THEN GO OFF IN LESS THAN 10 SECONDS?

NO → 11 PNEUMATIC COMPONENT IS CAUSE OF NO DUCT PRESSURE PROBLEM.
LOOK AT THE POSITION INDICATION ON THE APU SHUTOFF VALVE.
IS THE APU SHUTOFF VALVE CLOSED AND LOCKED?

YES → 21 UNLOCK THE APU SHUTOFF VALVE UNLESS IT IS LOCKED FOR OTHER CAUSES.

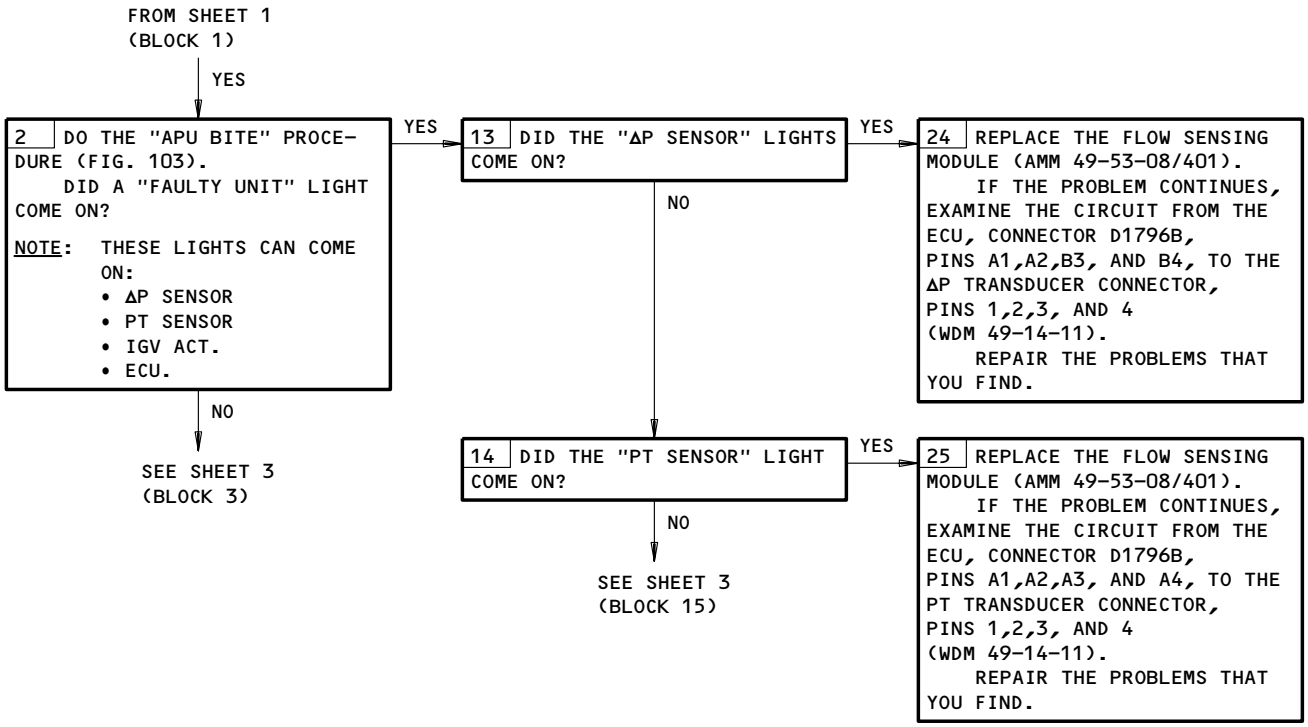
NO → 12 MAKE SURE THE TWO BLEED AIR L (R) ENG SWITCHES ON THE P5 PANEL ARE SET TO THE "OFF" POSITION.
IS THE BLEED AIR, L (R) ENG, "OFF" SWITCH LIGHT ON?

YES → 22 DO THIS PROCEDURE: EICAS MESSAGE "APU BLEED VAL" DISPLAYED. "VALVE" LIGHT ILLUMINATED (FIM 36-10-00/101, FIG. 114).

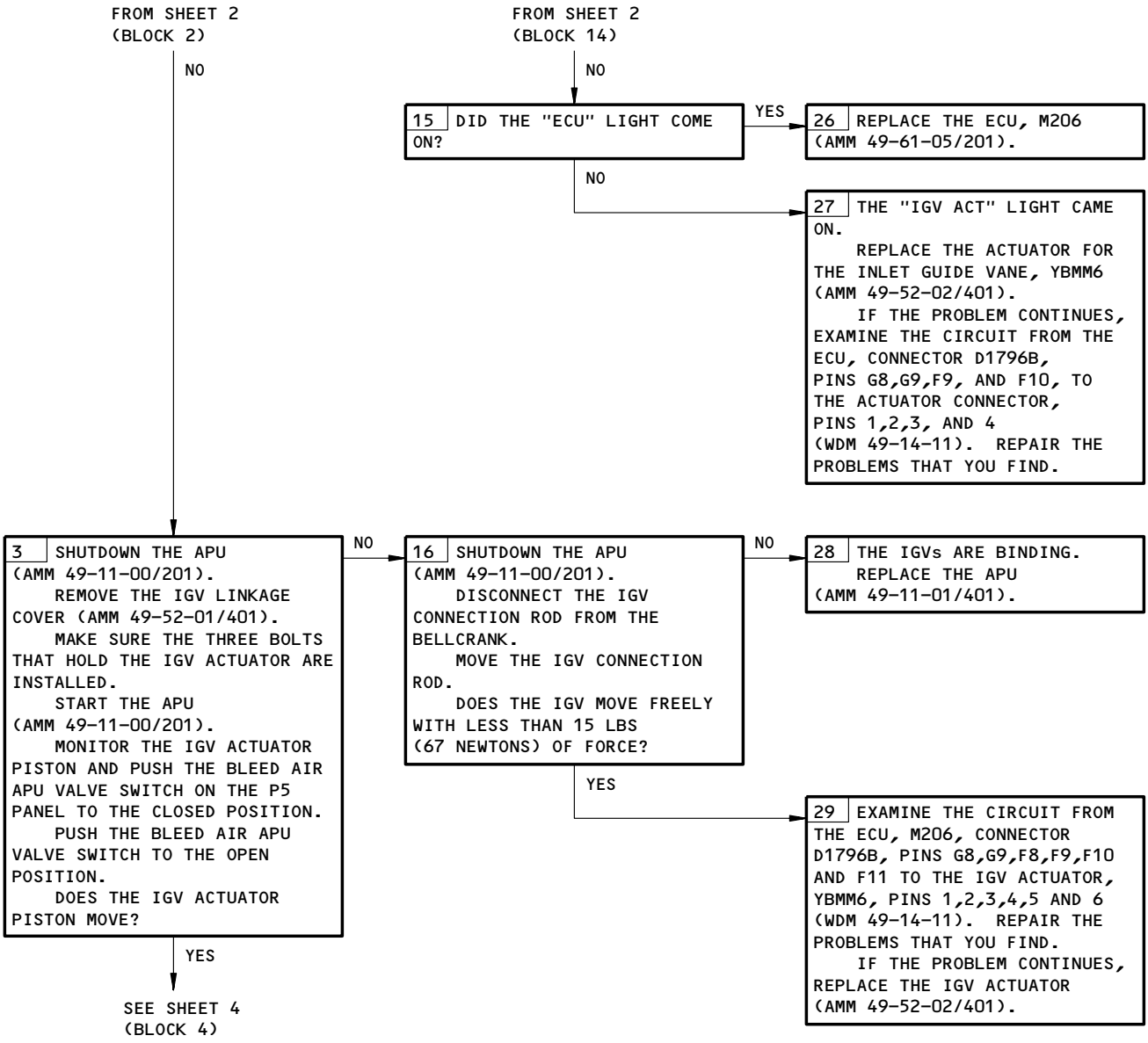
NO → 23 DO THIS PROCEDURE: L (R) ENG BLEED AIR OFF LIGHT DID NOT ILLUMINATE WITH SWITCH ON AND ENGINES NOT RUNNING (FIM 36-10-00/101, FIG. 103).

YES → SEE SHEET 2 (BLOCK 2)

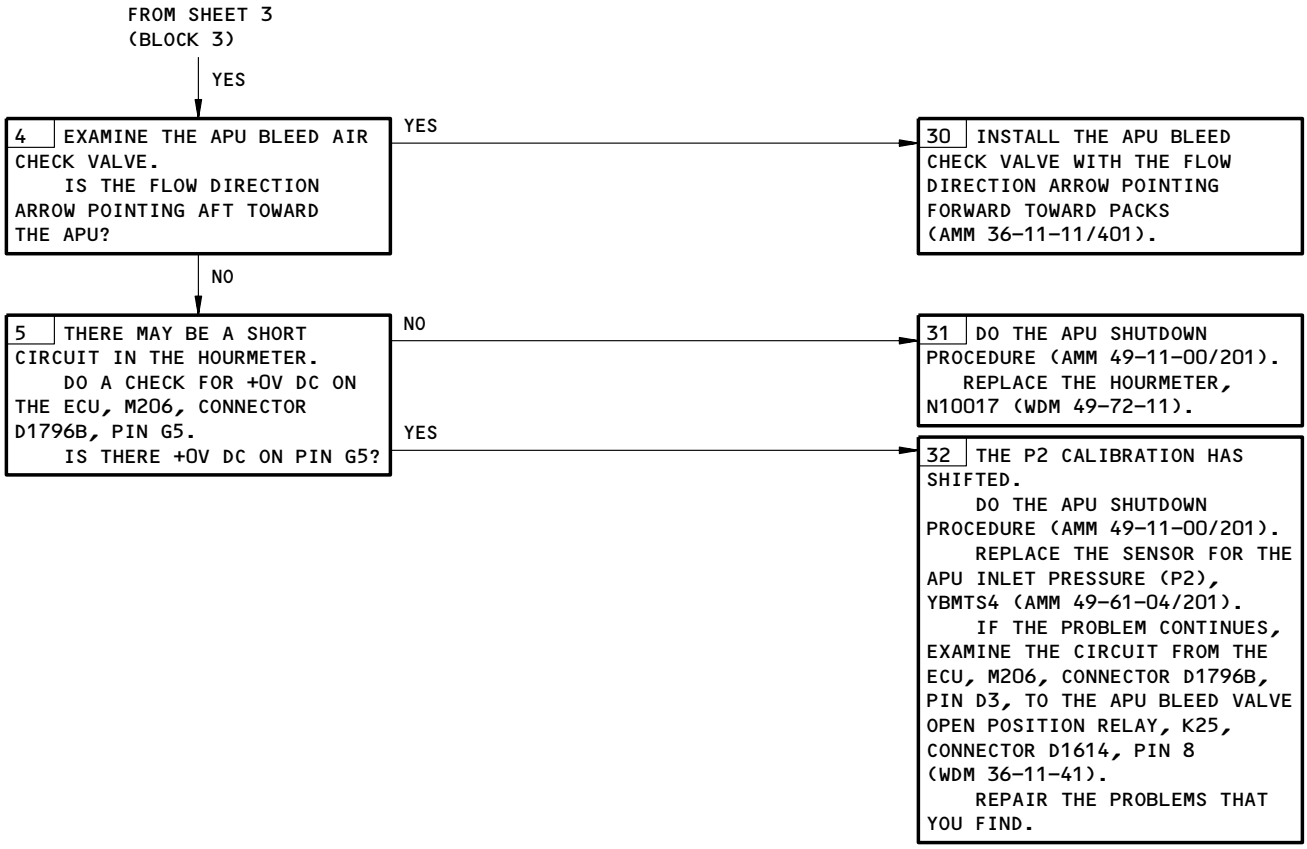
No Duct Pressure in Any Mode (0-2 PSIG)
Figure 118 (Sheet 1)



No Duct Pressure in Any Mode (0-2 PSIG)
Figure 118 (Sheet 2)



No Duct Pressure in Any Mode (0-2 PSIG)
Figure 118 (Sheet 3)



No Duct Pressure in Any Mode (0-2 PSIG)
Figure 118 (Sheet 4)

C75824

PREREQUISITES

MAKE SURE THESE SYSTEMS WILL OPERATE:
EICAS (AMM 31-41-00/201)
APU START NORMAL

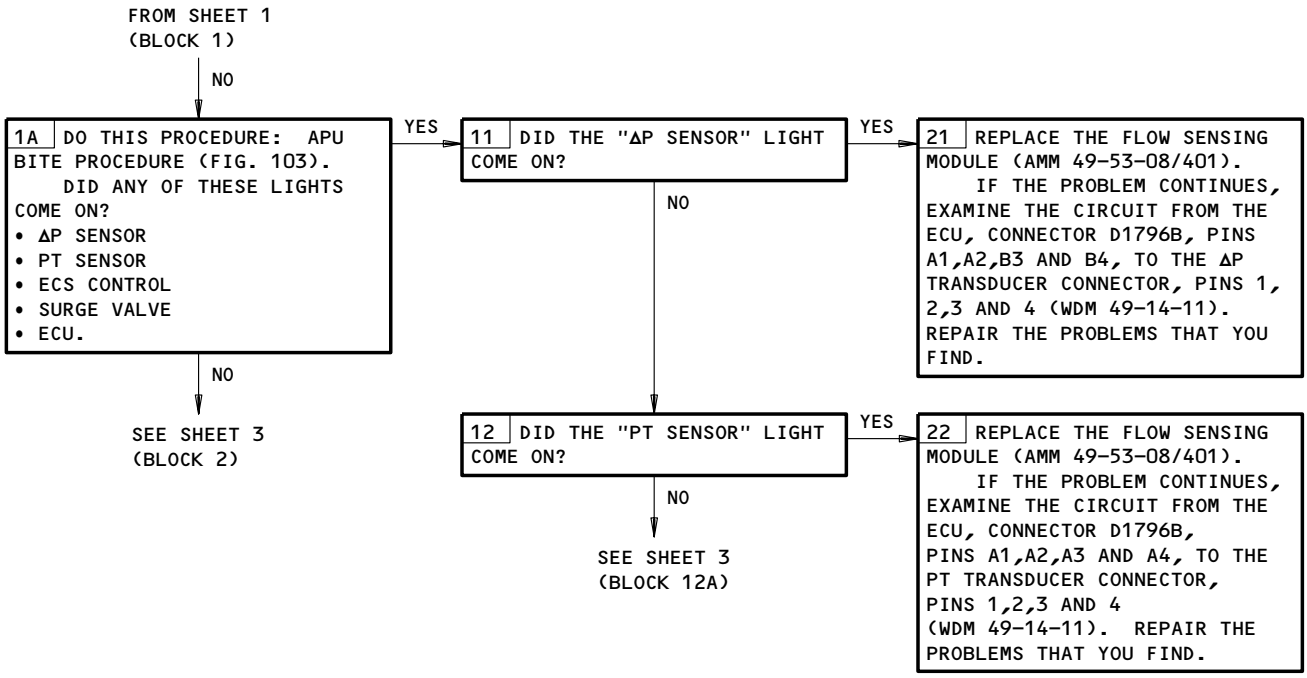
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35,
APU CONT, APU START, APU INLET DR ACT
(AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

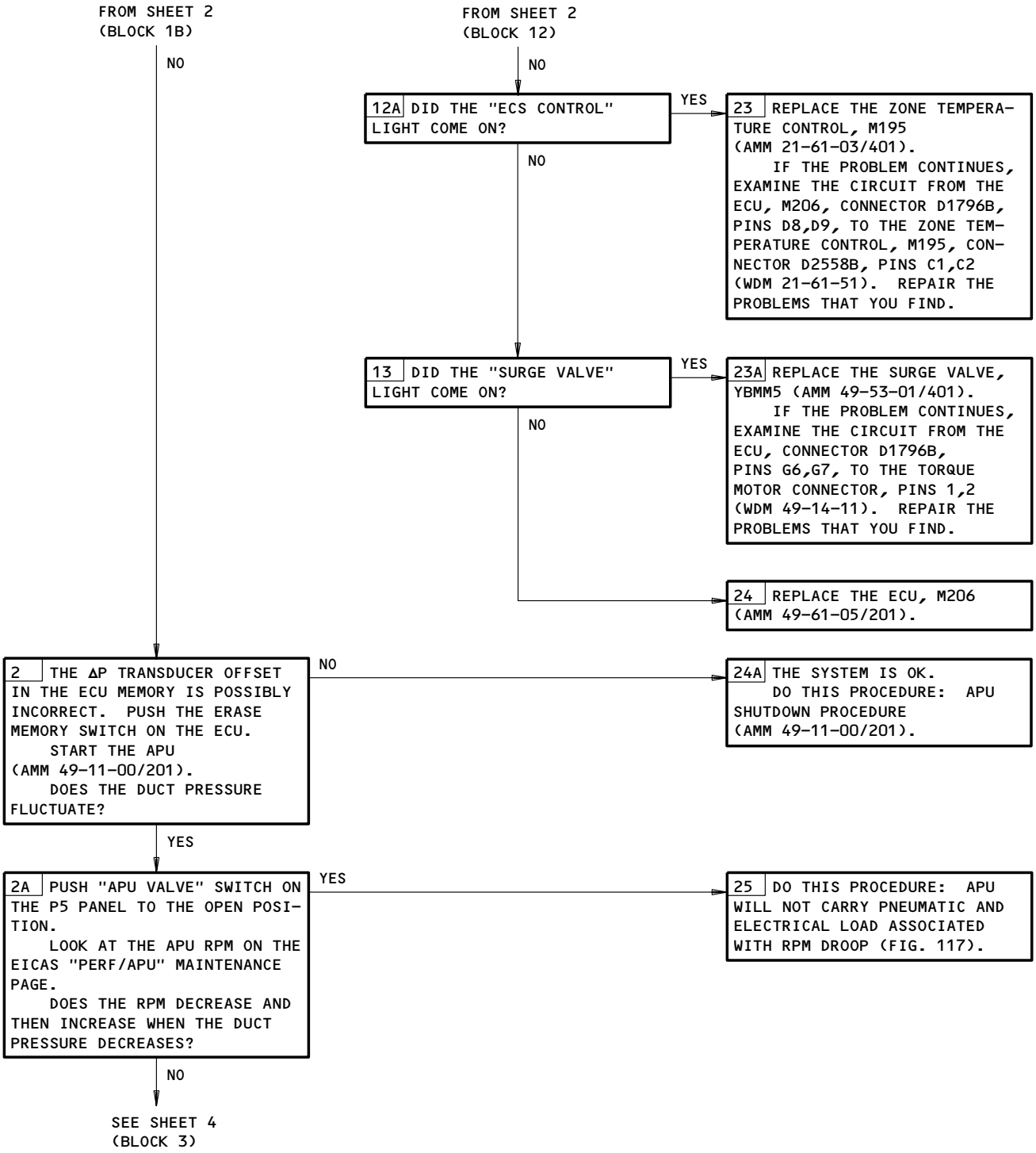
NOTE: IF YOU LOSE ELECTRICAL POWER WHEN YOU TRANSFER FROM ONE GENERATOR TO ANOTHER, THE DUCT PRESSURE WILL MOMENTARILY BE IRREGULAR.

FLUCTUATING DUCT PRESSURE

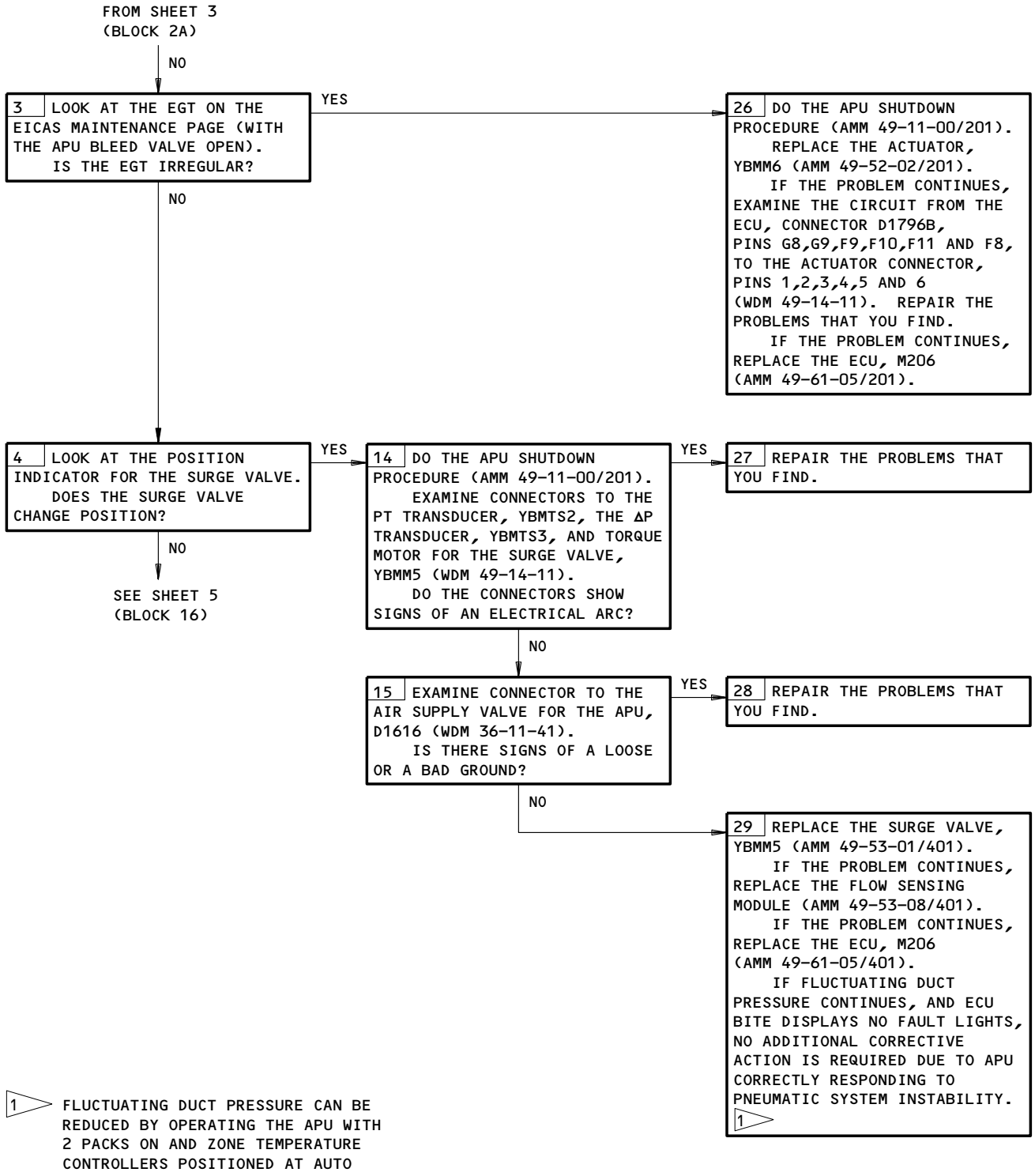
Fluctuating Duct Pressure
Figure 119 (Sheet 1)



Fluctuating Duct Pressure
Figure 119 (Sheet 2)



Fluctuating Duct Pressure
Figure 119 (Sheet 3)



Fluctuating Duct Pressure
Figure 119 (Sheet 4)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

881312

FROM SHEET 4
(BLOCK 4)

NO

16 THERE MAY BE AN INTER-MITTENT SHORT CIRCUIT IN THE HOURMETER.
DO A CHECK FROM +0V DC ON THE ECU, M206, CONNECTOR D1796B, PIN G5.
IS THERE +0V DC ON PIN G5?

NO

30 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE HOURMETER, N10017 (WDM 49-72-11).

YES

26 OPEN THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER AND OPERATE THE APU (AMM 49-11-00/201).
IF THE PROBLEM STOPS, CLOSE THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER.
DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE APU BATTERY CHARGER, M207 (AMM 24-31-04/401).
IF THE PROBLEM CONTINUES, CLOSE THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER.
DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
DO THIS PROCEDURE: WITH THE APU AS SOURCE THE L (R) DUCT PRESS WAS (HIGH/LOW/FLUCTUATES) WITH THE ISOL VALVE OPEN. DUCT PRESS ON THE OTHER SIDE WAS NORM. (FIM 36-20-00/101, FIG. 103).

Fluctuating Duct Pressure
Figure 119 (Sheet 5)

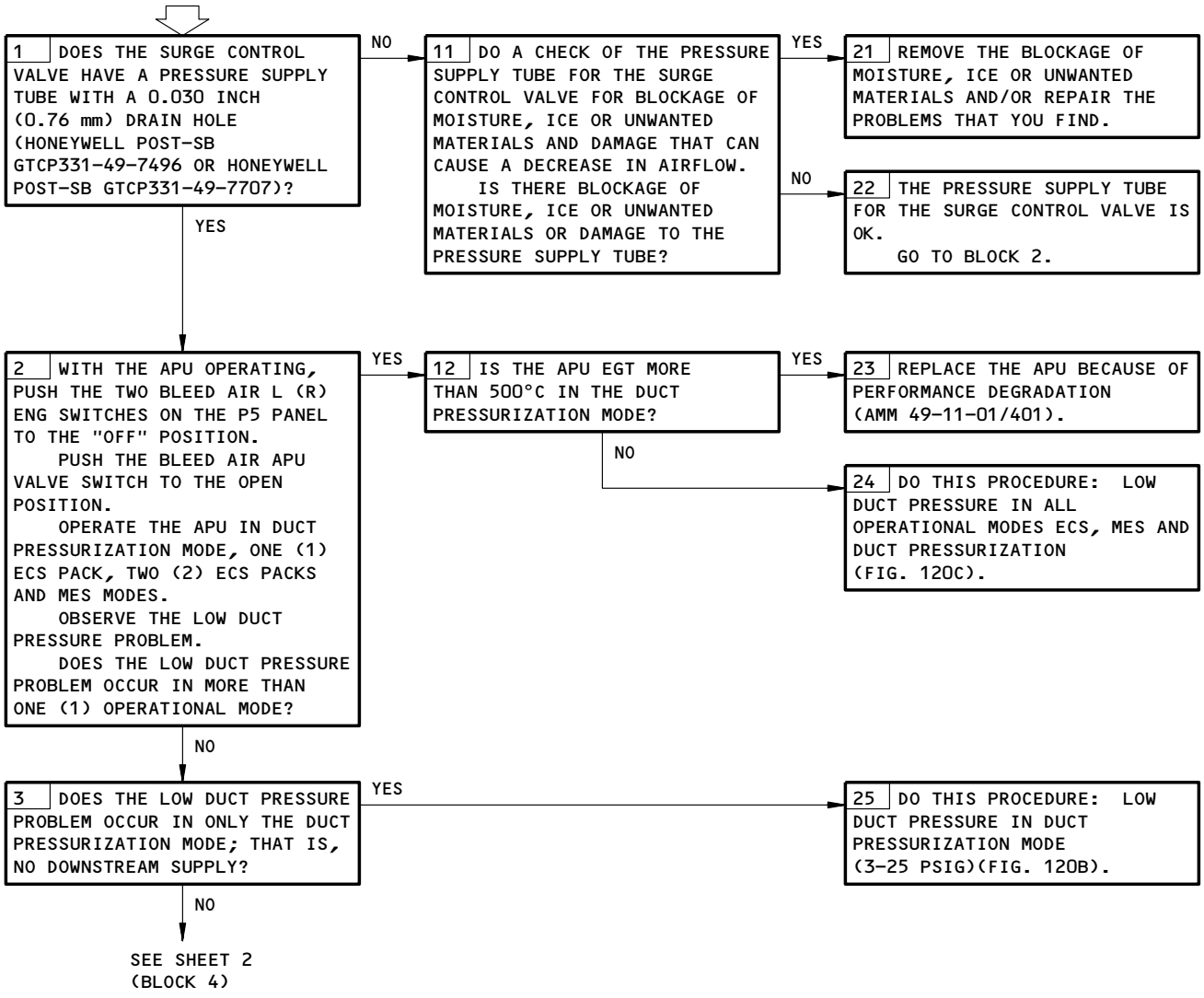
LOW DUCT PRESSURE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35,
APU CONT, APU START, APU INLET DR ACT
(AFT EQUIPMENT CENTER, E6)

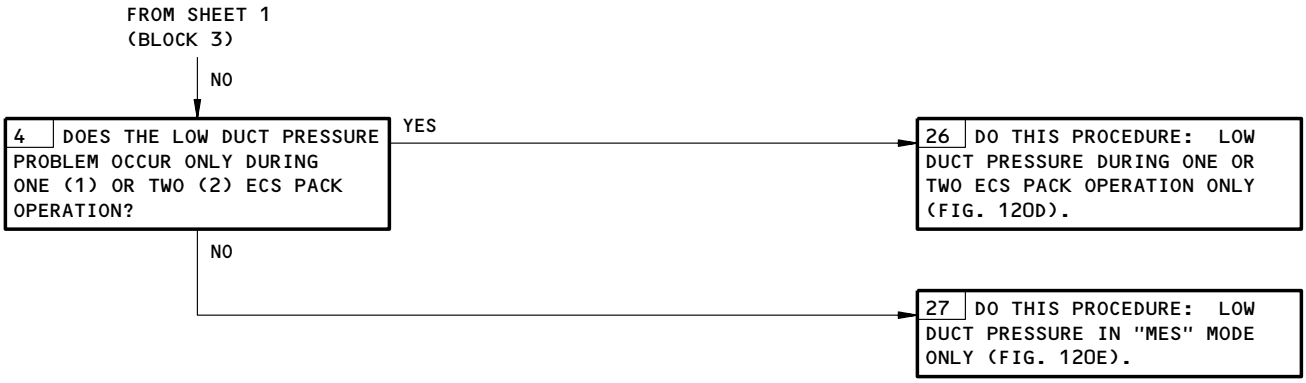
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



Low Duct Pressure
Figure 120 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH THE APU
CONTROL UNIT -18 AND BEFORE

C75858



Low Duct Pressure
Figure 120 (Sheet 2)

W45487

Not Used
Figure 120A

LOW DUCT PRESSURE IN DUCT PRESSURIZATION MODE (3-25 PSIG)

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35,
APU CONT, APU START, APU INLET DR ACT
(AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DOES THE SURGE CONTROL VALVE HAVE A PRESSURE SUPPLY TUBE WITH A 0.030 INCH (0.76 mm) DRAIN HOLE (HONEYWELL POST-SB GTCP331-49-7496 OR HONEYWELL POST-SB GTCP331-49-7707)?

NO

11 DO A CHECK OF THE PRESSURE SUPPLY TUBE FOR THE SURGE CONTROL VALVE FOR BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS AND DAMAGE THAT CAN CAUSE A DECREASE IN AIRFLOW.
IS THERE BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS OR DAMAGE TO THE PRESSURE SUPPLY TUBE?

YES

21 REMOVE THE BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS AND/OR REPAIR THE PROBLEMS THAT YOU FIND.

NO

22 THE PRESSURE SUPPLY TUBE FOR THE SURGE CONTROL VALVE IS OK.
GO TO BLOCK 2.

YES

2 START THE APU (AMM 49-11-00/201).
PUSH THE TWO BLEED AIR L (R) ENG SWITCHES ON THE P5 PANEL TO THE "OFF" POSITION.
PUSH THE BLEED AIR ISOLATION VALVE SWITCH TO THE OPEN POSITION.
PUSH THE BLEED AIR APU VALVE SWITCH TO THE OPEN POSITION.
SELECT THE LEFT AND RIGHT ECS PACKS ON.
LOOK AT THE POSITION INDICATOR ON THE SURGE CONTROL VALVE ON THE APU.
IS THE VALVE IN THE CLOSED OR APPROXIMATE CLOSED POSITION?

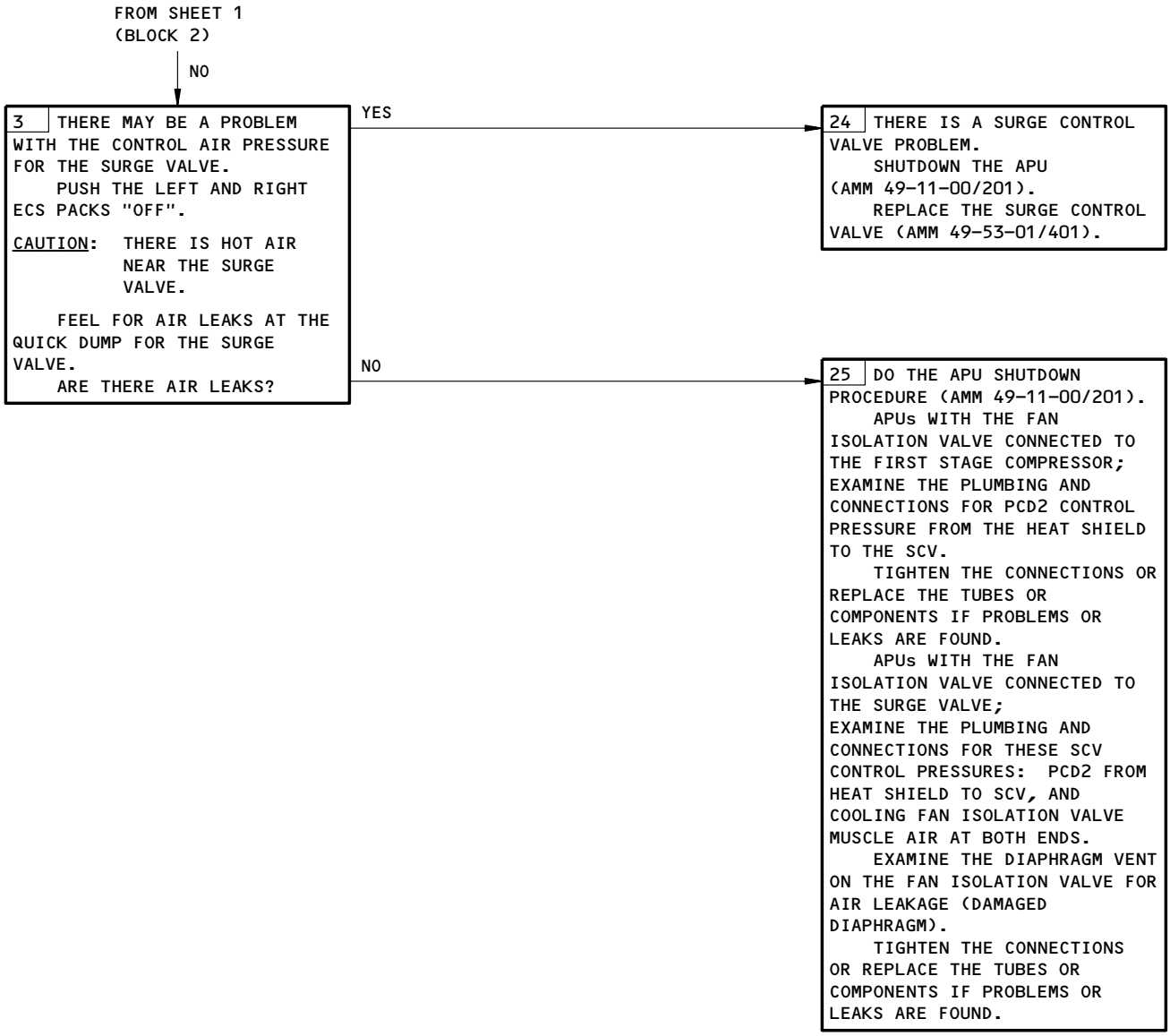
YES

23 THERE IS A LEAK IN A DOWNSTREAM SOURCE.
EXAMINE ALL DUCTS AND CLAMPS TO MAKE SURE THERE ARE NO PROBLEMS.
LOOK AT THE POSITION INDICATORS ON THE LEFT AND RIGHT FLOW CONTROL VALVES.
MAKE SURE THE TWO CONTROL VALVES ARE FULLY CLOSED.

NO

SEE SHEET 2
(BLOCK 3)

Low Duct Pressure in Duct Pressurization Mode (3-25 PSIG)
Figure 120B (Sheet 1)



Low Duct Pressure in Duct Pressurization Mode (3-25 PSIG)
Figure 120B (Sheet 2)

LOW DUCT PRESSURE IN ALL OPERATIONAL MODES: ECS, MES AND DUCT PRESSURIZATION

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35,
APU CONT, APU START,
APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DOES THE SURGE CONTROL VALVE HAVE A PRESSURE SUPPLY TUBE WITH A 0.030 INCH (0.76 mm) DRAIN HOLE (HONEYWELL POST-SB GTCP331-49-7496 OR HONEYWELL POST-SB GTCP331-49-7707)?

NO → 10 DO A CHECK OF THE PRESSURE SUPPLY TUBE FOR THE SURGE CONTROL VALVE FOR BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS AND DAMAGE THAT CAN CAUSE A DECREASE IN AIRFLOW.
IS THERE BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS OR DAMAGE TO THE PRESSURE SUPPLY TUBE?

YES → 40 REMOVE THE BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS AND/OR REPAIR THE PROBLEMS THAT YOU FIND.

NO → 41 THE PRESSURE SUPPLY TUBE FOR THE SURGE CONTROL VALVE IS OK.
GO TO BLOCK 1A.

YES

1A DO THE "BITE" PROCEDURE (FIG. 103).
DID A "FAULTY UNIT" LIGHT COME ON?

NOTE: THESE LIGHTS CAN COME ON:
- SURGE VALVE
- IGV ACT
- ECU
- LCIT SENSOR.

YES → 11 DID THE "SURGE VALVE" LIGHT COME ON?

YES → 42 REPLACE THE SURGE VALVE, YBMM5 (AMM 49-53-01/401).
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS G6 AND G7, TO THE TORQUE MOTOR CONNECTOR, PINS 1 AND 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.

NO

NO

SEE SHEET 3
(BLOCK 2)

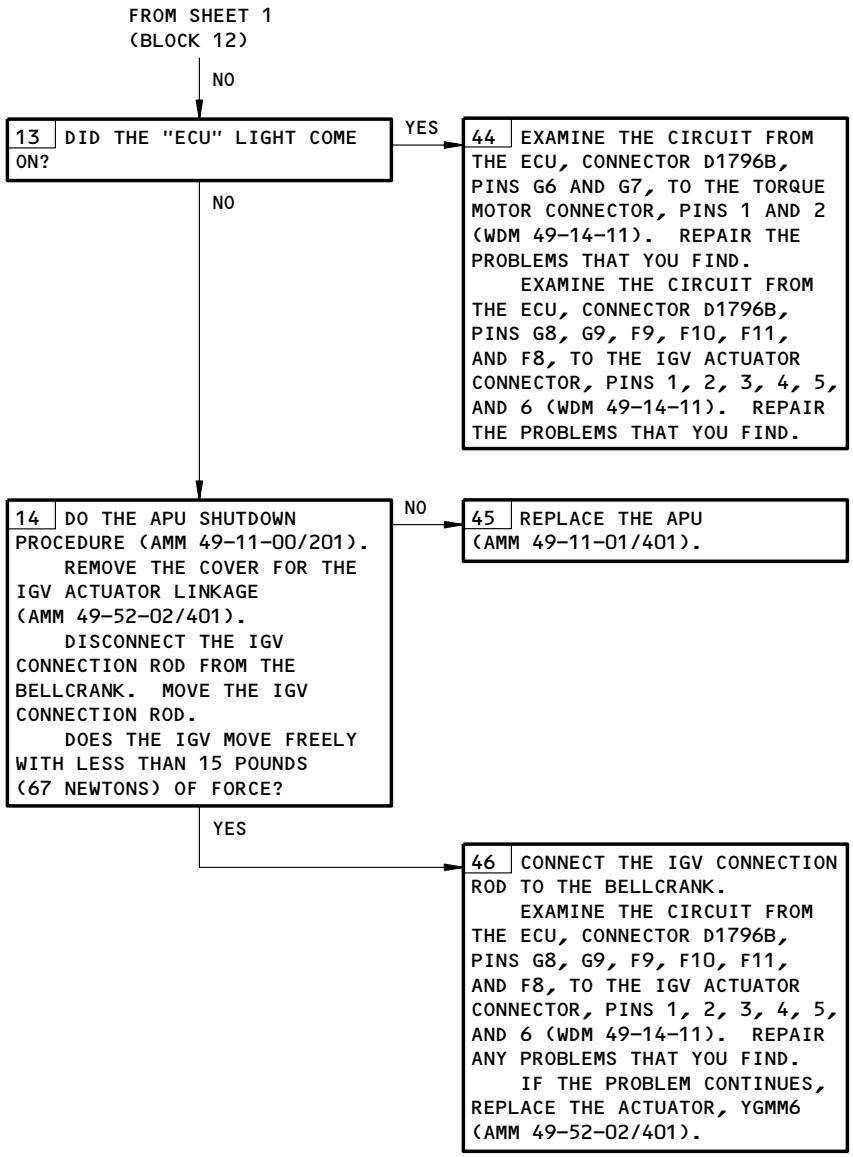
12 DID THE "LCIT SENSOR" LIGHT COME ON?

YES → 43 REPLACE THE LOAD COMPRESSOR INLET TEMPERATURE SENSOR, YBMTS5 (AMM 49-61-03/401).
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS E6 AND E7, TO THE LCIT SENSOR CONNECTOR, PINS 9 AND 23 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.

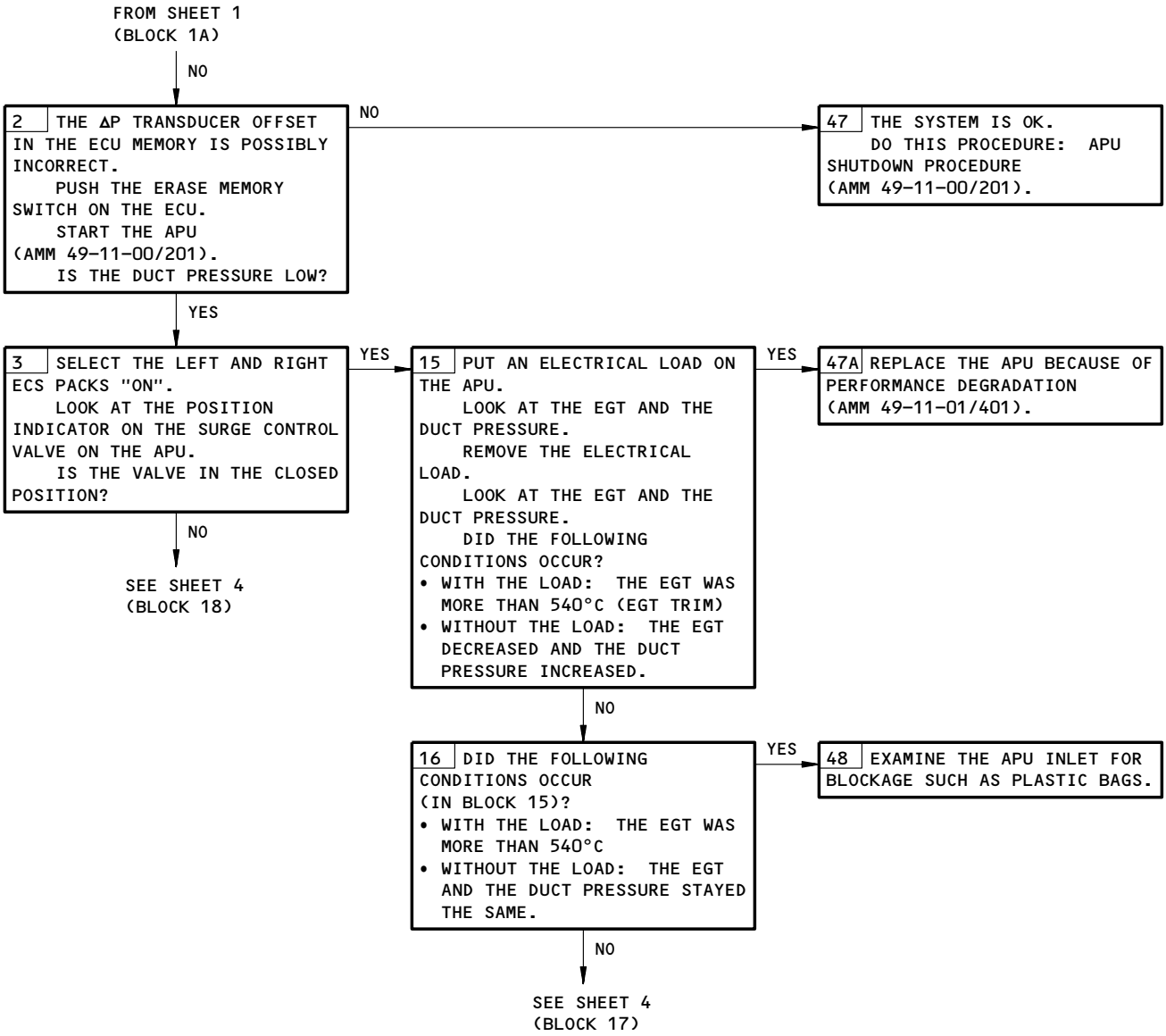
NO

SEE SHEET 2
(BLOCK 13)

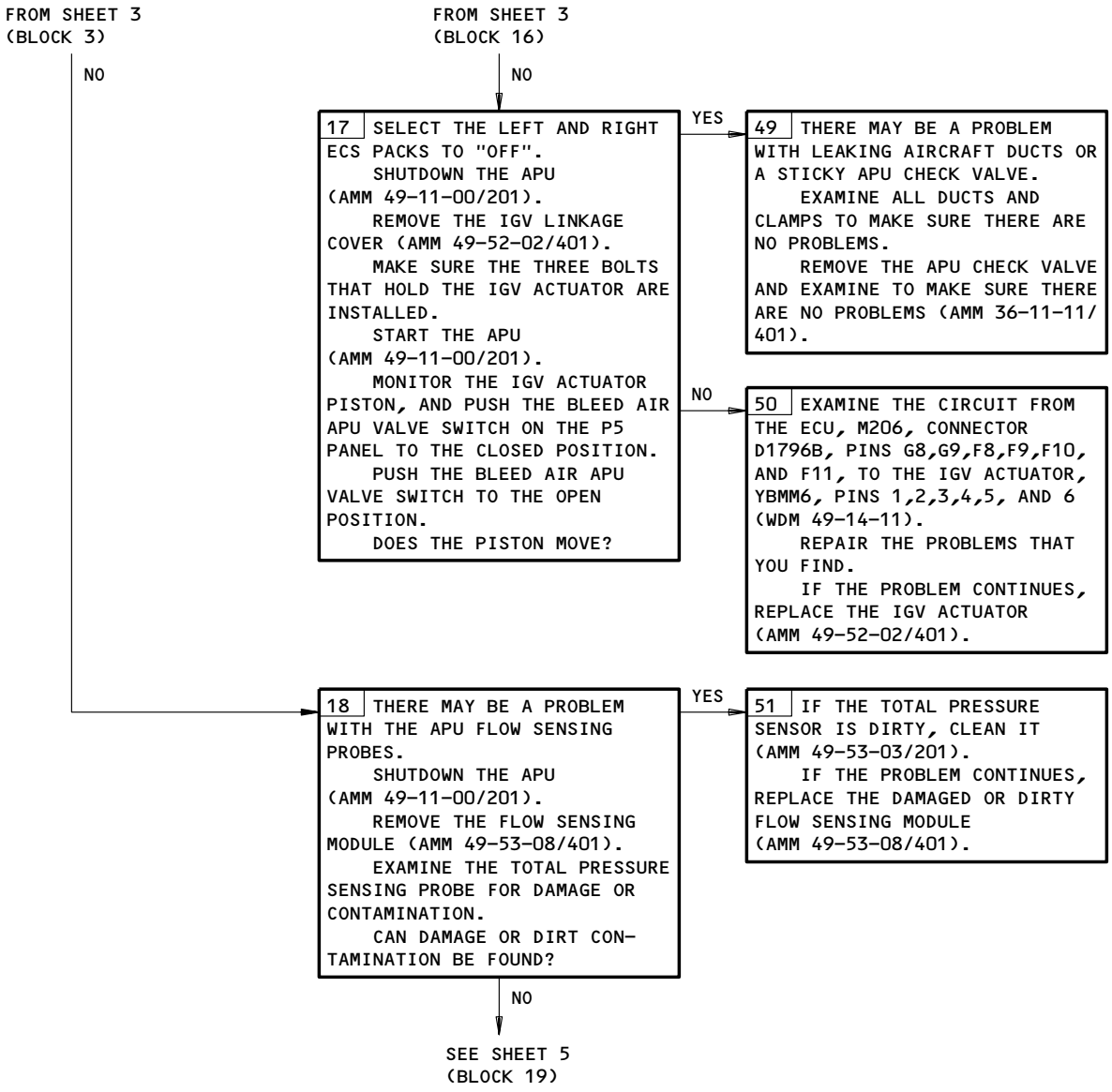
Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 1)



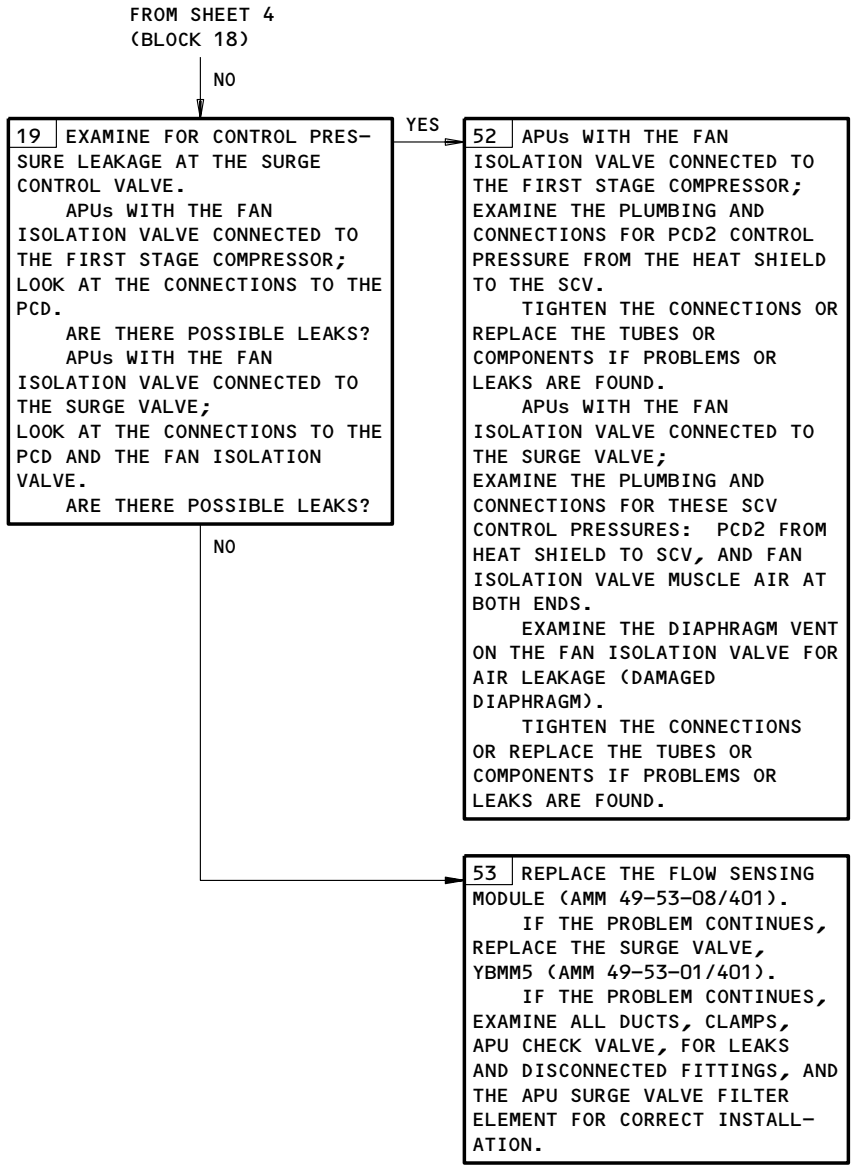
Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 2)



Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 3)



Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 4)



Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 5)

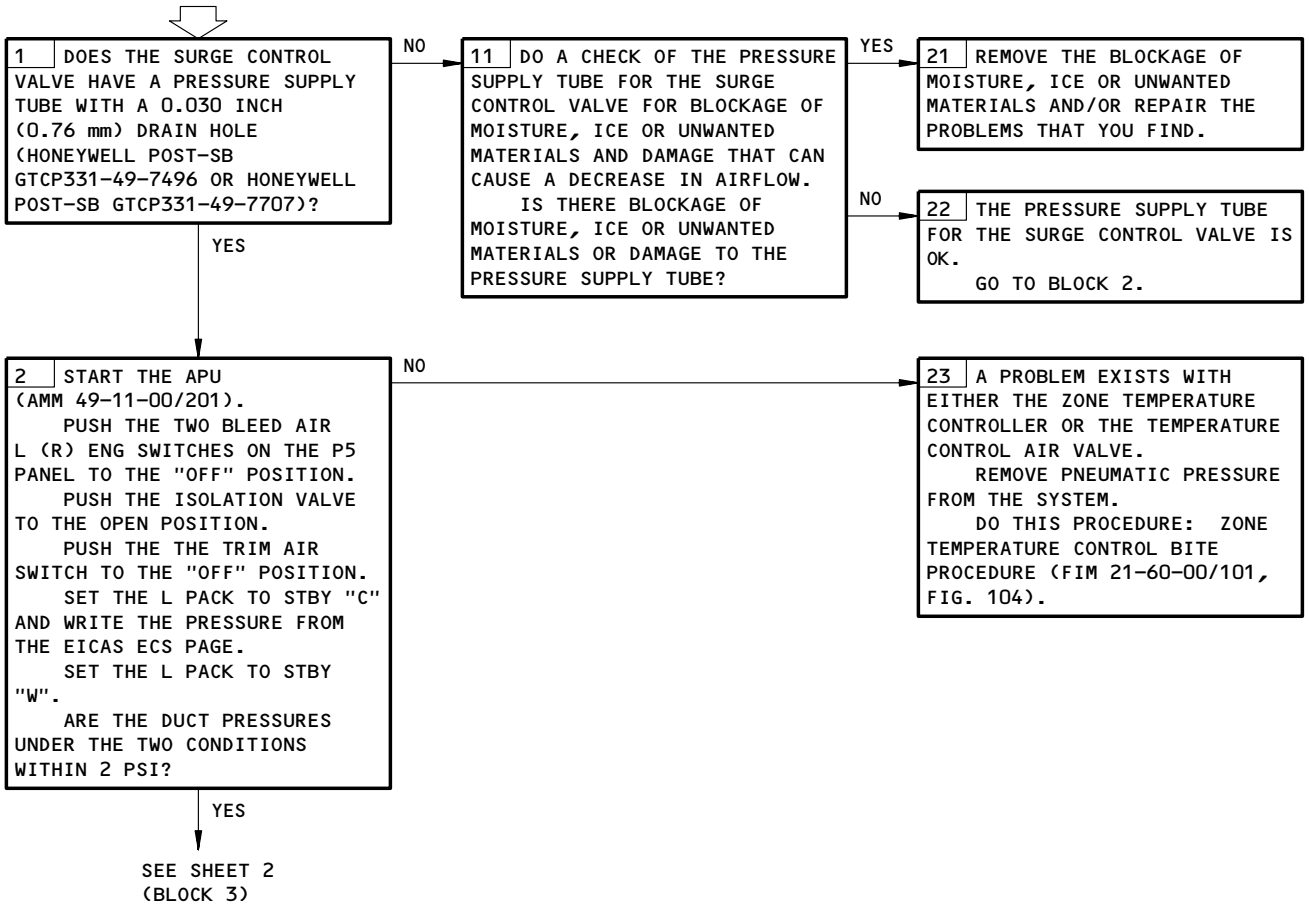
LOW DUCT PRESSURE DURING ONE OR TWO ECS PACK OPERATION ONLY

PREREQUISITES

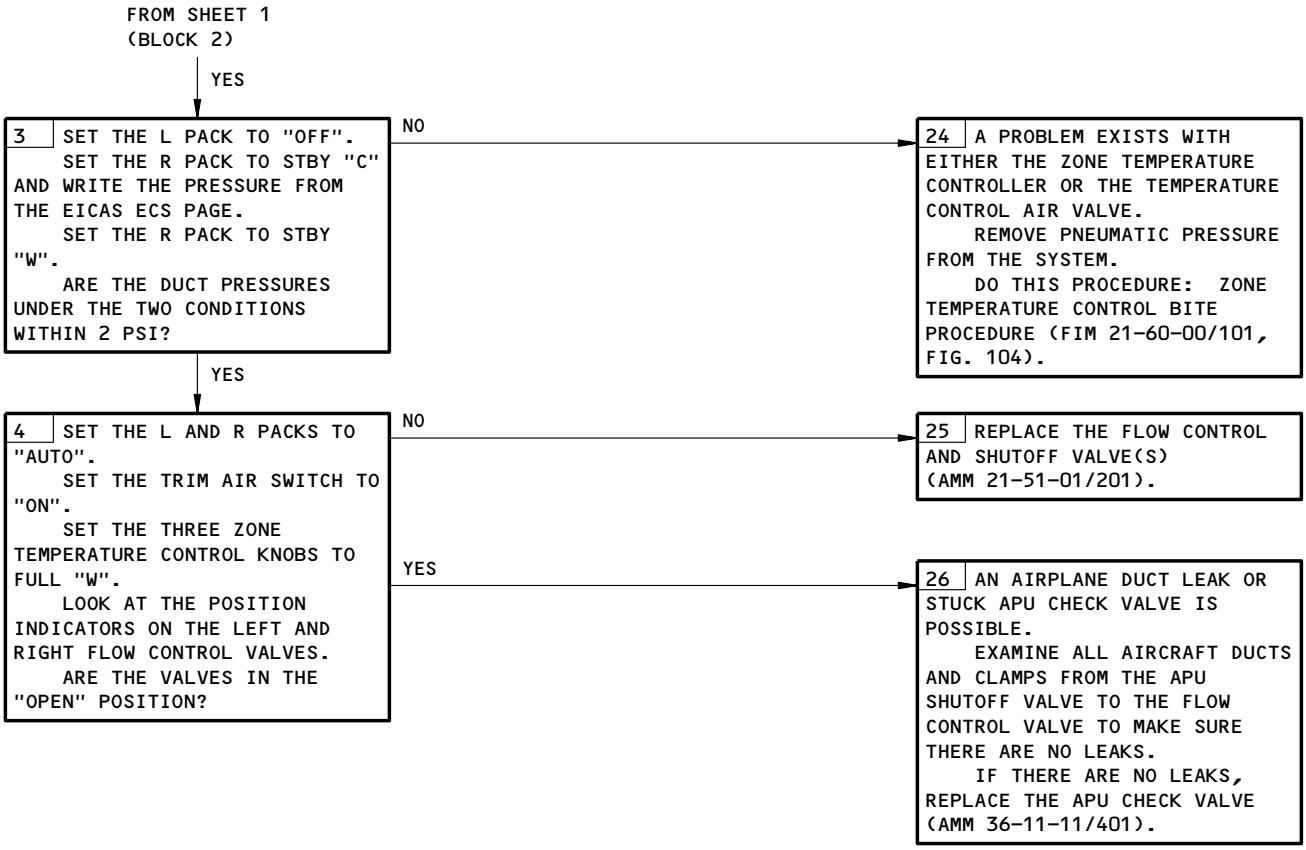
MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35, APU CONT, APU START, APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



Low Duct Pressure During One or Two ECS Pack Operation Only
Figure 120D (Sheet 1)



Low Duct Pressure During One or Two ECS Pack Operation Only
Figure 120D (Sheet 2)

LOW DUCT PRESSURE IN "MES" MODE ONLY

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35, APU CONT, APU START, APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DOES THE SURGE CONTROL VALVE HAVE A PRESSURE SUPPLY TUBE WITH A 0.030 INCH (0.76 mm) DRAIN HOLE (HONEYWELL POST-SB GTCP331-49-7496 OR HONEYWELL POST-SB GTCP331-49-7707)?

