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60U	APR 22/09	NO1
60V	APR 22/09	NO1
60W	APR 22/09	NO1
60X	APR 22/09	NO1
60Y	APR 22/09	NO1
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71-71-00		CONT.
108	BLANK	

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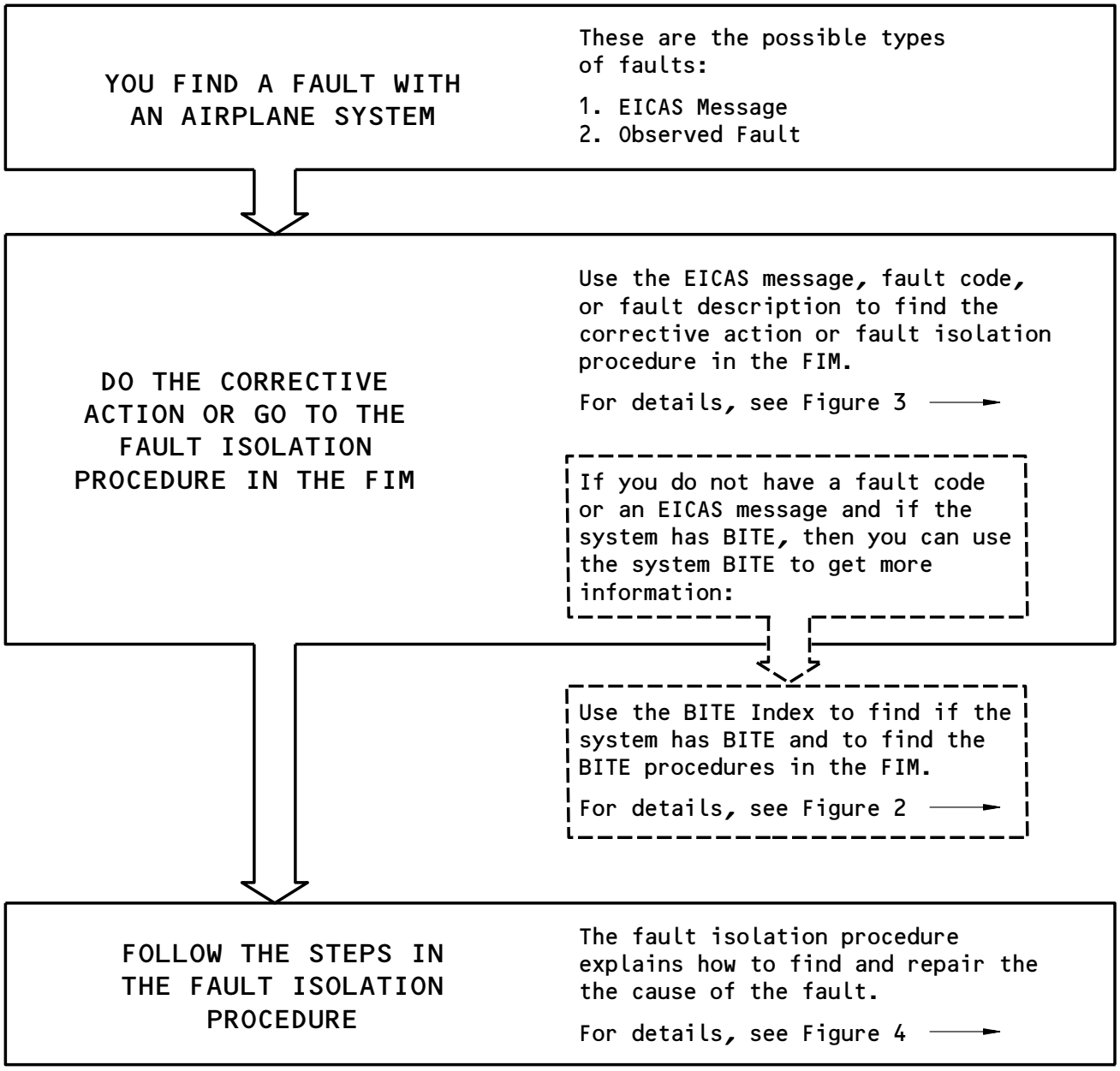
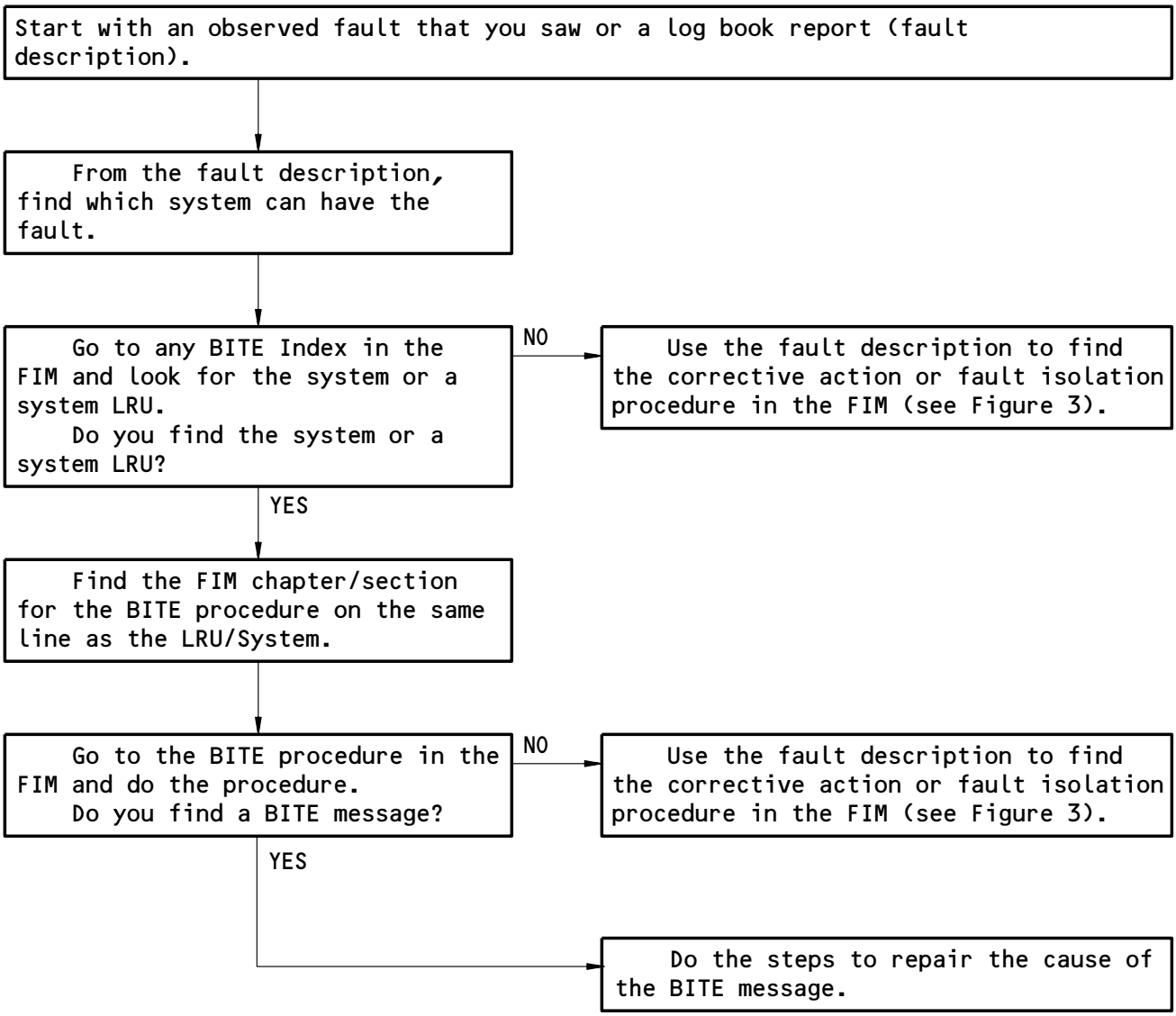


Basic Fault Isolation Process
Figure 1



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

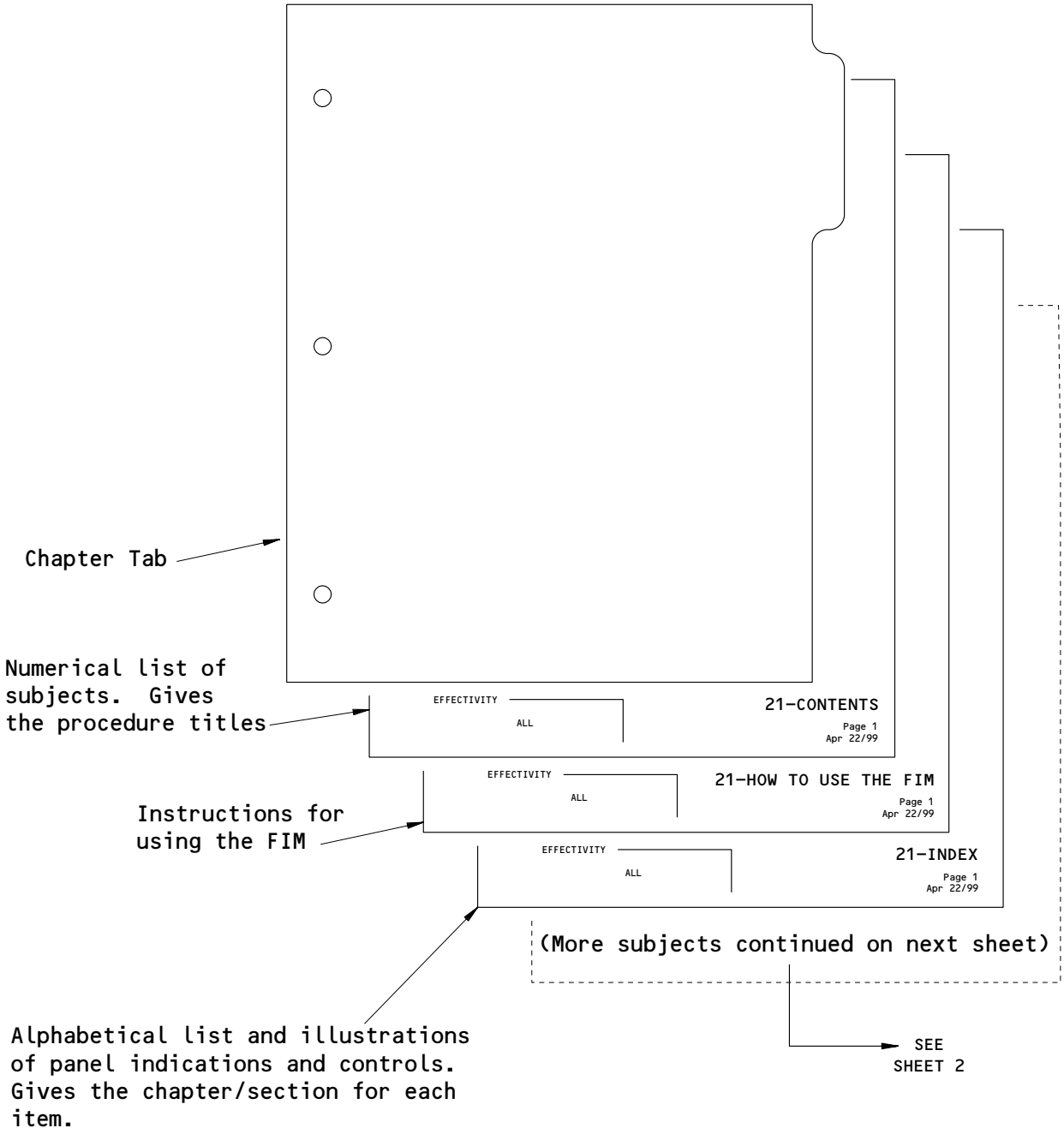
- This box gives the steps to get the airplane from the normal shutdown condition to the configuration necessary to do the fault isolation procedure.
- The Prerequisites give procedure references, circuit breakers, and special tools and equipment requirements.

