GPA Group plc

PAGE	DATE	CODE
CHAPTER 30 TAB		
ICE AND RAIN PROTECTION		
EFFECTIVE PAGES SEE LAST PAGE OF LIST FOR NUMBER OF PAGES		
30-CONTENTS		
1	SEP 28/99	GUI
2	MAY 28/07	GUI
3	MAY 28/07	GUI
4	MAY 28/07	GUI
5	JAN 28/00	GUI
6	BLANK	
30-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
30-INDEX		
1	SEP 20/94	01
2	MAY 20/98	03
30-EICAS MESSAGES		
1	DEC 20/90	01
2	DEC 20/90	01
3	SEP 20/08	01
4	BLANK	
30-FAULT CODE DIAGRAM		
1	MAY 20/98	02
2	MAY 20/98	02
3	MAY 20/98	02
4	SEP 20/91	01
5	SEP 20/96	06
6	BLANK	
30-FAULT CODE INDEX		
1	SEP 20/08	01
2	SEP 20/08	01
3	SEP 20/08	01
4	SEP 20/08	01
5	SEP 20/08	01
6	SEP 20/08	01
7	SEP 20/08	01
8	SEP 20/08	01
30-BITE INDEX		
1	SEP 28/99	01
2	SEP 28/99	01
3	SEP 28/99	01
4	BLANK	
30-11-00		
101	MAY 28/99	01
102	MAY 28/99	01
103	MAY 28/99	01
104	BLANK	
30-21-00		
101	DEC 20/93	05
102	SEP 28/07	02
103	DEC 20/93	01
104	SEP 28/07	01
105	MAY 28/07	14
106	MAY 28/07	16
107	SEP 28/07	16
108	SEP 28/07	09
109	MAY 28/07	06
110	MAY 28/07	06
111	MAY 28/07	05
112	MAY 28/07	04
30-31-00		
101	JUN 20/95	04
102	JUN 20/95	01
103	MAY 28/00	06
104	JUN 20/95	02
105	JUN 20/92	01
106	JUN 20/95	06
107	JAN 28/07	01
108	SEP 28/99	01
109	JUN 20/95	05
110	MAY 20/98	02
111	MAY 28/07	01
112	JAN 20/98	01
113	MAY 28/07	01
114	JAN 20/98	01
115	MAY 28/07	01
116	BLANK	
30-32-00		
101	JUN 20/95	02
102	JUN 20/95	01
103	SEP 20/92	04
104	JUN 20/92	04
30-33-00		
101	JAN 28/02	01
102	JUN 20/95	01
103	JUN 20/95	02
104	JUN 20/95	07
30-34-00		
101	JUN 20/95	01
102	DEC 20/93	01
103	SEP 28/02	01
104	SEP 20/96	01
105	SEP 20/96	01
106	BLANK	
30-41-00		
101	SEP 28/05	01
102	MAR 20/93	01
103	MAR 20/93	01
104	MAR 20/91	01
105	DEC 20/95	01
106	DEC 20/95	01
107	SEP 20/90	01
108	SEP 20/90	01
109	MAY 28/99	01
110	MAY 28/99	01
111	SEP 20/96	01
112	SEP 20/96	01
113	SEP 20/96	01
114	SEP 20/96	01
115	SEP 20/96	01
116	SEP 20/96	01
117	SEP 20/98	01
118	SEP 20/96	01
119	SEP 20/96	01
120	SEP 20/96	01
121	SEP 20/96	01
122	MAY 28/99	01
123	MAY 28/99	01
124	DEC 20/96	01
125	DEC 20/96	01
126	DEC 20/96	01
127	DEC 20/96	01
128	MAY 20/98	01
30-42-00		
101	SEP 20/94	01
102	SEP 20/94	01
30-43-00		
101	JUN 20/95	12
102	JUN 20/95	01
103	JUN 20/95	03
104	JUN 20/93	01
30-71-00		
101	MAR 20/91	24
102	MAR 20/91	01
103	JAN 20/99	22
104	JAN 20/99	15

CHAPTER 30 - ICE AND RAIN PROTECTION

TABLE OF CONTENTS

CHAPTER 30 - ICE AND RAIN PROTECTION

TABLE OF CONTENTS

CHAPTER 30 - ICE AND RAIN PROTECTION

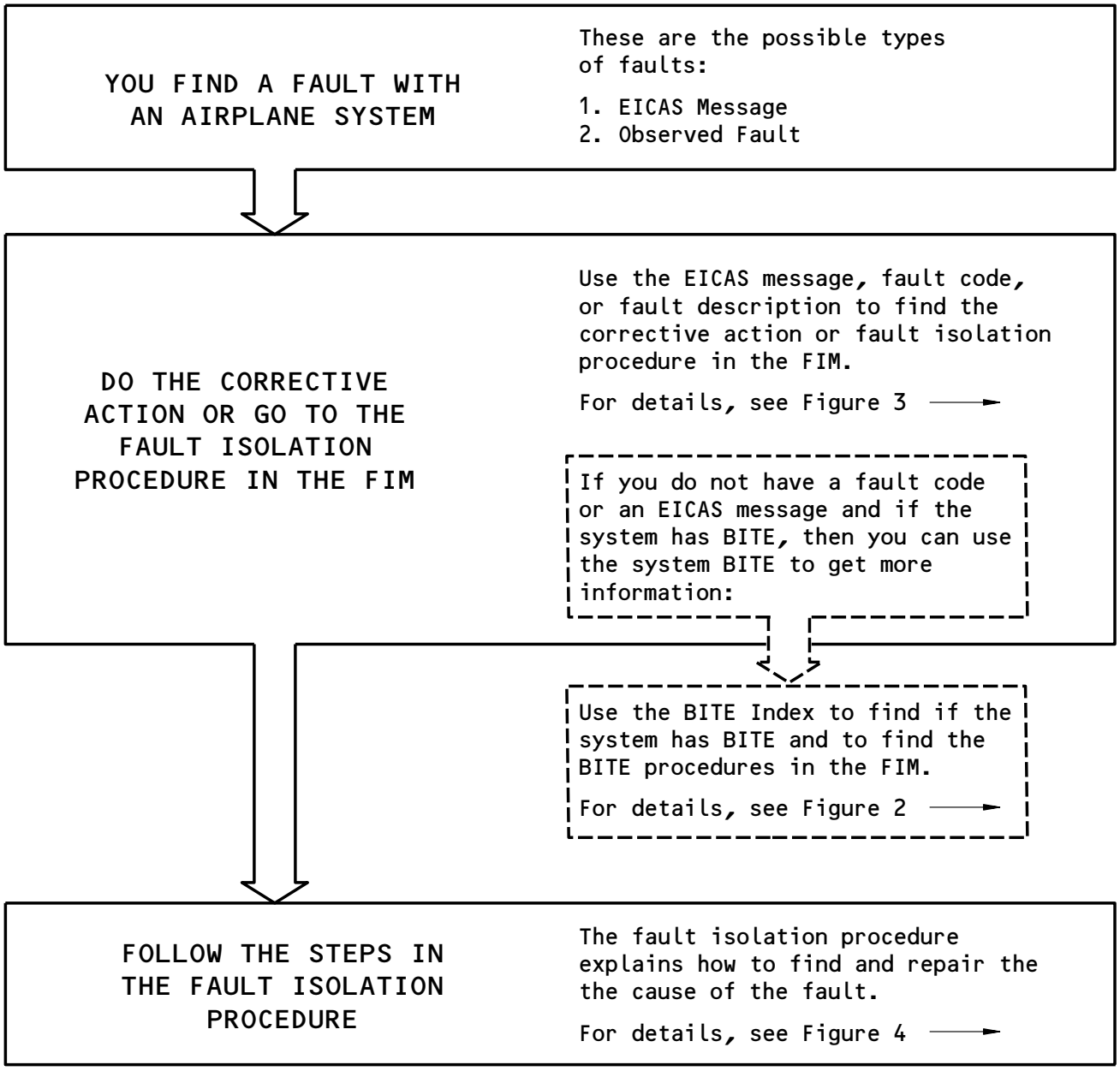
TABLE OF CONTENTS

CHAPTER 30 - ICE AND RAIN PROTECTION

TABLE OF CONTENTS

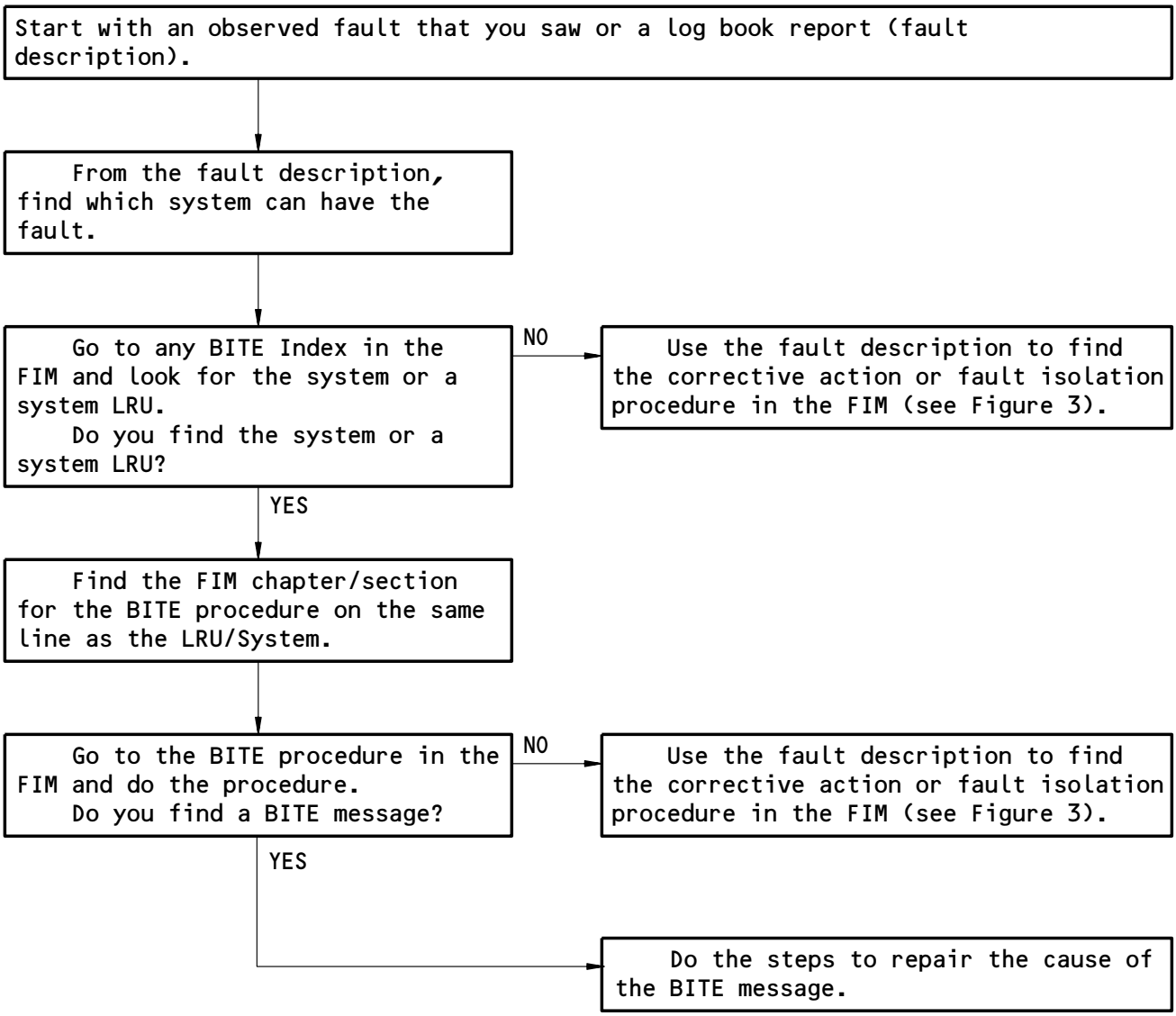
CHAPTER 30 - ICE AND RAIN PROTECTION

TABLE OF CONTENTS



Basic Fault Isolation Process
Figure 1

H54381



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

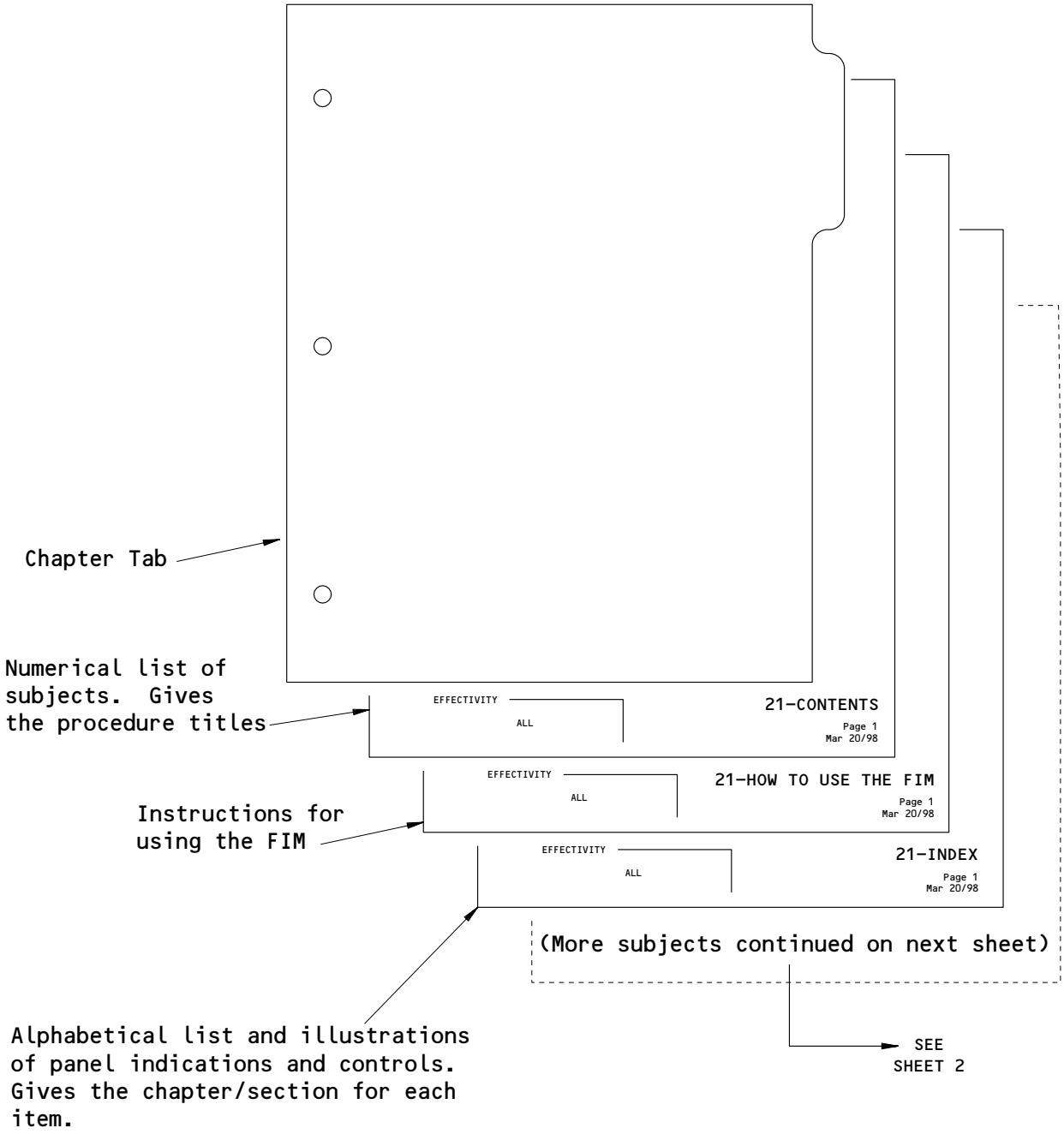
PREREQUISITES

- 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

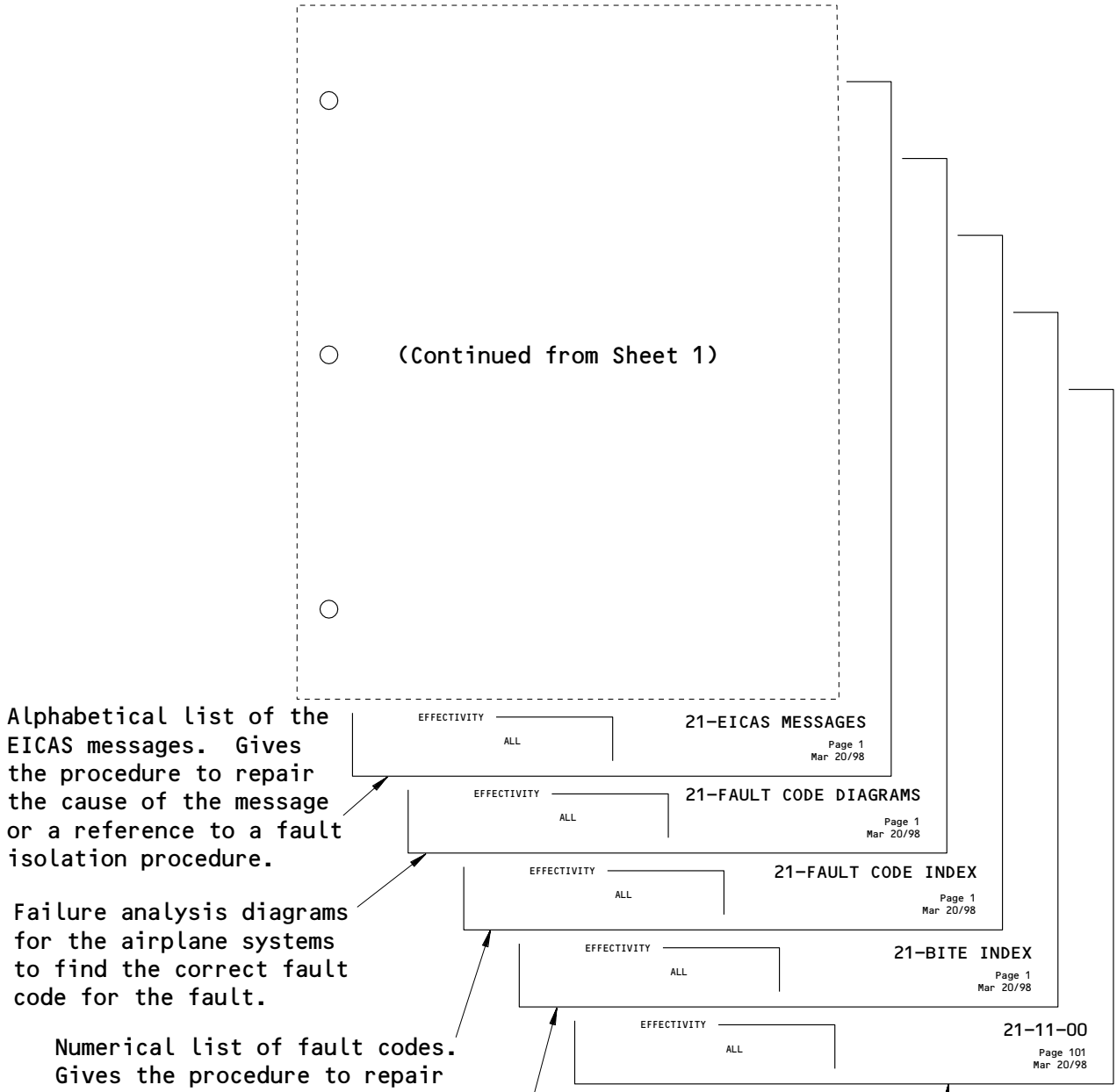
- Start the fault isolation procedure at block 1 unless specified differently.
- Do the check to get an answer to the question in the box. Follow the arrow that applies to your answer. This will go to the next check.
- When you get to a box in the column at the right of the page, you have isolated that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

H54385

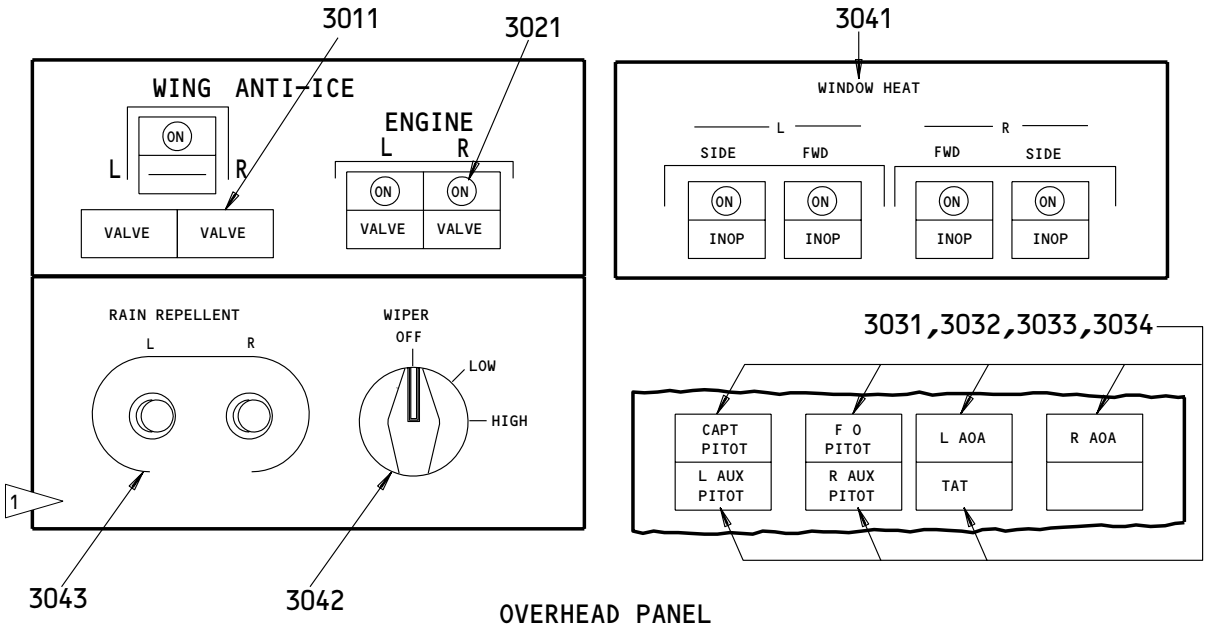


Subjects in Each FIM Chapter
Figure 5 (Sheet 2)

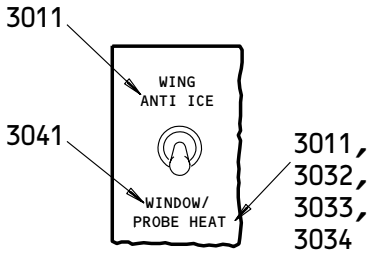
H54386

ICE AND RAIN

ICE AND RAIN PROTECTION - INDEX
Figure 1 (Sheet 1)

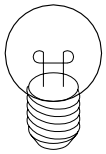


OVERHEAD PANEL



ACCESSORY PANEL

INOP IND LIGHTS
FLT DECK AREA



SEE MISCELLANEOUS BULBS/LAMPS IN LIGHTS CHAPTER 33

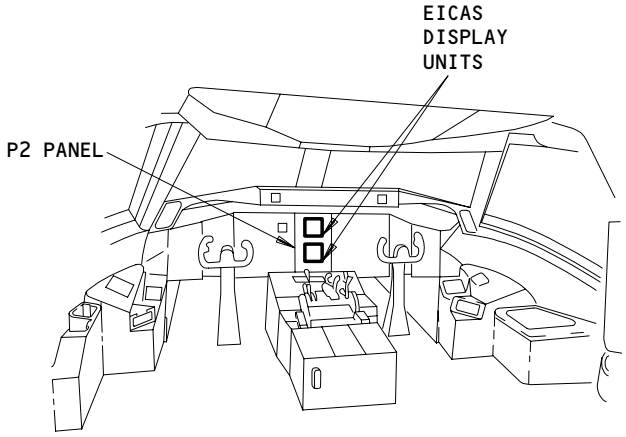
1 AS INSTALLED

ICE AND RAIN PROTECTION – INDEX
Figure 1 (Sheet 2)

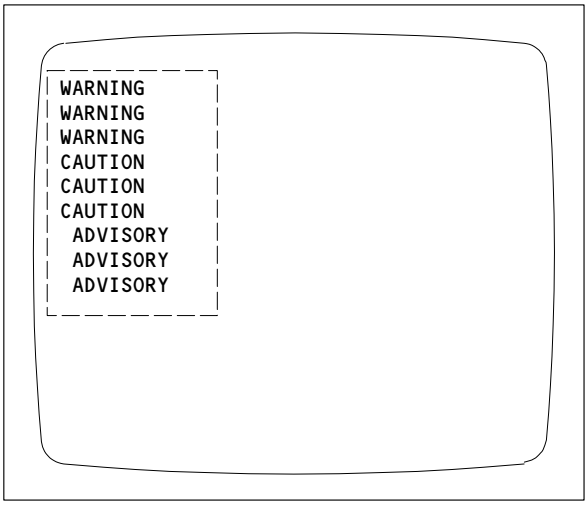
EFFECTIVITY
ALL

ICE AND RAIN PROTECTION - EICAS MESSAGE LIST

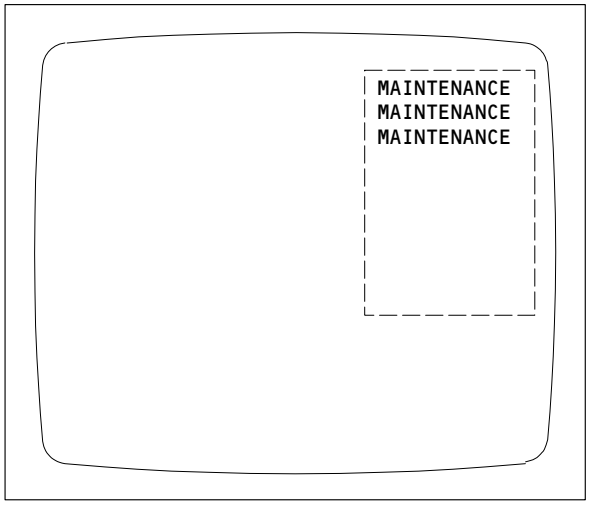
1. General
   A. This procedure shows the EICAS message locations and gives a list of procedures to find the solution for each message.
      (1) EICAS Message Locations (Fig. 1)
         (a) Figure 1 shows the location of the EICAS display units and the area where the messages show on the display units.
         (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



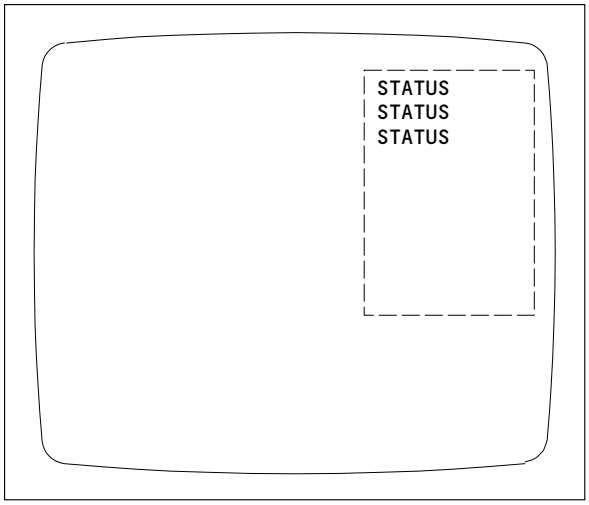
FLIGHT COMPARTMENT



ENGINE PRIMARY PAGE OR COMPACTED PAGE
(TOP DISPLAY UNIT)



ECS/MSG PAGE
(BOTTOM DISPLAY UNIT)

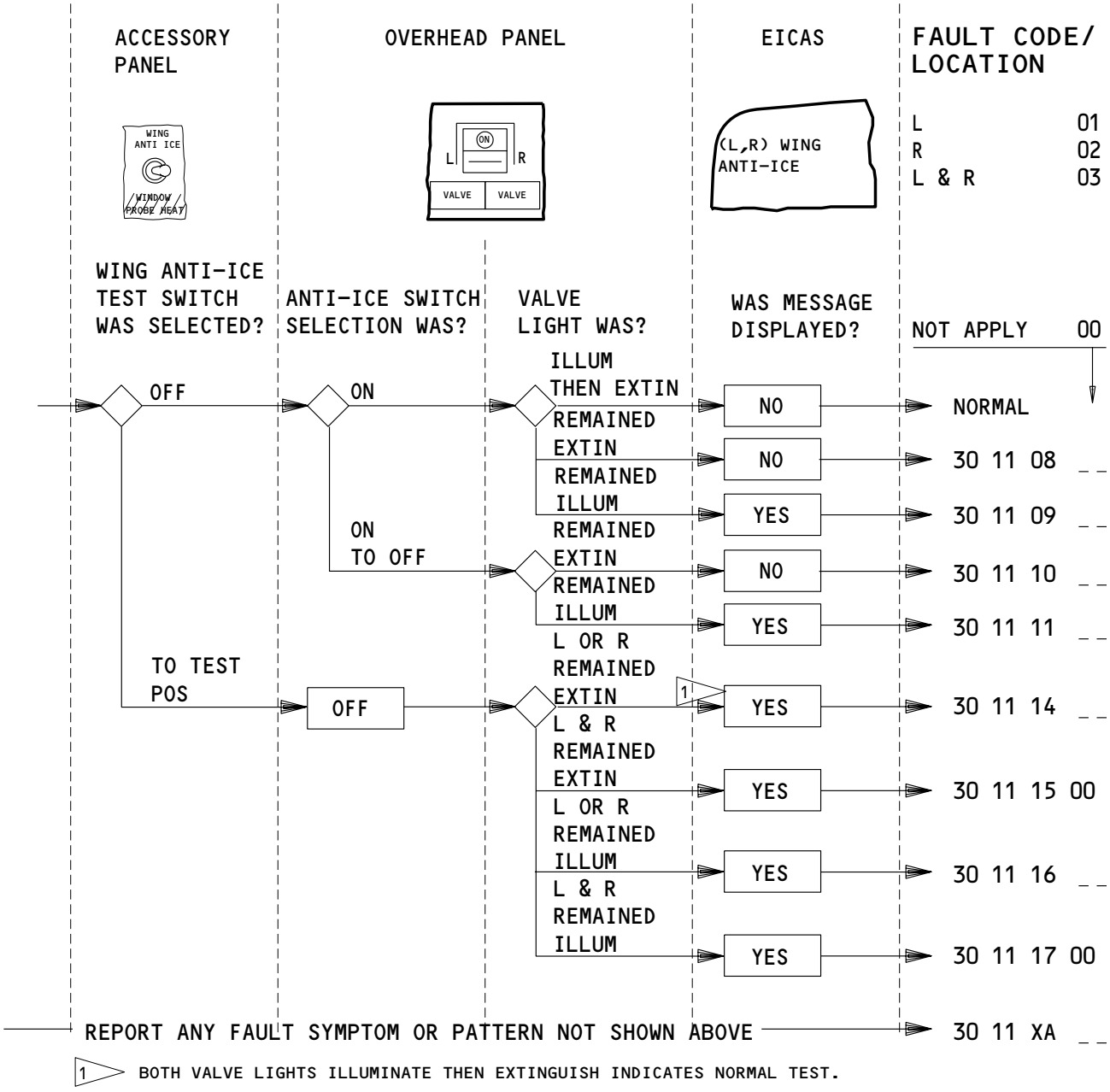


STATUS PAGE
(BOTTOM DISPLAY UNIT)

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
(L, R) AOA PROBE	C	FIM 30-32-00/101, Fig. 103
(L, R) AUX PITOT	C	FIM 30-31-00/101, Fig. 104
(L, R) AUX PITOT HEAT	M	Do the status/maintenance message erase procedure (FIM 31-41-00/101, Fig. 109). If the message stays on, replace the air/gnd relay K10307 (K10847) in the P36 (P37) panel (AMM 32-09-02/201).
CAPT (F/O) PITOT	C	FIM 30-31-00/101, Fig. 103
CAPT (F/O) PITOT HEAT	M	Do the status/maintenance message erase procedure (FIM 31-41-00/101, Fig. 109). If the message stays on, replace the air/gnd relay K10307 (K10847) in the P36 (P37) panel (AMM 32-09-02/201).
(L, R) ENG ANTI-ICE	C	FIM 30-21-00/101, Fig. 104, 105
(L, R) ENG PROBE HEAT	S, M	FIM 30-34-00/101, Fig. 103
(L, R) ENG TAI VALVE	S, M	FIM 30-21-00/101, Fig. 106
(L, R) FWD WINDOW	C	FIM 30-41-00/101, Fig. 103 FIM 30-41-00/101, Fig. 104
PROBE HEAT	C	FIM 30-31-00/101, Fig. 105
(L, R) SIDE WINDOW	C	FIM 30-41-00/101, Fig. 103 FIM 30-41-00/101, Fig. 104
TAT PROBE	C	FIM 30-33-00/101, Fig. 103
WINDOW HEAT	M	FIM 30-41-00/101, Fig. 106
(L,R) WING ANTI-ICE	C	FIM 30-11-00/101, Fig. 103



APPLICABLE CIRCUIT BREAKERS AS INSTALLED

11C28	ANTI-ICE WING
11C29	ANTI-ICE WING
11R20	WING ANTI-ICE
11R20	ANTI-ICE WING

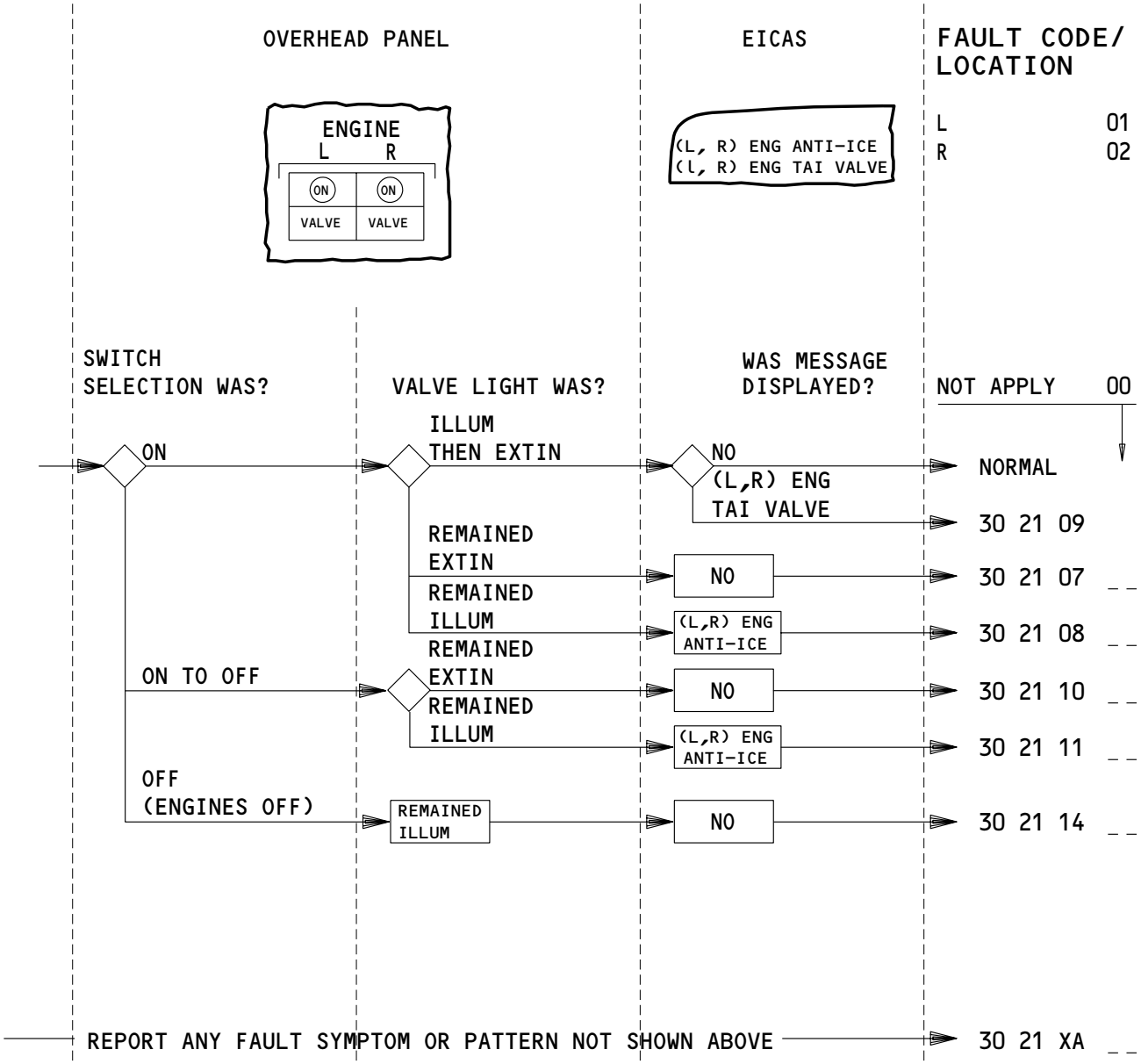
WING ANTI-ICE & TEST - FAULT CODES

EFFECTIVITY

ALL

30-FAULT CODE DIAGRAM

A15761



APPLICABLE CIRCUIT BREAKERS AS INSTALLED

11C27	ANTI-ICE ENG (L, LEFT)
11C27	ENG ANTI-ICE (L, LEFT)
11C28	ANTI-ICE ENG (R, RIGHT)
11C28	ENG ANTI-ICE (R, RIGHT)