NO → 11 DO A CHECK OF THE PRESSURE SUPPLY TUBE FOR THE SURGE CONTROL VALVE FOR BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS AND DAMAGE THAT CAN CAUSE A DECREASE IN AIRFLOW.
IS THERE BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS OR DAMAGE TO THE PRESSURE SUPPLY TUBE?

YES → 21 REMOVE THE BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS AND/OR REPAIR THE PROBLEMS THAT YOU FIND.

NO → 22 THE PRESSURE SUPPLY TUBE FOR THE SURGE CONTROL VALVE IS OK.
GO TO BLOCK 2.

YES

2 DO THE BITE PROCEDURE (FIG. 103).
DID A "FAULTY UNIT" LIGHT COME ON?

NOTE: THESE LIGHTS CAN COME ON:
- SURGE VALVE
- IGV ACT.

NO → 23 FOR THE LEFT ENGINE; EXAMINE THE CIRCUIT FROM THE "APU START" CIRCUIT BREAKER ON THE E6 RACK, TO THE P36 PANEL, LEFT ENGINE START RELAY, K10247, CONNECTOR D2992, PIN B2 (WDM 49-61-11).
FOR THE RIGHT ENGINE; EXAMINE THE CIRCUIT FROM THE "APU START" CIRCUIT BREAKER ON THE E6 RACK, TO THE P37 PANEL, RIGHT ENGINE START RELAY 2, K10250, CONNECTOR D3054, PIN B2 (WDM 49-61-11).
REPAIR THE PROBLEMS THAT YOU FIND.

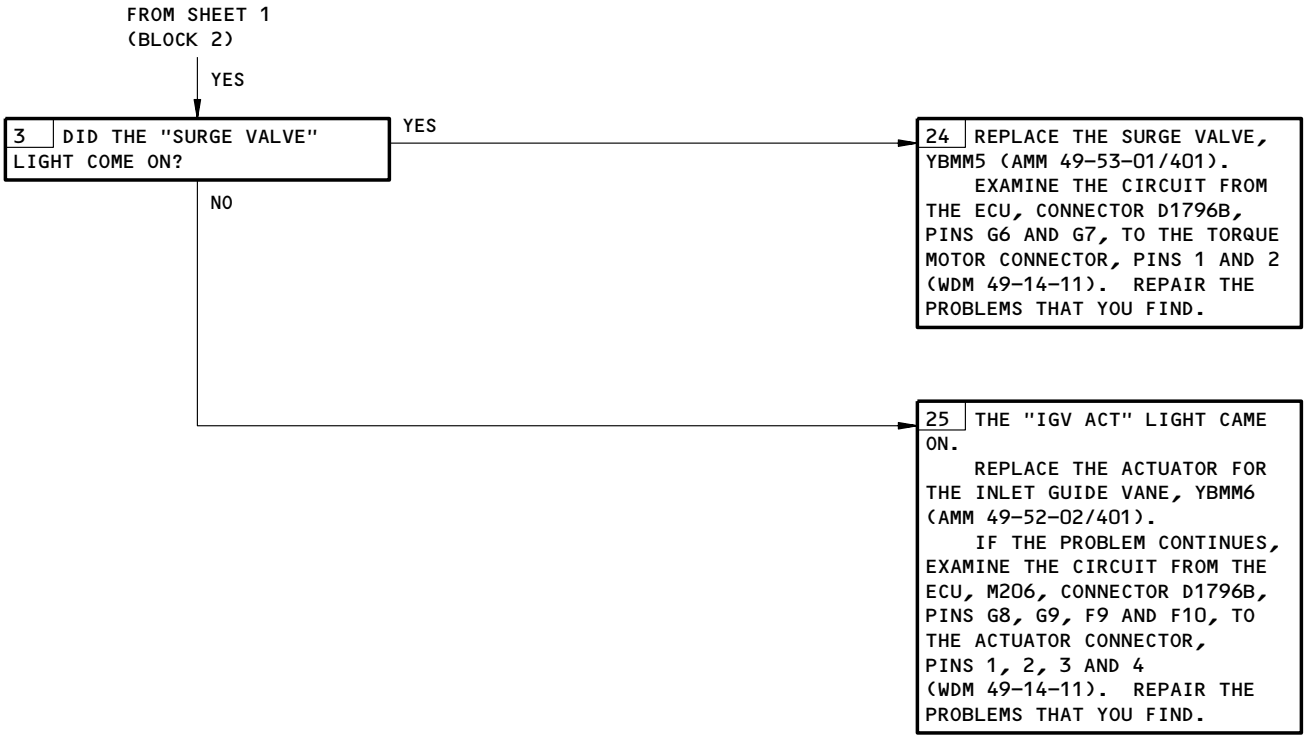
YES

SEE SHEET 2
(BLOCK 3)

Low Duct Pressure in MES Mode Only
Figure 120E (Sheet 1)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

C75980



Low Duct Pressure in MES Mode Only
Figure 120E (Sheet 2)

FLUIDS COMING FROM DRAIN MAST

PREREQUISITES

NONE

1 DOES FLUID COME OUT OF THE DRAIN FOR THE FUEL CONTROL, OIL PUMP, AND IGV ACTUATOR?

YES → 6 IS THE FLUID OIL?

YES → 11 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401).

NO → 6 IS THE FLUID OIL?

NO → 7 DISCONNECT THE DRAIN LINE FROM THE IGV ACTUATOR.
START AND OPERATE THE APU (AMM 49-11-00/201).
DOES MORE THAN ONE DROP OF FUEL COME OUT OF THE IGV ACTUATOR IN A MINUTE?

YES → 12 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE IGV ACTUATOR, YBMM6 (AMM 49-52-02/401).

NO → 13 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401).

NO → 2 DO YOU SEE MORE THAN ONE DROP OF FUEL COME OUT OF THE DRAIN FOR THE FUEL FLOW DIVIDER AND HEAT SHIELD IN ONE MINUTE?

NOTE: FUEL CAN DRAIN FROM THIS LOCATION DURING A SHUTDOWN OR AN UNSATISFACTORY START. FUEL MUST NOT DRAIN WHEN YOU OPERATE THE APU.

YES → 14 REPLACE THE FUEL FLOW DIVIDER (AMM 49-31-03/401).

NO → 3 DOES OIL COME OUT OF THE DRAIN FOR THE BEARING CAVITY SEAL OR THE DRAIN FOR THE TURBINE PLENUM?

YES → 15 NO CORRECTIVE STEPS ARE NECESSARY, PROVIDED THE APU OIL CONSUMPTION RATE IS NOT MORE THAN THE LIMIT (AMM 49-11-00/201).

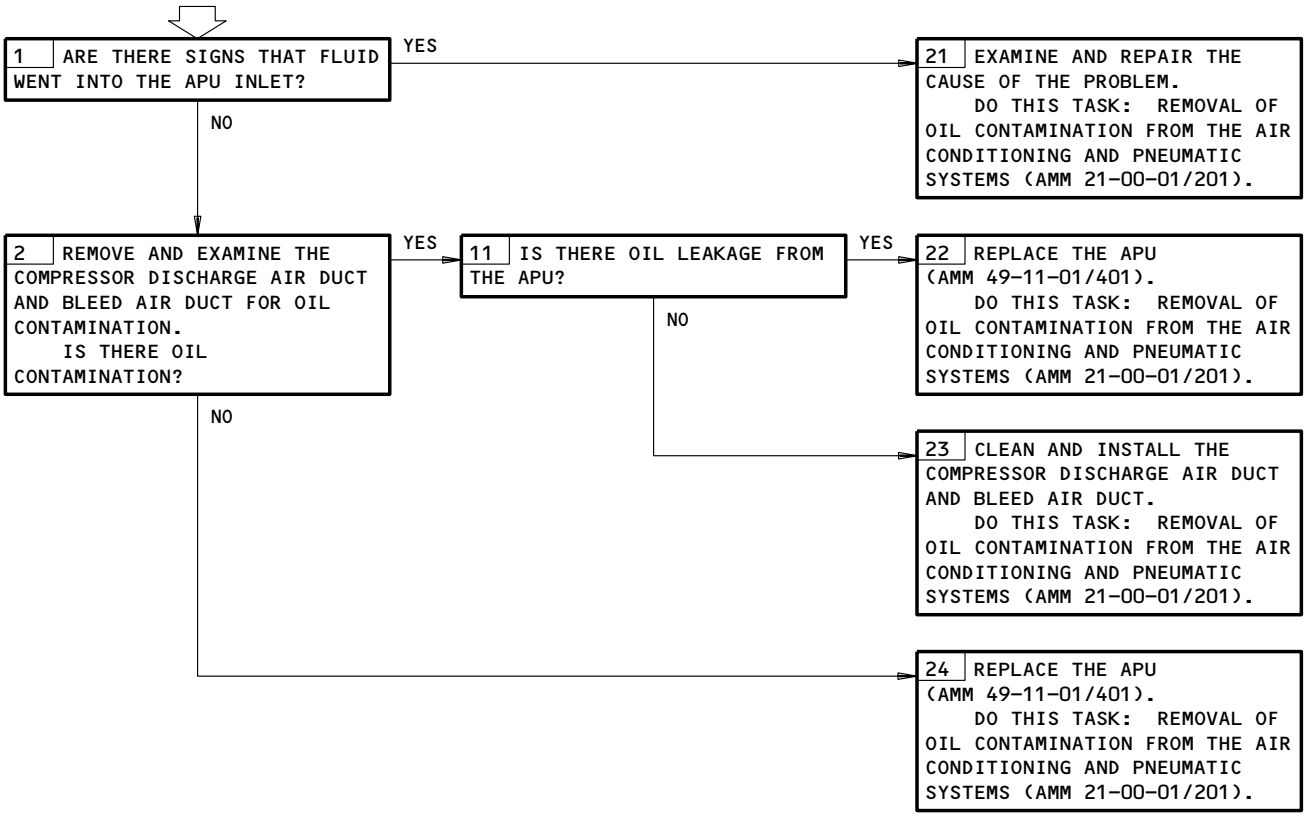
NO → 16 WHEN FUEL COMES OUT OF THE TURBINE PLENUM DRAIN DURING A SHUTDOWN OR AN UNSATISFACTORY START, THE COMBUSTOR DRAIN VALVE IS CLOGGED.
REPLACE THE VALVE (AMM 49-16-01/201).

Fluids Coming from Drain Mast
Figure 121

FUMES AND/OR SMOKE IN THE CABIN

PREREQUISITES

NONE

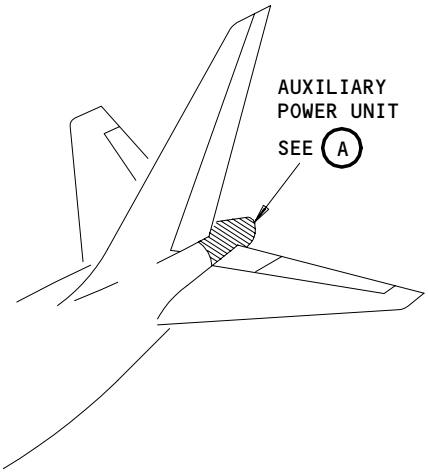


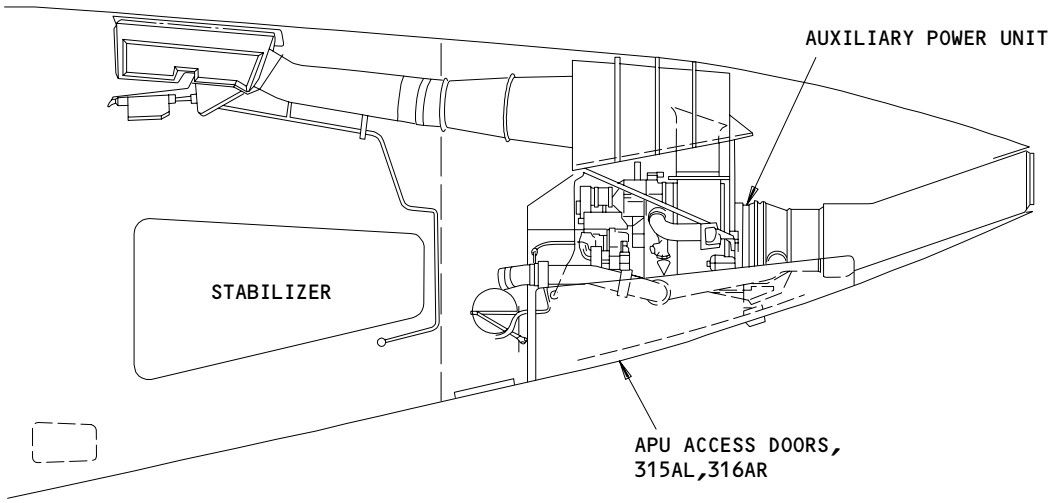
Fumes and/or Smoke in the Cabin
Figure 122

AUXILIARY POWER UNIT

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
AUXILIARY POWER UNIT	--	1	316AR,315AL, APU COMPT	49-11-01

Auxiliary Power Unit - Component Index
Figure 101





AUXILIARY POWER UNIT

A

Auxiliary Power Unit - Component Location
Figure 102

APU BITE PROCEDURE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT,APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 MOVE THE TEST SWITCH ON THE APU CONTROL UNIT (ECU), M206, IN THE AFT EQUIPMENT CENTER TO "LAMP TEST".

DO ALL LIGHTS IN THE FIVE COLUMNS OF INDICATORS COME ON, COLUMN BY COLUMN, FROM LEFT TO RIGHT?

THE MINIFLAG SUMMARY WILL SHOW IMMEDIATELY AFTER THE LAST COLUMN OF INDICATOR LIGHTS GO OUT IN THE LAMP TEST.

TURN YOUR HEAD CLOCKWISE 90 DEGREES TO READ THE MINIFLAG NUMBERS.

WRITE ALL OF THE MINIFLAGS THAT SHOW.

NOTE: THE LAMPS THAT COME ON AFTER THE MINIFLAGS ARE USED BY THE APU MANUFACTURER ONLY.

NO → 21 IF ONE OR MORE LIGHTS DO NOT COME ON, COMPLETE THE BITE PROCEDURE (FIG. 103, BLOCK 2) TO GET THE HISTORY DATA, THEN REPLACE THE ECU, M206 (AMM 49-61-05/201).

IF NONE OF THE LIGHTS COME ON, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796C, PIN 9 (GND, PIN 11), TO CIRCUIT BREAKERS "APU ALTN CONT" (11B34) AND "APU CONT" ON THE E6 RACK (WDM 49-61-11). REPAIR THE PROBLEMS THAT YOU FIND.

MAKE SURE THE APU CONTROL UNIT, CONNECTOR D1796B, PIN A5, IS NOT GROUNDED (WDM 49-61-11).

YES

SEE SHEET 2
(BLOCK 2)

APU BITE Procedure
Figure 103 (Sheet 1)

FROM SHEET 1
(BLOCK 1)

YES

2 PUT THE "RECORD SELECT" SWITCH TO "LAST RUN".
PUT THE TOGGLE SWITCH TO "FAULT REASON" AND RELEASE.
WRITE THE "REASON APU NOT OPERATING" LIGHTS THAT COME ON.
PUT THE TOGGLE SWITCH TO "FAULT LRU" AND RELEASE.
WRITE THE "FAULTY LRU" LIGHTS THAT COME ON.

NOTE: THE "NO DATA" LIGHT COMES ON IF THE ECU HAS NO MAINTENANCE DATA IN ITS MEMORY.

DID THE "SEE MNT MANUAL" OR "NO DATA" LIGHT COME ON WITH THE SWITCH TO "FAULTY LRU"?

YES

22 DO THE "CORRECTIVE ACTION FOR THE "SEE MNT MANUAL" FAULTY LRU MESSAGE OR "NO DATA" STATUS MESSAGE" IN TABLE B FOR THE "REASON APU NOT OPERATING" LIGHTS THAT COME ON.
PUSH THE "ERASE MEMORY" SWITCH TO ERASE THE BITE MEMORY.

NOTE

TO LOOK AT THE PREVIOUS SHUTDOWNS, TURN THE "RECORD SELECT" SWITCH TO POSITIONS 2-4. PUT THE TOGGLE SWITCH TO "FAULT REASON" AND RELEASE IT TO SEE THE SELECTED SYSTEM FAULT. PUT THE TOGGLE SWITCH TO "FAULT LRU" AND RELEASE IT TO SEE THE FAULTY LRUs THAT ARE RELATED TO THE SELECTED SYSTEM FAULT.

NO

3 DO THE "CORRECTIVE ACTION" IN TABLE A FOR THE "FAULTY LRU" LIGHTS THAT COME ON.

WARNING

DO NOT DO THE ECU SELF-TEST AND IGNITION SYSTEM MAINTENANCE AT THE SAME TIME. THE IGNITER LEAD IS ENERGIZED DURING THE SELF-TEST AND CAN CAUSE INJURY TO PERSONS.

PUT THE TEST SWITCH TO "SELF TEST".

NOTE: THE "WAIT" LIGHT WILL COME ON.

WRITE THE "FAULTY LRU" LIGHTS THAT COME ON.
DID ANY INDICATOR LIGHTS COME ON?

NOTE: THE "TEST OK" LIGHT COMES ON IF NO FAULTY UNITS ARE IN MEMORY.

YES

23 DO THE "CORRECTIVE ACTION" IN TABLE A FOR THE "FAULTY LRU" LIGHTS THAT COME ON.
PUSH THE "ERASE MEMORY" SWITCH TO ERASE THE BITE MEMORY.

NO

SEE SHEET 3
(BLOCK 4)

APU BITE Procedure
Figure 103 (Sheet 2)

986968

MESSAGE	CORRECTIVE ACTION	IF THE PROBLEM CONTINUES
INLET DOOR RLY LCIT SENSOR	FIG. 132 REPLACE THE LCIT SENSOR, YBMTS5 (AMM 49-61-03/401). 1 2	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS E6 AND E7, TO THE INLET TEMPERATURE SENSOR (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
FUEL SOL	FIG. 123	
PT SENSOR	FIG. 124	
ΔP SENSOR	FIG. 125	
#1 SPD SENSOR	FIG. 136	
#2 SPD SENSOR	FIG. 137	
LOP SWITCH	REPLACE THE LOP SWITCH, YBMS2 (AMM 49-94-02/401). 1 3	MAKE SURE THE ECU, CONNECTOR D1796B, PIN C5, IS NOT GROUNDED. 2 REPAIR THE PROBLEMS THAT YOU FIND.
FUEL CONTROL	FIG. 126	

FAULTY LRU - REFERENCE
TABLE A

1 ERASE THE "APU BITE" MESSAGE ON EICAS IF IT SHOWS (FIM 31-41-00/101, FIG. 109).

2 DO THE SELF-TEST (FIG. 103, BLOCK 3) TO MAKE SURE THE PROBLEM IS REPAIRED.

3 OPERATE THE APU (AMM 49-11-00/201) AND DO THE APU BITE PROCEDURE (FIG. 103) AGAIN TO MAKE SURE THE PROBLEM IS REPAIRED.

APU BITE Procedure
Figure 103 (Sheet 3)

986973

MESSAGE	CORRECTIVE ACTION	IF THE PROBLEM CONTINUES
SURGE VALVE	REPLACE THE SURGE VALVE, YBMM5 (AMM 49-53-01/401). 2	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS G6 AND G7, TO THE TORQUE MOTOR CONNECTOR, PINS 1 AND 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
EGT #1 CIRCUIT	FIG. 134	
EGT #2 CIRCUIT	FIG. 135	
IGV ACT	FIG. 127	
IGN UNIT	FIG. 128	
DEOIL SOL	REPLACE THE DEOIL SOLENOID VALVE, YBMM3 (AMM 49-27-08/401). 1 2	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS J4 AND J5, TO THE SOLENOID CONNECTOR, PINS 1 AND 2. EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN J10, TO THE OIL TEMP SWITCH, YBMS5, CONNECTOR, PIN 1 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
FLOW DIV SOL	REPLACE THE FUEL FLOW DIVIDER SOLENOID VALVE, YBMM2 (AMM 49-31-03/401). 1 2	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS J7 AND J8, TO THE SOLENOID CONNECTOR, PINS 1 AND 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
ECS CONTROL	REPLACE THE ZONE TEMPERATURE CONTROL, M195 (AMM 21-61-03/401). 3	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS D8 AND D9, TO THE ZONE TEMPERATURE CONTROL, M195, CONNECTOR D2558B, PINS C1 AND C2 (WDM 21-61-51). REPAIR THE PROBLEMS THAT YOU FIND.
APU STARTER	IF #1 SPD SENSOR AND #2 SPD SENSOR LIGHTS COME ON, DO THE CORRECTIVE ACTION FOR THEM. IF #1 SPD SENSOR AND #2 SPD SENSOR LIGHTS DO NOT COME ON, GO TO FIG. 129.	
A/C STRT CIRCUIT	FIG. 106A	

FAULTY LRU - REFERENCE
TABLE A

APU BITE Procedure
Figure 103 (Sheet 4)

MESSAGE	CORRECTIVE ACTION	IF THE PROBLEM CONTINUES
HOT SENSOR	REPLACE THE OIL TEMPERATURE (HOT) SENSOR, YBMTS1 (AMM 49-94-01/401). 1 2	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS E4 AND E5, TO THE HOT SENSOR CONNECTOR, PINS A AND B (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
P2 SENSOR ECU FAN VALVE	FIG. 130 FIG. 131 APU WITHOUT THE FAN ISOLATION VALVE (POST-ALLIEDSIGNAL-SB 49-7391); IGNORE THIS MESSAGE, IT IS A NUISANCE MESSAGE. 1 APU WITH THE FAN ISOLATION VALVE (PRE-ALLIEDSIGNAL-SB 49-7391); REPLACE THE FAN ISOLATION VALVE, YBMS4 (AMM 49-51-02/401). 1 2	APU WITH THE FAN ISOLATION VALVE CONNECTED TO THE FIRST-STAGE COMPRESSOR (PRE-ALLIEDSIGNAL SB-49-7391, POST-ALLIEDSIGNAL SB-49-7192); EXAMINE THE CONDITION OF THE LINE FROM THE FAN ISOLATION VALVE TO THE FIRST STAGE COMPRESSOR. REPAIR THE LINE IF IT IS NECESSARY. 1 2 APU WITH THE FAN ISOLATION VALVE CONNECTED TO THE SURGE VALVE (PRE-ALLIEDSIGNAL-SB 49-7391, PRE-ALLIEDSIGNAL-SB 49-7192); EXAMINE THE CONDITION OF THE LINE FROM THE FAN ISOLATION VALVE TO THE SURGE VALVE. REPAIR THE LINE IF IT IS NECESSARY. 1 2 IF THE PROBLEM CONTINUES, REPLACE THE SURGE CONTROL VALVE FILTER (AMM 49-53-06/201). EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D408B, PIN B10, TO THE FAN VALVE SWITCH CONNECTOR, PIN 1. EXAMINE THE CIRCUIT FROM THE SWITCH CONNECTOR, PIN 2, TO GROUND (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND. IF THERE WAS A HEAT PROBLEM, EXAMINE THE FAN INLET DUCT FOR DAMAGE. REPAIR THE PROBLEMS THAT YOU FIND.
FILTER SW (GEN)	REPLACE THE GENERATOR ΔP SWITCH, YBMS1 (AMM 49-27-15/401). 1 2	EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN D11, TO THE FILTER SWITCH CONNECTOR, PIN 1. EXAMINE THE CIRCUIT FROM THE SWITCH CONNECTOR, PIN 2, TO GROUND (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
SEE MNT MANUAL	SEE TABLE B	

FAULTY LRU - REFERENCE
TABLE A

APU BITE Procedure
Figure 103 (Sheet 5)

MESSAGE	CORRECTIVE ACTION FOR THE "SEE MNT MANUAL" FAULTY LRU MESSAGE OR "NO DATA" STATUS MESSAGE
NORMAL STOP SIG	FIG. 133
CONTROL FAILURE	REPLACE THE ECU, M206 (AMM 49-61-05/201).
UNDER SPEED	FIG. 106
START ABORTED	FIG. 105
NO LIGHT OFF	FIG. 107
REVERSE FLOW	FIG. 108
EGT OVERTEMP	FIG. 113
DC PWR LOSS	FIG. 138
LOW OIL PRESSURE	FIG. 109
GEN FILTER	FIG. 112
DOOR SYSTEM	FIG. 104, BLOCK 23
FIRE EMERG	LOOK AT THE AIRPLANE LOG BOOK AND THE APU COMPARTMENT FOR SIGNS OF A REPORTED FIRE. IF FIRE DAMAGE SHOWS, REPAIR OR REPLACE THE DAMAGED COMPONENTS. MAKE SURE THAT THE APU CONTROL SWITCH ON THE P5 PANEL IS "OFF" AND MOVE THE MAIN BATTERY SWITCH ON THE P5 PANEL "ON" THEN "OFF. IF THERE IS NO LOG BOOK REPORT OR SIGNS OF FIRE DAMAGE, DO THE BITE PROCEDURE FOR THE APU FIRE DETECTION SYSTEM (FIM 26-15-00/101, FIG. 103). IF THE PROBLEM CONTINUES, REPLACE THE EXTERNAL SHUTDOWN RELAY, K421 (WDM 26-15-11).
O/S TEST CIRCUIT	REPLACE THE ECU, M206 (AMM 49-61-05/201). IF THE PROBLEM CONTINUES AND "FUEL SOL" COMES ON, REPLACE THE FUEL SOLENOID VALVE, YBMV1 (AMM 49-31-02/401).
HIGH OIL TEMP	FIG. 110
OVER SPEED	FIG. 111

REASON APU NOT OPERATING - REFERENCE
TABLE B

APU BITE Procedure
Figure 103 (Sheet 6)

NOTE: THE MINIFLAGS ARE FOR INFORMATION ONLY. DO NOT USE THE MINIFLAG DATA AS AN ALTERNATIVE TO THE FAULT ISOLATION PROCEDURES.

NUMBER	DESCRIPTION
1	SPEED SIGNAL NO. 1 IS NOT FUNCTIONING. THE SPEED SENSOR NO. 1 OR WIRING IS NOT PROVIDING PROPER INPUT AT SPEEDS GREATER THAN 50%.
2	SPEED SIGNAL NO. 2 IS NOT FUNCTIONING. THE SPEED SENSOR NO. 2 OR WIRING IS NOT PROVIDING PROPER INPUT AT SPEEDS GREATER THAN 50%.
3	ECU SPEED CONVERTER CIRCUIT IS FAILED. THE ECU SPEED CONVERTER CIRCUIT DOES NOT INTERPRET THE SPEED SIGNAL PROPERLY WHEN THE APU IS OPERATING AT SPEEDS GREATER THAN 50%.
4	FAILED ECU N/DC CONVERTER NO. 1 CIRCUIT. THE ECU CIRCUIT THAT CONVERTS THE NO. 1 SPEED SIGNAL TO A DC VOLTAGE IS NOT FUNCTIONING PROPERLY.
5	FAILED ECU N/DC CONVERTER NO. 2 CIRCUIT. THE ECU CIRCUIT THAT CONVERTS THE NO. 2 SPEED SIGNAL TO A DC VOLTAGE IS NOT FUNCTIONING PROPERLY.
6	FAILED ECU N/DC CONVERTER NO. 3 CIRCUIT. THE ECU REDUNDANT CIRCUIT THAT CONVERTS THE HIGHEST SPEED SIGNAL TO A DC VOLTAGE IS NOT FUNCTIONING PROPERLY.
7	THIS MINIFLAG IS DISPLAYED ONLY IN THE "SUMMARY" ROTARY SELECT SWITCH POSITION AND INDICATES AIRPLANE FAULTS PER MINIFLAGS 75–78.
9	LCIT SENSOR SIGNAL OUT OF RANGE. THE LCIT SENSOR CIRCUIT READS LESS THAN –100°F.
10	OIL TEMPERATURE SENSOR RESISTANCE OUT OF RANGE. THE OIL TEMPERATURE RESISTANCE IS NOT WITHIN THE RANGE OF 65 TO 208 OHMS (–110 TO +482°F).
11	FAILED EGT THERMOCOUPLE CIRCUIT NO. 1 SIGNAL OUT OF RANGE. THE THERMOCOUPLE CIRCUIT READS LESS THAN –100°F ABSOLUTE OR EGT THERMOCOUPLE NO. 2 READS +150°F MORE THAN EGT NO. 1. SEVERE POWER SECTION DISTRESS CAN ALSO CAUSE A LARGE VARIATION IN EGT NO. 1 AND NO. 2 READINGS.
12	FAILED EGT THERMOCOUPLE CIRCUIT NO. 2 SIGNAL OUT OF RANGE. THE THERMOCOUPLE CIRCUIT READS LESS THAN –100°F ABSOLUTE OR EGT THERMOCOUPLE NO. 1 READS +150°F MORE THAN EGT NO. 2. SEVERE POWER SECTION DISTRESS CAN ALSO CAUSE A LARGE VARIATION IN EGT NO. 1 AND NO. 2 READINGS.
14	FAILED TOTAL PRESSURE SENSOR/CIRCUIT. THE PT VALUE IS OUT OF ITS NORMAL OPERATING RANGE OR DIFFERS BY MORE THAN 3 PSIG FROM THE P2 SENSOR READING ON THE GROUND AT SPEEDS LESS THAN 12%. A MODERATELY SHIFTED P2 SENSOR OUTPUT COULD ALSO CAUSE THIS MINIFLAG. THIS MINIFLAG CAN BE SET BY MINIFLAG 120.
15	FAILED DIFFERENTIAL PRESSURE SENSOR/CIRCUIT. THE DP VALUE IS OUT OF ITS NORMAL OPERATING RANGE OR HAS AN OUTPUT OF LESS THAN 0.25 PSIG WHEN THE IGV POSITION IS 60 DEGREES (MOSTLY OPEN). THIS MINIFLAG CAN BE SET BY MINIFLAG 120.
16	FAILED AMBIENT PRESSURE (P2) SENSOR/CIRCUIT. THE P2 VALUE IS OUT OF ITS NORMAL OPERATING RANGE OR LESS THAN 8 PSIG ON THE GROUND. THIS MINIFLAG CAN BE SET BY MINIFLAG 120.
17	GENERATOR OIL FILTER SWITCH FAILED OPEN. THE NORMALLY CLOSED GENERATOR OIL FILTER SWITCH IS OPEN PRIOR TO APU OPERATION.
18	COOLING FAN ISOLATION VALVE FAILED. THE NORMALLY OPEN COOLING FAN ISOLATION VALVE SWITCH IS CLOSED PRIOR TO OPERATION OR OPEN DURING APU OPERATION.
19	LOP SWITCH CIRCUIT FAILED CLOSED. THE LOP SWITCH CIRCUIT IS CLOSED (SHORTED) PRIOR TO START.
21	ECU FLOW DIVIDER DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
23	ECS DEMAND SIGNAL OUT OF RANGE. THE ECS DEMAND SIGNAL IS LESS THAN –0.3V DC OR GREATER THAN 9.9V DC DURING APU OPERATION IN ECS MODE (MINIFLAG 133).
25	FUEL SOLENOID CIRCUIT FAILED. THE FUEL SOLENOID CIRCUIT IS OPEN OR SHORTED.
26	DEOIL SOLENOID CIRCUIT FAILED. THE DEOIL SOLENOID CIRCUIT IS OPEN OR SHORTED.

ECU MINIFLAG DESCRIPTION
TABLE C

APU BITE Procedure
Figure 103 (Sheet 7)

NUMBER	DESCRIPTION
27	FLOW DIVIDER SOLENOID CIRCUIT FAILED. THE FLOW DIVIDER SOLENOID CIRCUIT IS OPEN OR SHORTED.
28	IGNITION UNIT CIRCUIT FAILED. THE IGNITION UNIT CIRCUIT IS OPEN OR SHORTED.
29	ECU DEOIL SOLENOID DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
30	ECU FUEL SOLENOID DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
32	ECU IGNITION UNIT DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
33	ECU STARTER CIRCUIT DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
34	AIRPLANE STARTER CIRCUIT FAILED. VOLTAGE WAS FOUND AT THE START MOTOR AT GREATER THAN 95% SPEED OR NO START MOTOR VOLTAGE IS FOUND DURING START CYCLE.
35	START MOTOR FAILED. VOLTAGE EXISTS ON THE START MOTOR BUT NO APU ROTATION IS FOUND AFTER 14.5 SECONDS.
36	ECU SCV DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
37	ECU FUEL CONTROL TORQUE MOTOR DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
38	ECU IGV ACTUATOR DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER WAS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
39	ECU FUEL CONTROL TORQUE MOTOR DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
41	FUEL CONTROL TORQUE MOTOR FAILED. THE FUEL CONTROL TORQUE MOTOR CIRCUIT IS OPEN OR SHORTED.
42	IGV ACTUATOR FAILED. THE IGV TORQUE MOTOR OR LVDT IS SHORTED OR OPEN OR COMMANDED IGV POSITION DOES NOT AGREE WITH ACTUAL IGV POSITION BY 10 DEGREES FOR MORE THAN 6 SECONDS (SEE MINIFLAGS 66,106,126, AND 127 FIRST IF PRESENT).
43	SURGE CONTROL VALVE TORQUE MOTOR FAILED. THE SURGE CONTROL VALVE TORQUE MOTOR CIRCUIT IS OPEN OR SHORTED.
44	ECU EGT NO. 1 SIGNAL CONDITIONER FAILED. INTERNAL ECU FAILURE WAS FOUND.
45	ECU EGT NO. 2 SIGNAL CONDITIONER FAILED. INTERNAL ECU FAILURE WAS FOUND.
46	ECU OVERTEMPERATURE TEST FAILURE. INTERNAL ECU FAILURE WAS FOUND DURING APU SHUTDOWN.
47	INLET DOOR RELAY FAILED. AN OVERCURRENT WAS FOUND ON THE INLET DOOR RELAY CIRCUIT.
48	ECU FAILED. THIS MINIFLAG INDICATES INTERNAL ECU FAILURES AND IS SET BY MINIFLAGS 3-6,21, 29-33,37,39,44,45,46,65,82-89,92-100,105,107,112-119,121-125 OR 128. IT CAN ALSO BE SET BY MINIFLAGS 36 OR 38.
65	ECU HI-WINS SPEED CIRCUIT FAILURE. INTERNAL ECU FAILURE WAS FOUND.
66	IGV POSITION DOES NOT MATCH COMMAND. COMMANDED IGV POSITION DOES NOT AGREE WITH ACTUAL IGV POSITION BY 10 DEGREES FOR MORE THAN 6 SECONDS DURING APU OPERATION.
75	AIRPLANE MAINTENANCE LAMP CIRCUIT OVERCURRENT
76	AIRPLANE BLEED AIR RELAY OVERCURRENT
77	AIRPLANE GENERATOR AVAILABLE RELAY OVERCURRENT
78	AIRPLANE FAULT RELAY OVERCURRENT
82	FUEL TORQUE MOTOR OVERCURRENT. THE FUEL CONTROL TORQUE MOTOR CIRCUIT IS SHORTED.
83	ECU LCIT CONDITIONER FAILED. INTERNAL ECU FAILURE WAS FOUND.

ECU MINIFLAG DESCRIPTION
TABLE C

APU BITE Procedure
Figure 103 (Sheet 8)

NUMBER	DESCRIPTION
84	ECU DEOIL SOLENOID DRIVER FAILED OPEN. INTERNAL ECU FAILURE WAS FOUND.
86	ECU AIRPLANE BLEED RELAY OPEN. INTERNAL ECU FALURE WAS FOUND.
89	ECU FUEL SOLENOID DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
90	FUEL SOLENOID CIRCUIT OPEN. THIS MINIFLAG SETS MINIFLAG 25.
91	IGNITION UNIT CIRCUIT FAILED OPEN. THIS MINIFLAG SETS MINIFLAG 28.
92	ECU IGNITION UNIT DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
94	ECU BLEED AIR DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
95	ECU FLOW DIVIDER DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
97	ECU STARTER RELAY DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
99	ECU BLEED AIR DRIVER OPEN. INTERNAL ECU FAILURE WAS FOUND.
100	ECU BLEED AIR DRIVER SHORTED. +28V DC WAS FOUND ON THE ECU DRIVER WHEN THE DRIVER IS IN THE OFF POSITION. THERE IS A POSSIBLE ECU FAILURE OR A +28V DC EXTERNAL SHORT TO THE DRIVER.
101	FUEL CONTROL TORQUE MOTOR FAILED OPEN. THE FUEL CONTROL TORQUE MOTOR CIRCUIT IS OPEN CIRCUIT. THIS MINIFLAG SETS MINIFLAG 41.
105	ECU IGV ACTUATOR DRIVER FAILED OPEN. INTERNAL ECU FAILURE WAS FOUND.
106	IGV ACTUATOR TORQUE MOTOR FAILED. THE IGV ACTUATOR TORQUE MOTOR IS FAILED OPEN OR SHORT CIRCUIT.
107	ECU SCV DRIVER FAILED OPEN. INTERNAL ECU FAILURE WAS FOUND.
108	FUEL SOLENOID MECHANICALLY STUCK. THE APU DID NOT SHUTDOWN WHEN THE SOLENOID WAS COMMANDED OFF.
112	ECU MAGNETIC RELAY FAILED. THE ECU MAGNETIC LATCH WAS FOUND FAILED DURING SHUTDOWN.
116	ECU FAILED +15V DC POWER SUPPLY. INTERNAL ECU FAILURE WAS FOUND.
117	ECU FAILED −10V DC POWER SUPPLY. INTERNAL ECU FAILURE WAS FOUND.
118	ECU FAILED −15V DC POWER SUPPLY. INTERNAL ECU FAILURE WAS FOUND.
119	ECU FAILED +5V DC POWER SUPPLY. INTERNAL ECU FAILURE WAS FOUND.
120	ECU PRESSURE REFERENCE POWER SUPPLY FAILED LOW. INTERNAL ECU FAILURE WAS FOUND.
121	ECU +10V A/D CONVERTER POWER SUPPLY FAILED LOW. INTERNAL ECU FAILURE WAS FOUND.
122	ECU +10V A/D CONVERTER POWER SUPPLY FAILED HIGH. INTERNAL ECU FAILURE WAS FOUND.
123	ECU 0V A/D CONVERTER REFERENCE FAILED LOW. INTERNAL ECU FAILURE WAS FOUND.
124	ECU 0V A/D CONVERTER REFERENCE FAILED HIGH. INTERNAL ECU FAILURE WAS FOUND.
125	ECU PRESSURE REFERENCE POWER SUPPLY FAILED HIGH. INTERNAL ECU FAILURE WAS FOUND.

ECU MINIFLAG DESCRIPTION
TABLE C

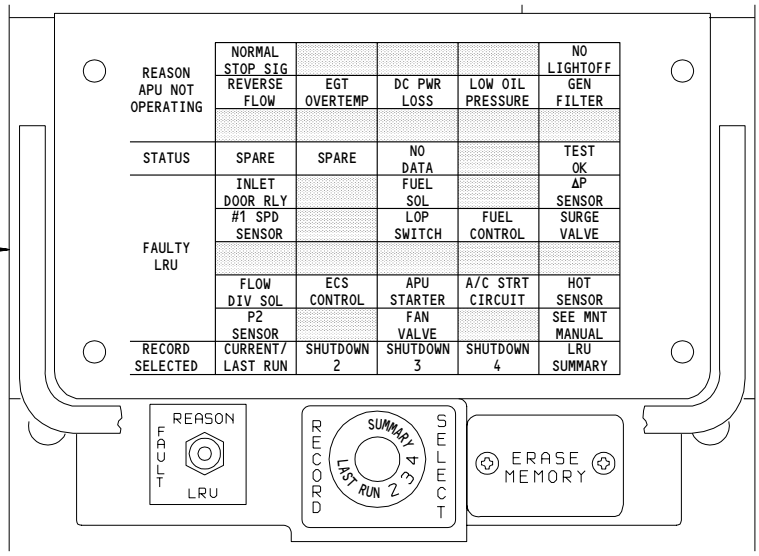
APU BITE Procedure
Figure 103 (Sheet 9)

NUMBER	DESCRIPTION
126	IGV ACTUATOR LVDT VOLTAGE OUT OF RANGE. THE IGV ACTUATOR LVDT VOLTAGE IS OUT OF ITS EXPECTED RANGE.
127	IGV ACTUATOR LVDT SECONDARY VOLTAGE OUT RANGE. THE IGV ACTUATOR LVDT SECONDARY VOLTAGE IS OUT OF ITS EXPECTED RANGE.
128	IGV ACTUATOR LVDT PRIMARY VOLTAGE OUT OF RANGE. THE IGV ACTUATOR LVDT PRIMARY VOLTAGE IS OUT OF ITS EXPECTED RANGE.
	DIAGNOSTIC MINIFLAGS ACTIVE DURING APU OPERATION
130	DUCT PRESSURIZATION MODE ACTIVE. THE APU IS CURRENTLY OPERATING IN DUCT PRESSURIZATION MODE.
131	ADP MODE ACTIVE. THE APU IS CURRENTLY OPERATING IN AIR DRIVEN PUMP MODE.
132	INFLIGHT OPERATION MODE ACTIVE. THE APU IS CURRENTLY OPERATING IN IN-FLIGHT OPERATION MODE.
133	ECS MODE ACTIVE. THE APU IS CURRENTLY OPERATING IN ECS MODE.
134	MES MODE ACTIVE. THE APU IS CURRENTLY OPERATING IN MAIN ENGINE START MODE.
140	SCV IS COMMANDED CLOSED. THE SURGE CONTROL VALVE TORQUE MOTOR COMMAND IS GREATER THAN 95 MILLIAMPS.
141	SCV IS COMMANDED OPEN. THE SURGE CONTROL VALVE TORQUE MOTOR COMMAND IS LESS THAN 10 MILLIAMPS.
142	IGV POSITION DOES NOT AGREE WITH COMMANDED POSITION. THE ACTUAL IGV POSITION IS CURRENTLY AT LEAST 5 DEGREES DIFFERENT THAN THE COMMANDED POSITION.
143	APU IS OPERATING ON EGT TEMPERATURE TRIM. THE APU IS OPERATING ON EGT TEMPERATURE TRIM WHICH INDICATES A DETERIORATED POWER SECTION WHICH CAN RESULT IN REDUCED PNEUMATIC OUTPUT.

ECU MINIFLAG DESCRIPTION
TABLE C

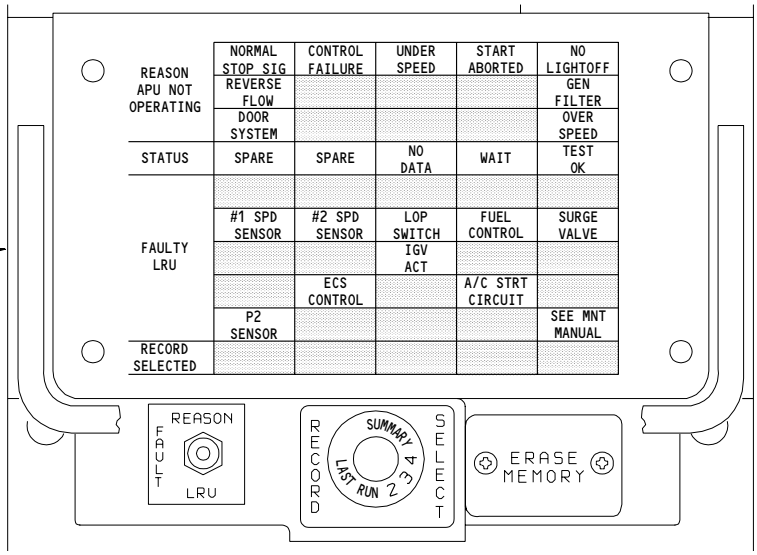
APU BITE Procedure
Figure 103 (Sheet 10)

VIEW FROM THIS DIRECTION →



MINIFLAG "128"
(EXAMPLE OF A MINIFLAG DISPLAY ON ECU)

VIEW FROM THIS DIRECTION →



MINIFLAG "OK"
(EXAMPLE OF A MINIFLAG DISPLAY ON ECU)

APU BITE Procedure
Figure 103 (Sheet 11)

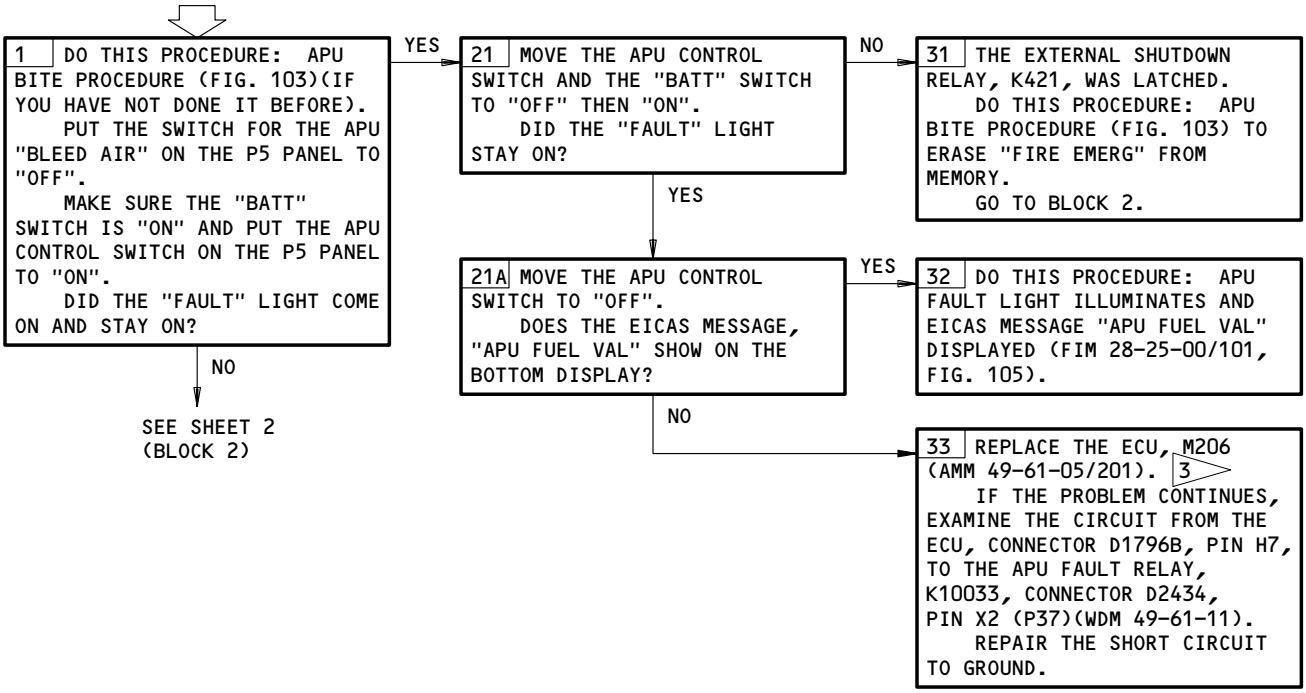
APU STARTING PROBLEMS

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT,APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

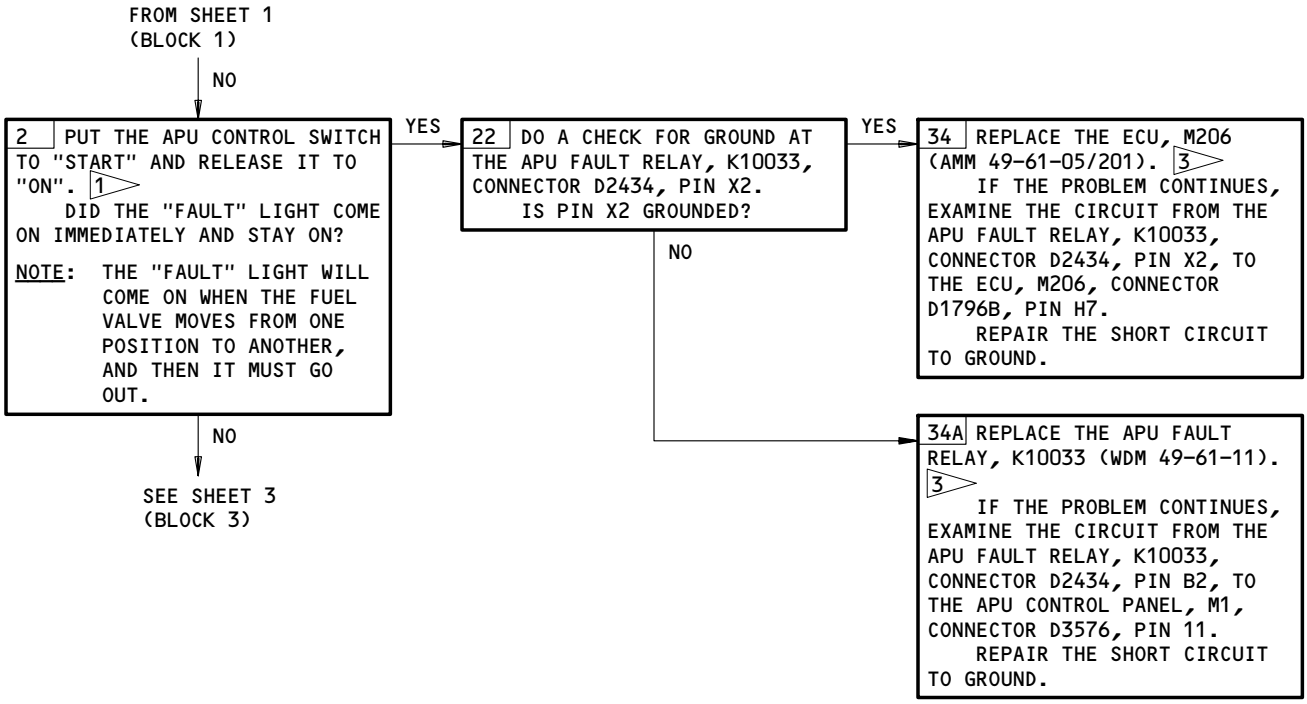


1 WHEN YOU START THE APU, LOOK AT THE APU BATTERY VOLTAGE AND THE CURRENT ON THE EICAS "ELEC/HYD" DISPLAY. LOOK AT THE APU RPM AND THE EGT ON THE EICAS "PERF/APU" DISPLAY.

2 PUSH THE "ECS/MSG" SWITCH ON THE EICAS PANEL, P61, AND MAKE SURE "APU DOOR" MESSAGE DOES NOT SHOW.

3 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

APU Starting Problems
Figure 104 (Sheet 1)



APU Starting Problems
Figure 104 (Sheet 2)

FROM SHEET 2
(BLOCK 2)

NO

3 DID THE "RUN" LIGHT FLASH TWICE AFTER YOU MOVED THE APU CONTROL SWITCH TO "START/ON"?

NOTE: THE RUN LIGHT WILL FLASH TWICE WHEN THE SELF-TEST FOR THE APU CONTROL UNIT IS DONE AND HAS NO FAILURES.

NO → 22A DO A CONTINUITY CHECK FROM THE APU CONTROLLER, CONNECTOR D1796B, PIN A5, TO GROUND (WDM 49-61-11).
IS THERE CONTINUITY FROM PIN A5 TO GROUND?

YES → 35 REPLACE THE ECU, M206 (AMM 49-61-05/201).

NO

22B DISCONNECT CONNECTOR D3576 FROM THE APU CONT PNL MODULE, M1, ON THE P5 PANEL.
MAKE SURE THE "APU ALTN CONT" CIRCUIT BREAKER ON THE P11 OVERHEAD PANEL IS CLOSED.
MAKE SURE THE "APU CONT" AND THE "APU START" CIRCUIT BREAKERS ON THE E6 SHELF ARE CLOSED.
DO A CHECK FOR 28V DC ON THE APU CONT PNL, CONNECTOR D3576, PIN 16 (WDM 49-61-11).
IS THERE 28V DC ON PIN 16?

NO → 35A EXAMINE THE CIRCUIT FROM THE "APU START" CIRCUIT BREAKER, C20, ON THE E6 SHELF, TO THE APU CONT PANEL MODULE, CONNECTOR D3576, PIN 16, IN THE P5 OVERHEAD PANEL (WDM 49-61-11).
REPAIR THE PROBLEMS THAT YOU FIND.