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

K37745

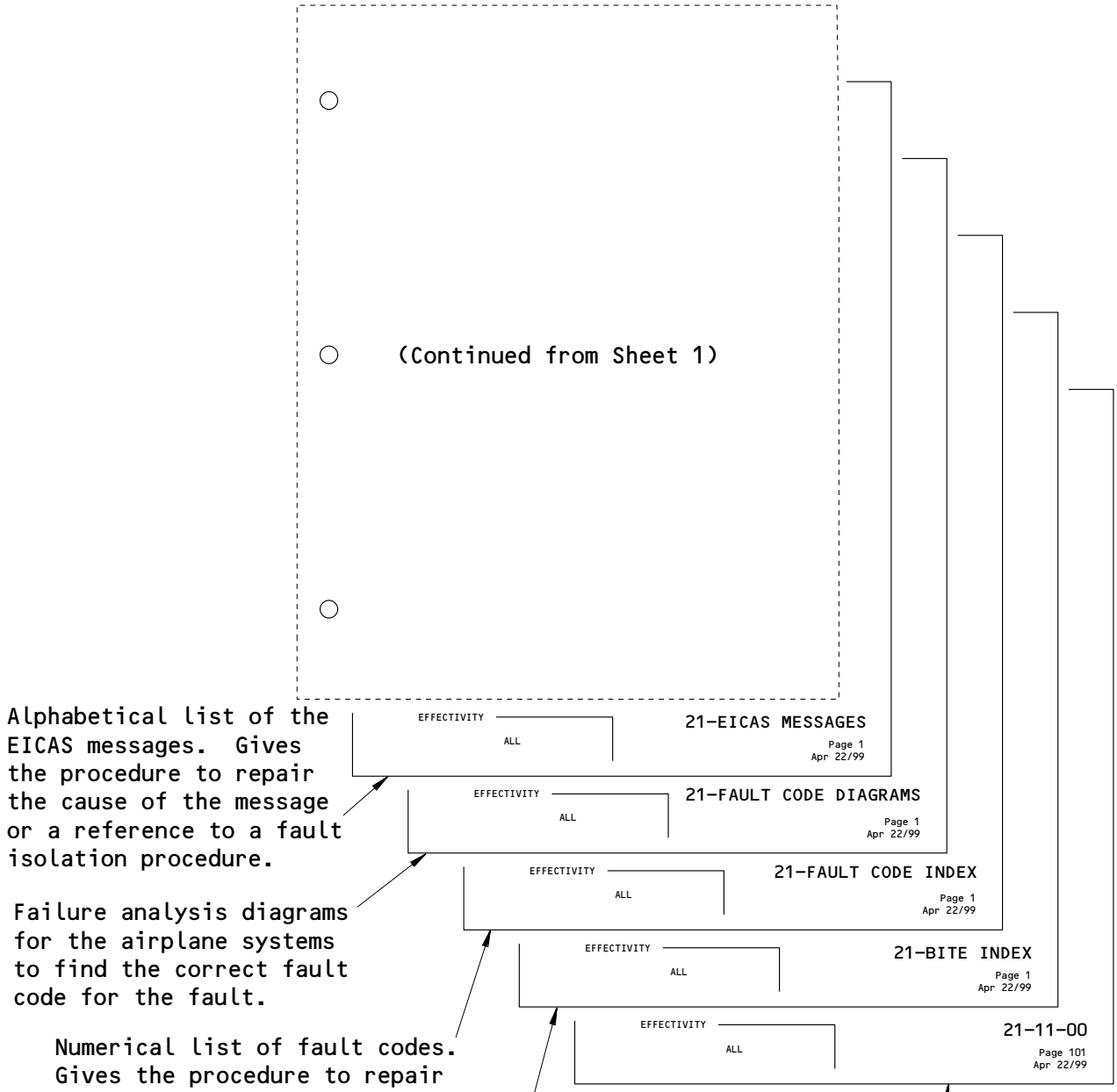


Subjects in Each FIM Chapter
Figure 5 (Sheet 1)

EFFECTIVITY
ALL

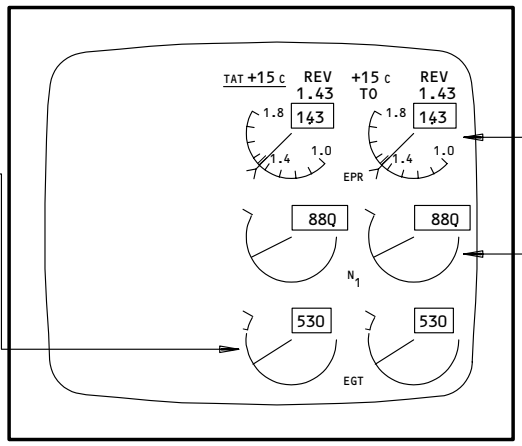
71-HOW TO USE THE FIM

K37746



Subjects in Each FIM Chapter
Figure 5 (Sheet 2)

EXCEEDED LIMITS (EXCEPT STARTING) 7105
FLAMEOUT 7321
IMPENDING HOT/HOTSTART 7106
IND FAULT 7721
NO LIGHT/WET START 7321
PARAMETERS ABNORM 7105
SURGE (STALL) 7105



AUTO ACCEL 7321
FLUCTUATES 7321
IND FAULT 7711
THRUST LOSS (AUTO DECEL) 7321
T.O. POWER LOW 7321
REV POWER HIGH/LOW 7105
PARAMETERS ABNORM . 7105

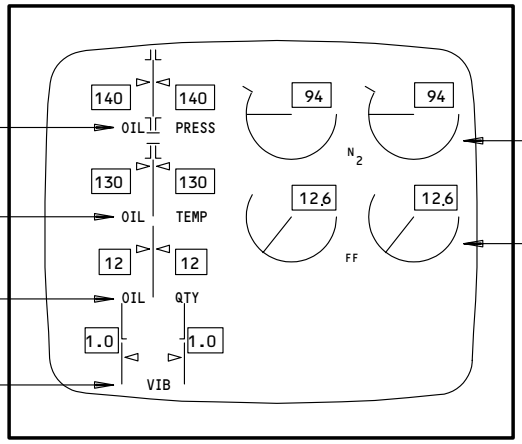
AUTO ACCEL 7321
FLUCTUATES 7321
IND FAULT 7712
NO ROTATION 7105
OVERSPEED 7105
THRUST LOSS (AUTO DECEL) 7321
PARAMETERS ABNORM . 7105

PRESS 7932
IND FAULT SHUTDOWN PRESS ..... .71 FAULT CODE DIAGRAM

TEMP 7934
IND FAULT 7934

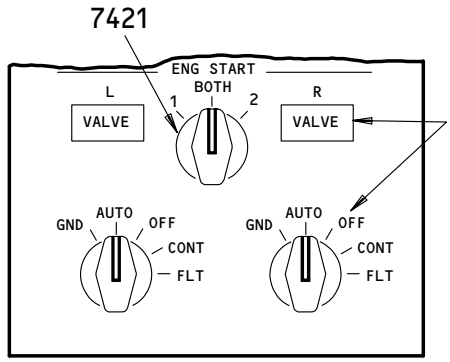
COMSUMPTION 7105
IND FAULT 7931

VIB HIGH 7105
IND FAULT 7731

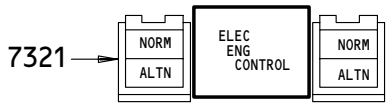


FLUCTUATES 7321
HUNG START 7321
SLOW ACCEL TO IDLE. 7321
IDLE RPM 7321
IND FAULT 7712
MOTORING SPEED LOW. 8011
NO ROTATION 8011
OVERSPEED 7105

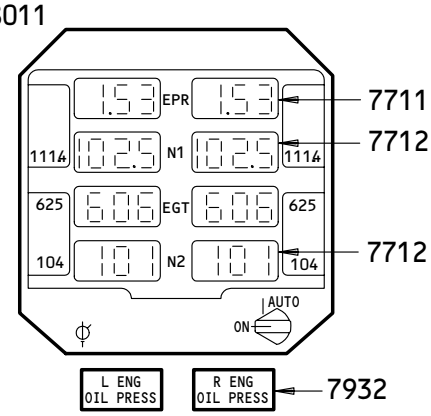
HIGH FLOW 7311
IND FAULT ..... 71 FAULT CODE DIAGRAM
START F/F 7311