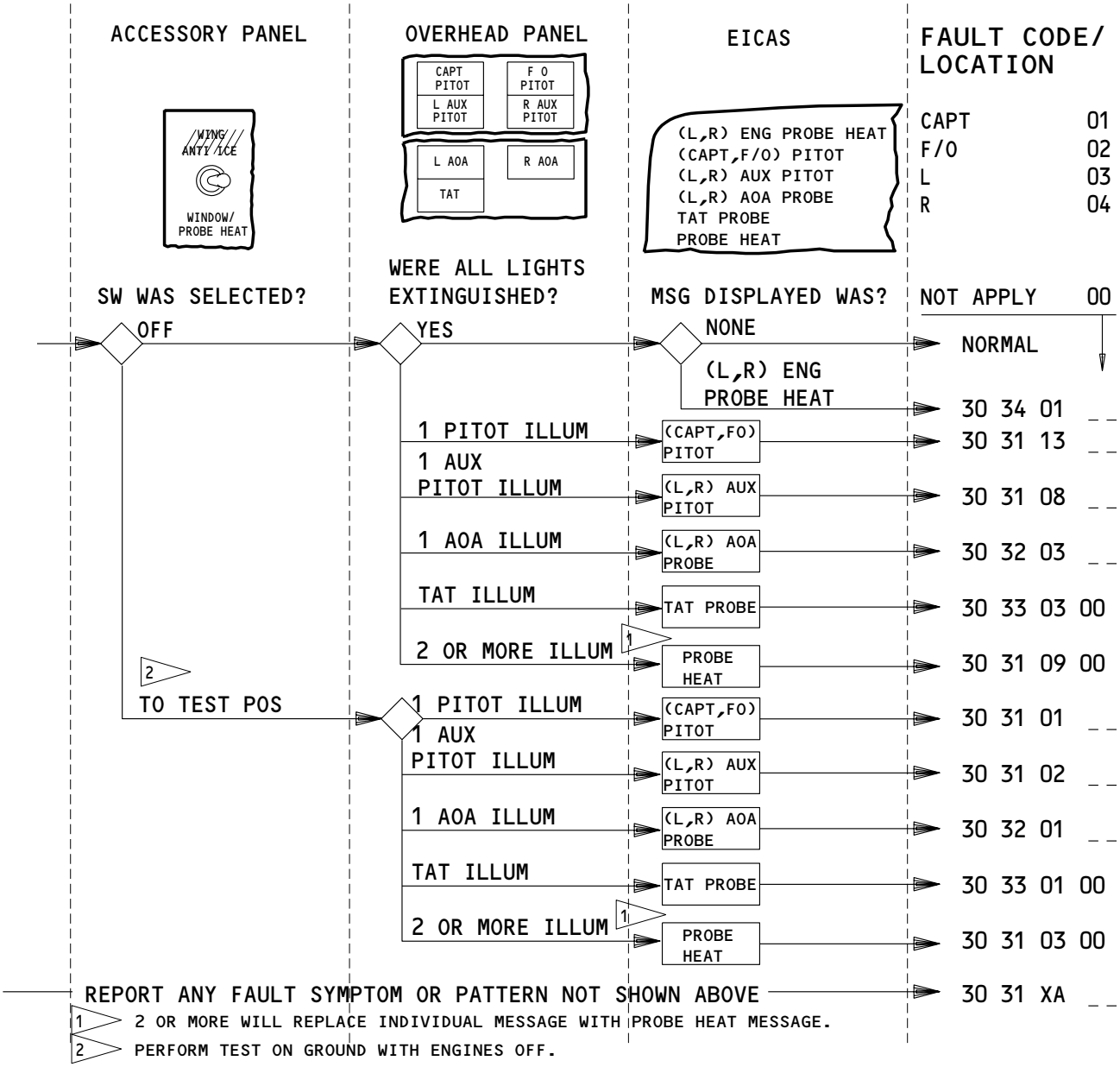
ENGINE ANTI-ICE - FAULT CODES

EFFECTIVITY

ALL

30-FAULT CODE DIAGRAM

55329



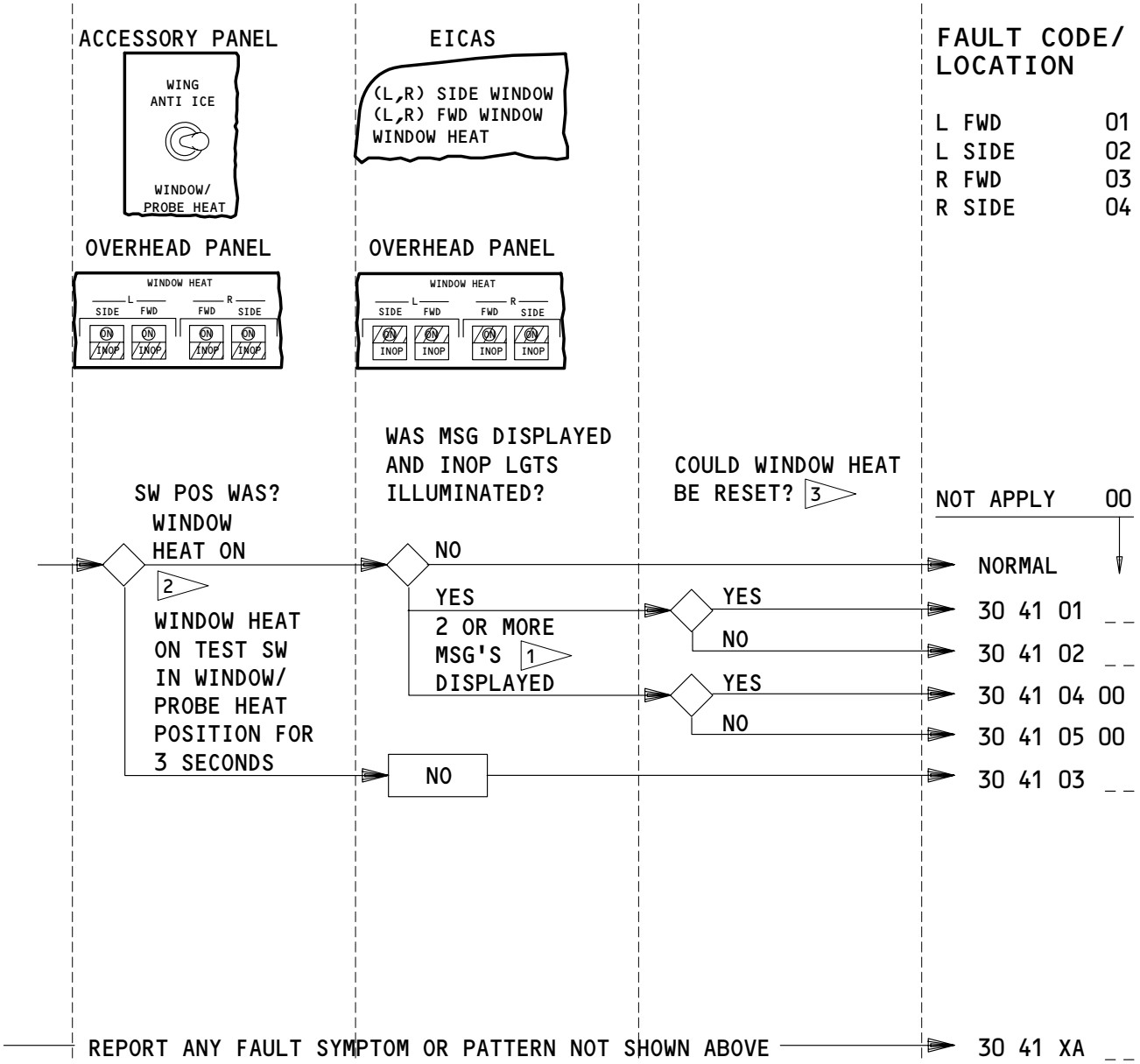
APPLICABLE CIRCUIT BREAKERS AS INSTALLED

6L13	CAPT MAIN PITOT HEAT	6L24	TAT PROBE HEAT	11R17	PROBE HEAT IND PITOT L
6L14	L AUX PITOT HEAT	11C20	PROBE HEAT IND R	11R18	PROBE HEAT IND AOA L
6L15	CAPT MAIN PITOT HEAT	11C21	PROBE HEAT IND R	11R23	ENG PROBE HTR (R, RIGHT)
6L16	L AUX PITOT HEAT	11D4	PROBE HEAT IND PITOT (L, LEFT)	11R24	ENG PROBE HEAT IND (R, RIGHT)
6L17	L AOA HEAT	11D5	PROBE HEAT IND AOA (L, LEFT)	11R24	ENG PROBE HTR IND R
6L21	R AUX PITOT HEAT	11R14	ENG PROBE HTR (L, LEFT)	11R25	PROBE HEAT IND TAT
6L22	F/O MAIN PITOT HEAT	11R16	ENG PROBE HEAT IND (L, LEFT)	11R26	PROBE HEAT IND PITOT R
6L23	R AOA HEAT	11R16	ENG PROBE HTR IND L	11R27	PROBE HEAT IND AOA R

PROBE HEAT & TEST – FAULT CODES

EFFECTIVITY
ALL

30-FAULT CODE DIAGRAM



1 2 OR MORE WILL REPLACE INDIVIDUAL MESSAGES WITH WINDOW HEAT MESSAGE.

2 ALL 4 INOP LGTS ILLUMINATED INDICATES NORMAL TEST.

3 LEAVE SW IN OFF A MINIMUM OF 10 SEC BEFORE POSITIONING SW ON.

APPLICABLE CIRCUIT BREAKERS

11R15 | WINDOW HEAT TEST |

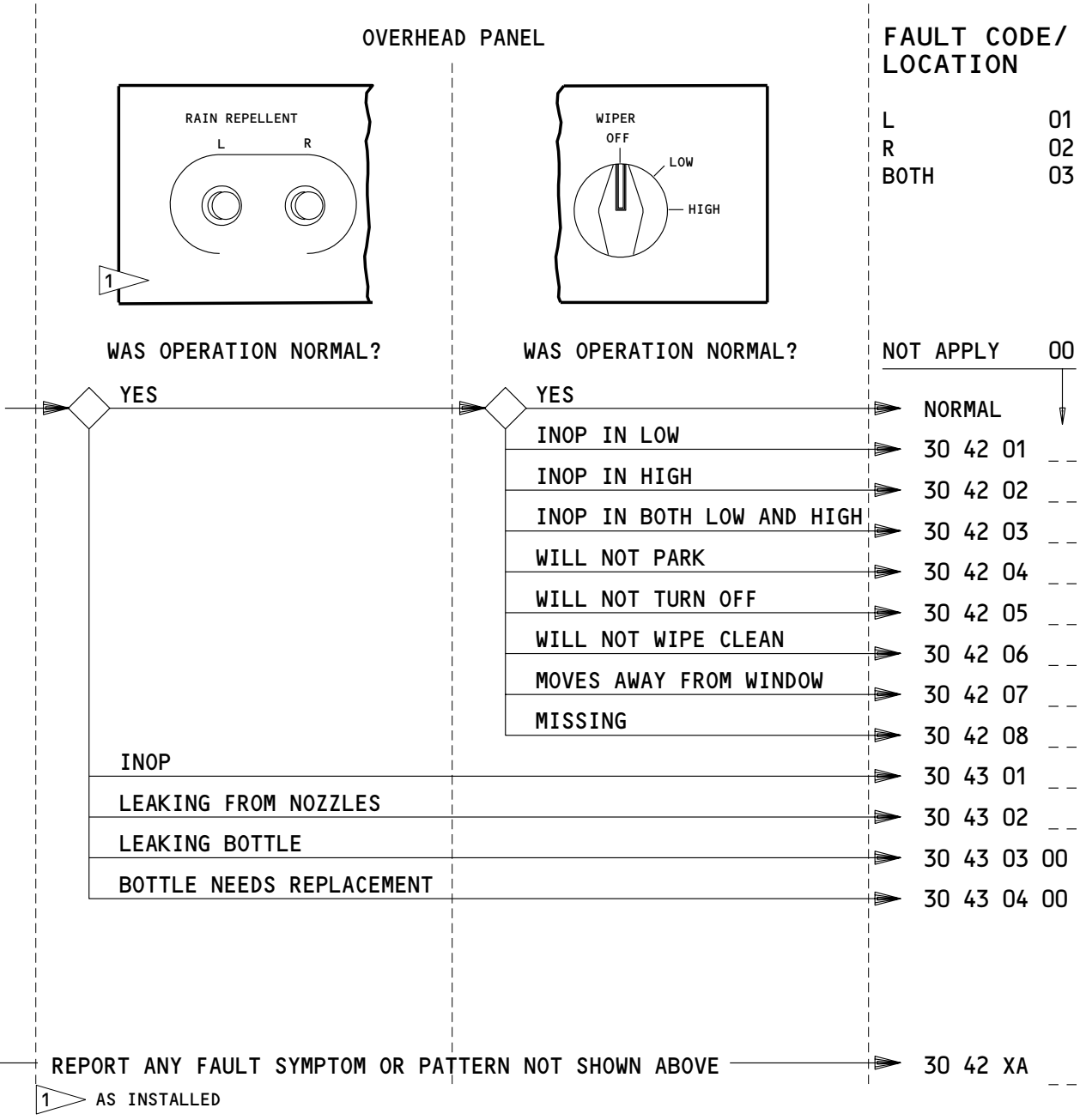
WINDOW HEAT - FAULT CODES

EFFECTIVITY

ALL

30-FAULT CODE DIAGRAM

153241



APPLICABLE CIRCUIT BREAKERS AS INSTALLED

11R12	RAIN REPEL (R, RIGHT)
11R13	WSHLD WIPER (L, LEFT)
11R21	RAIN REPEL (L, LEFT)
11R22	WSHLD WIPER (R, RIGHT)

RAIN REPELLENT & WINDSHIELD WIPERS – FAULT CODES

EFFECTIVITY

ALL

30-FAULT CODE DIAGRAM

G03023

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
30 11 XA --	A (01=L,02=R,03=BOTH) wing anti-ice problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 30-11-01
30 21 XA --	A (01=L,02=R) engine anti-ice problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 30-21-01
30 31 XA --	A (01=CAPT,02=F/O,03=L,04=R) probe heat problem was encountered by the flight crew which is not covered in the fault code diagrams.	Pitot Probe Heat: SSM 30-31-01, SSM 30-31-02 AOA Probe Heat: SSM 30-32-01, SSM 30-32-02 TAT Probe Heat: SSM 30-33-01
30 41 XA --	A (01=L FWD,02=L SIDE,03=R FWD, 04=R SIDE) window heat problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 30-41-01 thru SSM 30-41-06
30 42 XA --	A (01=L,02=R,03=BOTH) rain repellent or windshield wiper problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 30-42-01, SSM 30-43-01
30 11 08 --	With Wing Anti-ice sw selected ON (01=L,02=R,03=L&R) VALVE light(s) remained off. No EICAS msg displayed.	(01=L,02=R) Replace the L(R) wing Thermal Anti-ice (TAI) valve V52 (V57)(AMM 30-11-02). If the problem continues, examine and repair the circuit between pin 4, connector D568 (D570) of the L(R) wing TAI valve V52 (V57) and pin YC4 (YA4) of TB113 (WDM 30-11-11). (03=L&R) Replace the wing anti-ice switch/light YAQS3 (WDM 33-13-00) on the anti-ice control panel M10397 (WDM 33-13-00) or M10397 (WDM 30-11-01).

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
30 11 09 --	With WING ANTI-ICE selected ON EICAS msg (01=L,02-R,03= L&R) displayed. Respective VALVE light(s) on.	FIM 30-11-00/101, Fig. 103, Block 1
30 11 10 --	With Wing Anti-ice sw selected from ON to OFF (01=L,02=R, 03=L&R) VALVE light(s) remained off. No EICAS msg displayed.	(01=L,02=R) Replace the L(R) wing Thermal Anti-ice (TAI) valve V52 (V57)(AMM 30-11-02). If the problem continues, examine and repair the circuit between pin 4, connector D568 (D570) of the applicable L(R) wing TAI valve V52 (V57) and pin YC4 (YA4) of TB113 (WDM 30-11-11). (03=L&R) Replace the wing anti-ice switch/light YAQS3 (WDM 33-13-00) on the anti-ice control panel M10397 (WDM 33-13-00) or M10397 (WDM 30-11-01).
30 11 11 --	With Wing Anti-ice sw selected from ON to OFF (01=L,02=R, 03=L&R) WING ANTI-ICE displayed. Respective VALVE lgt remained on.	(01=L,02=R) Replace the L(R) wing Thermal Anti-ice (TAI) valve V52 (V57)(AMM 30-11-02). If the problem continues, examine and repair the circuit between pin 4, connector D568 (D570) of the applicable L(R) wing TAI valve V52 (V57) and pin YC4 (YA4) of TB113 (WDM 30-11-11). (03=L&R) Replace the wing anti-ice switch/light YAQS3 (WDM 33-13-00) on the anti-ice control panel M10397 (WDM 33-13-00) or M10397 (WDM 30-11-01).

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
30 11 14 --	With Wing Anti-Ice Test sw selected to Test pos EICAS msg (01=L,02=R) WING ANTI-ICE displayed. (L,R) VALVE light remained off.	Replace the L(R) wing Thermal Anti-ice (TAI) valve V52 (V57) (AMM 30-11-02). If the problem continues, examine and repair the circuit between pin 1, connector D568 (D570) of the applicable L(R) wing TAI valve V52 (V57) and pin YA4 of TB178 (WDM 30-11-11).
30 11 15 00	With Wing Anti-Ice Test sw selected to Test pos EICAS messages L&R WING ANTI-ICE displayed. Both VALVE lights remained off.	Replace the air/gnd Relay K204 (AMM 32-09-02). If the problem continues, examine replace the test safety relay K10403 (WDM 30-11-11).
30 11 16 --	With Wing Anti-Ice Test sw selected to Test pos EICAS msg (01=L,02=R) WING ANTI-ICE displayed. (L,R) VALVE light remained on.	Replace the L(R) wing Thermal Anti-ice (TAI) valve V52 (V57) (AMM 30-11-02). If the problem continues, examine and repair the circuit between pin 1, connector D568 (D570) of the applicable L(R) wing TAI valve V52 (V57) and pin YA4 of TB178 (WDM 30-11-11).
30 11 17 00	With Wing Anti-Ice Test sw selected to Test pos EICAS messages L&R WING ANTI-ICE displayed. Both VALVE lights remained on.	Replace the test safety relay K10403 (WDM 30-11-11). If the problem continues, examine, replace the wing anti-ice and window/probe heat switch YAQS5 on the test panel M10398 (WDM 30-11-11) or M10398 (WDM 30-11-11).

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
30 21 07 --	When (01=L,02=R) eng anti-ice switch is positioned to ON, VALVE light remained off. No EICAS msg displayed.	FIM 30-21-00/101, Fig. 103, Block 1
30 21 08 --	EICAS msg (01=L,02=R) ENG ANTI-ICE displayed and eng anti-ice VALVE light remained on with switch ON.	FIM 30-21-00/101, Fig. 104, Block 1
30 21 09 --	EICAS msg (01=L,02=R) ENG TAI VALVE displayed. Eng anti-ice VALVE light off with switch ON.	FIM 30-21-00/101, Fig. 106, Block 1
30 21 10 --	With (01=L,02=R) eng anti-ice switch selected from ON to OFF VALVE light remained off. No EICAS msg displayed.	Replace the L(R) disagreement relay 2, K10061 (K10063) (WDM 30-21-11). If the problem continues, examine and repair the circuit between pin A2, disagreement relay 2, K10061 (K10063) and pin YA6 (YA11) on TB116 (TB179).
30 21 11 --	EICAS msg (01=L,02=R) ENG ANTI-ICE displayed and eng anti-ice VALVE light remained on with switch selected from ON to OFF.	FIM 30-21-00/101, Fig. 105, Block 1
30 21 14 --	With (01=L,02=R) eng anti-ice switch selected OFF, engines off, VALVE light remained on, no EICAS msg displayed.	FIM 30-21-00/101, Fig. 105, Block 1
30 31 01 --	EICAS msg (01=CAPT,02=F/O) PITOT displayed. (CAPT,F/O) PITOT probe heat lgt remains on during probe heat test with apl on grd and engs off.	FIM 30-31-00/101, Fig. 103, Block 1

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
30 31 02 --	EICAS msg (03=L,04=R) AUX PITOT displayed. (L,R) AUX PITOT probe heat lgt remains on during probe heat test with apl on grd and engs off.	FIM 30-31-00/101, Fig. 104, Block 1
30 31 03 00	EICAS msg PROBE HEAT displayed. Two or more probe heat lgts remain on during probe heat test with apl on grd and engs off (identify faulty probes).	FIM 30-31-00/101, Fig. 105, Block 1
30 31 04 00	EICAS msg CAPT PITOT HEAT displayed.	Do the status/maintenance message erase procedure (FIM 31-41-00/101, Fig. 109). If the message stays on, replace the air/gnd relay K10307 in the P36 panel (AMM 32-09-02/201).
30 31 05 00	EICAS msg F/O PITOT HEAT displayed.	Do the status/maintenance message erase procedure (FIM 31-41-00/101, Fig. 109). If the message stays on, replace the air/gnd relay K10309 in the P37 panel (AMM 32-09-02/201).
30 31 06 00	EICAS msg L AUX PITOT HEAT displayed.	Do the status/maintenance message erase procedure (FIM 31-41-00/101, Fig. 109). If the message stays on, replace the air/gnd relay K10307 in the P36 panel (AMM 32-09-02/201).
30 31 07 00	EICAS msg R AUX PITOT HEAT displayed.	Do the status/maintenance message erase procedure (FIM 31-41-00/101, Fig. 109). If the message stays on, replace the air/gnd relay K10309 in the P37 panel (AMM 32-09-02/201).
30 31 08 --	EICAS msg (03=L,04=R) AUX PITOT displayed. (L,R) AUX PITOT probe heat lgt on.	FIM 30-31-00/101, Fig. 104, Block 1
30 31 09 00	EICAS msg PROBE HEAT displayed. Two or more probe heat lgts come on (identify faulty probes).	FIM 30-31-00/101, Fig. 105, Block 1

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
30 31 13 --	EICAS msg (01=CAPT,02=F/O) PITOT displayed. (CAPT,F/O) PITOT probe heat lgt come on.	FIM 30-31-00/101, Fig. 103, Block 1
30 32 01 --	EICAS msg (03=L,04=R) AOA PROBE displayed. (L,R) AOA probe heat lgt remains on during probe heat test.	FIM 30-32-00/101, Fig. 103, Block 1
30 32 02 --	EICAS msg (03=L,04=R) AOA PROBE displayed. (L,R) AOA heat lgt on.	FIM 30-32-00/101, Fig. 103, Block 1
30 32 02 --	EICAS msg (03=L,04=R) AOA PROBE displayed. (L,R) AOA heat lgt on.	FIM 30-32-00/101, Fig. 103, Block 1
30 33 01 --	EICAS msg TAT PROBE displayed. TAT probe heat lgt remains on during probe heat test.	FIM 30-33-00/101, Fig. 103, Block 1
30 33 03 00	EICAS msg TAT PROBE displayed. TAT probe heat lgt on.	FIM 30-33-00/101, Fig. 103, Block 1
30 34 01 --	EICAS msg (03=L, 04=R) ENG PROBE HEAT displayed.	FIM 30-34-00/101, Fig. 103, Block 1
30 34 02 00	EICAS msg L ENG PROBE HEAT displayed.	FIM 30-34-00/101, Fig. 103, Block 1
30 34 03 00	EICAS msg R ENG PROBE HEAT displayed.	FIM 30-34-00/101, Fig. 103, Block 1
30 41 01 --	EICAS msg (01=L FWD,02=L SIDE, 03-R FWD,04=R SIDE) WINDOW displayed. INOP light on. Window heat could be reset.	(01=L FWD,04=R SIDE) FIM 30-41-00/101, Fig. 103, Block 1 (02=L SIDE,03=R FWD) FIM 30-41-00/101, Fig. 104, Block 1
30 41 02 --	EICAS msg (01=L FWD,02=L SIDE, 03-R FWD,04=R SIDE) WINDOW displayed. INOP light on. Window heat could not be reset.	(01=L FWD,04=R SIDE) FIM 30-41-00/101, Fig. 103, Block 1 (02=L SIDE,03=R FWD) FIM 30-41-00/101, Fig. 104, Block 1

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
30 41 03 --	(01=L FWD,02=L SIDE,03=R FWD, 04=R SIDE) window heat INOP light did not come on with test switch in WINDOW/PROBE HEAT position.	FIM 30-41-00/101, Fig. 105, Block 1
30 41 04 00	EICAS msg WINDOW HEAT displayed (identify illuminated lights). Window heat could be reset.	FIM 30-41-00/101, Fig. 106, Block 1
30 41 05 00	EICAS msg WINDOW HEAT displayed (identify illuminated lights). Window heat could not be reset.	FIM 30-41-00/101, Fig. 106, Block 1
30 42 01 --	(01=L,02=R,03=BOTH) wshld wipers inop in LOW pos.	Replace the windshield wiper/rain repellent control panel (AMM 30-42-01). If the problem continues, replace the windshield wiper motor/converter (AMM 30-42-03).
30 42 02 --	(01=L,02=R,03=BOTH) wshld wipers inop in HIGH pos.	Replace the windshield wiper/rain repellent control panel (AMM 30-42-01). If the problem continues, replace the windshield wiper motor/converter (AMM 30-42-03).
30 42 03 --	(01=L,02=R,03=BOTH) wshld wipers inop in BOTH pos.	Replace the windshield wiper/rain repellent control panel (AMM 30-42-01). If the problem continues, replace the windshield wiper motor/converter (AMM 30-42-03).
30 42 04 --	(01=L,02=R,03=BOTH) Wshld wipers will not park.	Adjust the windshield wiper park position (AMM 30-42-00). If the problem continues, replace the windshield wiper motor/converter AMM 30-42-02).
30 42 05 --	(01=L,02=R,03=BOTH) Wshld wipers will not turn OFF.	Replace the windshield wiper/rain repellent control panel (AMM 30-42-01). If the problem continues, replace the windshield wiper motor/converter (AMM 30-42-03).

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
30 42 06 --	(01=L,02=R,03=BOTH) Wshld wipers will not wipe clean.	Replace the windshield wiper blade (AMM 30-42-03). If fault persists, check wiper arm pressure and adjust if necessary (AMM 30-42-00). If the problem continues, replace the windshield wiper arm (AMM 30-42-03).
30 42 07 --	(01=L,02=R,03=BOTH) Wshld wipers move away from wshld.	Examine the wiper arm pressure and adjust if necessary (AMM 30-42-00). If the problem continues, replace the winshield wiper arm (AMM 30-42-03).
30 42 08 --	(01=L,02=R,03=BOTH) Wshld wipers missing.	Replace the windshield wiper blade (AMM 30-42-03).
30 43 01 --	(01=L,02=R,03=BOTH) Rain repellent system(s) inop.	FIM 30-43-00/101, Fig. 103, Block 1
30 43 02 --	(01=L,02=R,03=BOTH) rain repellent leaking from nozzles.	Replace the windshield rain repellent solenoid valve (AMM 30-43-02).
30 43 03 00	Rain repellent bottle leaking.	Replace the rain repellent, bottle (AMM 12-16-01). Make sure the O-ring below the bottle, when the bottle is installed, is not worn. Replace the O-ring if necessary.
30 43 04 00	Rain repellent bottle needs replacement.	Replace bottle (AMM 12-16-01).

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)

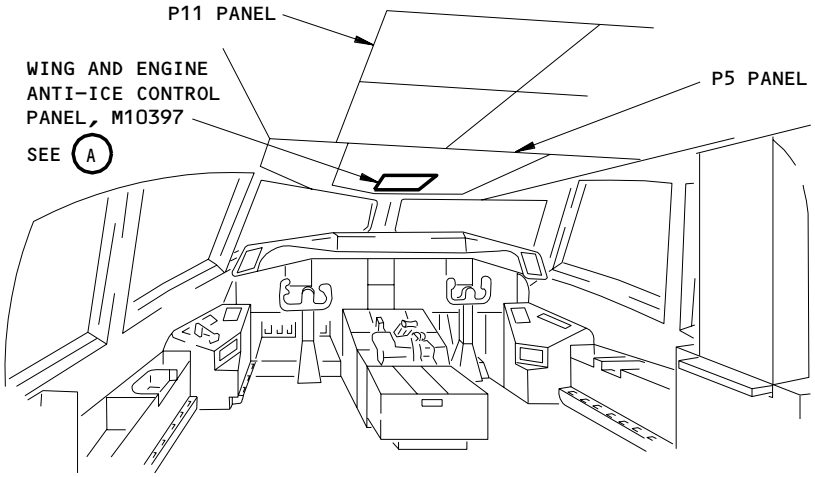
WING THERMAL ANTI-ICE SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CARD - (FIM 36-10-00/101)				
LEFT ECS BLEED CONFIGURATION, M10313				
RIGHT ECS BLEED CONFIGURATION, M10312				
CIRCUIT BREAKER -			FLT COMPT, P11	*
WING ANTI-ICE, C1132	--	1	1> 11C28, 11R20, 11C29 OR 11D29	
COMPUTER - (FIM 31-41-00/101)				
EICAS L, M10181				
EICAS R, M10182				
LIGHT - VALVE, L1	--	1	FLT COMPT, P5, ANTI-ICE CONTROL PANEL, M10397	*
LIGHT - VALVE, L2	--	1	FLT COMPT, P5, ANTI-ICE CONTROL PANEL, M10397	*
MODULE -	--		MAIN EQUIP CTR, P37 PANEL	
GROUND SAFETY TIME DELAY, M10479		1		*
PANEL - (FIM 30-32-00/101)				
MISC TEST, M10398				
PANEL - ANTI-ICE CONTROL, M10397	--	1	FLT COMPT, P5	30-11-01
RELAY -	--		MAIN EQUIP CTR, P37 PANEL	
AIR/GND SYS 2, K204		1		*
TEST SAFETY, K10403		1		*
RELAY - L WING DISAGREE, K1	--	1	FLT COMPT, P5, ANTI-ICE CONTROL PANEL, M10397	*
RELAY - R WING DISAGREE, K2	--	1	FLT COMPT, P5, ANTI-ICE CONTROL PANEL, M10397	*
SWITCH-LIGHT - WING ANTI-ICE, S3	--	1	FLT COMPT, P5, ANTI-ICE CONTROL PANEL, M10397	*
VALVE - L WING ANTI-ICE, V52	--	1	521UBX, FIXED WING LOWER PANEL	30-11-02
VALVE - R WING ANTI-ICE, V57	--	1	621UBX, FIXED WING LOWER PANEL	30-11-02

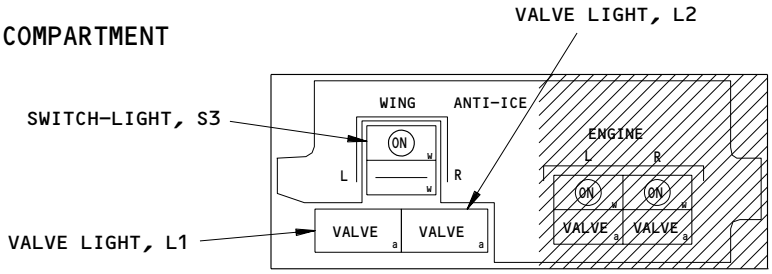
* SEE THE WDM EQUIPMENT LIST

1> THIS CIRCUIT BREAKER CAN BE IN ONE OF THESE LOCATIONS

Wing Thermal Anti-Ice System - Component Index
Figure 101

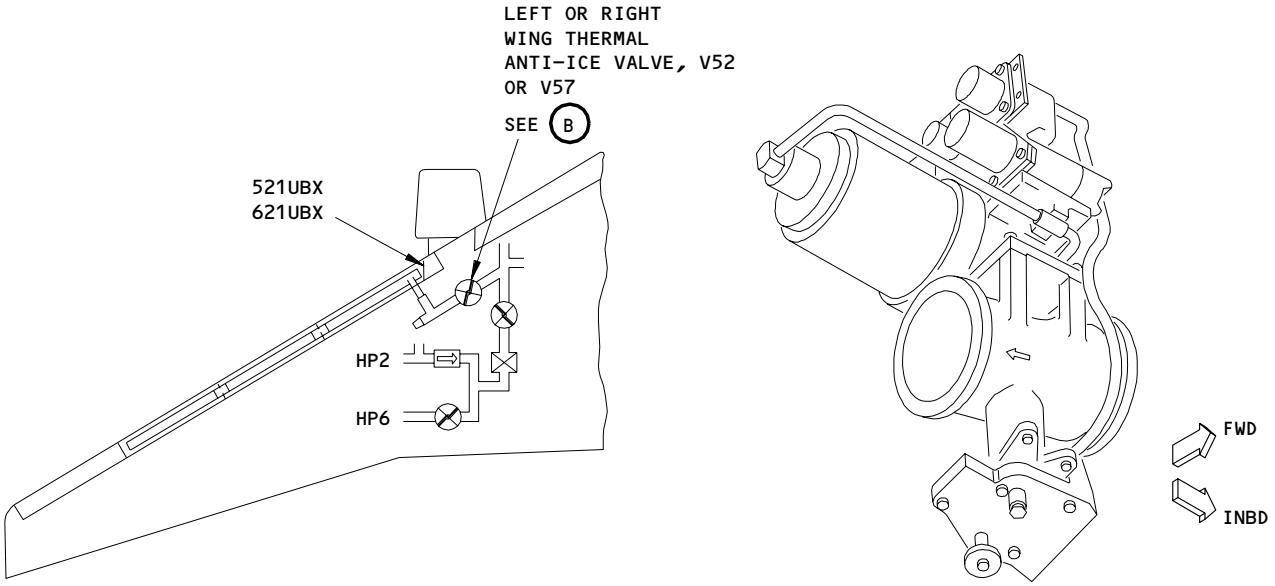


FLIGHT COMPARTMENT



WING AND ENGINE ANTI-ICE CONTROL PANEL, M10397

A



LEFT OR RIGHT WING THERMAL
ANTI-ICE TAI VALVE, V52 OR V57

B

Wing Thermal Anti-Ice System - Component Location
Figure 102

PREREQUISITES

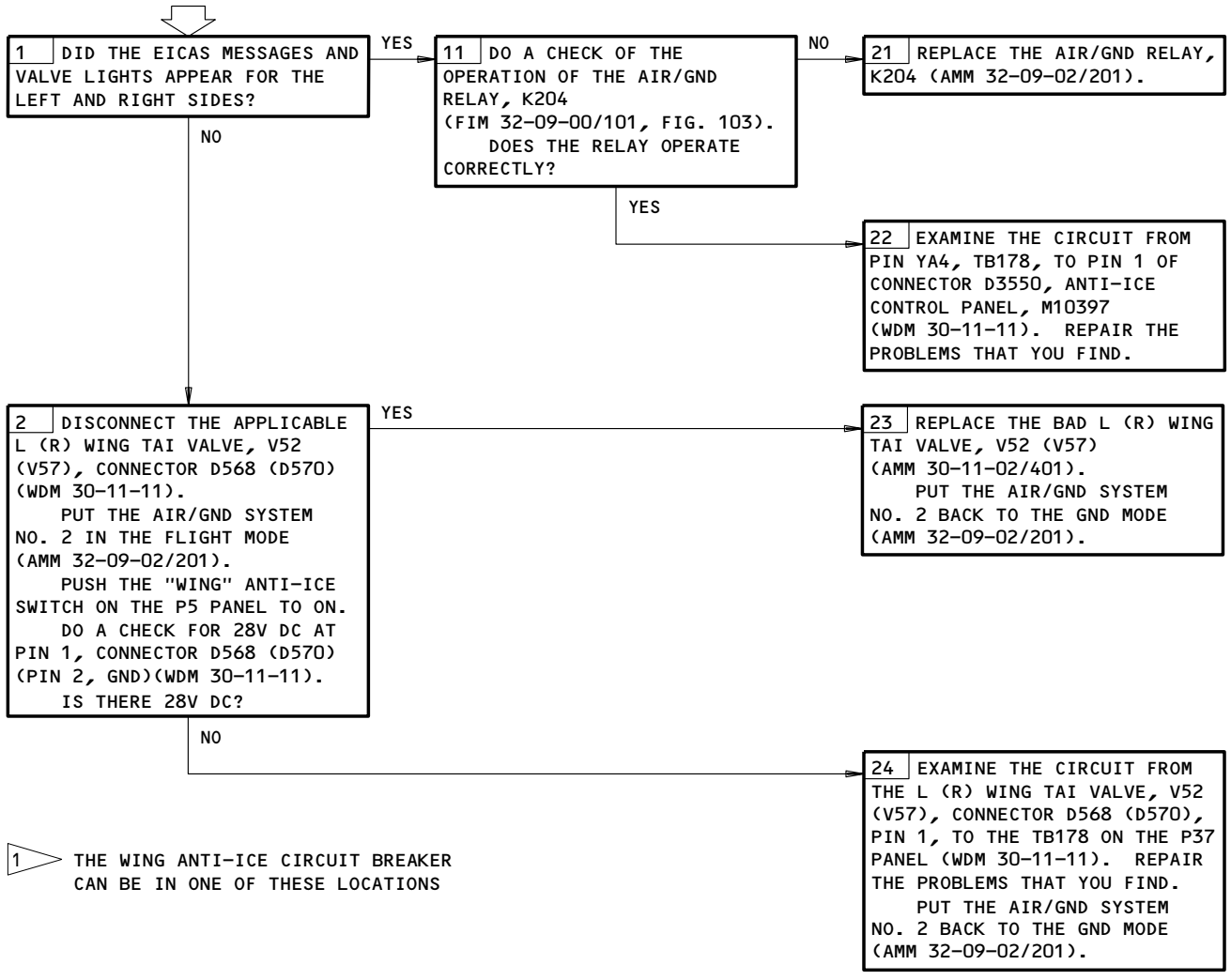
MAKE SURE THIS SYSTEM WILL OPERATE:
MASTER DIM AND TEST (AMM 33-16-00/501)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
1 11C28, 11R20, 11C29 OR 11D29

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)
PNEUMATIC DUCTS NOT PRESSURIZED (AMM 36-00-00/201)

EICAS MSG "L (R) WING ANTI-ICE" DISPLAYED. WING ANTI-ICE "VALVE" LGT(S) REMAINED ILLUM WITH SW PLACED TO (ON, TEST)

NOTE: THE VALVE LIGHTS AND EICAS MESSAGES WILL USUALLY STAY ON WHEN THE WING ANTI-ICE SWITCH IS ON AND THE AIRPLANE IS NOT IN THE FLIGHT MODE.