YES

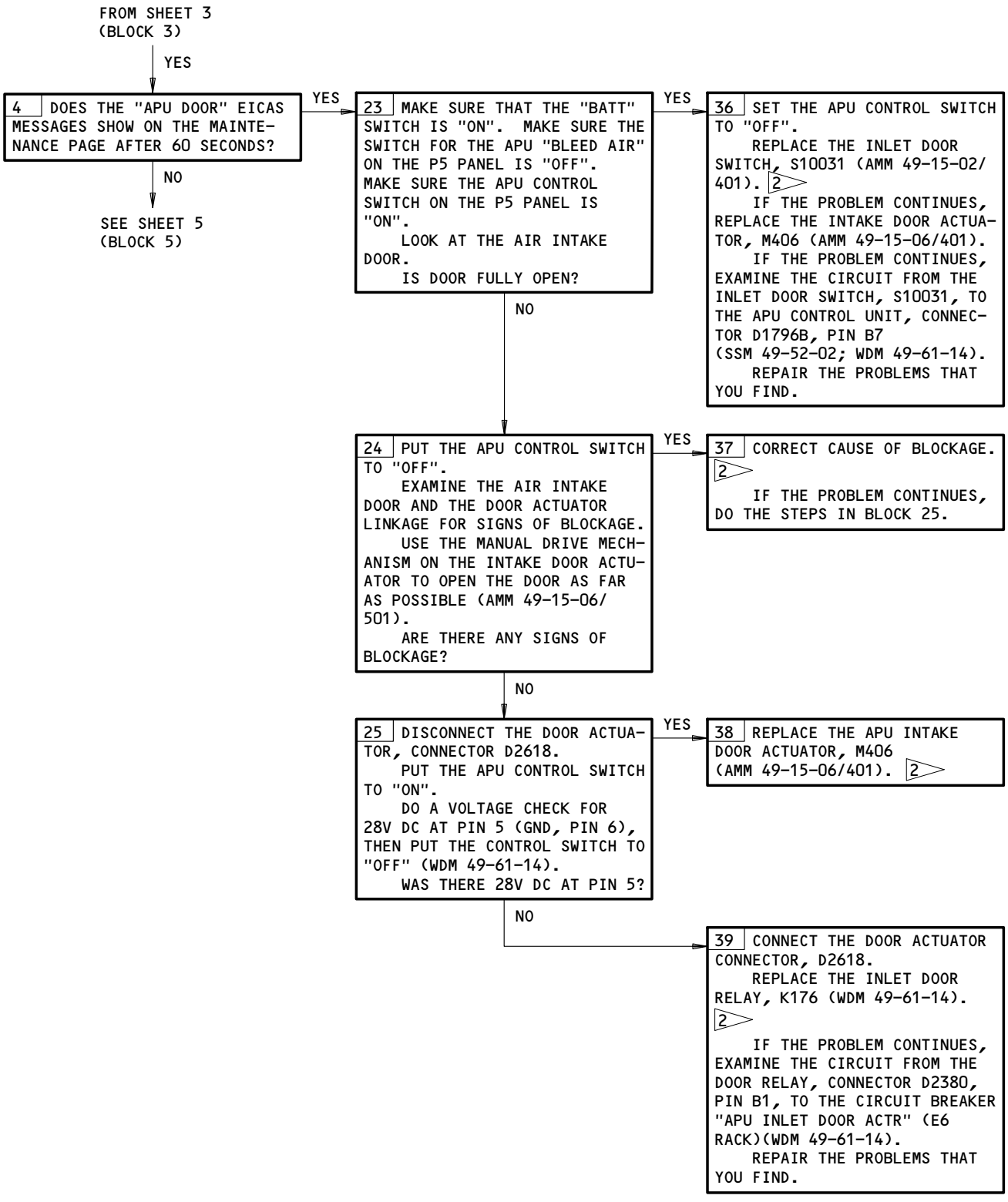
22C WITH THE BATTERY SWITCH, S2, ON THE P5 PANEL CLOSED, DO A CONTINUITY CHECK FROM THE APU CONT PNL, CONNECTOR D3576, PIN 5, TO DC GROUND, GD600 (WDM 49-61-11).
IS THERE CONTINUITY FROM PIN 5 TO GROUND?

NO → 35B REPLACE THE STANDBY POWER PANEL MODULE, M10062, IN THE P5 OVERHEAD PANEL (WDM 24-33-11; 49-61-11).
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE APU CONT PNL, CONNECTOR D3576, PIN 5, TO GROUND GD600 (WDM 49-61-11).
REPAIR THE PROBLEMS THAT YOU FIND.

YES → 35C REPLACE THE APU CONT PNL MODULE, M1, IN THE P5 OVERHEAD PANEL (WDM 49-61-11).
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE APU CONTROLLER, CONNECTOR D1796B, PIN A5, TO THE APU CONT PANEL MODULE, CONNECTOR D3576, PIN 15, IN THE P5 OVERHEAD PANEL (WDM 49-61-11).
REPAIR THE PROBLEMS THAT YOU FIND.

SEE SHEET 4
(BLOCK 4)

APU Starting Problems
Figure 104 (Sheet 3)



APU Starting Problems
Figure 104 (Sheet 4)

FROM SHEET 4
(BLOCK 4)

NO

5 OPEN THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER AND OPERATE THE APU (AMM 49-11-00/201).
DID THE APU OPERATE NORMALLY?

YES → 40 CLOSE THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER.
REPLACE THE APU BATTERY CHARGER, M207 (AMM 24-31-04/401).

NO

6 CLOSE THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER.
DID THE "FAULT" LIGHT AND THE "APU FAULT" MESSAGE COME ON?

NOTE: THE "FAULT" LIGHT WILL COME ON WHEN THE FUEL VALVE MOVES FROM ONE POSITION TO ANOTHER, AND THEN IT MUST GO OUT.

YES → 41 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103), TO FIND THE CAUSE OF THE APU PROTECTIVE SHUTDOWN.

NOTE: IF THE EGT AND THE RPM DO NOT INCREASE, THERE MUST BE A "NO FLAME" SHUTDOWN.

IF THE RPM DOES NOT INCREASE, THERE MUST BE A "NO ACCEL" OR A "SLOW START" SHUTDOWN.

NO

7 MONITOR THE RPM ON THE PERF/APU EICAS PAGE.
IS THERE AN INCREASE IN THE RPM TO AT LEAST 95%?

NOTE: THE "RUN" LIGHT ON THE APU CONTROL PANEL COMES ON.

NO → 42 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103).

YES

8 IS THE APU OPERATION STABLE?

NO → 43 DO A CHECK FOR GROUND FOR THE CONTROL CIRCUIT SHIELD THROUGH THE ECU, M206, CONNECTOR D1796B, PIN J9 (WDM 49-14-11)(ECU SUPPLIES THE GROUND).

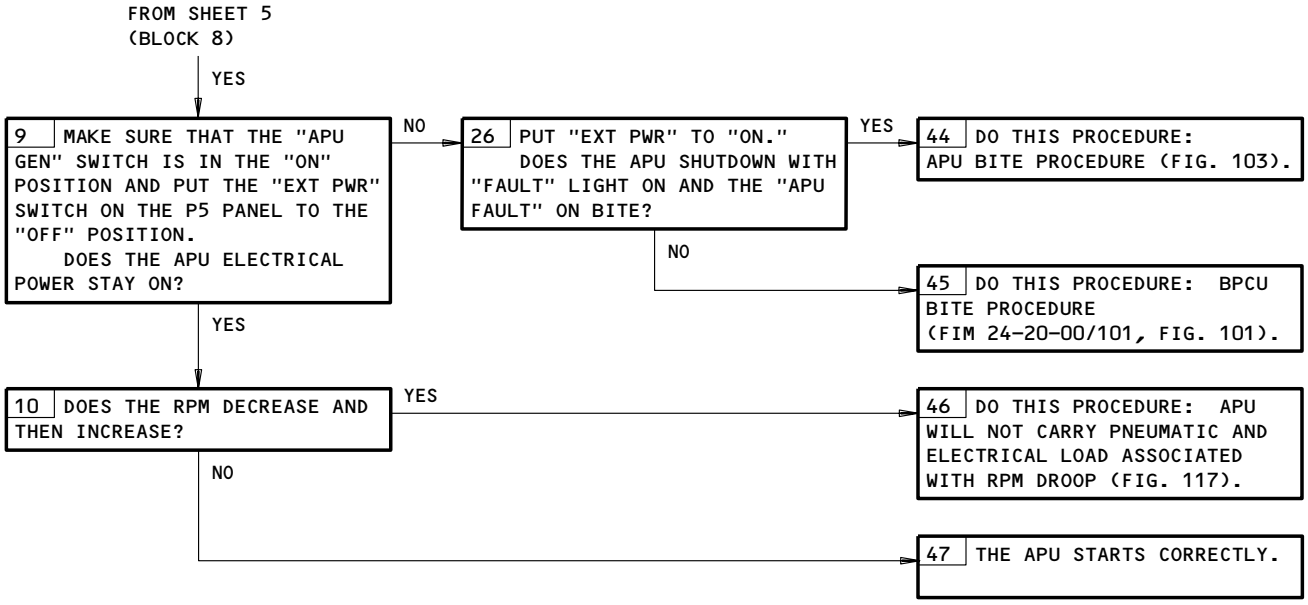
NOTE: IF THERE IS EMI NEAR THE ECU AND THE CONTROL CIRCUIT IS NOT CORRECTLY GROUNDED, THE APU CAN HAVE STARTING PROBLEMS.

REPAIR THE PROBLEMS THAT YOU FIND.

YES

SEE SHEET 6
(BLOCK 9)

APU Starting Problems
Figure 104 (Sheet 5)



APU Starting Problems
Figure 104 (Sheet 6)

AUTO SHUTDOWN – "START ABORTED" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35, APU CONT, APU START, APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) IF YOU HAVE NOT DONE IT BEFORE.
DOES THE "LOW OIL PRESSURE" OR THE "HIGH OIL TEMP" LIGHT SHOW IN THE "RECORD SELECT" SWITCH POSITIONS 2 THRU 4?

YES → 41 IF THE "LOW OIL PRESSURE" LIGHT CAME ON, DO THIS PROCEDURE: AUTO SHUTDOWN – LOW OIL PRESSURE ON BITE (FIG. 109).
IF THE "HIGH OIL TEMP" LIGHT CAME ON, DO THIS PROCEDURE: AUTO SHUTDOWN – HIGH OIL TEMP ON BITE (FIG. 110).

NO

2 DID YOU TRY TO START THE APU AFTER A LONG FLIGHT (MORE THAN 2.5 HOURS)?

YES → 21 DO THIS PROCEDURE: APU STARTING PROBLEMS (FIG. 104).
WAS IT NORMAL?

YES → 42 EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN J10, TO THE STARTER MOTOR, M893, AND FROM THE STARTER MOTOR, M893, TO THE DE-OIL SOLENOID VALVE, YBMM3, CONNECTOR PIN 1 BY ADDING A JUMPER BETWEEN CONNECTOR PINS 1 AND 2 ON THE DE-OIL (LOW OIL) TEMPERATURE SWITCH, YBMS5 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND.
IF THE PROBLEM CONTINUES, REPLACE THE LOW OIL TEMPERATURE SWITCH, YBMS5 (AMM 49-27-14/401). 1

NO

SEE SHEET 2 (BLOCK 3)

NO

22 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103).
DID THE "START ABORTED" LIGHT COME ON AGAIN?

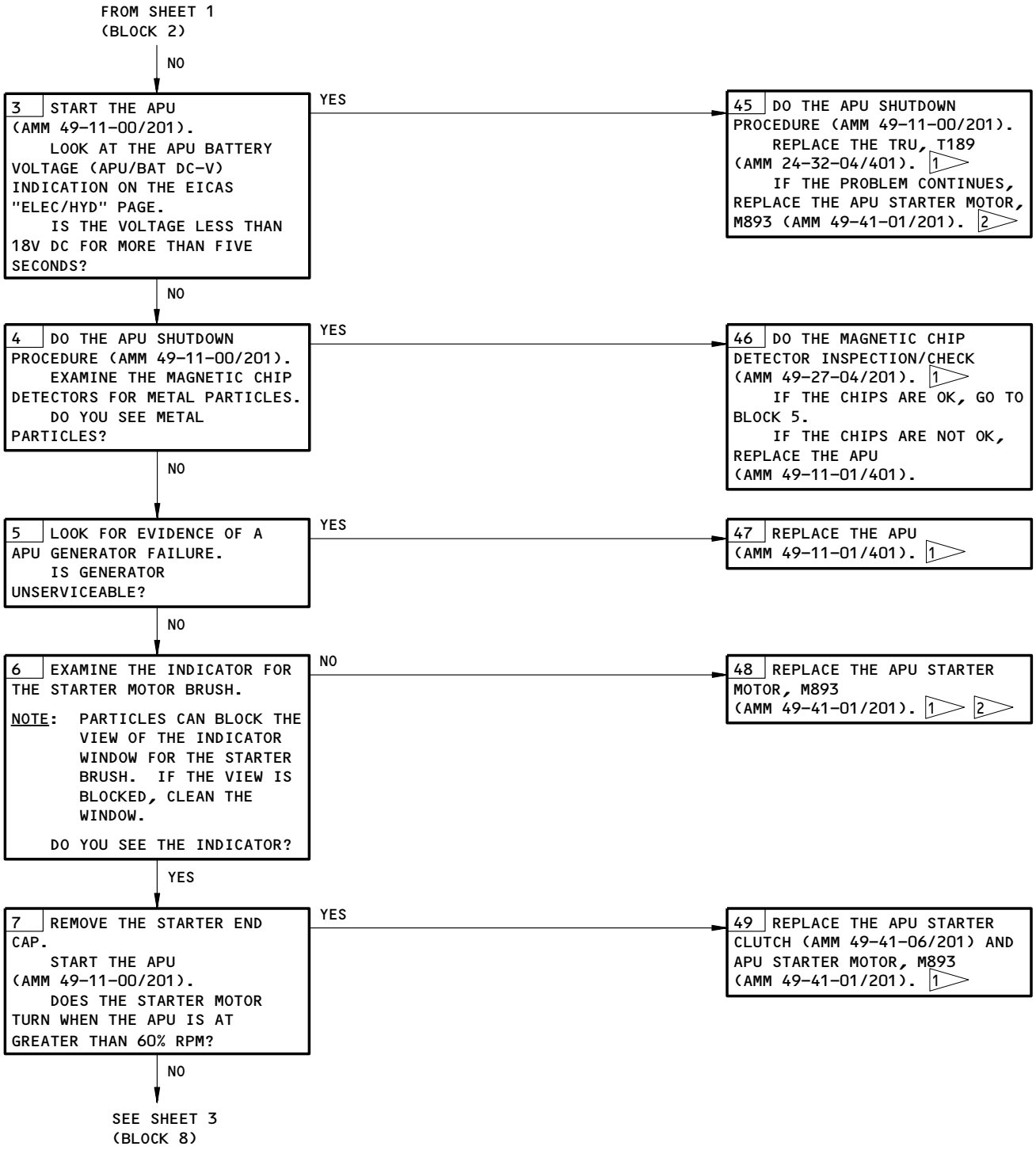
YES → 43 GO TO BLOCK 3.

NO → 44 DO THE "CORRECTIVE ACTION" IN FIG. 103, TABLE B.

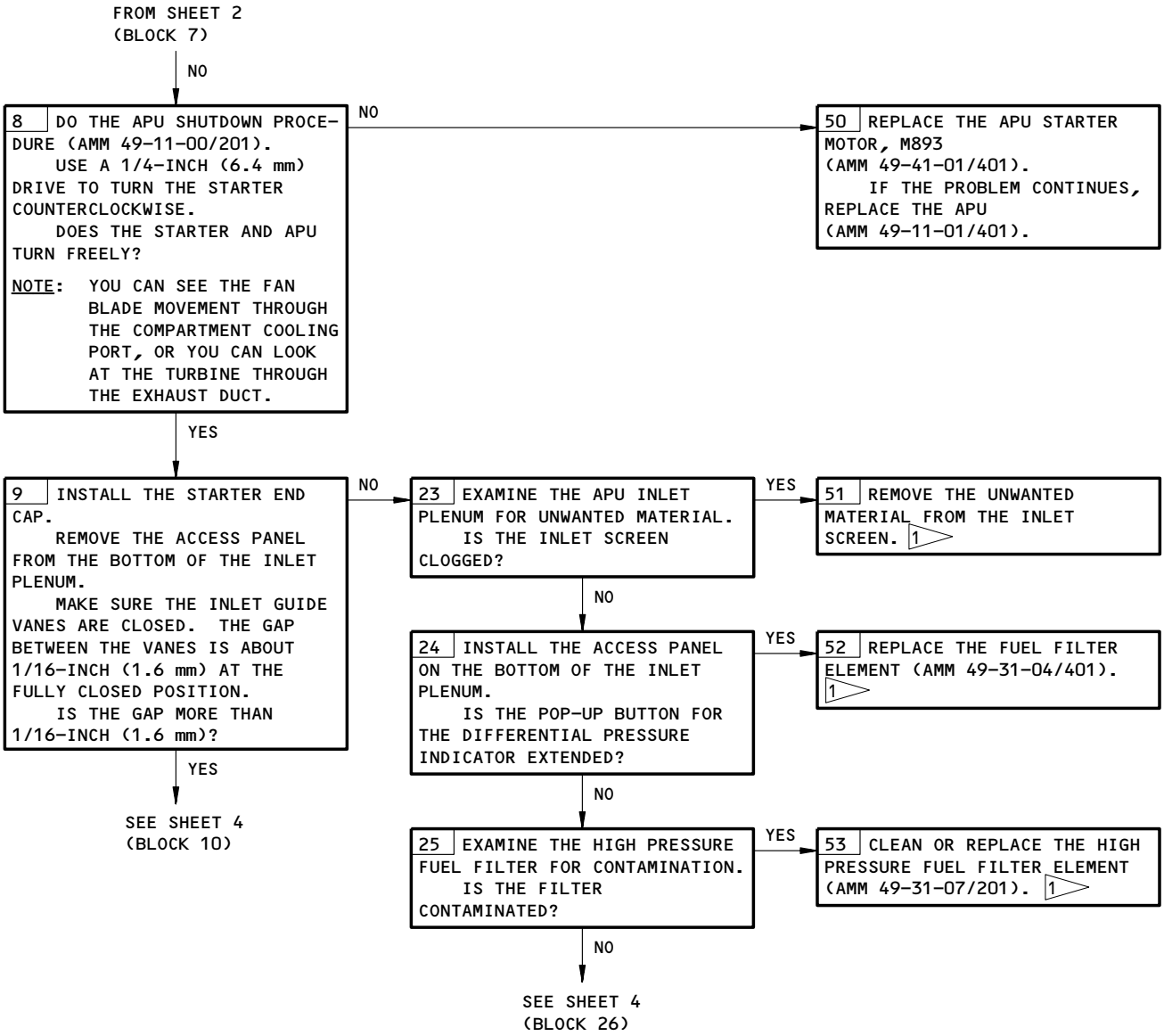
1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF/APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 IF TWO APU STARTER MOTORS ARE REPLACED IN LESS THAN 30 DAYS, REPLACE THE APU STARTER MOTOR, M893 (AMM 49-41-01/401), AND THE APU STARTER CLUTCH (AMM 49-41-06/401).

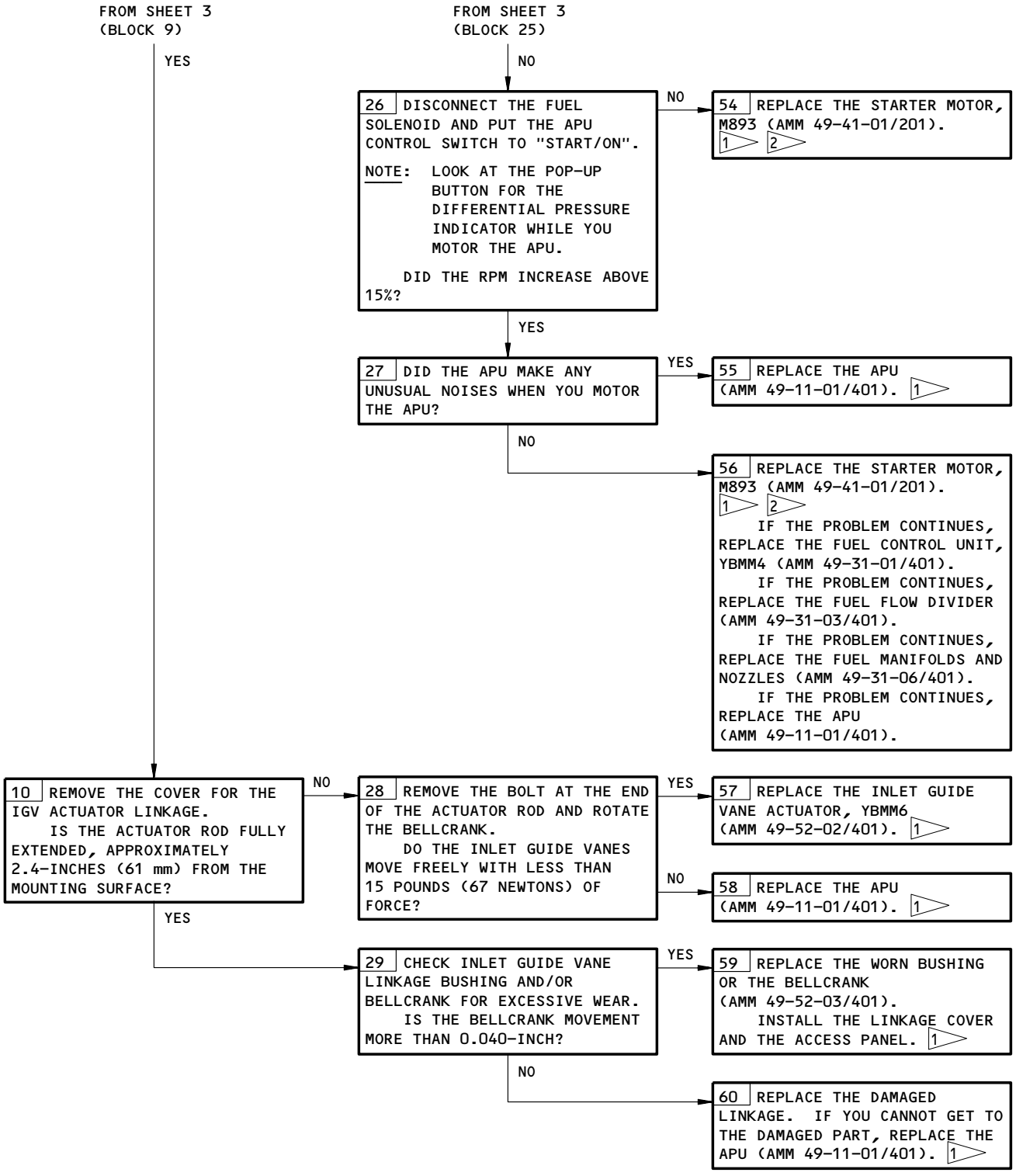
Auto Shutdown – START ABORTED on BITE
Figure 105 (Sheet 1)



Auto Shutdown - START ABORTED on BITE
Figure 105 (Sheet 2)



Auto Shutdown START ABORTED on BITE
Figure 105 (Sheet 3)



Auto Shutdown START ABORTED on BITE
Figure 105 (Sheet 4)

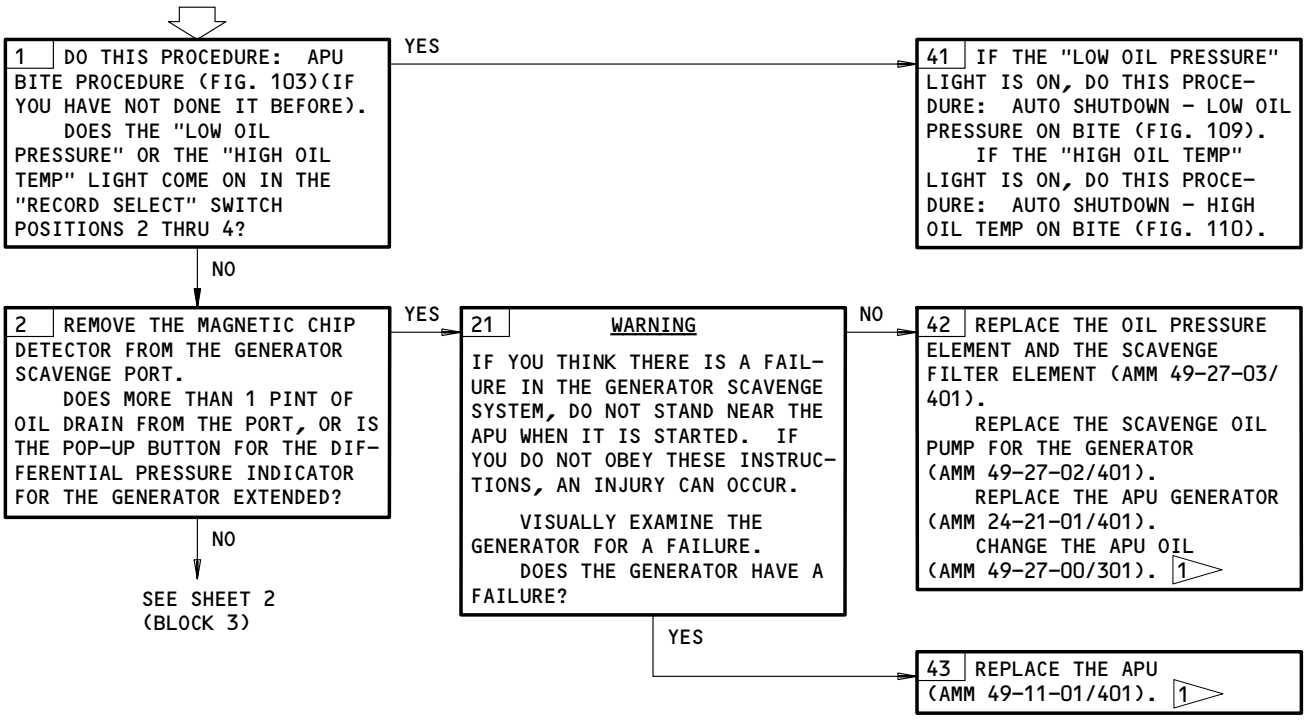
AUTO SHUTDOWN – "UNDER SPEED" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

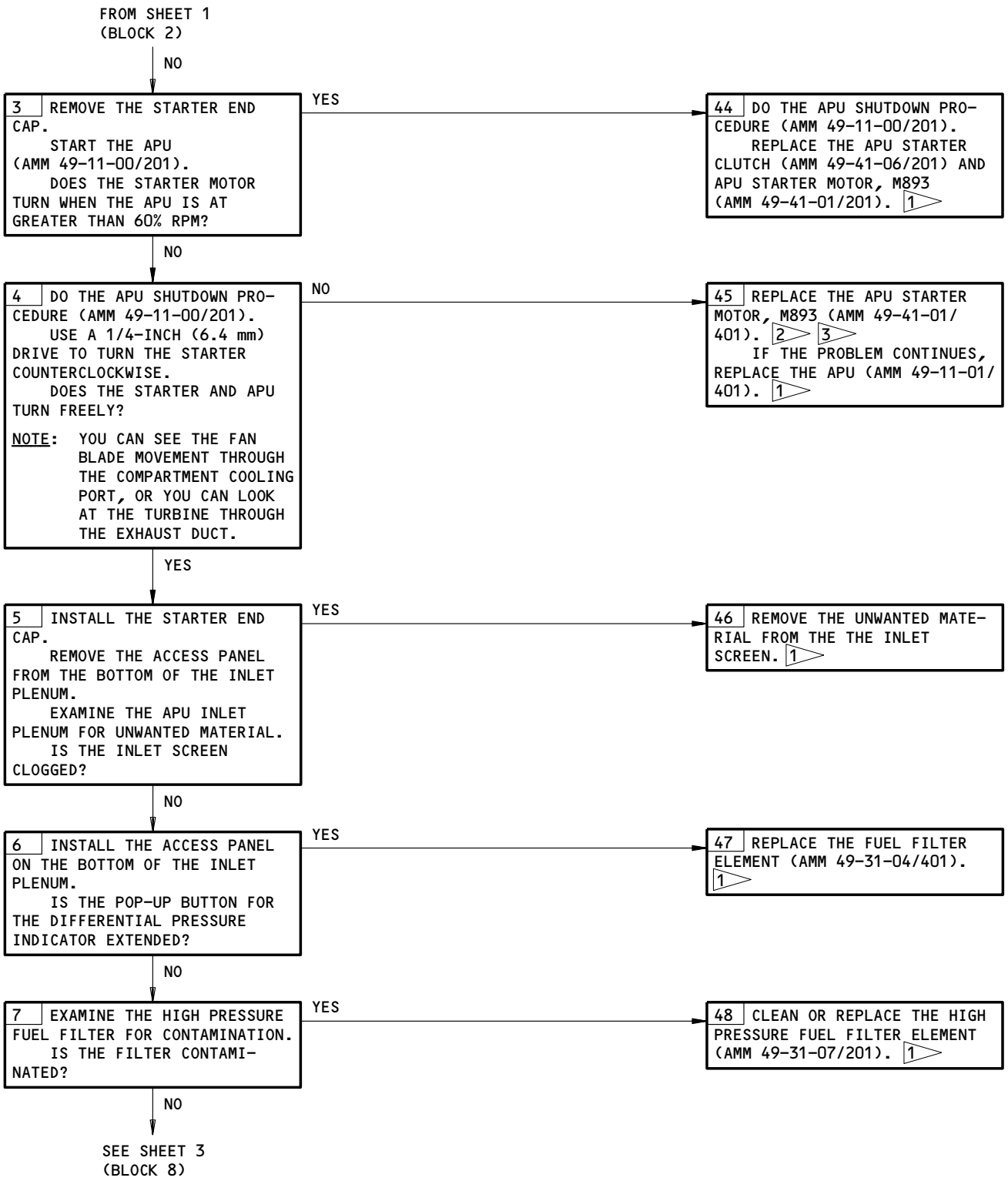


1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF/APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 IF TWO APU STARTER MOTORS ARE REPLACED IN LESS THAN 30 DAYS, REPLACE THE APU STARTER MOTOR, M893 (AMM 49-41-01/401), AND THE APU STARTER CLUTCH (AMM 49-41-06/401).

3 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

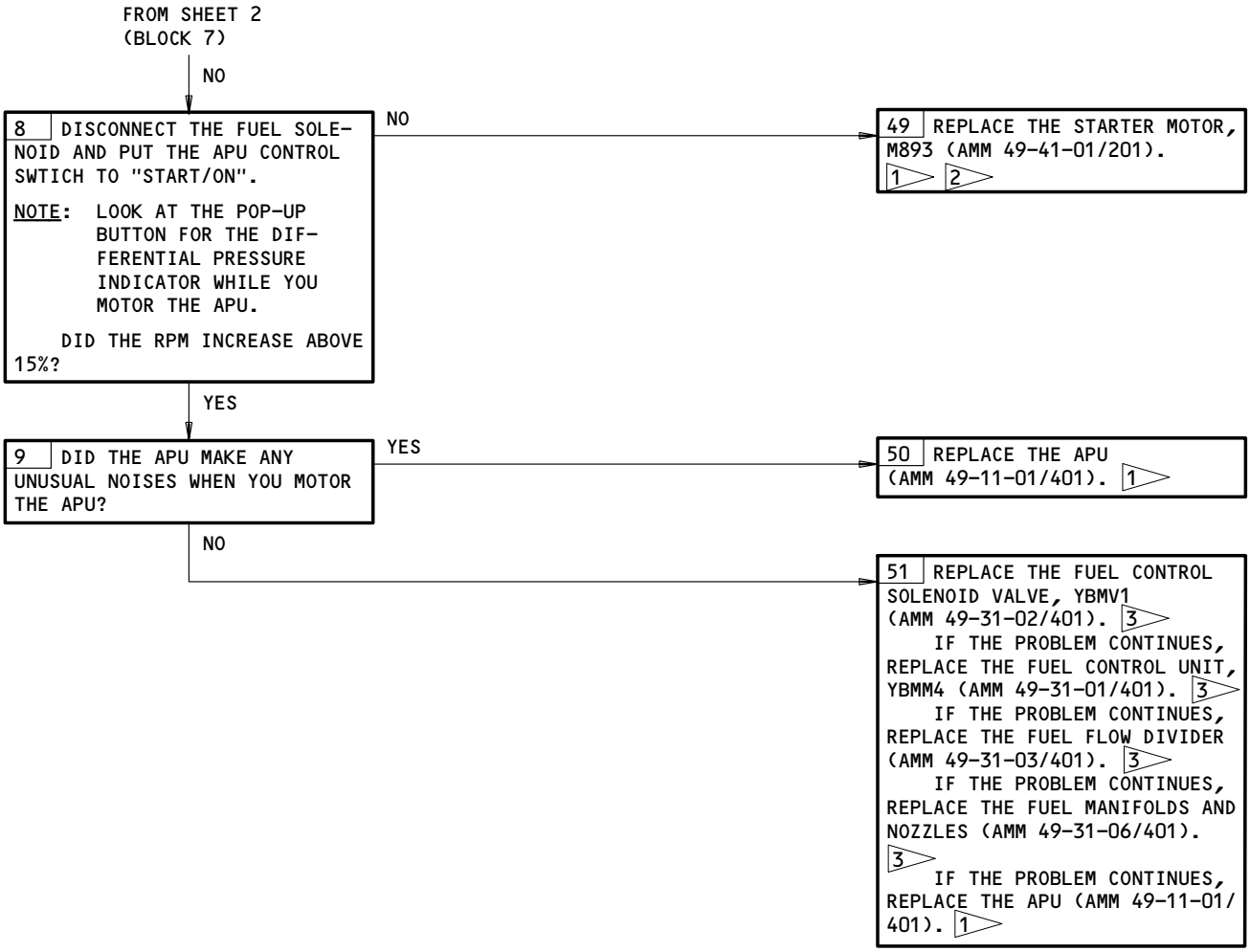
Auto Shutdown – UNDER SPEED on BITE
Figure 106 (Sheet 1)



Auto Shutdown - UNDER SPEED on BITE
Figure 106 (Sheet 2)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -19 AND SUBSEQUENT

988774



Auto Shutdown - UNDER SPEED on BITE
Figure 106 (Sheet 3)

PREREQUISITES

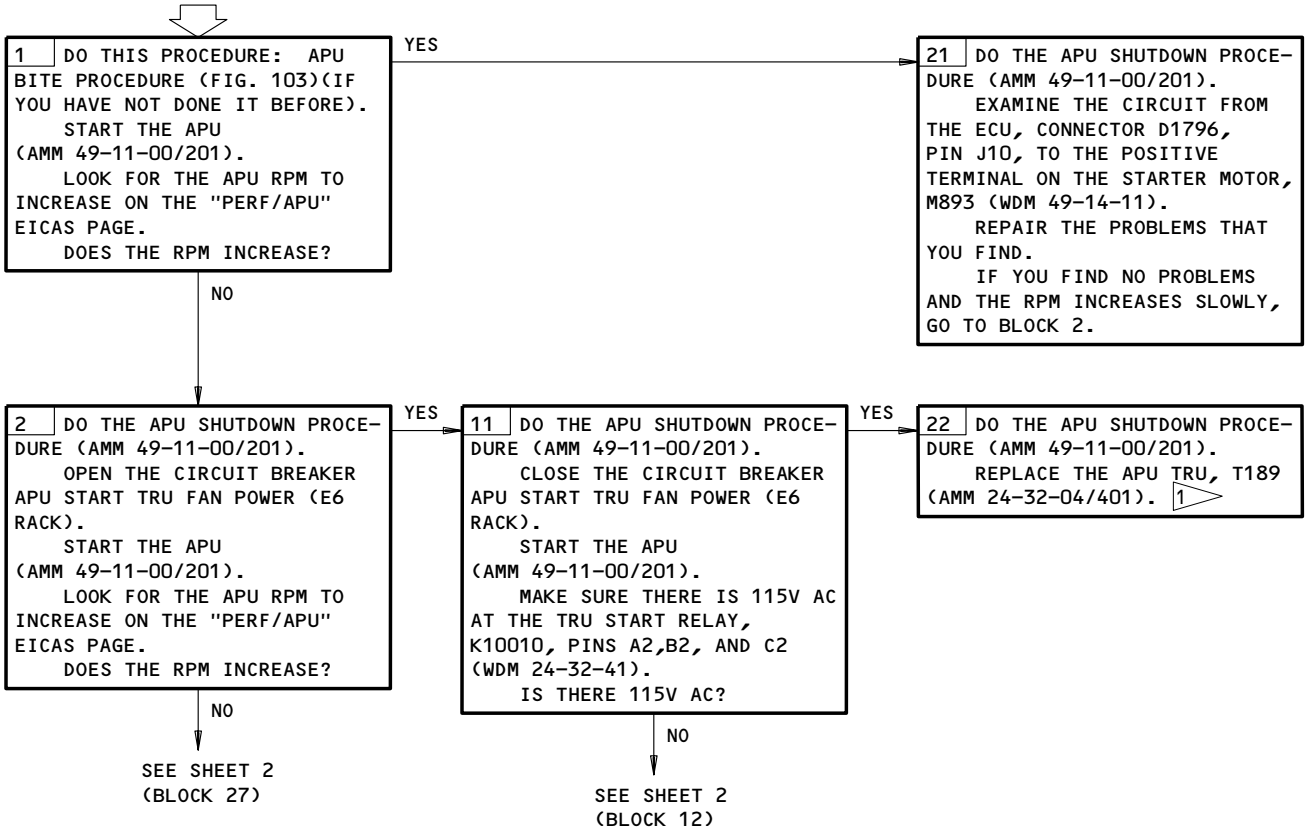
MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT,APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

CAUTION: MAKE SURE YOU OBEY THE STARTER DUTY CYCLE IN THE APU OPERATION LIMITS (AMM 49-11-00/201). IF YOU DO NOT OBEY THESE INSTRUCTIONS, YOU CAN CAUSE DAMAGE TO THE APU.

FAULTY UNIT - "STARTER CIRCUIT" ON BITE



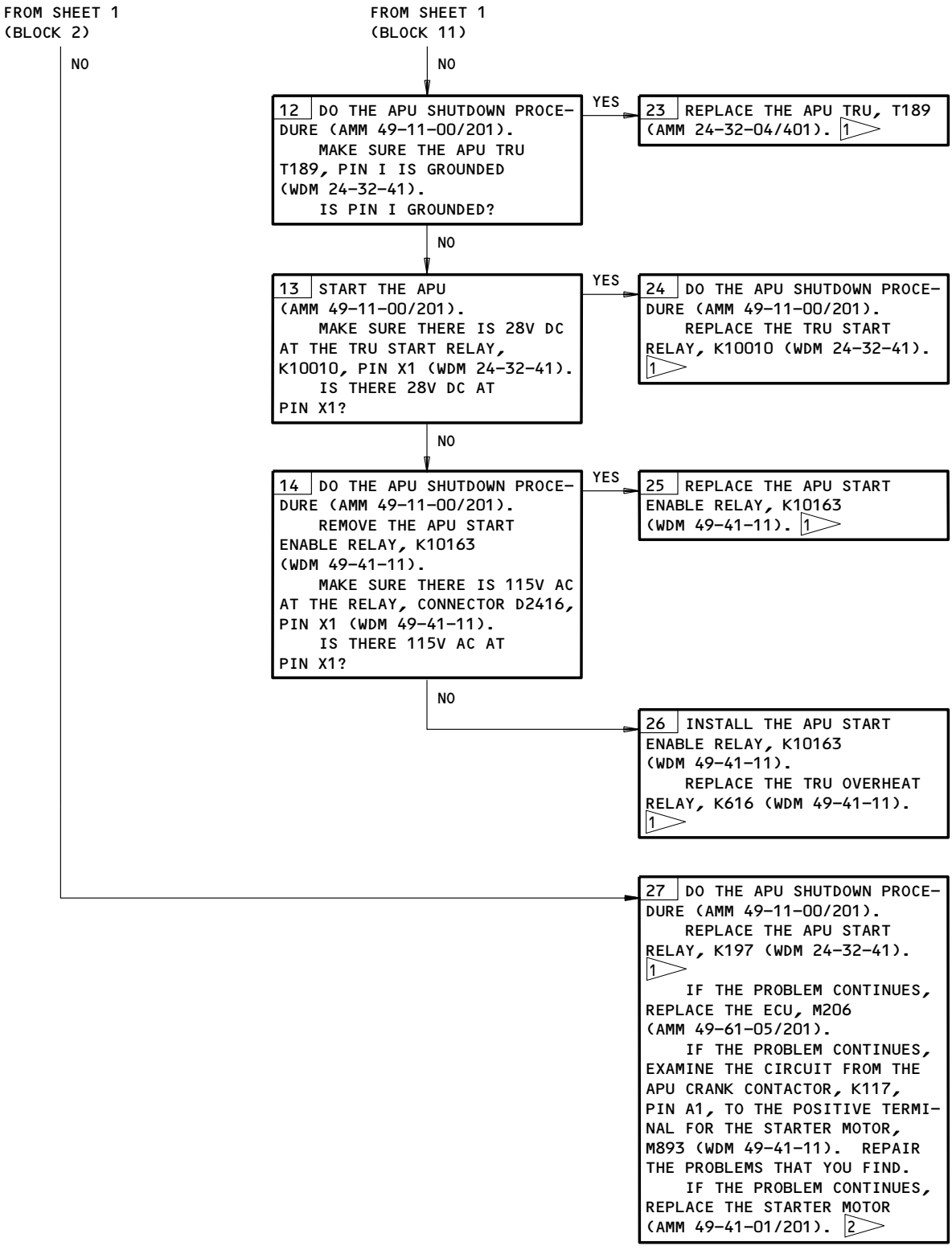
1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 IF TWO APU STARTER MOTORS ARE REPLACED IN LESS THAN 30 DAYS, REPLACE THE APU STARTER MOTOR, M893 (AMM 49-41-01/201), AND THE APU STARTER CLUTCH (AMM 49-41-06/201).

Faulty Unit - STARTER CIRCUIT on BITE
Figure 106A (Sheet 1)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -19 AND SUBSEQUENT

988923



Faulty Unit – STARTER CIRCUIT on BITE
Figure 106A (Sheet 2)

AUTO SHUTDOWN – "NO LIGHT OFF " ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
START THE APU (AMM 49-11-00/201).
DO NOT DISCONNECT THE PRIMARY LEAD, ABOVE 7% RPM (AMM 49-11-00/201).
CAN YOU HEAR THE IGNITER PLUG?

NO → 11 MAKE SURE THESE CIRCUIT BREAKERS ARE OPEN:

11B34, "APU ALTN CONT" P11 OVERHEAD PANEL
"APU CONT" E6 RACK, AFT EQUIPMENT CENTER

WARNING: DO NOT TOUCH THE IGNITION COMPONENTS UNTIL YOU DO THESE STEPS. THESE STEPS WILL RELEASE THE HIGH VOLTAGE FROM THE IGNITION UNIT. IF YOU DO NOT OBEY THESE STEPS, INJURY TO PERSONS CAN OCCUR.

RELEASE THE HIGH VOLTAGE FROM THE IGNITION UNIT:
- STOP FOR A MINIMUM OF 5 MINUTES
- DISCONNECT THE IGNITION CABLE FROM THE IGNITER PLUG
- GROUND THE IGNITION CABLE TERMINAL TO THE APU ENGINE.

EXAMINE THE IGNITION LEAD CONNECTION TO THE IGNITER PLUG (AMM 49-41-04/201).
IS THE CONNECTION BAD?

YES → 21 REPLACE THE IGNITER PLUG, YBMM7 (AMM 49-41-02/201) AND THE IGNITION LEAD (AMM 49-41-04/201). 1

YES → SEE SHEET 2 (BLOCK 2)

NO → 22 REPLACE THE IGNITION LEAD (AMM 49-41-04/201). 1 2
IF THE PROBLEM CONTINUES, REPLACE THE IGNITER PLUG (AMM 49-41-02/201). 2
IF THE PROBLEM CONTINUES, REPLACE THE IGNITION UNIT, YBMM1 (AMM 49-41-03/401).

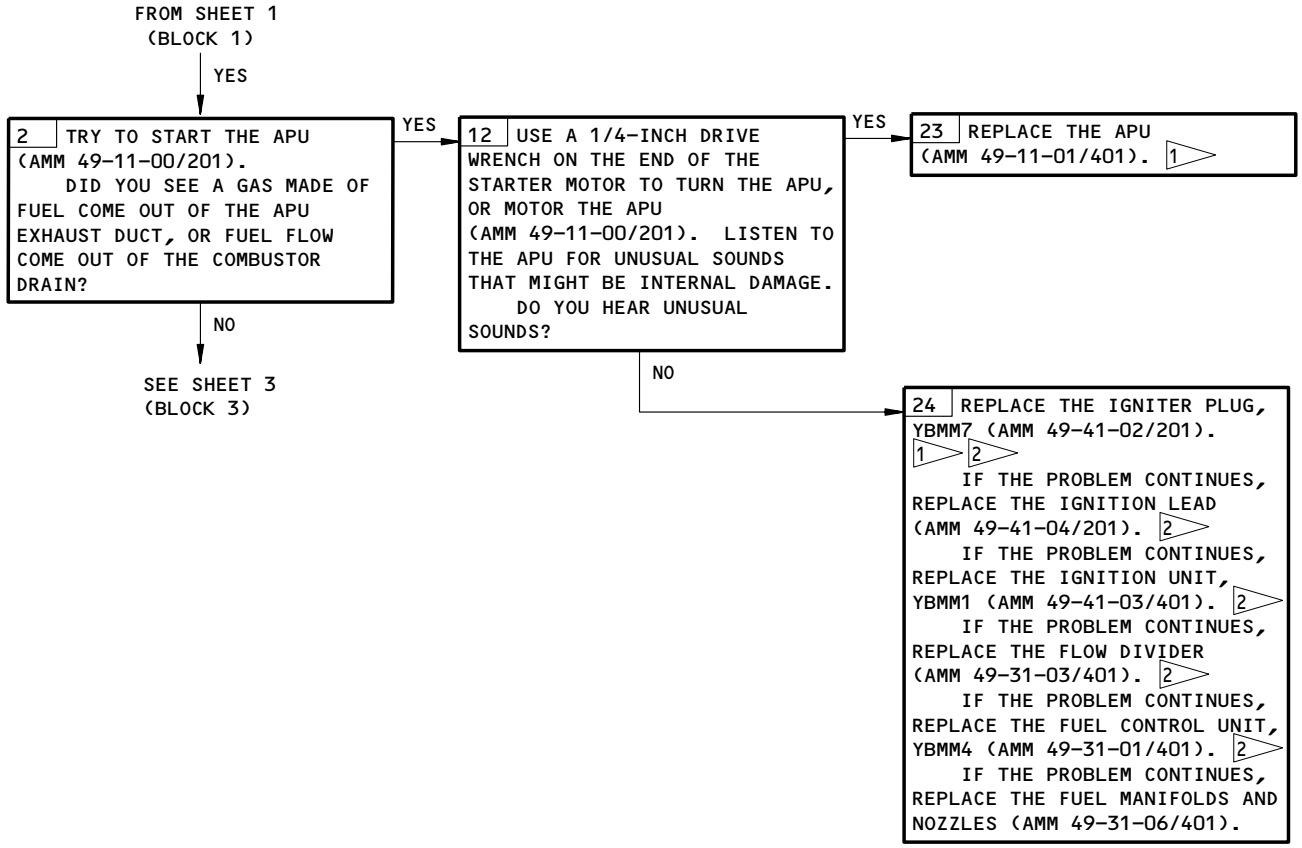
1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) AGAIN TO MAKE SURE THE PROBLEM IS REPAIRED.

Auto Shutdown – NO LIGHT OFF on BITE
Figure 107 (Sheet 1)

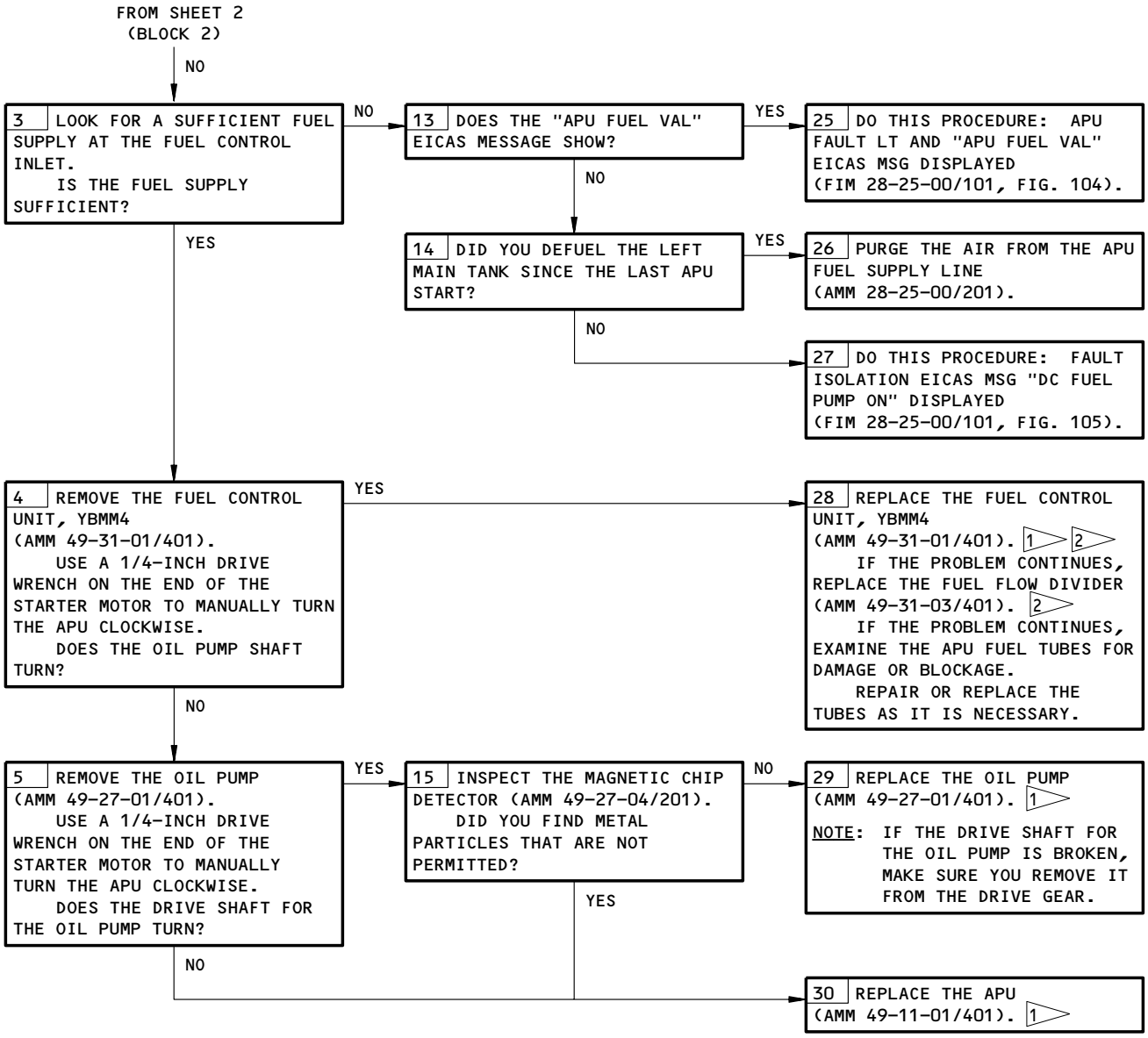
EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT –19 AND SUBSEQUENT

E49360



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - NO LIGHT OFF on BITE
Figure 107 (Sheet 2)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER YOU CORRECT THE PROBLEM, PUSH THE "PERF/APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - NO LIGHT OFF on BITE
Figure 107 (Sheet 3)

988962

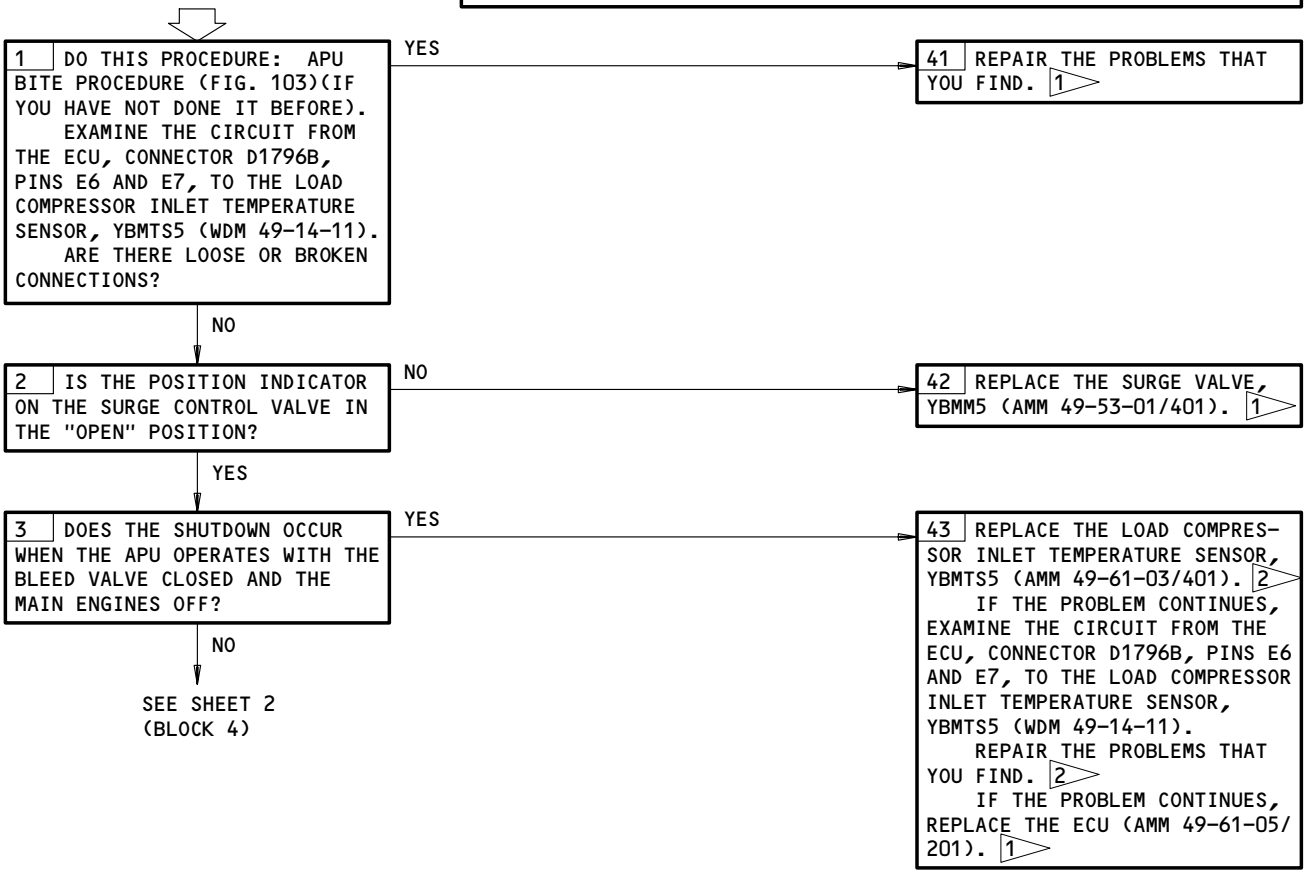
AUTO SHUTDOWN DURING GOVERNED SPEED - "REVERSE FLOW" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

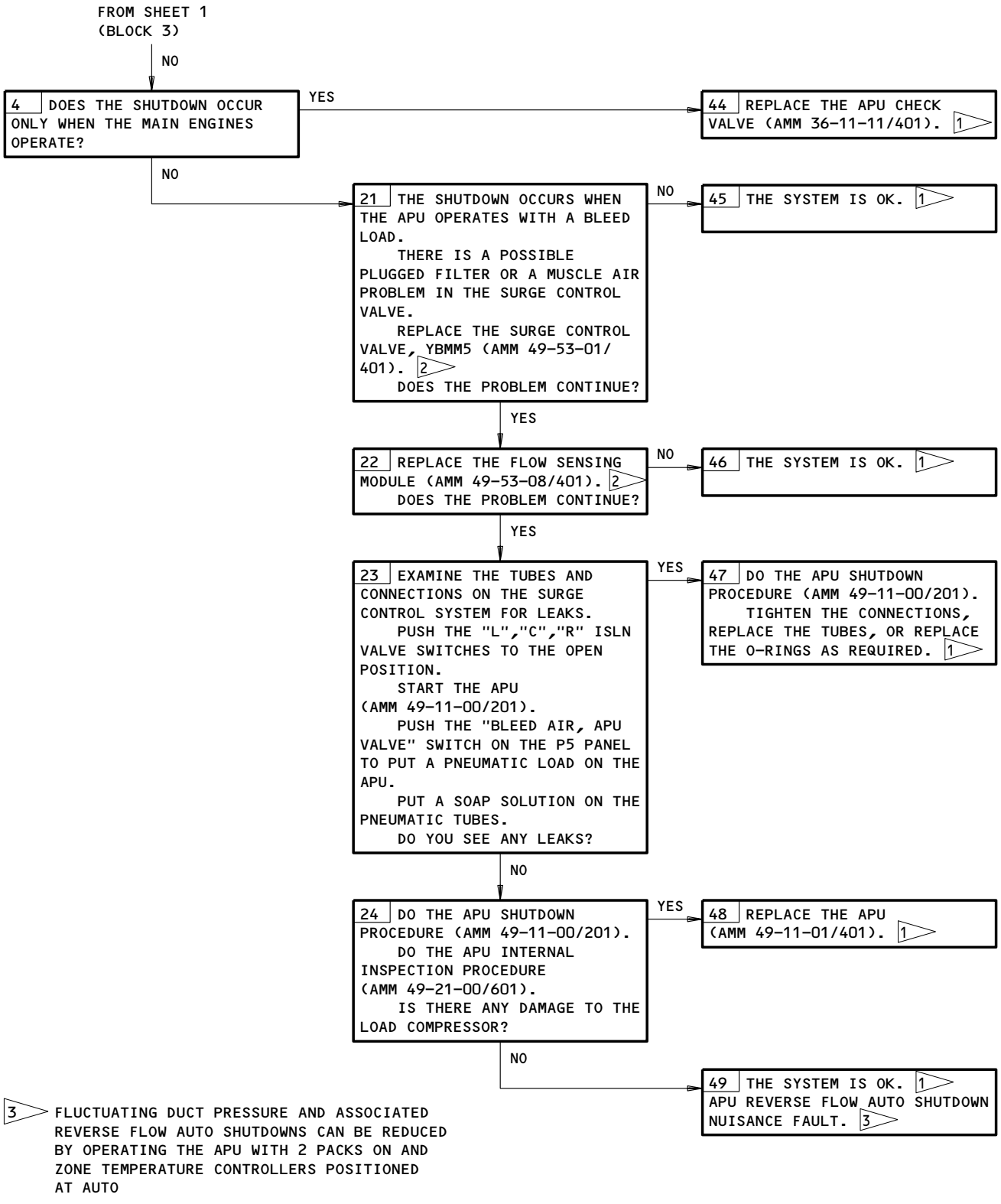
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Auto Shutdown During Governed Speed - REVERSE FLOW on BITE
Figure 108 (Sheet 1)



Auto Shutdown During Governed Speed – REVERSE FLOW on BITE
Figure 108 (Sheet 2)

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

NOTE: THE "LOP" LIGHT ON THE ECU WILL FLASH WHEN AN "LOP" SHUTDOWN OCCURS ON THE THIRD TRY TO START THE APU WITH THE AIRPLANE ON THE GROUND. THE "LOP" LIGHT WILL ONLY FLASH IF THE ECU MEMORY WAS NOT ERASED AFTER THE FIRST TWO "LOP" SHUTDOWNS.