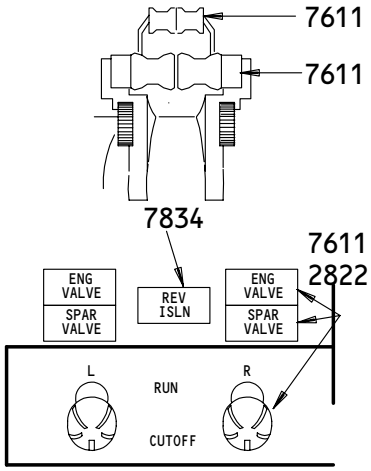
OVERHEAD PANEL



OVERHEAD PANEL



PILOTS' CENTER PANEL



CONTROL STAND

POWER PLANT - INDEX

EFFECTIVITY
ALL

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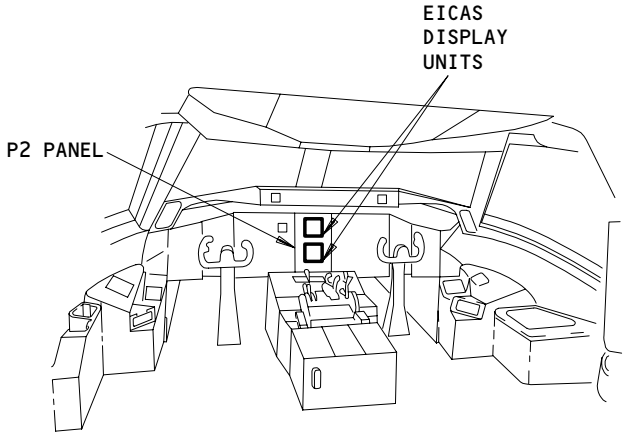
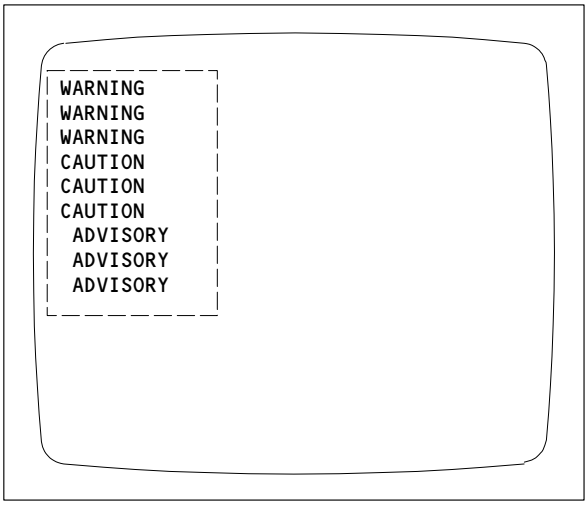
POWER PLANT - EICAS MESSAGE LIST

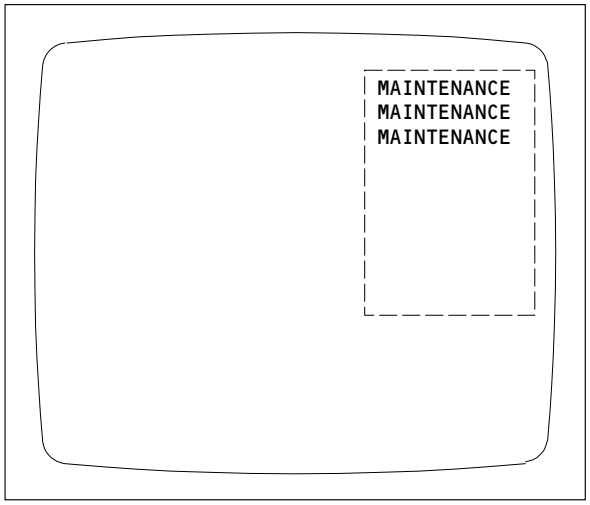
1. General
   A. This procedure shows the EICAS message locations and gives a list of procedures to find the solution for each message.
      (1) EICAS Message Locations (Fig. 1)
         (a) Figure 1 shows the location of the EICAS display units and the area where the messages show on the display units.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



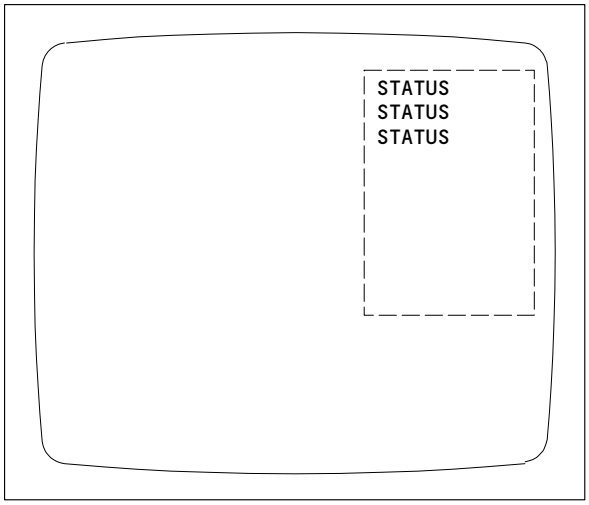
FLIGHT COMPARTMENT



ENGINE PRIMARY PAGE OR COMPACTED PAGE
(TOP DISPLAY UNIT)



ECS/MSG PAGE
(BOTTOM DISPLAY UNIT)



STATUS PAGE
(BOTTOM DISPLAY UNIT)

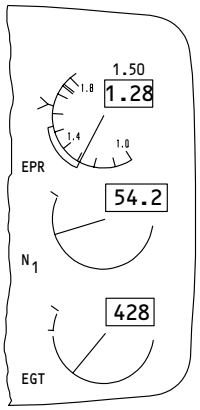
LEVEL	COLOR
A–WARNING	RED
B–CAUTION	YELLOW
C–ADVISORY	YELLOW
S–STATUS	WHITE
M–MAINTENANCE	WHITE

EICAS Message Locations
Figure 1

EICAS MESSAGE LIST		
EICAS MESSAGE	LEVEL	PROCEDURE
ENG VIB BITE	M	FIM 77-31-00/101, Fig. 103, Block 1
IDLE DISAGREE	C,M	FIM 73-21-00/101, Fig. 111, Block 1
IGN 1 STBY BUS	M	FIM 74-00-00/101, Fig. 104, Block 1
IGN 2 STBY BUS	M	FIM 74-00-00/101, Fig. 104, Block 1
(L,R) EEC TEST PWR	S	Put the EEC MAINT L(R) ENG POWER switch on the P61 panel to the NORM position. If the problem continues, replace the L(R) ENG POWER switch S1 (S3) on the EEC MAINT panel M1390 (WDM 73-21-11).
(L,R) ENG A/O VALVE	S,M	Do the PIMU BITE procedure, 71-PIMU MESSAGE INDEX Look for these messages: EEC CH-A/B TFUEL RNG FAIL (352-20) EEC CH-A/B AOC T/M W/A FAIL (351-18) EEC CH-A/B AOC FD-BK FAIL (351-28) EEC CH-A/B AOC TR-CK FAIL (351-23) EEC A/B-CHAN FAIL (350-14) Refer to PIMU Table 101 for corrective action for any of the above PIMU messages.
(L,R) ENG ANALOG N2	S,M	FIM 77-12-00/101, Fig. 106, Block 1
(L,R) ENG CONTROL	C,S,M	FIM 73-21-00/101, Fig. 112, Block 1
(L,R) ENG EEC C1	S,M	FIM 73-21-00/101, Fig. 115, Block 1
(L,R) ENG EEC C2	M	FIM 73-21-00/101, Fig. 116, Block 1

EICAS MESSAGE LIST		
EICAS MESSAGE	LEVEL	PROCEDURE
(L,R) ENG EEC MODE	C,M	FIM 73-21-00/101, Fig. 113, Block 1
(L,R) ENG FAIL	B	Do the troubleshooting for the engine flameout (FIM 73-21-00/101, Fig. 105, Block 1)
(L,R) ENG FUEL FILT	C,S,M	FIM 73-34-00/101, Fig. 103, Block 1
(L,R) ENG FUEL VAL	C	FIM 76-11-00/101, Fig. 104, Block 1
(L,R) ENG LIM PROT	C	There is no troubleshooting procedure for this EICAS message. This message is only set in conjunction with EICAS message (L,R) ENG EEC MODE (Refer to fault code 73 03 76 --) or EICAS message (L,R) ENG EEC C1 (Refer to fault code 73 03 77 --).
(L,R) ENG LOW IDLE	C,M	FIM 73-21-00/101, Fig. 111, Block 1
(L,R) ENG OIL PRESS	C	FIM 79-33-00/101, Fig. 103, Block 1
(L,R) ENG PROBE HEAT	M	Go to 30-EICAS messages
(L,R) ENG REV POS	S,M	Do the PIMU BITE procedure, 71-PIMU MESSAGE INDEX Look for these messages: EEC CH-A/B REVERSER RNG FAIL (352-25) EEC CH-A/B REVR CR-CK FAIL (353-25) EEC A/B-CHAN FAIL (350-14) Refer to PIMU Table 101 for corrective action for any of the above PIMU messages.
(L,R) ENG RPM LIM	C	Determine why desired thrust could not be obtained and correct the cause of the problem.
(L,R) ENG SHUTDOWN	B	No procedure is necessary

EICAS MESSAGE LIST		
EICAS MESSAGE	LEVEL	PROCEDURE
(L,R) ENG SPEED CARD	S,M	Replace the L(R) engine speed card M1093 (M1092) (AMM 77-12-01/401). If the problem continues, examine and repair this circuit: The L(R) engine speed card M1093 (M1092) connector D1064 (D1062) pins 9 and 13 to the L(R) EEC alternator T686 connector W3P1 pins D and E (WDM 77-12-12).
(L,R) ENG START EGT	S	FIM 71-06-00/101, Fig. 103, Block 1
(L,R) ENG STARTER	C	Go to the 80-FAULT CODE index and look at these codes: 80 03 01, 80 03 06, 80 03 07, 80 03 10.
(L,R) ENG SURGE DET	M	If the flight crew reported an audible surge or engine exceedance, go to the 71-Fault Code Index and look at fault codes: 71-04-18 and 71-04-19. If an audible surge or engine exceedance was not reported, no action is necessary.
(L,R) NAC VENT VAL	M	FIM 75-23-00/101, Fig. 103, Block 1
(L,R) OIL FILTER	C,S,M	FIM 79-35-00/101, Fig. 103, Block 1
(L,R) PIMU	M	71-PIMU MESSAGE INDEX
(L,R) REV INTERLOCK	S,M	FIM 78-36-00/101, Fig. 104, Block 1
(L,R) REV ISLN VAL	S,C,M	FIM 78-34-00/101, Fig. 111, Block 1
(L,R) SCAV TEMP 1	S,M	FIM 79-21-00/101, Fig. 105, Block 1
(L,R) SCAV TEMP 2	S,M	FIM 79-21-00/101, Fig. 105, Block 1
(L,R) STARTER CUTOUT	B	Replace the L(R) N2 engine speed card M1093 (M1092) (AMM 77-12-01). If the problem continues, replace the L(R) engine start switch YAY S1 (S2) on the P5 panel (WDM 80-11-11, WDM 80-11-21).



FAULT CODE/ LOCATION

L 01
R 02

DID AUTO ACCEL OCCUR?

NO → NORMAL

YES → WAS ENG SHUTDOWN APPROACHING OR EXCEEDING EGT LIMIT?