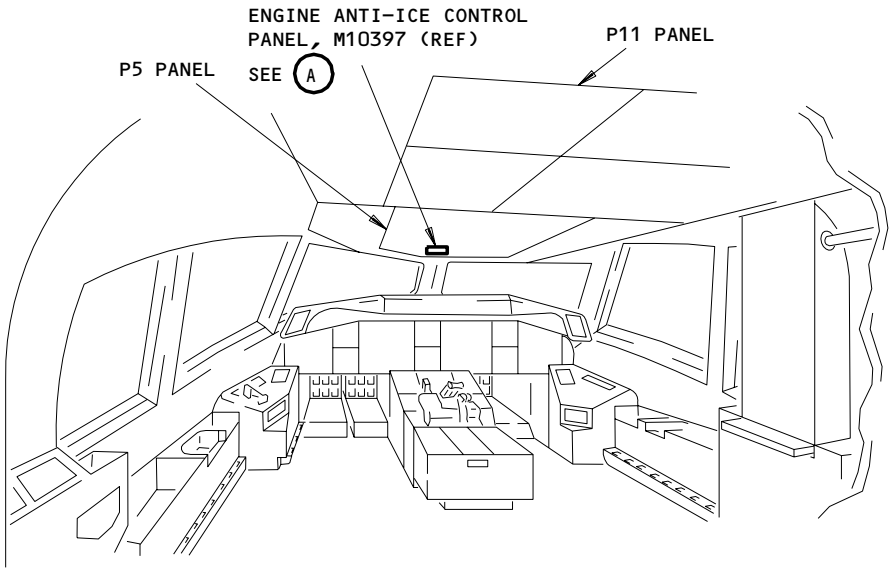
EICAS Msg L (R) WING ANTI-ICE Displayed. Wing Anti-Ice VALVE Lgt(s) Remained Illum with Sw Placed to (On,Test)
Figure 103

ENGINE INLET THERMAL ANTI-ICE SYSTEM

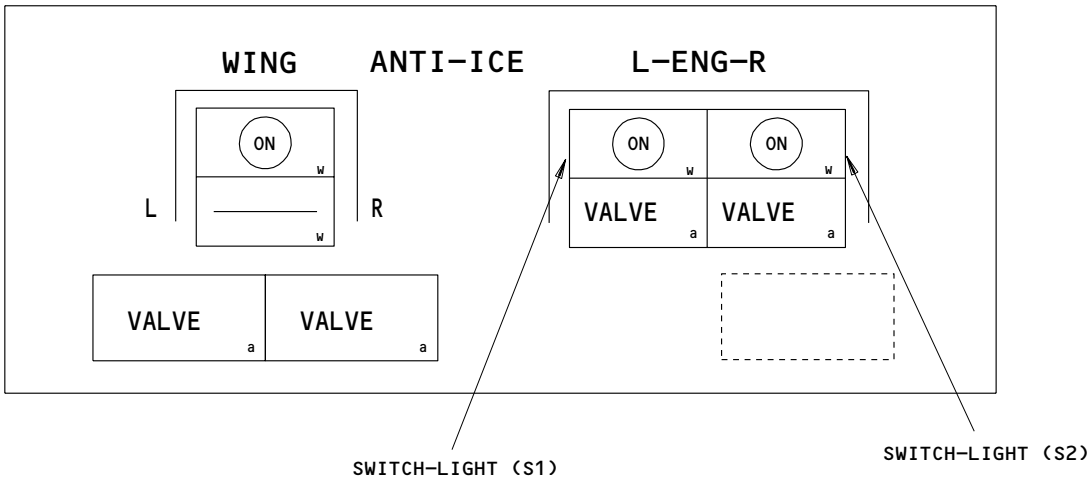
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CARD - (FIM 36-10-00/101)				
L ECS BLEED CONFIG, M10313				
R ECS BLEED CONFIG, M10312				
CIRCUIT BREAKER -			FLT COMPT, P11	
ENG ANTI-ICE L, C1147		1	11C27	*
ENG ANTI-ICE R, C1148		1	11C28	*
COMPUTER - (FIM 31-41-00/101)				
EICAS L, M10181				
EICAS R, M10182				
DIODE - R10293	--	1	MAIN EQUIP CTR, P36	*
DIODE - R10294	--	1	MAIN EQUIP CTR, P37	*
PANEL - (FIM 30-11-00/101)				
ENGINE/WING ANTI-ICE CONTROL, M10397				
RELAY -	--	1	MAIN EQUIP CTR, P36	
L ENG ANTI-ICE DISAGREE, K10601		1		*
L ENG PRESSURE SENSE, K10060		1		*
L ENG SELECT, K10061		1		*
L ENGINE START, K10247		1		*
RELAY -	--	1	MAIN EQUIP CTR, P37	
R ENG ANTI-ICE DISAGREE, K10602		1		*
R ENG PRESSURE SENSE, K10062		1		*
R ENG SELECT, K10063		1		*
R ENGINE START, K10250		1		*
SWITCH - L ENG INLET ANTI-ICE, HIGH PRESSURE, S10137	1	1	413AL, ENGINE COWL	30-21-01
SWITCH - L ENG INLET ANTI-ICE, LOW PRESSURE, S10135	1	1	413AL, ENGINE COWL	30-21-01
SWITCH - R ENG INLET ANTI-ICE, HIGH PRESSURE, S10137	1	1	423AL, ENGINE COWL	30-21-01
SWITCH - R ENG INLET ANTI-ICE, LOW PRESSURE, S10135	1	1	423AL, ENGINE COWL	30-21-01
SWITCH/LIGHT - L ENGINE ANTI-ICE, S1	1	1	FLT COMPT, P5, ENG/WING ANTI-ICE CONT PNL M10397 (REF)	*
SWITCH/LIGHT - R ENGINE ANTI-ICE, S2	1	1	FLT COMPT, P5, ENG/WING ANTI-ICE CONT PNL M10397 (REF)	*
VALVE - L ENG INLET THERMAL ANTI-ICE, PRESSURE REG, V10028	1	1	413AL, ENGINE COWL	30-21-03
VALVE - R ENG INLET THERMAL ANTI-ICE, PRESSURE REG, V10028	1	1	423AL, ENGINE COWL	30-21-03

* SEE THE WDM EQUIPMENT LIST

Engine Inlet Thermal Anti-Ice System - Component Index
Figure 101



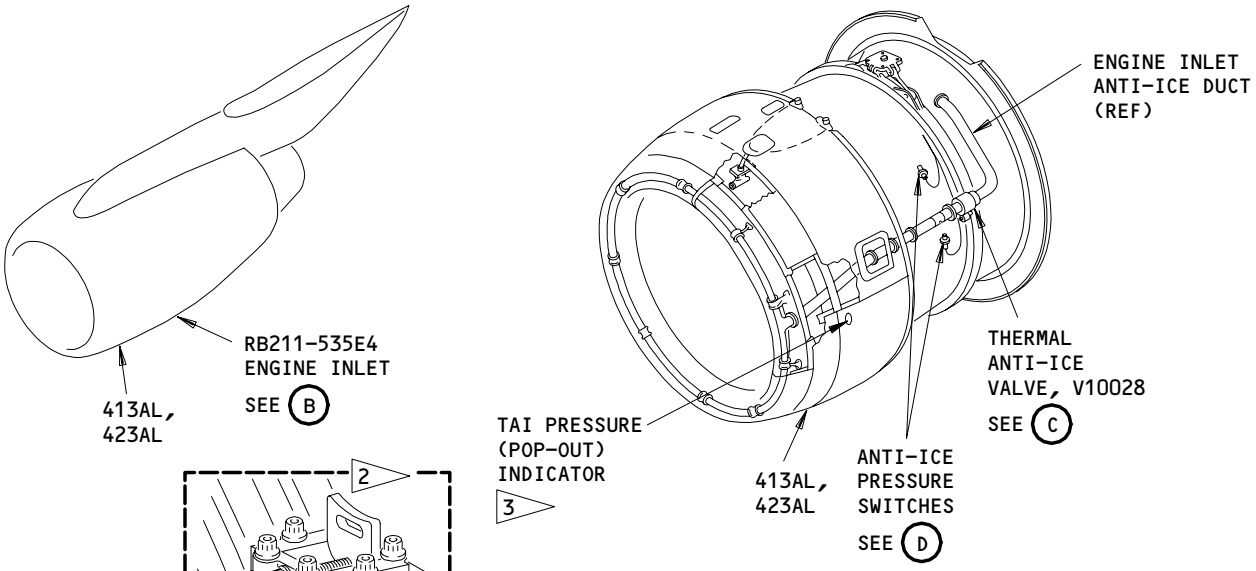
FLIGHT COMPARTMENT



ENGINE/WING ANTI-ICE CONTROL PANEL, M10397 (REF)

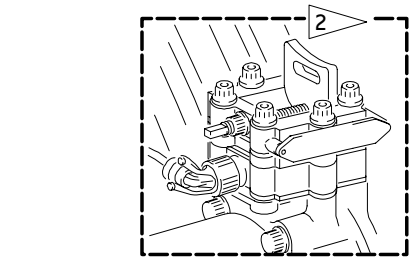
A

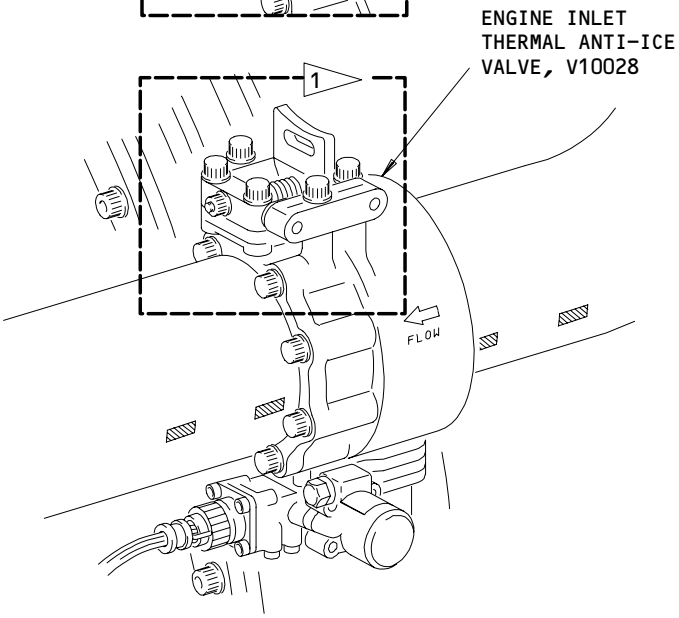
Engine Inlet Thermal Anti-Ice System - Component Location
Figure 102 (Sheet 1)



RB211-535E4 ENGINE INLET

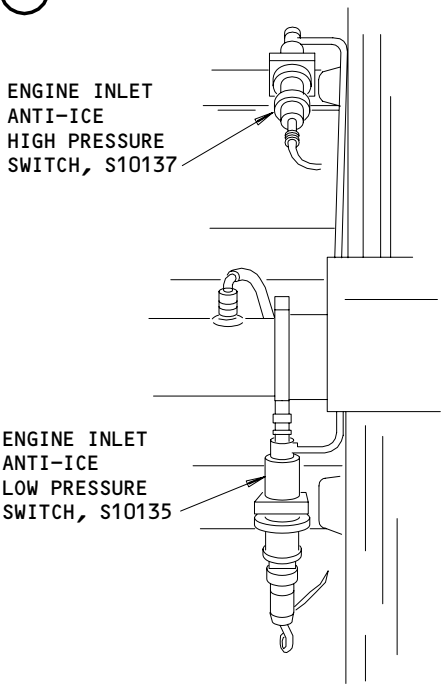
B





THERMAL ANTI-ICE VALVE, V10028

C



ENGINE INLET ANTI-ICE
PRESSURE SWITCHES

D

1 ENGINES WITHOUT THE VALVE POSITION INDICATOR SWITCH (ONE ELECTRICAL CONNECTOR ON THE VALVE)

2 ENGINES WITH THE VALVE POSITION INDICATOR SWITCH (TWO ELECTRICAL CONNECTORS ON THE VALVE)

3 ENGINES WITH RR SB 71-9634

Engine Inlet Thermal Anti-Ice System - Component Location
Figure 102 (Sheet 2)

1. General

A. The fault isolation procedures given in Fig. 103, Fig. 104, Fig. 105 and Fig. 106 will troubleshoot most known valve failure modes.
It is important to know the start point for each figure is specific to a valve condition. It is also important to know the indicated messages and their differences.

B. EICAS msg - L (R) ENG ANTI-ICE

This is a level C advisory message that will annunciate after 10 seconds of continuous valve logic disagree. This message will disappear when the valve disagree is terminated. The message is not latched. The valve AMBER light remaining illuminated usually accompanies this message.

C. EICAS msg - L (R) ENG TAI VALVE

This is a status message and will annunciate only when the TAI valve HP switch has been activated for a period of 10 seconds. The message will not disappear until corrective action is taken. This message is latched.

D. The fault isolation procedures are as follows:

Fig.	Valve Cond.	Troubleshooting Cond.
103	ON	Problem in disagree circuit
104	ON	Valve fail to open, or indicate open, or regulate
105	OFF	Valve fail to close, or indicate closed
106	ON	Valve overpressure

PREREQUISITES

MAKE SURE THAT THESE CIRCUIT BREAKERS ARE CLOSED:
11C27,11C28

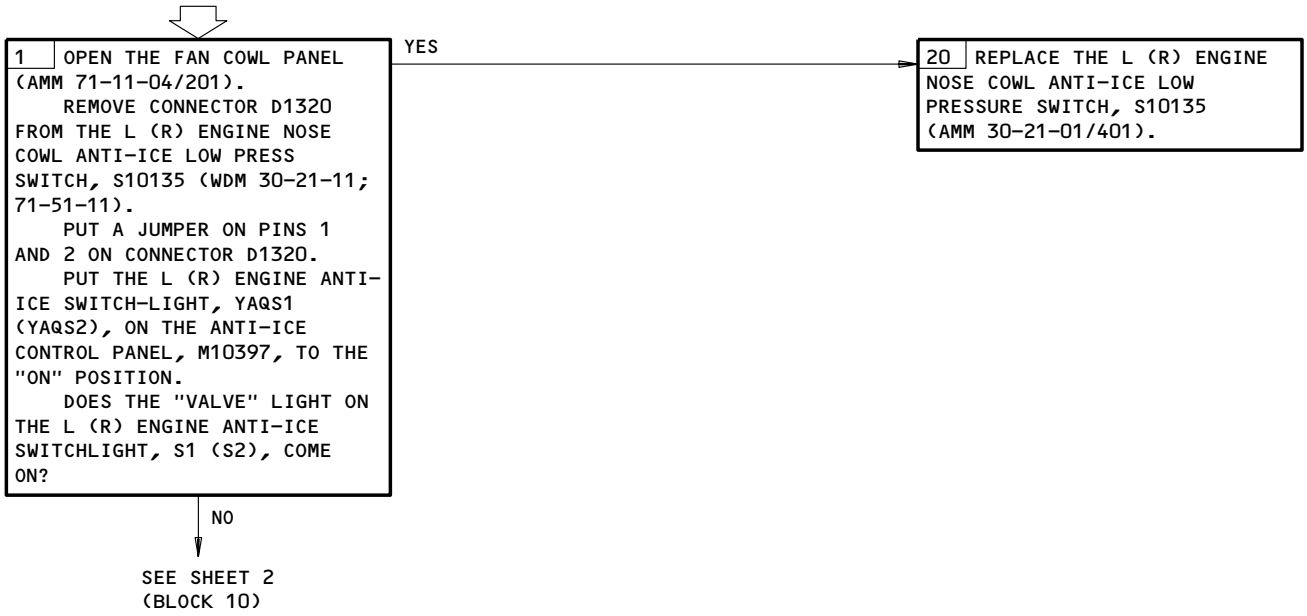
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU DO MAINTENANCE IN THE ELECTRICAL PANEL WITH POWER ON. DO NOT TOUCH EXPOSED TERMINALS OR CROSS-CONNECT WIRES IN THE PANEL. DO NOT PERMIT TOOLS TO FALL IN THE PANEL. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

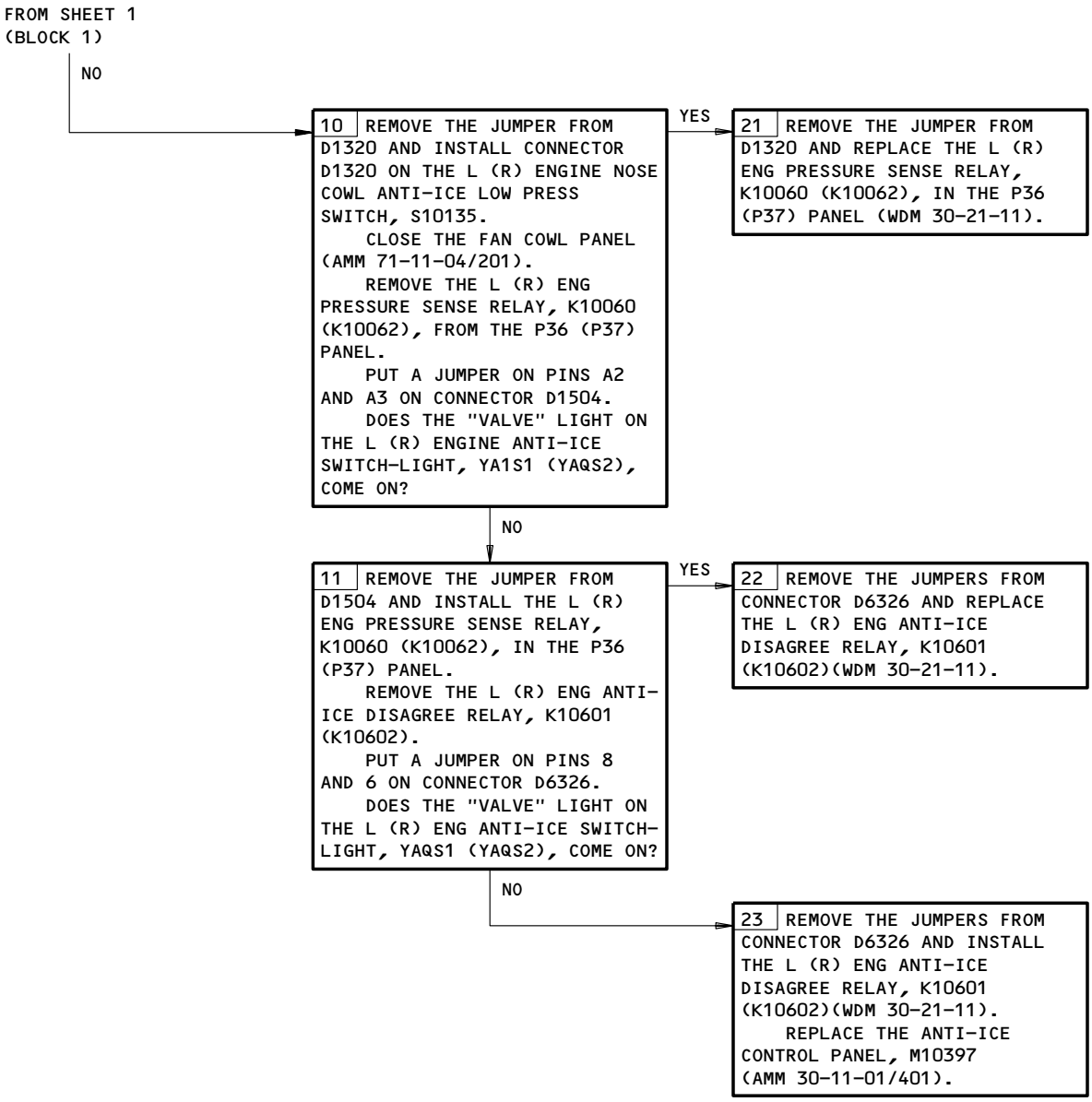
CAUTION: REMOVE THE POWER THAT GOES TO, AND THRU A RELAY BEFORE YOU REMOVE OR INSTALL IT. DAMAGE TO THE RELAY OR SYSTEM CAN OCCUR.

NOTE: WHEN THE SYSTEM IS ACTIVATED, THE AMBER VALVE LIGHT WILL COME ON; AND AFTER DUCT PRESSURE IS PRESENT AND THE VALVE AGREES WITH THE SWITCH POSITON, THEN THE LIGHT WILL GO OFF.

WHEN THE L (R) ENG ANTI-ICE SW IS PLACED TO "ON", THE "VALVE" LGT STAYED OFF. NO EICAS MSG SHOWN



When the L (R) Eng Anti-Ice Sw Is Placed to ON, the VALVE Lgt Stayed Off.
No EICAS Msg Shown
Figure 103 (Sheet 1)



When the L (R) Eng Anti-Ice Sw Is Placed to ON, the VALVE Lgt Stayed Off.
No EICAS Msg Shown
Figure 103 (Sheet 2)

PREREQUISITES

MAKE SURE THAT THESE CIRCUIT BREAKERS ARE CLOSED:
11C27, 11C28

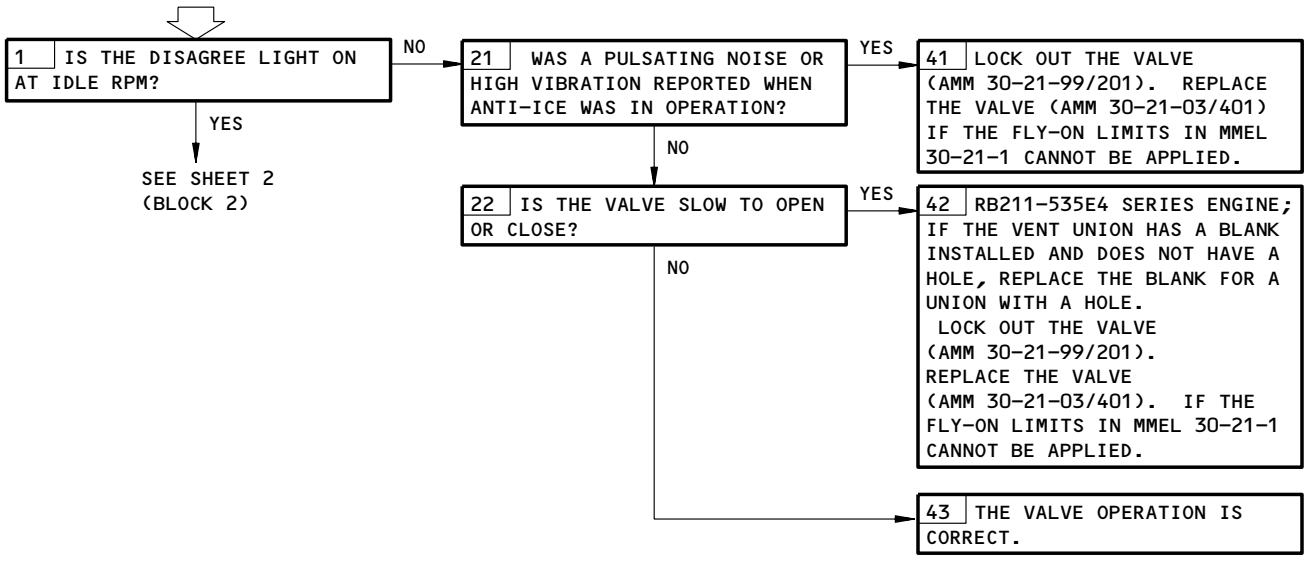
MAKE SURE THAT THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)
ENGINE IS OPERATING (AMM 71-00-00/201)

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU DO MAINTENANCE IN THE ELECTRICAL PANEL WITH POWER ON. DO NOT TOUCH EXPOSED TERMINALS OR CROSS-CONNECT WIRES IN THE PANEL. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

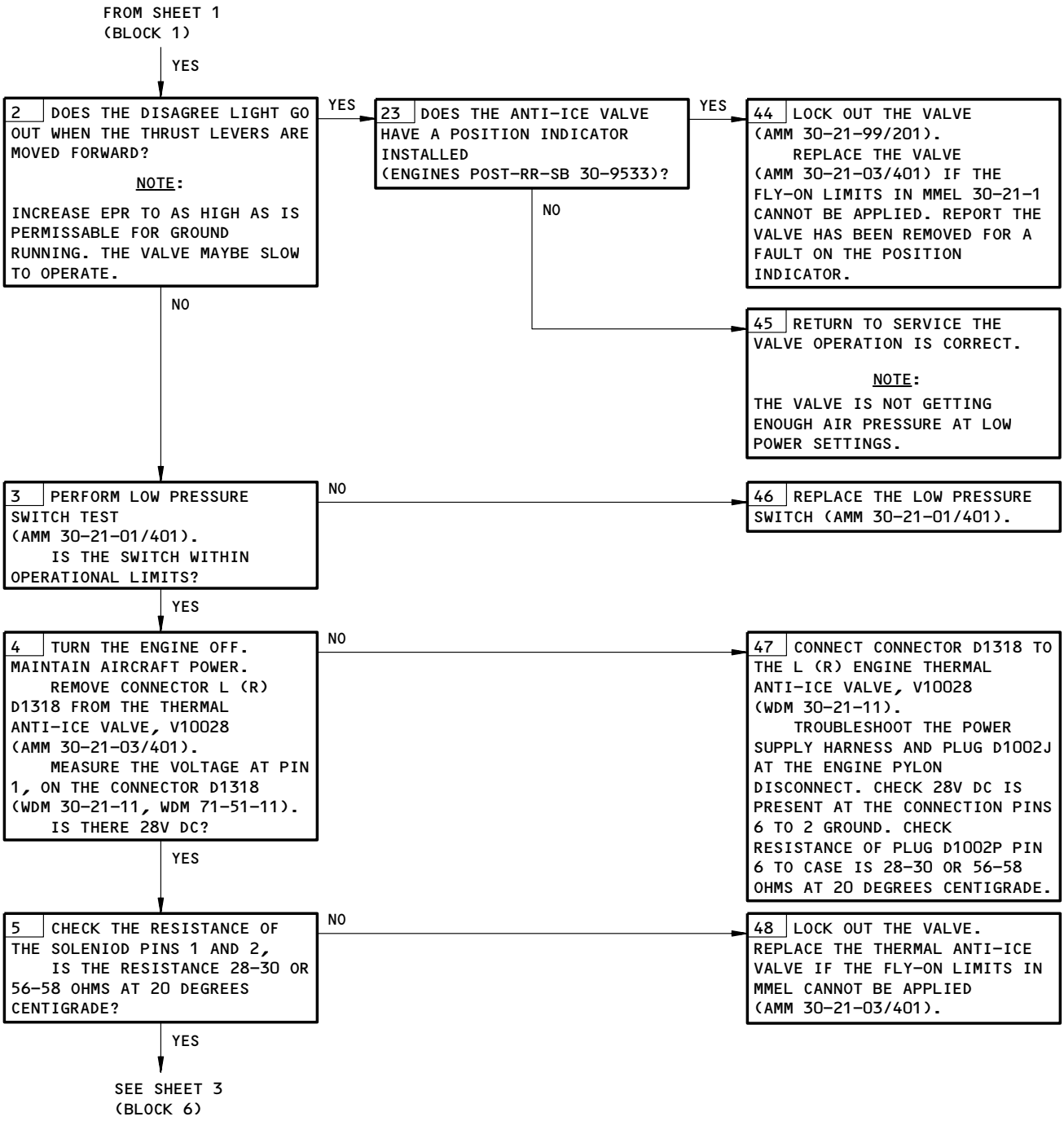
CAUTION: REMOVE THE POWER THAT GOES TO, AND THRU A RELAY BEFORE YOU REMOVE OR INSTALL IT. DAMAGE TO THE RELAY OR SYSTEM CAN OCCUR.

NOTE: THIS FIGURE IS TO BE USED FOR TROUBLESHOOTING A VALVE FAILURE TO OPEN, INDICATES OPEN OR INCORRECT VALVE REGULATION.

WHEN THE L (R) ENG ANTI-ICE SW IS PLACED TO "ON", EICAS MSG "L (R) ENG ANTI-ICE" DISPLAYED AND ENG ANTI-ICE VALVE LIGHT REMAINED ON



When the L (R) Eng Anti-Ice Sw is placed to ON, EICAS Msg "L (R) ENG ANTI-ICE" Displayed and Eng Anti-Ice Valve Light Remained On
Figure 104 (Sheet 1)



When the L (R) Eng Anti-Ice Sw is placed to ON, EICAS Msg "L (R) ENG ANTI-ICE" Displayed and Eng Anti-Ice Valve Light Remained On
Figure 104 (Sheet 2)

FROM SHEET 2
(BLOCK 5)

YES

6 CONNECT L (R) D1318 TO THE ENGINE COWL THERMAL ANTI-ICE VALVE.
DISCONNECT CONNECTOR D1320 FROM THE L (R) ENGINE COWL ANTI-ICE LOW PRESSURE SWITCH, S10135 (AMM 30-21-01/401).
DOES THE "VALVE" LIGHT ON THE L (R) ENGINE ANTI-ICE SWITCH-LIGHT, S1 (S2), GO OFF?

NO → 49 REPLACE THE L (R) ENGINE COWL ANTI-ICE LOW PRESSURE SWITCH, S10135 (AMM 30-21-01/401).

YES

7 CONNECT CONNECTOR D1320 FROM THE L (R) ENGINE COWL ANTI-ICE LOW PRESSURE SWITCH, S10135 (AMM 30-21-01/401).
REMOVE THE L (R) ENGINE PRESSURE SENSE RELAY, K10060 (K10062), FROM THE P36 (P37) PANEL (WDM 30-21-11).
PUT A JUMPER ON PINS, A2 AND A3, ON CONNECTOR D1504.
DOES THE "VALVE" LIGHT ON L (R) ENGINE ANTI-ICE SWITCH LIGHT, S1 (S2), GO OFF?

YES → 50 REPLACE THE L (R) ENGINE PRESSURE SENSE RELAY, K10060 (K10062) (WDM 30-21-11).

NO

8 REMOVE THE JUMPER FROM D1540 AND INSTALL THE L (R) ENGINE PRESSURE SENSE RELAY, K10060 (K10062) (WDM 30-21-11).
DO A CONTINUITY CHECK THROUGH THE ANTI-ICE CONTROL PANEL, FROM PIN 11 TO PIN 12, CONNECTOR D3528.
IS THERE CONTINUITY?

YES → 51 REPLACE THE L (R) ENGINE ANTI-ICE DISAGREE RELAY, K10601 (K10602) (WDM 30-21-11).

NO

9 DOES THE ANTI-ICE VALVE HAVE A POSITION INDICATOR INSTALLED (ENGINES POST-RR-SB 30-9533)?

YES → 52 LOCK OUT THE VALVE (AMM 30-21-99/201).
REPLACE THE VALVE (AMM 30-21-03/201). IF THE FLY-ON LIMITS IN MMEL 30-21-1 CANNOT BE APPLIED. REPORT THE VALVE HAS BEEN REMOVED FOR A FAULT ON THE POSITION INDICATOR.

NOTE:

THERE DOES NOT APPEAR TO BE ENOUGH AIR PRESSURE TO THE ANTI-ICE VALVE AT LOW ENGINE POWER, TO SET THE 5 PSI LOW PRESSURE SWITCH.

NO

10 REPLACE THE L (R) ENGINE ANTI-ICE SWITCH-LIGHT, YAQS1 (YAQS2), ON THE ANTI-ICE CONTROL PANEL, M10397 (AMM 33-14-00/201) OR REPLACE M10397 (AMM 30-11-01/401). RETURN TO SERVICE. IF THE PROBLEM PERSISTS, REPLACE THE VALVE.

When the L (R) Eng Anti-Ice Sw is placed to ON, EICAS Msg "L (R) ENG ANTI-ICE" Displayed and Eng Anti-Ice Valve Light Remained On
Figure 104 (Sheet 3)

PREREQUISITES

MAKE SURE THAT THESE CIRCUIT BREAKERS ARE CLOSED:
11C27, 11C28

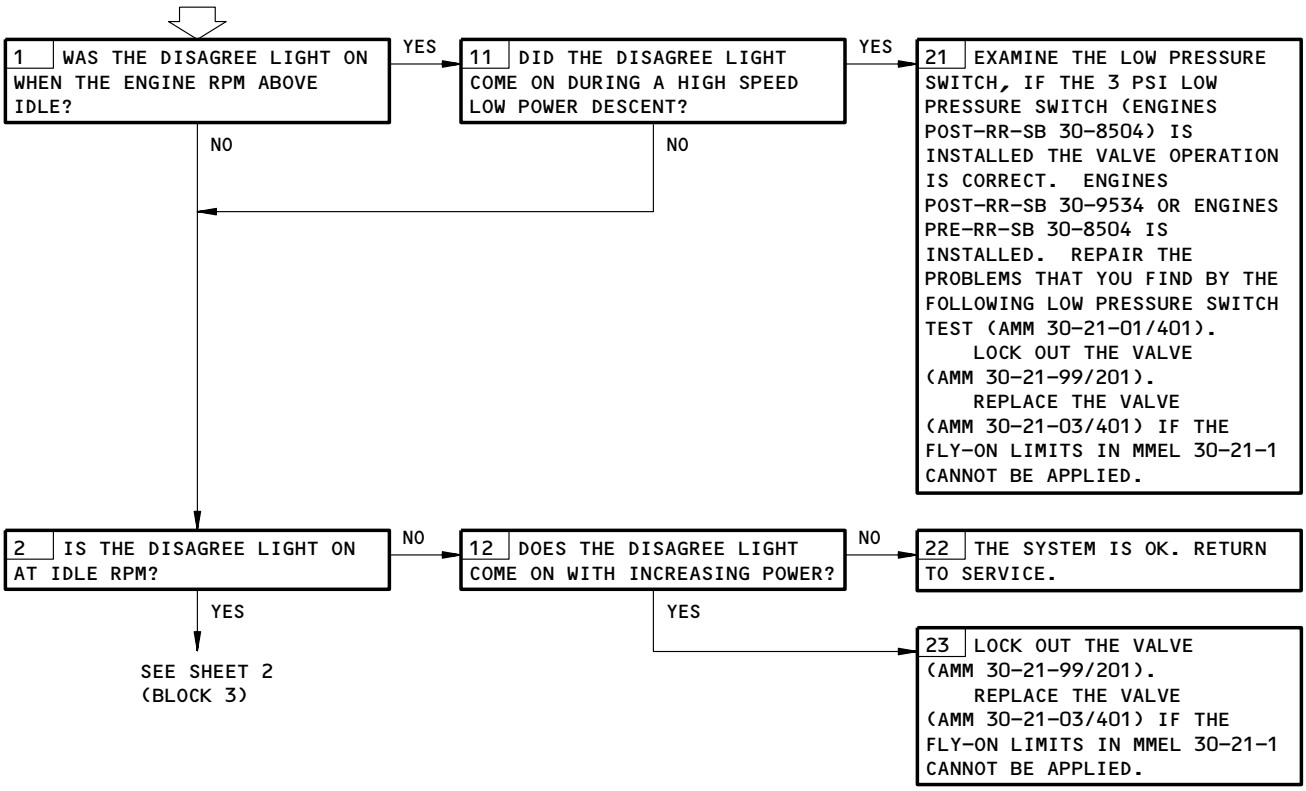
MAKE SURE THAT THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)
ENGINE IS OPERATING (AMM 71-00-00/201)

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU DO MAINTENANCE IN THE ELECTRICAL PANEL WITH POWER ON. DO NOT TOUCH EXPOSED TERMINALS OR CROSS-CONNECT WIRES IN THE PANEL. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

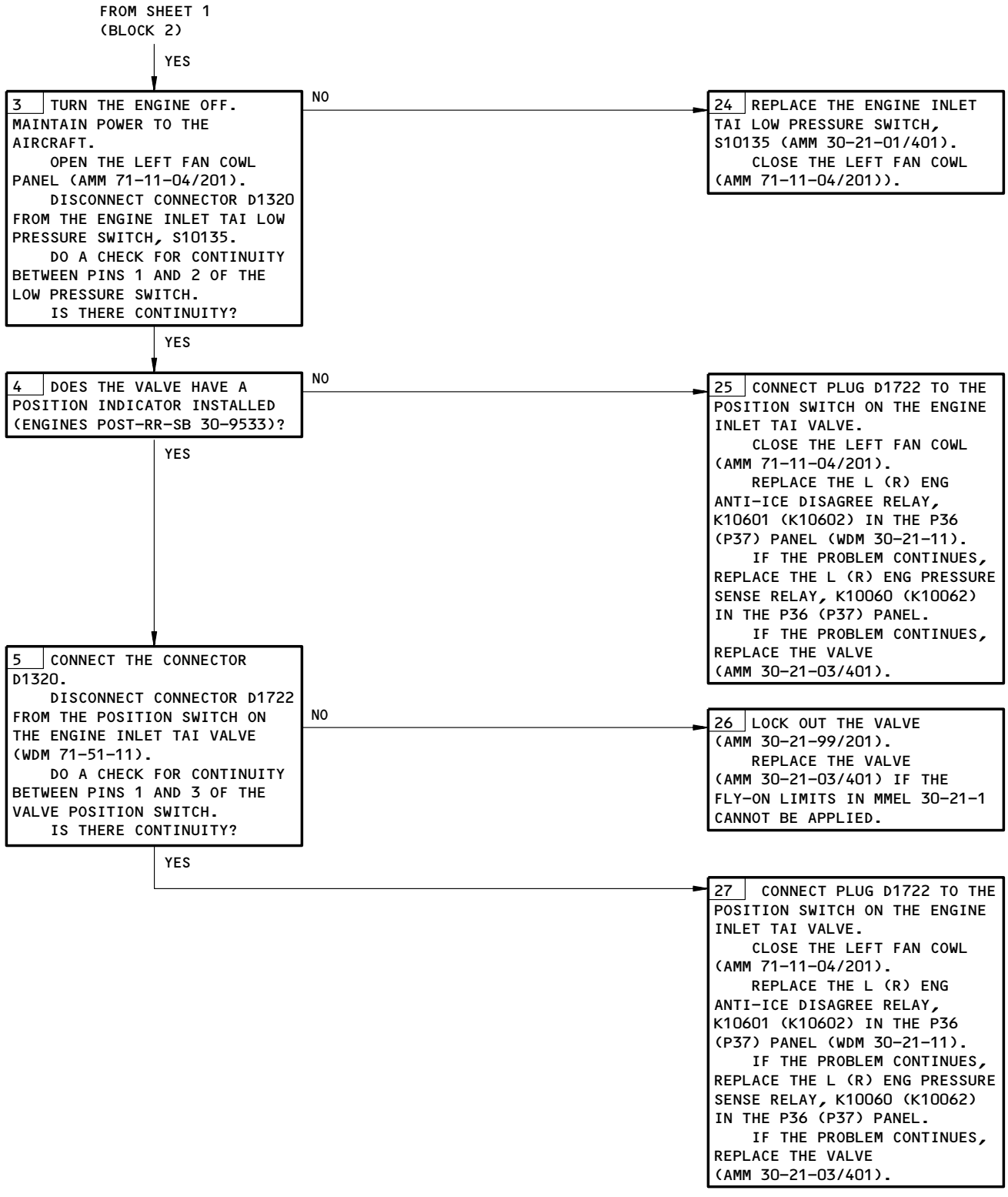
CAUTION: REMOVE THE POWER THAT GOES TO, AND THRU A RELAY BEFORE YOU REMOVE OR INSTALL IT. DAMAGE TO THE RELAY OR SYSTEM CAN OCCUR.

NOTE: THIS FIGURE IS TO BE USED FOR TROUBLESHOOTING A VALVE FAILURE TO CLOSE OR INDICATE CLOSED.