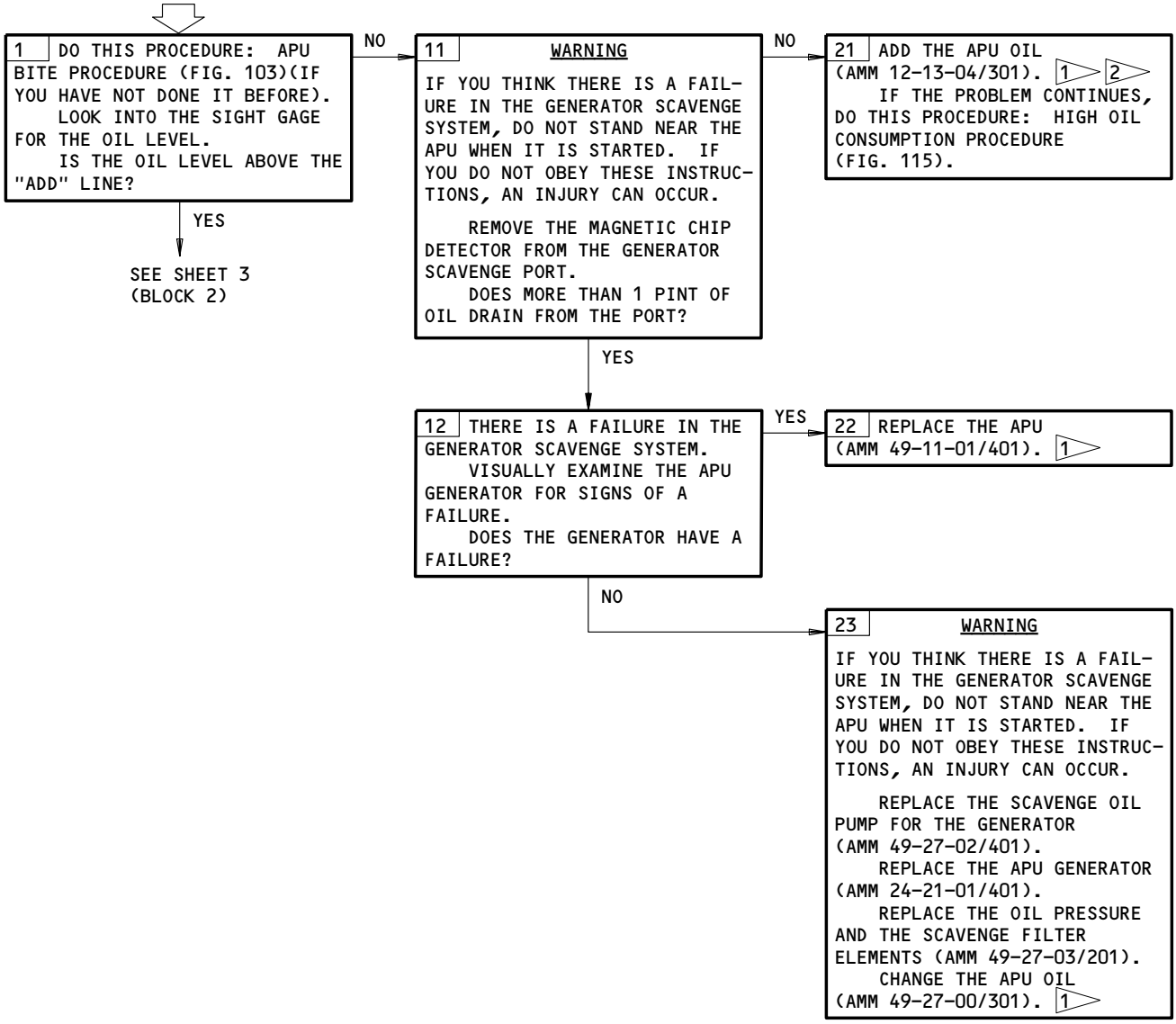
IF THE APU IS INITIALLY STARTED WITH LOW OIL PRESSURE, THE APU WILL SHUTDOWN 15.5 SECONDS AFTER IT GETS TO 95% RPM (OR ONE SECOND IF THE APU OIL TEMPERATURE IS GREATER THAN 20°F). THE SUBSEQUENT START WITH LOW OIL PRESSURE WILL CAUSE A SHUTDOWN ONE SECOND AFTER THE APU GETS TO 95% RPM. THE APU WILL THEN NOT START IF THERE IS LOW OIL PRESSURE.

1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) AGAIN TO MAKE SURE THE PROBLEM IS REPAIRED.

Auto Shutdown - LOP on BITE
Figure 109 (Sheet 1)

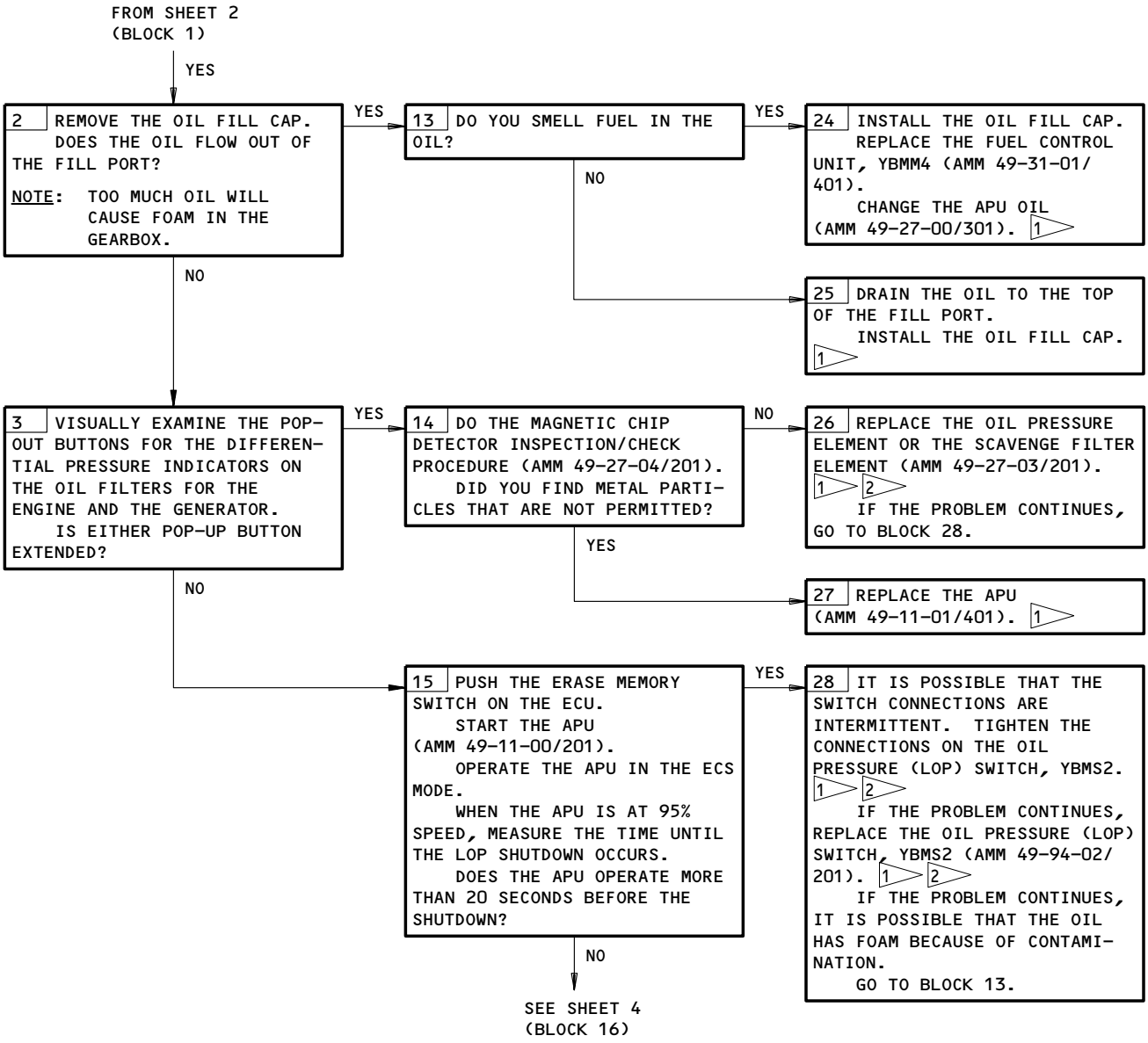
AUTO SHUTDOWN - "LOP" ON BITE



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - LOP on BITE
Figure 109 (Sheet 2)

G41327



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - LOP on BITE
Figure 109 (Sheet 3)

FROM SHEET 3
(BLOCK 15)

NO

16 IT IS POSSIBLE THAT THERE IS OIL FILTER BLOCKAGE.
EXAMINE THE OIL PRESSURE FILTER AND THE GENERATOR SCAVENGE FILTER FOR CONTAMINATION (AMM 49-27-03/201), IF YOU DID NOT EXAMINE THEM BEFORE. 1 2
IF THE PROBLEM CONTINUES, CONNECT A PRESSURE GAGE (0-150 PSIG) TO THE OIL PRESSURE TEST PORT (SEE SHEET 6).
START THE APU (AMM 49-11-00/201).
OPERATE THE APU IN THE ECS MODE.
IS THE OIL PRESSURE GREATER THAN 40 PSIG?

NO → 29 THERE IS A PERFORMANCE PROBLEM IN THE OIL SYSTEM. REPLACE THE APU OIL PUMP (AMM 49-27-01/401). 1 2

NOTE: IF THE DRIVE SHAFT FOR THE OIL PUMP IS BROKEN, MAKE SURE YOU REMOVE IT FROM THE DRIVE GEAR.

IF THE PROBLEM CONTINUES, REMOVE THE DE-OIL SOLENOID VALVE (AMM 49-27-08/401) TO SEE IF IT IS STUCK OPEN. 1 2
IF THE PROBLEM CONTINUES, EXAMINE THE OIL COOLER, THE LINES AND THE CHECK VALVES FOR BLOCKAGE. 1 2
IF THE PROBLEM CONTINUES, THE APU HAS AN INTERNAL LEAK. REPLACE THE APU (AMM 49-11-01/401). 1

YES

17 IS THE OIL PRESSURE LESS THAN 60 PSI?

YES → 30 IT IS POSSIBLE THAT THERE IS A PERFORMANCE PROBLEM IN THE OIL SYSTEM. REPLACE THE APU OIL PUMP (AMM 49-27-01/401). 1 2

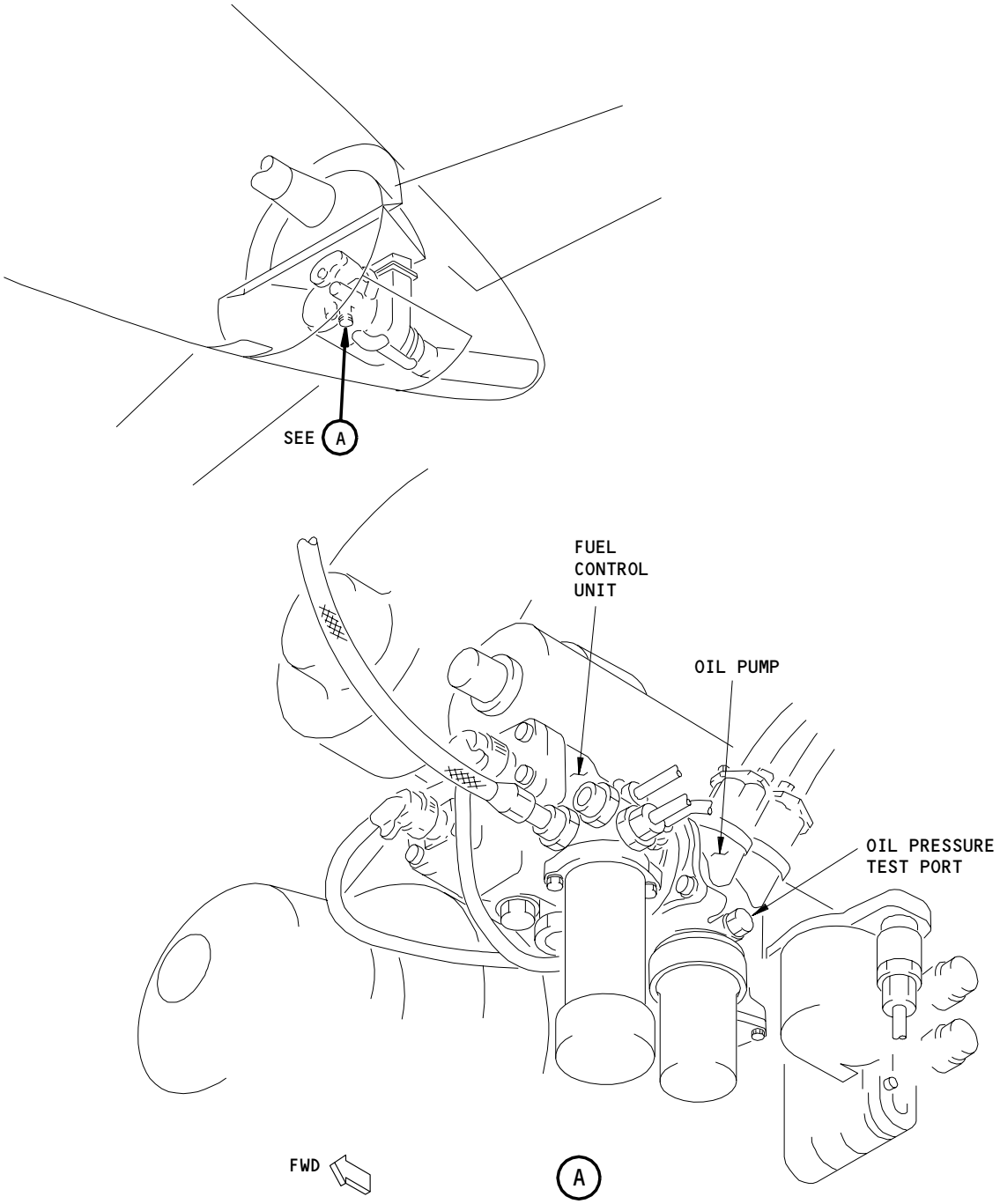
NOTE: IF THE DRIVE SHAFT FOR THE OIL PUMP IS BROKEN, MAKE SURE YOU REMOVE IT FROM THE DRIVE GEAR.

IF THE PROBLEM CONTINUES, REMOVE THE DE-OIL SOLENOID VALVE (AMM 49-27-08/401) TO SEE IF IT IS STUCK OPEN. 1 2
IF THE PROBLEM CONTINUES, EXAMINE THE OIL COOLER, THE LINES AND THE CHECK VALVES FOR BLOCKAGE. 1 2
IF THE PROBLEM CONTINUES, THE APU HAS AN INTERNAL LEAK. REPLACE THE APU (AMM 49-11-01/401). 1 2
IF THE PROBLEM CONTINUES, THERE IS AN INDICATION PROBLEM. EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN C5, TO THE LOW OIL PRESSURE SWITCH, YBMS2, CONNECTOR P6, PIN 1 (GROUND, PIN 2)(WDM 49-14-11).
REPAIR THE PROBLEMS THAT YOU FIND. 1 2
IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

NO

18 THERE IS AN INDICATION PROBLEM. IT IS POSSIBLE THAT THERE IS A CALIBRATION SHIFT IN THE OIL PRESSURE (LOP) SWITCH. REPLACE THE OIL PRESSURE (LOP) SWITCH, YBMS2 (AMM 49-94-02/201). 1
IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN C5, TO THE LOW OIL PRESSURE SWITCH, YBMS2, CONNECTOR P6, PIN 1 (GROUND, PIN 2) 2 (WDM 49-14-11).
REPAIR THE PROBLEMS THAT YOU FIND. 1 2
IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

Auto Shutdown - LOW OIL PRESURE on BITE
Figure 109 (Sheet 4)



Auto Shutdown - LOP on BITE
Figure 109 (Sheet 5)

AUTO SHUTDOWN - "HOT" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) (IF YOU HAVE NOT DONE IT BEFORE).
MAKE SURE THE HIGH OIL TEMP (HOT) LIGHT IS SHOWN ON "REASON APU NOT OPERATING".
DO A CHECK OF PREVIOUS SHUTDOWN MESSAGES AND THEN PUSH THE "ERASE MEMORY" SWITCH TO ERASE THE BITE MEMORY.
DID YOU FIND ANY PREVIOUS LOW OIL PRESSURE (LOP) SHUTDOWNS?

YES → 51 DO THIS PROCEDURE: AUTO SHUTDOWN - LOW OIL PRESSURE ON BITE (FIG. 109).

NO

2 ARE THERE SIGNS OF OIL ON THE APU FIREWALL?

YES → 52 REPLACE THE COOLING FAN (AMM 49-51-03/401).
REPLACE OR CLEAN THE OIL COOLER (AMM 49-27-09/401). 1

NO

3 VISUALLY EXAMINE THE FAN INLET AND OUTLET DUCTS FOR DAMAGE AND ATTACHMENT.
IS THERE A PROBLEM WITH THE DUCTS?

YES → 53 REPLACE OR REPAIR THE FAN INLET AND OUTLET DUCTS AS NECESSARY.

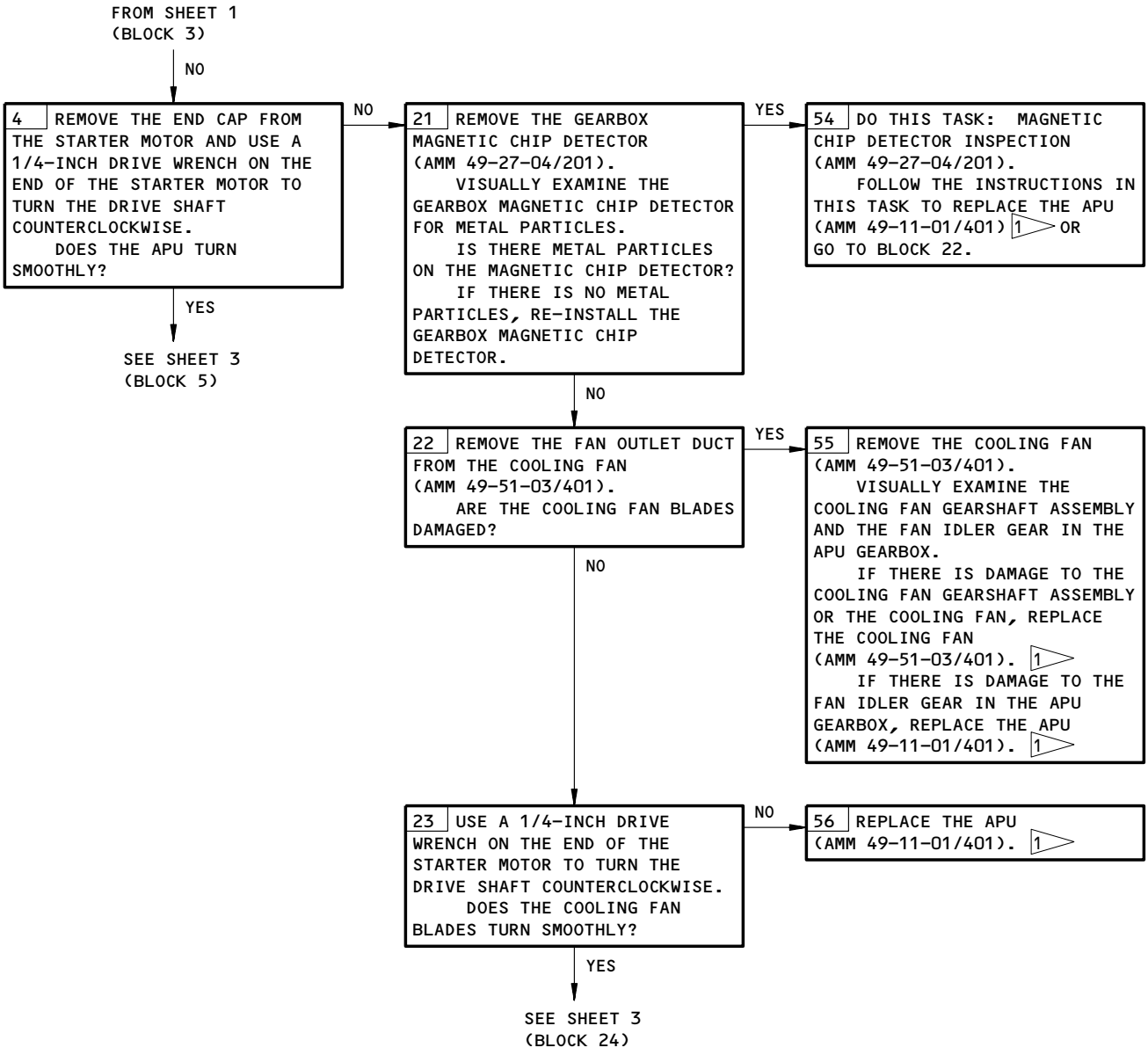
NO

SEE SHEET 2
(BLOCK 4)

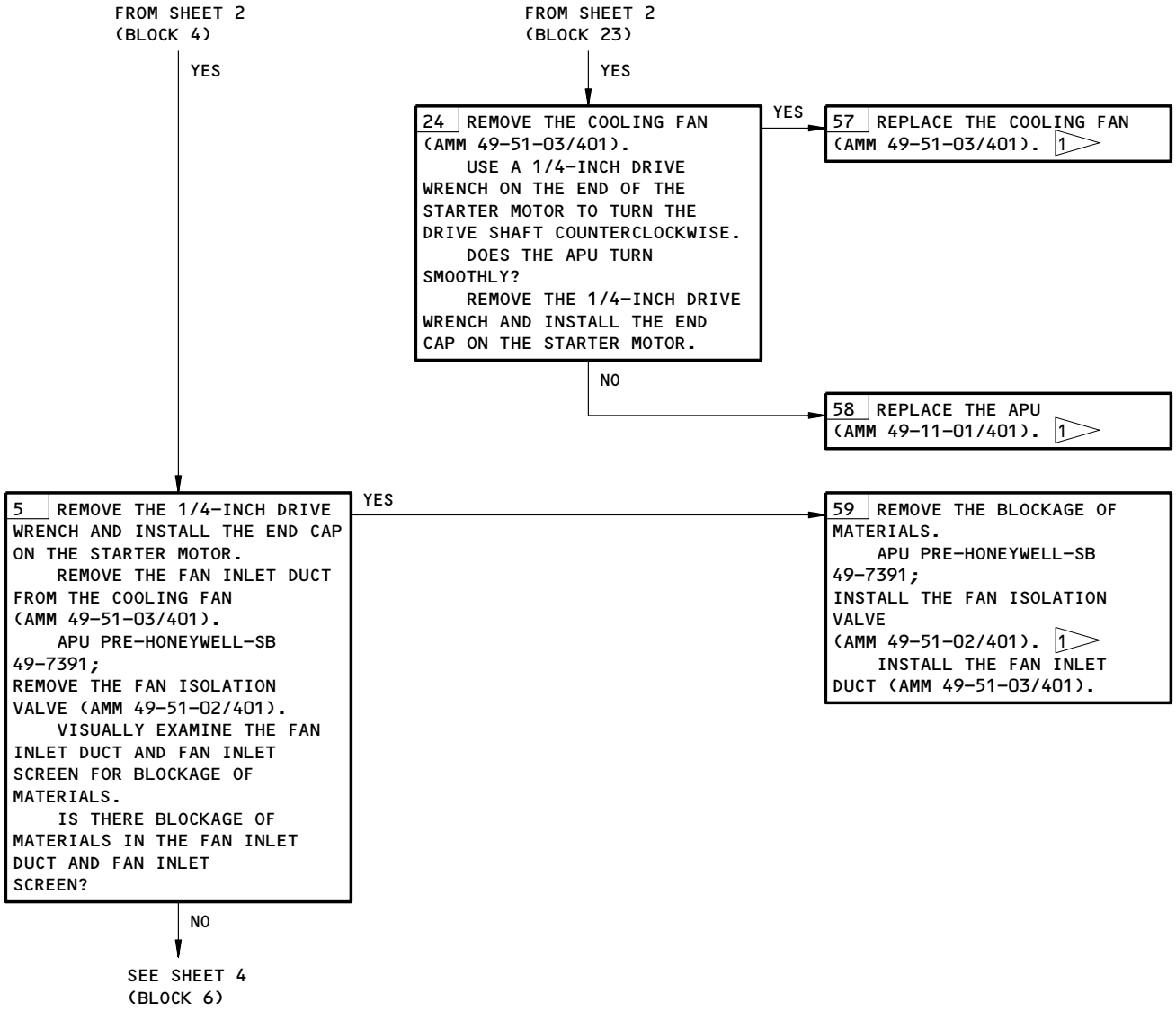
1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown - HOT on BITE
Figure 110 (Sheet 1)

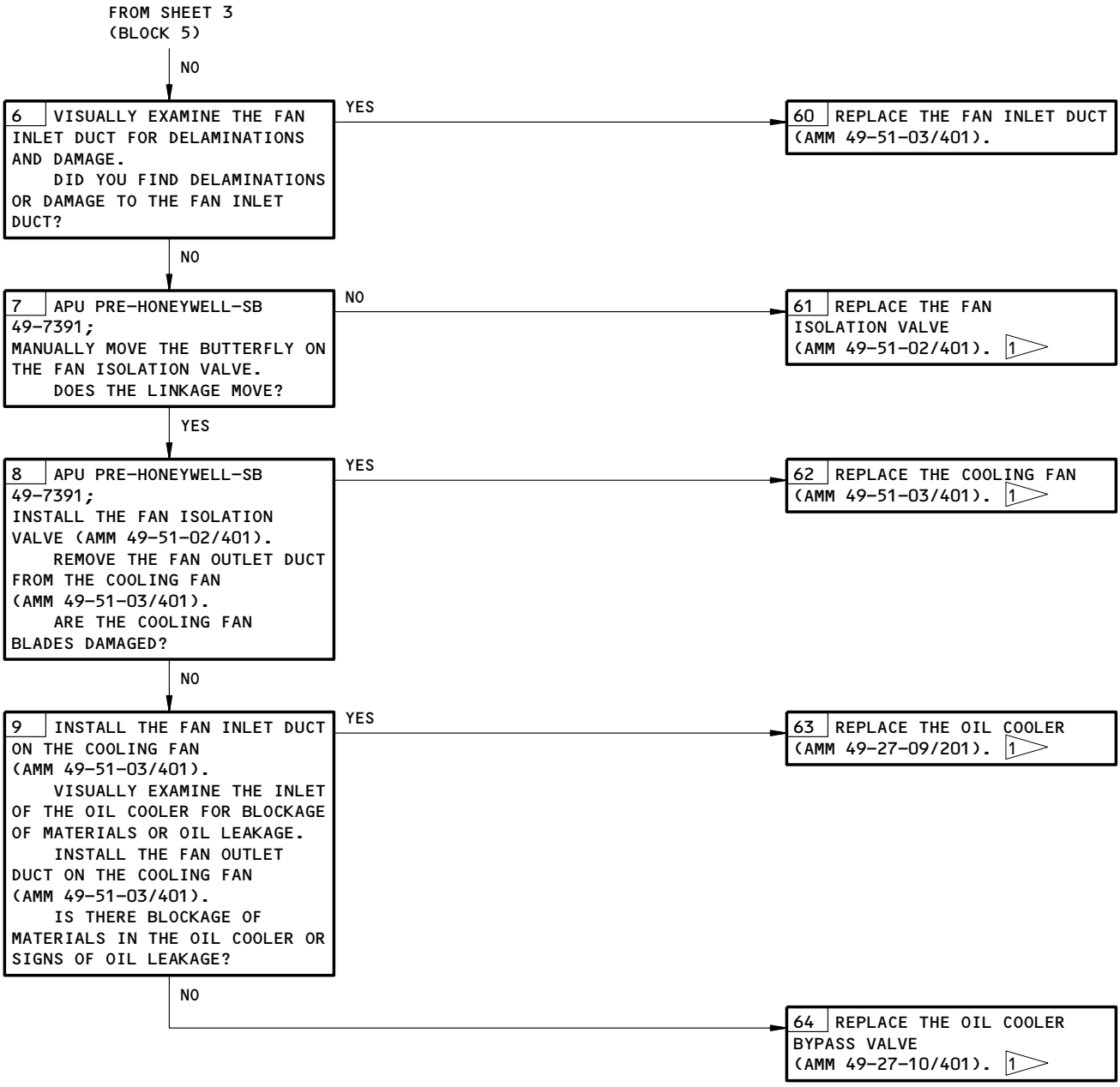
988484



Auto Shutdown - HOT on BITE
Figure 110 (Sheet 2)



Auto Shutdown - HOT on BITE
Figure 110 (Sheet 3)



Auto Shutdown - HOT on BITE
Figure 110 (Sheet 4)

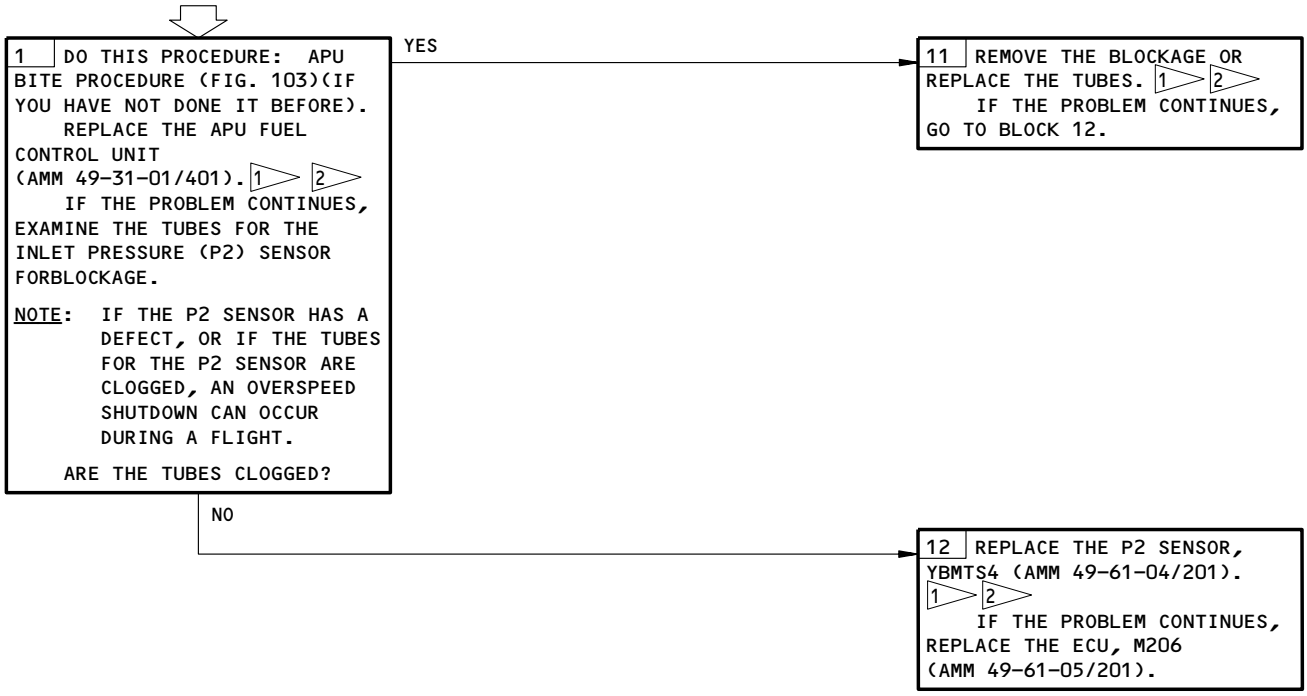
490865

AUTO SHUTDOWN – "OVER SPEED" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) AGAIN TO MAKE SURE THE PROBLEM IS REPAIRED.

Auto Shutdown – OVER SPEED on BITE
Figure 111

AUTO SHUTDOWN – "GEN FILTER" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
LOOK AT THE POP-OUT BUTTON FOR THE DIFFERENTIAL PRESSURE INDICATOR FOR THE GENERATOR.
IS THE POP-OUT BUTTON EXTENDED?

YES → 9 INSPECT THE MAGNETIC CHIP DETECTOR (AMM 49-27-04/201).
DID YOU FIND METAL PARTICLES THAT ARE NOT PERMITTED?

YES → 20 REPLACE THE APU AND GENERATOR (AMM 49-11-01/401). 1

NO → 10 LOOK FOR SIGNS OF A GENERATOR FAILURE.
DOES THE GENERATOR HAVE A FAILURE?

YES → 20A REPLACE THE APU AND GENERATOR (AMM 49-11-01/401). 1

NO → 11 EXAMINE THE GENERATOR SCAVENGE FILTER FOR CONTAMINATION (AMM 49-27-03/201).
IS THE FILTER CONTAMINATED?

YES → 21 REPLACE THE OIL PRESSURE ELEMENT AND THE SCAVENGE FILTER ELEMENT (AMM 49-27-03/401).
EXAMINE THE SCAVENGE OIL PUMP FOR DAMAGE. IF THERE IS DAMAGE, REPLACE THE SCAVENGE OIL PUMP (AMM 49-27-02/401).
EXAMINE THE APU GENERATOR FOR DAMAGE. IF THERE IS DAMAGE REPLACE THE APU GENERATOR (AMM 24-21-01/401).

NO → 22 REPLACE THE GENERATOR ΔP INDICATOR (AMM 49-27-16/401). 1
GO TO BLOCK 2.

NO → 2 REMOVE THE CONNECTOR AT THE GENERATOR ΔP SWITCH.
USE THE LOW CURRENT OHMMETER (10 MA MAXIMUM) TO MEASURE THE RESISTANCE FROM PIN 1 TO PIN 2 (WDM 49-14-11).
IS THE RESISTANCE MORE THAN 1.0 OHM?

YES → 23 REPLACE THE GENERATOR ΔP SWITCH, YBMS1 (AMM 49-27-15/401). 1

NO → 12 EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PIN D11, TO THE ΔP SWITCH, PIN 1 (WDM 49-14-11).
IS THERE CONTINUITY?

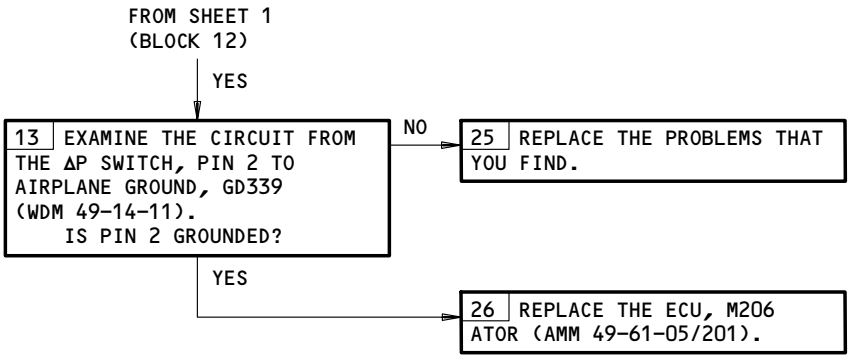
NO → 24 REPAIR THE PROBLEMS THAT YOU FIND. 1

YES → SEE SHEET 2 (BLOCK 13)

1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown – GEN FILTER on BITE
Figure 112 (Sheet 1)

988770



Auto Shutdown - GEN FILTER on BITE
Figure 112 (Sheet 2)

PREREQUISITES

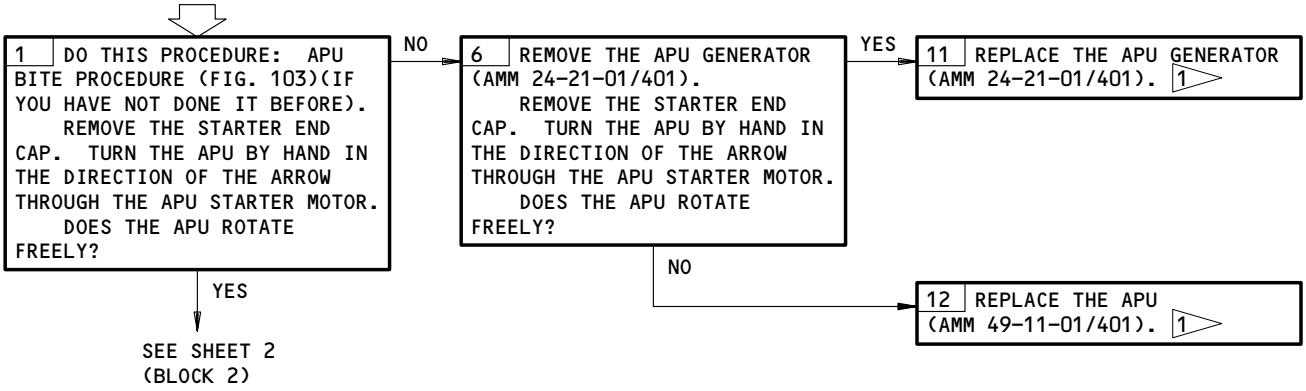
MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

AUTO SHUTDOWN - "OVER TEMP" ON BITE

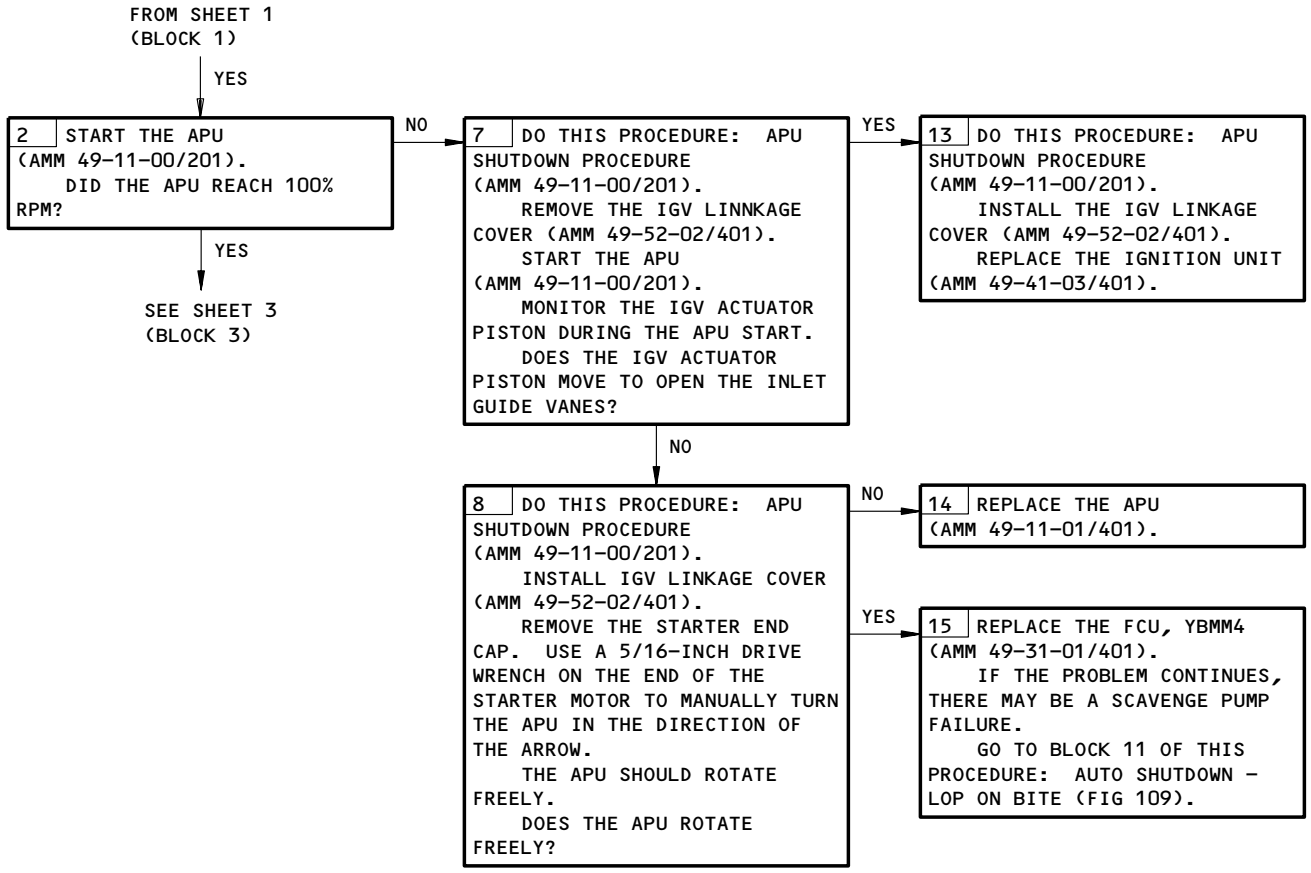
NOTE: IF THE APU HAS A START PROBLEM ("NO FLAME", "SLOW START", OR "NO ACCEL") AND THE AUTOMATIC SHUTDOWN "OVER TEMP", THERE IS A DEFECT IN THE FLOW DIVIDER OR THE PRIMARY FUEL NOZZLE.



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF-APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Auto Shutdown - OVER TEMP on BITE
Figure 113 (Sheet 1)



Auto Shutdown - OVER TEMP on BITE
Figure 113 (Sheet 2)

FROM SHEET 1
(BLOCK 2)

YES

3 AFTER THE APU IS AT 100%, PUT AN ELECTRICAL LOAD ON THE APU.

PUT A PNEUMATIC LOAD ON THE APU AS FOLLOWS:

- PUSH THE TWO BLEED AIR L (R) ENG SWITCHES ON THE P5 PANEL TO THE "OFF" POSITION
- PUSH THE BLEED AIR ISOLATION VALVE TO THE OPEN POSITION
- SELECT THE LEFT AND RIGHT ECS PACKS ON
- LOOK AT THE EGT ON THE "PERF/APU" PAGE ON EICAS.

IS THE EGT MORE THAN 600°C?

NO

16 REPLACE THE FUEL CONTROL UNIT (AMM 49-31-01/401). 2

IF THE PROBLEM CONTINUES, REPLACE THE EGT THERMOCOUPLES (AMM 49-71-01/201). 2

IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A6 AND A7, TO THE THERMOCOUPLE RAKE NO. 1 (WDM 49-14-11).

EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A8 AND A9, TO THE THERMOCOUPLE RAKE NO. 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND. 1

YES

17 THE EGT IS NOT ALWAYS STABLE WITH THIS PROBLEM.

REPLACE THE APU CONTROL UNIT (ECU), M206 (AMM 49-61-05/201). 2

IF THE PROBLEM CONTINUES, REPLACE THE EGT THERMOCOUPLES (AMM 49-71-01/201). 2

IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A6 AND A7, TO THE THERMOCOUPLE RAKE NO. 1 (WDM 49-14-11).

EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A8 AND A9, TO THE THERMOCOUPLE RAKE NO. 2 (WDM 49-14-11). REPAIR THE PROBLEMS THAT YOU FIND. 1

Auto Shutdown – OVER TEMP on BITE
Figure 113 (Sheet 3)

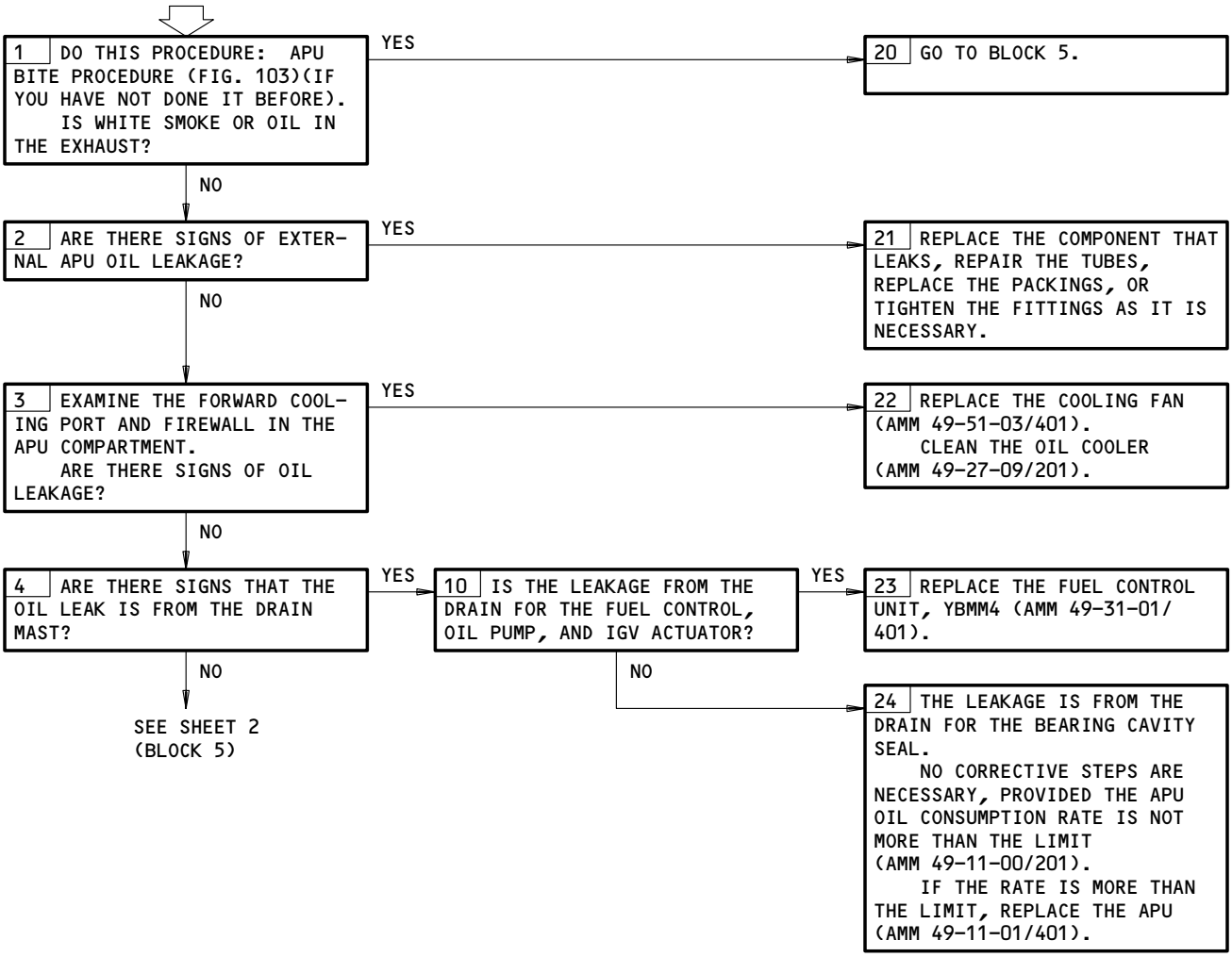
M38836

Not Used
Figure 114

HIGH OIL CONSUMPTION

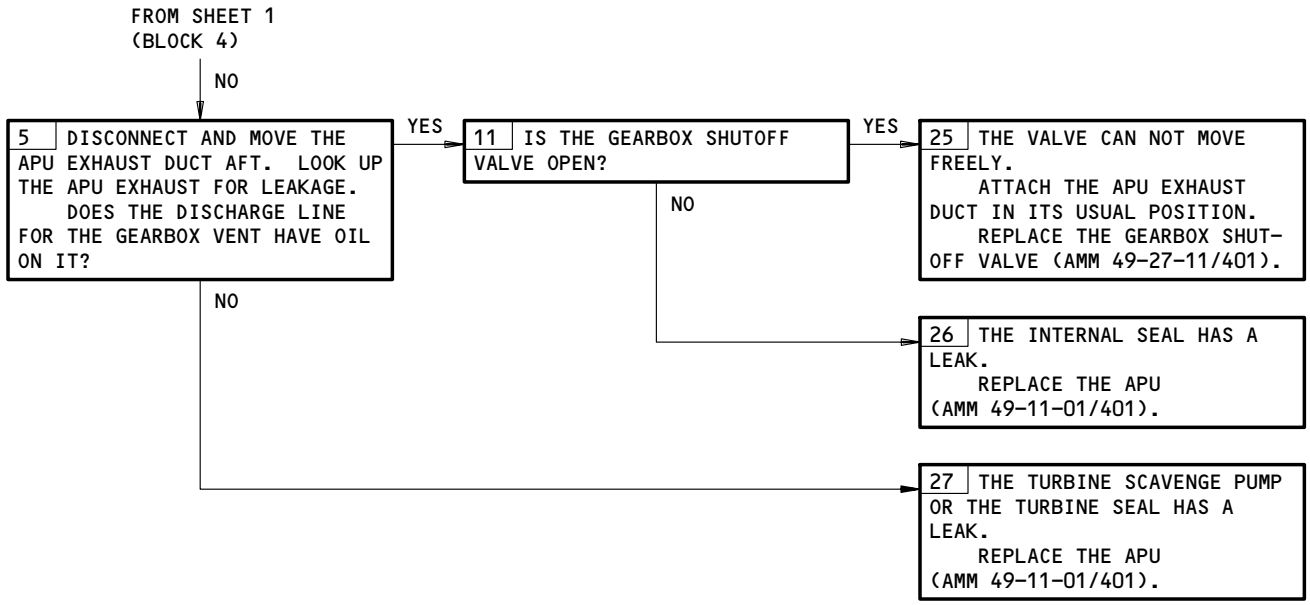
PREREQUISITES

NONE



High Oil Consumption
Figure 115 (Sheet 1)

988800



High Oil Consumption
Figure 115 (Sheet 2)

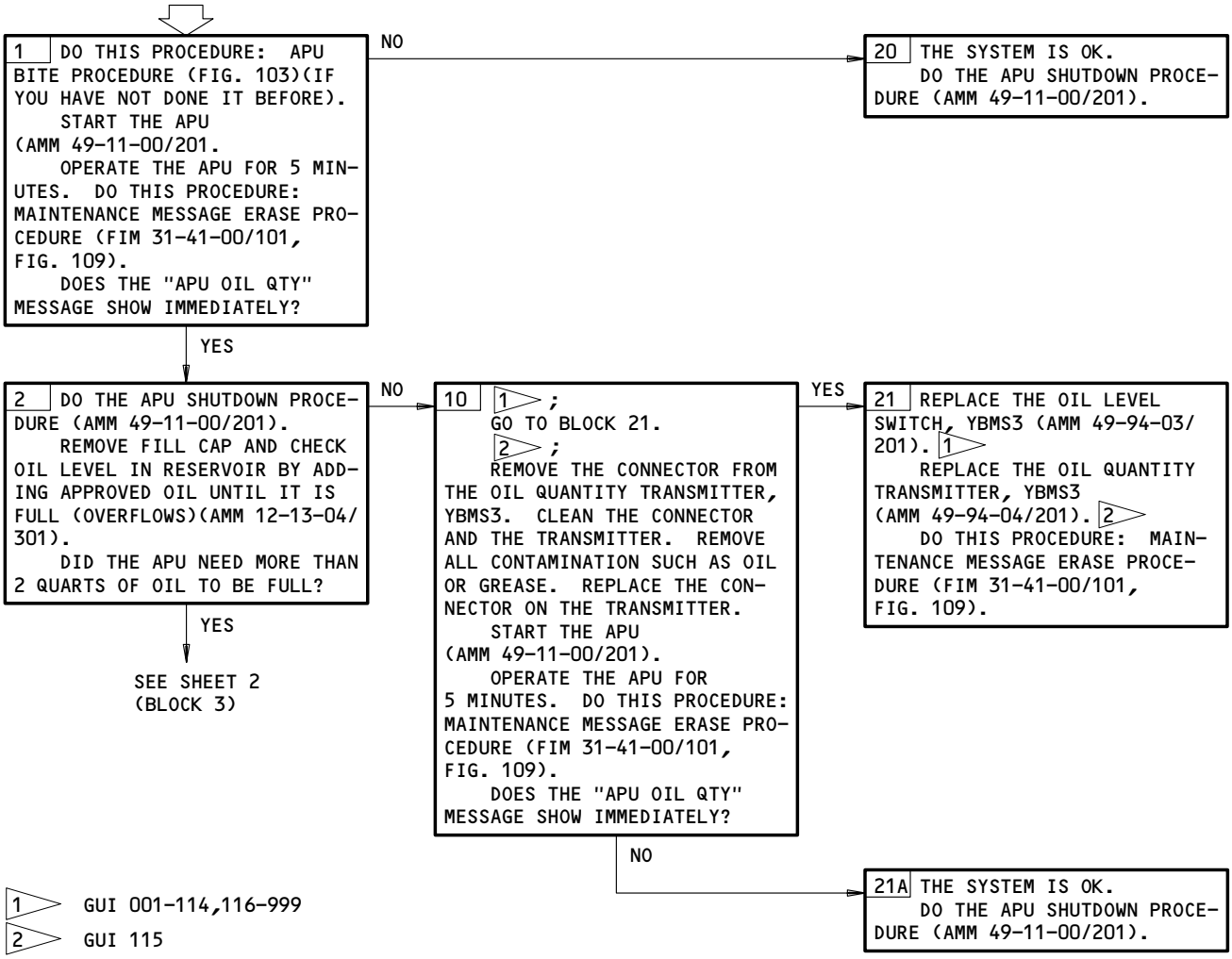
PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THIS CIRCUIT BREAKER IS CLOSED:
11A33

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

EICAS MSG "APU OIL QTY" DISPLAYED



EICAS Msg APU OIL QTY Displayed
Figure 116 (Sheet 1)

FROM SHEET 1
(BLOCK 2)

YES

3 WARNING

IF YOU THINK THERE IS A FAILURE IN THE GENERATOR SCAVENGE SYSTEM, DO NOT STAND NEAR THE APU WHEN IT IS STARTED. IF YOU DO NOT OBEY THESE INSTRUCTIONS, AN INJURY CAN OCCUR.

REMOVE THE MAGNETIC CHIP DETECTOR FROM THE GENERATOR SCAVENGE PORT.
DOES MORE THAN 1 PINT OF OIL COME OUT OF THE PORT?

NO → 22 GO TO BLOCK 1.
MONITOR THE APU OIL CONSUMPTION.
IF THE OIL CONSUMPTION IS MORE THAN THE LIMITS (AMM 49-11-00/201), DO THE PROCEDURE FOR THE HIGH OIL CONSUMPTION (FIG. 115).

YES

4 THE GENERATOR SCAVENGE SYSTEM HAS A PROBLEM.
VISUALLY EXAMINE THE APU GENERATOR FOR A FAILURE.
DOES THE GENERATOR HAVE A FAILURE?

YES → 23 REPLACE THE APU (AMM 49-11-01/401).
GO TO BLOCK 1.