NOT APPLY 00

YES [1] → 73 03 55 _ _

NO → 73 03 56 _ _

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 73 03 XM _ _

[1] IF EGT LIMIT EXCEEDED, ALSO SEE "EGT EXCEEDED LIMITS (EXCEPT STARTING)" FAULT CODES,

APPLICABLE CIRCUIT BREAKERS

NONE

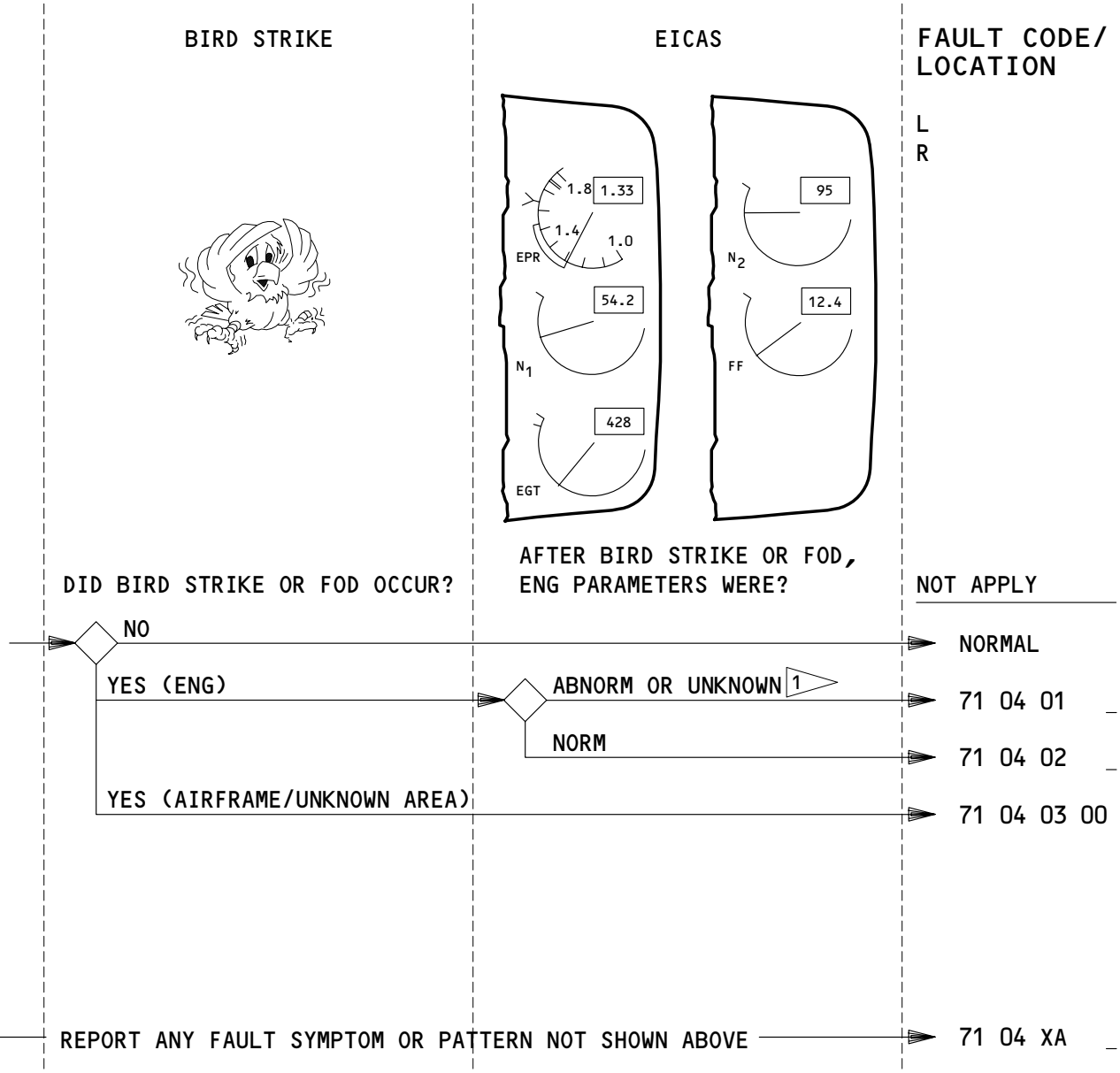
AUTO ACCEL – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295399



1 IF EGT LIMITS EXCEEDED, ALSO SEE "EGT LIMITS EXCEEDED (EXCEPT STARTING)" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

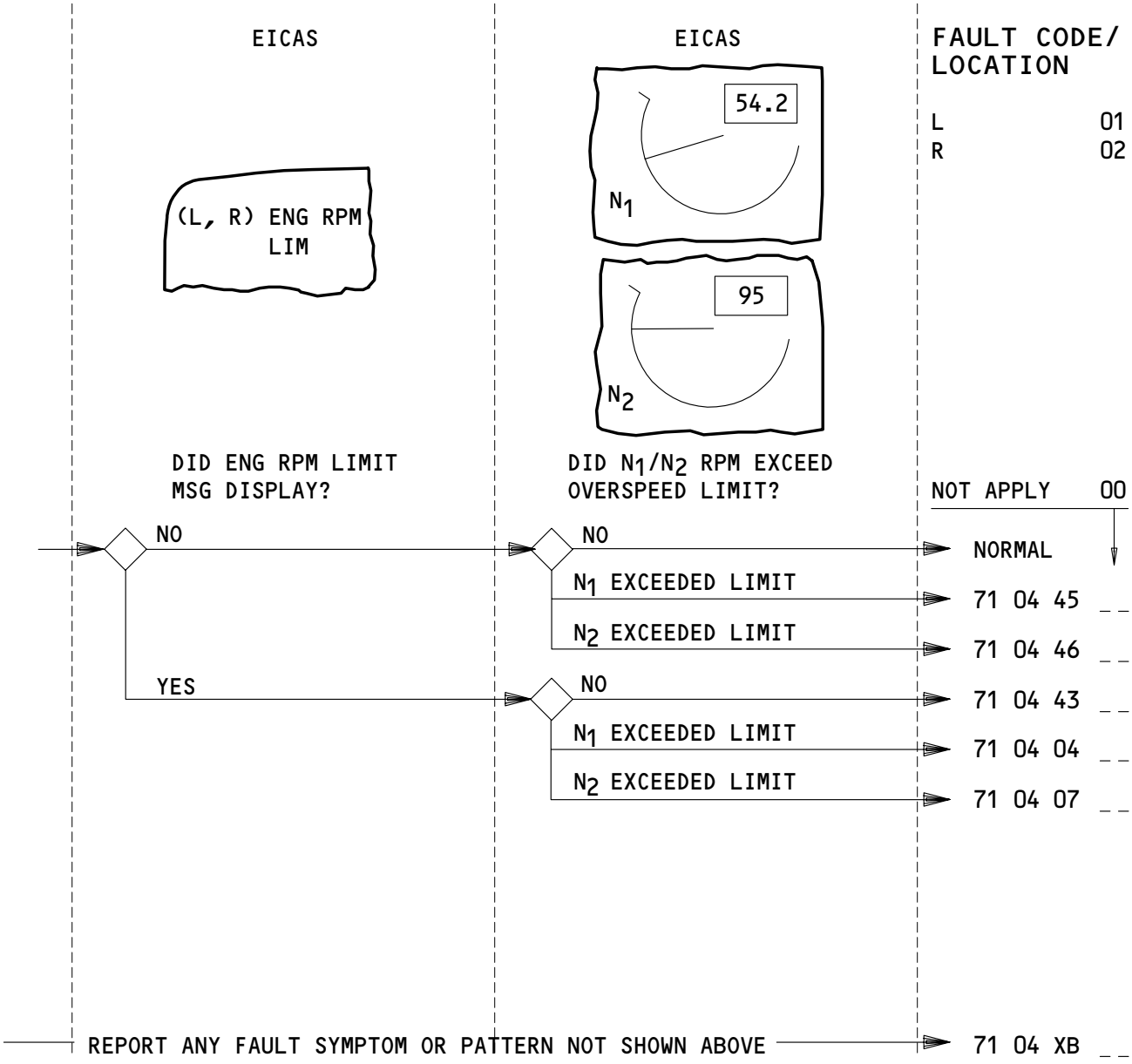
NONE

BIRD STRIKE/FOD - FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS

NONE

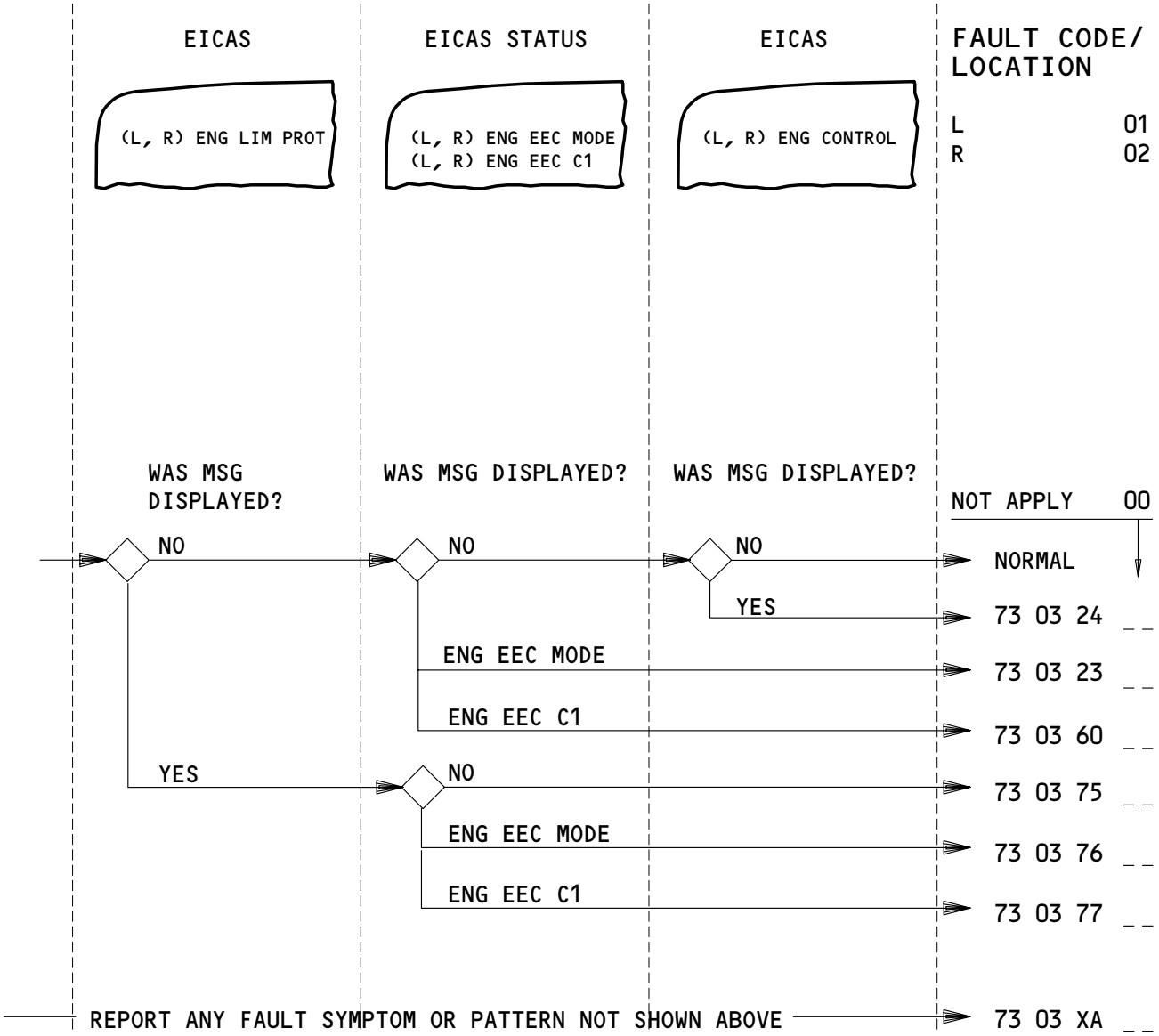
ENGINE OVERSPEED – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

672569



1 (L,R) ENG LIM PROT WILL DISPLAY IF EEC ALTN MODE IS MANUALLY OR AUTOMATICALLY SELECTED AND THRUST LEVER ANGLE IS ABOVE 52 DEGRESS.