WHEN THE L (R) ANTI-ICE SW IS PLACED OFF, EICAS MSG "L (R) ENG ANTI-ICE" DISPLAYED AND ENG ANTI-ICE VALVE LIGHT REMAINED ON



When the L (R) Anti-Ice Sw is placed OFF, EICAS Msg "L (R) ENG ANTI-ICE" Displayed and Eng Anti-Ice Valve Light Remained On
Figure 105 (Sheet 1)



When the L (R) Anti-Ice Sw is placed OFF, EICAS Msg "L (R) ENG ANTI-ICE" Displayed and Eng Anti-Ice Valve Light Remained On
Figure 105 (Sheet 2)

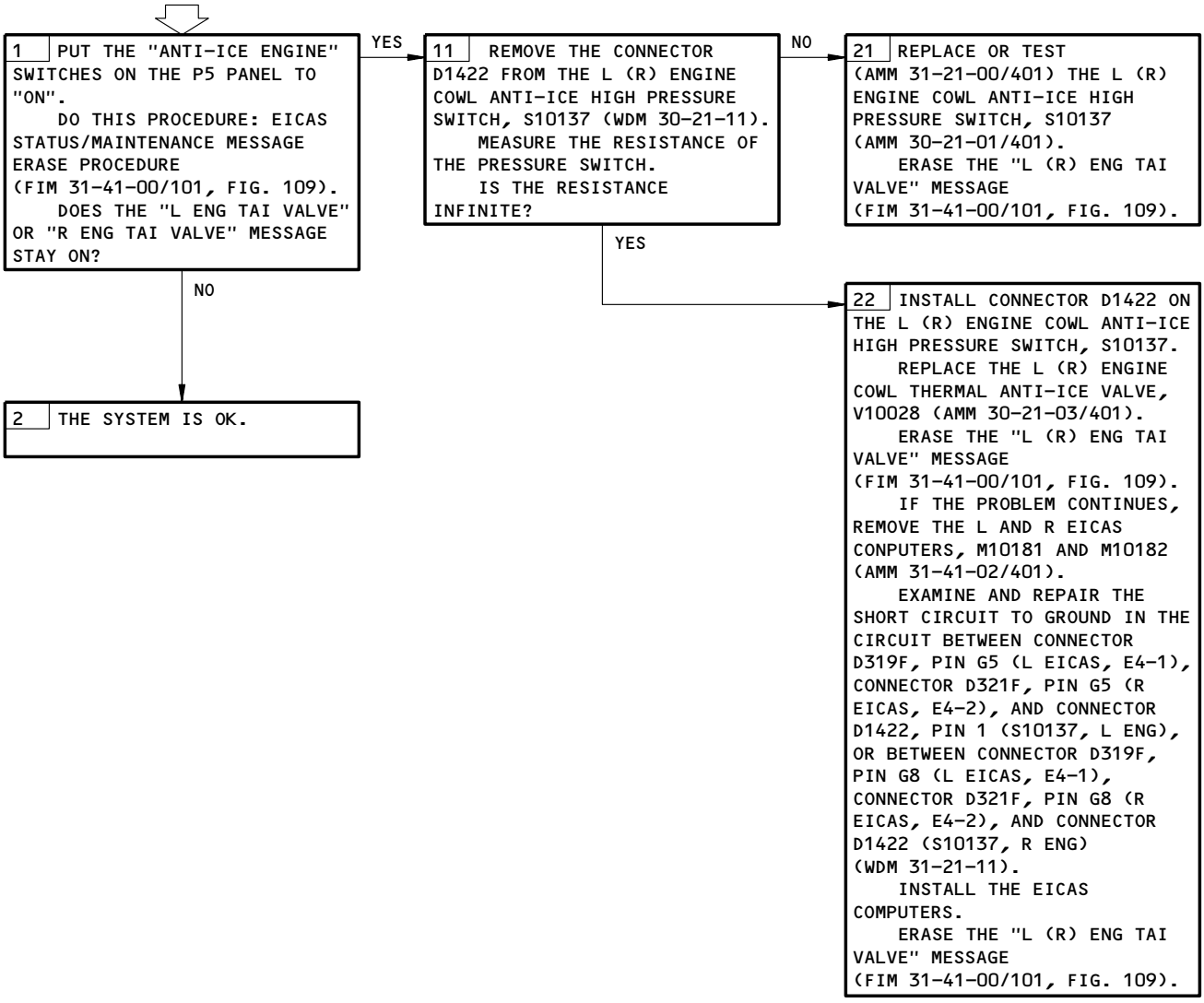
PREREQUISITES

MAKE SURE THAT THESE CIRCUIT BREAKERS ARE CLOSED:
11C27, 11C28

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

EICAS MSG (O1=L, O2=R) "ENG TAI VALVE" DISPLAYED. ENG ANTI-ICE "VALVE" LIGHT EXTIN WITH SW ON.

NOTE: THIS FIGURE IS TO BE USED FOR TROUBLESHOOTING AN ANTI-ICE SYSTEM OVER PRESSURE.



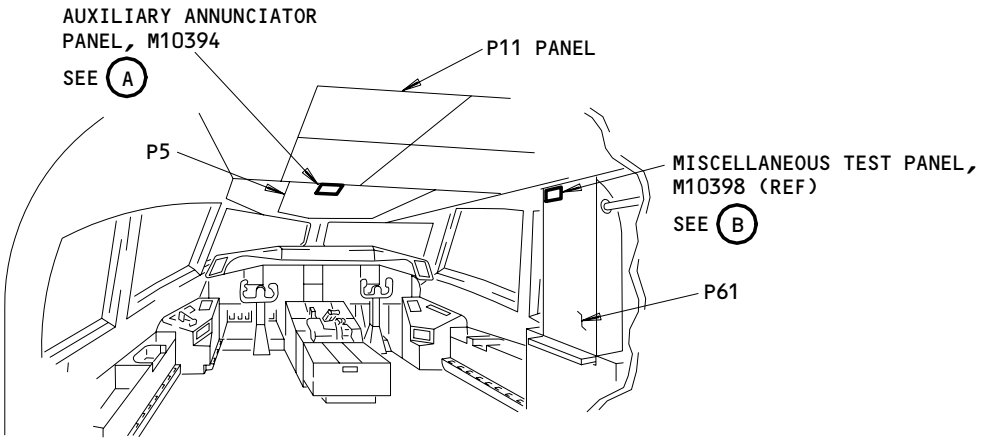
EICAS Msg (O1=L, O2=R) ENG TAI VALVE Displayed.
Eng Anti-Ice VALVE Light Extin with Sw ON
Figure 106

PITOT PROBE ANTI-ICING SYSTEM

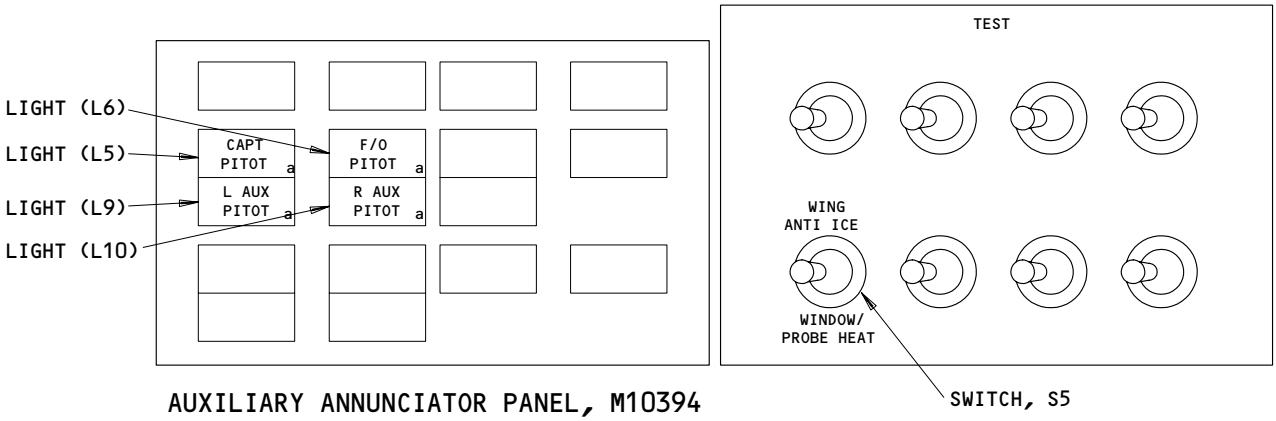
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER -	1		FLT COMPT, P6	
PITOT HEAT CAPT MAIN, C1110		1	6L15	*
PITOT HEAT F/O MAIN, C1116		1	6L22	*
PITOT HEAT L AUX, C1112		1	6L16	*
PITOT HEAT R AUX, C1114		1	6L21	*
CIRCUIT BREAKER -			FLT COMPT, P11	
PITOT PROBE HEAT IND L, C1120		1	11D4	*
PITOT PROBE HEAT IND R, C1121		1	11C21	*
COMPUTER - (FIM 31-41-00/101)				
L EICAS, M10181				
R EICAS, M10182				
LIGHT - CAPT PITOT, L5	1	1	FLT COMPT, P5, AUX ANN PNL, M10394	*
LIGHT - F/O PITOT, L6	1	1	FLT COMPT, P5, AUX ANN PNL, M10394	*
LIGHT - L AUX PITOT, L9	1	1	FLT COMPT, P5, AUX ANN PNL, M10394	*
LIGHT - R AUX PITOT, L10	1	1	FLT COMPT, P5, AUX ANN PNL, M10394	
PANEL - (FIM 30-32-00/101)				
MISC TEST, M10398				
PANEL - AUX ANNUNCIATOR, M10394	1	1	FLT COMPT, P5	*
PROBE - (FIM 34-11-00/101)				
CAPT PITOT, B26				
F/O PITOT, B28				
L AUX PITOT, B27				
R AUX PITOT, B29				
RELAY -	--		MAIN EQUIP CTR, P33 PANEL	
CAPT, PITOT CURRENT SENSING, K243		1		*
LEFT AUX, PITOT CURRENT SENSING, K242		1		*
LEFT PROBE TEST, K10265		1		*
RELAY -	--		MAIN EQUIP CTR, P36 PANEL	
AIR/GND, SYS 1, K178		1		*
AIR/GND, SYS 1, K10107		1		*
AIR/GND, SYS 1, K10307		1		*
L ENG OUT, K10337		1		*
R ENG OUT, K10340		1		*
RELAY -	--		MAIN EQUIP CTR, P37 PANEL	
AIR/GND, SYS 2, K204		1		*
AIR/GND, SYS 2, K10308		1		*
AIR/GND, SYS 2, K10309		1		*
F/O, PITOT CURRENT SENSING, K310		1		*
L ENG OUT, K10338		1		*
R ENG OUT, K10341		1		*
RIGHT AUX, PITOT CURRENT SENSING, K312		1		*
RIGHT PROBE TEST, K10264		1		*
SWITCH - (WING ANTI-ICE) WINDOW/PROBE HEAT, S5	1	1	FLT COMPT, P61, MISC TEST PNL, M10398	*

* SEE THE WDM EQUIPMENT LIST

Pitot Probe Anti-Icing System - Component Index
Figure 101



FLIGHT COMPARTMENT

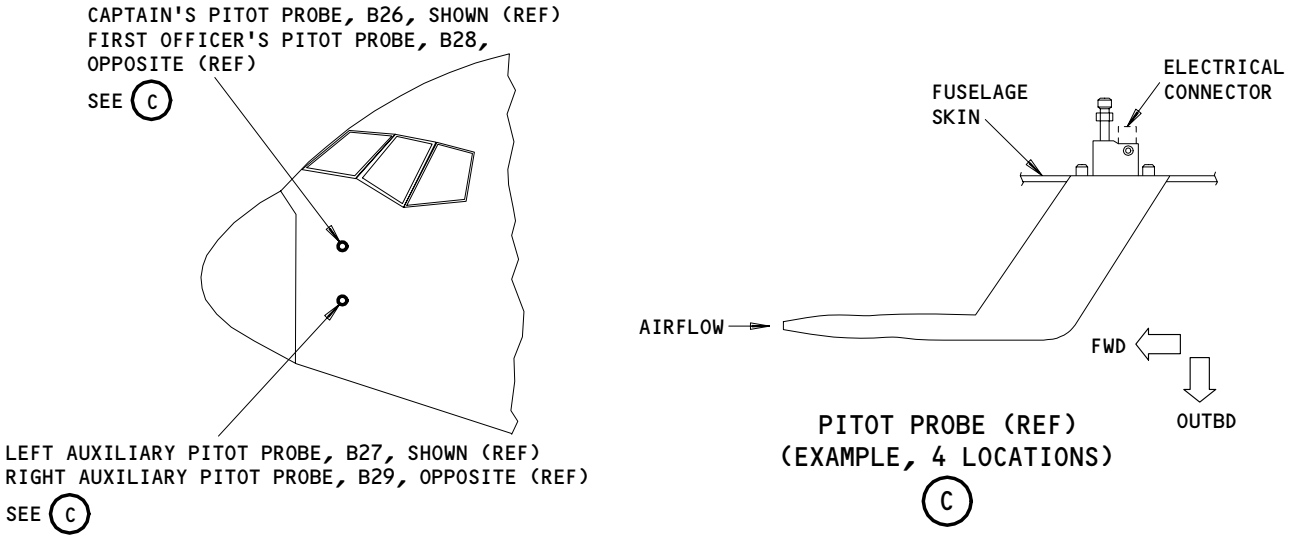


AUXILIARY ANNUNCIATOR PANEL, M10394

(A)

MISCELLANEOUS TEST PANEL, M10398 (REF)

(B)



PITOT PROBE (REF)
(EXAMPLE, 4 LOCATIONS)

(C)

Pitot Probe Anti-Icing System - Component Location
Figure 102

PREREQUISITES

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

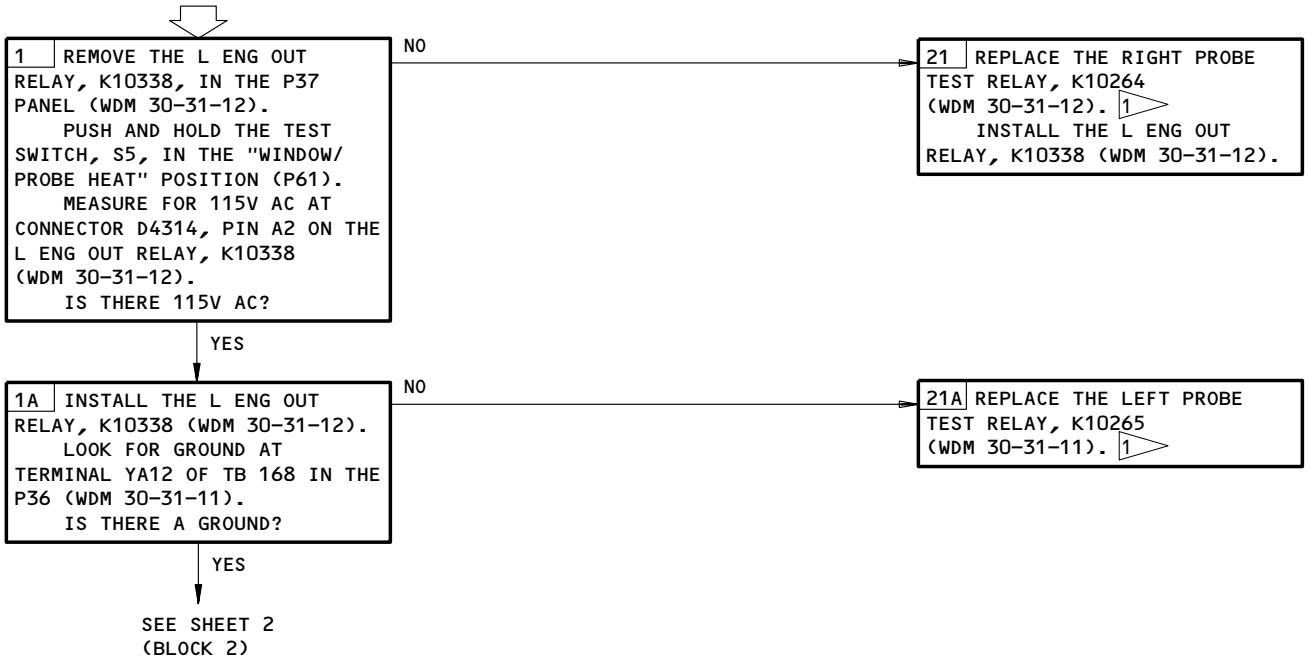
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6L22, 11C21, 11D4; A 6L13 OR 6L15

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

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU DO MAINTENANCE IN THE ELECTRICAL PANEL WITH POWER ON. DO NOT TOUCH EXPOSED TERMINALS OR CROSS-CONNECT WIRES IN THE PANEL. DO NOT PERMIT TOOLS TO FALL IN THE PANEL. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: REMOVE THE POWER THAT GOES TO AND THRU A RELAY BEFORE YOU REMOVE OR INSTALL IT. DAMAGE TO THE RELAY OR SYSTEM CAN OCCUR.

EICAS MESSAGE "CAPT (F/O) PITOT" DISPLAYED. CAPT (F/O) PITOT LIGHT REMAINS ILLUM DURING PROBE HEAT TEST



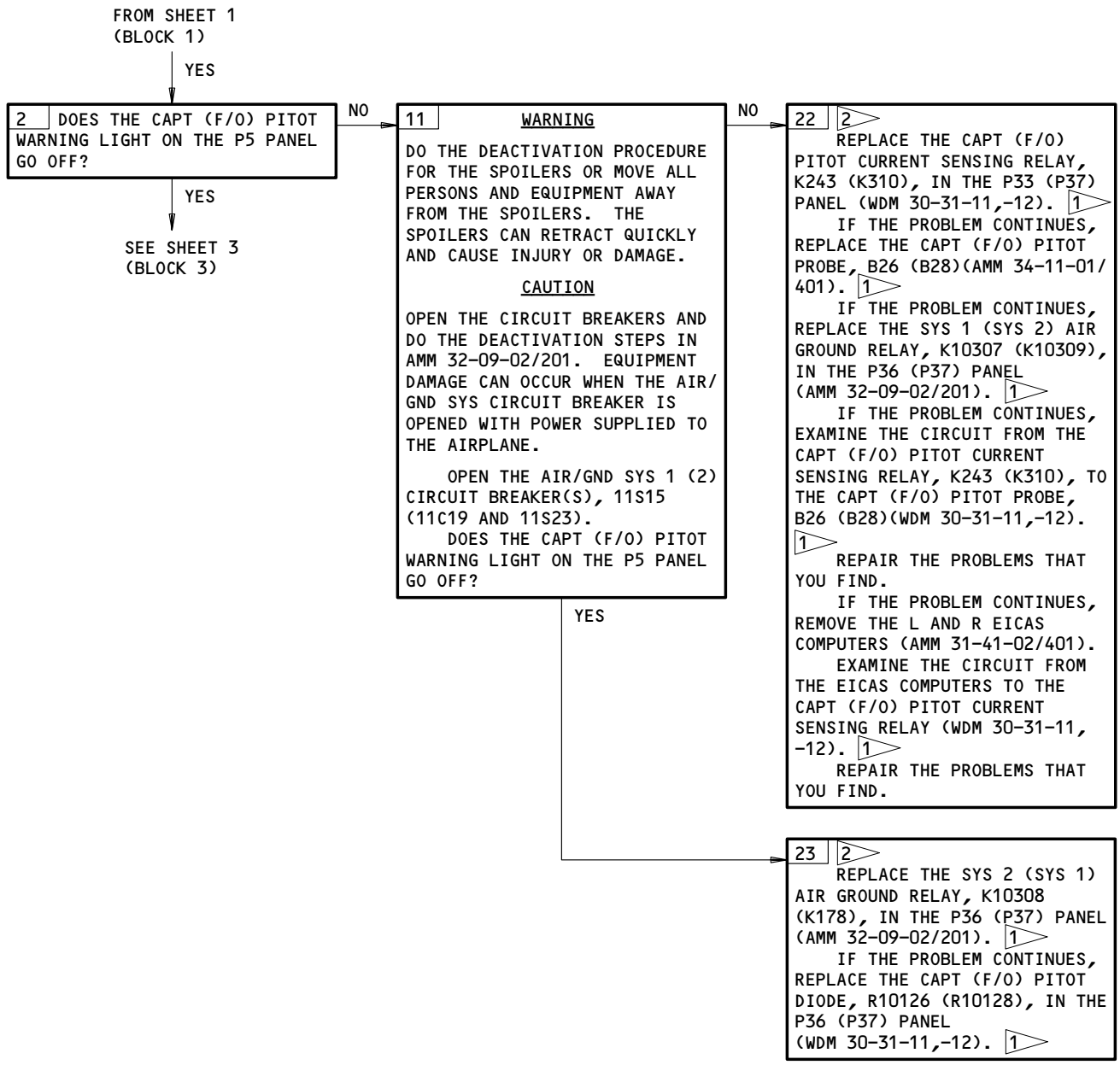
A THE PITOT HEAT CAPT MAIN CIRCUIT BREAKER CAN BE IN ONE OF THESE TWO LOCATIONS.

1 ERASE THE "CAPT (F/O) PITOT HEAT" MESSAGE (FIM 31-41-00/101, FIG. 109).

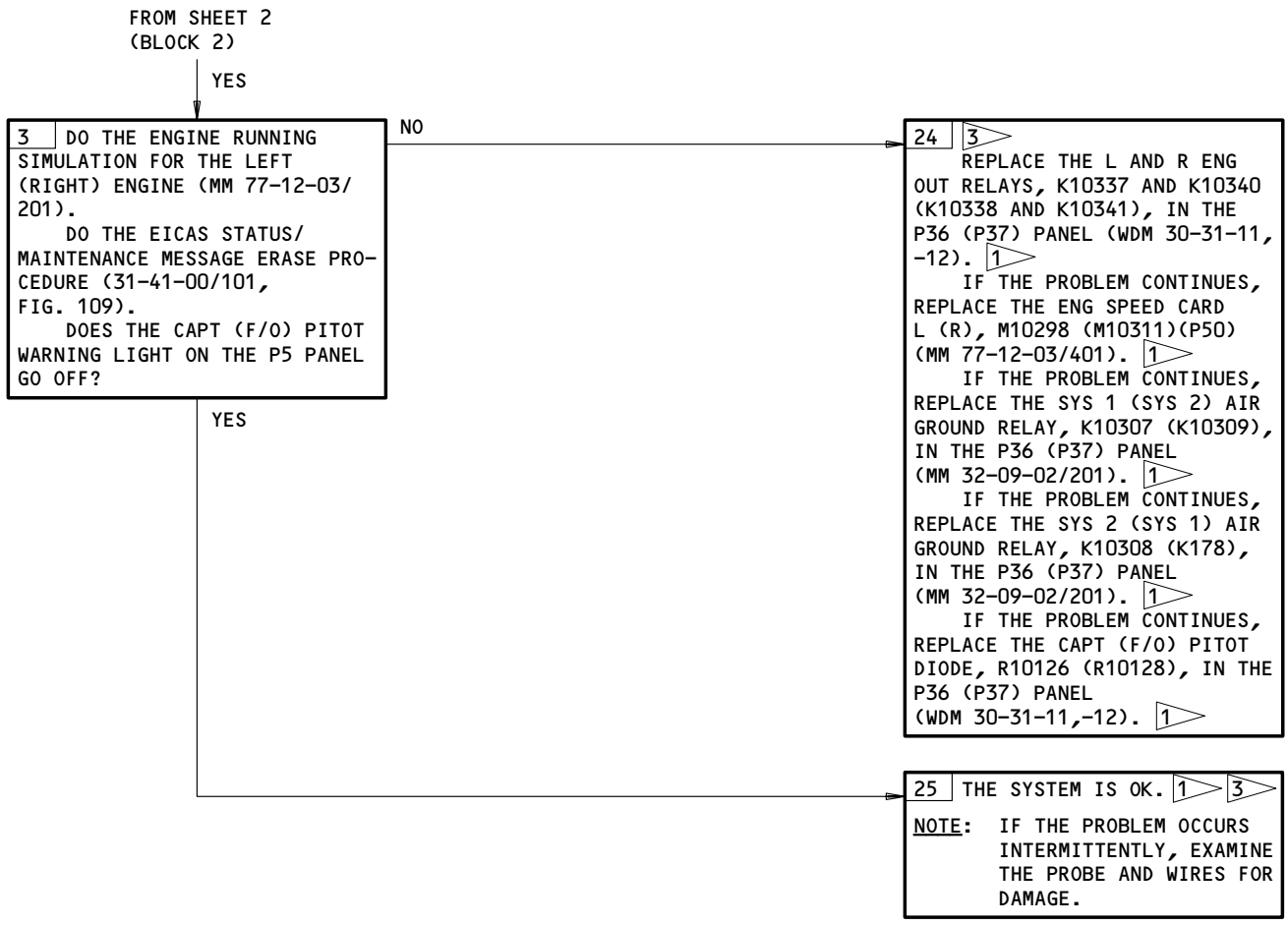
2 REMOVE THE SIMULATION OF THE FLIGHT MODE WITH THE AIR/GROUND RELAY SYSTEM (AMM 32-09-02/201).

3 REMOVE THE ENGINE RUNNING SIMULATION (AMM 77-12-03/201).

EICAS Message CAPT (F/O) PITOT Displayed. Capt (F/O) Pitot Light Remains Illum during Probe Heat Test
Figure 103 (Sheet 1)



EICAS Message CAPT (F/O) PITOT Displayed. Capt (F/O) Pitot Light Remains Illum during Probe Heat Test
Figure 103 (Sheet 2)



EICAS Message CAPT (F/O) PITOT Displayed. Capt (F/O) Pitot Light Remains Illum During Probe Heat Test
Figure 103 (Sheet 3)

PREREQUISITES

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

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6L21,11C21,11D4; A 6L14 OR 6L16

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

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU DO MAINTENANCE IN THE ELECTRICAL PANEL WITH POWER ON. DO NOT TOUCH EXPOSED TERMINALS OR CROSS-CONNECT WIRES IN THE PANEL. DO NOT PERMIT TOOLS TO FALL IN THE PANEL. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: REMOVE THE POWER THAT GOES TO, AND THRU A RELAY BEFORE YOU REMOVE OR INSTALL IT. DAMAGE TO THE RELAY OR SYSTEM CAN OCCUR.

EICAS MESSAGE "L (R) AUX PITOT" DISPLAYED. L (R) AUX PITOT LIGHT STAYS ON DURING PROBE HEAT TEST

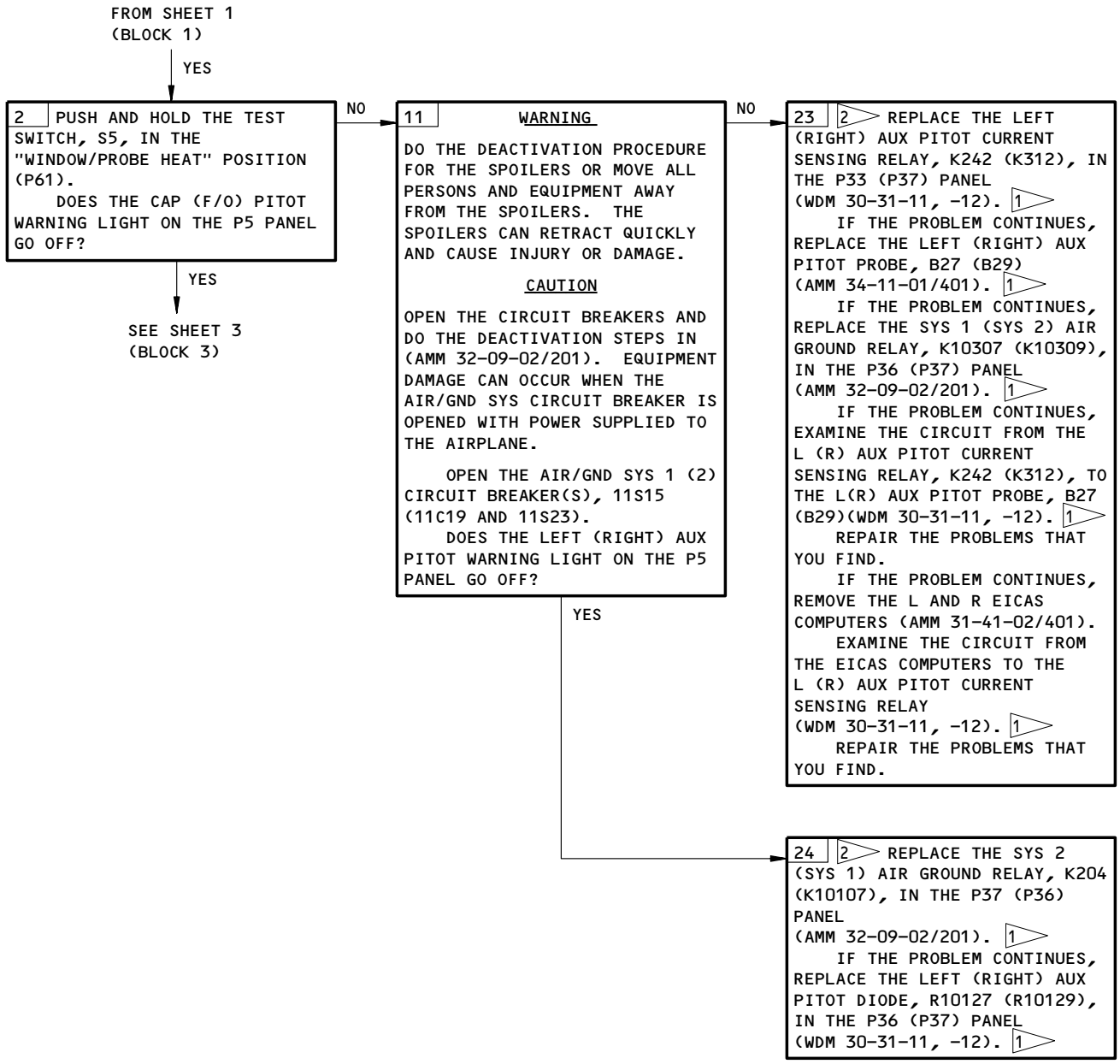
A THE PITOT HEAT L AUX CIRCUIT BREAKER CAN BE IN ONE OF THESE TWO LOCATIONS.

1 ERASE THE "L (R) AUX PITOT" MESSAGE (FIM 31-41-00/101, FIG. 109)

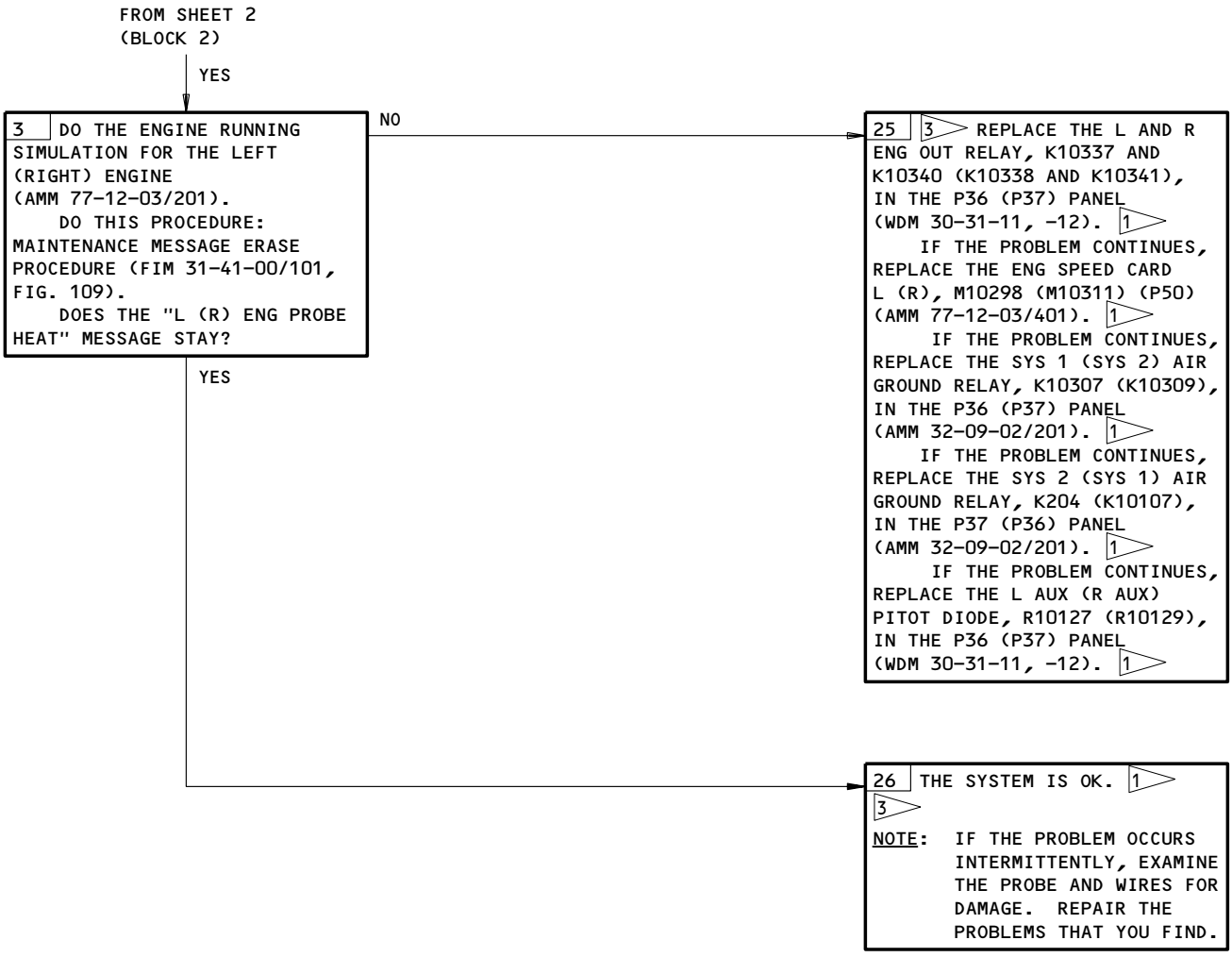
2 REMOVE THE SIMULATION OF THE FLIGHT MODE WITH AIR/GROUND RELAY SYSTEM (AMM 32-09-02/201).

3 REMOVE THE ENGINE RUNNING SIMULATION (AMM 77-12-03/201).

EICAS Message L (R) AUX PITOT Displayed. L (R) AUX PITOT Light Stays On during Probe Heat Test
Figure 104 (Sheet 1)



EICAS Message L (R) AUX PITOT Displayed. L (R) AUX PITOT Light Stays On during Probe Heat Test
Figure 104 (Sheet 2)



EICAS Message L (R) AUX PITOT Displayed. L (R) AUX PITOT Light Stays On during Probe Heat Test
Figure 104 (Sheet 3)

EICAS MESSAGE "PROBE HEAT" DISPLAYED. TWO OR MORE PROBE HEAT LIGHTS STAY ON.

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6L15,6L16,6L17,6L21,6L22,6L23,6L24,11C21,11D4,11D5,11R25,11R27

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

1 HOLD THE TEST SWITCH ON THE P61 PANEL IN THE WINDOW/PROBE HEAT POSITION.
ARE THE "CAPT PITOT", "F/O PITOT", "L AUX PITOT", "R AUX PITOT", "TAT", "L AOA", AND "R AOA" ANNUNCIATOR LIGHTS AT THE P5 PANEL ON?

YES → 21 REPLACE THE TEST PANEL, M10398, ON THE P61 PANEL (THE "WING ANTI-ICE WINDOW/PROBE HEAT" SWITCH, S5, CAUSED THE PROBLEM)(WDM 30-32-11).

NO ↓

2 ARE THE "CAPT PITOT", "L AUX PITOT", AND "L AOA" THE ONLY ANNUNCIATOR LIGHTS ON?

YES → 22 REPLACE THE LEFT PROBE TEST RELAY, K10265, ON THE P33 PANEL (WDM 30-32-11).
IF THE PROBLEM CONTINUES, REPLACE THE TEST PANEL, M10398, ON THE P61 PANEL (THE "WING ANTI-ICE, WINDOW/PROBE HEAT" SWITCH, S5, CAUSED THE PROBLEM)(WDM 30-32-11).

NO ↓

3 ARE THE "CAPT PITOT" AND "L AUX PITOT" THE ONLY ANNUNCIATOR LIGHTS ON?

YES → 23 REPLACE THE LEFT PROBE TEST RELAY, K10265, ON THE P33 PANEL (WDM 30-32-11).

NO ↓

4 ARE THE "F/O PITOT", "R AUX PITOT", "R AOA", AND "TAT" THE ONLY ANNUNCIATOR LIGHTS ON?

YES → 24 REPLACE THE RIGHT PROBE TEST RELAY, K10264, ON THE P37 PANEL (WDM 30-32-11).
IF THE PROBLEM CONTINUES, REPLACE THE TEST PANEL, M10398, ON THE P61 PANEL (THE "WING ANTI-ICE WINDOW/PROBE HEAT" SWITCH, S5, CAUSED THE PROBLEM)(WDM 30-32-11).