NO

24 WARNING

IF YOU THINK THERE IS A FAILURE IN THE GENERATOR SCAVENGE SYSTEM, DO NOT STAND NEAR THE APU WHEN IT IS STARTED. IF YOU DO NOT OBEY THESE INSTRUCTIONS, AN INJURY CAN OCCUR.

REMOVE SCAVENGE OIL PUMP FOR THE GENERATOR (AMM 49-27-02/201).
REPLACE THE APU GENERATOR (AMM 24-21-01/201).
REPLACE THE OIL PRESSURE ELEMENT AND THE SCAVENGE FILTER ELEMENT (AMM 49-27-03/201).
CHANGE THE APU OIL (AMM 49-27-00/301).
GO TO BLOCK 1.

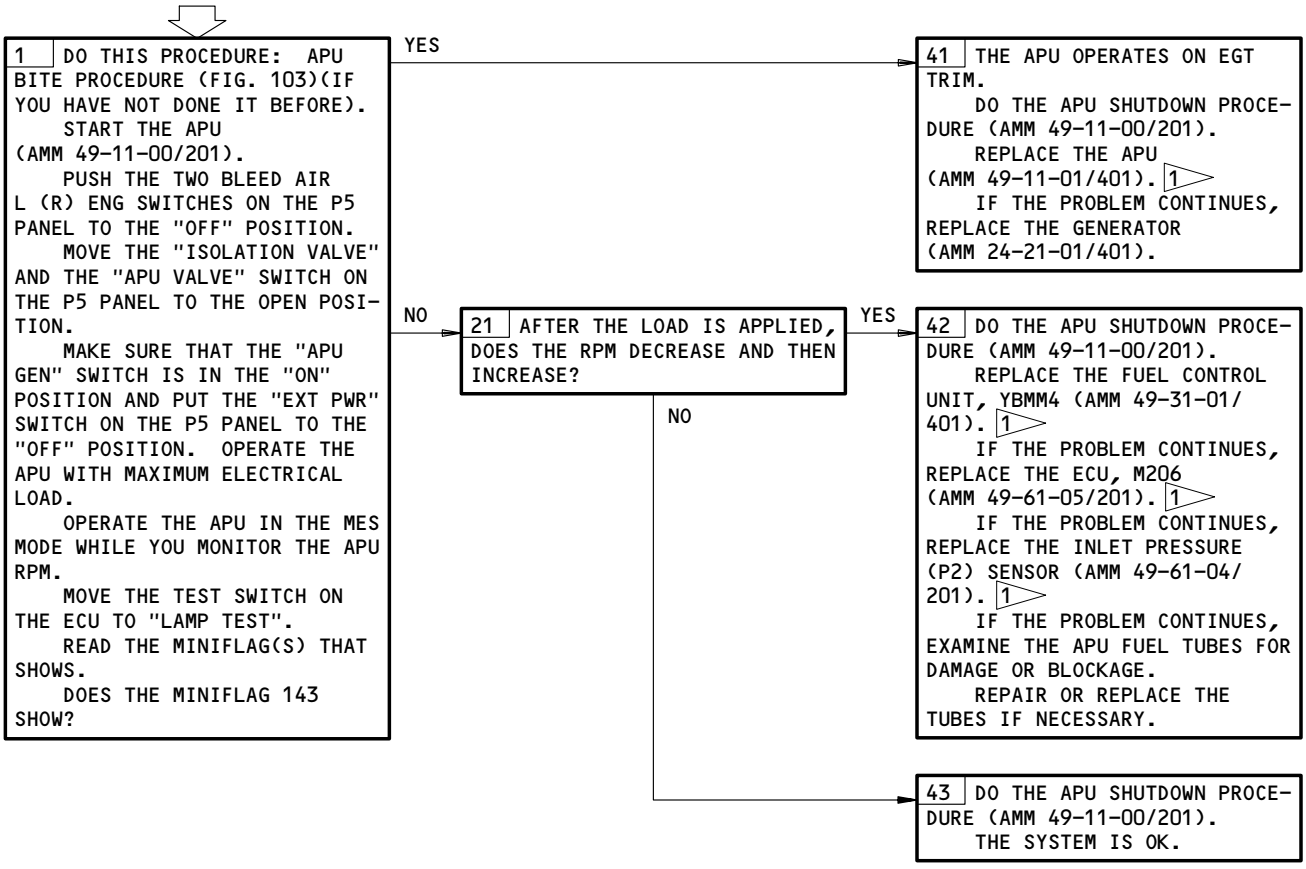
EICAS Msg APU OIL QTY Displayed
Figure 116 (Sheet 2)

APU WILL NOT CARRY PNEUMATIC AND ELECTRICAL LOAD ASSOCIATED WITH RPM DROOP

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) AGAIN TO MAKE SURE THE PROBLEM IS REPAIRED.

APU Will Not Carry Pneumatic and Electrical Load Associated with RPM Droop
Figure 117

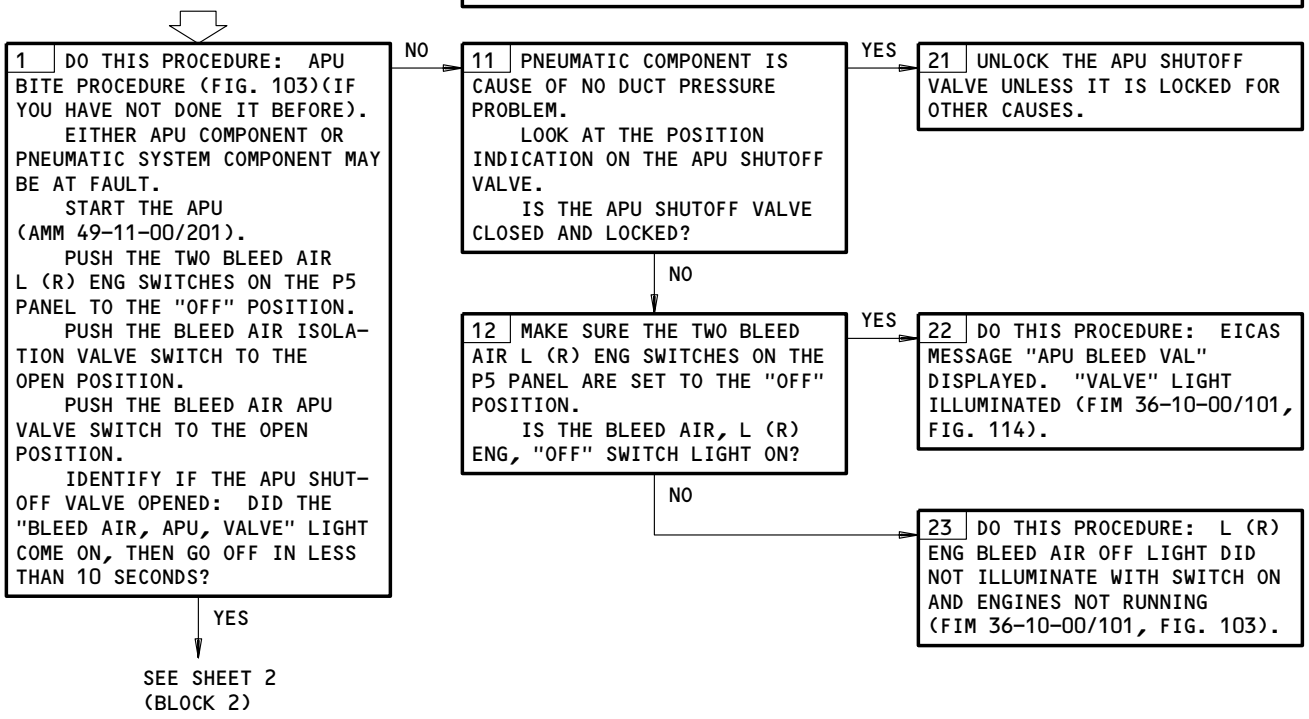
PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)
APU START NORMAL

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT,APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

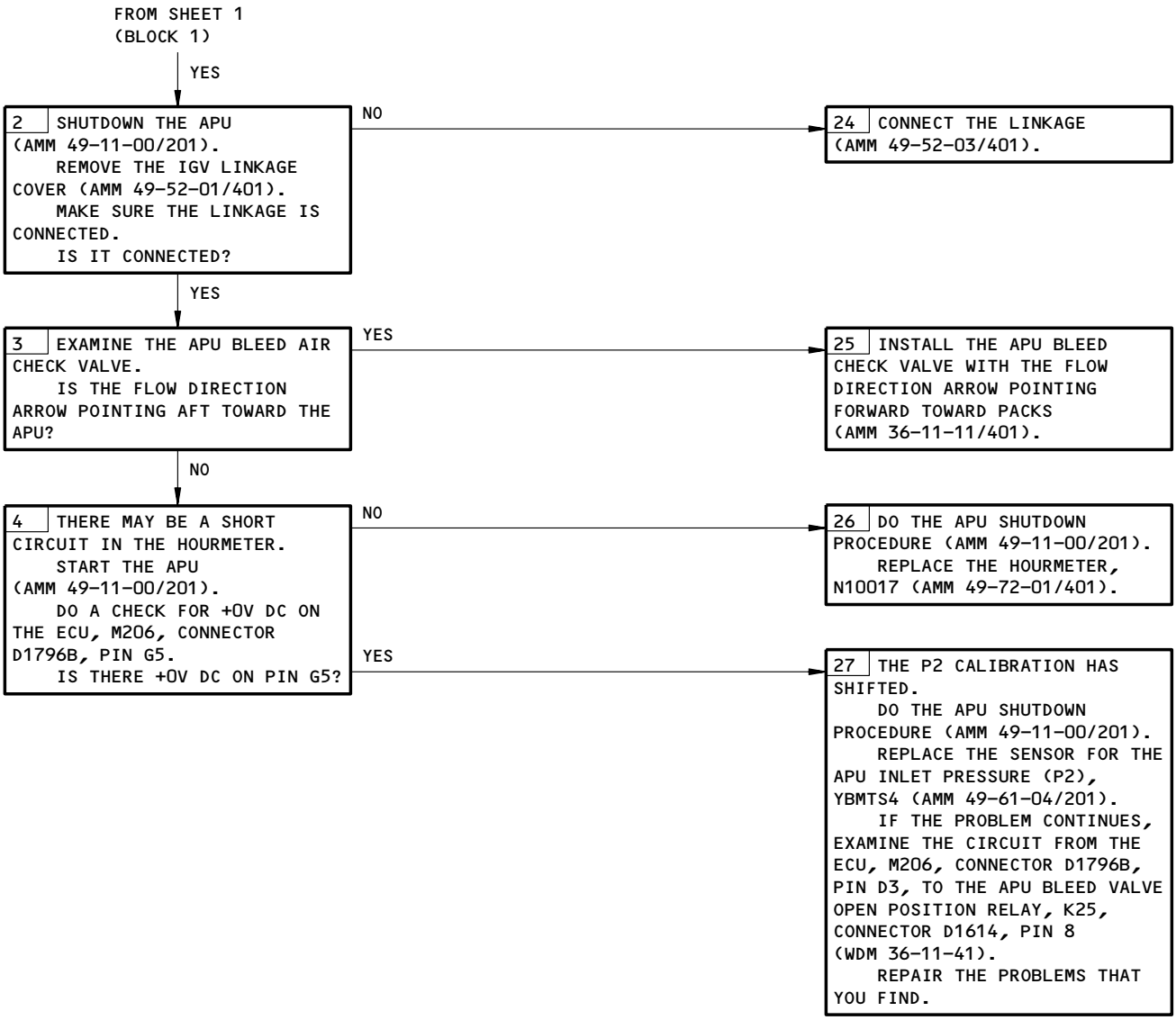
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

NO DUCT PRESSURE (0-2 PSIG)



No Duct Pressure (0-2 PSIG)
Figure 118 (Sheet 1)

E49547



No Duct Pressure (0-2 PSIG)
Figure 118 (Sheet 2)

PREREQUISITES

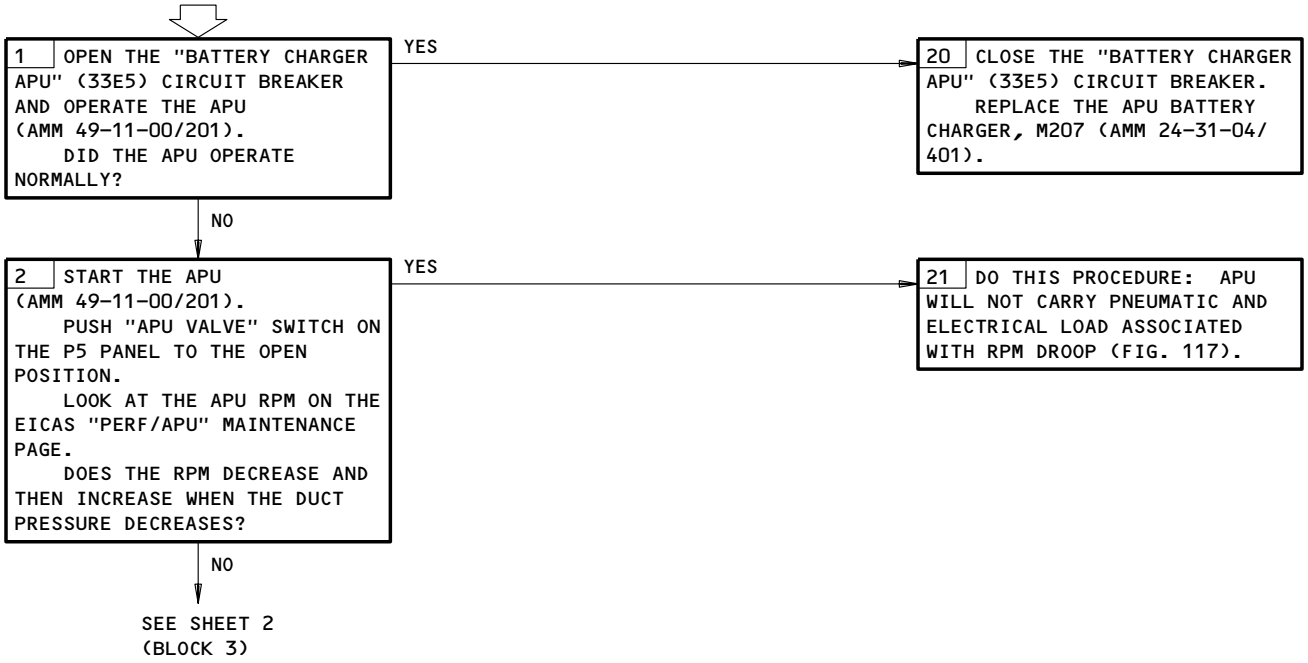
MAKE SURE THESE SYSTEMS WILL OPERATE:
- EICAS (AMM 31-41-00/201)
- APU START NORMAL
- APU BATTERY CHARGER OPERATES NORMAL
  (ELECTROMAGNETIC INTERFERENCE CAN CAUSE INCORRECT SIGNALS TO AND FROM THE ECU)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
- 6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35,
- APU CONT, APU START, APU INLET DR ACT
- (AFT EQUIPMENT CENTER, E6)

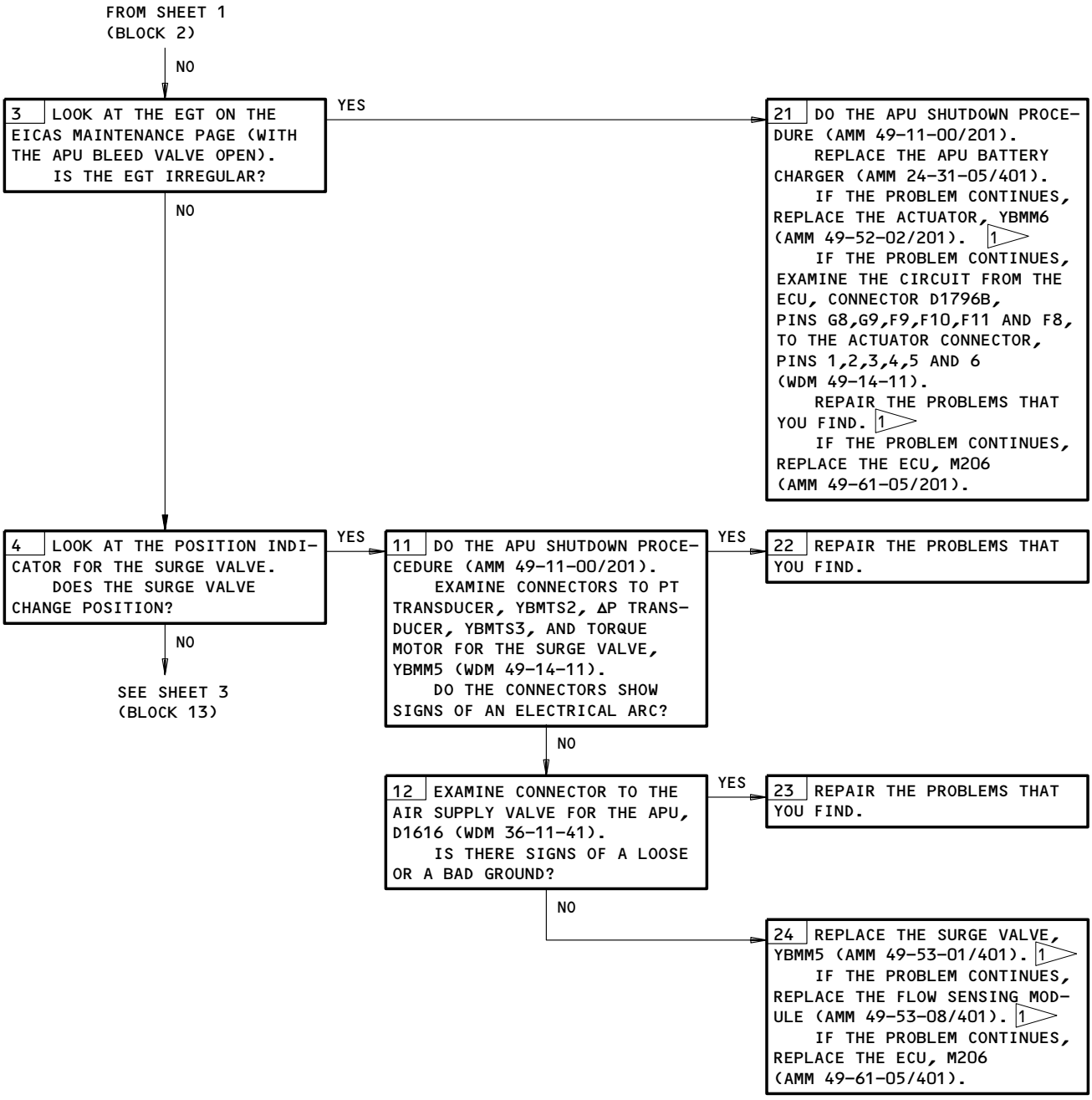
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
- ELECTRICAL POWER IS ON (AMM 24-22-00/201)

NOTE: IF YOU LOSE ELECTRICAL POWER WHEN YOU TRANSFER FROM ONE GENERATOR TO ANOTHER, THE DUCT PRESSURE WILL MOMENTARILY BE IRREGULAR.

FLUCTUATING DUCT PRESSURE



Fluctuating Duct Pressure
Figure 119 (Sheet 1)



1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) AGAIN TO MAKE SURE THE PROBLEM IS REPAIRED.

Fluctuating Duct Pressure
Figure 119 (Sheet 2)

FROM SHEET 2
(BLOCK 4)

NO

13 THERE MAY BE AN INTER-MITTENT SHORT CIRCUIT IN THE HOURMETER.
DO A CHECK FOR +0V DC ON THE ECU, M206, CONNECTOR D1796B, PIN G5.
IS THERE +0V DC ON PIN G5?

NO

25 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE HOURMETER, N10017 (WDM 49-72-11).

YES

26 OPEN THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER AND OPERATE THE APU (AMM 49-11-00/201).
IF THE PROBLEM STOPS, CLOSE THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER.
DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE APU BATTERY CHARGER, M207 (AMM 24-31-04/401).
IF THE PROBLEM CONTINUES, CLOSE THE "BATTERY CHARGER APU" (33E5) CIRCUIT BREAKER.
DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
DO THIS PROCEDURE: WITH THE APU AS SOURCE THE L (R) DUCT PRESS WAS (HIGH/LOW/FLUCTUATES) WITH THE ISOL VALVE OPEN. DUCT PRESS ON THE OTHER SIDE WAS NORM. (FIM 36-20-00/101, FIG. 103).

Fluctuating Duct Pressure
Figure 119 (Sheet 3)

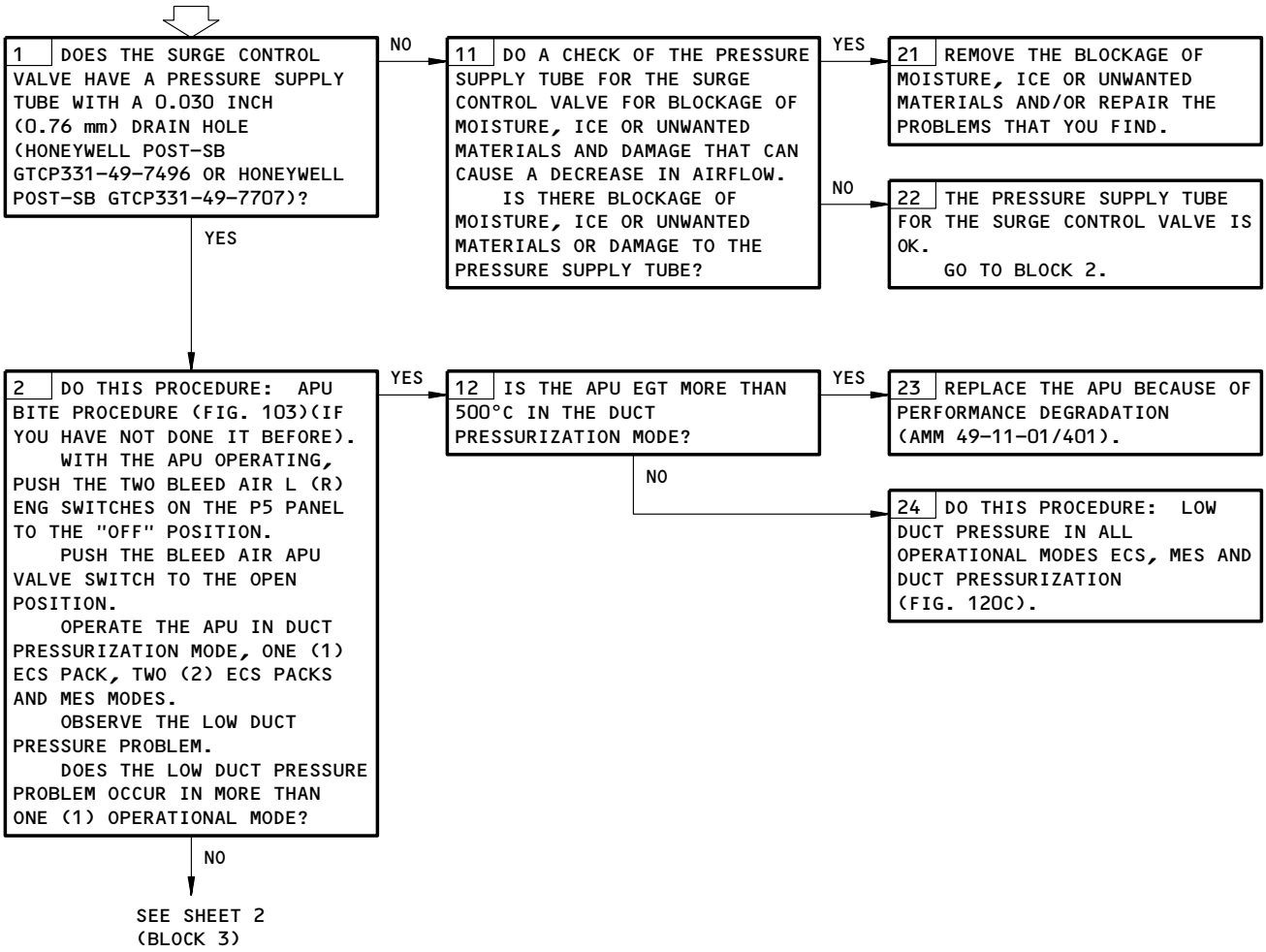
LOW DUCT PRESSURE

PREREQUISITES

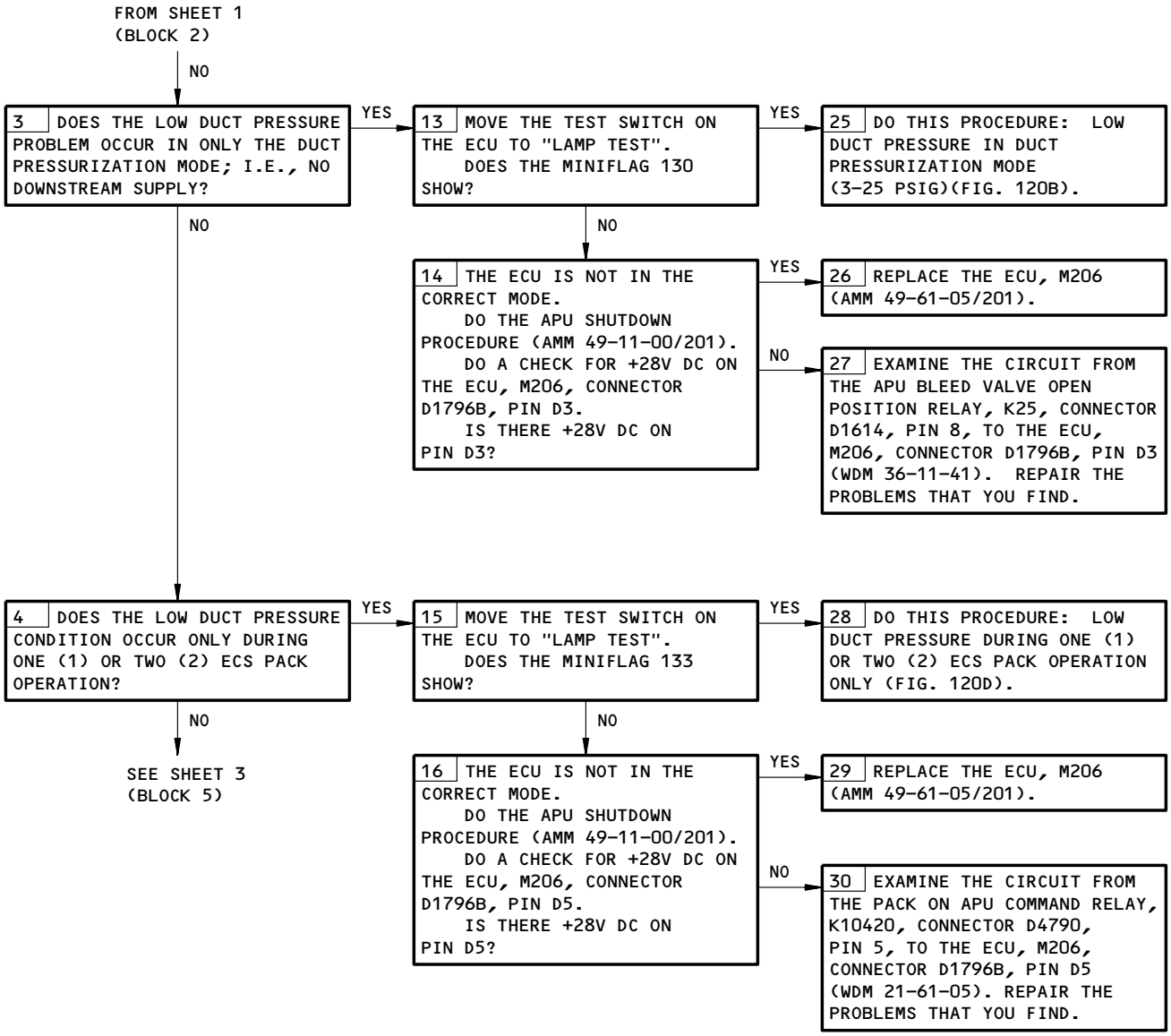
MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35,
APU CONT, APU START, APU INLET DR ACT
(AFT EQUIPMENT CENTER, E6)

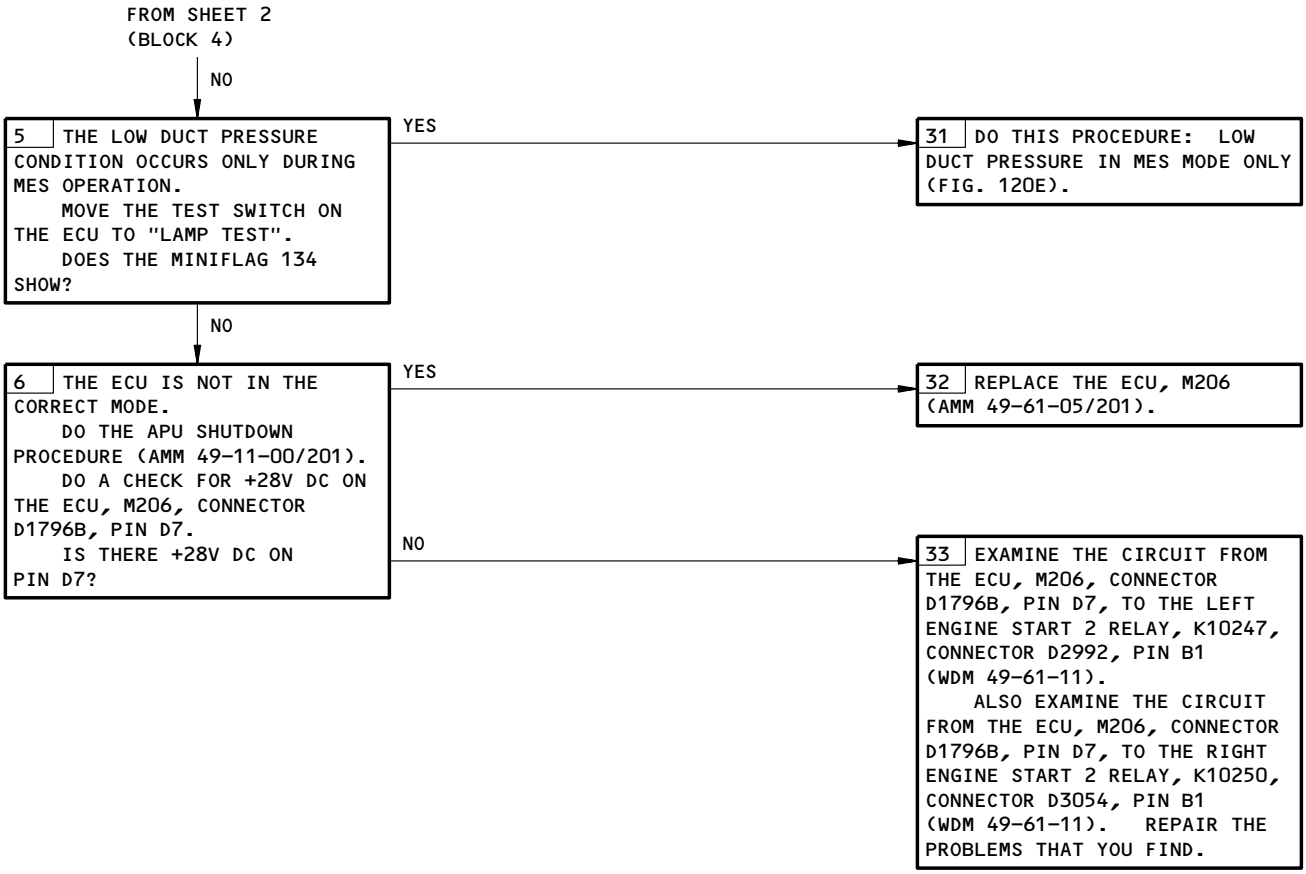
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



Low Duct Pressure
Figure 120 (Sheet 1)



Low Duct Pressure
Figure 120 (Sheet 2)



Low Duct Pressure
Figure 120 (Sheet 3)

Not Used
Figure 120A

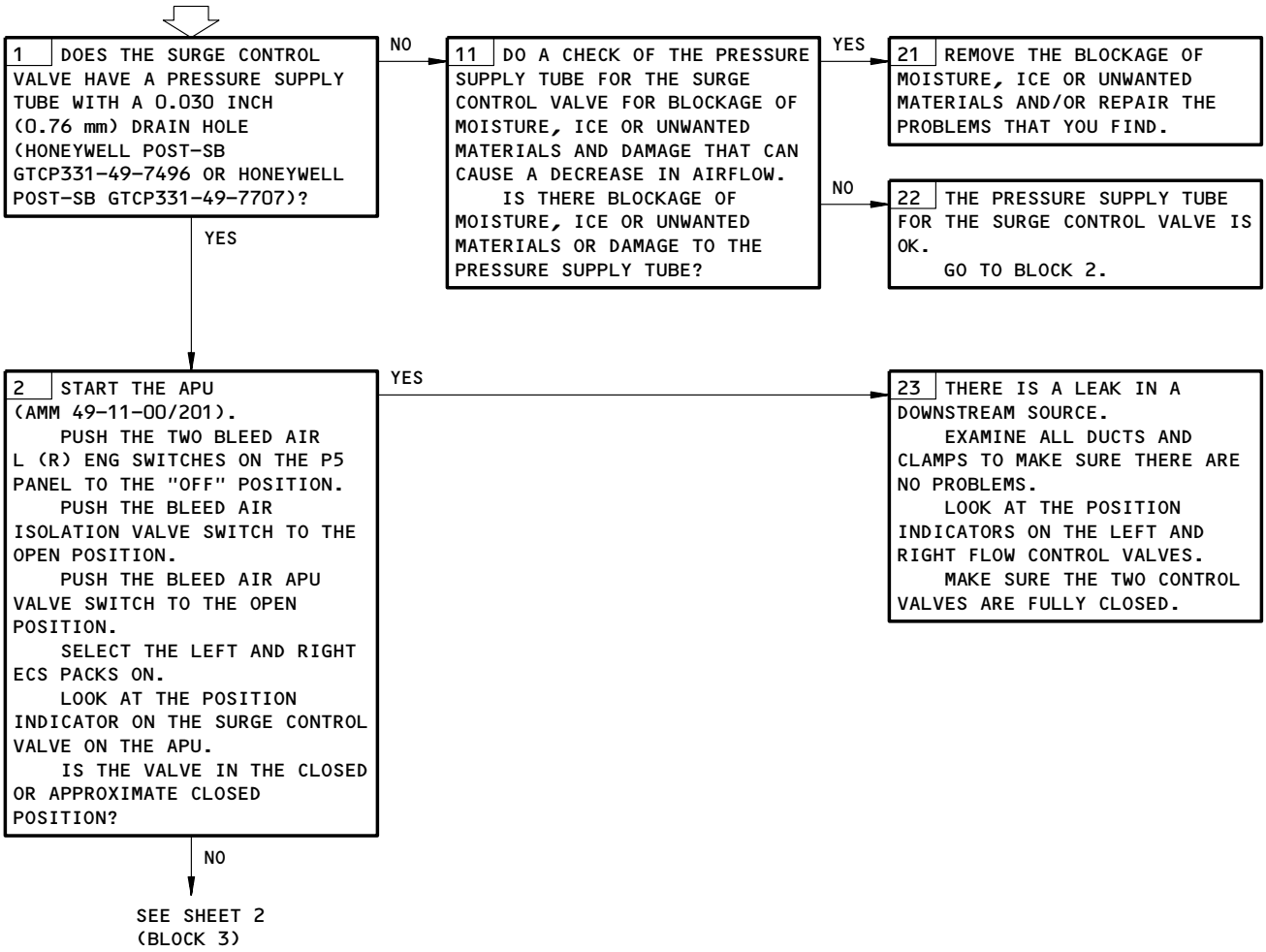
LOW DUCT PRESSURE IN DUCT PRESSURIZATION MODE (3-25 PSIG)

PREREQUISITES

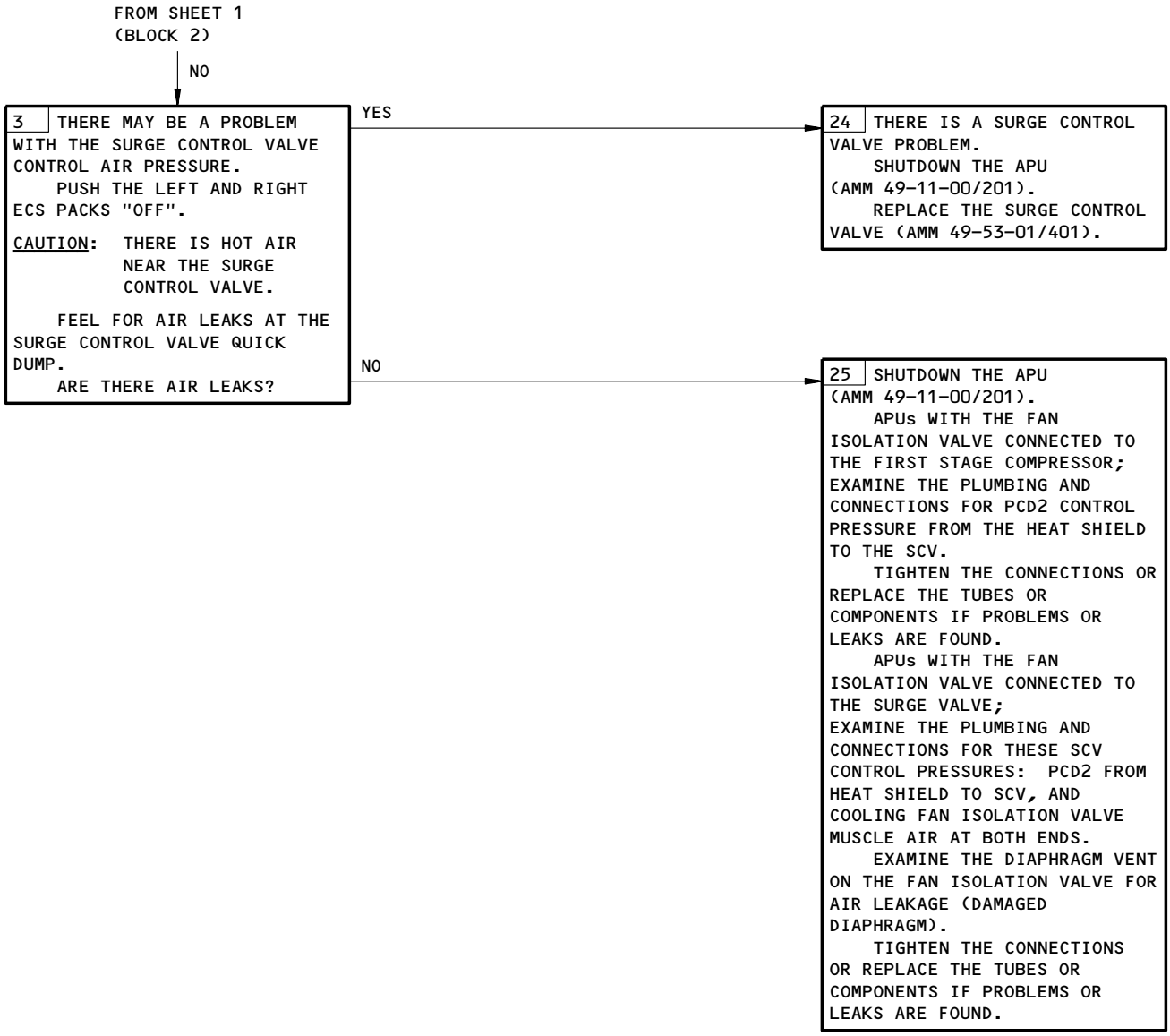
MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35, APU CONT, APU START, APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



Low Duct Pressure in Duct Pressurization Mode (3-25 PSIG)
Figure 120B (Sheet 1)



Low Duct Pressure in Duct Pressurization Mode (3-25 PSIG)
Figure 120B (Sheet 2)

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35,
APU CONT, APU START, APU INLET DR ACT
(AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

LOW DUCT PRESSURE IN ALL OPERATIONAL MODES: ECS, MES AND DUCT PRESSURIZATION

1 DOES THE SURGE CONTROL VALVE HAVE A PRESSURE SUPPLY TUBE WITH A 0.030 INCH (0.76 mm) DRAIN HOLE (HONEYWELL POST-SB GTCP331-49-7496 OR HONEYWELL POST-SB GTCP331-49-7707)?

NO → 10 DO A CHECK OF THE PRESSURE SUPPLY TUBE FOR THE SURGE CONTROL VALVE FOR BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS AND DAMAGE THAT CAN CAUSE A DECREASE IN AIRFLOW.
IS THERE BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS OR DAMAGE TO THE PRESSURE SUPPLY TUBE?

YES → 40 REMOVE THE BLOCKAGE OF MOISTURE, ICE OR UNWANTED MATERIALS AND/OR REPAIR THE PROBLEMS THAT YOU FIND.

NO → 41 THE PRESSURE SUPPLY TUBE FOR THE SURGE CONTROL VALVE IS OK.
GO TO BLOCK 1A.

YES

1A START THE APU (AMM 49-11-00/201).
SELECT THE LEFT AND RIGHT ECS PACKS "ON".
MOVE THE TEST SWITCH ON THE ECU TO "LAMP TEST".
DOES THE MINIFLAG 133 SHOW?

NO → 11 THE ECU IS NOT IN THE ECS MODE.
DO THIS TASK: APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
DISCONNECT THE ELECTRICAL CONNECTOR D1930 FROM THE LEFT FLOW CONTROL AND SHUTOFF VALVE, V16 (WDM 21-51-11).
SELECT THE LEFT ECS PACK TO "ON".
REMOVE THE ECU, M206 (AMM 49-61-05/201).
DO A CHECK FOR +28V DC ON THE ECU, M206, CONNECTOR D1796B, PIN D5 (WDM 21-51-11).
RE-CONNECT ELECTRICAL CONNECTOR D1930.
IS THERE +28V DC ON PIN D5?

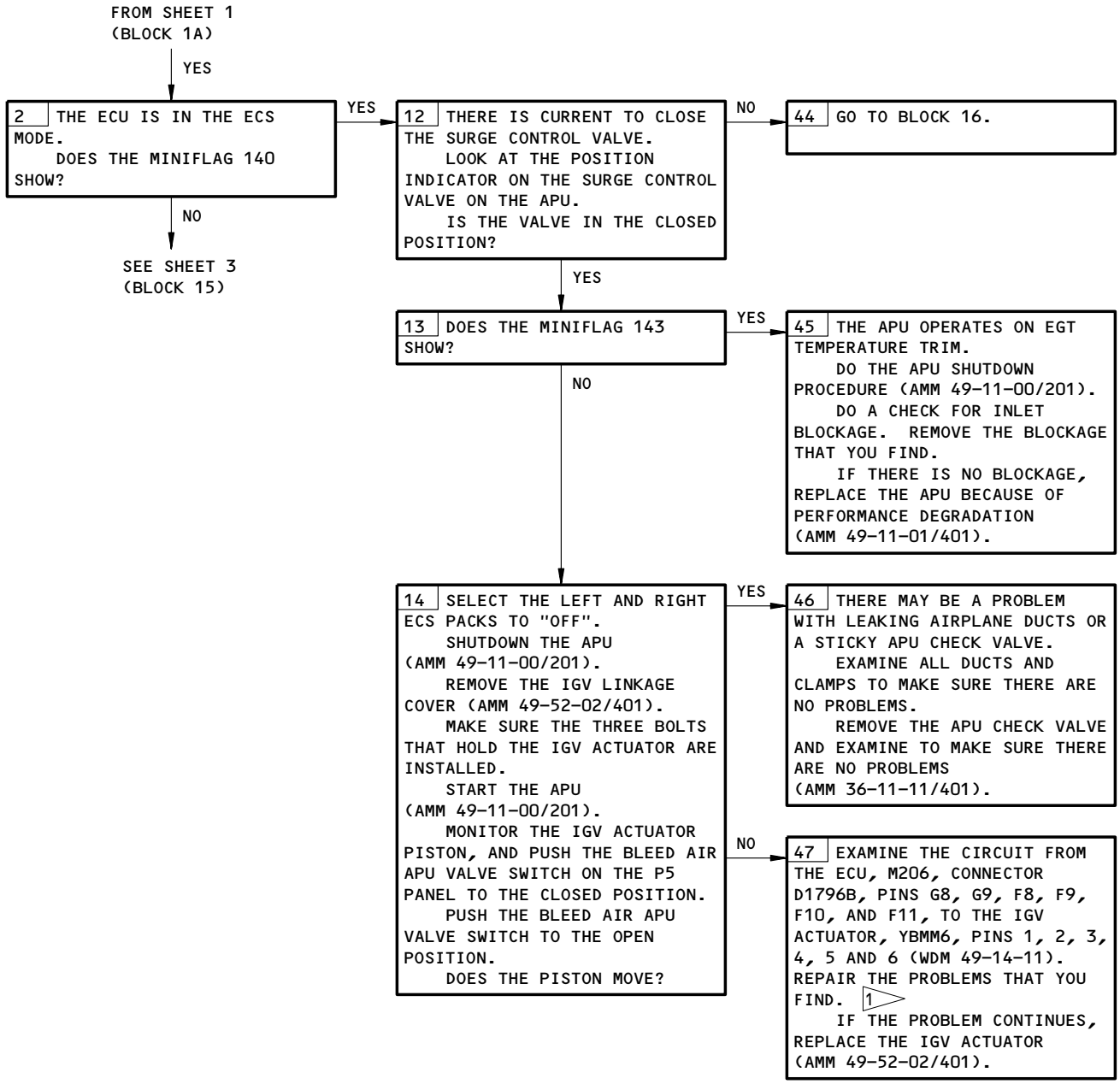
YES → 42 REPLACE THE ECU, M206 (AMM 49-61-05/201).

NO → 43 EXAMINE THE CIRCUIT FROM THE PACK ON APU COMMAND RELAY, K10420, CONNECTOR D4790, PIN 5, TO THE ECU, M206, CONNECTOR D1796B, PIN D5 (WDM 21-51-11). REPAIR THE PROBLEMS THAT YOU FIND.

YES

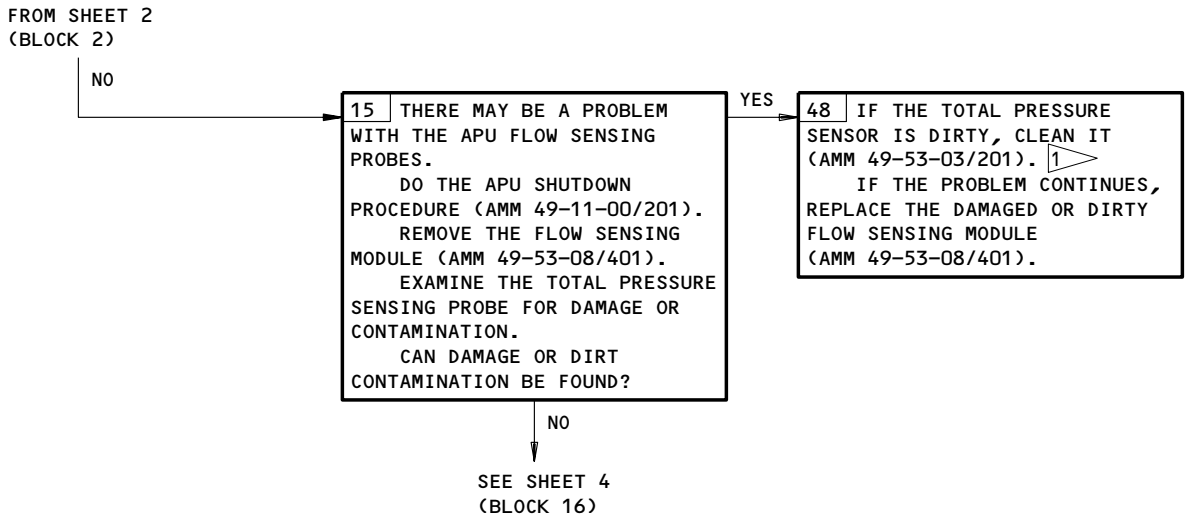
SEE SHEET 2 (BLOCK 2)

Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 1)

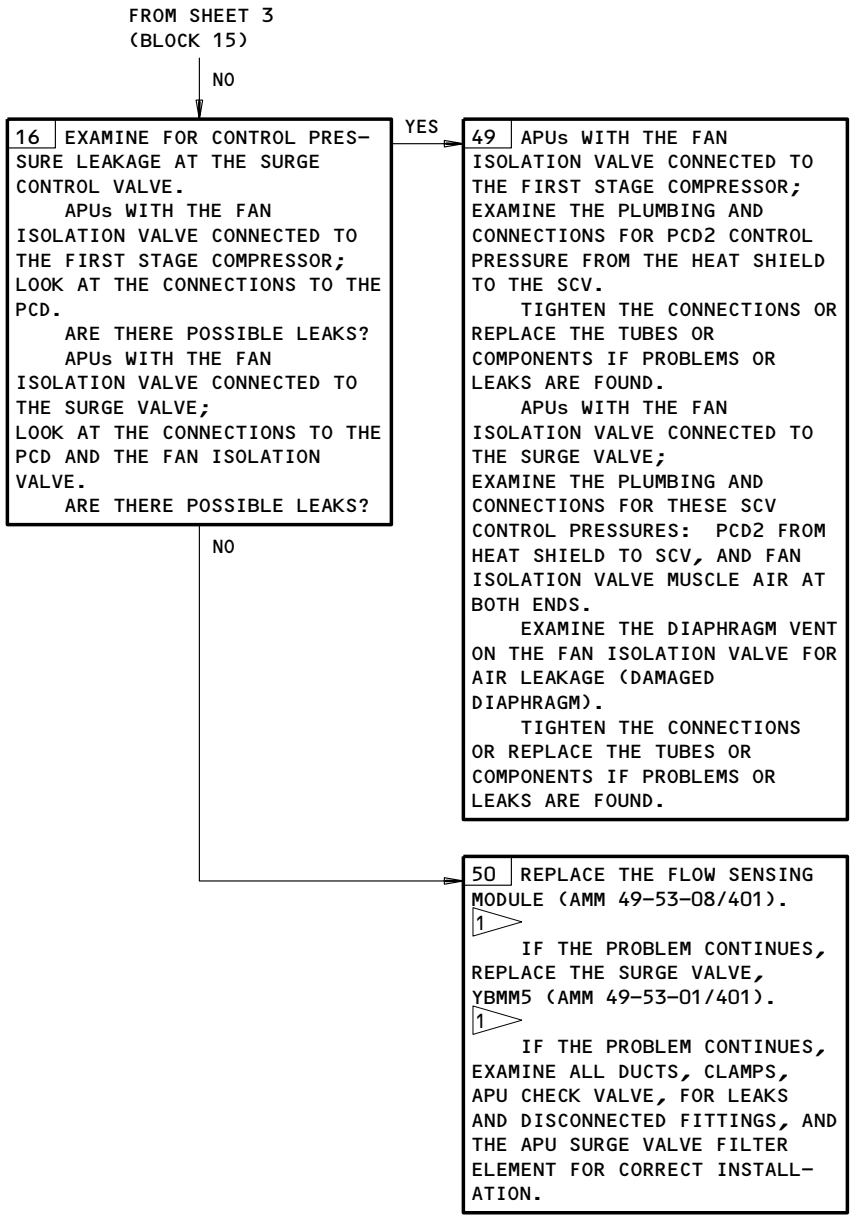


1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) AGAIN TO MAKE SURE THE PROBLEM IS REPAIRED.

Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 2)



Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 3)



Low Duct Pressure in All Operational Modes:
ECS, MES and Duct Pressurization
Figure 120C (Sheet 4)

G21555

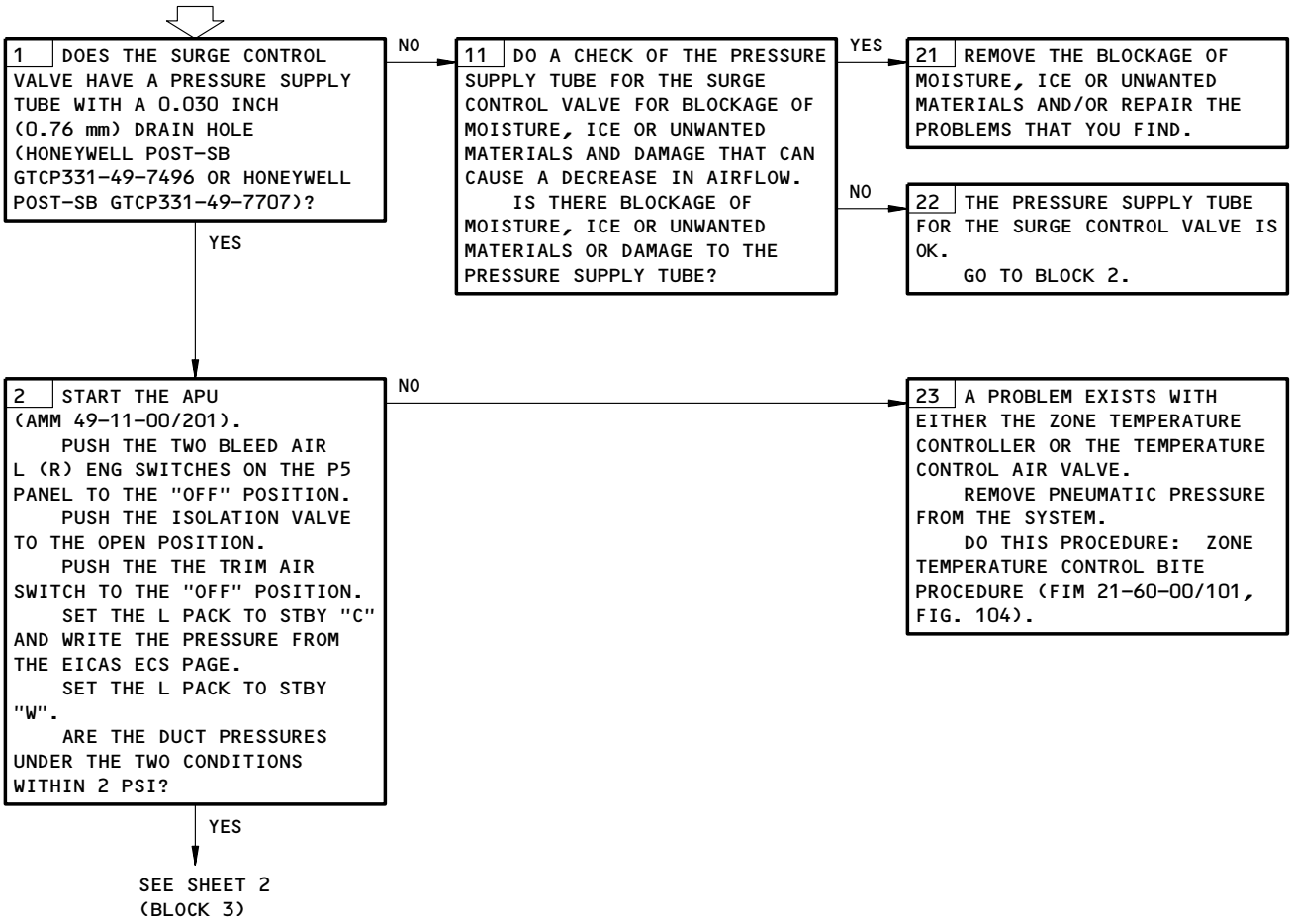
LOW DUCT PRESSURE DURING ONE OR TWO ECS PACK OPERATION ONLY

PREREQUISITES

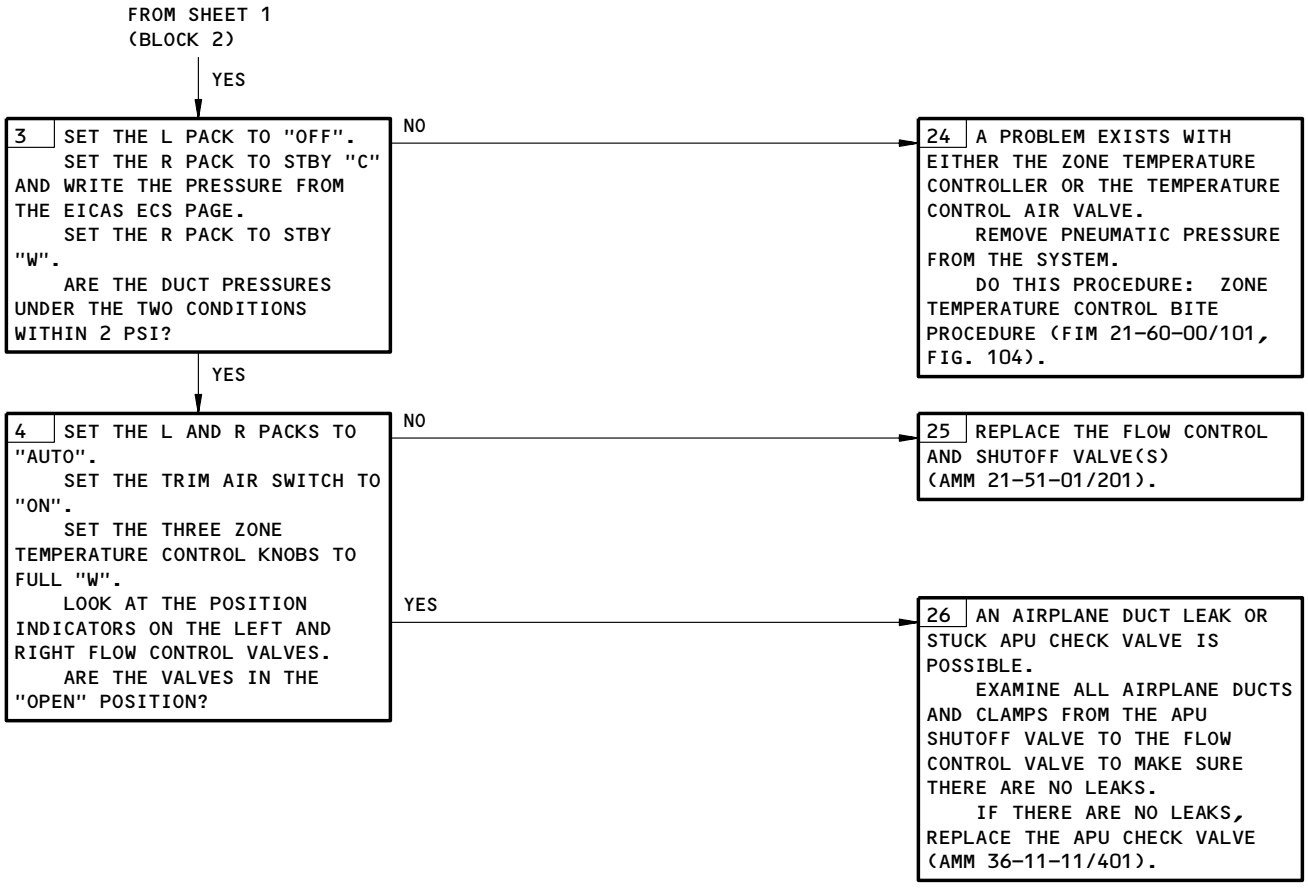
MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35, APU CONT, APU START, APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



Low Duct Pressure During One or Two ECS Pack Operation Only
Figure 120D (Sheet 1)



Low Duct Pressure During One or Two ECS Pack Operation Only
Figure 120D (Sheet 2)

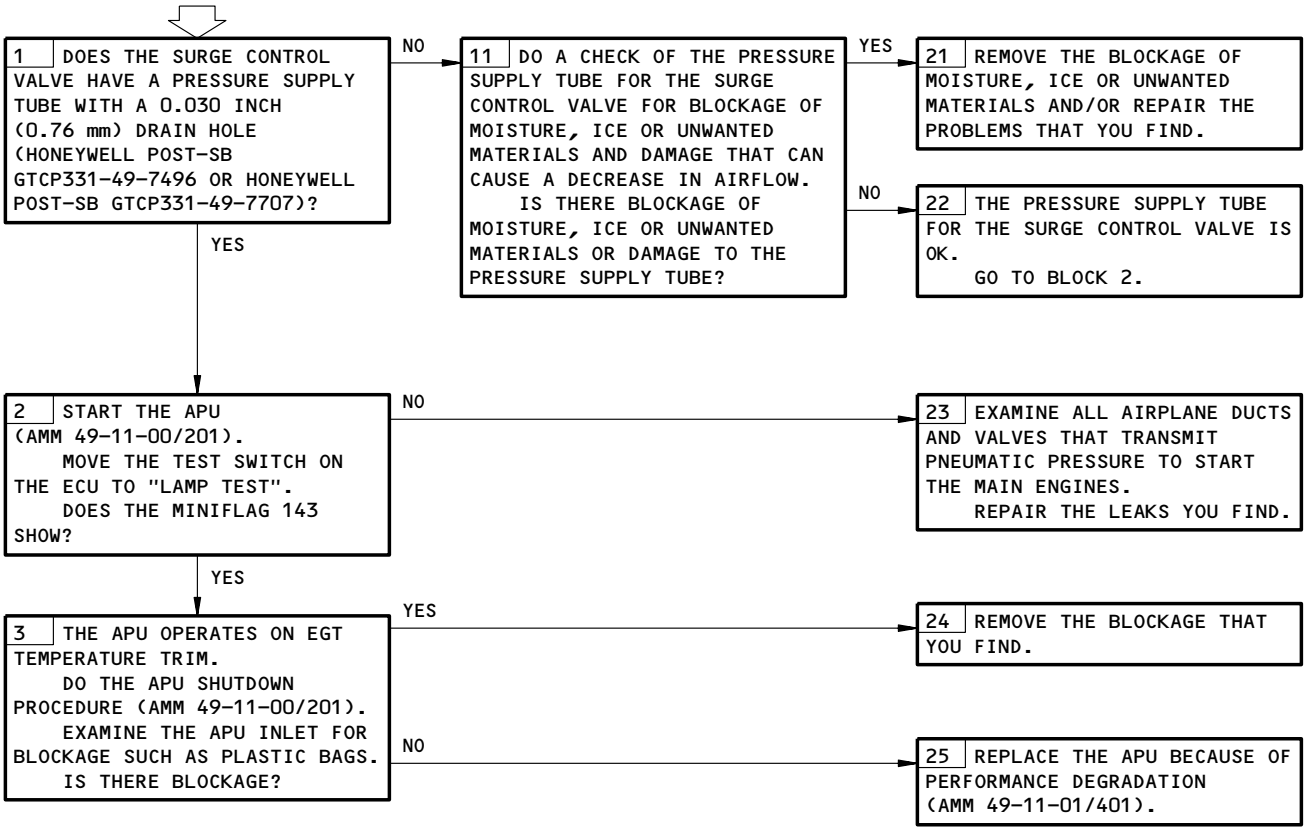
LOW DUCT PRESSURE IN "MES" MODE ONLY

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35, APU CONT, APU START, APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



Low Duct Pressure in MES Mode Only
Figure 120E

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -19 AND SUBSEQUENT

E49989

FLUIDS COMING FROM DRAIN MAST

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
APU START NORMAL (AMM 49-11-00/201)

1 IF YOU DO NOT KNOW WHICH DRAIN MAST TUBE THE FLUID COMES FROM, START THE APU (AMM 49-11-00/201).
DOES FLUID COME OUT OF THE DRAIN FOR THE FUEL CONTROL, OIL PUMP, AND IGV ACTUATOR?

YES → 6 IS THE FLUID OIL?

YES → 11 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401).

NO → 7 DISCONNECT THE DRAIN LINE FROM THE IGV ACTUATOR. START AND OPERATE THE APU (AMM 49-11-00/201).
DOES MORE THAN ONE DROP OF FUEL COME OUT OF THE IGV ACTUATOR IN A MINUTE?

YES → 12 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE IGV ACTUATOR, YBMM6 (AMM 49-52-02/401).

NO → 13 DO THE APU SHUTDOWN PROCEDURE (AMM 49-11-00/201).
REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401).

NO → 2 DO YOU SEE MORE THAN ONE DROP OF FUEL COME OUT OF THE DRAIN FOR THE FUEL FLOW DIVIDER AND HEAT SHIELD IN ONE MINUTE?

NOTE: FUEL CAN DRAIN FROM THIS LOCATION DURING A SHUTDOWN OR AN UNSATISFACTORY START. FUEL MUST NOT DRAIN WHEN YOU OPERATE THE APU.

YES → 14 REPLACE THE FUEL FLOW DIVIDER, YBMM2 (AMM 49-31-03/401).

NO → 3 DOES OIL COME OUT OF THE DRAIN FOR THE BEARING CAVITY SEAL OR THE DRAIN FOR THE TURBINE PLENUM?

YES → 15 NO CORRECTIVE STEPS ARE NECESSARY, PROVIDED THE APU OIL CONSUMPTION RATE IS NOT MORE THAN THE LIMIT (AMM 49-11-00/201).
IF THE RATE IS MORE THAN THE LIMIT, REPLACE THE APU (AMM 49-11-01/401).

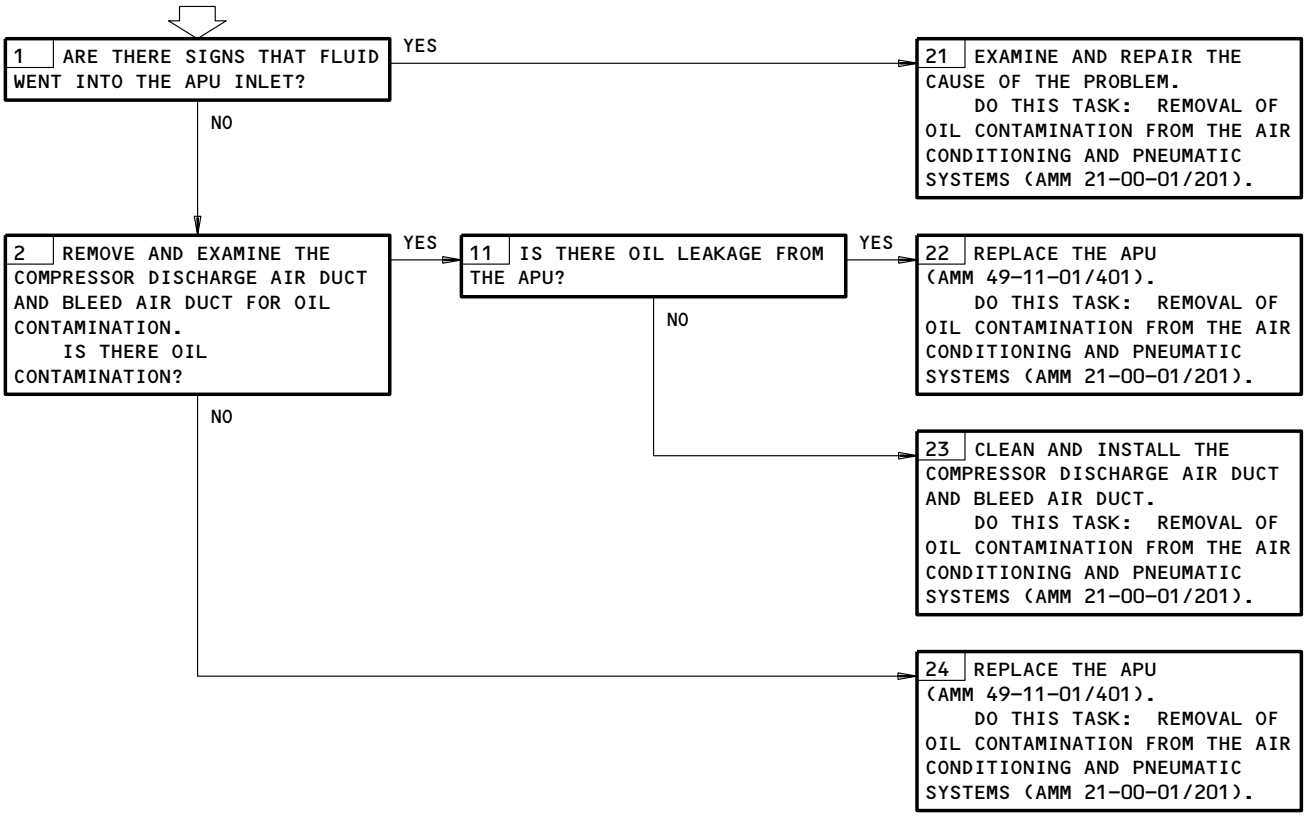
NO → 16 WHEN FUEL COMES OUT OF THE TURBINE PLENUM DRAIN DURING A SHUTDOWN OR AN UNSATISFACTORY START, THE COMBUSTOR DRAIN VALVE IS CLOGGED.
REPLACE THE VALVE (AMM 49-16-01/201).

Fluids Coming from Drain Mast
Figure 121

FUMES AND/OR SMOKE IN THE CABIN

PREREQUISITES

NONE



Fumes and/or Smoke in the Cabin
Figure 122

FAULTY LRU – "FUEL SOL" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
REPLACE THE FUEL SOLENOID VALVE, YBMV1 (AMM 49-31-02/401). 1
DOES THE PROBLEM CONTINUE?

NO → 20 THE SYSTEM IS OK.

YES

2 DID THE MINIFLAG 25 COME ON?

YES → 10 THE FUEL SOLENOID CIRCUIT IS OPEN OR SHORTED.
DID THE MINIFLAG 90 ALSO COME ON?

YES → 21 REPAIR THE OPEN CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS F6 AND F7, TO THE FUEL SOLENOID, YBMV1, CONNECTOR P9, PINS 1 AND 2 (WDM 49-14-11).

NO → 22 REPAIR THE SHORT CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS F6 AND F7, TO THE FUEL SOLENOID, YBMV1, CONNECTOR P9, PINS 1 AND 2 (WDM 49-14-11).

NO

3 DID THE MINIFLAG 108 COME ON?

YES → 23 THE APU DID NOT STOP WHEN THE ECU TRIED TO CLOSE THE SOLENOID. THE FUEL SOLENOID CAN NOT MOVE FREELY.
REPLACE THE FUEL SOLENOID VALVE, YBMV1 (AMM 49-31-02/401).

NO → 24 REPLACE THE ECU, M206 (AMM 49-61-05/201).

1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU – FUEL SOL on BITE
Figure 123

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT –19 AND SUBSEQUENT

E66181

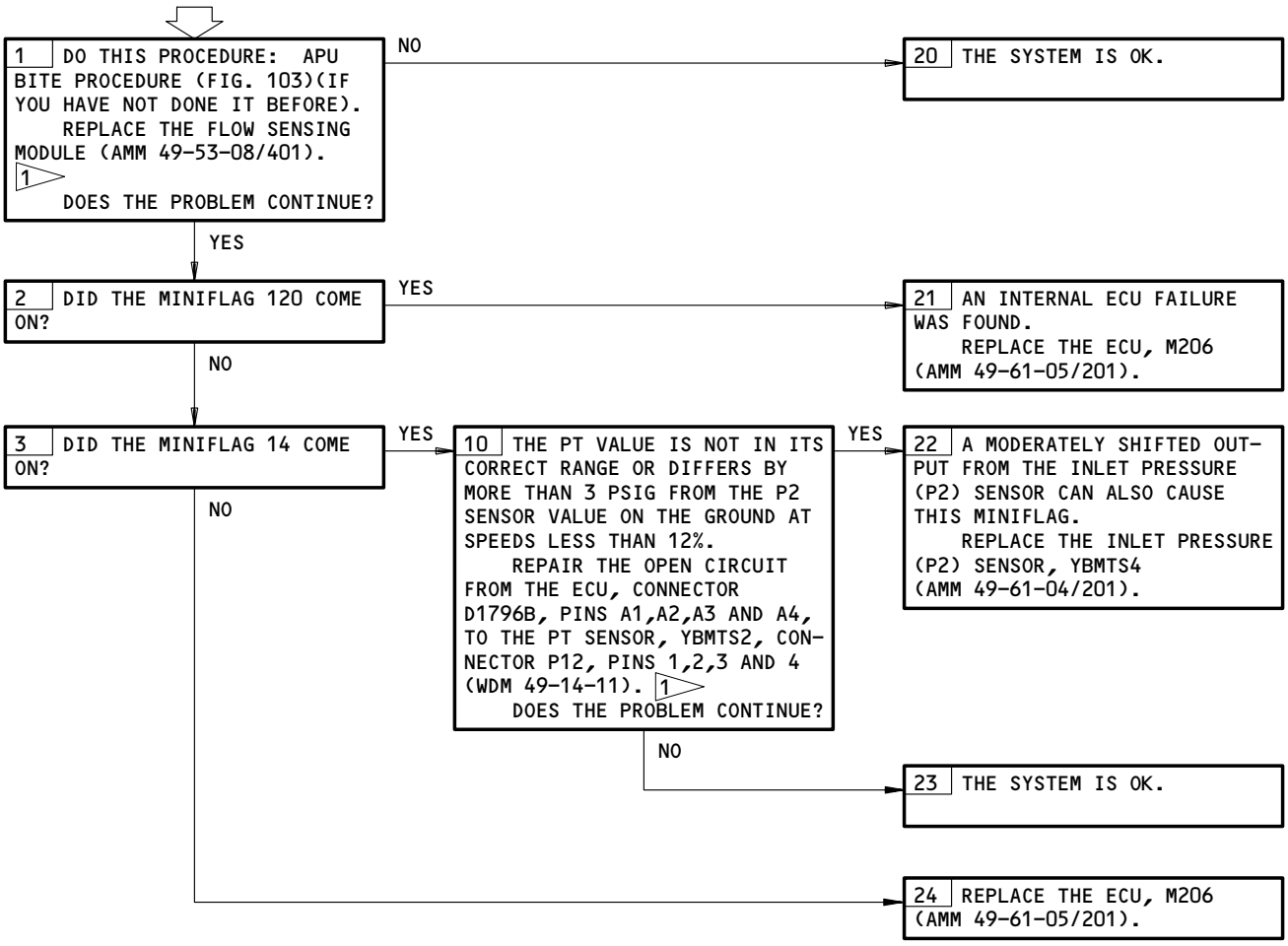
FAULTY LRU – "PT SENSOR" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU – PT SENSOR on BITE
Figure 124

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

FAULTY LRU - "ΔP SENSOR" ON BITE

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
REPLACE THE FLOW SENSING MODULE (AMM 49-53-08/401).
1>
DOES THE PROBLEM CONTINUE?

NO → 20 THE SYSTEM IS OK.

YES

2 DID THE MINIFLAG 120 COME ON?

YES → 21 AN INTERNAL ECU FAILURE WAS FOUND.
REPLACE THE ECU, M206 (AMM 49-61-05/201).

NO

3 DID THE MINIFLAG 15 COME ON?

YES → 22 THE ΔP VALUE IS NOT IN ITS CORRECT RANGE OR IS LESS THAN 0.25 PSIG WHEN THE IGV POSITION IS 60 DEGREES (MOSTLY OPEN).
REPAIR THE OPEN CIRCUIT FROM THE ECU, CONNECTOR D1796B, PINS A1,A2,B3 AND B4, TO THE ΔP SENSOR, YBMTS3, CONNECTOR P13, PINS 1,2,3 AND 4 (WDM 49-14-11).

NO → 23 REPLACE THE ECU, M206 (AMM 49-61-05/201).

1> OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU - Delta P SENSOR on BITE
Figure 125

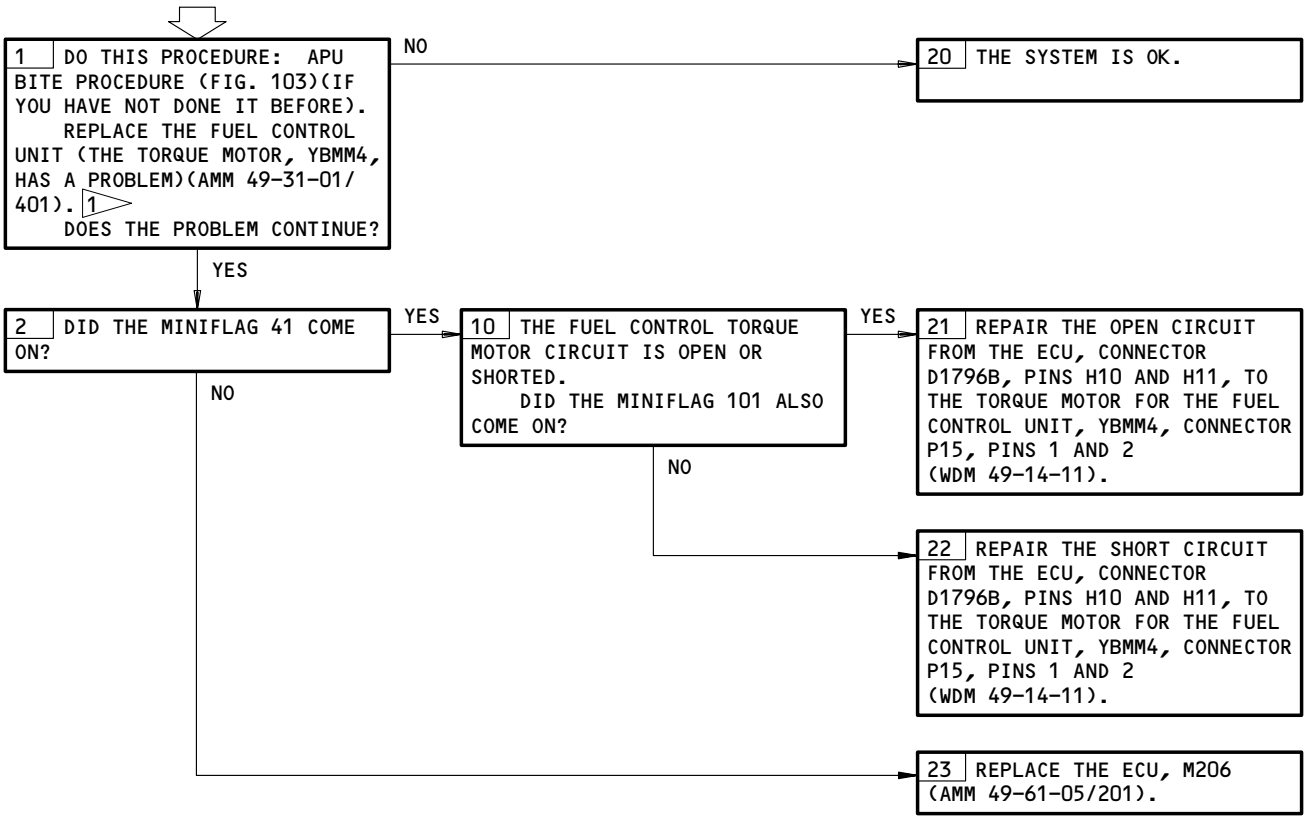
PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

FAULTY LRU - "FUEL CONTROL" ON BITE



1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU - FUEL CONTROL on BITE
Figure 126

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/501)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35, APU CONT, APU START, APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

FAULTY LRU - "IGV ACT" ON BITE

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
REPLACE THE IGV ACTUATOR, YBMM6 (AMM 49-52-02/401). 1
DOES THE PROBLEM CONTINUE?

NO → 20 THE SYSTEM IS OK.

YES

2 DID THE MINIFLAG 42 COME ON?

NO → 21 REPLACE THE ECU, M206 (AMM 49-61-05/201).

YES

3 DID THE MINIFLAG 66 COME ON?

YES → 11 THE IGV POSITION IS INCORRECT BY A MINIMUM OF 10 DEGREES FOR MORE THAN 6 SECONDS.
REMOVE THE COVER FOR THE IGV ACTUATOR LINKAGE (AMM 49-52-01/401).
DISCONNECT THE IGV CONNECTION ROD FROM THE BELLCRANK.
MOVE THE IGV CONNECTION ROD.
DOES THE IGV MOVE FREELY WITH LESS THAN 15 POUNDS (67 NEWTONS) OF FORCE?

NO → 22 REPLACE THE APU (AMM 49-11-01/401).

NO

SEE SHEET 2
(BLOCK 4)

YES

12 CONNECT THE IGV CONNECTION ROD TO THE BELLCRANK.
IS THERE FUEL PRESSURE AT THE IGV ACTUATOR DURING OPERATION?

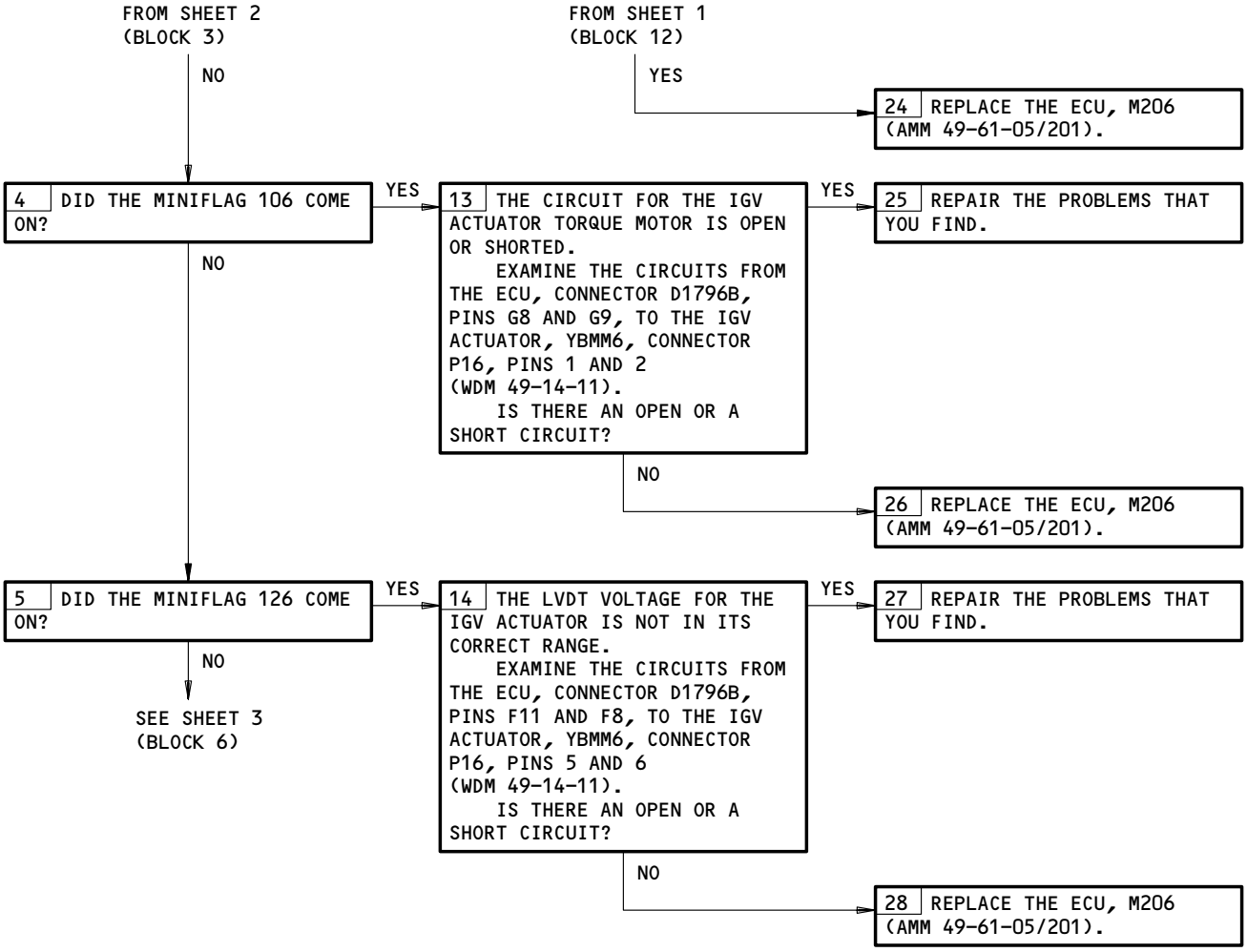
NO → 23 REPLACE THE FUEL CONTROL UNIT, YBMM4 (AMM 49-31-01/401).

YES

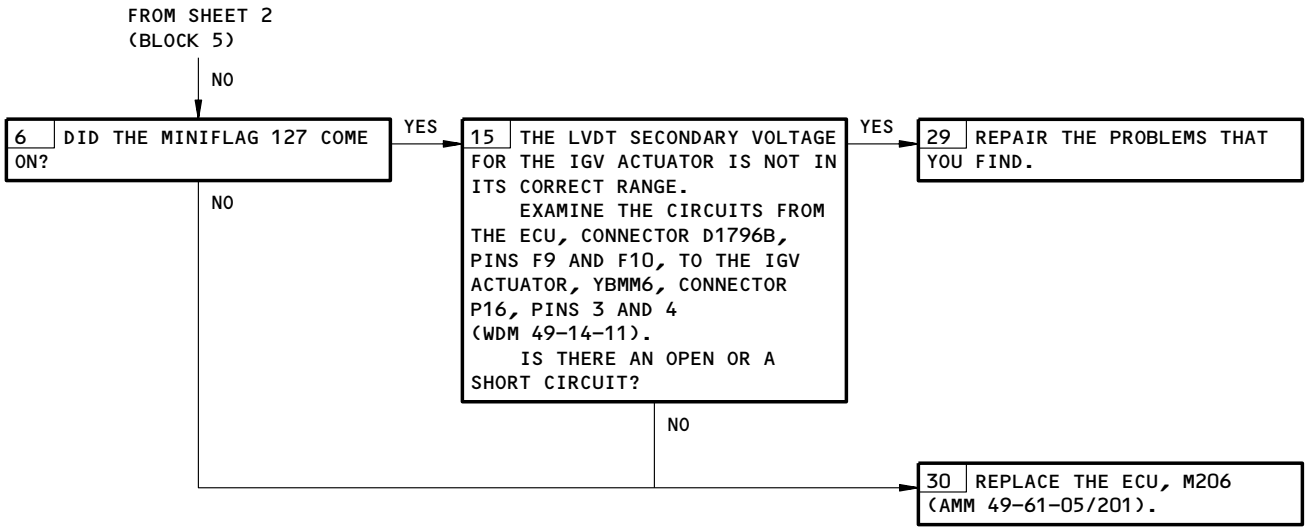
SEE SHEET 2
(BLOCK 24)

1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU - IGV ACT on BITE
Figure 127 (Sheet 1)



Faulty LRU – IGV ACT on BITE
Figure 127 (Sheet 2)



Faulty LRU - IGV ACT on BITE
Figure 127 (Sheet 3)

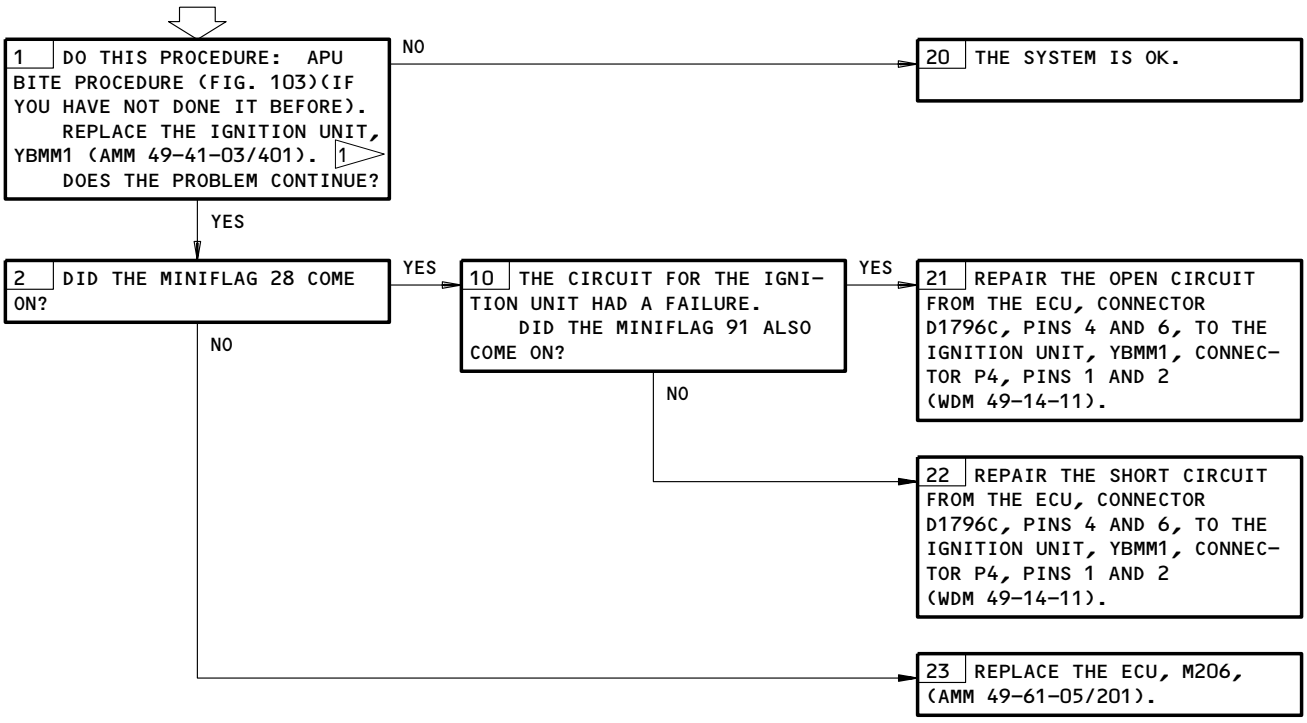
PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

FAULTY LRU - "IGN UNIT" ON BITE



1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU - IGN UNIT on BITE
Figure 128

FAULTY LRU – "APU STARTER" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
REMOVE THE STARTER END CAP. TURN THE STARTER BY HAND IN THE DIRECTION OF THE ARROW.
DOES THE STARTER TURN FREELY?

YES → 10 DOES THE APU TURN FREELY WITH THE STARTER?

YES → 20 REPLACE THE STARTER (AMM 49-41-01/201). 1 2
IF THE PROBLEM CONTINUES, MONITOR THE APU DURING START TO SEE IF IT TURNS (AMM 49-11-00/201).
IF THE APU DOES NOT TURN, MAKE SURE THAT THE NEGATIVE TERMINAL ON THE STARTER IS GROUNDED. REPAIR THE PROBLEMS THAT YOU FIND.
IF THE APU TURNS, DO THE CORRECTIVE ACTION FOR "#1 SPD SENSOR" AND "#2 SPD SENSOR" IN TABLE A.

NO → 21 REPLACE THE CLUTCH (AMM 49-41-06/201).

1 NO

2 REMOVE THE STARTER (AMM 49-41-01/201) AND EXAMINE.
CAN THE REMOVED STARTER TURN?

NO → 22 REPLACE THE STARTER (AMM 49-41-01/201). 1 2
IF THE PROBLEM CONTINUES, MONITOR THE APU DURING START TO SEE IF IT TURNS (AMM 49-11-00/201).
IF THE APU DOES NOT TURN, MAKE SURE THAT THE NEGATIVE TERMINAL ON THE STARTER IS GROUNDED. REPAIR THE PROBLEMS THAT YOU FIND.
IF THE APU TURNS, DO THE "CORRECTIVE ACTION" FOR "#1 SPD SENSOR" AND "#2 SPD SENSOR" IN TABLE A.

YES

SEE SHEET 2
(BLOCK 11)

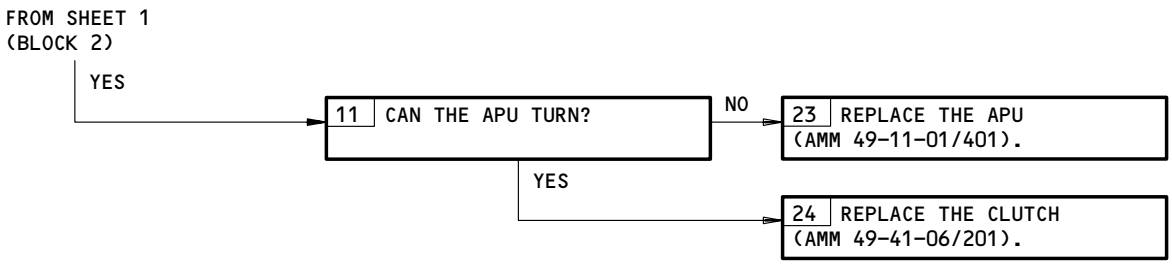
1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

2 IF TWO APU STARTER MOTORS ARE REPLACED IN LESS THAN 30 DAYS, REPLACE THE APU STARTER MOTOR, M893 (AMM 49-41-01/401), AND THE APU STARTER CLUTCH (AMM 49-41-06/401).

Faulty LRU – APU STARTER on BITE
Figure 129 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -19 AND SUBSEQUENT

E66796



Faulty LRU - APU STARTER on BITE
Figure 129 (Sheet 2)

FAULTY LRU – "P2 SENSOR" ON BITE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3, 6H12, 6H23, 11B34, 11C33, 11D32, 11D35, APU CONT, APU START, APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
REPLACE THE INLET PRESSURE (P2) SENSOR, YBMTS4 (AMM 49-61-04/201). 2
DOES THE PROBLEM CONTINUE?

YES → 11 DID THE MINIFLAG 120 COME ON?

NO → 2 THE SYSTEM IS OK.

11 DID THE MINIFLAG 120 COME ON?

YES → 21 AN INTERNAL ECU FAILURE WAS FOUND.
REPLACE THE ECU, M206 (AMM 49-61-05/201).

NO → 12 DID THE MINIFLAG 16 COME ON?

12 DID THE MINIFLAG 16 COME ON?

NO → 22 REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

YES → 13 THE INLET PRESSURE (P2) VALUE IS NOT IN ITS CORRECT RANGE OR IS LESS THAN 8 PSIG ON THE GROUND.
REPAIR THE OPEN CIRCUITS FROM THE ECU, CONNECTOR D1796B, PINS A1, A2, C8 AND C9, TO THE P2 SENSOR, YBMTS4, CONNECTOR P14, PINS 1, 2, 3 AND 4 (WDM 49-14-11). 1
THE AIR/GROUND RELAY, K214, CAN BE IN THE STUCK CLOSED (GROUND) POSITION WHILE THE AIRCRAFT IS IN THE AIR MODE OR THERE IS A GROUND WIRING PROBLEM FROM THE ECU TO THE RELAY.
REPLACE THE AIR/GROUND RELAY, K214 (AMM 32-09-02/201) OR IF THE PROBLEM CONTINUES, EXAMINE THE CIRCUIT FROM THE ECU, CONNECTOR D1786B, PIN D6, TO THE AIR/GROUND RELAY, K214, CONNECTOR D636, PIN 8 (WDM 49-61-11) 1.
REPAIR THE PROBLEMS THAT YOU FIND.
DOES THE PROBLEM CONTINUE?

YES → 23 REPLACE THE ECU, M206 (AMM 49-61-05/201). 1

NO → 24 THE SYSTEM IS OK.

1 ERASE THE "APU BITE" MESSAGE ON EICAS IF IT SHOWS (FIM 31-41-00/101, FIG. 109).

2 DO THE SELF-TEST (FIG. 103, BLOCK 3) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU – P2 SENSOR on BITE
Figure 130

FAULTY LRU – "ECU" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
REPLACE THE APU CONTROL UNIT (ECU), M206 (AMM 49-61-05/201). 1
DOES THE PROBLEM CONTINUE?

NO → 30 THE SYSTEM IS OK.

YES

3 DID THE MINIFLAG 21 COME ON?

YES → 20 +28V DC WAS FOUND ON THE ECU DRIVER FOR THE FLOW DIVIDER WHEN THE DRIVER WAS IN THE OFF POSITION.
EXAMINE THE CIRCUIT FROM ECU, CONNECTOR D1796B, PIN J7, TO THE FUEL FLOW DIVIDER SOLENOID, YBMM2, CONNECTOR P5, PIN 1 (WDM 49-14-11).
IS THERE A SHORT CIRCUIT TO +28V DC?

YES → 31 REPAIR THE PROBLEMS THAT YOU FIND.

NO → 32 REPLACE THE ECU, M206 (AMM 49-61-05/201).

NO

4 DID THE MINIFLAG 29 COME ON?

YES → 21 +28V DC WAS FOUND ON THE ECU DRIVER FOR THE DE-OIL SOLENOID WHEN THE DRIVER WAS IN THE OFF POSITION.
EXAMINE THE CIRCUIT FROM ECU, CONNECTOR D1796B, PIN J4, TO THE DE-OIL SOLENOID, YBMM3, CONNECTOR P11, PIN 1 (WDM 49-14-11).
IS THERE A SHORT CIRCUIT TO +28V DC?

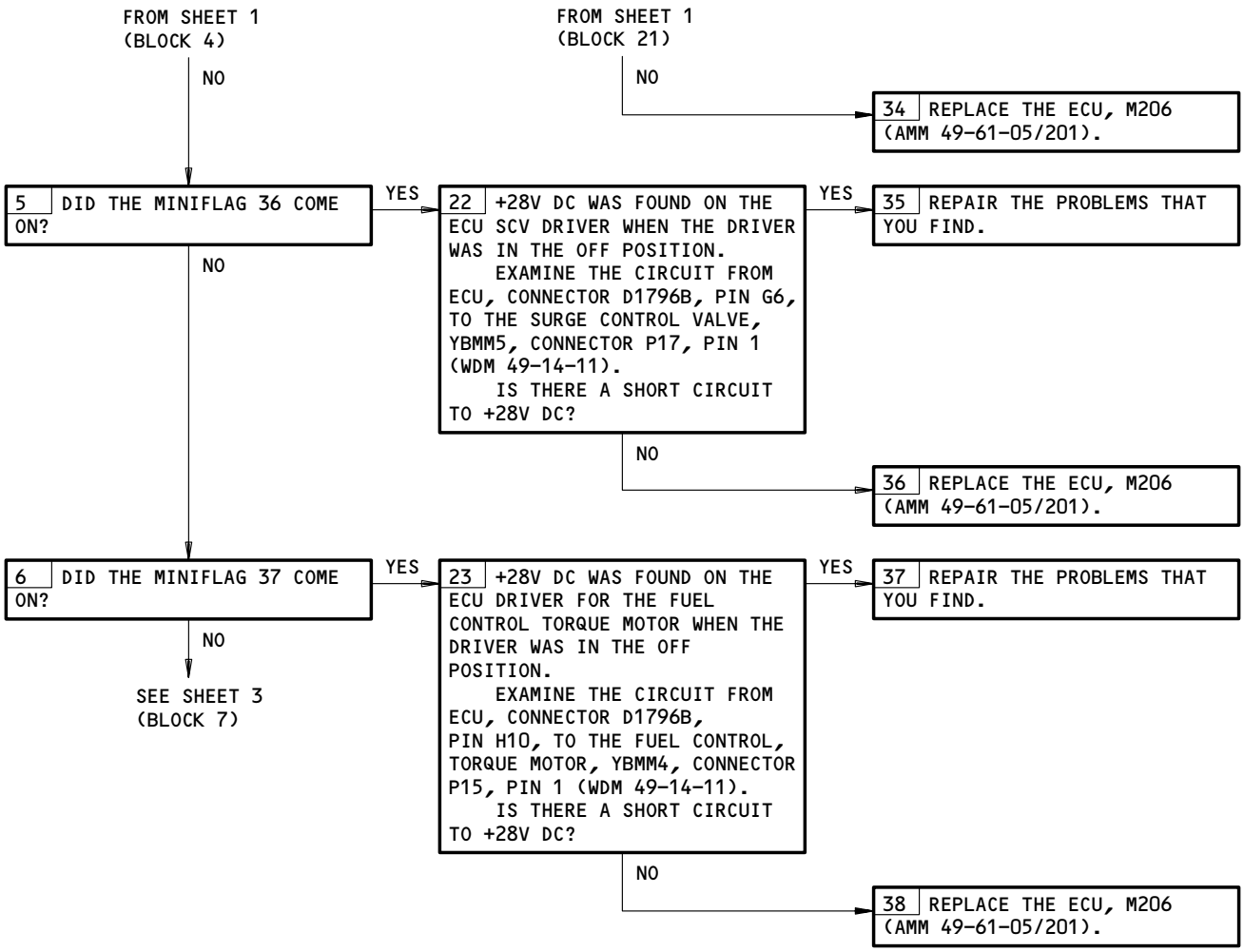
YES → 33 REPAIR THE PROBLEMS THAT YOU FIND.

NO → SEE SHEET 2 (BLOCK 5)

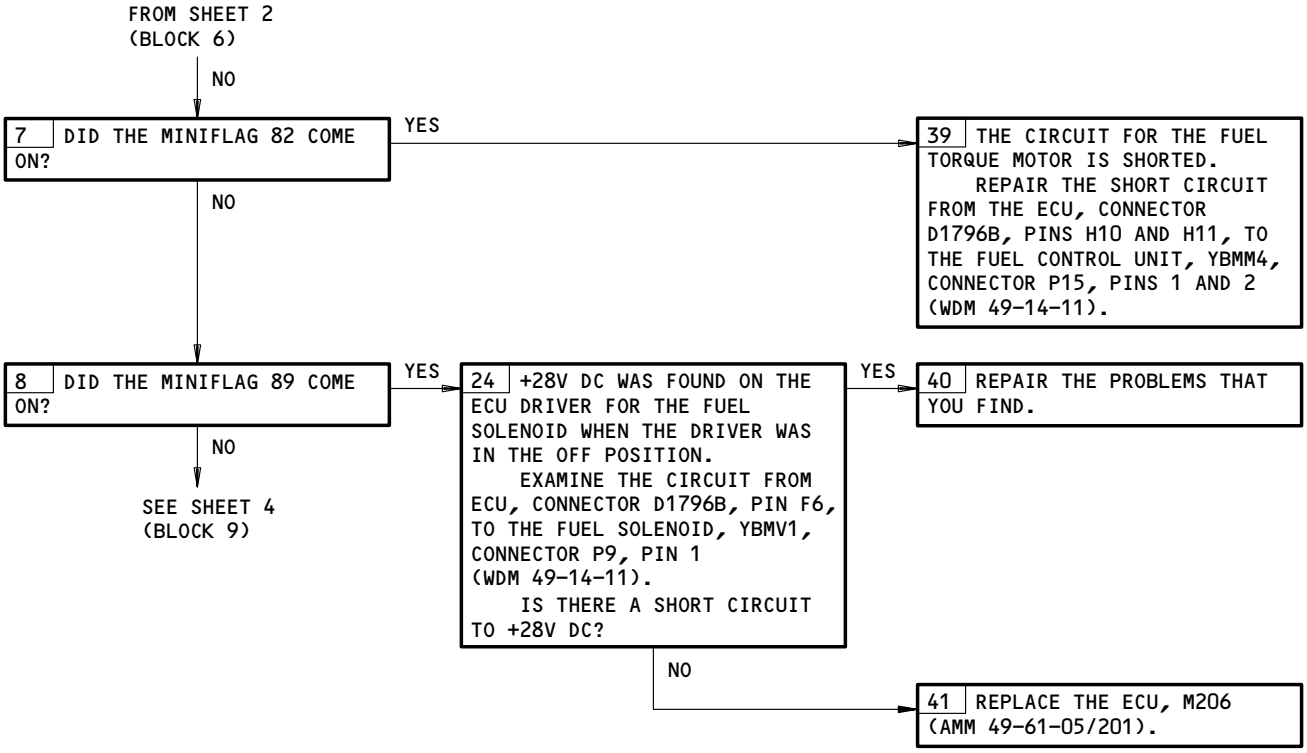
NO → SEE SHEET 2 (BLOCK 34)

1 DO THE SELF-TEST (FIG. 103, BLOCK 3) TO MAKE SURE THE PROBLEM IS REPAIRED.

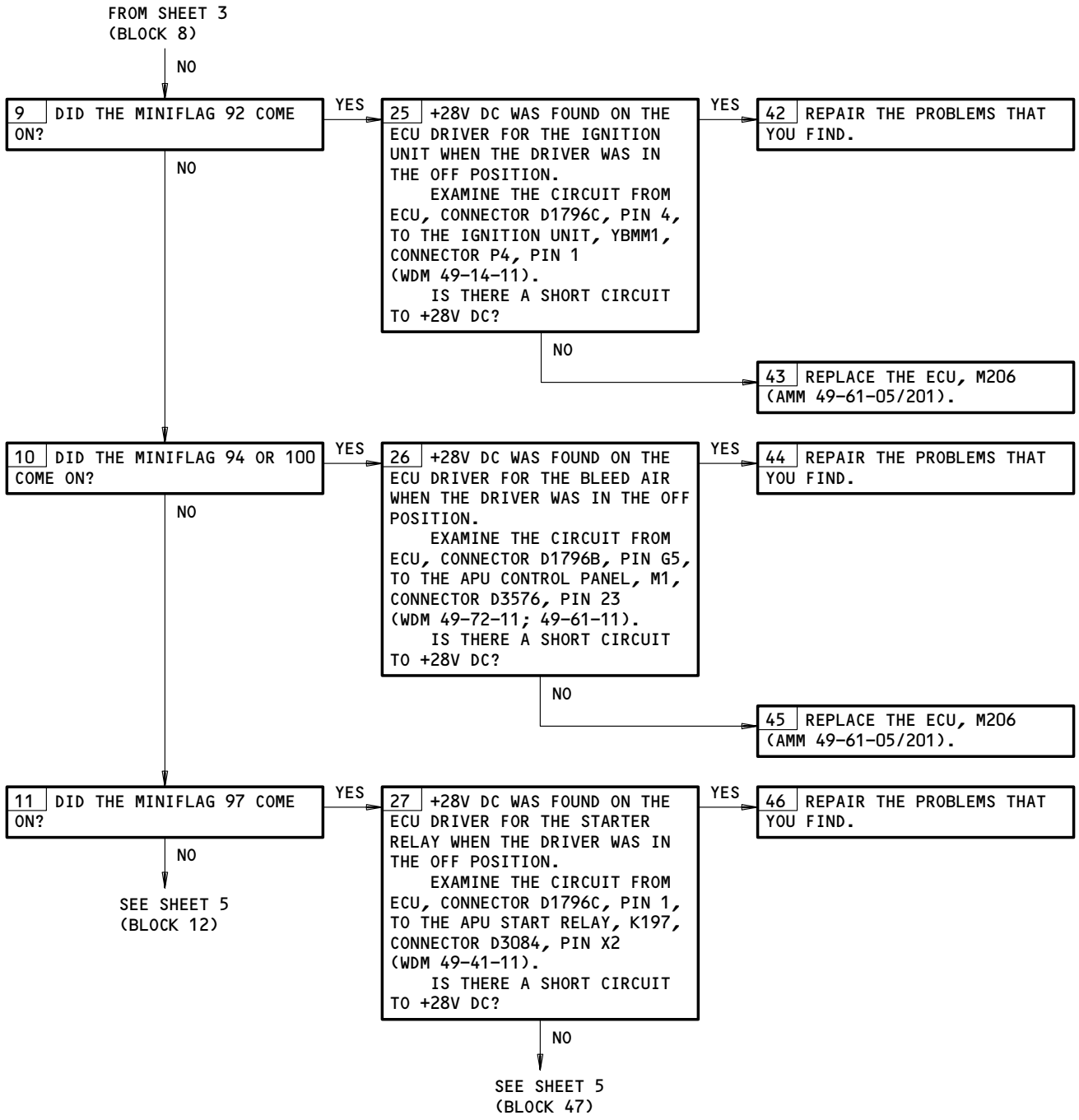
Faulty LRU – ECU on BITE
Figure 131 (Sheet 1)



Faulty LRU – ECU on BITE
Figure 131 (Sheet 2)

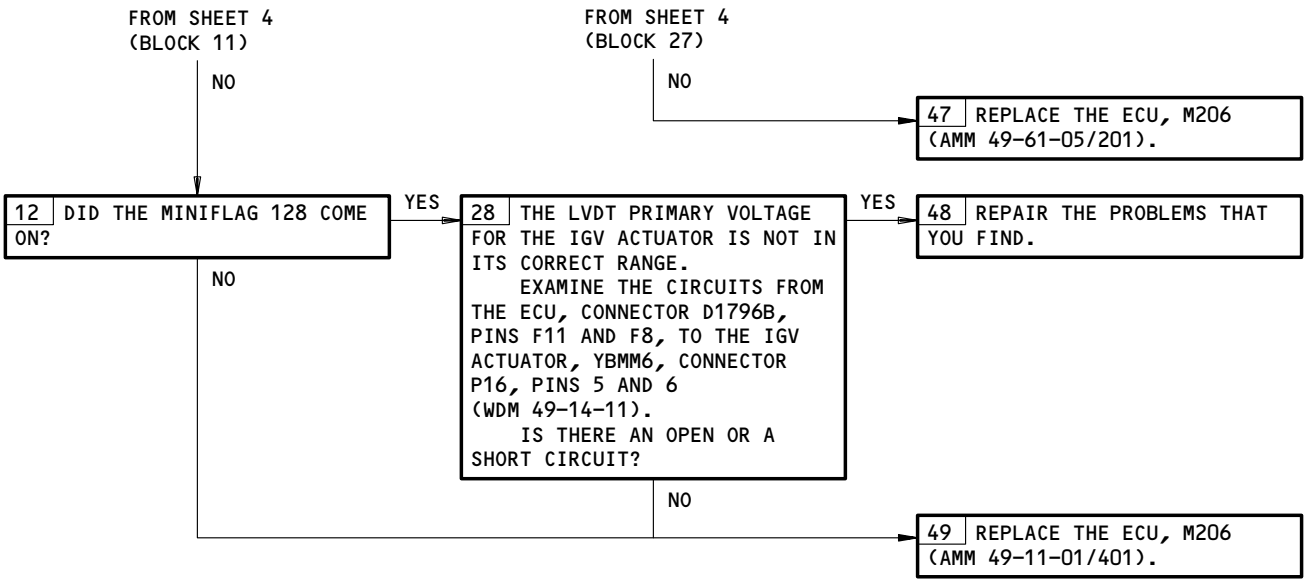


Faulty LRU - ECU on BITE
Figure 131 (Sheet 3)



Faulty LRU – ECU on BITE
Figure 131 (Sheet 4)

E67798



Faulty LRU - ECU on BITE
Figure 131 (Sheet 5)

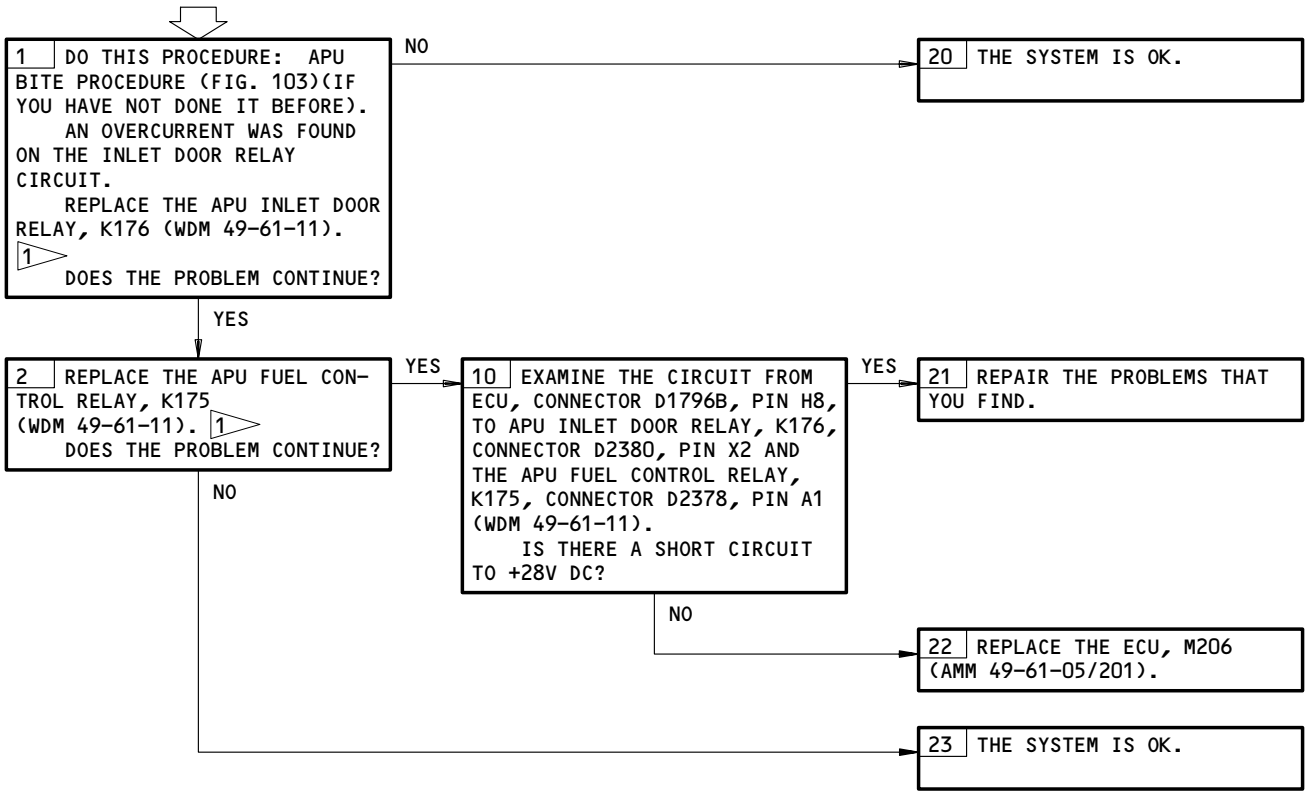
FAULTY LRU – "INLET DOOR RLY" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU – INLET DOOR RLY on BITE
Figure 132

AUTO SHUTDOWN – "NORMAL STOP SIG" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 MAKE SURE YOU DO THE APU BITE PROCEDURE (FIG. 103).
"NORMAL STOP SIG" IS THE USUAL INDICATION WHEN THE APU IS TURNED OFF.
THERE IS A PROBLEM WITH THE APU RUN SIGNAL WHEN:
- THE APU IS STOPPED,
- "NORMAL STOP SIG" IS ON, AND
- THE APU CONTROL SWITCH ON THE P5 PANEL IS NOT IN THE "OFF" POSITION.