APPLICABLE CIRCUIT BREAKERS

11C27	ENG EEC CHAN A L
11C28	ENG EEC CHAN A R

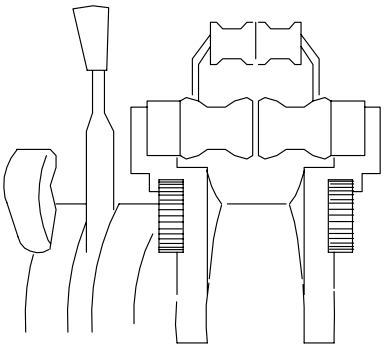
ELECTRONIC ENGINE CONTROL – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

616206



FAULT CODE/ LOCATION

L 01
R 02

WAS THRUST LEVER MOVEMENT NORMAL?

WERE THRUST LEVERS ALIGNED IN EPR MODE?

NOT APPLY 00

YES → YES → NORMAL

NO [1] → 73 03 25 _ _

HAS DEAD BAND AREA → 76 03 01 _ _

UNWANTED MOVEMENT WITH AUTO-THROTTLE OFF → 76 03 13 _ _

DIFFICULT TO MOVE IN FWD AND REVERSE THRUST → 76 03 04 _ _

LOSS OF FRICTION (WALKS BACK) → 76 03 12 _ _

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 76 03 XA _ _

[1] IF ENG PARAMETERS NOT NORM, SEE "ENGINE PARAMETERS ABNORMAL" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

11C27	ENG EEC CHAN A L
11C28	ENG EEC CHAN A R

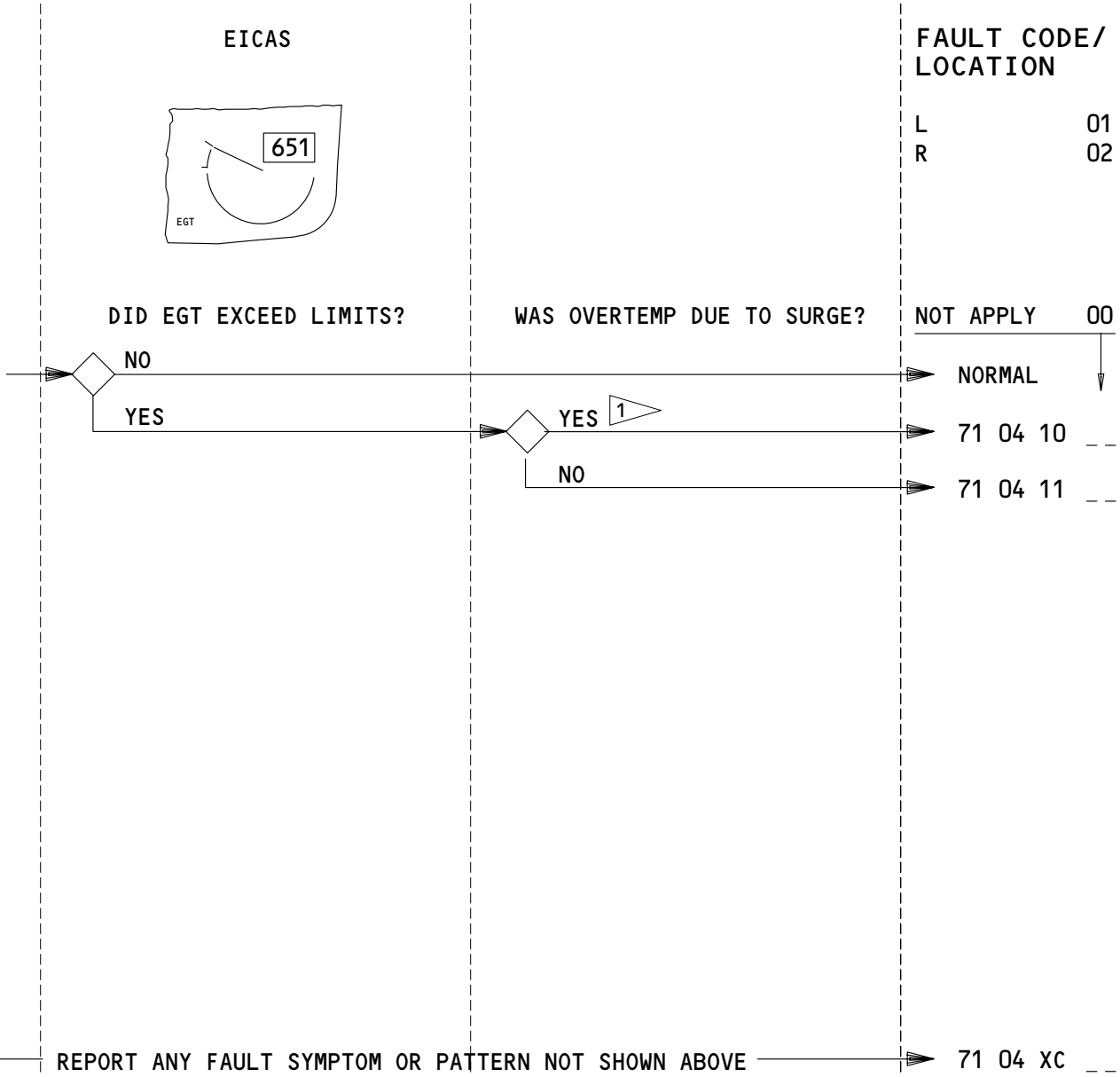
THRUST LEVER MOVEMENT – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

591151



1 IF OVERTEMP WAS CAUSED BY SURGE, ALSO SEE "SURGE (STALL)" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

NONE

EGT EXCEEDED LIMITS (EXCEPT STARTING) – FAULT CODES

EFFECTIVITY

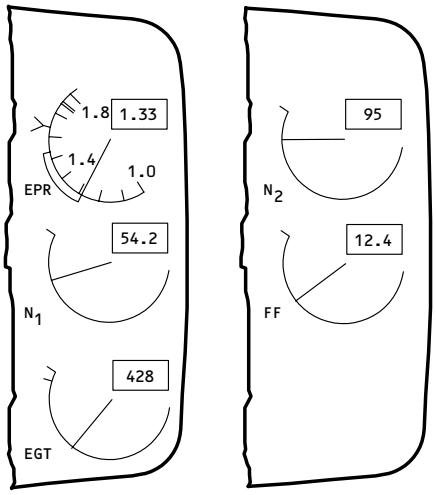
ALL

71-FAULT CODE DIAGRAM

672571

EICAS

(UPR) (LWR)



FAULT CODE/ LOCATION

L	01
R	02

WERE ENG PARAMETERS NORM?

NOT APPLY 00

YES → NORMAL

NO → 71 04 44 _ _

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 71 04 XJ _ _

APPLICABLE CIRCUIT BREAKERS

11L3	LEFT ENGINE PERF SOL CHANNEL A
11L4	LEFT ENGINE PERF SOL CHANNEL B
11L30	RIGHT ENGINE PERF SOL CHANNEL A
11L31	RIGHT ENGINE PERF SOL CHANNEL B

RECORD ENG DATA

ENG	L	R
EPR		
N1		
EGT		
N2		
F/F		

ALT_____
MACH_____
AIRSPEED___
TAT_____°C

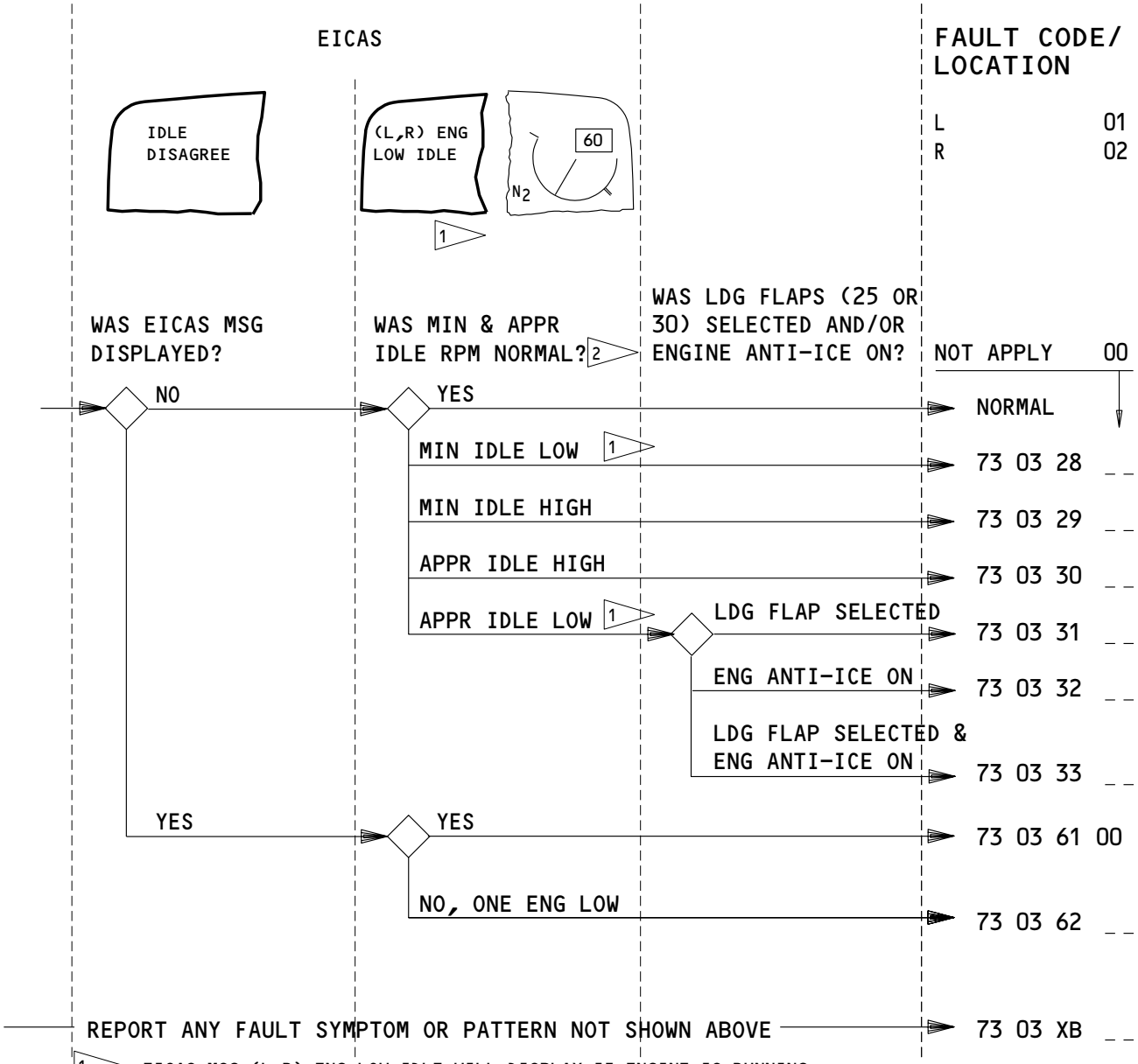
ENGINE PARAMETERS ABNORMAL – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