NO ↓

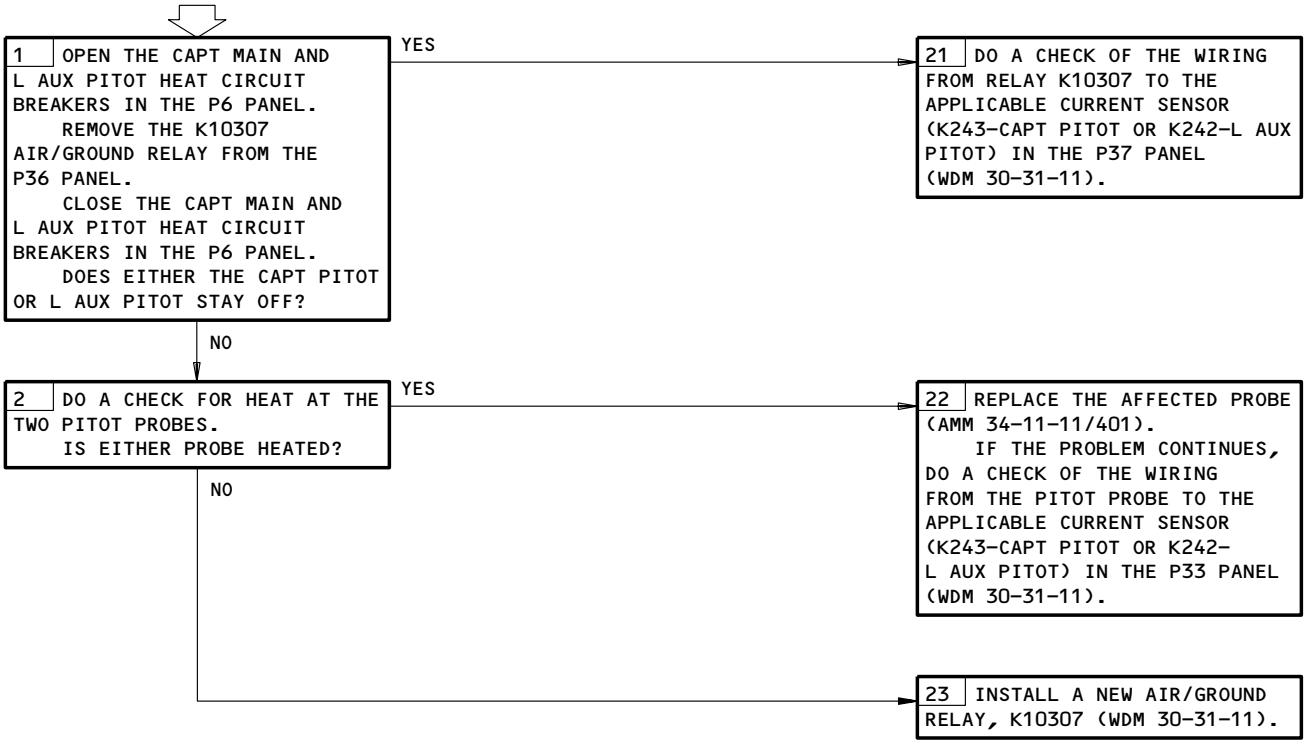
25 IF THE "F/O PITOT" AND "R AUX PITOT" ARE THE ONLY ANNUNCIATOR LIGHTS ON, REPLACE THE RIGHT PROBE TEST RELAY, K10264, ON THE P37 PANEL (WDM 30-31-12).

EICAS Message PROBE HEAT Displayed. Two Or More Probe Heat Lights Stay On.
Figure 105

BOTH THE CAPT AND L AUX PITOT LIGHTS ARE OFF ON THE GROUND WITH THE ENGINES NOT RUNNING

PREREQUISITES

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



Both the CAPT and L Aux Pitot Light are OFF on the Ground with the Engines Not Running
Figure 106

BOTH THE F/O AND STBY INST PITOT LIGHTS ARE OFF ON THE GROUND WITH THE ENGINES NOT RUNNING

PREREQUISITES

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

1 OPEN THE F/O MAIN AND STBY INST PITOT HEAT CIRCUIT BREAKERS IN THE P6 PANEL.
REMOVE THE K10309 AIR/GROUND RELAY FROM THE P37 PANEL.
CLOSE THE F/O MAIN AND STBY INST PITOT HEAT CIRCUIT BREAKERS IN THE P6 PANEL.
DOES EITHER THE F/O PITOT OR STBY INST PITOT STAY OFF?

YES → 21 DO A CHECK OF THE WIRING FROM RELAY, K10309 TO THE APPLICABLE CURRENT SENSOR (K310 - F/O PITOT OR K10829 - STBY INST PITOT) IN THE P37 PANEL (WDM 30-31-12).

NO ↓

2 DO A CHECK FOR HEAT AT THE TWO PITOT PROBES.
IS EITHER PROBE HEATED?

YES → 22 REPLACE THE AFFECTED PROBE (AMM 34-11-11/401).
IF THE PROBLEM CONTINUES, DO A CHECK OF THE WIRING FROM THE PITOT PROBE TO THE APPLICABLE CURRENT SENSOR (K310 - F/O PITOT OR K10829 - STBY INST PITOT) IN THE P37 PANEL (WDM 30-31-12).

NO ↓

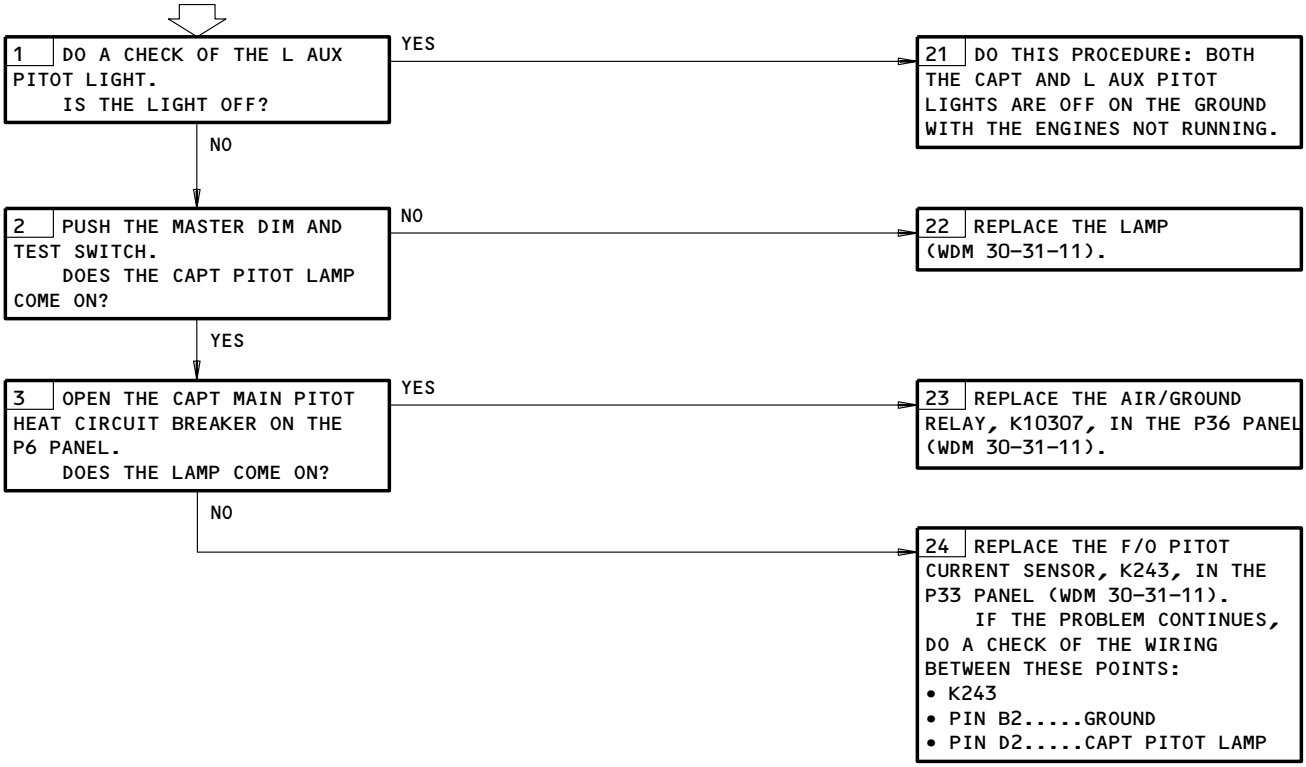
23 REPLACE AIR/GROUND RELAY, K1815 (WDM 30-31-12).
IF THE PROBLEM CONTINUES, REPLACE IN THE FOLLOWING ORDER:
1. RADIO ALTIMETER RELAY, K10816 (WDM 32-09-12).
2. YAW DAMPER/STABILIZER MODULE, M11483 (WDM 32-09-12).

Both the F/O and STBY INST Pitot Lights are Off on the Ground with the Engines Not Running
Figure 107

CAPT PITOT LIGHT IS OFF ON THE GROUND WITH THE ENGINES NOT RUNNING

PREREQUISITES

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

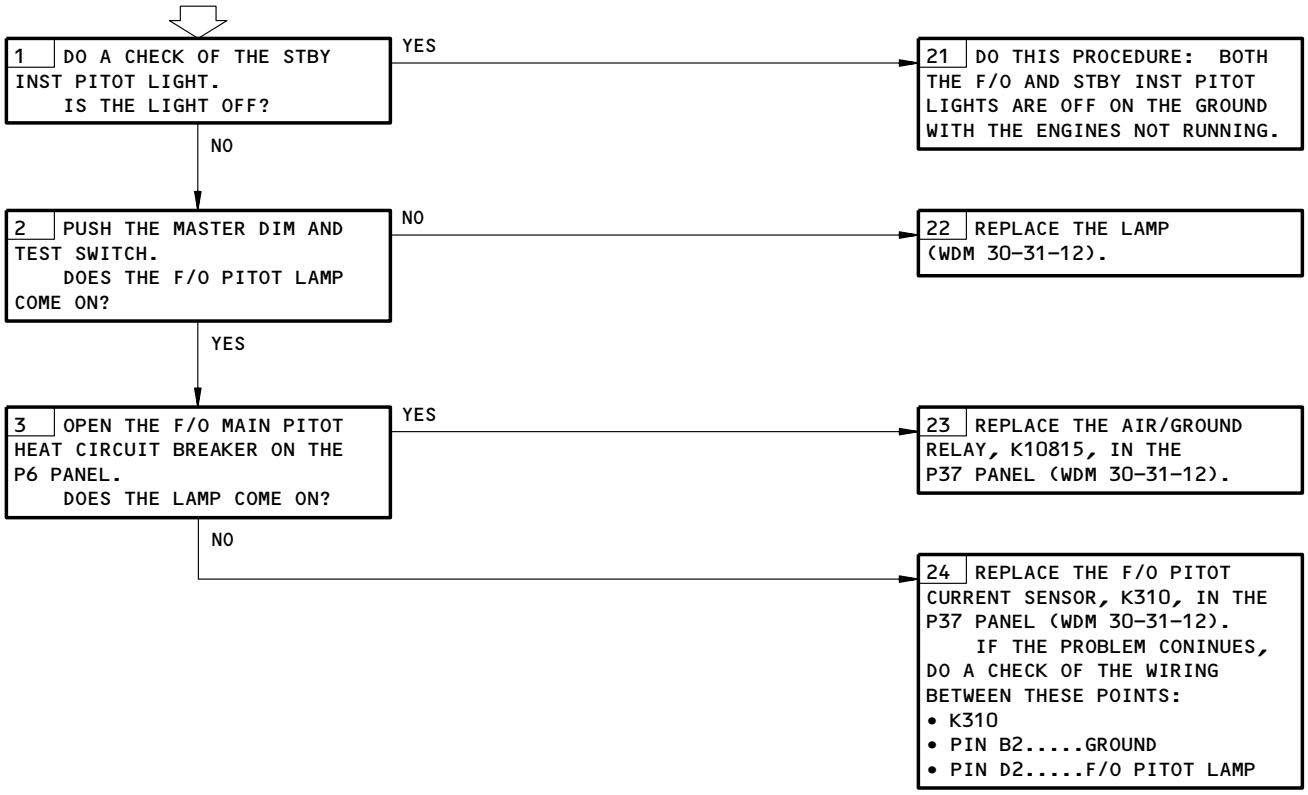


CAPT Pitot Light is Off on the Ground
With the Engines Not Running
Figure 108

F/O PITOT LIGHT IS OFF ON THE GROUND WITH THE ENGINES NOT RUNNING

PREREQUISITES

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

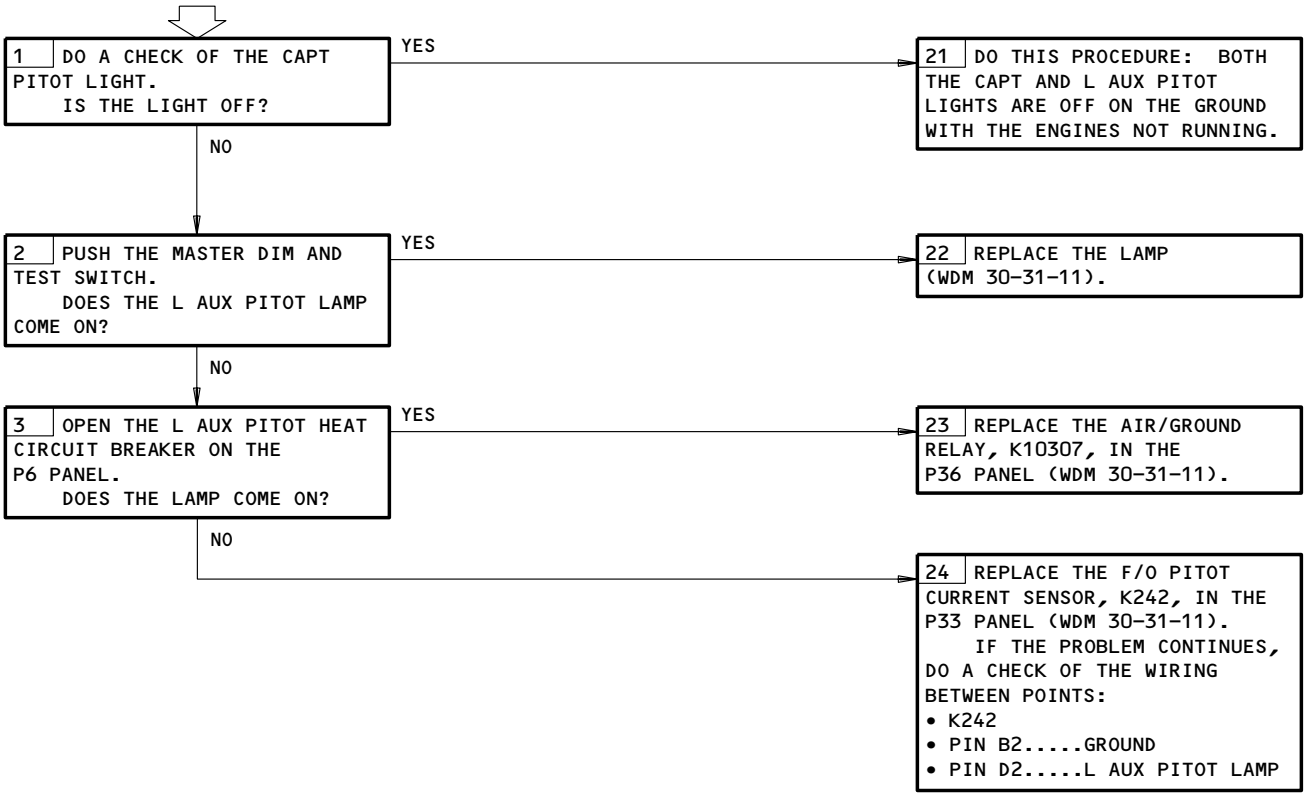


F/O Pitot Light is Off On the Ground
with the Engines Not Running
Figure 109

L AUX PITOT LIGHT IS OFF ON THE GROUND WITH THE ENGINES NOT RUNNING

PREREQUISITES

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



L AUX PITOT Light is Off on the Ground
with the Engines Not Running
Figure 110

R AUX PITOT LIGHT IS OFF ON THE GROUND WITH THE ENGINES NOT RUNNING

PREREQUISITES

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

1 DO A CHECK OF THE F/O PITOT LIGHT.
IS THE LIGHT OFF?

YES → 21 DO THIS PROCEDURE: BOTH THE F/O AND STBY INST PITOT LIGHTS ARE OFF ON THE GROUND WITH THE ENGINES NOT RUNNING.

NO

2 PUSH THE MASTER DIM AND TEST SWITCH.
DOES THE STBY INST PITOT LAMP COME ON?

NO → 22 REPLACE THE LAMP (WDM 30-31-12).

YES

3 OPEN THE STBY INST PITOT HEAT CIRCUIT BREAKER ON THE P6 PANEL.
DOES THE LAMP COME ON?

YES → 23 REPLACE THE AIR/GROUND RELAY, K10815, IN THE P37 PANEL (WDM 30-31-12).

NO → 24 REPLACE THE F/O PITOT CURRENT SENSOR, K10829, IN THE P37 PANEL (WDM 30-31-12).
IF THE PROBLEM CONTINUES, DO A CHECK OF THE WIRING BETWEEN THESE POINTS:
- K10829
- PIN B2.....GROUND
- PIN D2.....STBY INST PITOT LAMP

STBY INST PITOT Light is Off On the Ground
with the Engines Not Running
Figure 111

ANGLE OF ATTACK PROBE HEAT SYSTEM

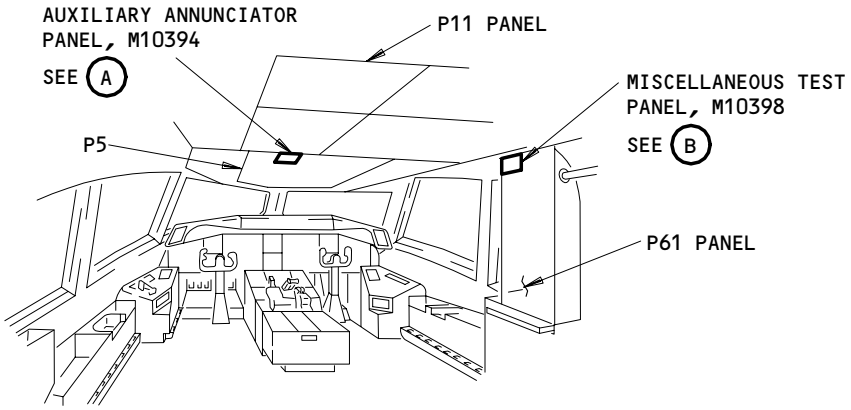
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER -			FLT COMPT, P6	
L AOA HEAT, C1134		1	6L17	*
R AOA HEAT, C1135		1	6L23	*
CIRCUIT BREAKER -			FLT COMPT, P11	
PROBE HEAT IND AOA LEFT, C4194		1	1> 11D5 OR 11R18	*
PROBE HEAT IND AOA R, C4195		1	11R27	*
COMPUTER - (FIM 31-41-00/101)				
L EICAS, M10181				
R EICAS, M10182				
LIGHT - L AOA, L7	1	1	FLT COMPT, P5, MISC ANNUN PNL, M10394	*
LIGHT - R AOA, L8	1	1	FLT COMPT, P5, MISC ANNUN PNL, M10394	*
PANEL - (FIM 30-31-00/101)				
AUX ANNUNCIATOR, M10394				
PANEL - MISC TEST, M10398	1	1	FLT COMPT, P61	*
PROBE - (FIM 34-12-00/101)				
L AOA, TS12				
R AOA, TS13				
RELAY -	--		MAIN EQUIP CTR, P33 PANEL	
L CURRENT SENSING, K401		1		*
L PROBE TEST, K10265		1		*
RELAY -	--		MAIN EQUIP CTR, P36 PANEL	
AIR/GND, SYS 1, K144		1		*
L ENG OUT, K10337		1		*
R ENG OUT, K10340		1		*
RELAY -	--		MAIN EQUIP CTR, P37 PANEL	
AIR/GND, SYS 2, K213		1		*
L ENG OUT, K10338		1		*
R CURRENT SENSING, K400		1		*
R ENG OUT, K10341		1		*
R PROBE TEST, K10264		1		*
SWITCH - WINDOW/PROBE HEAT TEST, S5	1	1	FLT COMPT, P61, M10398, MISC TEST PANEL	*

* SEE THE WDM EQUIPMENT LIST

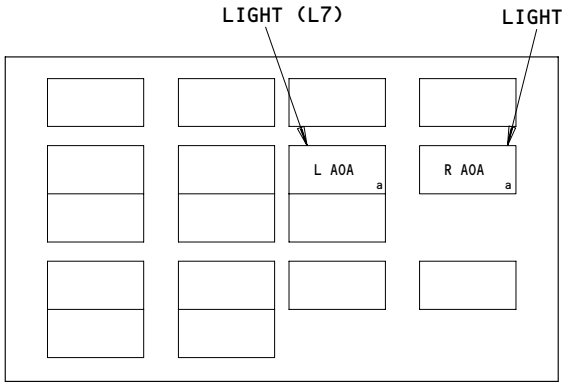
1> THIS CIRCUIT BREAKER CAN BE IN ONE OF THESE TWO LOCTIONS.

Angle of Attack Probe Heat System - Component Index
Figure 101

601543

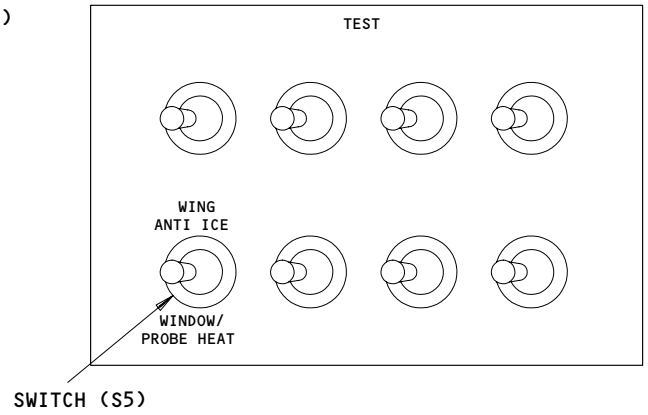


FLIGHT COMPARTMENT



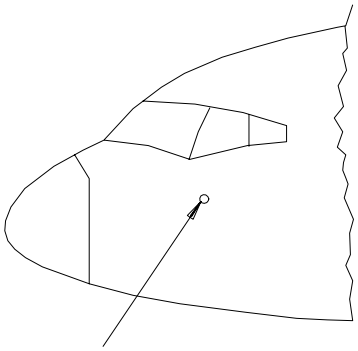
AUXILIARY ANNUNCIATOR PANEL, M10394

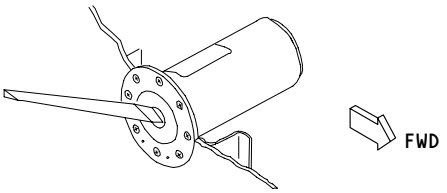
A



MISCELLANEOUS TEST PANEL, M10398

B





LEFT OR RIGHT ANGLE OF ATTACK PROBE,
TS12 OR TS13

C

Angle of Attack Probe Heat System - Component Location
Figure 102

PREREQUISITES

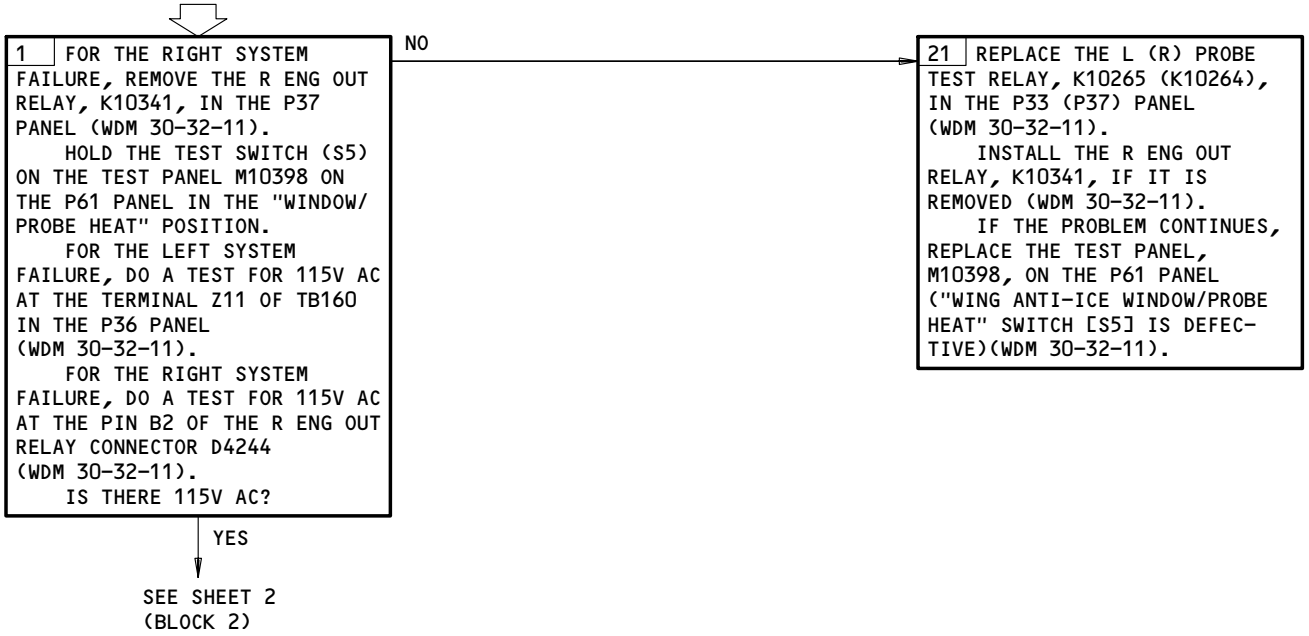
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6L17,6L23,11R18,11R27

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

EICAS MSG "L (R) AOA PROBE" DISPLAYED. "L (R) AOA" PROBE HEAT LGT REMAINS ILLUM DURING PROBE HEAT TEST WITH APL ON GND AND ENGS OFF.

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU DO MAINTENANCE IN THE ELECTRICAL PANEL WITH POWER ON. DO NOT TOUCH EXPOSED TERMINALS OR CROSS-CONNECT WIRES IN THE PANEL. DO NOT PERMIT TOOLS TO FALL IN THE PANEL. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: REMOVE THE POWER THAT GOES TO, AND THRU A RELAY BEFORE YOU REMOVE OR INSTALL IT. DAMAGE TO THE RELAY OR SYSTEM CAN OCCUR.



EICAS Msg L (R) AOA PROBE Displayed. L (R) AOA Probe Heat Lgt Remains Illum During Probe Heat Test With Apl on Gnd and Engs Off.
Figure 103 (Sheet 1)

FROM SHEET 1
(BLOCK 1)

YES

2 INSTALL THE R ENG OUT RELAY K10341 IF IT IS REMOVED (WDM 30-32-11).
REMOVE THE L (R) CURRENT SENSING RELAY, K401 (K400), IN THE P33 (P37) PANEL (WDM 30-32-11).
HOLD THE TEST SWITCH (S5) ON THE TEST PANEL, M10398, ON THE P61 PANEL IN THE "WINDOW/PROBE HEAT" POSITION.
DO A TEST FOR AC VOLTAGE AT THE PIN C1 (GND PIN B1) ON THE L (R) CURRENT SENSING RELAY, CONNECTOR D2120 (D2094), IN THE P33 (P37) PANEL (WDM 30-32-11).
IS THERE AC VOLTAGE?

NO

22 REPLACE THE L (R) AOA PROBE, TS12 (TS13) (MM 34-12-03/401).
INSTALL THE L (R) CURRENT SENSING RELAY, K401 (K400), IN THE P33 (P37) PANEL (WDM 30-32-11).

YES

23 REPLACE THE L (R) CURRENT SENSING RELAY, K401 (K400), IN THE P33 (P37) PANEL (WDM 30-32-11).
IF THE PROBLEM CONTINUES, EXAMINE AND REPAIR THE CIRCUIT BETWEEN THE PIN D2 ON THE L (R) CURRENT SENSING RELAY, CONNECTOR D2120 (D2094), AND THE TERMINAL YA4 (YC6) OF TB81 (TB178).

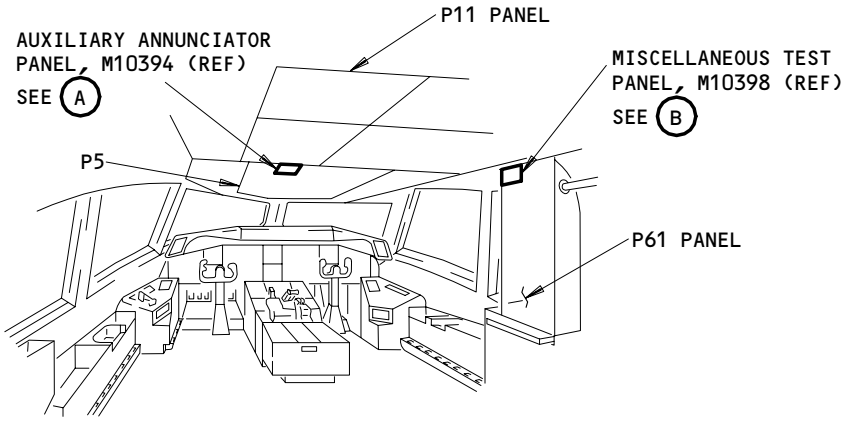
EICAS Msg L (R) AOA PROBE Displayed. L (R) AOA Probe Heat Lgt Remains Illum During Probe Heat Test with Apl on Gnd and Engs Off.
Figure 103 (Sheet 2)

TOTAL AIR TEMPERATURE PROBE HEAT SYSTEM

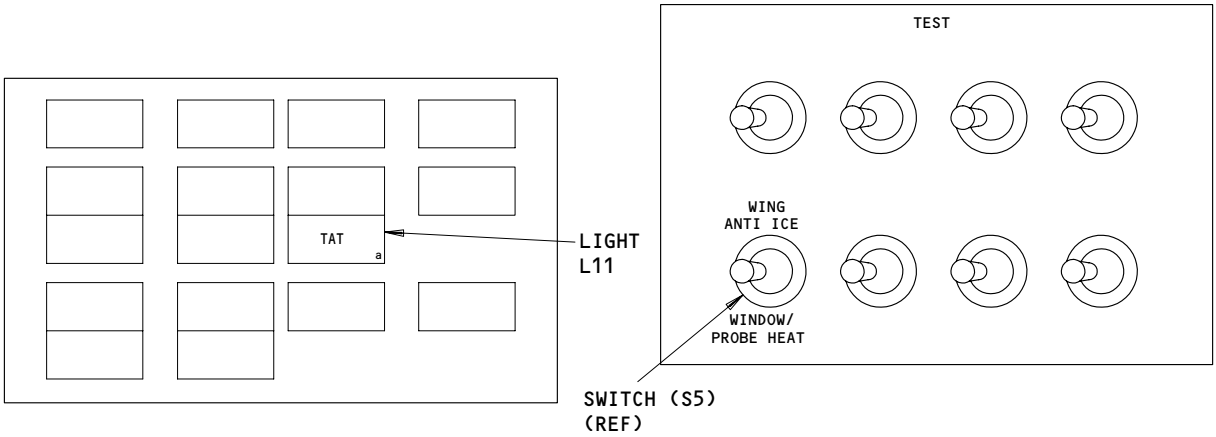
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER –	--		FLT COMPT, P6	
TAT PROBE HEAT, C4003		1	6L24	*
CIRCUIT BREAKER –			FLT COMPT, P11	
PROBE HEAT IND TAT, C4131			11R25	
COMPUTER – (FIM 31-41-00/101)				
L EICAS, M10181				
R EICAS, M10182				
LIGHT – TAT HEAT, L11	--	1	FLT COMPT, P5, AUX ANNUN PANEL, M10394	*
PANEL – (FIM 30-31-00/101)				
AUX ANNUN, M10394				
PANEL – (FIM 30-32-00/101)				
MISC TEST, M10398				
PROBE – (FIM 34-12-00/101)				
TAT, TS5001				
RELAY –	--		MAIN EQUIP CTR, P36 PANEL	
AIR/GND, SYS 1, K143		1		*
RELAY –	--		MAIN EQUIP CTR, P37 PANEL	
AIR/GND, SYS 2, K203		1		*
CURRENT SENSING, R TAT PROBE, K410		1		*
L ENGINE OUT, K10339		1		*
R ENGINE OUT, K10342		1		*
R PROBE TEST, K10264		1		*
SWITCH – (FIM 30-32-00/101)				
WINDOW/PROBE HEAT TEST, S5				

* SEE THE WDM EQUIPMENT LIST

Total Air Temperature Probe Heat System – Component Index
Figure 101



FLIGHT COMPARTMENT

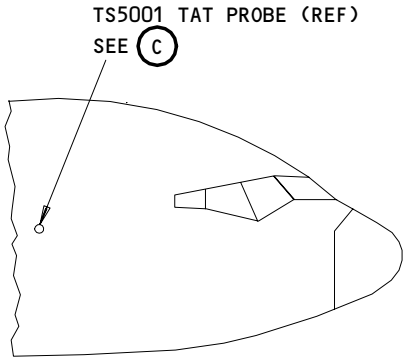


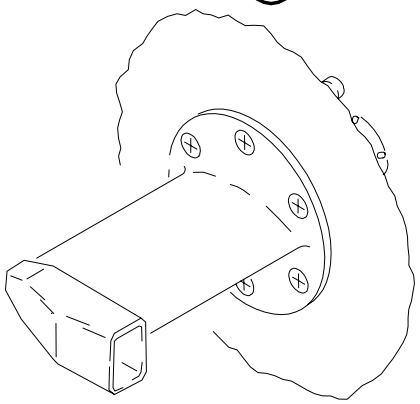
AUXILIARY ANNUNCIATOR PANEL, M10394 (REF)

A

MISCELLANEOUS TEST PANEL, M10398 (REF)

B





TOTAL AIR TEMPERATURE PROBE, TS5001 (REF)

C

Total Air Temperature Probe Heat System - Component Location
Figure 102

EICAS MESSAGE "TAT PROBE" DISPLAYED. "TAT" PROBE HEAT LIGHT REMAINS ILLUMINATED DURING PROBE HEAT TEST WITH AIRPLANE ON GROUND AND ENGINES OFF.

PREREQUISITES

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

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6L24,11R25

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

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU DO MAINTENANCE IN THE ELECTRICAL PANEL WITH POWER ON. DO NOT TOUCH EXPOSED TERMINALS OR CROSS-CONNECT WIRES IN THE PANEL. DO NOT PERMIT TOOLS TO FALL IN THE PANEL. INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: REMOVE THE POWER THAT GOES TO, AND THRU A RELAY BEFORE YOU REMOVE OR INSTALL IT. DAMAGE TO THE RELAY OR SYSTEM CAN OCCUR.

1 WARNING

DO THE DEACTIVATION PROCEDURE FOR THE SPOILERS (AMM 27-61-00/201) OR MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SPOILERS. THE SPOILERS CAN RETRACT QUICKLY AND CAUSE INJURY OR DAMAGE.

CAUTION

OPEN THE CIRCUIT BREAKERS AND DO THE DEACTIVATION STEPS IN AMM 32-09-02/201. DO NOT OPEN CIRCUIT BREAKER 6L24. EQUIPMENT DAMAGE CAN OCCUR IF YOU OPEN THE AIR/GND CIRCUIT BREAKER WITH POWER SUPPLIED TO THE AIRPLANE.

OPEN THE AIR/GND SYS 2 CIRCUIT BREAKERS, 11C19 AND 11S23.

PUSH AND HOLD SWITCH S5 ON THE MISCELLANEOUS TEST PANEL, M10398, AT THE P61 PANEL TO THE "WINDOW/PROBE HEAT" POSITION.

NOTE: SWITCH S5 IS A MOMENTARY-ON SWITCH. YOU MUST HOLD IT TO THE "WINDOW/PROBE HEAT" POSITION DURING EACH STEP OF THIS PROCEDURE. RELEASE THE SWITCH WHEN YOU COMPLETE THE TEST.

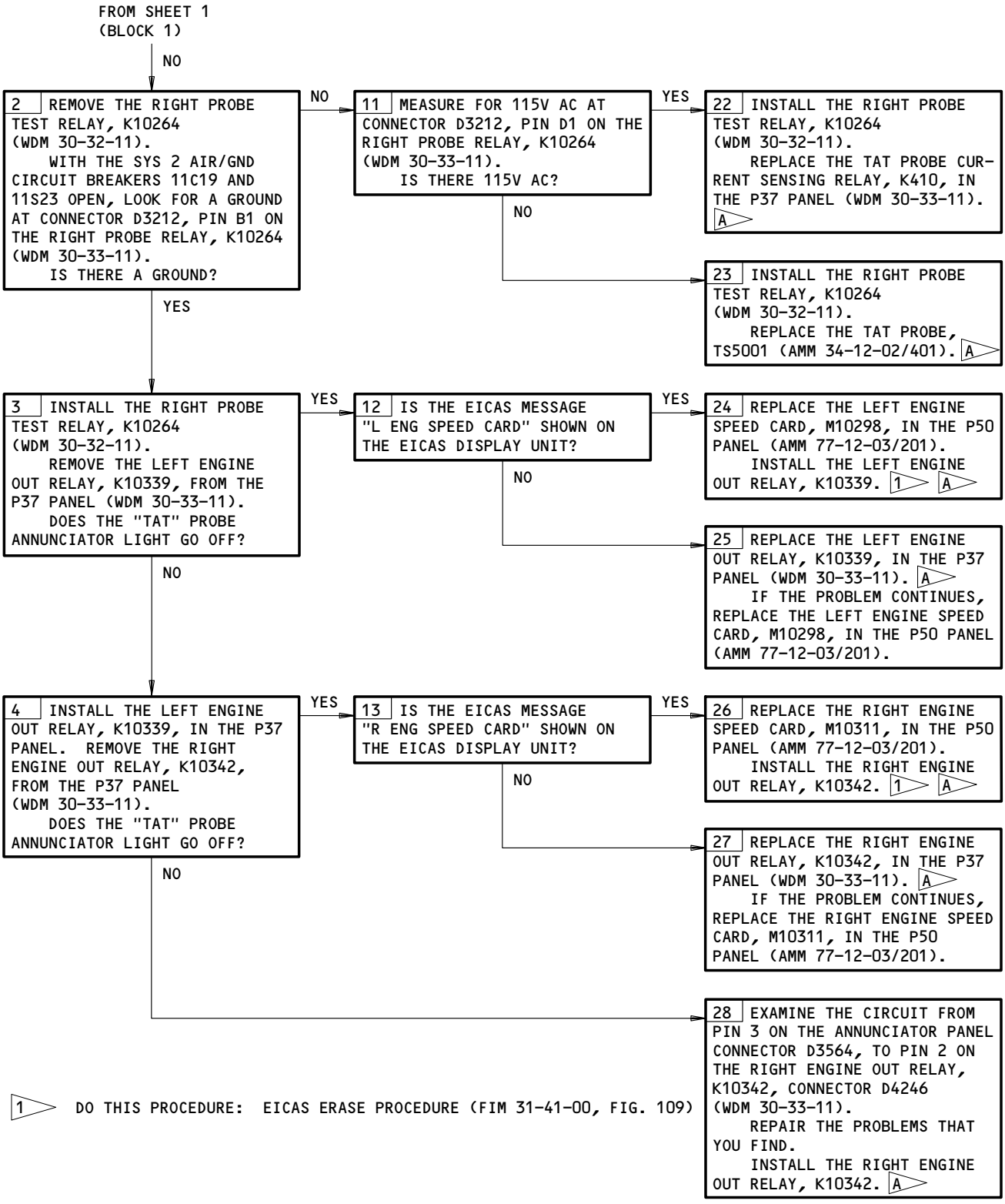
DOES THE "TAT" PROBE ANNUNCIATOR LIGHT GO OFF?