DO THESE CONDITIONS OCCUR?

NO → 20 THE SYSTEM IS OK.

YES

2 REPLACE THE APU CONTROL PANEL, M1 (WDM 49-61-11). 1 2
DOES THE PROBLEM CONTINUE?

YES → 21 EXAMINE THE CIRCUIT FROM THE APU CONTROL PANEL, M1, CONNECTOR D3576, PIN 15, TO THE ECU, M206, CONNECTOR D1796B, PIN A5 (WDM 49-61-11). REPAIR THE PROBLEMS THAT YOU FIND.

NO → 22 THE SYSTEM IS OK.

1 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

2 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF/APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

Auto Shutdown – NORMAL STOP SIG on BITE
Figure 133

FAULTY LRU – "EGT #1 CIRCUIT" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
THE EGT VALUE IS LESS THAN -100°F ABSOLUTE, OR THE EGT #2 VALUE IS +150°F MORE THAN EGT #1.
REPLACE THE LEFT SIDE THERMOCOUPLES, YBMTS6 (AMM 49-71-01/201). 2
DOES THE PROBLEM CONTINUE?

NOTE: THE ECU MONITORS BOTH OF THE THERMOCOUPLE RAKES. BOTH RAKES MUST HAVE A FAILURE TO CAUSE AN AUTOMATIC SHUTDOWN.

NO → 20 THE SYSTEM IS OK. 1

YES → 10 DISCONNECT THE APU HARNESS, CONNECTOR D40200P, AT THE FIREWALL.
MEASURE THE LOOP RESISTANCE FROM PIN 10 TO 24 (WDM 49-14-11). THE RESISTANCE MUST BE LESS THAN 5.0 OHMS.
IS THE RESISTANCE WITHIN THE LIMITS?

NO → 21 REPAIR THE PROBLEMS THAT YOU FIND. 1

YES → 11 EXAMINE THE CIRCUIT FROM THE FIREWALL, CONNECTOR D40200J, PINS 10 AND 24, TO THE ECU, M206, CONNECTOR D1796B, PINS A6 AND A7 (WDM 49-14-11).
REPAIR THE OPEN OR GROUNDED CIRCUITS. 2
DOES THE PROBLEM CONTINUE?

NO → 22 THE SYSTEM IS OK. 1

YES → 23 REPLACE THE FUEL MANIFOLDS (AMM 49-31-06/401). 1 2
IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201). 2

NOTE: A DAMAGED POWER SECTION CAN CAUSE A LARGE DIFFERENCE IN EGT #1 AND EGT #2 VALUES.

IF THE PROBLEM CONTINUES, REPLACE THE APU (AMM 49-11-01/401).

1 ERASE THE "APU BITE" MESSAGE ON EICAS IF IT SHOWS (FIM 31-41-00/101, FIG. 109).

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU – EGT #1 CIRCUIT on BITE
Figure 134

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

FAULTY LRU - "EGT #2 CIRCUIT" ON BITE

1 DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103)(IF YOU HAVE NOT DONE IT BEFORE).
THE EGT VALUE IS LESS THAN -100°F ABSOLUTE, OR THE EGT #1 VALUE IS +150°F MORE THAN EGT #2.
REPLACE THE RIGHT SIDE THERMOCOUPLES, YBMTS7 (AMM 49-71-01/201). 2
DOES THE PROBLEM CONTINUE?

NOTE: THE ECU MONITORS BOTH OF THE THERMOCOUPLE RAKES. BOTH RAKES MUST HAVE A FAILURE TO CAUSE AN AUTOMATIC SHUTDOWN.

NO → 20 THE SYSTEM IS OK. 1

YES → 10 DISCONNECT THE APU HARNESS, CONNECTOR D40200P, AT THE FIREWALL.
MEASURE THE LOOP RESISTANCE FROM PIN 11 TO 25 (WDM 49-14-11). THE RESISTANCE MUST BE LESS THAN 5.0 OHMS.
IS THE RESISTANCE WITHIN THE LIMITS?

NO → 21 REPAIR THE PROBLEMS THAT YOU FIND. 1

YES → 11 EXAMINE THE CIRCUIT FROM THE FIREWALL, CONNECTOR D40200J, PINS 11 AND 25, TO THE ECU, M206, CONNECTOR D1796B, PINS A8 AND A9 (WDM 49-14-11).
REPAIR THE OPEN OR GROUNDED CIRCUITS. 2
DOES THE PROBLEM CONTINUE?

NO → 22 THE SYSTEM IS OK. 1

YES → 23 REPLACE THE FUEL MANIFOLDS (AMM 49-31-06/401). 1 2
IF THE PROBLEM CONTINUES, REPLACE THE ECU, M206 (AMM 49-61-05/201). 2

NOTE: A DAMAGED POWER SECTION CAN CAUSE A LARGE DIFFERENCE IN EGT #1 AND EGT #2 VALUES.

IF THE PROBLEM CONTINUES, REPLACE THE APU (AMM 49-11-01/401).

1 ERASE THE "APU BITE" MESSAGE ON EICAS IF IT SHOWS (FIM 31-41-00/101, FIG. 109).

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU - EGT #2 CIRCUIT on BITE
Figure 135

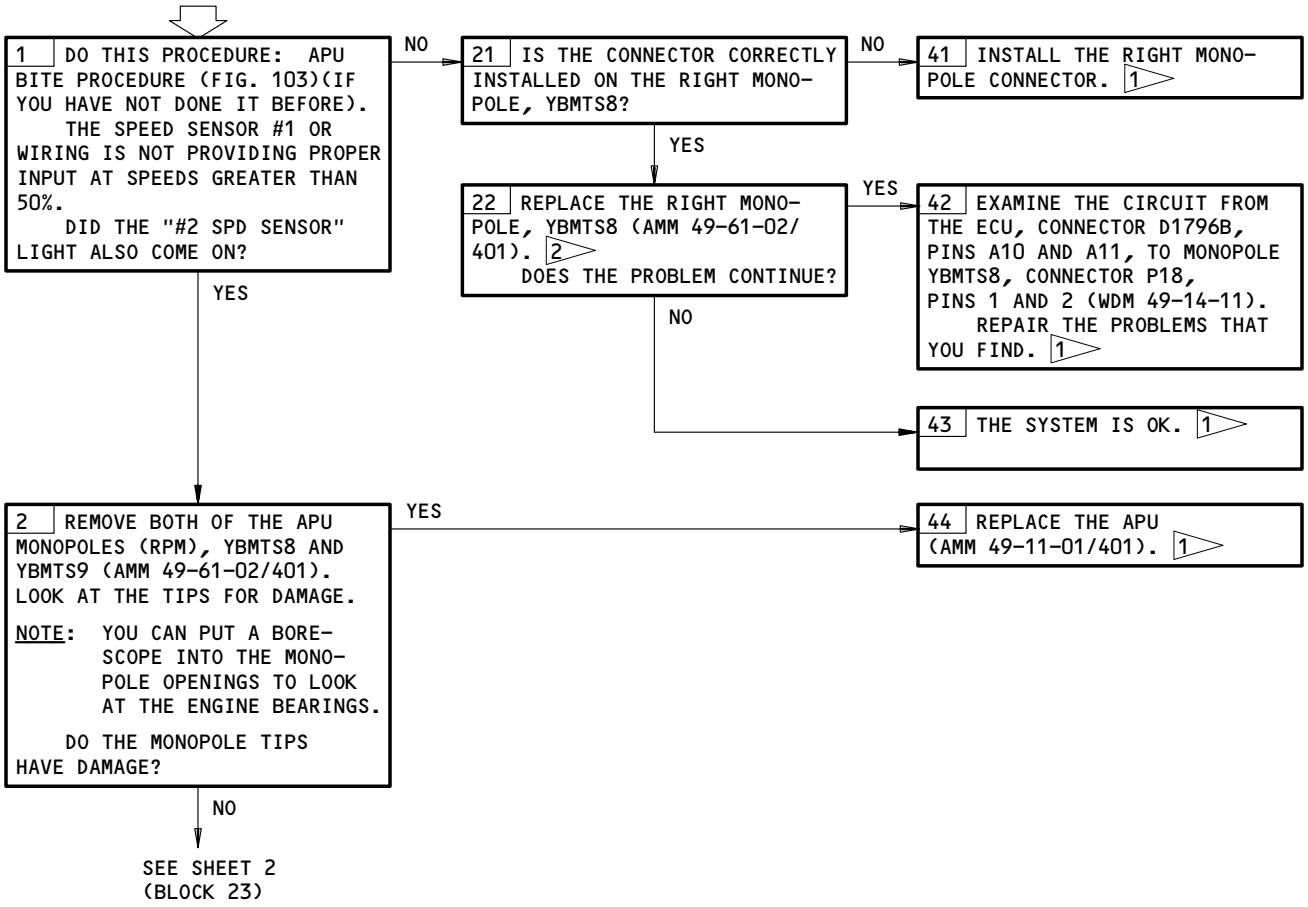
FAULTY LRU – "#1 SPD SENSOR" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



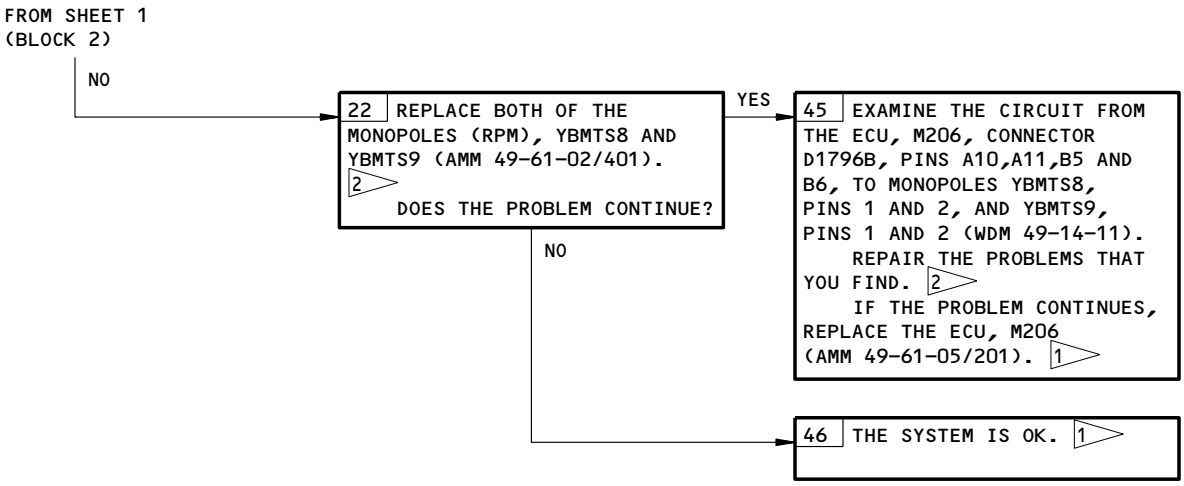
1 ERASE THE "APU BITE" MESSAGE ON EICAS IF IT SHOWS (FIM 31-41-00/101, FIG. 109).

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU – #1 SPD SENSOR on BITE
Figure 136 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT –19 AND SUBSEQUENT

E68648



Faulty LRU - #1 SPD SENSOR on BITE
Figure 136 (Sheet 2)

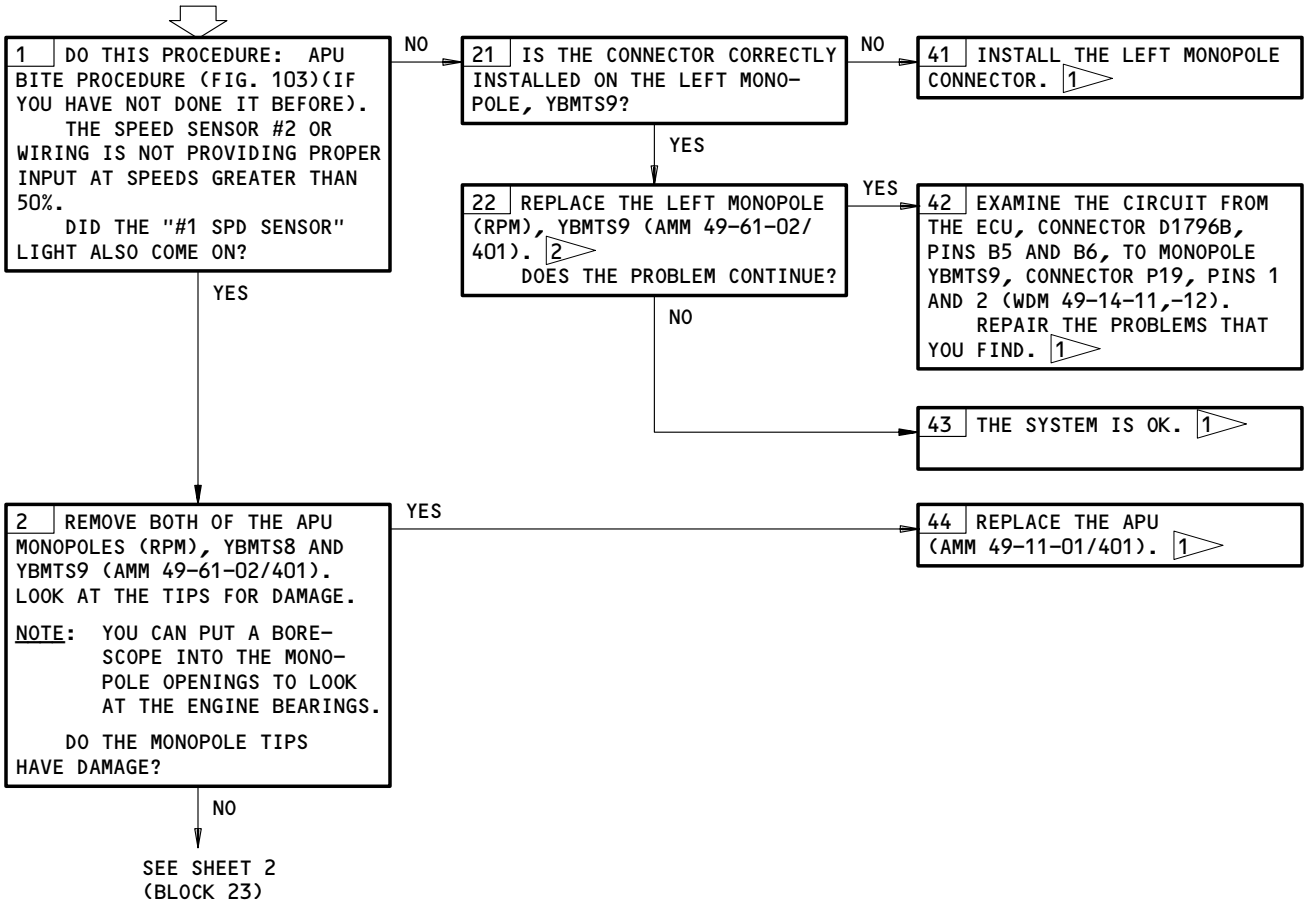
FAULTY LRU – "#2 SPD SENSOR" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



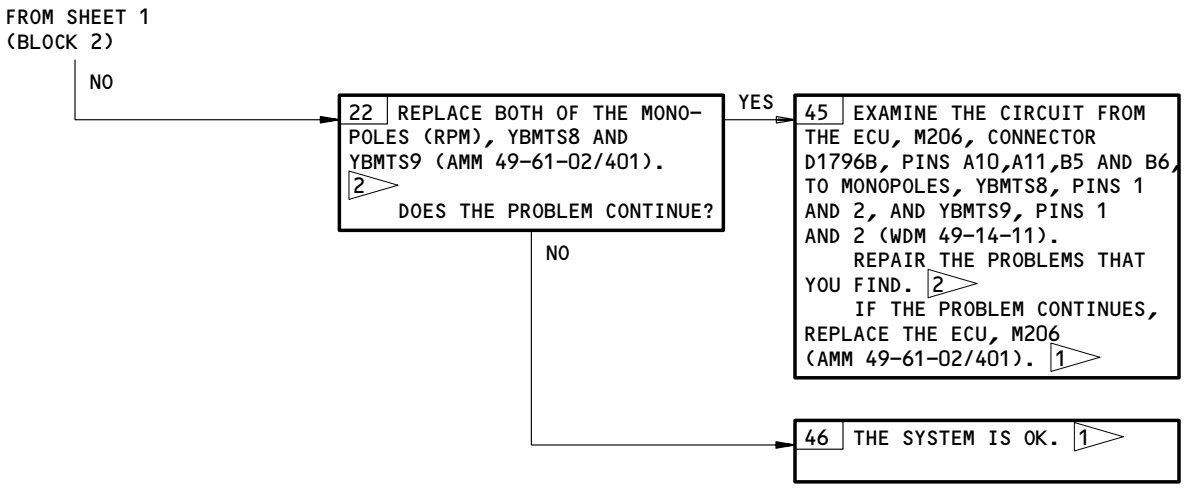
1 ERASE THE "APU BITE" MESSAGE ON EICAS IF IT SHOWS (FIM 31-41-00/101, FIG. 109).

2 OPERATE THE APU (AMM 49-11-00/201) AND DO THIS PROCEDURE: APU BITE PROCEDURE (FIG. 103) TO MAKE SURE THE PROBLEM IS REPAIRED.

Faulty LRU – #2 SPD SENSOR on BITE
Figure 137 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH THE APU CONTROL UNIT -19 AND SUBSEQUENT

E68785



Faulty LRU - #2 SPD SENSOR on BITE
Figure 137 (Sheet 2)

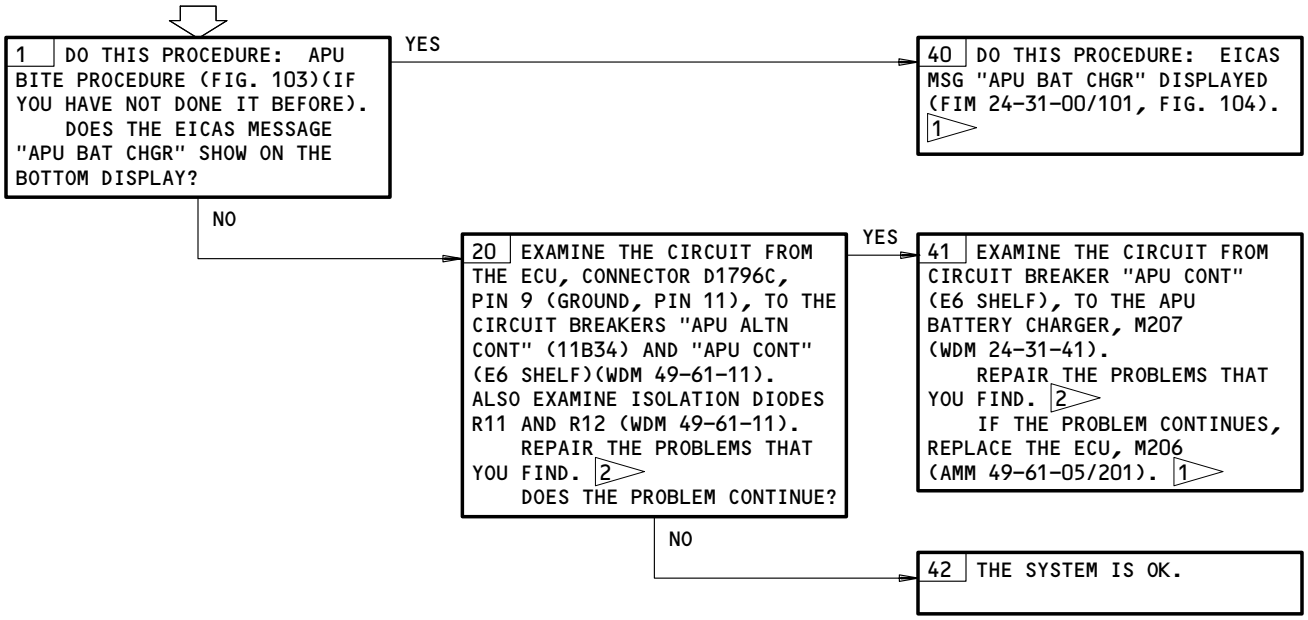
AUTO SHUTDOWN – "DC PWR LOSS" ON BITE

PREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6E3,6H12,6H23,11B34,11C33,11D32,11D35,APU CONT, APU START,APU INLET DR ACT (AFT EQUIPMENT CENTER, E6)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



1 AN AUTOMATIC SHUTDOWN WILL CAUSE THE EICAS TO WRITE AN AUTO-EVENT FOR THE SHUTDOWN. AFTER THE PROBLEM IS CORRECTED, PUSH THE "PERF/APU" AND THE "AUTO-EVENT READ" SWITCHES ON THE P61 PANEL. PUSH THE "ERASE" SWITCH FOR 3 SECONDS. MAKE SURE THE "APU-FAULT" IS ERASED.

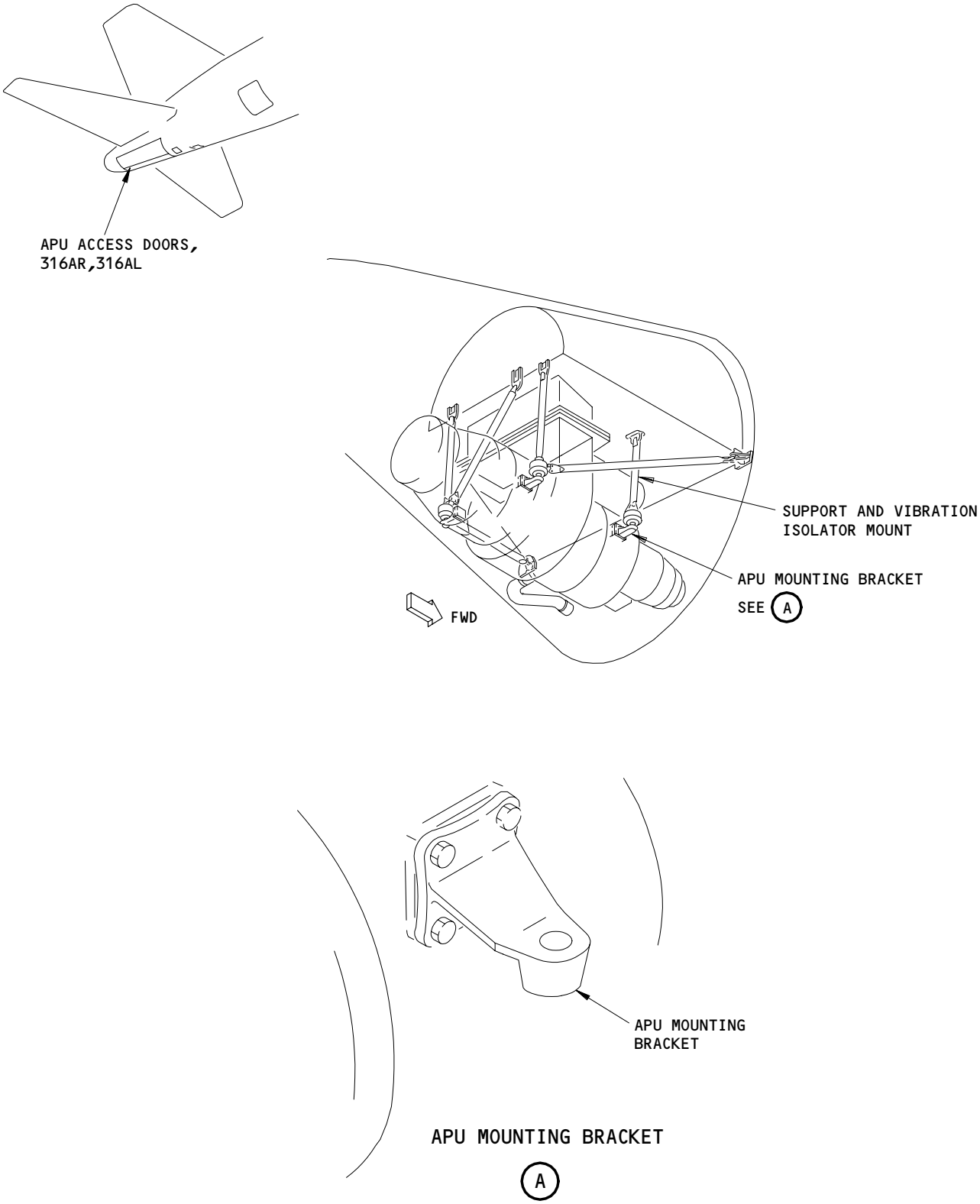
2 DO THE SELF-TEST (FIG. 103, BLOCK 3) TO MAKE SURE THE PROBLEM IS REPAIRED.

Auto Shutdown – DC PWR LOSS on BITE
Figure 138

APU MOUNTS

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
BRACKET - APU MOUNTING	--	3	316AR,315AL, APU COMPT	49-13-03
SUPPORT AND VIBRATION ISOLATOR MOUNT - APU AFT	--	2	316AR,315AL APU COMPT	49-13-02
SUPPORT AND VIBRATION ISOLATOR MOUNTS - APU FORWARD	--	1	316AR,315AL APU COMPT	49-13-01

APU Mounts - Component Index
Figure 101

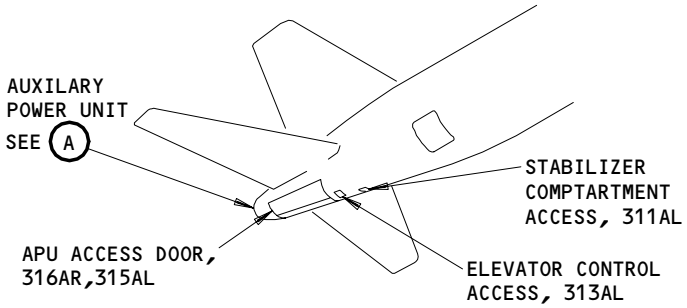


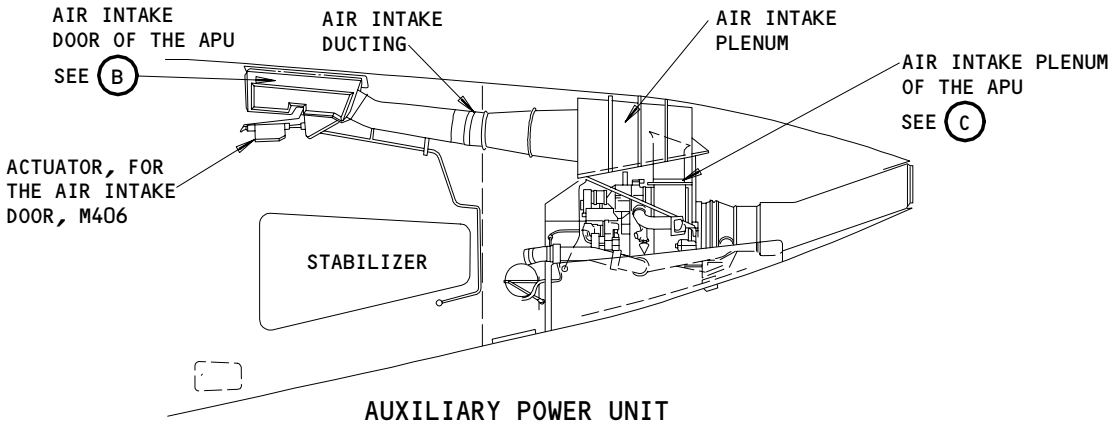
APU Mounts - Component Location
Figure 102

APU AIR INTAKE

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
ACTUATOR - DOOR, M406		1	311AL, STABILIZER COMPT, AUXILIARY POWER UNIT	49-15-06
DOOR		1	311AL, STABILIZER COMPT, APU AIR INTAKE DOOR	49-15-05
DUCT		2	AUXILIARY POWER UNIT	49-15-01
HOUSING		1	311AL, STABILIZER COMPT, APU AIR INTAKE DOOR	49-15-08
PLENUM		1	313AL,315AL,316AR, APU COMPT, AUXILIARY POWER UNIT	49-15-03
RELAY - (31-01-06/101) APU INLET DOOR RELAY, K176				
SEAL - DOOR		1	311AL, STABILIZER COMPT, APU AIR INTAKE DOOR	49-15-07
SEAL - PLENUM FLANGE		1	315AL,316AR, APU COMPT, APU AIR INTAKE PLENUM	49-15-04
SWITCH - DOOR, S10031		1	311AL, STABILIZER COMPT, APU AIR INTAKE DOOR	49-15-02
UNIT - (49-61-00/101) APU CONTROL, M206				

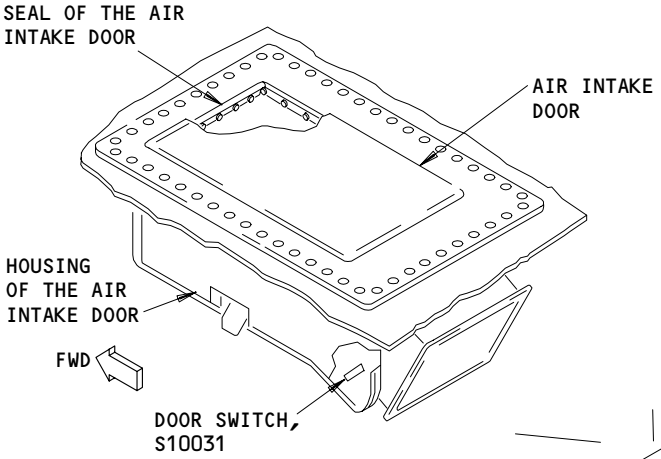
APU Air Intake - Component Index
Figure 101





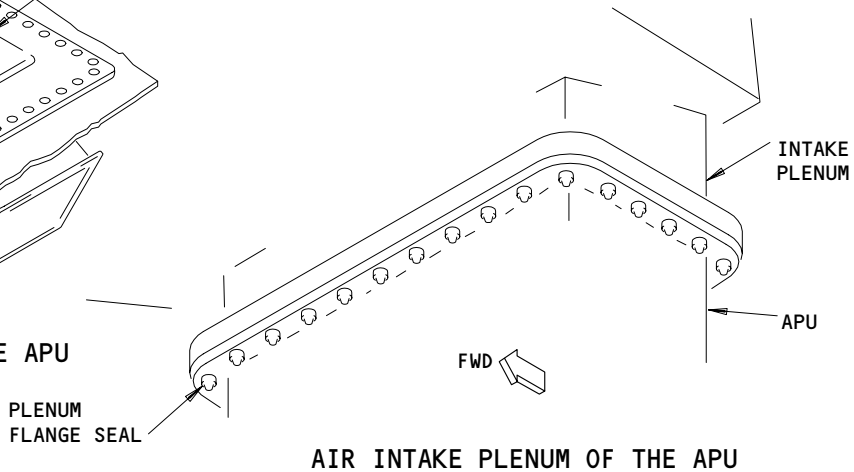
AUXILIARY POWER UNIT

A



AIR INTAKE DOOR OF THE APU

B



AIR INTAKE PLENUM OF THE APU

C

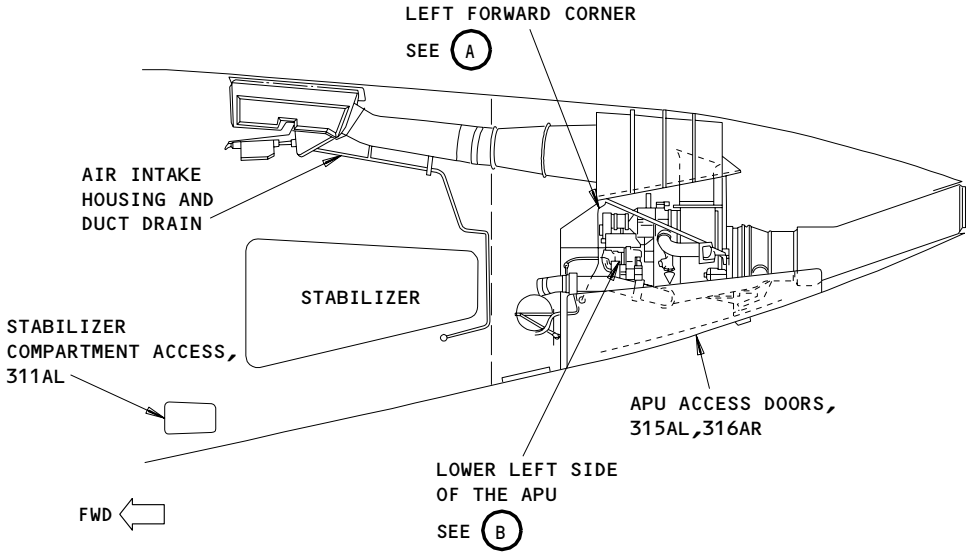
APU Air Intake - Component Location
Figure 102

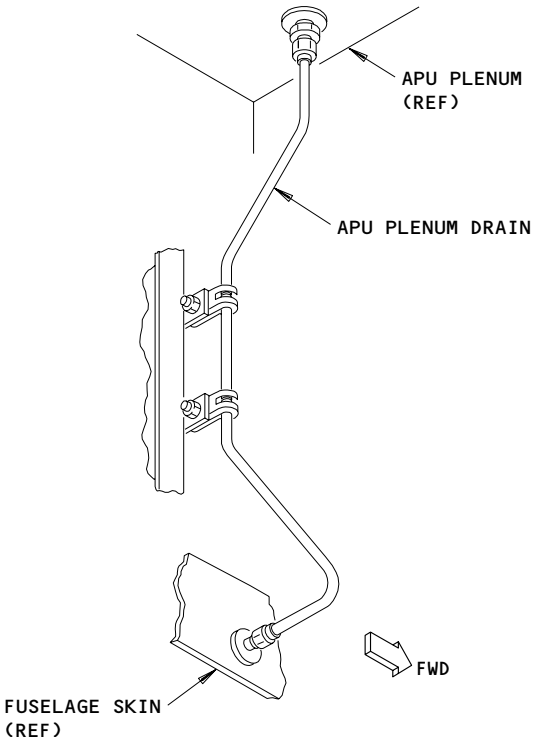
APU DRAINS AND VENTS

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
DRAIN – AIR INTAKE HOUSING AND DUCT	1	1	311AL, STABILIZER COMPT	49-15-00
DRAIN – APU INLET PLENUM	2	1	315AL,316AR, APU COMPT, BOTTOM OF INLET PLENUM	49-16-00
DRAIN – APU PLENUM	1	1	315AL,316AR, APU COMPT, LEFT FORWARD CORNER	49-16-03
DRAIN – BEARING SEAL CAVITY	2	1	315AL,316AR, APU COMPT, DRAIN MAST	49-16-00
DRAIN – FORWARD BEARING SEAL CAVITY – TELL TALE	2	1	315AL,316AR, APU COMPT, BOTTOM OF INLET PLENUM	49-16-00
DRAIN – FUEL CONTROL UNIT/OIL PUMP/IGV ACTUATOR	2	1	315AL,316AR, APU COMPT, DRAIN MAST	49-16-00
DRAIN – FUEL CONTROL UNIT/OIL PUMP – TELL TALE	2	1	315AL,316AR, APU COMPT, BOTTOM OF INLET PLENUM	49-16-00
DRAIN – FUEL FLOW DIVIDER	2	1	315AL,316AR, APU COMPT, BOTTOM OF COMBUSTOR	49-16-00
DRAIN – HEAT SHIELD	2	1	315AL,316AR, APU COMPT, DRAIN MAST	49-16-00
DRAIN – IGV ACTUATOR – TELL TALE	2	1	315AL,316AR, APU COMPT, BOTTOM OF INLET PLENUM	49-16-00
DRAIN – MID-BEARING SEAL CAVITY – TELL TALE	2	2	315AL,316AR, APU COMPT, BOTTOM OF INLET PLENUM	49-16-00
DRAIN – OIL SCUPPER	1	1	315AL,316AR, APU COMPT, LOWER LEFT SIDE OF APU	49-27-00
DRAIN – TURBINE PLENUM	2	1	315AL,316AR, APU COMPT, DRAIN MAST	49-16-00
LINE – INFLIGHT PRESSURE	2	1	315AL,316AR, APU COMPT, BOTTOM OF COMBUSTOR	49-16-00
MAST – APU DRAIN	2	1	315AL,316AR, APU COMPT, DRAIN MAST	49-16-00
TANK – APU DRAIN	2	1	315AL,316AR, APU COMPT, BOTTOM OF COMBUSTOR	49-16-00

APU Drains and Vents – Component Index
Figure 101

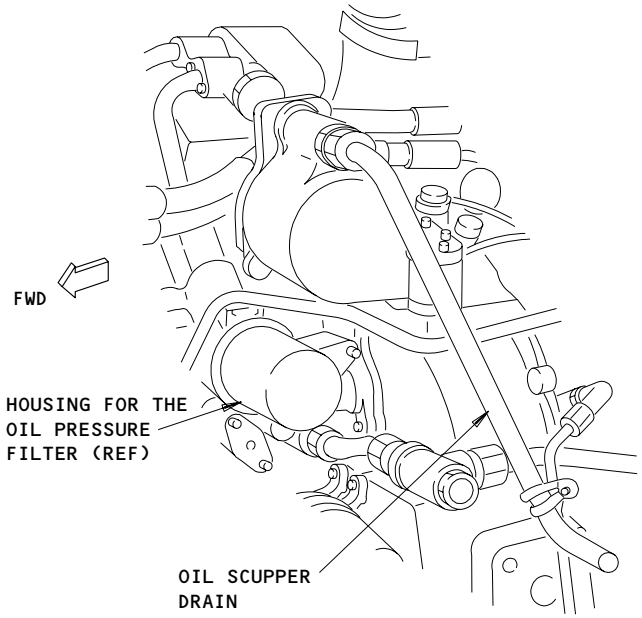
318853





LEFT FORWARD CORNER

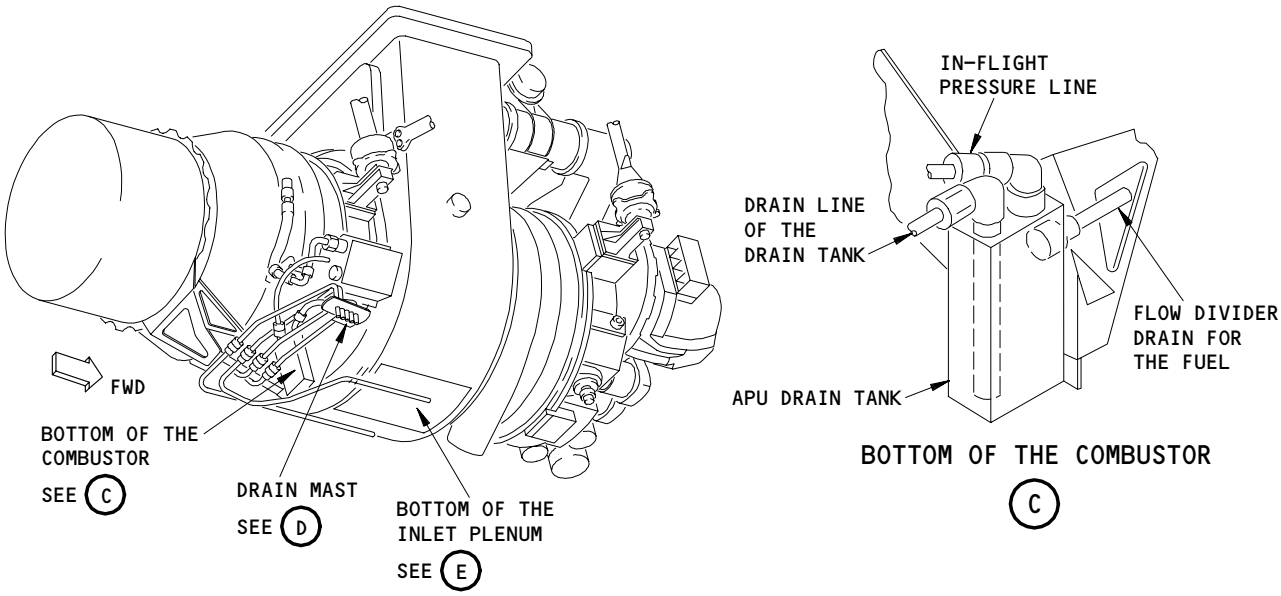
A



LOWER LEFT SIDE OF THE APU

B

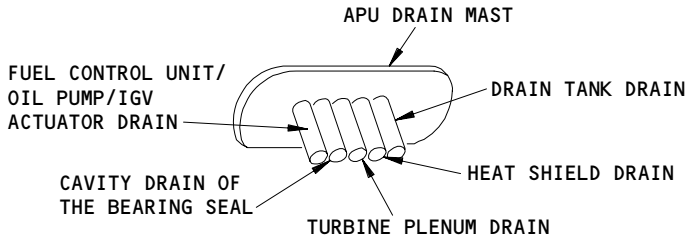
APU Drains and Vents - Component Location
Figure 102 (Sheet 1)



APU – RIGHT SIDE

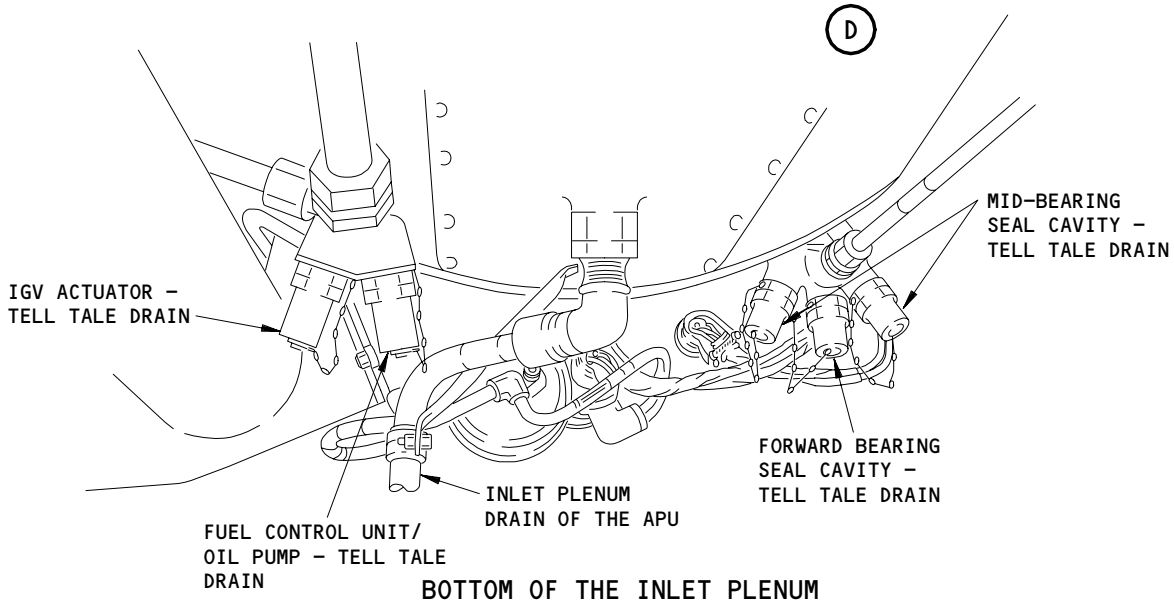
BOTTOM OF THE COMBUSTOR

C



DRAIN MAST

D



BOTTOM OF THE INLET PLENUM
(VIEW IN THE FORWARD DIRECTION)

E

APU Drains and Vents – Component Location
Figure 102 (Sheet 2)

APU AND GENERATOR LUBRICATION SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
COOLER – OIL	1	1	315AL,316AR, APU COMPT, UPPER COMPRESSOR SECTION	49-27-09
DETECTOR – COMPRESSOR BEARING MAGNETIC CHIP	4	1	315AL,316AR, APU COMPT, LEFT SIDE OF GEARBOX	49-27-04
DETECTOR – GEARBOX MAGNETIC CHIP	4	1	315AL,316AR, APU COMPT, BOTTOM OF GEARBOX	49-27-04
DETECTOR – GENERATOR SCAVENGE MAGNETIC CHIP	4	1	315AL,316AR, APU COMPT, BOTTOM OF GEARBOX	49-27-04
DETECTOR – TURBINE BEARING MAGNETIC CHIP	4	1	315AL,316AR, APU COMPT, RIGHT SIDE OF APU	49-27-04
ELEMENTS – OIL PRESSURE AND GENERATOR SCAVENGE FILTER	2	2	315AL,316AR, APU COMPT, GEARBOX ACCESSORIES	49-27-03
INDICATOR – GENERATOR OIL FILTER DIFFERENTIAL PRESSURE	2	1	315AL,316AR, APU COMPT, FRONT OF APU	49-27-16
INDICATOR – OIL FILTER DIFFERENTIAL PRESSURE	2	1	315AL,316AR, APU COMPT, GEARBOX ACCESSORIES	49-27-07
PLUG – DRAIN	4	1	315AL,316AR, APU COMPT, BOTTOM OF GEARBOX	49-27-04
PUMP – GENERATOR SCAVENGE OIL	2	1	315AL,316AR, APU COMPT, FRONT OF APU	49-27-02
PUMP – OIL	2	1	315AL,316AR, APU COMPT, GEARBOX ACCESSORIES	49-27-01
REGULATOR – OIL PRESSURE	2	1	315AL,316AR, APU COMPT, GEARBOX ACCESSORIES	49-27-05
SEAL PLATE – APU GENERATOR	3	1	315AL,316AR, APU COMPT, FRONT OF GEARBOX	49-27-06
SENSOR – (49-94-00/101) OIL TEMPERATURE, YBMTS1 SWITCHES – (49-94-00/101) LOW OIL LEVEL, YBMS3 [1] LOW OIL PRESSURE, YBMS2				
SWITCH – GENERATOR OIL FILTER DIFFERENTIAL PRESSURE, YBMS1	2	1	315AL,316AR, APU COMPT, FRONT OF APU	49-27-15
SWITCH – LOW OIL TEMPERATURE, YBMS5	4	1	315AL,316AR, APU COMPT, BOTTOM OF GEARBOX	49-27-14
TRANSMITTER – (49-94-00/101) OIL QUANITY, YBMS3 [2]				
VALVE – DE-OIL SOLENOID, YBMM3	3	1	315AL,316AR, APU COMPT, FRONT OF GEARBOX	49-27-08
VALVE – GEARBOX PRESSURE REGULATING	3	1	315AL,316AR, APU COMPT, FRONT OF GEARBOX	49-27-12
VALVE – GEARBOX SHUTOFF	3	1	315AL,316AR, APU COMPT, RIGHT SIDE INLET PLENUM	49-27-11
VALVE – OIL COOLER BYPASS	1	1	315AL,316AR, APU COMPT, UPPER COMPRESSOR SECTION	49-27-10
VALVE – SHUTTLE	3	1	315AL,316AR, APU COMPT, RIGHT SIDE INLET PLENUM	49-27-13
UNIT – (49-61-00/101) APU CONTROL, M206				

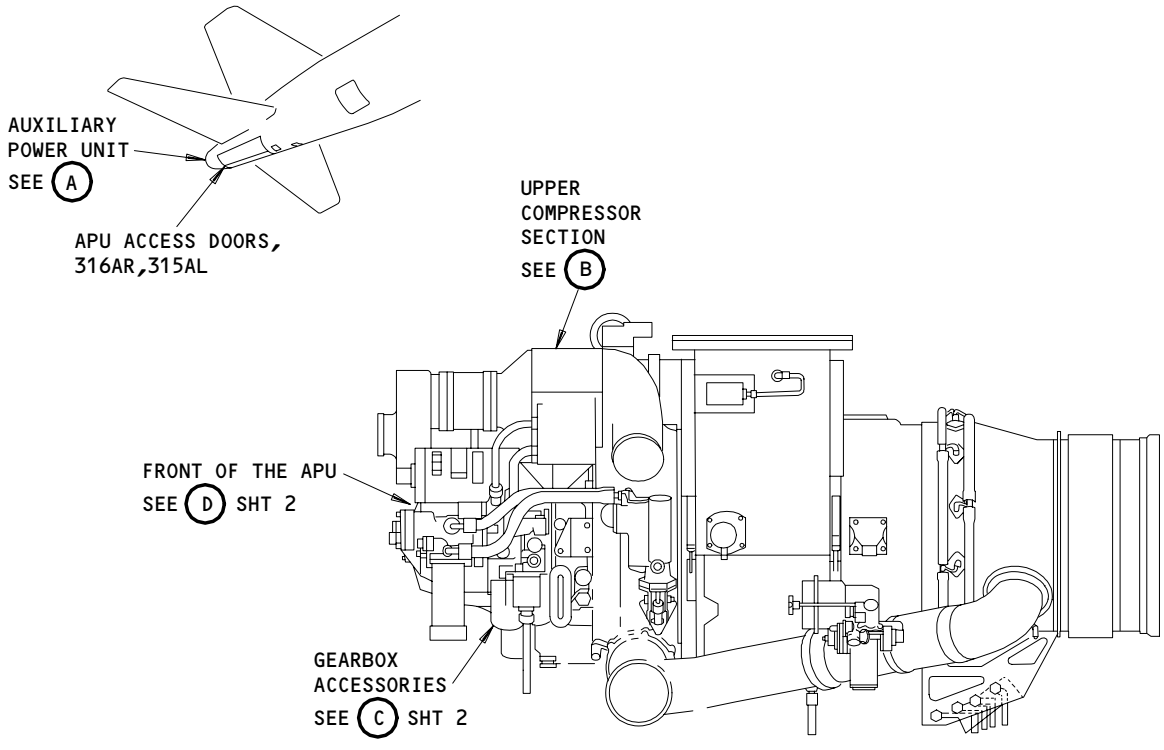
* SEE THE WDM EQUIPMENT LIST

[1] GUI 001-114,116-999

[2] GUI 115

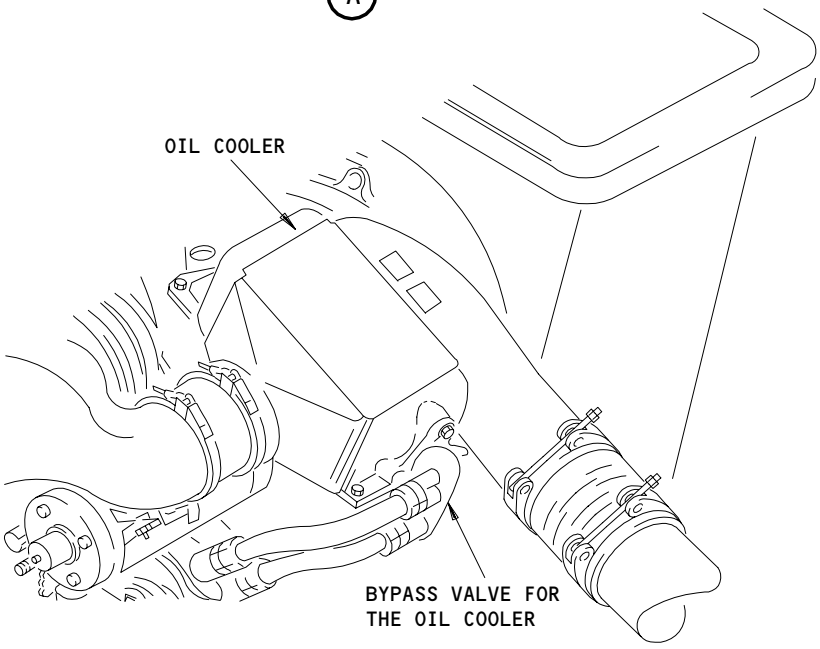
APU and Generator Lubrication System – Component Index
Figure 101

677952



AUXILIARY POWER UNIT

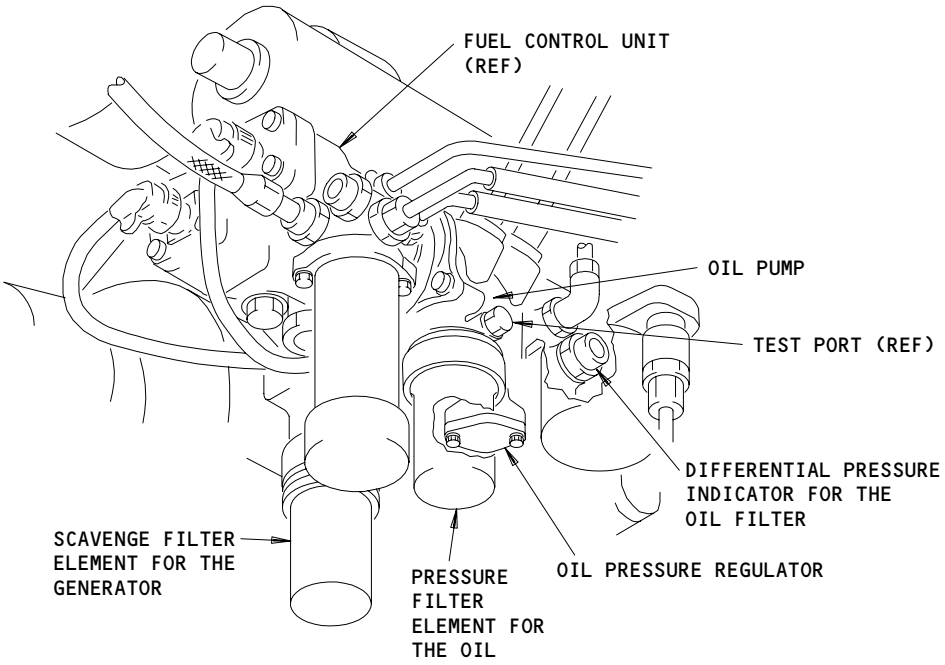
A



UPPER COMPRESSOR SECTION

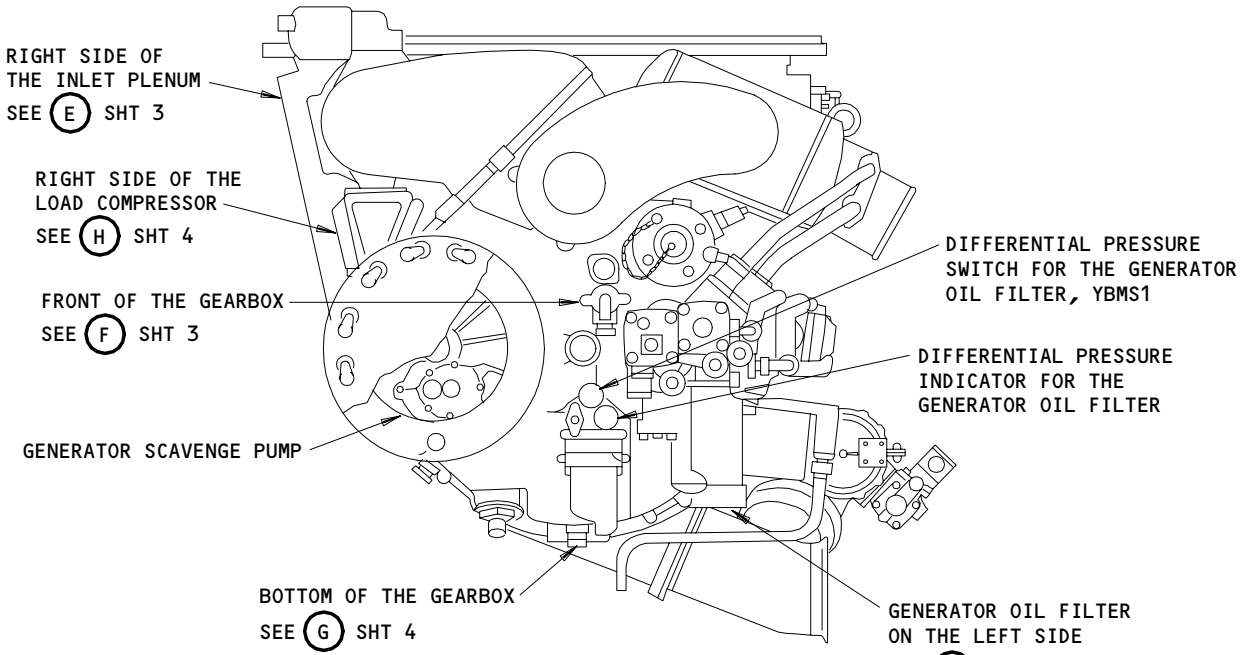
B

APU and Generator Lubrication System - Component Location
Figure 102 (Sheet 1)