672572



1 EICAS MSG (L,R) ENG LOW IDLE WILL DISPLAY IF ENGINE IS RUNNING & N1 RPM DROPS TO 42% OR BELOW INFLIGHT, ABOVE 10,000 FT ALT., OR 37% BELOW 10,000 FT ALT, ANTI-ICE ON AND 6 SEC TIME ELAPSED.

2 MIN IDLE ON GROUND ONLY, AS INSTALLED

APPLICABLE CIRCUIT BREAKERS

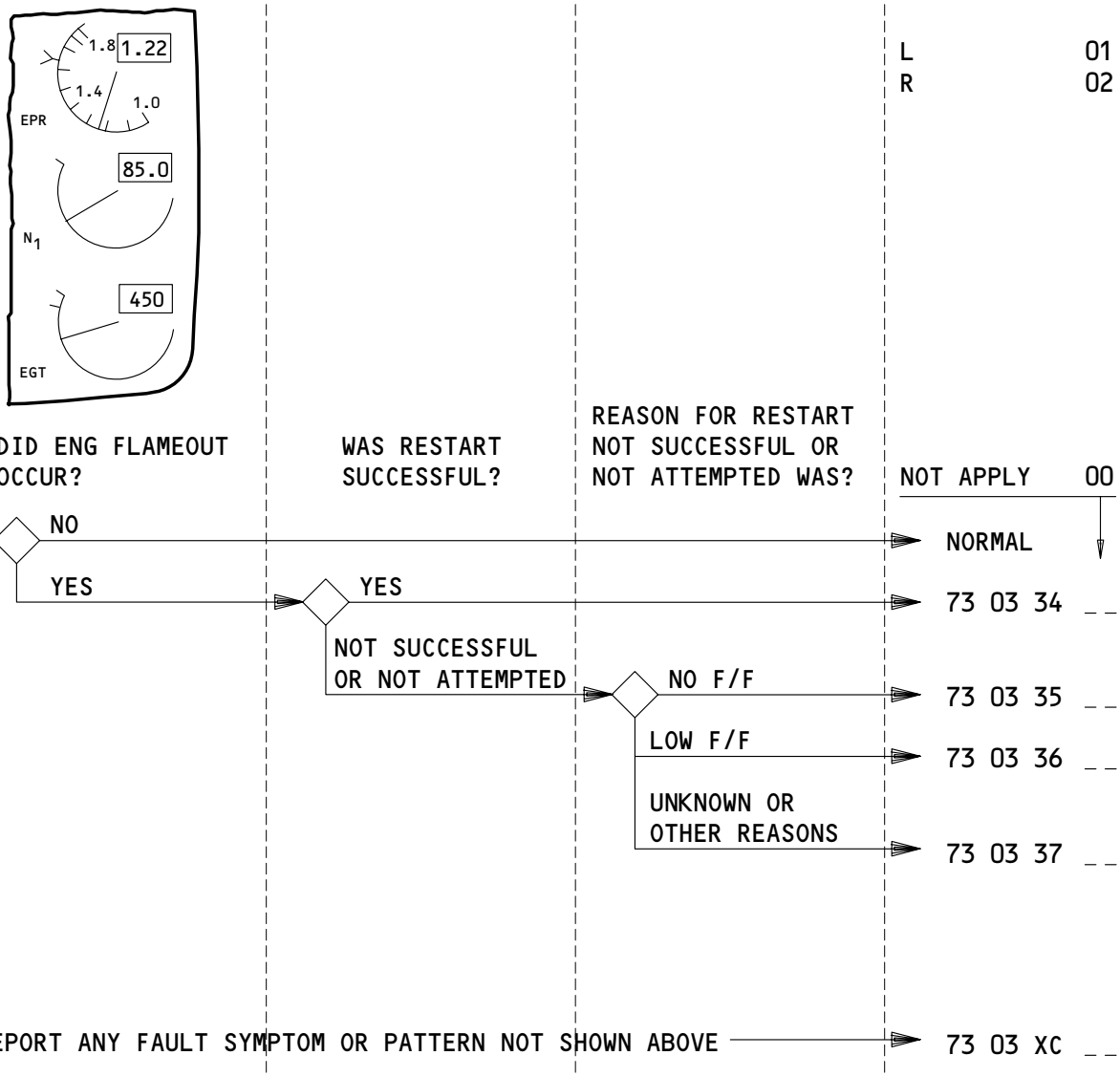
11M6	LEFT ENGINE IDLE CONT
11M33	RIGHT ENGINE IDLE CONT

IDLE RPM LOW/HIGH – IDLE DISAGREE – FAULT CODES

EFFECTIVITY
ALL

71-FAULT CODE DIAGRAM

852548



RECORD ENG DATA & FLIGHT CONDITIONS

ENG DATA	FLT CONDITIONS
FUEL TEMP ____ °C	ALT _____ FT
EPR ____	TAT ____ °C
F/F ____	AIRSPEED ____ KIAS
ENG ACCEL/DECEL/ CONSTANT POWER	ICING/TURB

APPLICABLE CIRCUIT BREAKERS

NONE

FLAMEOUT – FAULT CODES

EFFECTIVITY

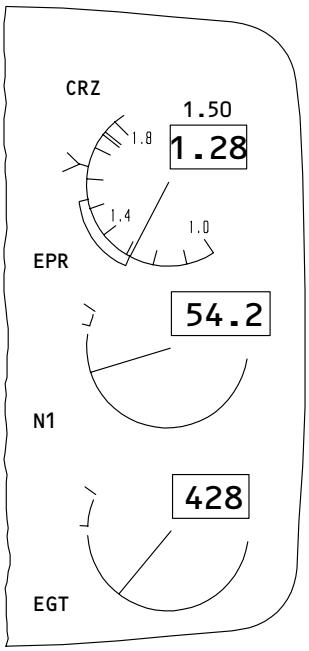
ALL

71-FAULT CODE DIAGRAM

NO1

295413

EICAS



FAULT CODE/ LOCATION

L 01
R 02

DID PWR FLUCTUATE AT CONSTANT THRUST SETTING?

NOT APPLY 00

NO → NORMAL

YES → 73 03 38 _ _

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 73 03 XD _ _

APPLICABLE CIRCUIT BREAKERS

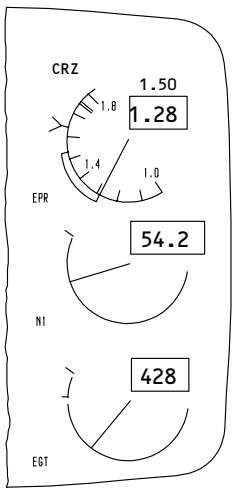
NONE

POWER FLUCTUATES – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



FAULT CODE/ LOCATION

L 01
R 02

DID ENG RESPOND NORM TO THRUST LEVER MOVEMENT?

WERE ENG PARAMETERS NORM?

NOT APPLY 00

YES → NORMAL

SLOW RESPONSE → NO → 1

YES → 73 03 57 _ _

NO RESPONSE → 73 03 58 _ _

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 73 03 XN _ _

1 SEE "ENGINE PARAMETERS ABNORMAL" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

NONE

ENGINE RESPONSE TO THRUST LEVER MOVEMENT – FAULT CODES

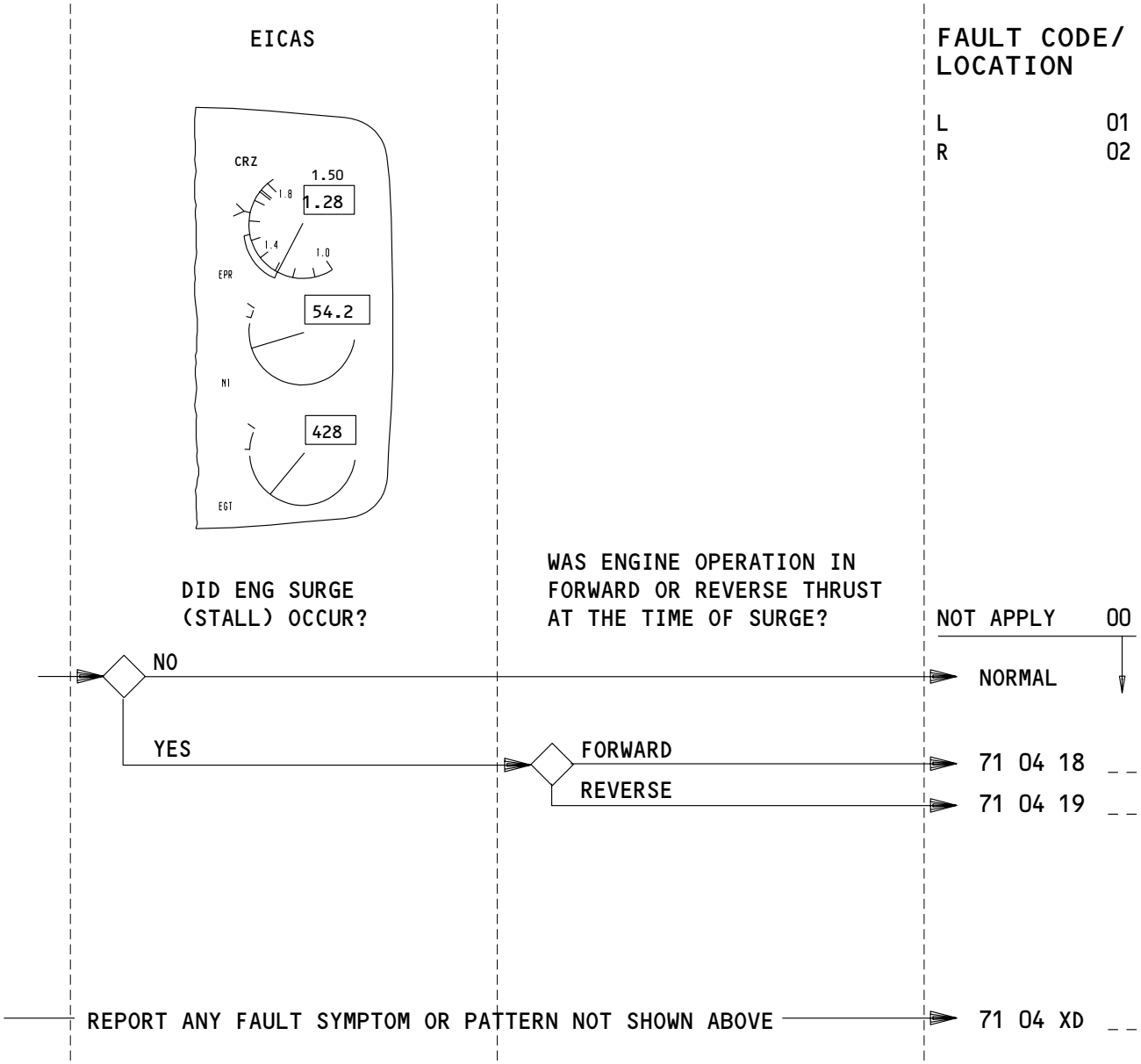
EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