YES → 21 REPLACE THE RIGHT PROBE TEST RELAY, K10264, IN THE P37 PANEL (WDM 30-33-11). A

NO → SEE SHEET 2 (BLOCK 2)

A CLOSE THE CIRCUIT BREAKERS OPENED IN BLOCK 1. PUT THE SAFETY SYSTEMS BACK TO THEIR INITIAL CONDITION (AMM 32-09-02/201).

EICAS Message TAT PROBE Displayed. TAT Probe Heat Light Remains Illuminated during Probe Heat Test with Airplane on Ground and Engines Off.
Figure 103 (Sheet 1)



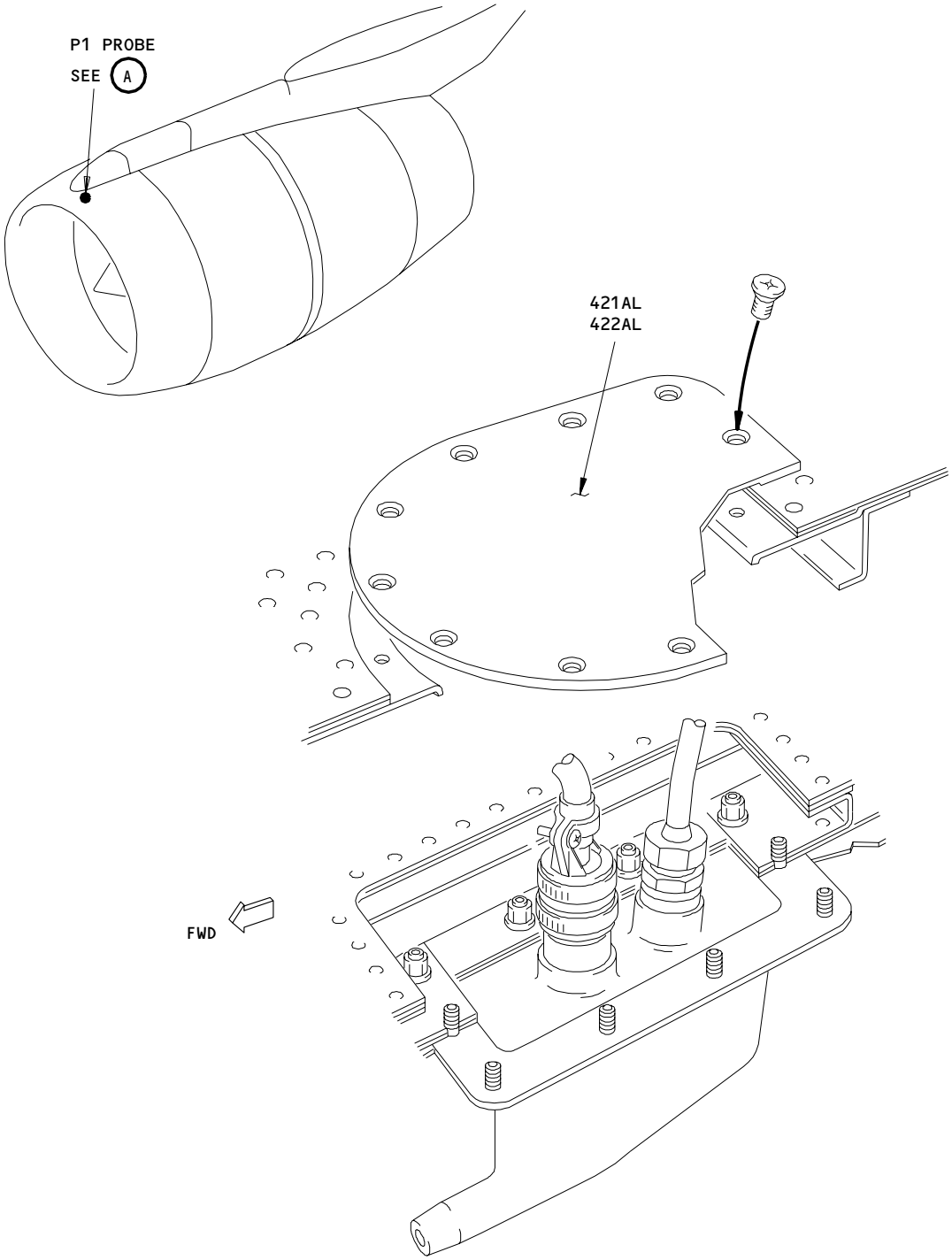
EICAS Message TAT PROBE Displayed. TAT Probe Heat Light Remains Illuminated during Probe Heat Test with Airplane on Ground and Engines Off.
Figure 103 (Sheet 2)

ENGINE PROBE HEAT SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CARD - (FIM 73-12-00/101)				
L ENG SPEED, M10298				
R ENG SPEED, M10311				
CIRCUIT BREAKER -			FLT COMPT, P11	
ENG PROBE HTR L, C4298		1	11R14	*
ENG PROBE HTR R, C4299		1	11R23	*
PROBE HEAT IND ENG L, C4308		1	11R16	*
PROBE HEAT IND ENG R, C4309		1	11R24	*
COMPUTER - (FIM 31-41-00/101)				
L EICAS, M10181				
R EICAS, M10182				
PROBE - (FIM 73-21-00/101)				
L AND R ENG P1 HEATER, B10010				
RELAY - (FIM 31-01-36/101)	--		MAIN EQUIP CTR, P36 PANEL	
AIR/GND, SYS 1, K178		1		*
AIR/GND, SYS 1, K10107		1		*
L ENG OUT, K10337		1		*
L ENG PROBE CURRENT SENSING, K10478		1		*
RELAY - (FIM 31-01-37/101)	--		MAIN EQUIP CTR, P37 PANEL	
AIR/GND, SYS 2, K213		1		*
AIR/GND, SYS 2, K10308		1		*
R ENG OUT, K10341		1		*
R ENG PROBE CURRENT SENSING, K10479		1		*

* SEE THE WDM EQUIPMENT LIST

Engine Probe Heat System - Component Index
Figure 101



P1 PROBE
A

Engine Probe Heat System Component Location
Figure 102

PREREQUISITES

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

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
11R14, 11R16, 11R23, 11R24

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

WARNING: THE ENGINE PROBES CAN GET VERY HOT. MAKE SURE PERSONS AND EQUIPMENT ARE KEPT AWAY FROM THE PROBES OR INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION: THIS PROCEDURE WILL CAUSE THE ENGINE PROBES TO GET HOT. DO NOT LET THE TEMPERATURE OF THE PROBES GET TO MORE THAN 200°F (93°C). DAMAGE TO THE PROBES CAN OCCUR.

EICAS MSG
"L (R) ENG PROBE
HEAT" DISPLAYED

1 DO THE ENGINE RUNNING SIMULATION (AMM 77-12-03/201).
DO THIS PROCEDURE:
MAINTENANCE MESSAGE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).

NOTE: CONTINUE THE ENGINE RUNNING SIMULATION FOR 5 MINUTES.

DOES THE "L (R) ENG PROBE HEAT" MESSAGE SHOW?

NO

YES

SEE SHEET 3
(BLOCK 2)

11 WARNING

PREPARE THE SAFETY-SENSITIVE SYSTEMS FOR THE AIR MODE BEFORE YOU OPEN THE AIR/GROUND CIRCUIT BREAKERS. IN THE AIR MODE, MANY OF THE AIRPLANE SYSTEMS CAN OPERATE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

PREPARE THE SAFETY-SENSITIVE SYSTEMS FOR AIR MODE SIMULATION (AMM 32-09-02/201).
OPEN THESE CIRCUIT BREAKERS ON THE P11 PANEL:

11C19, LANDING GEAR POS SYS 2 ALTN
11S15, AIR/GND SYS 1
11S19, AIR/GND SYS 2
11S23, LANDING GEAR POS SYS 2

CLOSE THESE CIRCUIT BREAKERS ON THE P11 PANEL:

11R14, ENG PROBE HTR LEFT
11R23, ENG PROBE HTR RIGHT

DOES THE "L (R) ENG PROBE HEAT" MESSAGE SHOW?

NO

21 THE SYSTEM IS OK. 2 3

NOTE: IF THE PROBLEM OCCURS INTERMITTENTLY, EXAMINE THE PROBE AND WIRES FOR DAMAGE.

YES

SEE SHEET 2
(BLOCK 12)

1 ERASE THE "L (R) ENG PROBE HEAT" MESSAGE (FIM 31-41-00/101, FIG. 109).

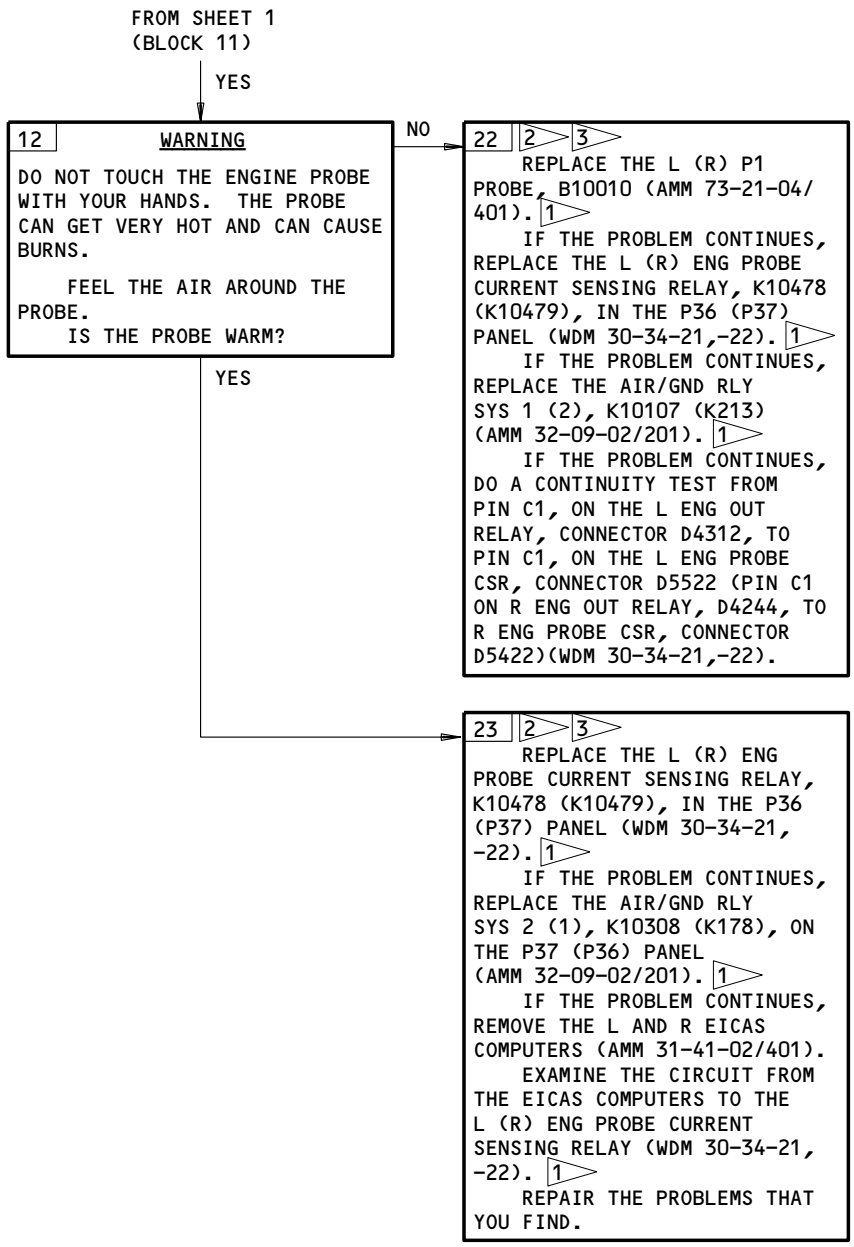
2 REMOVE THE ENGINE RUNNING SIMULATION (AMM 77-12-03/201).

3 CLOSE THESE CIRCUIT BREAKERS ON THE P11 PANEL:

11C19, LANDING GEAR POS SYS 2 ALTN
11S15, AIR/GND SYS 1
11S19, AIR/GND SYS 2
11S23, LANDING GEAR POS SYS 2

PUT THE SAFETY-SENSITIVE SYSTEMS BACK TO THEIR INITIAL CONDITIONS (AMM 32-09-02/201).

EICAS Msg L (R) ENG PROBE HEAT Displayed
Figure 103 (Sheet 1)



EICAS Msg L (R) ENG PROBE HEAT Displayed
Figure 103 (Sheet 2)

FROM SHEET 1
(BLOCK 1)

YES

2 WARNING

DO NOT TOUCH THE ENGINE PROBE WITH YOUR HANDS. THE PROBE CAN GET VERY HOT AND CAN CAUSE BURNS.

FEEL THE AIR AROUND THE PROBE.
IS THE PROBE WARM?

NO

24 2
REPLACE THE L (R) P1 PROBE, B10010 (AMM 73-21-04/401). 1
IF THE PROBLEM CONTINUES, REPLACE THE L (R) ENG PROBE CURRENT SENSING RELAY, K10478 (K10479), IN THE P36 (P37) PANEL (WDM 30-34-21,-22). 1
IF THE PROBLEM CONTINUES, REPLACE THE L (R) ENG OUT RELAY, K10337 (K10341), IN THE P36 (P37) PANEL (WDM 30-34-21, -22). 1
IF THE PROBLEM CONTINUES, DO A CONTINUITY TEST FROM PIN C1, ON THE L ENG OUT RELAY, CONNECTOR D4312, TO PIN C1, ON THE L ENG PROBE CSR, CONNECTOR D5522 (PIN C1, ON R ENG OUT RELAY, D4244, TO R ENG PROBE CSR, CONNECTOR D5422)(WDM 30-34-21,-22).

YES

25 2
REPLACE THE L (R) ENG PROBE CURRENT SENSING RELAY, K10478 (K10479), IN THE P36 (P37) PANEL (WDM 30-34-21, -22). 1
IF THE PROBLEM CONTINUES, REPLACE THE L (R) ENG SPEED CARD, M10298 (M10311)(P50) (AMM 77-12-01/401). 1
IF THE PROBLEM CONTINUES, REPLACE THE AIR/GND RLY SYS 2 (1), K10308 (K178), ON THE P37 (P36) PANEL (AMM 32-09-02/201). 1
IF THE PROBLEM CONTINUES, REMOVE THE L AND R EICAS COMPUTERS (AMM 31-41-02/401).
EXAMINE THE CIRCUIT FROM THE EICAS COMPUTERS TO THE L (R) ENG PROBE CURRENT SENSING RELAY (WDM 30-34-21, -22). 1
REPAIR THE PROBLEMS THAT YOU FIND.

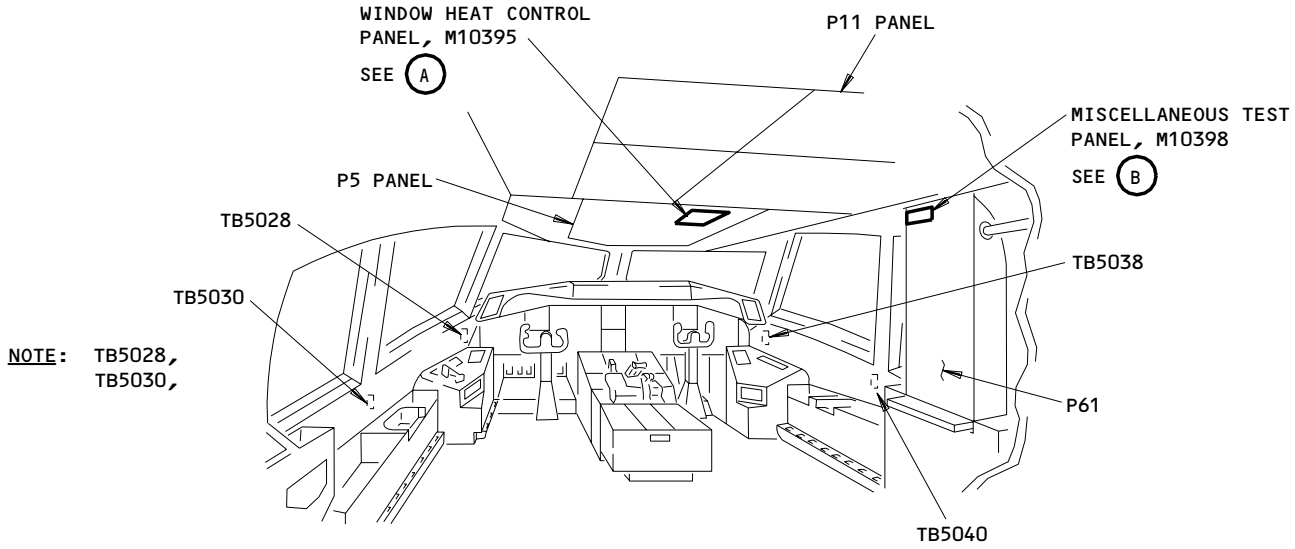
EICAS Msg L (R) ENG PROBE HEAT Displayed
Figure 103 (Sheet 3)

FLIGHT COMPARTMENT WINDOW ANTI-ICING SYSTEM

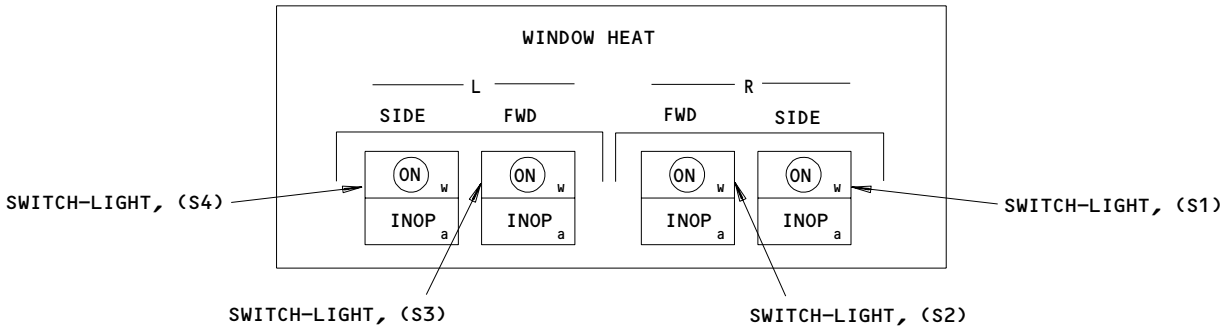
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER -	1		FLT COMPT, P11	
WINDOW HEAT TEST, C1128		1	11R15	*
CIRCUIT BREAKER -			119BL, MAIN EQUIPT CTR, P37	
WINDOW HTR 1R, C392		1	37J2	*
WINDOW HTR 2L, C1124		1	37E3	*
WINDOW HTR 3L, C1126		1	37E4	*
CIRCUIT BREAKER -			119BL, MAIN EQUIPT CTR, P70	
WINDOW HTR 1L, C391		1	70C13	*
WINDOW HTR 2R, C1125		1	70A3	*
WINDOW HTR 3R, C1127		1	70A4	*
COMPUTER - (FIM 31-41-00/101)				
L EICAS, M10181				
R EICAS, M10182				
PANEL - (FIM 30-32-00/101)				
MISC TEST, M10398				
PANEL - WINDOW HEAT CONTROL, M10395		1	FLT COMPT, P5	30-41-02
SWITCH-LIGHT - WINDOW HEAT L FWD, S3	1	1	FLT COMPT, P5, M10395, WINDOW HEAT CONTROL PANEL	*
SWITCH-LIGHT - WINDOW HEAT R FWD, S2	1	1	FLT COMPT, P5, M10395, WINDOW HEAT CONTROL PANEL	*
SWITCH-LIGHT - WINDOW HEAT R SIDE, S1	1	1	FLT COMPT, P5, M10395, WINDOW HEAT CONTROL PANEL	*
SWITCH-LIGHT - WINDOW HEAT L SIDE, S4	1	1	FLT COMPT, P5, M10395, WINDOW HEAT CONTROL PANEL	*
SWITCH - (FIM 30-32-00/101)				
WINDOW/PROBE HEAT TEST, S5				
UNIT - L WINDOW HEAT CONTROL, M191	2	1	119BL, MAIN EQUIPT CTR, E1-2	30-41-01
UNIT - R WINDOW HEAT CONTROL, M192	2	1	119BL, MAIN EQUIPT CTR, E1-1	30-41-01

* SEE THE WDM EQUIPMENT LIST

Flight Compartment Window Anti-Icing System - Component Index
Figure 101

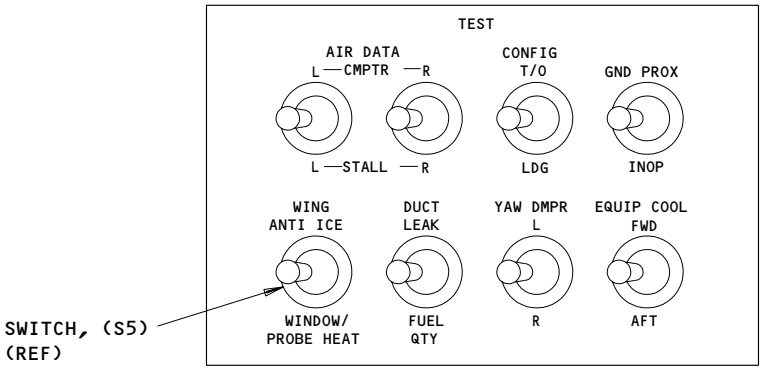


FLIGHT COMPARTMENT



WINDOW HEAT CONTROL PANEL, M10395

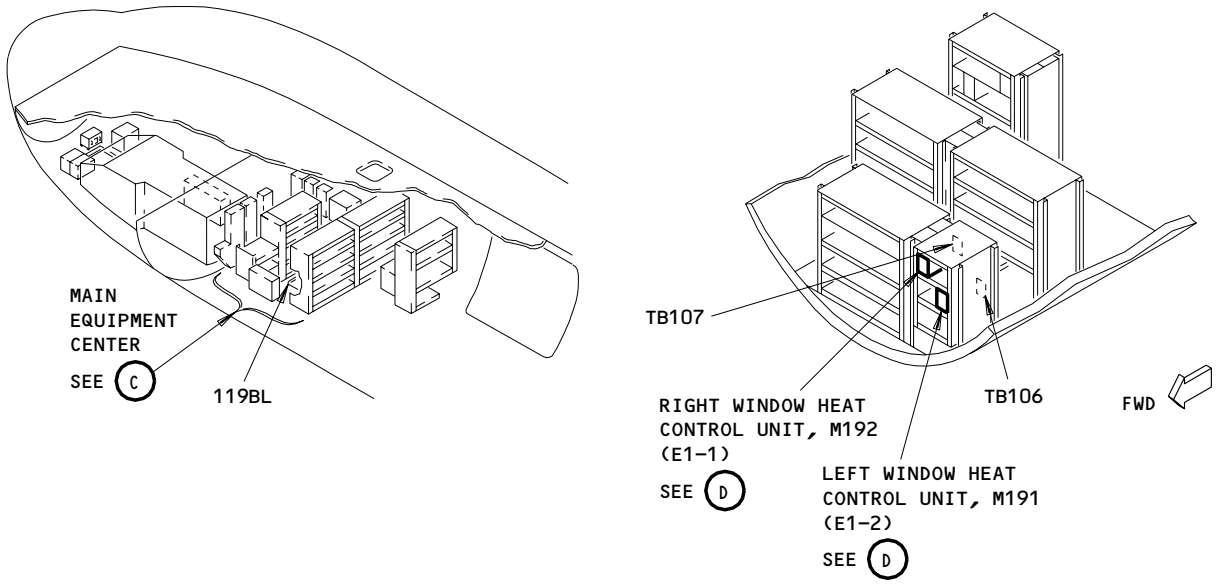
A



MISCELLANEOUS TEST PANEL, M10398 (REF)

B

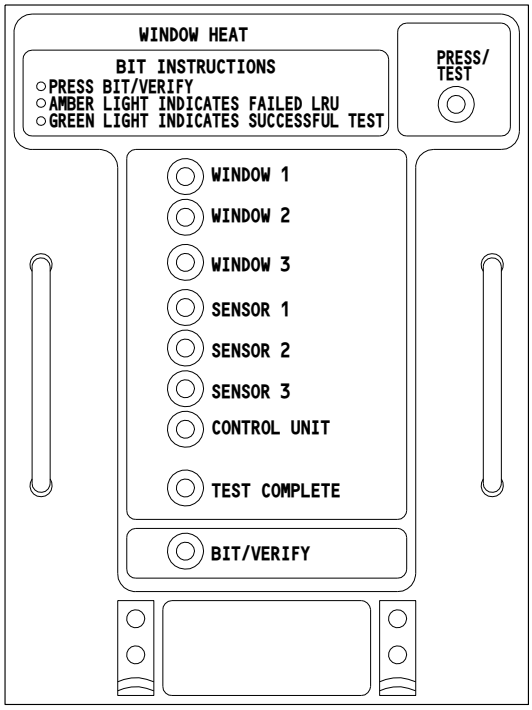
Flight Compartment Window Anti-Icing System - Component Location
Figure 102 (Sheet 1)



NOTE: IF INSTALLED, TB106 AND TB107 ARE AT THE REAR OF THE E1 SHELF.

MAIN EQUIPMENT CENTER

C



NOTE: THIS UNIT IS NOT ELECTROSTATIC SENSITIVE.

LEFT OR RIGHT WINDOW HEAT CONTROL UNIT, M191 OR M192

D

Flight Compartment Window Anti-Icing System - Component Location
Figure 102 (Sheet 2)

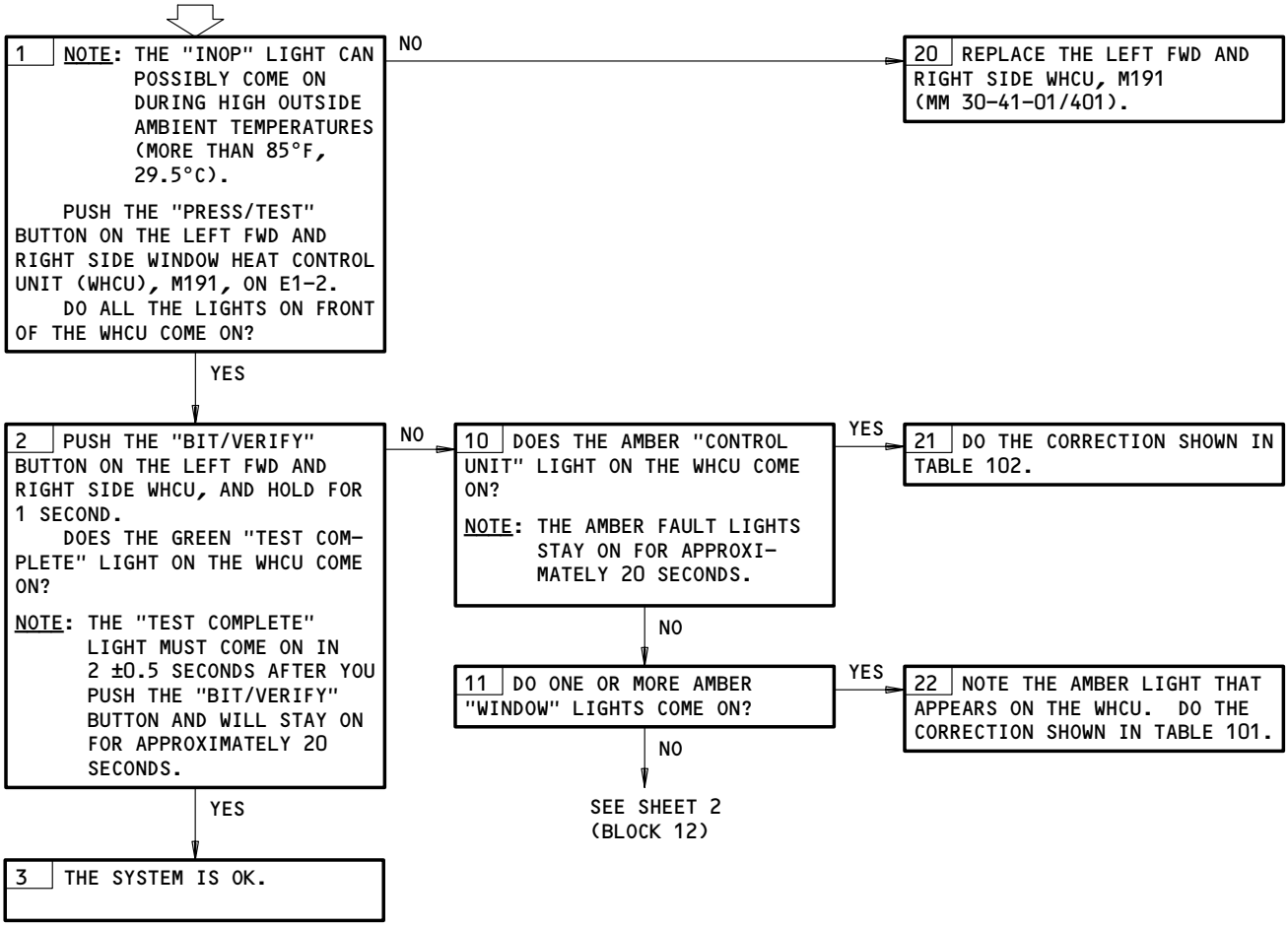
PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
11R15,7OA3,7OA4,7OC13

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (MM 24-22-00/201)

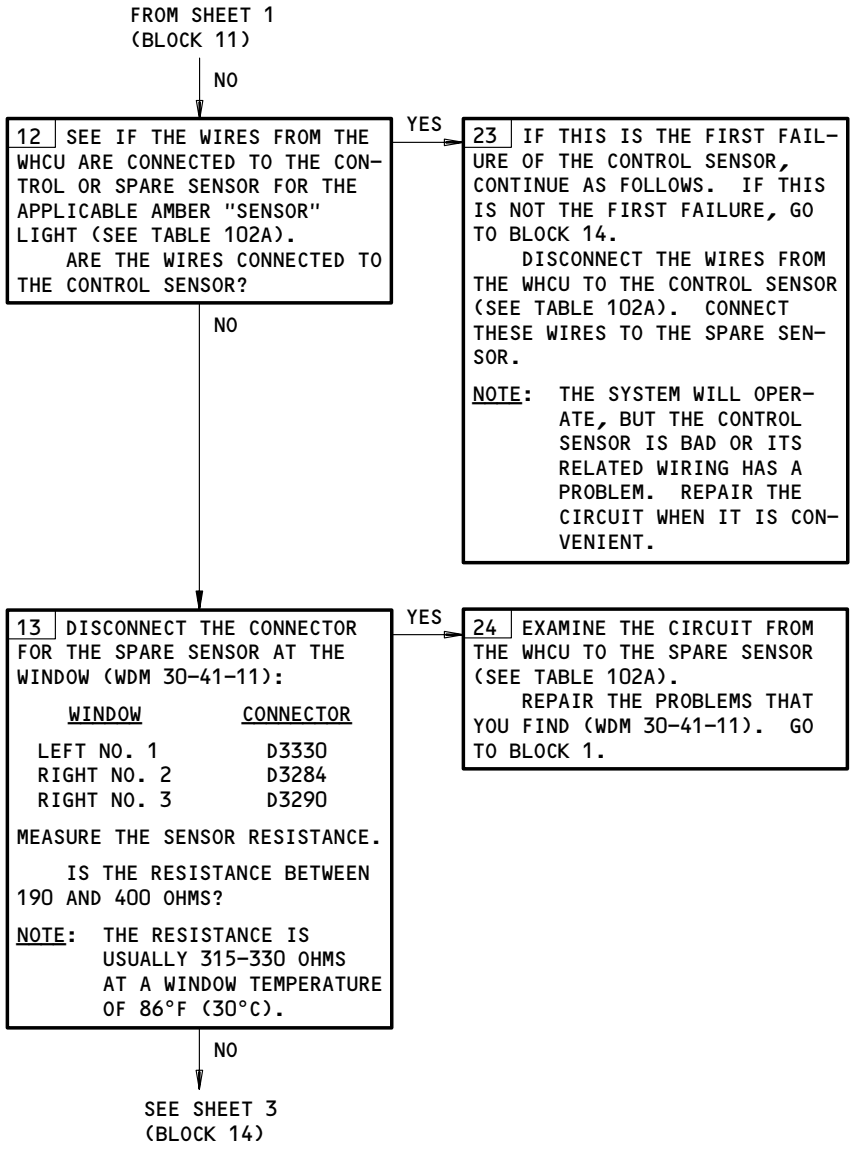
LEFT FWD OR RIGHT SIDE WINDOW ANTI-ICING BITE PROCEDURE

CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT THE ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS.

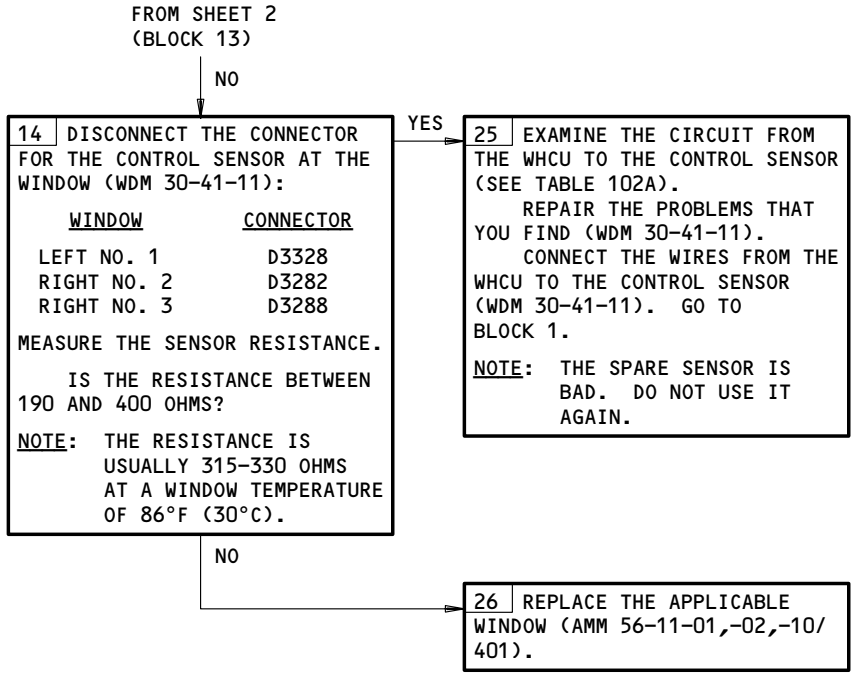


NOTE: BITE DOES A TEST OF THESE SYSTEM COMPONENTS:
HEATER, LEFT NUMBER 1 WINDOW
HEATER, RIGHT NUMBER 2 WINDOW
HEATER, RIGHT NUMBER 3 WINDOW
LEFT FORWARD WINDOW HEAT CONTROL UNIT
RIGHT SIDE WINDOW HEAT CONTROL UNIT

Left Fwd or Right Side Window Anti-Icing BITE Procedure
Figure 103 (Sheet 1)



Left Fwd or Right Side Window Anti-Icing BITE Procedure
Figure 103 (Sheet 2)



Left Fwd or Right Side Window Anti-Icing BITE Procedure
Figure 103 (Sheet 3)

TABLE 101

LIGHT ON WINDOW HEAT CONTROL UNIT	CORRECTION
WINDOW 1	CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT THE ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS. 1) CORRECT AN OPEN CIRCUIT, SHORT TO GROUND, OR SHORT TO ADJACENT WIRING BETWEEN THESE POINTS (WDM 30-41-11): COMPONENT / PIN / COMPONENT / PIN L FWD & R SIDE WHCU M191 / D2304B-PIN 4 / L #1 WINDOW / D3324 L FWD & R SIDE WHCU M191 / D2304B-PIN 4 / L #1 WINDOW / D3322 L FWD & R SIDE WHCU M191 / D2304B-PIN 5 / L #1 WINDOW / D3326 2) PUSH THE "BIT/VERIFY" BUTTON ON THE FRONT OF THE LEFT FORWARD AND RIGHT SIDE WHCU, AND HOLD FOR 1 SECOND. 3) THE SYSTEM IS FUNCTIONAL IF THE GREEN "TEST COMPLETE" LIGHT ON THE WHCU COMES ON. NOTE: THE "TEST COMPLETE" LIGHT WILL COME ON IN 2 ±0.5 SECONDS AFTER YOU PUSH THE "BIT/VERIFY" BUTTON AND WILL STAY ON FOR APPROXIMATELY 20 SECONDS. IF THE PROBLEM CONTINUES, REPLACE THE LEFT #1 WINDOW (MM 56-11-01/401).
WINDOW 2	CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT THE ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS. 1) CORRECT AN OPEN CIRCUIT, SHORT TO GROUND, OR SHORT TO ADJACENT WIRING BETWEEN THESE POINTS (WDM 30-41-11): COMPONENT / PIN / COMPONENT / PIN L FWD & R SIDE WHCU M191 / D3204A-PIN 11 / R #2 WINDOW / D3280-PIN C R #2 WINDOW / D3280-PIN D / GROUND / --- 2) PUSH THE "BIT/VERIFY" BUTTON ON THE FRONT OF THE LEFT FORWARD AND RIGHT SIDE WHCU, AND HOLD FOR 1 SECOND. 3) THE SYSTEM IS FUNCTIONAL IF THE GREEN "TEST COMPLETE" LIGHT ON THE WHCU COMES ON. NOTE: THE "TEST COMPLETE" LIGHT WILL COME ON IN 2 ±0.5 SECONDS AFTER YOU PUSH THE "BIT/VERIFY" BUTTON AND WILL STAY ON FOR APPROXIMATELY 20 SECONDS. IF THE PROBLEM CONTINUES, REPLACE THE RIGHT #2 WINDOW (MM 56-11-02/401).

Left Fwd or Right Side Window Anti-Icing BITE Procedure
Figure 103 (Sheet 4)

TABLE 101

LIGHT ON WINDOW HEAT CONTROL UNIT	CORRECTION
WINDOW 3	CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT THE ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS. 1) CORRECT AN OPEN CIRCUIT, SHORT TO GROUND, OR SHORT TO ADJACENT WIRING BETWEEN POINTS (WDM 30-41-11): COMPONENT / PIN / COMPONENT / PIN L FWD & R SIDE WHCU M191 / D2304A-PIN 16 / R #3 WINDOW / D3286 R #3 WINDOW / D4680 / GROUND / --- 2) PUSH THE "BIT/VERIFY" BUTTON ON THE FRONT OF THE LEFT FORWARD AND RIGHT SIDE WHCU, AND HOLD FOR 1 SECOND. 3) THE SYSTEM IS FUNCTIONAL IF THE GREEN "TEST COMPLETE" LIGHT ON THE WHCU COMES ON. NOTE: THE "TEST COMPLETE" LIGHT WILL COME ON IN 2 ±0.5 SECONDS AFTER YOU PUSH THE "BIT/VERIFY" BUTTON AND WILL STAY ON FOR APPROXIMATELY 20 SECONDS. IF THE PROBLEM CONTINUES, REPLACE THE RIGHT #3 WINDOW (MM 56-11-10/401).