GEARBOX ACCESSORIES

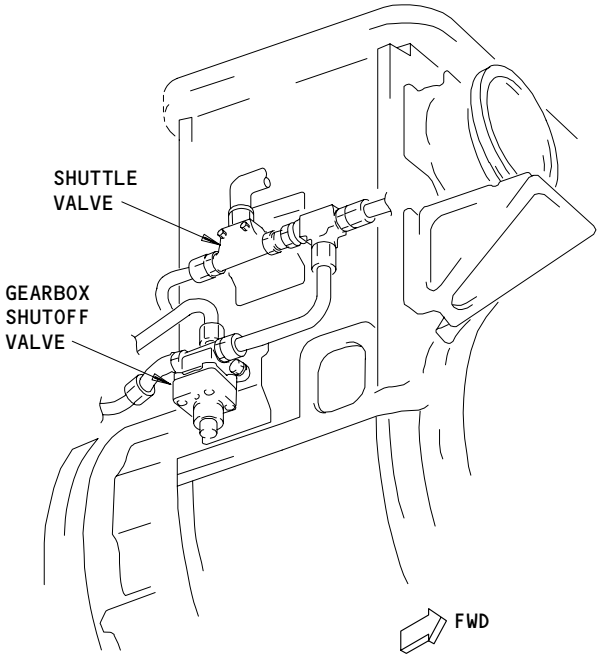
(C)



FRONT OF THE APU

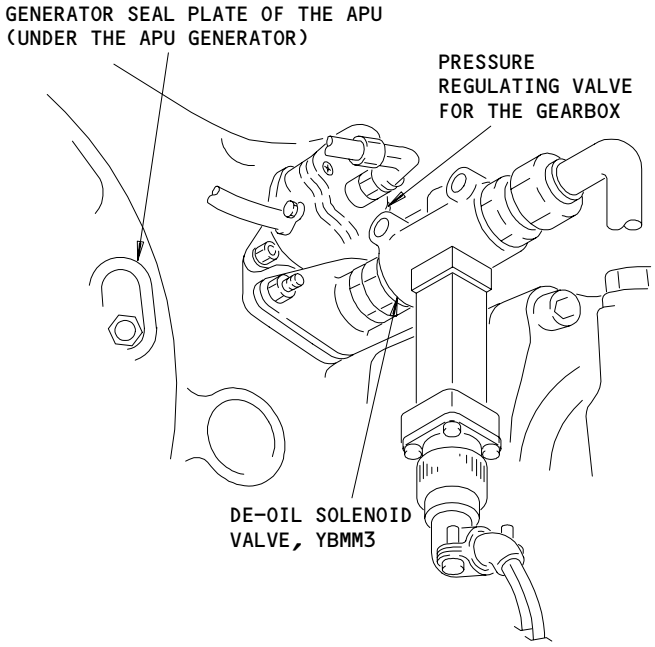
(D)

APU and Generator Lubrication System - Component Location (Details from Sht 1)
Figure 102 (Sheet 2)



RIGHT SIDE OF THE INLET PLENUM

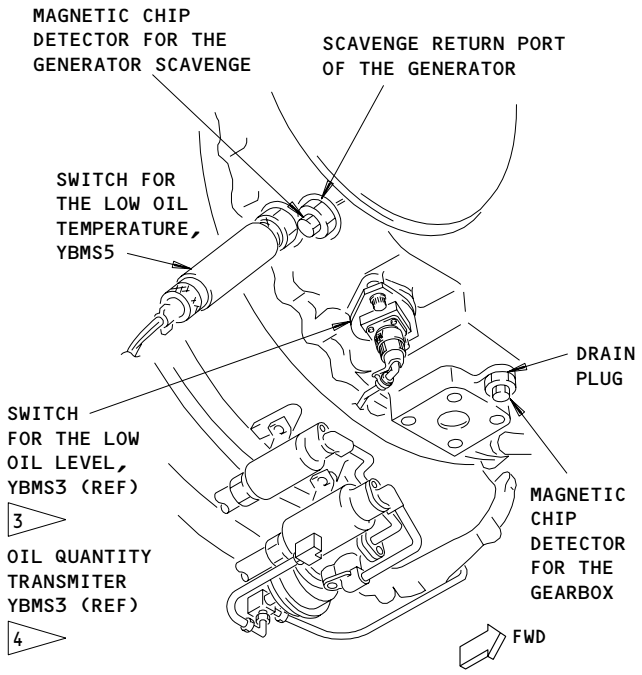
E



FRONT OF THE GEARBOX

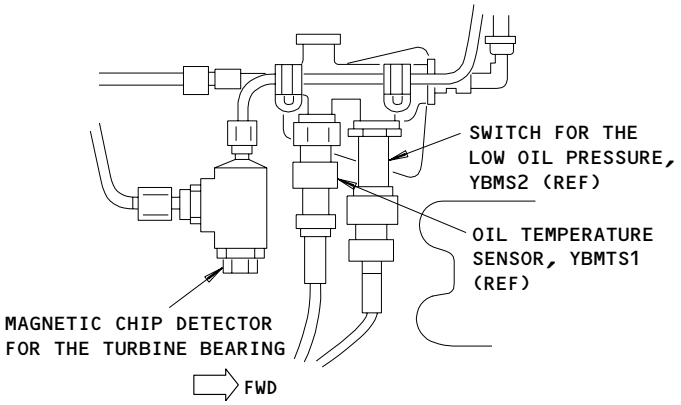
F

APU and Generator Lubrication System - Component Location (Details from Sht 2)
Figure 102 (Sheet 3)



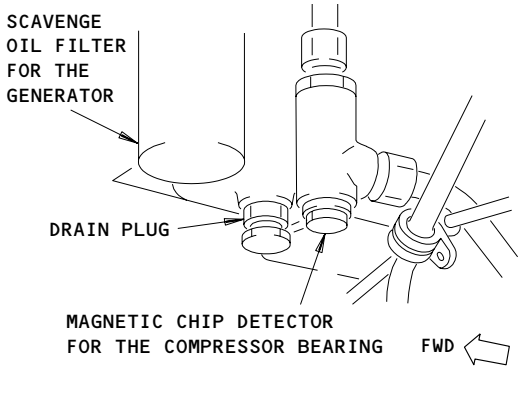
BOTTOM OF THE GEARBOX

G



RIGHT SIDE OF THE LOAD COMPRESSOR

H



LEFT SIDE OF THE LOAD COMPRESSOR

I

3 GUI 001-114,116-999

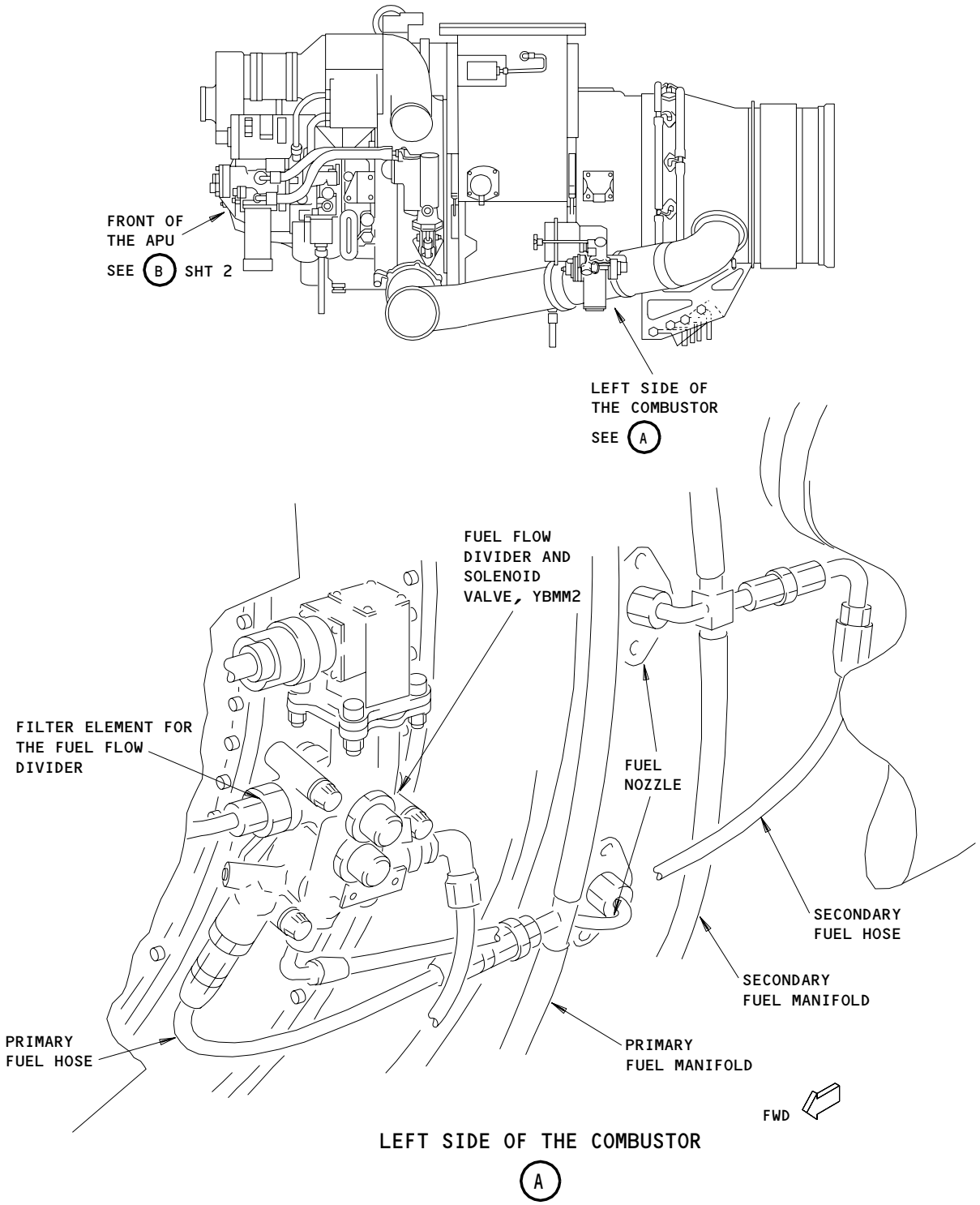
4 GUI 115

APU and Generator Lubrication System - Component Location (Details from Sht 2)
Figure 102 (Sheet 4)

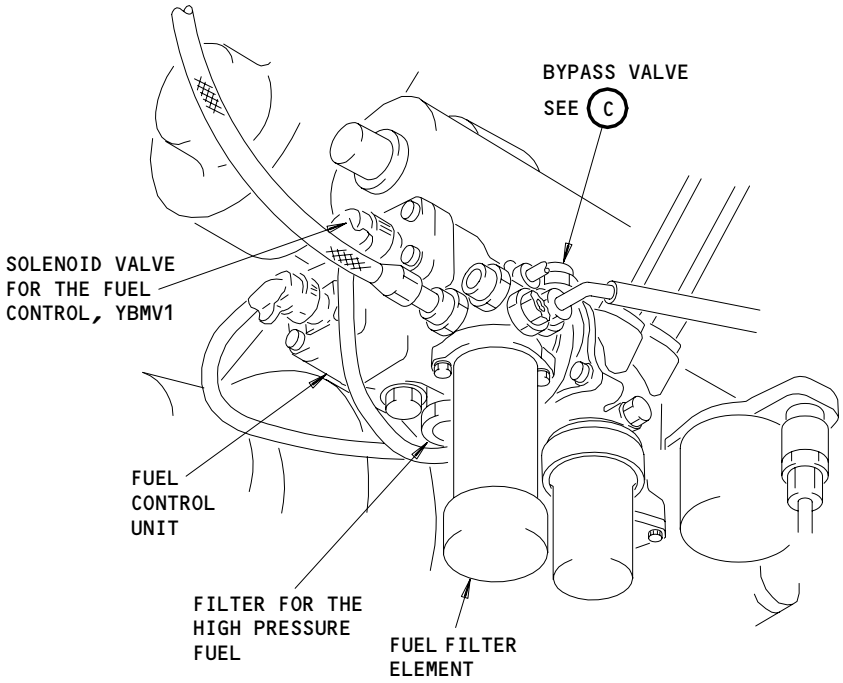
APU ENGINE FUEL SYSTEM

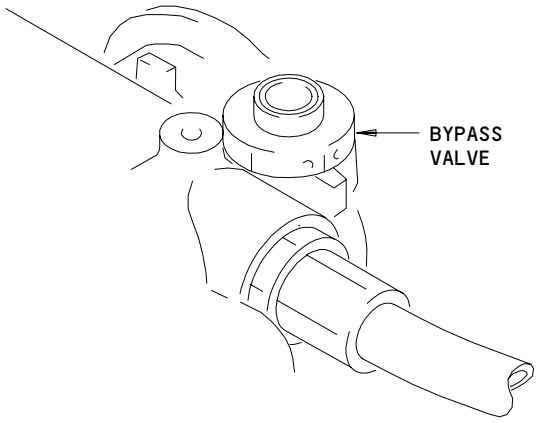
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
ELEMENT - FUEL FILTER	2	1	316AR,315AL, APU COMP, FRONT OF APU	49-31-04
ELEMENT - FUEL FLOW DIVIDER FILTER	1	1	316AR,315AL, APU COMP, LEFT SIDE OF COMBUSTOR	49-31-08
FILTER - FUEL HIGH PRESSURE	2	1	316AR,315AL, APU COMP, FRONT OF APU	49-31-07
HOSES - FUEL MANIFOLD	1	2	316AR,315AL, APU COMP, LEFT SIDE OF COMBUSTOR	49-31-09
MANIFOLDS AND NOZZLES	1	12	316AR,315AL, APU COMP, LEFT SIDE OF COMBUSTOR	49-31-06
MONOPOLE - (49-61-00/101) YBMTS8,YBMTS9 SENSORS - (49-61-00/101) APU INLET PRESSURE, YBMTS4 APU INLET TEMPERATURE, YBMTS5 THERMOCOUPLE ASSEMBLY - (49-71-00/101) YBMTS6,YBMTS7 UNIT - (49-61-00/101) APU CONTROL, M206				
UNIT - FUEL CONTROL	2	1	316AR,315AL, APU COMP, FRONT OF APU	49-31-01
VALVE - FUEL CONTROL SOLENOID, YBMV1	2	1	316AR,315AL, APU COMP, FRONT OF APU	49-31-02
VALVE - FUEL FILTER BYPASS	2	1	316AR,315AL, APU COMP, FRONT OF APU	49-31-05
VALVE - FUEL FLOW DIVIDER AND SOLENOID, YBMM2	1	1	316AR,315AL, APU COMP, LEFT SIDE OF COMBUSTOR	49-31-03

APU Engine Fuel System - Component Index
Figure 101



APU Engine Fuel System – Component Location
Figure 102 (Sheet 1)





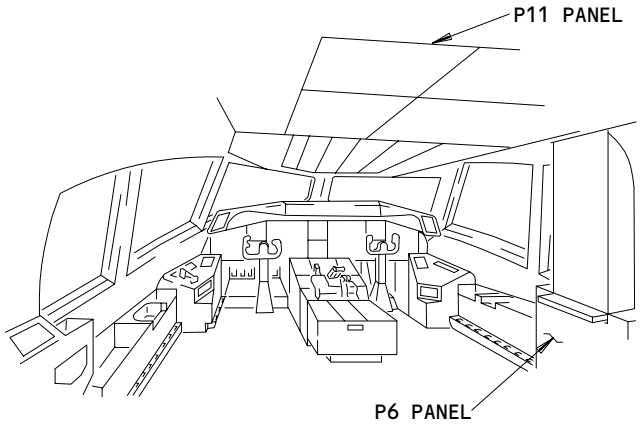
APU Engine Fuel System – Component Location
Figure 102 (Sheet 2)

APU IGNITION/STARTING SYSTEM

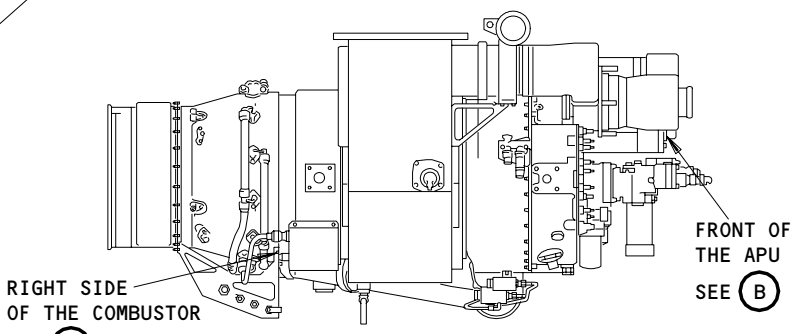
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
BATTERY - (24-31-00/101)				
APU, M208				
CIRCUIT BREAKER -			FLT COMPT, P6	
APU START TRU CONT, C865		1	6H12	*
CIRCUIT BREAKERS -			822, AFT EQUIP CTR, E6 RACK	
APU CONT, C1382		1		*
APU START, C20		1		*
APU START TRU FAN, C89		1		*
CIRCUIT BREAKER -			FLT COMPT, P11	
APU ALTN CONT, C1390		1	11B34	*
CIRCUIT BREAKER -			119BL, MAIN EQUIP CTR, P32	
APU START TRU POWER, C3000		1	32A6	*
CLUTCH - STARTER	--	1	316AR,315AL, APU COMP, FRONT OF APU	49-41-06
CONTACTOR - APU CRANK, K117	--	1	822, AFT EQUIP CTR, E6 RACK	*
LEAD - IGNITION	--	1	316AR,315AL, APU COMP, RIGHT SIDE OF COMBUSTOR	49-41-04
MOTOR - STARTER, M893	--	1	316AR,315AL, APU COMP, FRONT OF APU	49-41-01
PANEL - (49-61-00/101)				
APU START, M10324				
PLUG - IGNITER, YBMM7	--	1	316AR,315AL, APU COMP, RIGHT SIDE OF COMBUSTOR	49-41-02
RELAYS - (31-01-86/101)				
APU FAULT, K10033				
APU START, K197				
APU START CONTROL, K10030				
APU START ENABLE, K10163				
APU START TRU FAN CONT, K619				
APU START TRU OVERHEAT, K616				
APU TRU START, K10010				
SWITCH - (24-33-00/101)				
BATTERY (S2)				
SWITCH - (26-22-00/101)				
APU FIRE, S39				
SWITCH - (49-15-00/101)				
APU INLET DOOR, S10031				
UNIT - (24-32-00/101)				
APU START TRANSFORMER RECTIFIER, T189				
UNIT - (49-61-00/101)				
APU CONTROL, M206				
UNIT - IGNITION, M1	--	1	316AR,315AL, APU COMP, RIGHT SIDE OF COMBUSTOR	49-41-03

* SEE THE WDM EQUIPMENT LIST

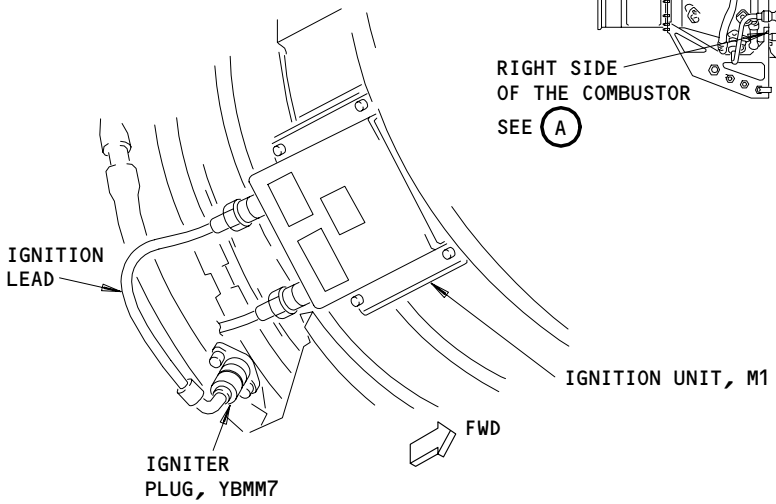
APU Ignition/Starting System - Component Index
Figure 101



FLIGHT COMPARTMENT

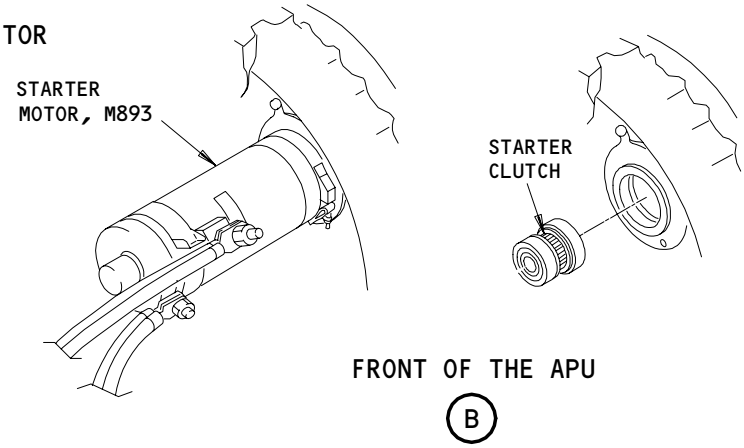


RIGHT SIDE



RIGHT SIDE OF THE COMBUSTOR

A



FRONT OF THE APU

B

APU Ignition/Starting System – Component Location
Figure 102

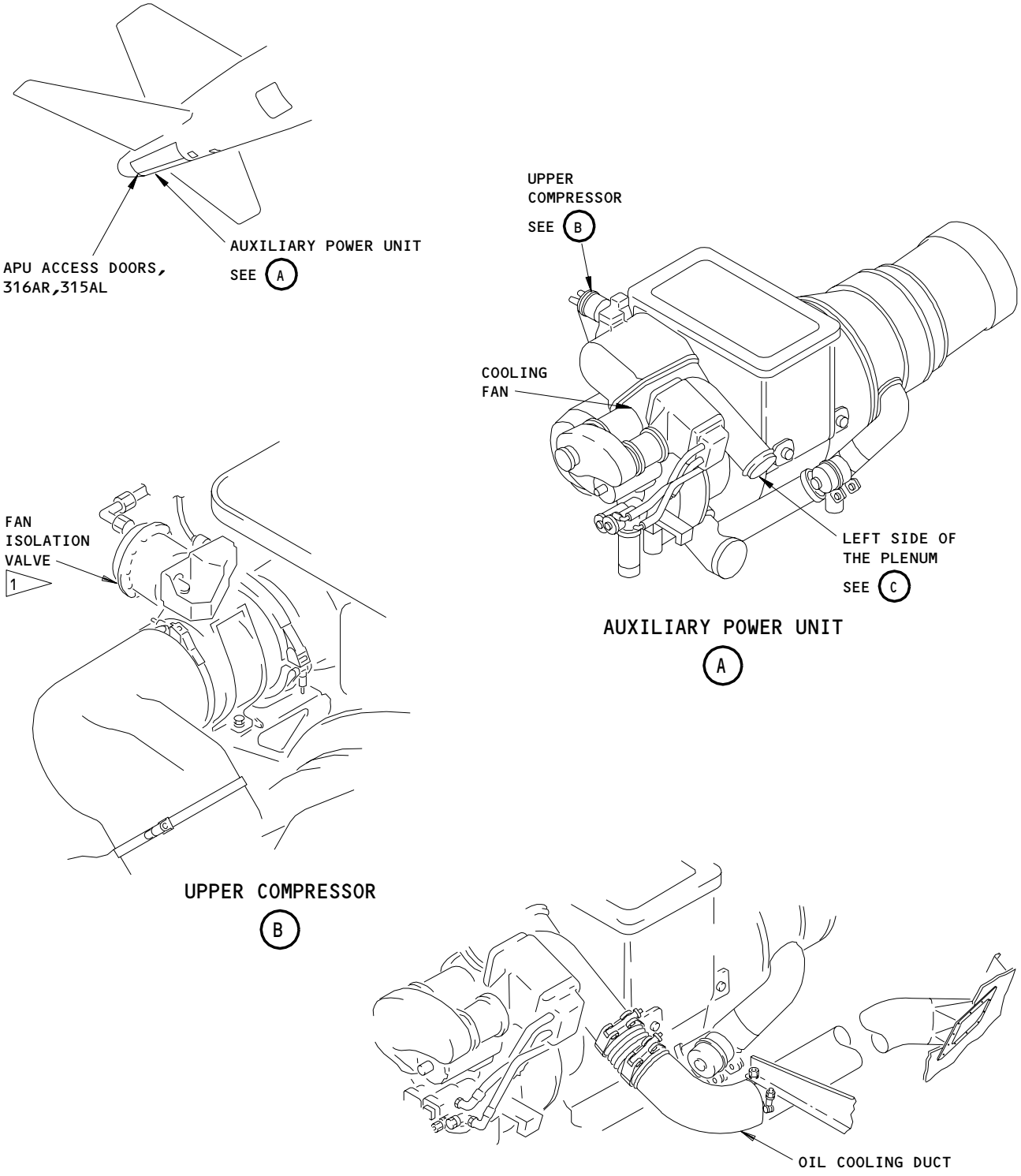
APU COOLING AIR SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
DUCT - OIL COOLING	--	1	315AL,316AR, APU COMPT, LEFT SIDE PLENUM	49-51-01
FAN - COOLING	--	1	315AL,316AR, APU COMPT, AUXILIARY POWER UNIT	49-51-03
VALVE - FAN ISOLATION 1	--	1	315AL,316AR, APU COMPT, UPPER COMPRESSOR	49-51-02

1 APUs PRE-ALLIED SIGNAL -SB 49-7391

APU Cooling Air System - Component Index
Figure 101

E48332

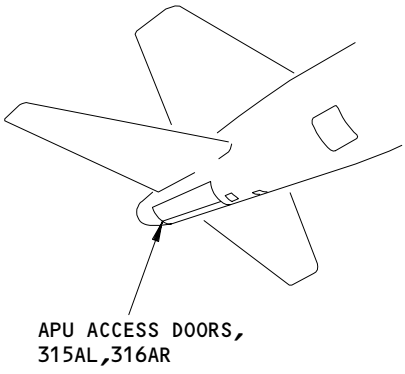


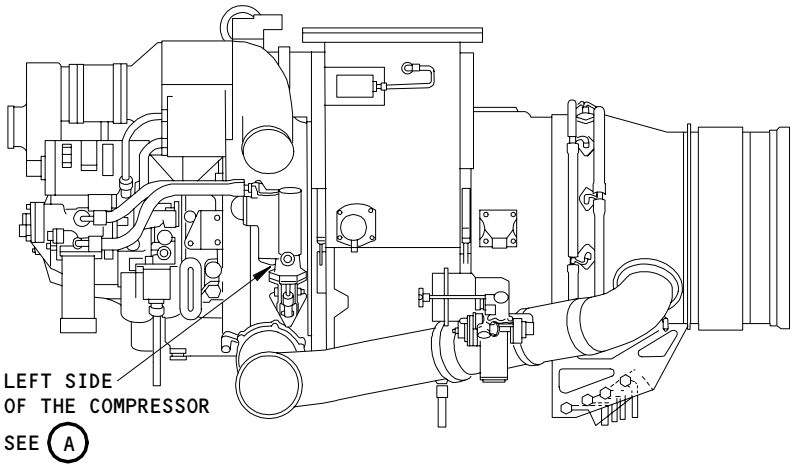
APU Cooling Air System - Component Location
Figure 102

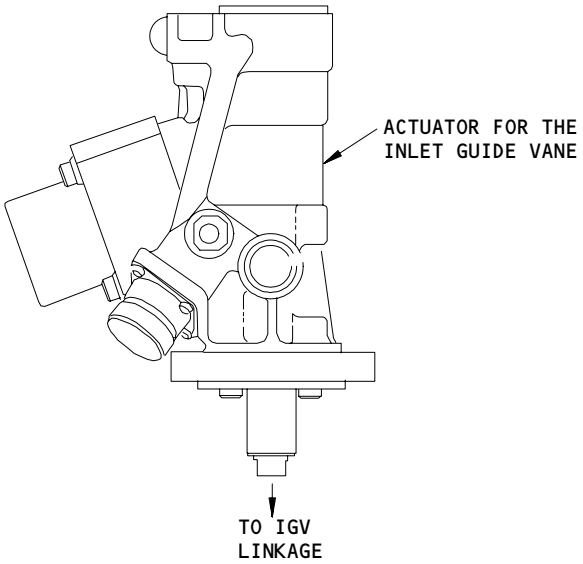
APU BLEED AIR SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
ACTUATOR - INLET GUIDE VANE	--	1	316AR,315AL, APU COMP, LEFT SIDE COMPRESSOR	49-52-02

APU Bleed Air System - Component Index
Figure 101







LEFT SIDE OF THE COMPRESSOR

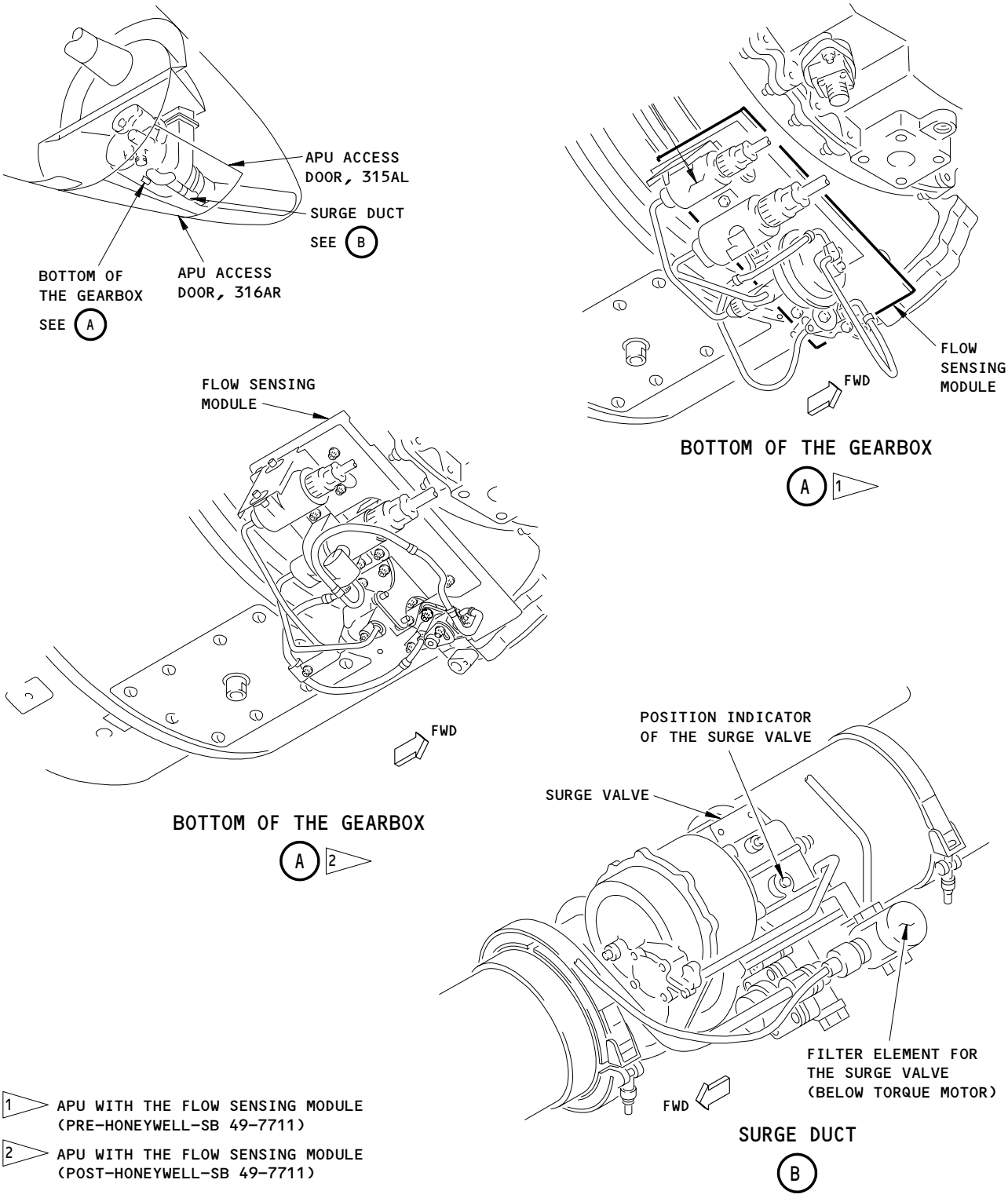
A

APU Bleed Air System - Component Location
Figure 102

APU SURGE BLEED SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
ELEMENT - SURGE VALVE FILTER	--	1	315AL,316AR, APU COMPT, SURGE DUCT	49-53-06
MODULE - FLOW SENSING	--	1	315AL,316AR, APU COMPT, BOTTOM OF GEARBOX	49-53-08
VALVE - SURGE	--	1	315AL,316AR, APU COMPT, SURGE DUCT	49-53-01

APU Surge Bleed System - Component Index
Figure 101



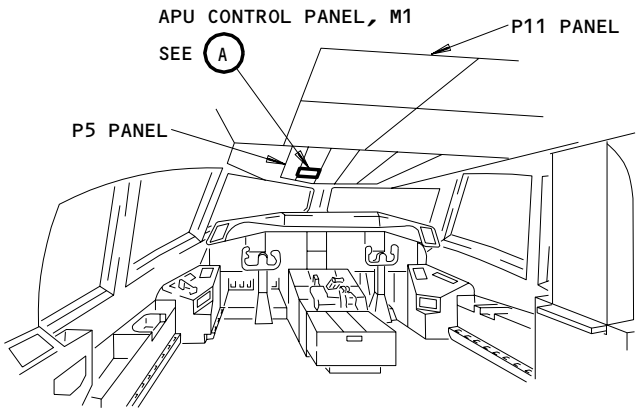
APU Surge Bleed System - Component Location
Figure 102

APU CONTROL SYSTEM

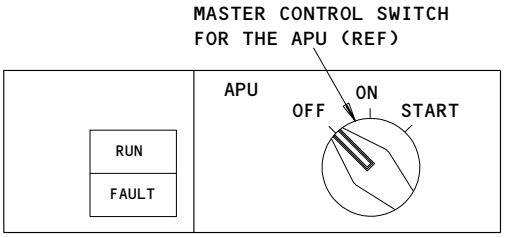
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS –			FLT COMPT, P11	
APU ALTN CONT, C1390	–	1	11B34	*
APU CONT, C1382	–	1	822,E6, AFT EQUIP CENTER	*
MONOPOLE – APU	–	2	316AR,315AL	49-61-02
PANEL – APU CONTROL, M1	–	1	FLT COMPT, P5	*
SENSOR – APU INLET PRESSURE, YBMTS4	–	1	316AR,315AL, APU COMPT	49-61-04
SENSOR – APU INLET TEMPERATURE, YBMTS5	–	1	316AR,315AL, APU COMPT	49-61-03
UNIT – APU CONTROL, M206	–	1	822,E6, AFT EQUIP CENTER	49-61-05

* SEE THE WDM EQUIPMENT LIST

APU Control System – Component Index
Figure 101

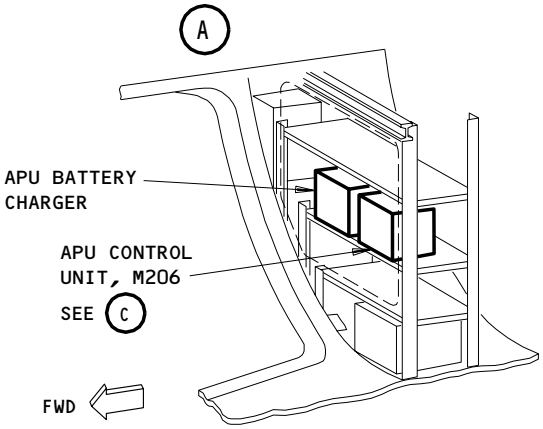


FLIGHT COMPARTMENT



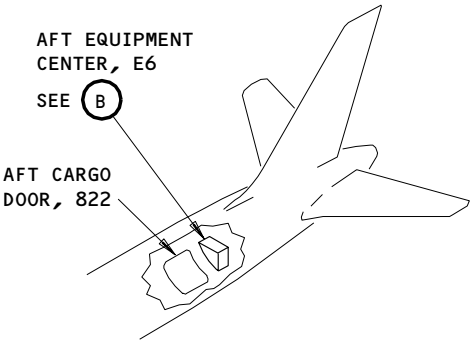
APU CONTROL PANEL, M1

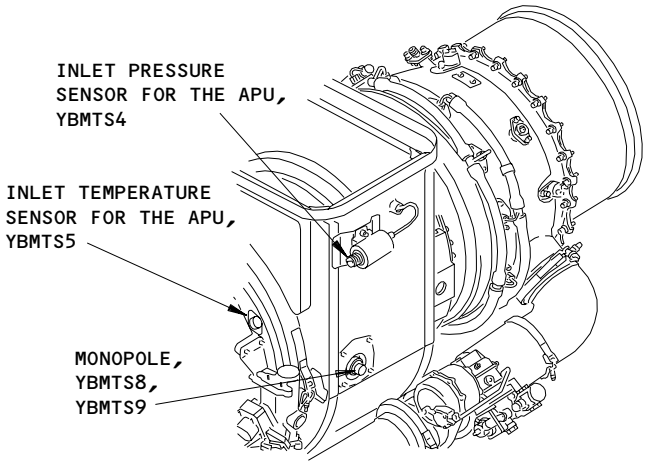
A

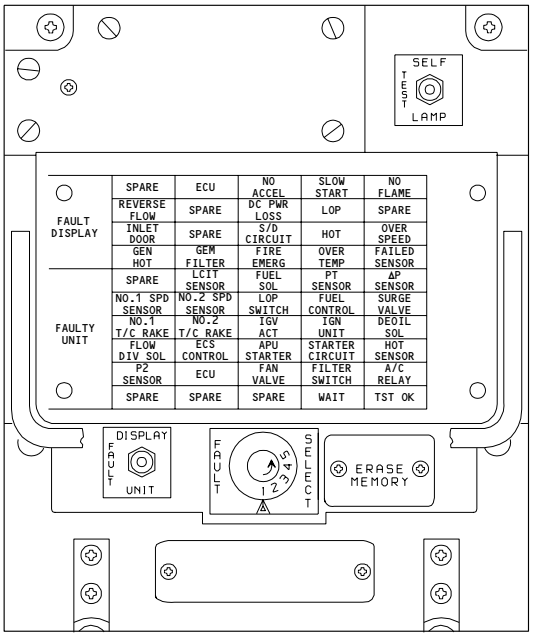


AFT EQUIPMENT CENTER, E6

B





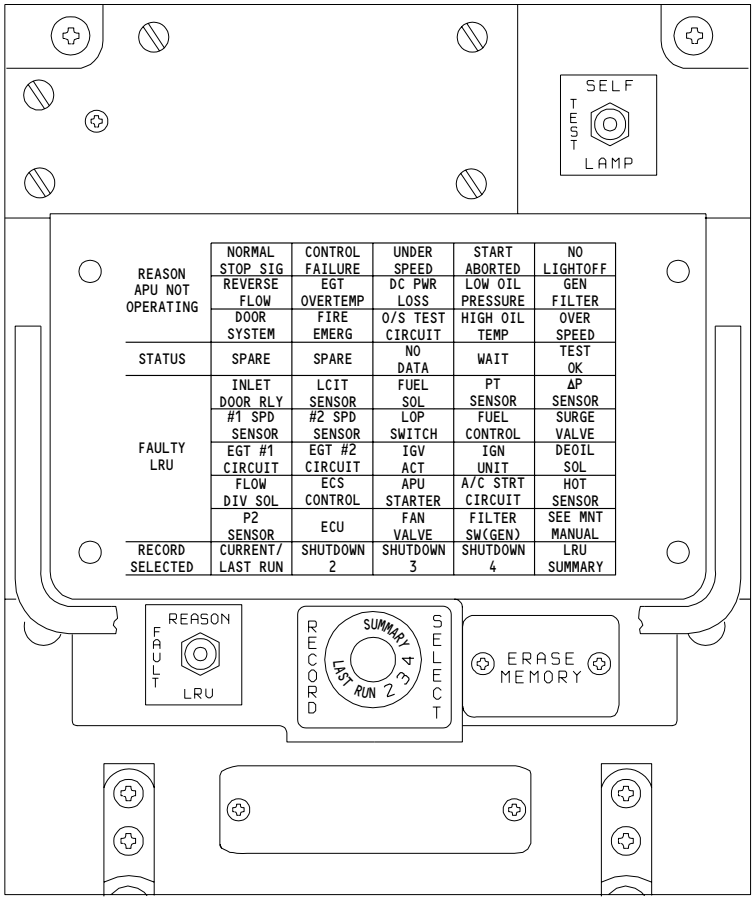


APU CONTROL UNIT, M206

C 1

1 AIRPLANES WITH THE APU CONTROL UNIT -18 AND BEFORE

APU Control System - Component Location
Figure 102 (Sheet 1)



APU CONTROL UNIT, M206

C 2

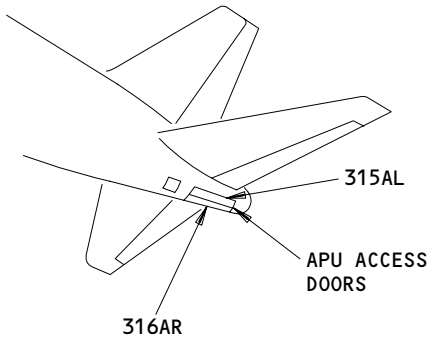
2 AIRPLANES WITH THE APU CONTROL UNIT -19 AND SUBSEQUENT

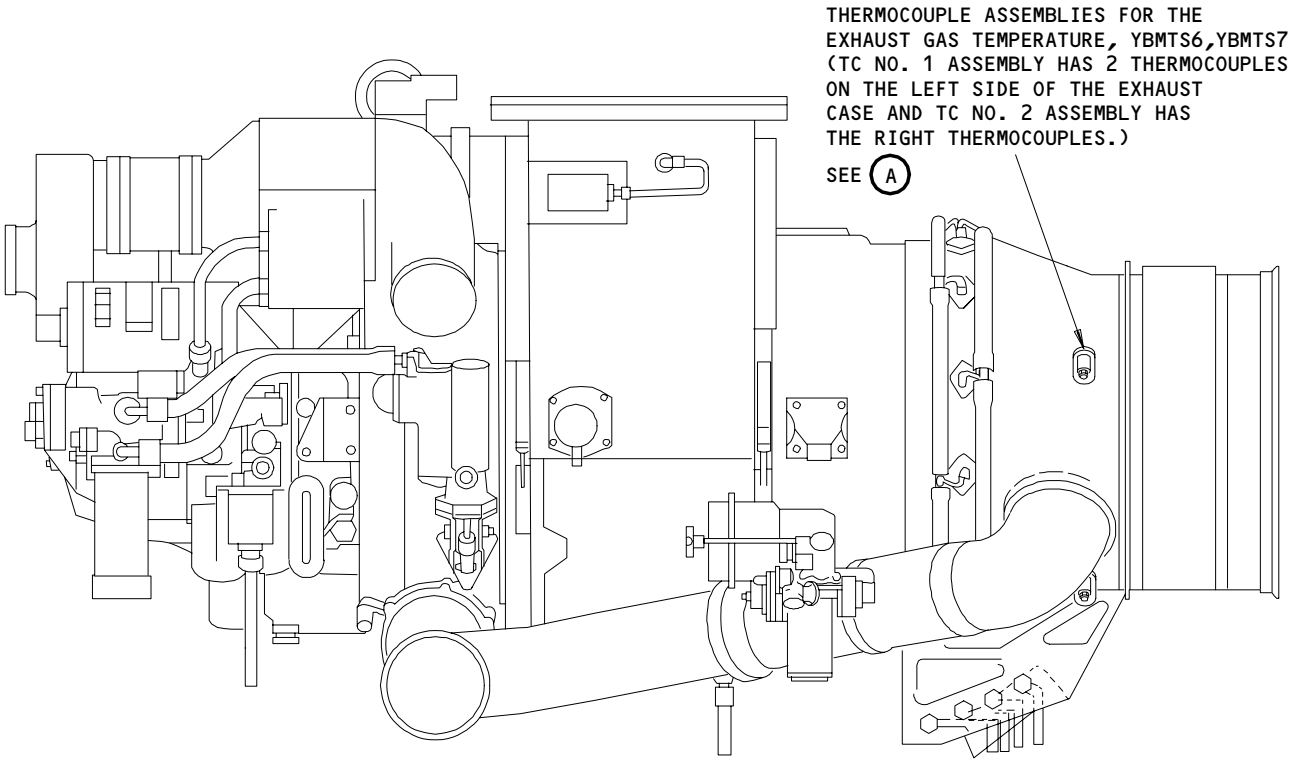
APU Control System - Component Location
Figure 102 (Sheet 2)

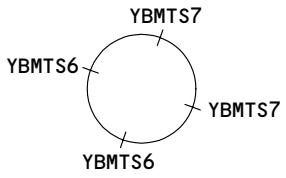
APU EXHAUST GAS TEMPERATURE INDICATING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
ASSEMBLY - APU EGT THERMOCOUPLE, YBMTS6,YBMTS7 UNIT - (FIM 49-61-00/101) AUXILIARY POWER CONTROL, M206	--	2	316AR,315AL, APU COMPT	49-71-01

APU Exhaust Gas Temperature Indicating System - Component Index
Figure 101







VIEW IN THE
FORWARD DIRECTION
A

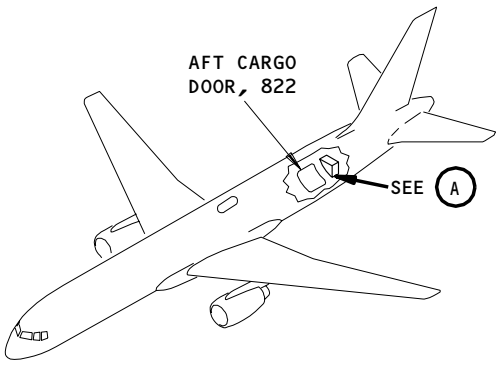
APU Exhaust Gas Temperature Indicating System - Component Location
Figure 102

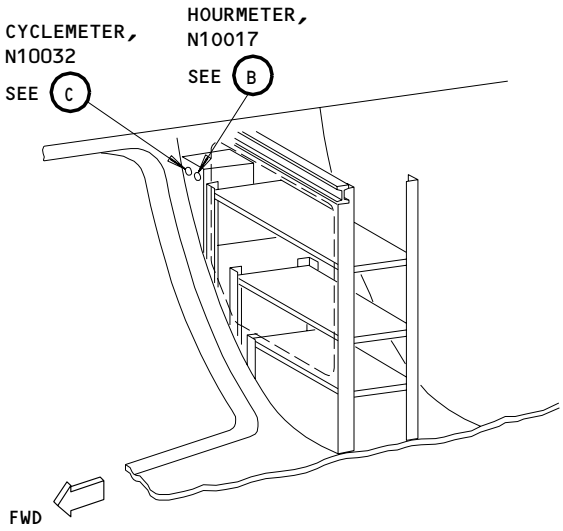
APU TIME TOTALIZER AND CYCLEMETER

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CYCLEMETER, N10032	--	1	822, E6 AFT EQUIP CENTER	*
HOURMETER, N10017	--	1	822, E6 AFT EQUIP CENTER	*

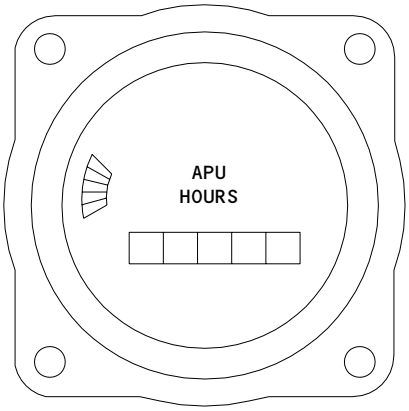
* SEE THE WDM EQUIPMENT LIST

APU Time Totalizer and Cyclemeter - Component Index
Figure 101

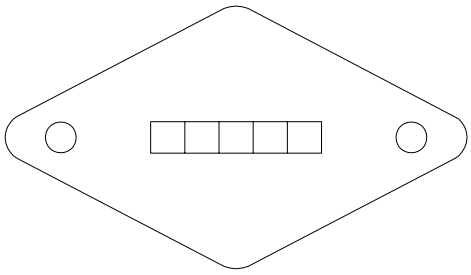




ELECTRONIC EQUIPMENT RACK, E6
(AFT EQUIPMENT CENTER)
A



HOURMETER, N10017
B



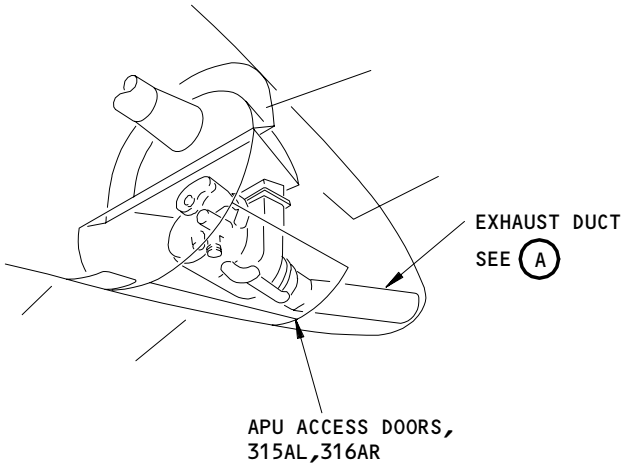
CYCLEMETER, N10032
C

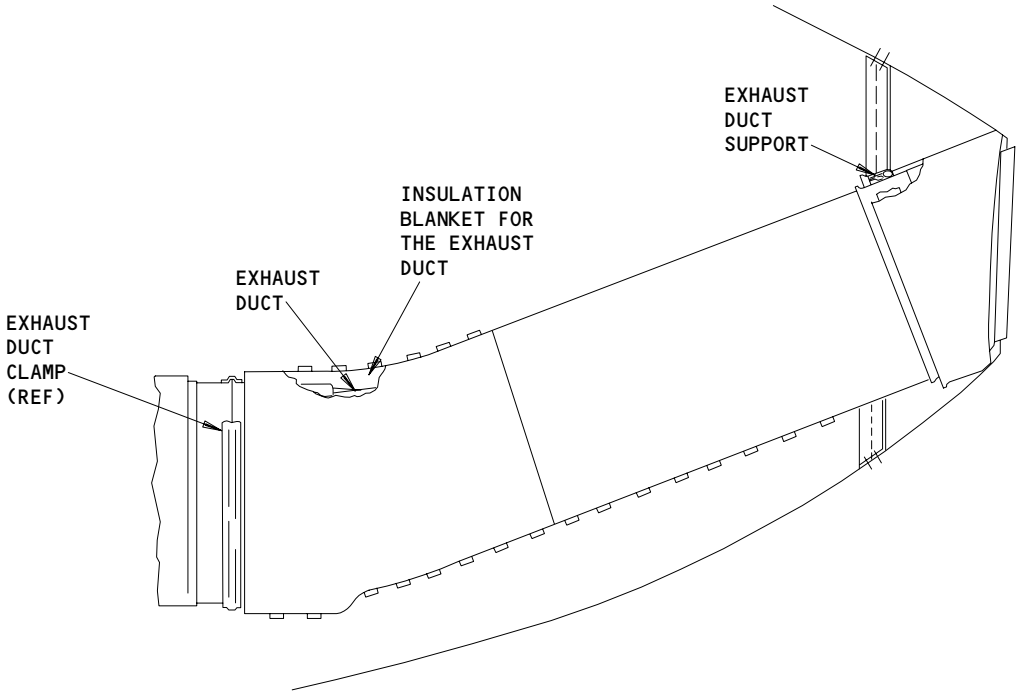
APU Time Totalizer and Cyclemeter - Component Location
Figure 102

APU EXHAUST SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
DUCT - EXHAUST	--	1	316AR,315AL, APU ACCESS DOORS	49-81-01
INSULATION BLANKET - EXHAUST DUCT	--	1	316AR,315AL, APU ACCESS DOORS	49-81-02
SUPPORT - EXHAUST DUCT	--	1	316AR,315AL, APU ACCESS DOORS	49-81-03

APU Exhaust System - Component Index
Figure 101





EXHAUST DUCT
A

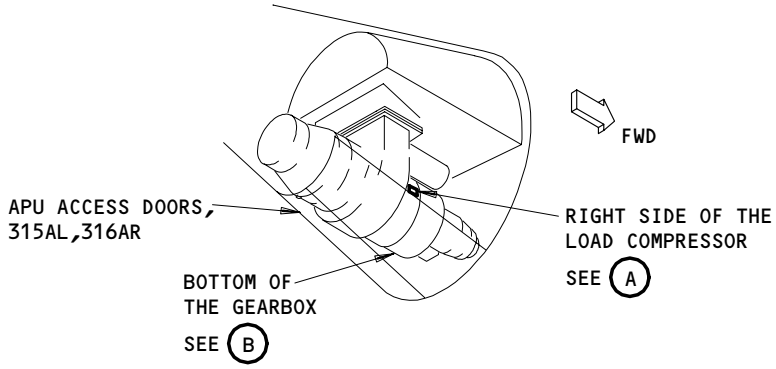
APU Exhaust System - Component Location
Figure 102

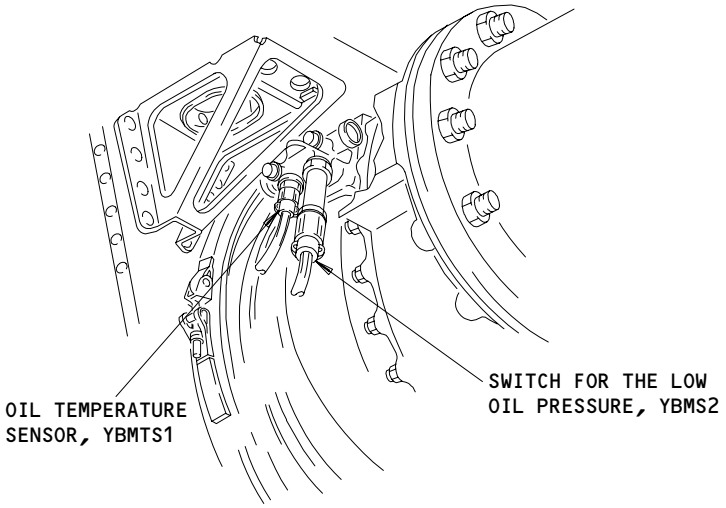
APU OIL INDICATING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
SENSOR - OIL TEMPERATURE, YBMTS1	--	1	315AL,316AR, APU COMPT, RIGHT SIDE LOAD COMPRESSOR	49-94-01
SWITCH - LOW OIL LEVEL, YBMS3 1>	--	1	315AL,316AR, APU COMPT, BOTTOM OF GEARBOX	49-94-03
SWITCH - LOW OIL PRESSURE, YBMS2	--	1	315AL,316AR, APU COMPT, RIGHT SIDE LOAD COMPRESSOR	49-94-02
TRANSMITTER - OIL QUANTITY, YBMS3 2>	--	1	315AL,316AR, APU COMPT, BOTTOM OF GEARBOX	49-94-04

1> GUI 001-114,116-999
2> GUI 115

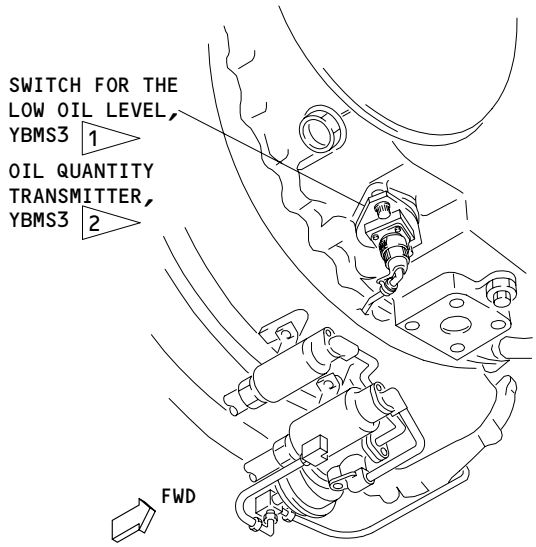
APU Oil Indicating System - Component Index
Figure 101





RIGHT SIDE OF THE LOAD COMPRESSOR

A



BOTTOM OF THE GEARBOX

B

1 GUI 001-114,116-999
2 GUI 115

APU Oil Indicating System - Component Location
Figure 102