NO1 Page 11
Nov 10/89

295419



APPLICABLE CIRCUIT BREAKERS

NONE

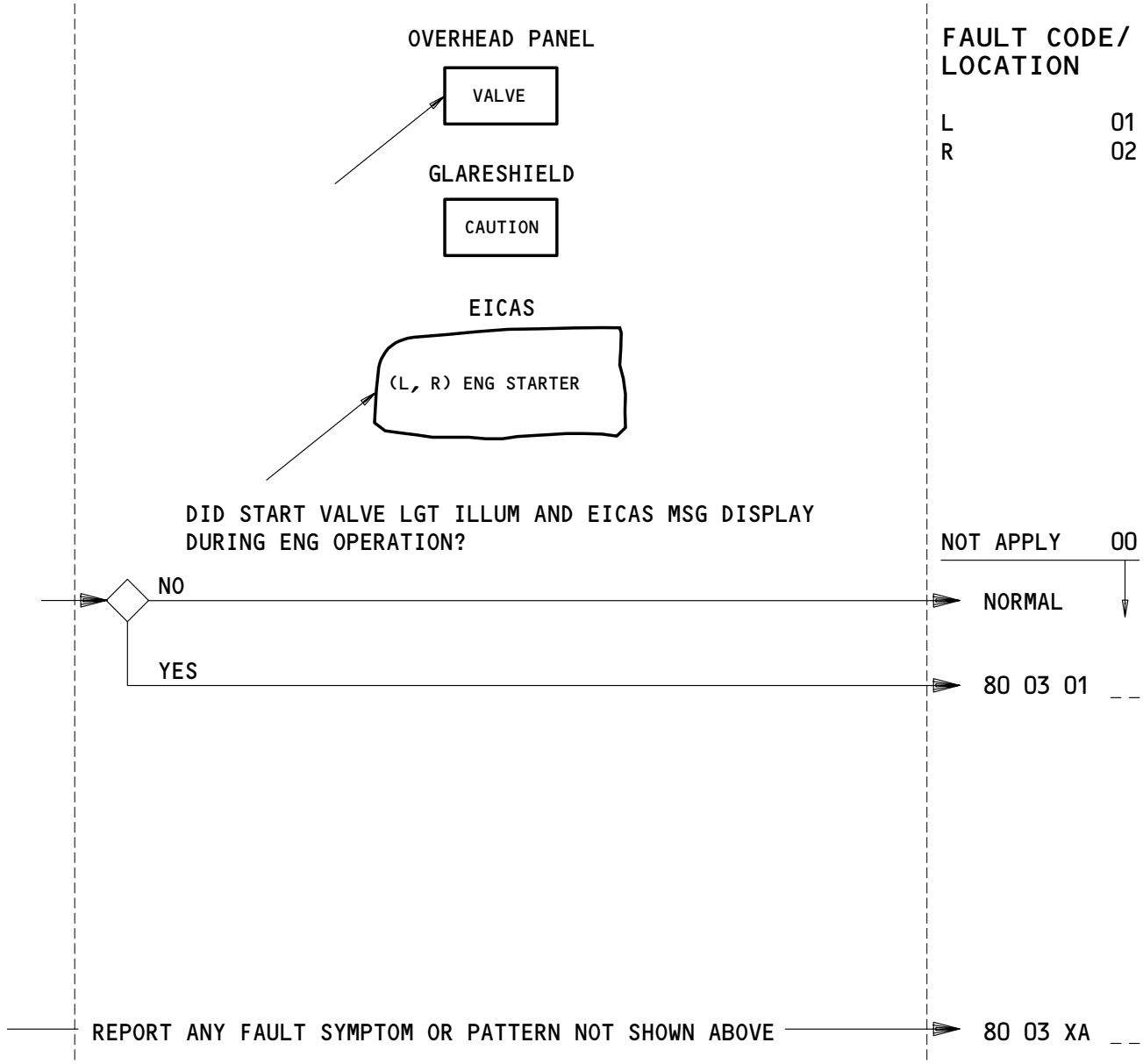
SURGE (STALL) – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295420



APPLICABLE CIRCUIT BREAKERS

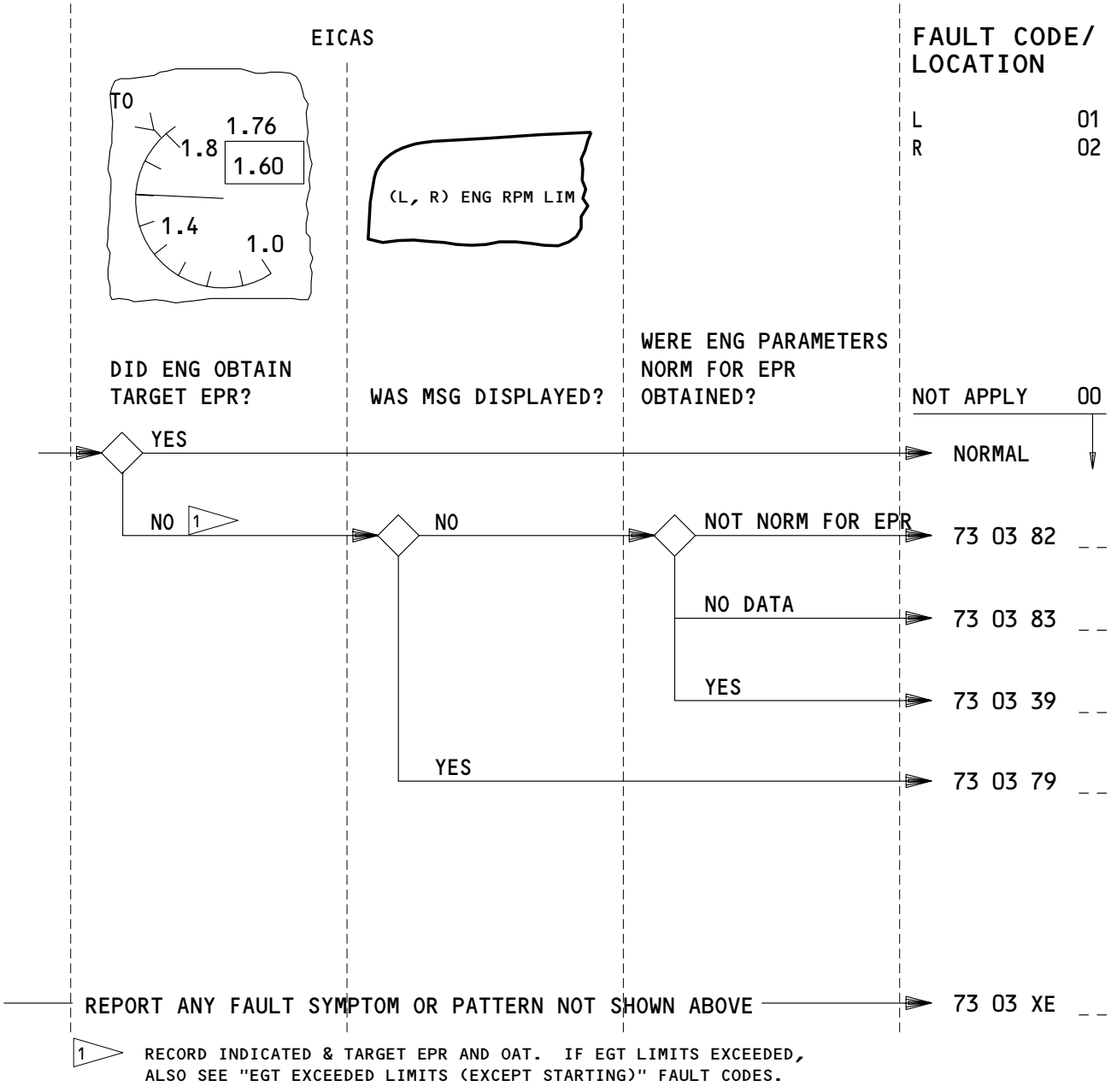
11D19	START CONT L
11D20	START CONT R

START VALVE LGT ILLUM (ENG OPERATING) – FAULT CODES

EFFECTIVITY
ALL

71-FAULT CODE DIAGRAM

295421



1 RECORD INDICATED & TARGET EPR AND OAT. IF EGT LIMITS EXCEEDED, ALSO SEE "EGT EXCEEDED LIMITS (EXCEPT STARTING)" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