Left Fwd or Right Side Window Anti-Icing BITE Procedure
Figure 103 (Sheet 5)

LIGHT ON WINDOW HEAT CONTROL UNIT	CORRECTION
CONTROL UNIT	CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT THE ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS. 1. REMOVE THE APPLICABLE FLIGHT COMPARTMENT WINDOW ELECTRICAL CONNECTORS. MEASURE THE WINDOW HEAT RESISTANCE BETWEEN THE POINTS SHOWN IN THE TABLE (WDM 30-41-11). USE FIG. 103A TO FIND THE LOCATION OF THE TERMINALS. NOTE: IT IS NOT NECESSARY TO REMOVE THE PROTECTIVE COVERS FROM THE WINDOW HEAT ELECTRICAL CONNECTORS WHEN YOU REMOVE THE ELECTRICAL CONNECTORS.

WINDOW	MEASURE RESISTANCE BETWEEN		RESISTANCE RANGE (OHM)	
	POINT 1	POINT 2	MIN	MAX
1L	PIN 1 OF J1, CONN D3322	PIN 1 OF J5, CONN D3326	9.12	11.15
1L (OPTIONAL)	PIN 1 OF J4, CONN D3324	PIN 1 OF J5, CONN D3326	9.12	11.15
2R 1	PIN C OF J8, CONN D3280	PIN D OF J8, CONN D3280	23.0	28.2
2R 2	PIN C OF J8, CONN D3280	PIN D OF J8, CONN D3280	19.1	25.9
2R 3	PIN C OF J8, CONN D3280	PIN D OF J8, CONN D3280	19.4	23.8
3R 1	PIN 1 OF J9, CONN D3286	PIN 1 OF J12, CONN D4680	31.5	38.5
3R 2	PIN 1 OF J9, CONN D3286	PIN 1 OF J12, CONN D4680	21.8	29.6
3R 3	PIN 1 OF J9, CONN D3286	PIN 1 OF J12, CONN D4680	20.2	24.8

WINDOW HEAT ELEMENT RESISTANCE TEST
TABLE 102 (CONT)

1 ACRYLIC (WIRE RESISTANCE HEATED) WINDOWS
WINDOW NO. 2 PART NUMBER 141N4810 LEFT-1, RIGHT-2
WINDOW NO. 3 PART NUMBERR 141N4810 LEFT-11, RIGHT-12

2 ACRYLIC (ELECTRICALLY CONDUCTIVE COATED) WINDOWS
WINDOW NO. 2 PART NUMBER 141N4810 LEFT-13, RIGHT-14
WINDOW NO. 3 PART NUMBERR 141N4820 LEFT-1, RIGHT-2

3 GLASS (ELECTRICALLY CONDUCTIVE COATED) WINDOWS
WINDOW NO. 2 PART NUMBER 141N4890 LEFT-1, RIGHT-2
WINDOW NO. 3 PART NUMBERR 141N4004 LEFT-2, RIGHT-2

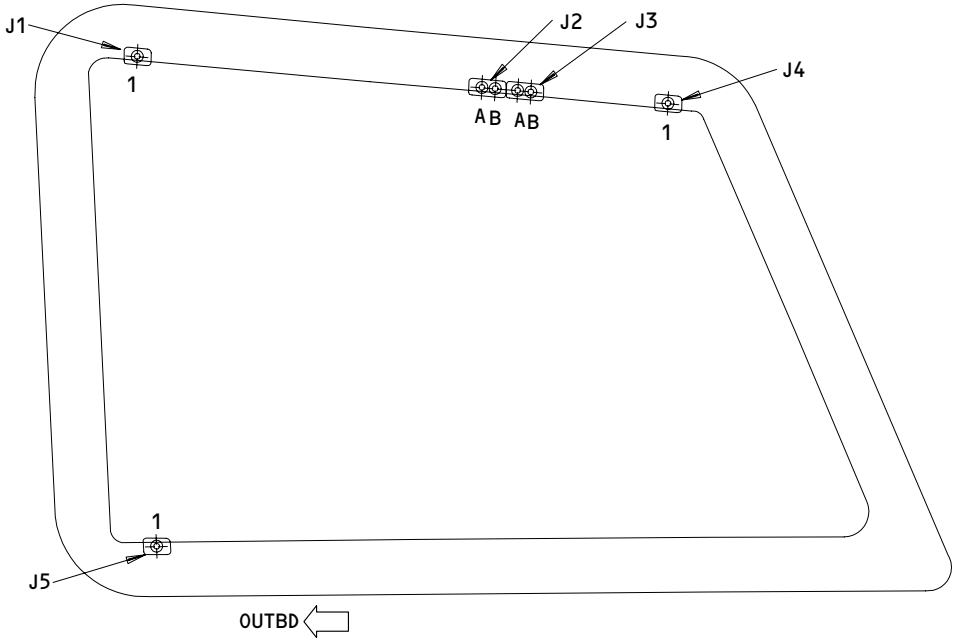
Left Fwd or Right Side Window Anti-Icing BITE Procedure
Figure 103 (Sheet 6)

LIGHT ON WINDOW HEAT CONTROL UNIT	CORRECTION
CONTROL UNIT (CONT)	2. IF THE WINDOW HEAT RESISTANCE FOR A WINDOW IS NOT IN THE SPECIFIED RESISTANCE RANGE, REPLACE THE WINDOW 4. IF THE WINDOW HEAT RESISTANCE IS WITHIN RANGE, REPLACE THE LEFT FWD AND RIGHT SIDE WHCU, M191 (AMM 30-41-01/401). 3. ATTACH THE ELECTRICAL CONNECTORS TO THE WINDOW TERMINALS. WARNING: MAKE SURE ALL THE WINDOW HEAT ELETRICAL CONNECTORS HAVE PROTECTIVE COVERS. EXPOSED WINDOW HEAT ELECTRICAL CONNECTORS ARE AT HIGH VOLTAGE POTENTIALS. FAILURE TO REPLACE THE COVERS COULD CAUSE INJURY TO PERSONS. 4. MAKE SURE THE PROTECTIVE COVERS ARE INSTALLED ON ALL WINDOW TERMINAL ELECTRICAL CONNECTORS. REPLACE COVERS THAT ARE NOT THERE.

WINDOW HEAT ELEMENT RESISTANCE TEST
TABLE 102

4 NO. 1L (AMM 56-11-01/401)
NO. 2R (AMM 56-11-02/401)
NO. 3R (AMM 56-11-10/401)

Left Fwd or Right Side Window Anti-Icing BITE Procedure
Figure 103 (Sheet 7)



TERMINAL	PIN	RESISTANCE (OHMS)	
		MIN	MAX
J1-J5 J4-J5	1-1 1-1	9.12	11.15
J2	A-B	1	1
J3	A-B	1	1

TABLE A

J1,J4,J5: POWER TERMINALS
J2,J3: SENSOR TERMINALS

1 INTERPRET SENSOR RESISTANCE FROM TABLE B.

No. 1 Window Resistance Values
Figure 103A (Sheet 1)

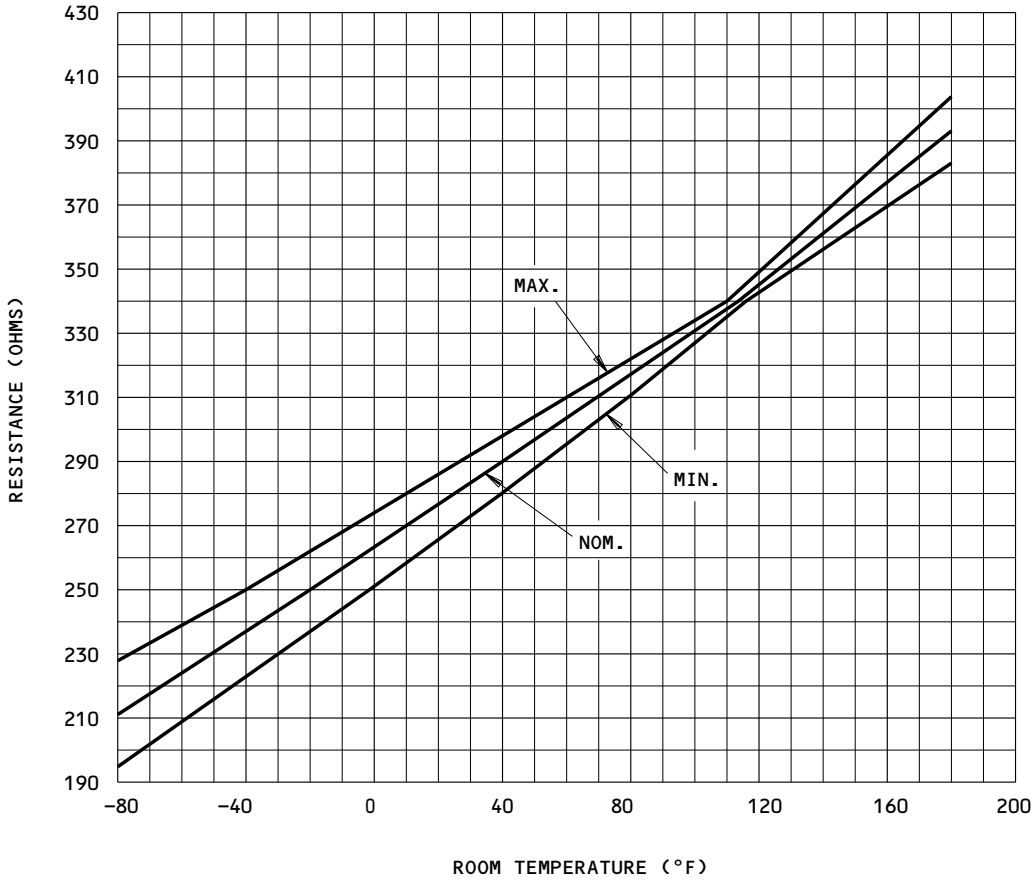
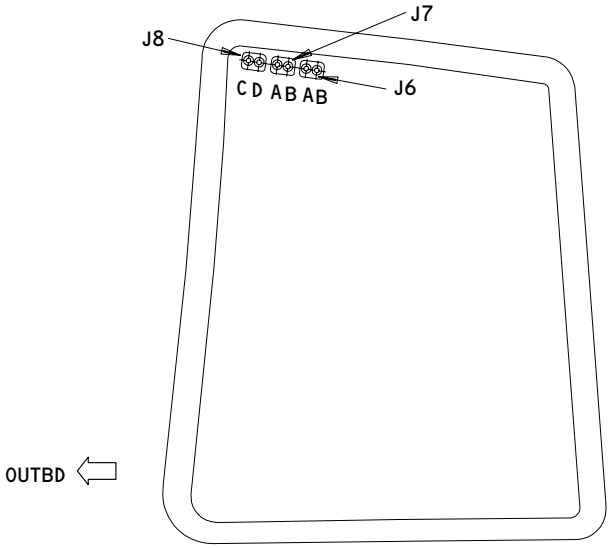


TABLE B

NOTE: CHARACTERISTICS SHOWN EQUIVALENT TO WESTINGHOUSE AVK 1160.

No. 1 Window Resistance Values
Figure 103A (Sheet 2)



TERMINAL	PIN	RESISTANCE (OHMS)	
		MIN	MAX
J6	A–B	1	1
J7	A–B	1	1
J8	C–D	23.0 2 19.1 3	28.2 2 25.9 3

TABLE B

J6: SENSOR TERMINAL (SPARE)
J7: SENSOR TERMINAL (CONTROL)
J8: POWER TERMINAL

1 INTERPRET SENSOR RESISTANCE FROM TABLE B.
2 WIRE RESISTANCE HEATED WINDOW ASSEMBLY
3 ELECTRICALLY CONDUCTIVE COATING HEATED WINDOW ASSEMBLY

No. 2 Window Resistance Values
Figure 103A (Sheet 3)

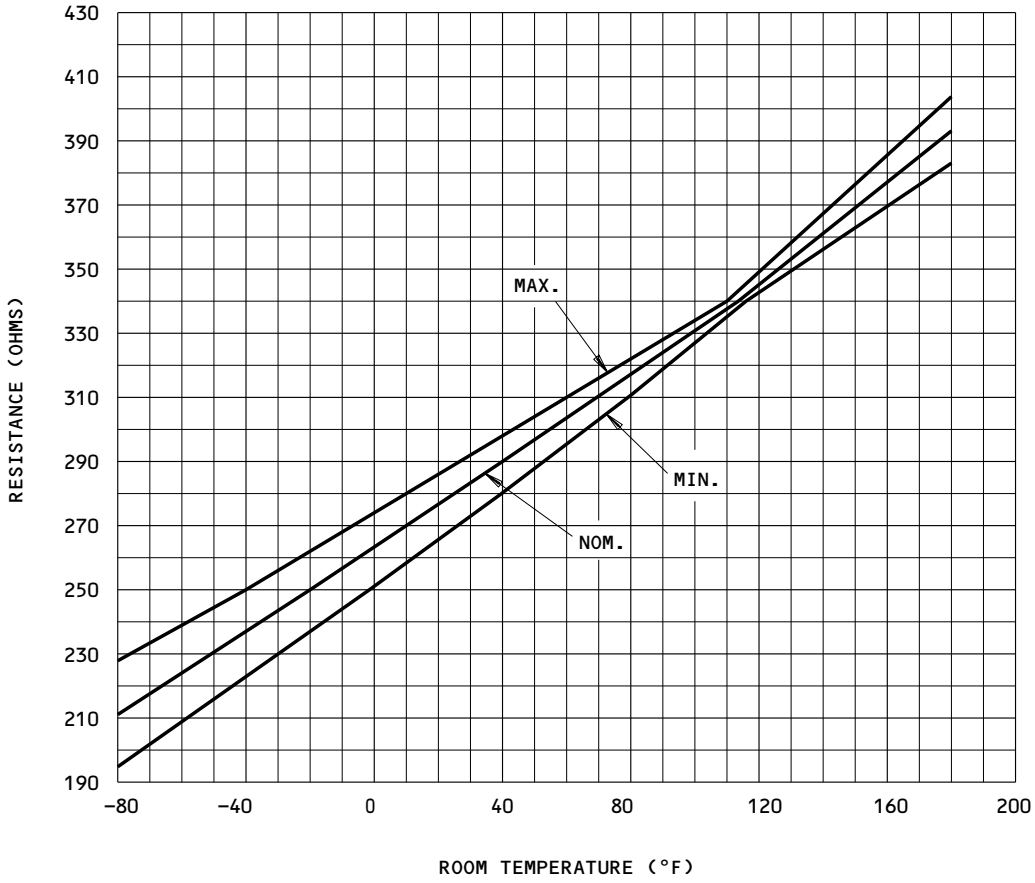
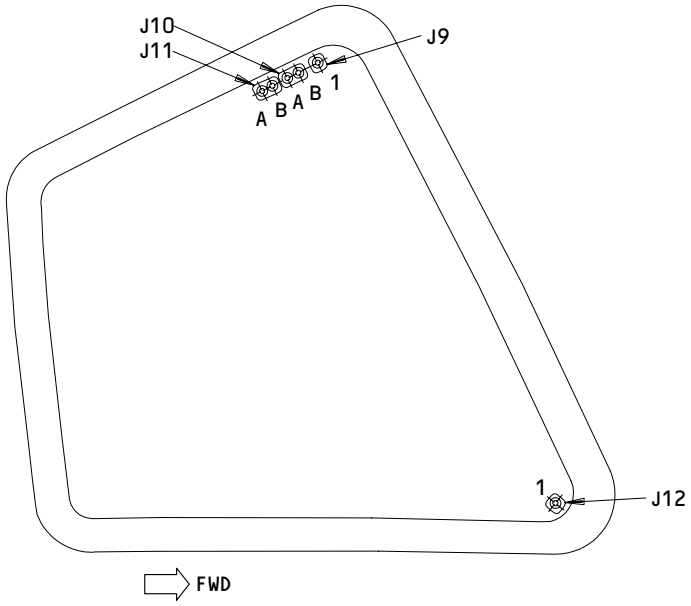


TABLE B

NOTE: CHARACTERISTICS SHOWN EQUIVALENT TO WESTINGHOUSE AVK 1160.

No. 2 Window Resistance Values
Figure 103A (Sheet 4)



TERMINAL	PIN	RESISTANCE (OHMS)	
		MIN	MAX
J9–J12	1–1	31.5 [2] 21.8 [3]	38.5 [2] 29.6 [3]
J10	A–B	[1]	[1]
J11	A–B	[1]	[1]

TABLE A

J9,J12: POWER TERMINAL
J10: SENSOR TERMINAL (SPARE)
J11: SENSOR TERMINAL (CONTROL)

[1] INTERPRET SENSOR RESISTANCE FROM TABLE B.
[2] WIRE RESISTANCE HEATED WINDOWS
[3] ELECTRICALLY CONDUCTIVE COATING HEATED WINDOWS

No. 3 Window Resistance Values
Figure 103A (Sheet 5)

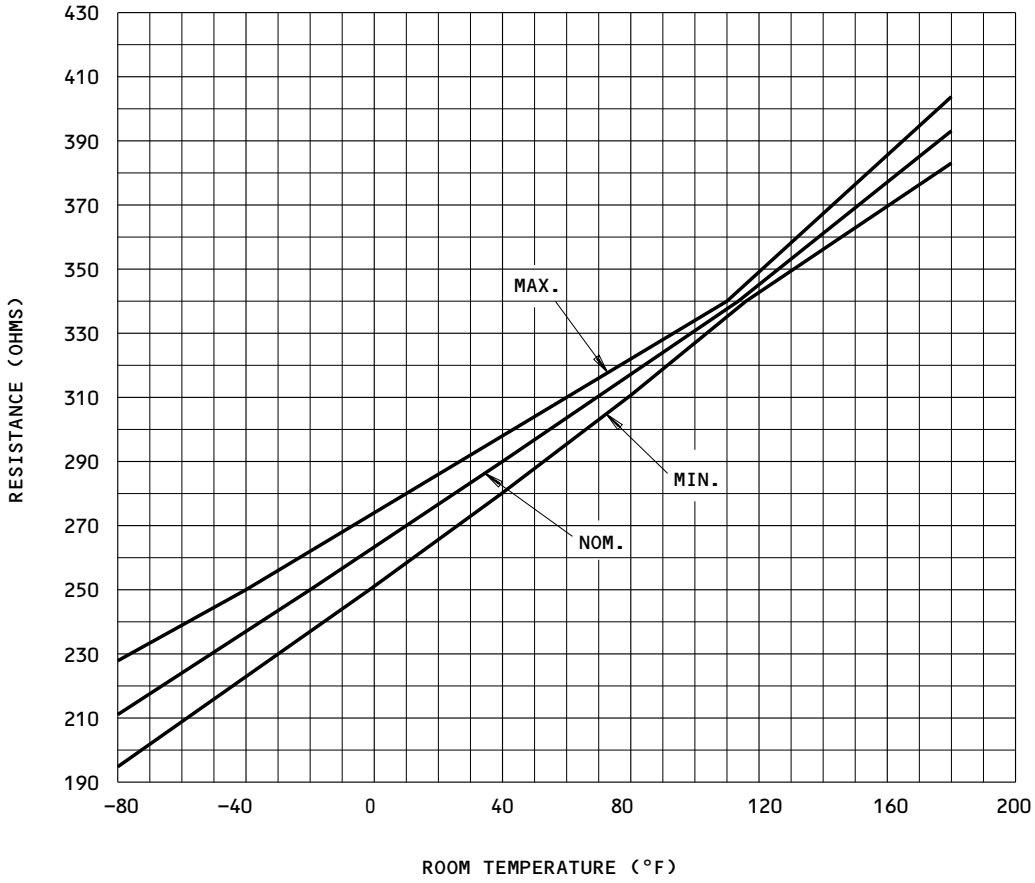


TABLE B

NOTE: CHARACTERISTICS SHOWN EQUIVALENT TO WESTINGHOUSE AVK 1160.

No. 3 Window Resistance Values
Figure 103A (Sheet 6)

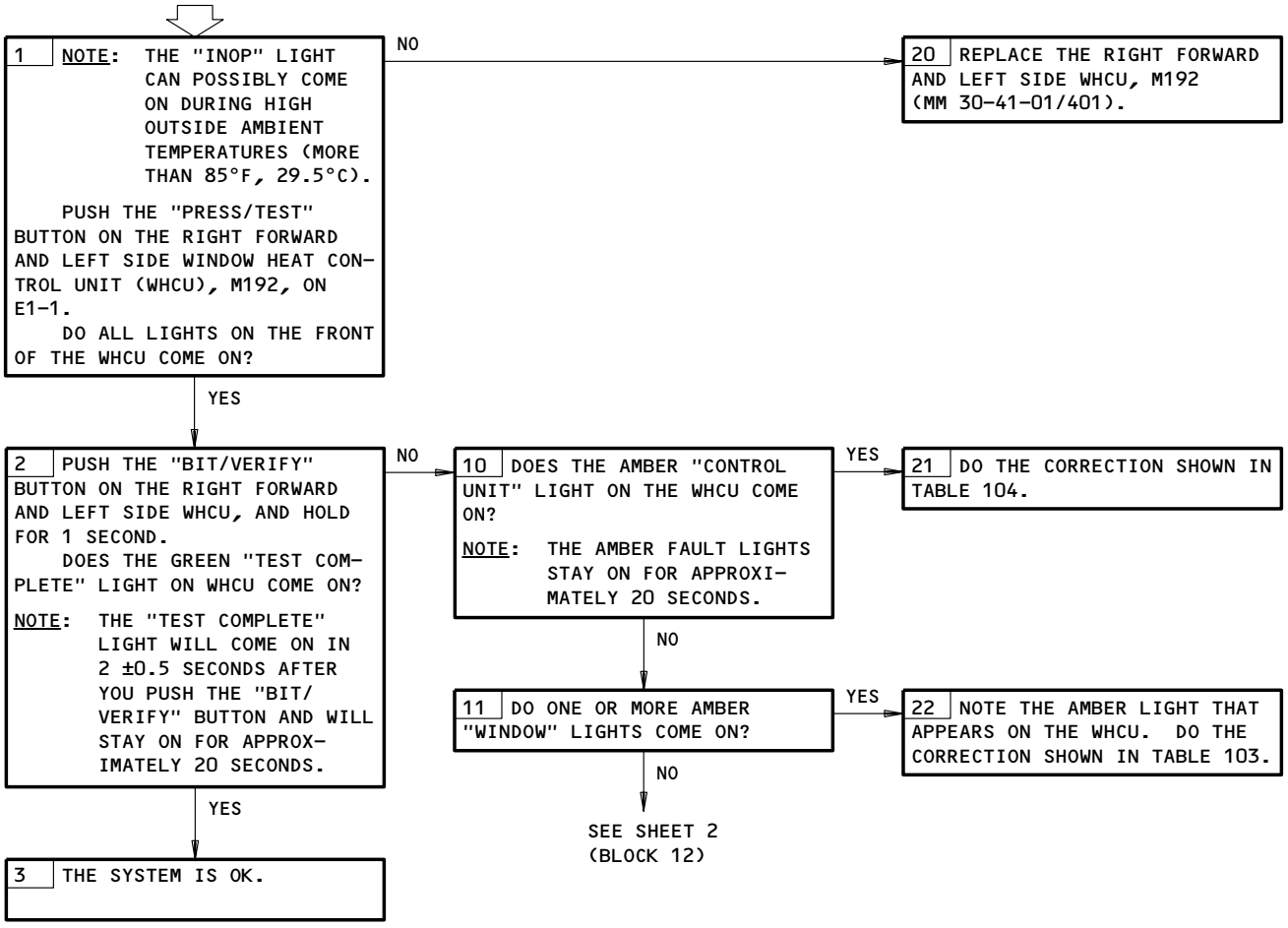
PREREQUISITES

MAKE SURE THE CIRCUIT BREAKERS ARE CLOSED:
11R15,37J2,37E3,37E4

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

CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT THE ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS.

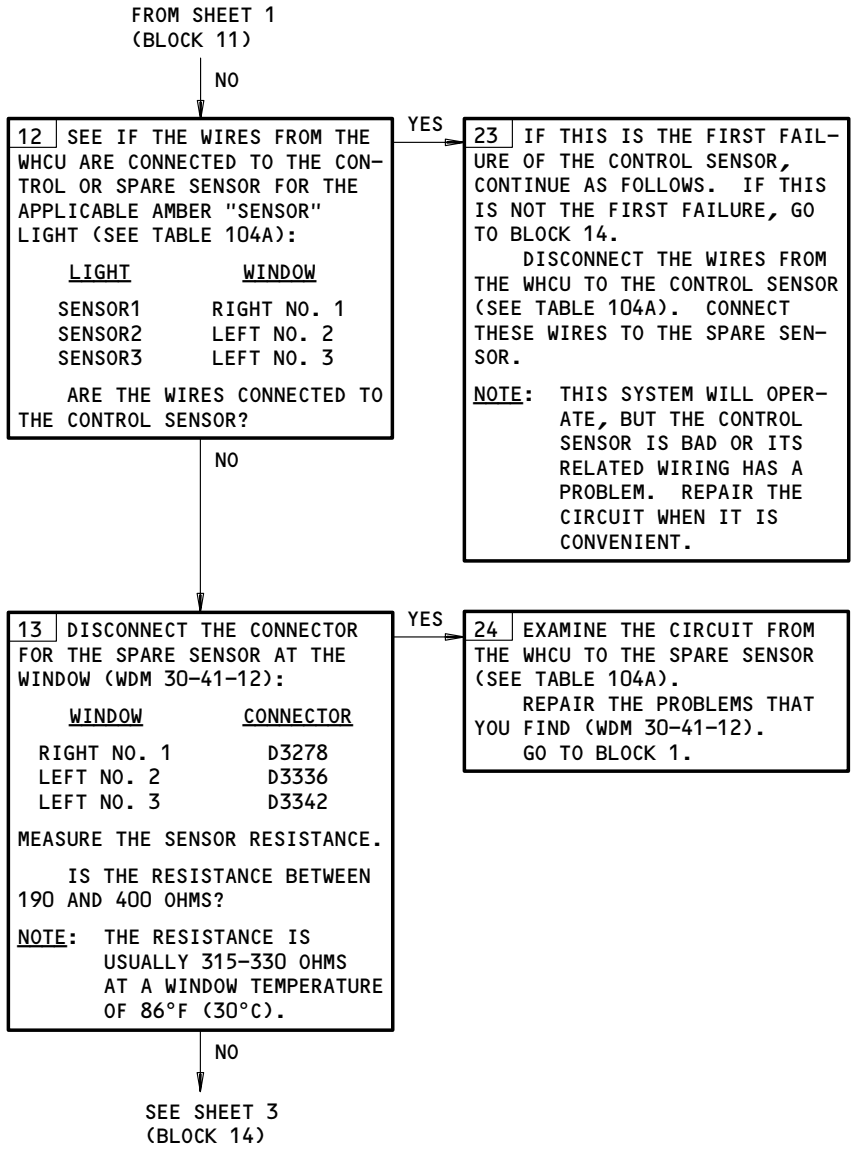
RIGHT FWD OR LEFT SIDE WINDOW ANTI-ICING BITE PROCEDURE



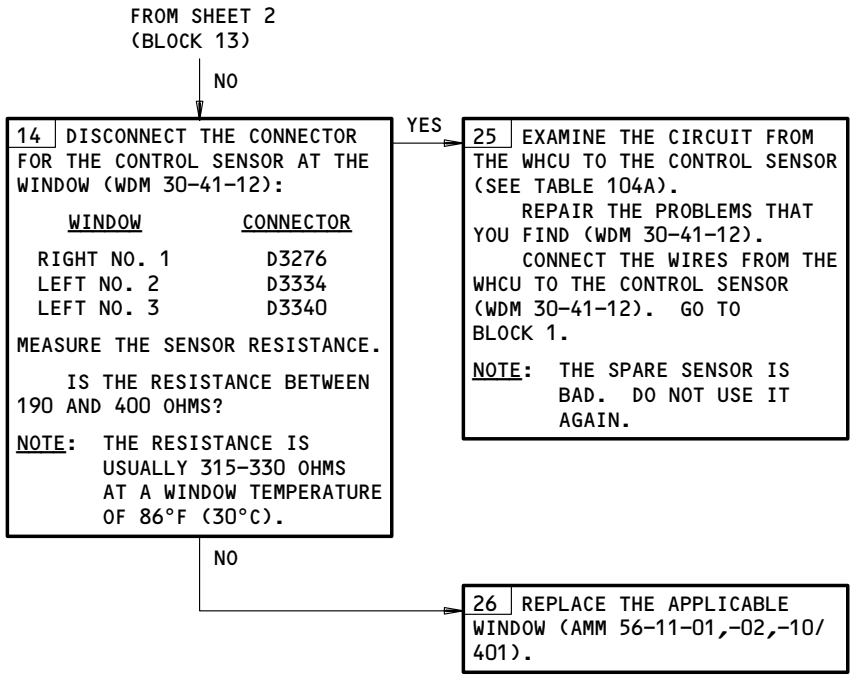
NOTE: BITE DOES A TEST OF THESE SYSTEM COMPONENTS:
- HEATER, RIGHT NUMBER 1 WINDOW
- HEATER, LEFT NUMBER 2 WINDOW
- HEATER, LEFT NUMBER 3 WINDOW
- LEFT SIDE WINDOW HEAT CONTROL UNIT
- RIGHT FORWARD WINDOW HEAT CONTROL UNIT

NOTE: IF A HISTORY OF RT FWD WINDOW HEAT LIGHT AND EICAS MESSAGES HAS OCCURED DURING LANDING ROLLOUT, THEN CHECK FOR A HISTORY OF APU START DISCREPANCIES. IF APU START DISCREPANCIES ARE NOTED, REPLACE THE APU TRU.

Right Fwd or Left Side Window Anti-Icing BITE Procedure
Figure 104 (Sheet 1)



Right Fwd or Left Side Window Anti-Icing BITE Procedure
Figure 104 (Sheet 2)



Right Fwd or Left Side Window Anti-Icing BITE Procedure
Figure 104 (Sheet 3)

TABLE 103

LIGHT ON WINDOW HEAT CONTROL UNIT	CORRECTION
WINDOW 1	CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT THE ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS. 1) CORRECT AN OPEN CIRCUIT, SHORT TO GROUND, OR SHORT TO ADJACENT WIRING BETWEEN THESE POINTS (WDM 30-41-12): COMPONENT / PIN / COMPONENT / PIN R FWD & L SIDE WHCU M192 / D2290B-PIN 4 / R #1 WINDOW / D3270 R FWD & L SIDE WHCU M192 / D2290B-PIN 4 / R #1 WINDOW / D3272 R FWD & L SIDE WHCU M192 / D2290B-PIN 5 / R #1 WINDOW / D3274 2) PUSH THE "BIT/VERIFY" BUTTON ON THE FRONT OF THE RIGHT FORWARD AND LEFT SIDE WHCU, AND HOLD FOR 1 SECOND. 3) THE SYSTEM IS FUNCTIONAL IF THE GREEN "TEST COMPLETE" LIGHT ON THE WHCU COMES ON. NOTE: THE "TEST COMPLETE" LIGHT WILL COME ON IN 2 ±0.5 SECONDS AFTER YOU PUSH THE "BIT/VERIFY" BUTTON AND WILL STAY ON FOR APPROXIMATELY 20 SECONDS. IF THE PROBLEM CONTINUES, REPLACE THE RIGHT #1 WINDOW (MM 56-11-01/401).
WINDOW 2	CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS. 1) CORRECT AN OPEN CIRCUIT, SHORT TO GROUND, OR SHORT TO ADJACENT WIRING BETWEEN THESE POINTS (WDM 30-41-12): COMPONENT / PIN / COMPONENT / PIN R FWD & L SIDE WHCU M192 / D2290A-PIN 11 / L #2 WINDOW / D3332-PIN C L #2 WINDOW / D3332-PIN D / GROUND / --- 2) PUSH THE "BIT/VERIFY" BUTTON ON THE FRONT OF THE RIGHT FORWARD AND LEFT SIDE WHCU, AND HOLD FOR 1 SECOND. 3) THE SYSTEM IS FUNCTIONAL IF THE GREEN "TEST COMPLETE" LIGHT ON THE WHCU COMES ON. NOTE: THE "TEST COMPLETE" LIGHT WILL COME ON IN 2 ±0.5 SECONDS AFTER YOU PUSH THE "BIT/VERIFY" BUTTON AND WILL STAY ON FOR APPROXIMATELY 20 SECONDS. IF THE PROBLEM CONTINUES, REPLACE THE LEFT #2 WINDOW (MM 56-11-02/401).

Right Fwd or Left Side Window Anti-Icing BITE Procedure
Figure 104 (Sheet 4)

TABLE 103

LIGHT ON WINDOW HEAT CONTROL UNIT	CORRECTION
WINDOW 3	CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS. 1) CORRECT AN OPEN CIRCUIT, SHORT TO GROUND, OR SHORT TO ADJACENT WIRING BETWEEN THESE POINTS (WDM 30-41-12): COMPONENT / PIN / COMPONENT / PIN R FWD & L SIDE WHCU M192 / D2290A-PIN 16 / L #3 WINDOW / D3338 L #3 WINDOW / D4682 / GROUND / --- 2) PUSH THE "BIT/VERIFY" BUTTON ON THE FRONT OF THE RIGHT FORWARD AND LEFT SIDE WHCU, AND HOLD FOR 1 SECOND. 3) THE SYSTEM IS FUNCTIONAL IF THE GREEN "TEST COMPLETE" LIGHT ON THE WHCU COMES ON. NOTE: THE "TEST COMPLETE" LIGHT WILL COME ON IN 2 ±0.5 SECONDS AFTER YOU PUSH THE "BIT/VERIFY" BUTTON AND WILL STAY ON FOR APPROXIMATELY 20 SECONDS. IF THE PROBLEM CONTINUES, REPLACE THE LEFT #3 WINDOW (MM 56-11-10/401).

Right Fwd or Left Side Window Anti-Icing BITE Procedure
Figure 104 (Sheet 5)

LIGHT ON WINDOW HEAT CONTROL UNIT	CORRECTION
CONTROL UNIT	CAUTION: GIVE SUPPORT TO THE WINDOW HEAT TERMINAL BLOCKS WHEN YOU CONNECT OR DISCONNECT THE ELECTRICAL CONNECTORS. THE SUPPORT PREVENTS DAMAGE TO THE TERMINALS ON THE WINDOWS. 1. REMOVE THE APPLICABLE FLIGHT COMPARTMENT WINDOW ELECTRICAL CONNECTORS. MEASURE THE WINDOW HEAT RESISTANCE BETWEEN THE POINTS SHOWN IN THE TABLE (WDM 30-41-12). USE FIG. 103A TO FIND THE LOCATION OF THE TERMINALS. NOTE: IT IS NOT NECESSARY TO REMOVE THE PROTECTIVE COVERS FROM THE WINDOW HEAT ELECTRICAL CONNECTORS WHEN YOU REMOVE THE ELECTRICAL CONNECTORS.

WINDOW	MEASURE RESISTANCE BETWEEN		RESISTANCE RANGE (OHM)	
	POINT 1	POINT 2	MIN	MAX
1R	PIN 1 OF J1, CONN D3270	PIN 1 OF J5, CONN D3274	9.12	11.15
1R (OPTIONAL)	PIN 1 OF J4, CONN D3272	PIN 1 OF J5, CONN D3274	9.12	11.15
2L 1	PIN C OF J8, CONN D3332	PIN D OF J8, CONN D3332	23.0	28.2
2L 2	PIN C OF J8, CONN D3332	PIN D OF J8, CONN D3332	19.1	25.9
2L 3	PIN C OF J8, CONN D3332	PIN D OF J8, CONN D3332	19.4	23.8
3L 1	PIN 1 OF J9, CONN D3338	PIN 1 OF J12, CONN D4682	31.5	38.5
3L 2	PIN 1 OF J9, CONN D3338	PIN 1 OF J12, CONN D4682	21.8	29.6
3L 3	PIN 1 OF J9, CONN D3338	PIN 1 OF J12, CONN D4682	20.2	24.8

WINDOW HEAT ELEMENT RESISTANCE TEST
TABLE 104

1 ACRYLIC (WIRE RESISTANCE HEATED) WINDOWS
WINDOW NO. 2 PART NUMBER 141N4810 LEFT-1, RIGHT-2
WINDOW NO. 3 PART NUMBERR 141N4810 LEFT-11, RIGHT-12

2 ACRYLIC (ELECTRICALLY CONDUCTIVE COATED) WINDOWS
WINDOW NO. 2 PART NUMBER 141N4810 LEFT-13, RIGHT-14
WINDOW NO. 3 PART NUMBERR 141N4820 LEFT-1, RIGHT-2

3 GLASS (ELECTRICALLY CONDUCTIVE COATED) WINDOWS
WINDOW NO. 2 PART NUMBER 141N4890 LEFT-1, RIGHT-2
WINDOW NO. 3 PART NUMBERR 141N4004 LEFT-2, RIGHT-2

Right Fwd or Left Side Window Anti-Icing BITE Procedure
Figure 104 (Sheet 6)

LIGHT ON WINDOW HEAT CONTROL UNIT	CORRECTION
CONTROL UNIT (CONT)	2. IF THE WINDOW HEAT RESISTANCE FOR A WINDOW IS NOT IN THE SPECIFIED RESISTANCE RANGE, REPLACE THE WINDOW 4. IF THE WINDOW HEAT RESISTANCE IS WITHIN RANGE, REPLACE THE RIGHT FWD AND LEFT SIDE WHCU, M192 (AMM 30-41-01/401). 3. ATTACH THE ELECTRICAL CONNECTORS TO THE WINDOW TERMINALS. WARNING: MAKE SURE ALL THE WINDOW HEAT ELETRICAL CONNECTORS HAVE PROTECTIVE COVERS. EXPOSED WINDOW HEAT ELECTRICAL CONNECTORS ARE AT HIGH VOLTAGE POTENTIALS. FAILURE TO REPLACE THE COVERS COULD CAUSE INJURY TO PERSONS. 4. MAKE SURE THE PROTECTIVE COVERS ARE INSTALLED ON ALL WINDOW TERMINAL ELECTRICAL CONNECTORS. REPLACE COVERS THAT ARE NOT THERE.

WINDOW HEAT ELEMENT RESISTANCE TEST
TABLE 104

4 NO. 1R (AMM 56-11-01/401)
NO. 2L (AMM 56-11-02/401)
NO. 3L (AMM 56-11-10/401)

Right Fwd or Left Side Window Anti-Icing BITE Procedure
Figure 104 (Sheet 7)

G19289

RIGHT WHCU, M192 CONNECTOR D22902A		TERMINAL BLOCK (OR CONNECTOR)	PIN NO.	WIRE NO.	SENSOR	WINDOW
PIN NO.	WIRE NO.					
19	W1310-2507B-22	TB107	XA1		CONTROL 1	1R
20	W1310-2507R-22	TB107	XB1		CONTROL 1	
		TB107	XC1		SPARE 1	
		TB107	XD1		SPARE 1	
		TB5038	3	W2390-2501B-22	CONTROL 2	
		TB5038	4	W2390-2501R-22	CONTROL 2	
		TB5038	5	W2390-2502B-22	SPARE 2	
		TB5038	6	W2390-2502R-22	SPARE 2	
13	W1310-2501B-22	TB107	XA2		CONTROL 1	2L
14	W1310-2501R-22	TB107	XB2		CONTROL 1	
		TB107	XC2		SPARE 1	
		TB107	XD2		SPARE 1	
		(D41578J)	3	W2386-4501R-22	CONTROL 2	
		(D41578J)	4	W2386-4501N-22	CONTROL 2	
		(D41578J)	5	W2386-4501Y-22	SPARE 2	
		(D41578J)	6	W2386-4501G-22	SPARE 2	
17	W1310-2504B-22	TB107	XA3		CONTROL 1	3L
18	W1310-2504R-22	TB107	XB3		CONTROL 1	
		TB107	XC3		SPARE 1	
		TB107	XD3		SPARE 1	
		TB5030	3	W2386-2503B-22	CONTROL 2	
		TB5030	4	W2386-2503R-22	CONTROL 2	
		TB5030	5	W2386-2504B-22	SPARE 2	
		TB5030	6	W2386-2504R-22	SPARE 2	

RIGHT WINDOW HEAT CONTROL UNIT TO THE CONTROL
AND SPARE TEMPERATURE SENSOR WIRING (WDM 30-41-12)
TABLE 104A

NOTE: THERE ARE TWO POSSIBLE CONFIGURATIONS FOR THE SENSOR WIRING CHANGES. TO DETERMINE WHICH CONFIGURATION THE AIRPLANE HAS, LOOK FOR TERMINAL BLOCK TB107 ON THE REAR E1-1 SHELF IN THE MAIN EQUIPMENT CENTER.

AIRPLANES WITHOUT TB107 INSTALLED;
YOU CAN ACCESS TB5038 AND TB5030 BEHIND THE INTERIOR PANELS IN THE FLIGHT COMPARTMENT FOR THE NO. 1R AND NO. 3L WINDOWS. FOR THE NO. 2L WINDOW, OPEN THE WINDOW TO ACCESS CONNECTOR D41578J FOUND AT THE TOP REAR SECTION. USE THE APPLICABLE PIN REMOVAL AND INSERTION TOOL TO DO THE WIRING CHANGES.

AIRPLANES THAT HAVE THE TWO CONFIGURATIONS INSTALLED;
A SENSOR WIRING CHANGE AT TB107 IS RECOMMENDED.

1 AIRPLANES WITH TB107 INSTALLED

2 AIRPLANES WITHOUT TB107 INSTALLED

Right Fwd or Left Side Window Anti-Icing BITE Procedure
Figure 104 (Sheet 8)

TEST SWITCH IN "WINDOW/PROBE HEAT" POSITION AND WINDOW HEAT "INOP" LIGHT(S) DID NOT ILLUMINATE

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
11A31,11P2,11P5,11P29,C4155,C4162 IN P26

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (MM 24-22-00/201)

1 PUT THE "IND LTS" SWITCH TO "BRT" AND PUSH THE "TEST" BUTTON ON THE OVERHEAD PANEL, P5.
DO THE L FWD AND L SIDE "INOP" LIGHTS ON THE P5 PANEL GO OFF?

YES → 21 EXAMINE AND REPAIR THE CIRCUIT BETWEEN PIN 3 ON THE WINDOW HEAT CONTROL PANEL CONNECTOR D3552 AND PIN 3 ON THE LIGHTING EQUIPMENT PANEL, P26, CONNECTOR D41002P (WDM 33-16-22).

NO

2 DO THE R FWD AND R SIDE "INOP" LIGHTS GO OFF?

YES → 22 EXAMINE AND REPAIR THE CIRCUIT BETWEEN PIN 3 ON THE WINDOW HEAT CONTROL PANEL CONNECTOR D3554 AND PIN 3 ON THE LIGHTING EQUIPMENT PANEL, P26, CONNECTOR D41006P (WDM 33-16-42).

NO

3 PUSH THE "TEST" BUTTON ON THE OVERHEAD PANEL, P5. PUT AND HOLD THE TEST SWITCH ON THE P61 TO THE "WINDOW/PROBE HEAT" POSITION.
DO THE L FWD AND R SIDE "INOP" LIGHTS GO OFF?

YES → 23 DO THE ANTI-ICING BITE PROCEDURE FOR THE LEFT FORWARD OR RIGHT SIDE WINDOW (FIG. 103, BLOCK 1).

NO

4 DO THE R FWD AND L SIDE "INOP" LIGHTS GO OFF?

YES → 24 DO THE ANTI-ICING BITE PROCEDURE FOR THE RIGHT FORWARD OR LEFT SIDE WINDOW (FIG. 104, BLOCK 1).

NO → 25 REPLACE THE DIODE/FUSE CARD OF THE SWITCH-LIGHT THAT IS OFF (MM 33-13-00/201).
IF THE PROBLEM CONTINUES, EXAMINE AND REPAIR THE CIRCUIT BETWEEN THE SWITCH-LIGHT THAT IS OFF AND ITS APPLICABLE WINDOW HEAT CONTROL UNIT (WDM 30-41-11,-12).

Test Switch in WINDOW/PROBE HEAT Position and Window Heat INOP Light(s) Did Not Illuminate
Figure 105

EICAS MESSAGE "WINDOW HEAT" DISPLAYED AND TWO WINDOW HEAT "INOP" LIGHTS ARE ILLUMINATED

PREREQUISITES

NONE

NOTE: THE "INOP" LIGHT CAN POSSIBLY COME ON DURING HIGH OUTSIDE AMBIENT TEMPERATURES (MORE THAN 85°F, 29.5°C).

1 DID THE L FWD AND R SIDE "INOP" LIGHTS ON THE WINDOW HEAT CONTROL PANEL ON THE P5 PANEL COME ON?

YES → 20 DO THE ANTI-ICING BITE PROCEDURE FOR THE LEFT FORWARD OR RIGHT SIDE WINDOW (FIG. 103, BLOCK 1).

NO → 21 DO THE ANTI-ICING BITE PROCEDURE FOR THE RIGHT FORWARD OR LEFT SIDE WINDOW (FIG. 104, BLOCK 1).

EICAS Message WINDOW HEAT Displayed and
Two Window Lights are Illuminated
Figure 106

1. Sensor Light on the Window Heat Control Unit - Fault Isolation
   A. Initial Evaluation
      (1) Do this check of the window heat control unit (WHCU):
         (a) Push the PRESS/TEST switch on the WHCU.
         (b) Make sure all the indicator lights on the WHCU come ON.
         (c) Push the BIT/VERIFY switch on the WHCU.
      (2) If an amber SENSOR light comes ON, do the Fault Isolation Procedure below.
      (3) If the green TEST COMPLETE light comes ON, then there was an intermittent fault.
   B. Fault Isolation Procedure
      (1) Do this resistance check of the sensor:
         (a) Disconnect the connector for applicable the sensor (WDM 30-41-11, WDM 30-41-12).
         (b) Measure the resistance of the sensor (figure 103A).
            1) If the resistance of the sensor is not within limits, then measure the resistance of the spare sensor.
            2) If the resistance of the spare sensor is within limits, then re-connect the wiring to the spare sensor.
            3) If the resistance of the spare sensor is not within limits, then replace the window
               (AMM 56-11-01/401 for window 1)
               (AMM 56-11-02/401 for window 2)
               (AMM 56-11-10/401 for window 3).
         (c) If the resistance of the sensor is within limits, then continue.
      (2) Do this check of the sensor wiring:
         (a) Remove the applicable window heat control unit, M191 (AMM 30-41-01/401).

(b) Do a wiring check between these pins of the connector at the window heat control unit and the connector at the window for the sensor (WDM 30-41-11, WDM 30-41-12):

For window 1L:	D2304A	J3 or J2 (spare)
	pin 19 ---------	pin A
	pin 20 ---------	pin B
For window 2R:	D2304A	J7 or J6 (spare)
	pin 17 ---------	pin A
	pin 18 ---------	pin B
For window 3R:	D2304A	J10 or J11 (spare)
	pin 13 ---------	pin A
	pin 14 ---------	pin B
For window 1R:	D2290A	J3 or J2 (spare)
	pin 19 ---------	pin A
	pin 20 ---------	pin B
For window 2L:	D2290A	J7 or J6 (spare)
	pin 17 ---------	pin A
	pin 18 ---------	pin B
For window 3L:	D2290A	J10 or J11 (spare)
	pin 17 ---------	pin A
	pin 18 ---------	pin B

(c) If you find a problem with the wiring, then repair it.
(d) Re-install the window heat control unit, M191 (AMM 30-41-01/401).
(e) Re-connect the connector to the sensor.

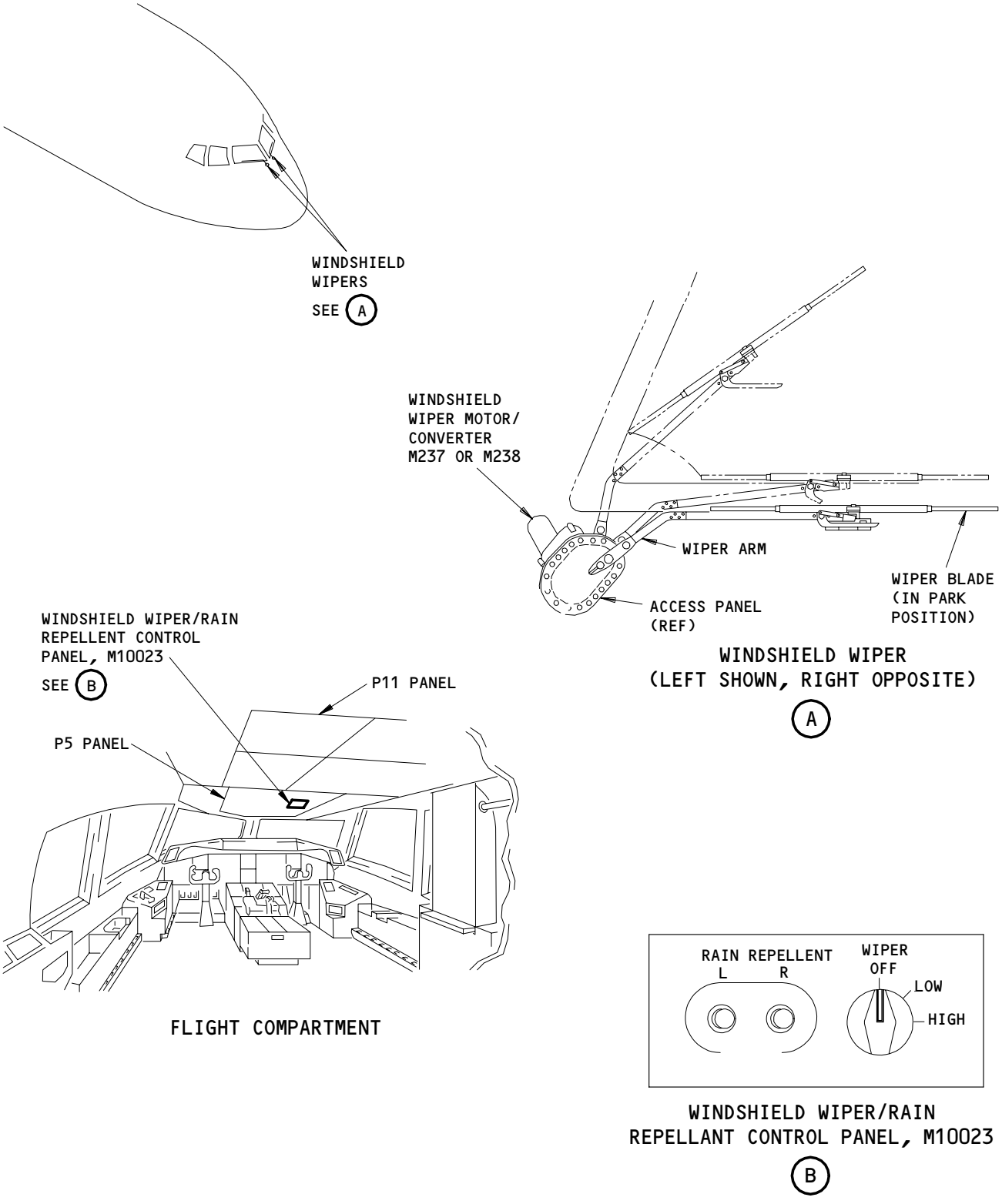
WINDSHIELD WIPER SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
ARM - WINDSHIELD WIPER	1	2	L&R OUTER FWD WINDOW SILL AREA	30-42-03
BLADE - WINDSHIELD WIPER	1	2	L&R OUTER FWD WINDOW SILL AREA	30-42-03
CIRCUIT BREAKER -			FLT COMPT, P11	
WSHLD WIPER LEFT, C1143		1	11R13	*
WSHLD WIPER RIGHT, C1144		1	11R22	*
MOTOR/CONVERTER - LEFT, M237	1	2	L FWD WINDOW SILL AREA	30-42-02
MOTOR/CONVERTER - RIGHT, M238	1	1	R FWD WINDOW SILL AREA	30-42-02
PANEL - WINDSHIELD WIPER/RAIN REPELLENT, M10023	1	1	FLT COMPT, P5	30-42-01

* SEE THE WDM EQUIPMENT LIST

Windshield Wiper System - Component Index
Figure 101

E44382



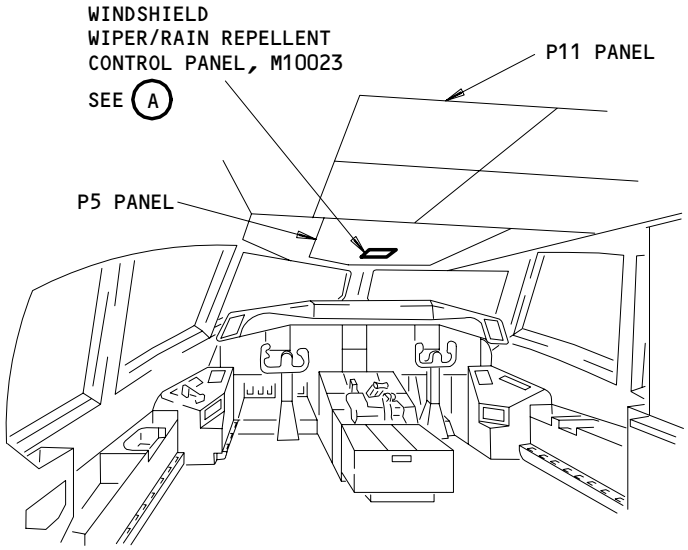
Windshield Wiper System – Component Location
Figure 102

WINDSHIELD RAIN REPELLENT SYSTEM

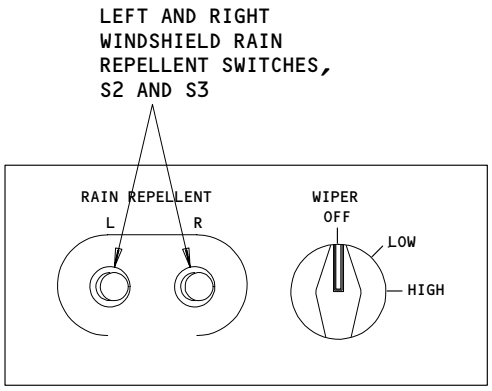
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
BOTTLE - WINDSHIELD RAIN REPELLENT	1	1	FLT COMPT, ON WALL BEHIND CAPT	30-43-00
CIRCUIT BREAKER -			FLT COMPT, P11	
RAIN REPEL LEFT, C1145		1	11R21	*
RAIN REPEL RIGHT, C1136		1	11R12	*
GAGE - PRESSURE	1	1	FLT COMPT, ON WALL BEHIND CAPT	30-43-00
NOZZLE - L AND R WINDHIELD RAIN REPELLENT	2	2	FLT COMPT, BEHIND P1,P3	30-43-01
PANEL - WINDSHIELD WIPER/RAIN REPELLENT, M10023 (FIM 30-42-00/101)				
RESERVOIR - VISUAL	1	1	FLT COMPT, ON WALL BEHIND CAPT	30-43-00
SWITCH - L WINDSHIELD RAIN REPELLENT, S2	2	1	FLT COMPT, P5, WINDSHIELD WIPER/RAIN REPELLENT CONTROL PANEL, M10023	30-43-00
SWITCH - R WINDSHIELD RAIN REPELLENT, S3	2	1	FLT COMPT, P5, WINDSHIELD WIPER/RAIN REPELLENT CONTROL PANEL, M10023	30-43-00
VALVE - CHECK	2	3	FLT COMPT, BEHIND P1,P3	30-43-03
VALVE - L AND R SOLENOID, V118,V119	2	2	FLT COMPT, BEHIND P1,P2,P3	30-43-02
VALVE - SHUTOFF	1	1	FLT COMPT, ON WALL BEHIND CAPT	30-43-00

* SEE THE WDM EQUIPMENT LIST

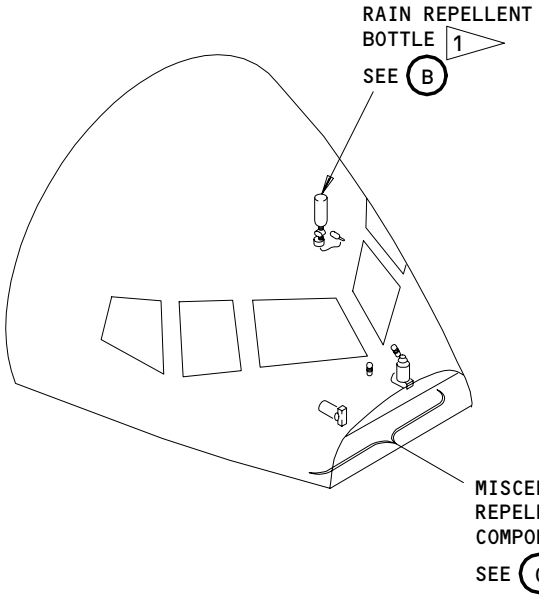
Windshield Rain Repellent System - Component Index
Figure 101

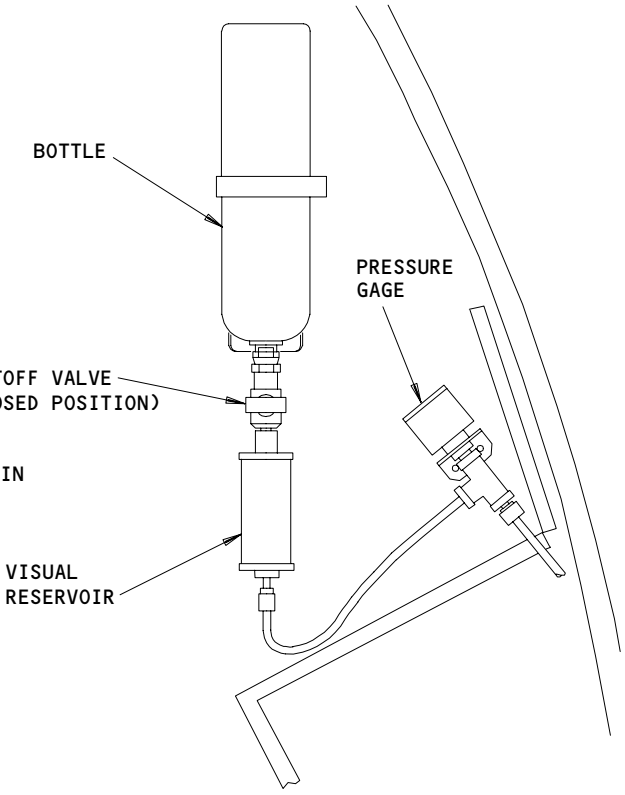


FLIGHT COMPARTMENT



WINDSHIELD WIPER/RAIN REPELLENT
CONTROL PANEL, M10023 (REF)
A

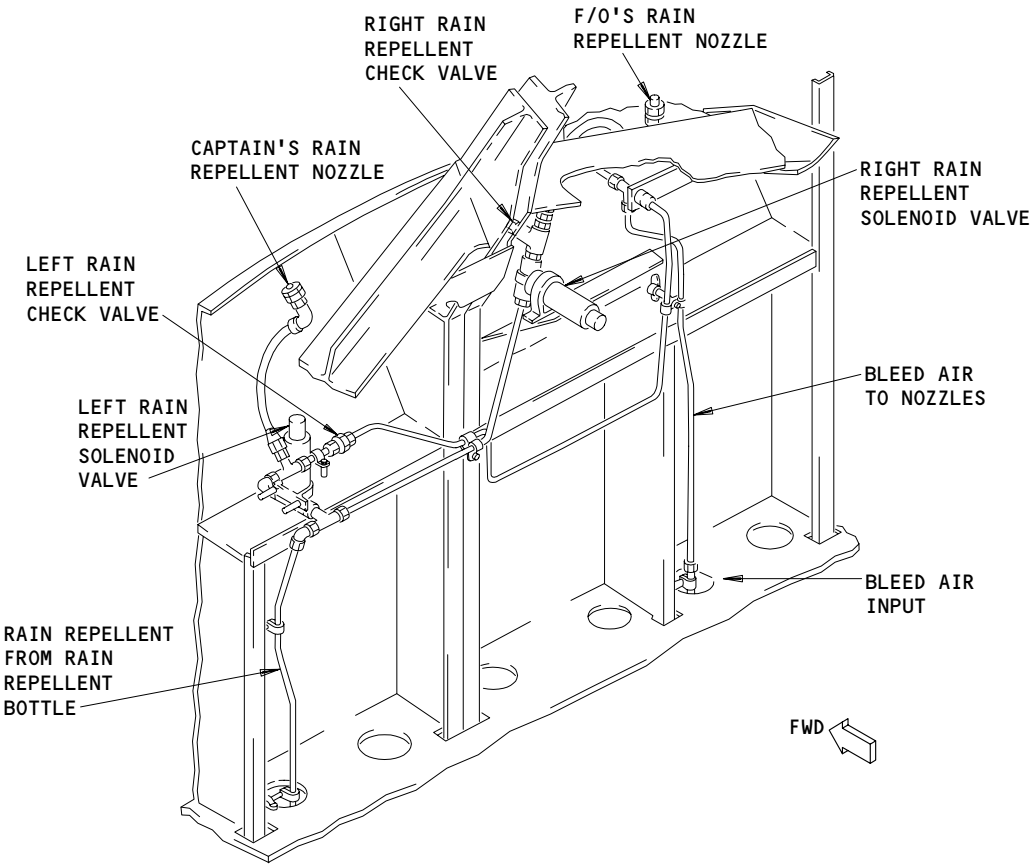




RAIN REPELLENT BOTTLE
B 1

1 ON THE FLIGHT COMPARTMENT AFT BULKHEAD

Windshield Rain Repellent System - Component Location
Figure 102 (Sheet 1)

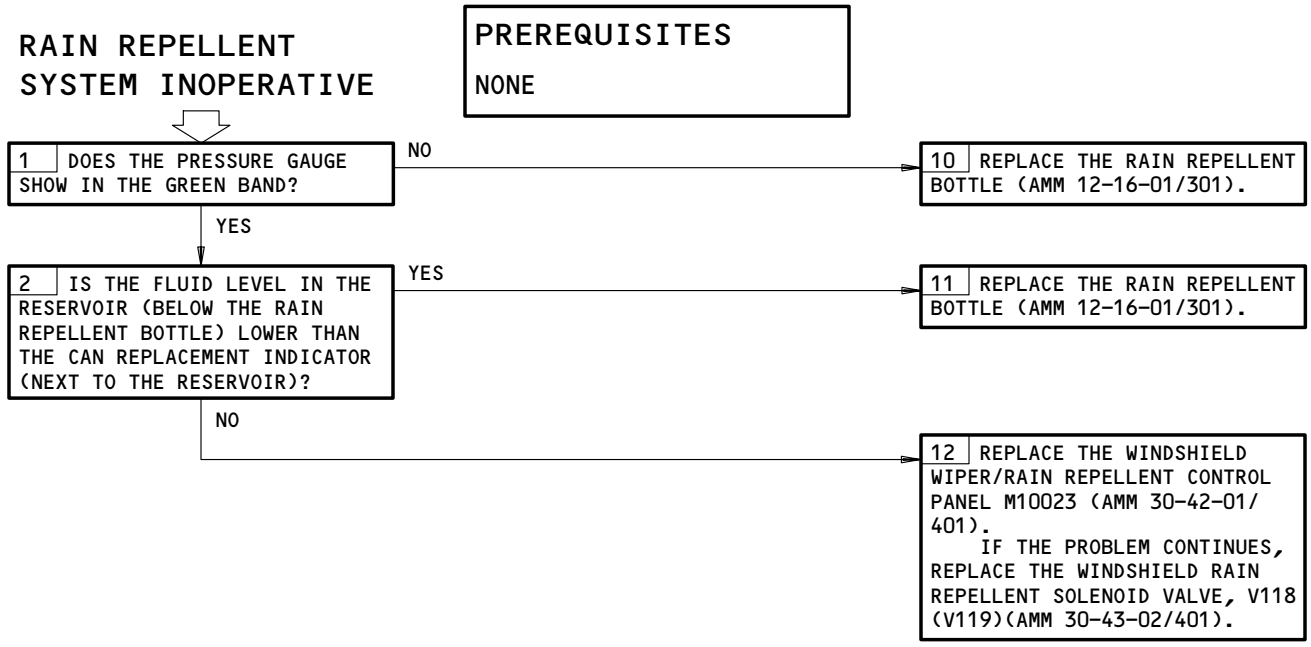


MISCELLANEOUS RAIN REPELLENT SYSTEM COMPONENTS

(C)

Windshield Rain Repellent System - Component Location
Figure 102 (Sheet 2)

F09664



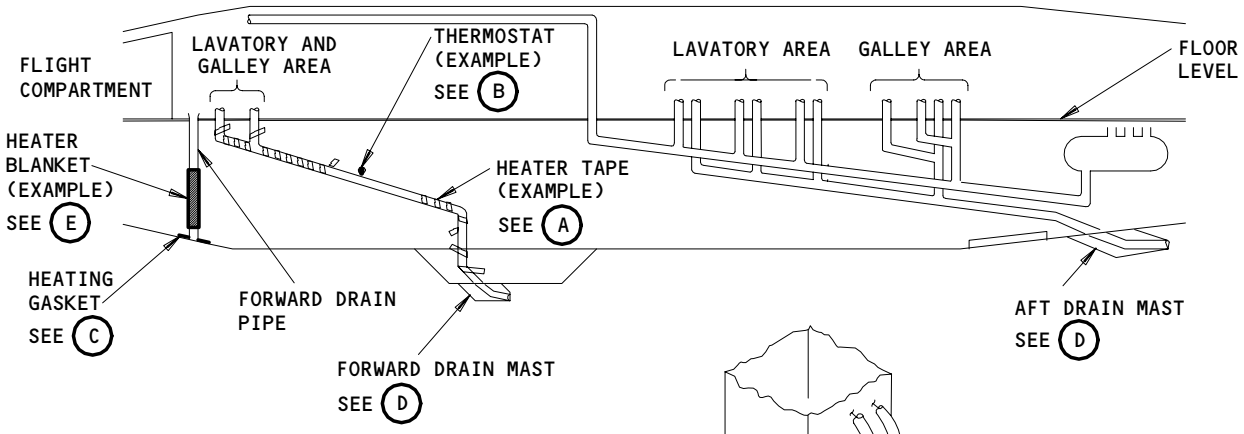
Rain Repellent System Inoperative
Figure 103

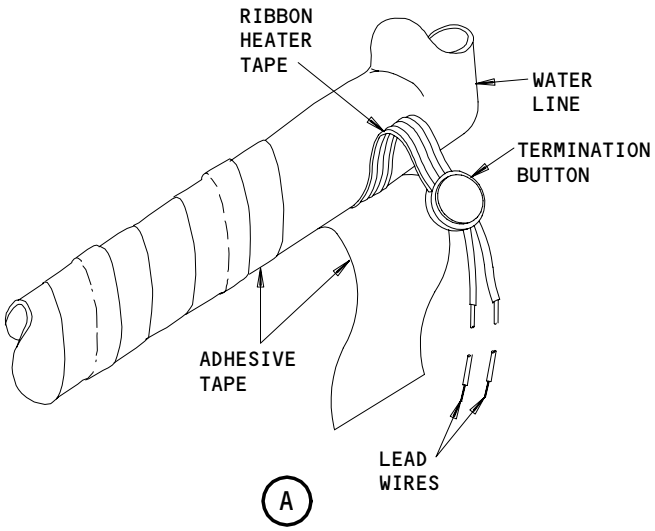
WATER AND DRAIN LINE HEATERS

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS	--		119BL, MAIN EQUIP CTR, P34	
HEATERS DRAIN MST GND, C4367		1	34B3 (B)	*
CIRCUIT BREAKERS	--		119BL, MAIN EQUIP CTR, P37	
AFT WATERLINE HEATERS, C4262		1	37E1	*
HEATERS DRAIN MST AIR, C1142		1	37F7	*
HEATERS WATERLINE FWD, C1149		1	37F5	*
HEATERS WATERLINE MID, C1150		1	37F6	*
HEATER - AFT DRAIN MAST, B42	--	1	SECTION 46, BOTTOM OF FUSELAGE	30-71-03
HEATER - FWD DRAIN MAST, B41	--	1	SECTION 43, BOTTOM OF FUSELAGE	30-71-03
HEATER - FWD TOILET DRAIN GASKET, B43	--	1	SECTION 41, FWD LAVATORY WASTE SERVICE PANEL	30-71-04
HEATER - MID TOILET DRAIN GASKET, B92	--	1	SECTION 43, BOTTOM OF FUSELAGE	30-71-03
HEATER TAPE - WATER SUPPLY LINE, B10217	--	1	SECTION 43, LWR FUSELAGE DRAIN LINE	30-71-01
HEATER BLANKETS - FWD DRAIN LINE, B107,B117	--	2	SECTION 41, LWR FUSELAGE DRAIN LINE	30-71-01
HEATER TAPES - AFT SUPPLY LINE, B10219, B10221,B10220,B10222	--	4	SECTION 46, LWR FUSELAGE DRAIN LINE	30-71-01
HEATER TAPE - DRAIN LINE HEATER TAPE, B10063	--	1	SECTION 43, LWR FUSELAGE DRAIN LINE	30-71-01
HEATER TAPE - MID SUPPLY LINE, B10126, B10127	--	2	SECTION 43, LWR FUSELAGE SUPPLY LINE	30-71-01
HEATER THERMOSTAT - AFT SUPPLY LINE, B10223	--	1	SECTION 46, LWR FUSELAGE SUPPLY LINE	30-71-02
HEATER THERMOSTAT - FWD DRAIN LINE, B85	--	1	SECTION 41, LWR FUSELAGE DRAIN LINE	30-71-02
HEATER THERMOSTAT - FWD DRAIN LINE, B10064	--	1	SECTION 43, LWR FUSELAGE DRAIN LINE	30-71-02
RELAY - (REF 31-01-37, FIG. 101) AIR/GND, SYS 2, K205				

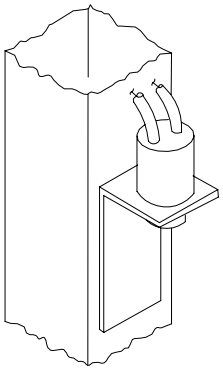
* SEE THE WDM EQUIPMENT LIST

Water and Drain Line Heaters - Component Index
Figure 101



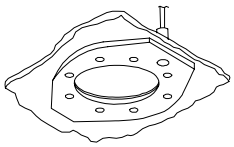


A



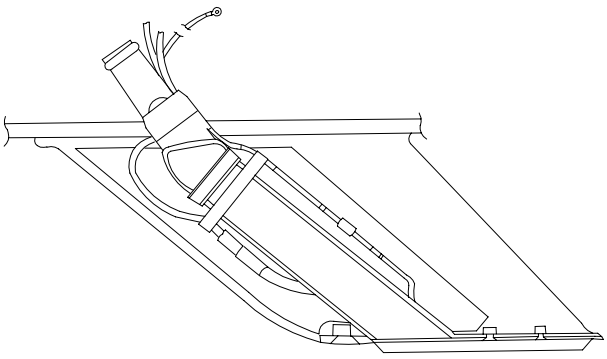
THERMOSTAT (EXAMPLE)

B



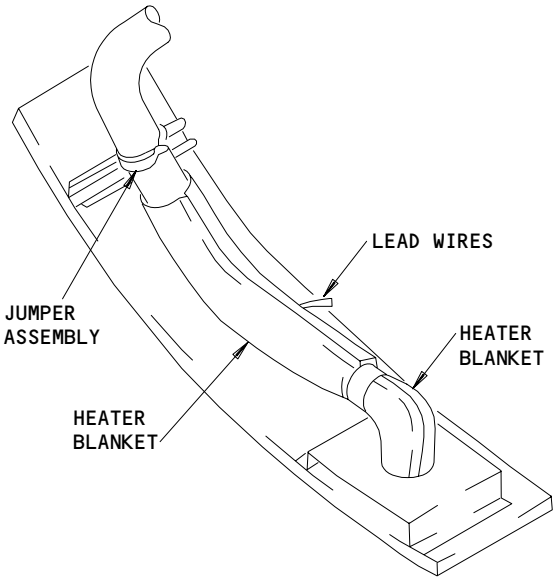
GASKET HEATER (EXAMPLE)

C



FORWARD DRAIN MAST
(AFT DRAIN MAST IS ALMOST THE SAME)

D



HEATER BLANKET INSTALLATION
(EXAMPLE)

E

Water and Drain Line Heaters – Component Location
Figure 102

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
SEE TABLE 101

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (MM 24-22-00/201)

NOTE: COOL THE APPLICABLE THERMOSTAT(S) WITH DRY ICE TO BELOW 30°F (-1°C) BEFORE YOU TEST THE HEATERS.

TABLE 101

INOPERATIVE HEATER	CIRCUIT BREAKER	CORRECTIVE ACTION 1
B43 FWD TOILET DRAIN HTR GASKET B92 MID TOILET DRAIN HTR GASKET	C1149, HEATERS WATERLINE FWD (37F5)	REPLACE DRAIN PIPE HEATER GASKET (MM 30-71-04/401).
B10126,B10127 WATER SUP LINE HTR TAPE	C1150, HEATERS WATERLINE MID (37F6)	REPLACE DEFECTIVE HEATERS (MM 30-71-01/401).
B107 DRAIN LINE HTR BLANKET B117 DRAIN LINE HTR BLANKET	C1149, HEATERS WATERLINE FWD (37F5)	REPLACE DEFECTIVE HEATER BLANKET (MM 30-71-01/401). IF BOTH HEATERS DO NOT OPERATE, REPLACE THERMOSTAT B85 (MM 30-71-02/401).
B10217 WATER SUPPLY LINE HEATER TAPE	C1150, HEATERS WATERLINE FWD (37F6)	HEATER TAPE (MM 30-71-01/401).
B10219 DRAIN LINE HTR TAPE B10221 DRAIN LINE HTR TAPE B10220 DRAIN LINE HTR TAPE B10220 DRAIN LINE HTR TAPE B10222 WATER SUP LINE HTR TAPE	C1150, HEATERS WATERLINE MID (37F6)	REPLACE DEFECTIVE HEATER (MM 30-71-01/401).
B109 WATER SUP LINE HTR TAPE B111 WATER SUP LINE HTR TAPE B113 WATER SUP LINE HTR TAPE B116 WATER SUP LINE HTR TAPE	C4262, AFT WATERLINE HEATERS (37E1)	REPLACE DEFECTIVE HEATER (MM 30-71-01/401). IF ALL FOUR HEATERS DO NOT OPERATE, REPLACE THERMOSTAT B10223 (MM 30-71-02/401).

1 IF A HEATER ELEMENT BECOMES TOO HOT, REPLACE THE HEATER. REFER TO THE APPLICABLE REMOVAL/INSTALLATION PROCEDURE. IF THE HEATER ELEMENT DOES NOT BECOME WARM, OR OPERATES INCORRECTLY, FOLLOW THE INSTRUCTIONS IN TABLE 101. IF THE PROBLEM CONTINUES, REPAIR THE CIRCUIT AS NECESSARY BETWEEN THE HEATER ELEMENT AND THE APPLICABLE CIRCUIT BREAKER (WDM 30-71-11,-21).

Heater and Thermostat Fault Isolation
Figure 103 (Sheet 1)

TABLE 101 (Cont)		
INOPERATIVE HEATER	CIRCUIT BREAKER	CORRECTIVE ACTION 1
B41 FWD DRAIN MAST HTR B42 AFT DRAIN MAST HTR	C1142, HEATERS DRAIN MST AIR (37F7) AND C4367, HEATERS DRAIN MST GND (34B3(B))	IF BOTH DRAIN MAST HEATERS BECAME DEFECTIVE IN THE AIR, EXAMINE SYS 2 AIR/GND RELAY K205 FOR THE CORRECT OPERATION (MM 32-09-02/201). REPLACE IF DEFECTIVE. IF THE PROBLEM CONTINUES, REPLACE DEFECTIVE DRAIN MAST (MM 38-31-01/401).
B10063 DRAIN LINE HTR TAPE	C1142, HEATERS DRAIN MST AIR (37F7) AND C4367, HEATERS DRAIN MST GND (34B3(B))	EXAMINE THERMOSTAT B10064 FOR THE CORRECT OPERATION (MM 30-71-02/401). REPLACE IF DEFECTIVE; IF NOT, REPLACE HEATING ELEMENT (MM 30-71-01/401).

Heater and Thermostat Fault Isolation
Figure 103 (Sheet 2)