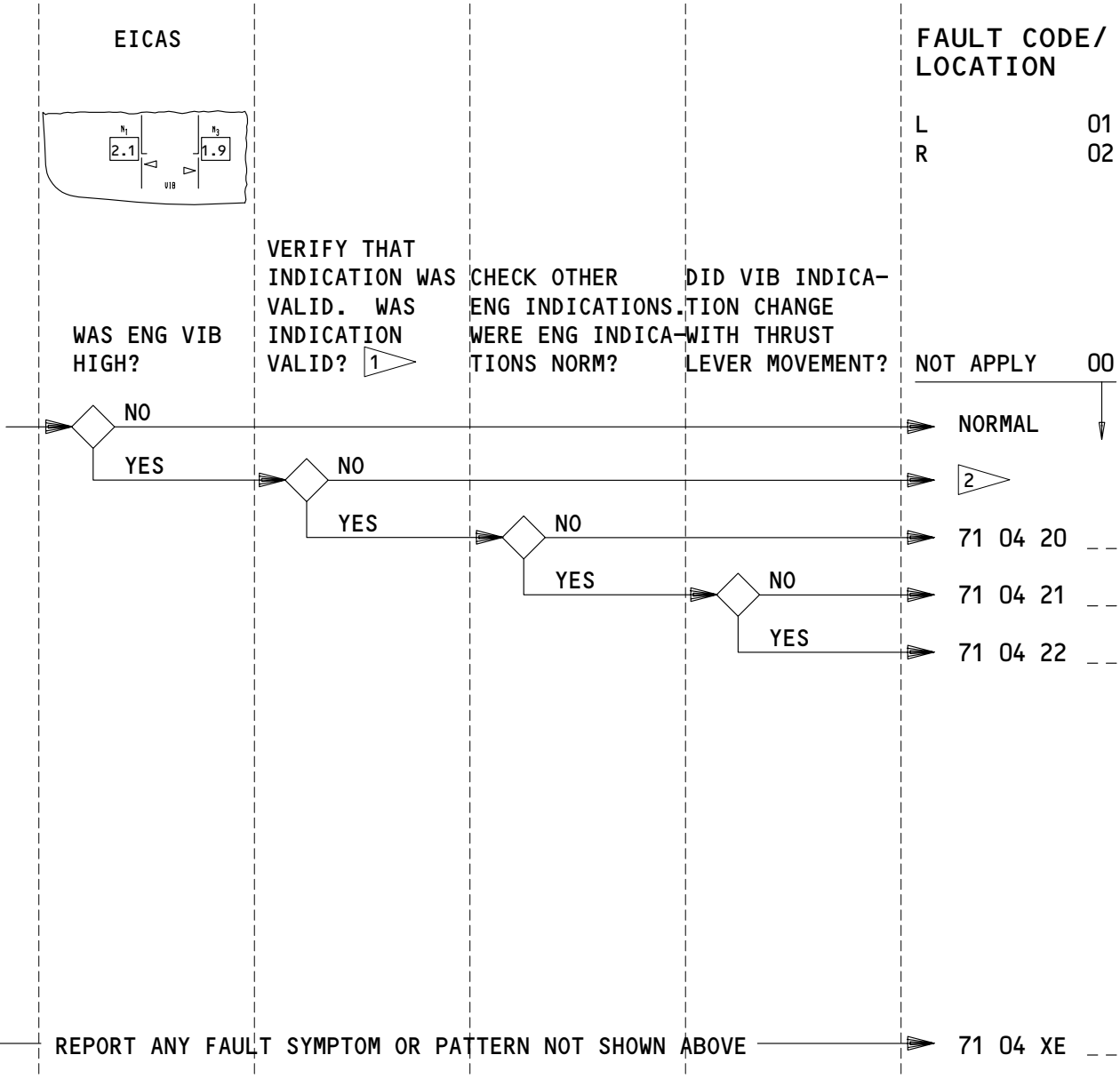
11D17	EEC DISCRETES L
11M5	LEFT ENG EEC DISCRETES
11M32	RIGHT ENG EEC DISCRETES

TARGET EPR LOW – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



1 > VIBRATION IS CONSIDERED VALID IF ANY OF THE FOLLOWING CONDITIONS EXIST:
- INDICATION CHANGES WITH THRUST LEVER MOVEMENT.
- AIRPLANE VIBRATION EXISTS.
- ENG INDICATION ON AFFECTED ENG ABNORM.

2 > SEE " EPR, EGT, VIBRATION INDICATOR" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

11K1 VIB MONITOR

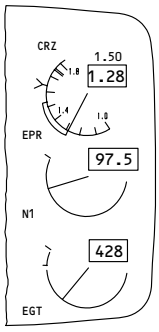
VIBRATION HIGH - FAULT CODES

EFFECTIVITY
ALL

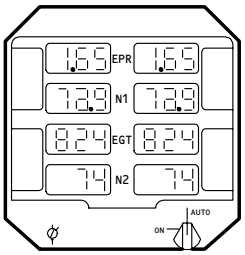
71-FAULT CODE DIAGRAM

295423

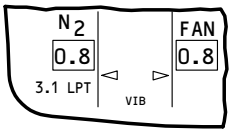
EICAS



PILOT'S CTR PANEL



EICAS



FAULT CODE/ LOCATION

L 01
R 02

WAS EPR OR EGT ABNORM WITH OTHER ENG PARAMETERS NORM?

NO

WITH STANDBY SWITCH ON, WERE STBY INDICATIONS NORMAL?

YES

WAS VIB IND ABNORM WITH ALL OTHER ENG PARAMETERS NORM?

NO

NOT APPLY 00

NORMAL

READS BLANK, ZERO, HIGH, LOW, FLUCTUATES OR INOP → 77 03 06 _ _

EPR (BLANK,ZERO,HIGH, LOW OR SEGMENT MISSING) → 77 03 09 _ _

EGT (BLANK,ZERO,HIGH, LOW OR SEGMENT MISSING) → 77 03 10 _ _

EPR (BLANK, ZERO, HIGH, LOW OR FLUCTUATES) → 77 03 11 _ _

EGT (BLANK, ZERO, HIGH, LOW OR FLUCTUATES) → 77 03 13 _ _

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 77 03 XA _ _

APPLICABLE CIRCUIT BREAKERS

11D28	STBY IND	11J29	EICAS CMPTR R
11J2	EICAS CMPTR L	11J30	EICAS LOWER DSPL
11J3	EICAS UPPER DSPL	11K1	VIB MONITOR

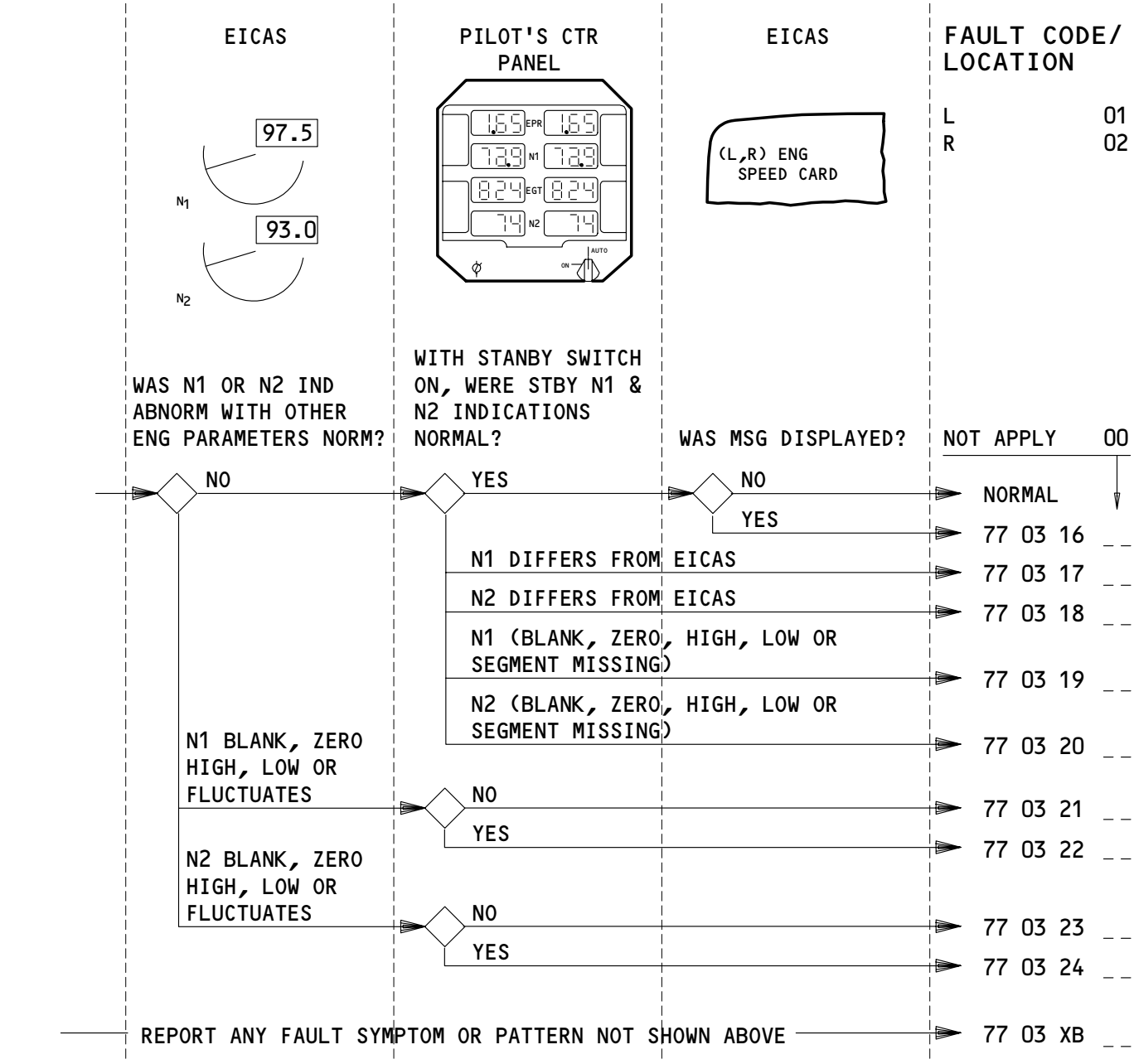
EPR, EGT, VIBRATION INDICATOR – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

672573



APPLICABLE CIRCUIT BREAKERS

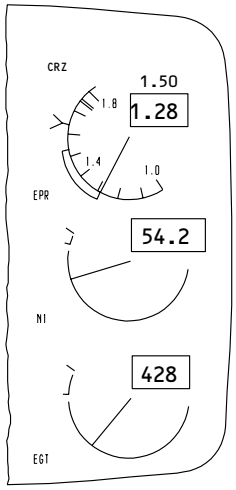
11D15	SPEED SENSE L2	11J2	EICAS CMPTR L
11D16	SPEED SENSE R2	11J3	EICAS UPPER DSPL
11D23	SPEED SENSE L1	11J29	EICAS CMPTR R
11D24	SPEED SENSE R1	11J30	EICAS LOWER DSPL
11D28	STBY IND		

N1 & N2 INDICATORS & ENG SPEED CARD – FAULT CODES

EFFECTIVITY
ALL

71-FAULT CODE DIAGRAM

672574



FAULT CODE/ LOCATION

L 01
R 02

DID THRUST LOSS OCCUR?

NO → NORMAL

YES → WERE ENG PARAMETERS NORM?

WERE ENG PARAMETERS NORM?

YES → 73 03 40 _ _

NO → 1

NOT APPLY 00

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 73 03 XF _ _

1 SEE "ENGINE PARAMETERS ABNORMAL" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

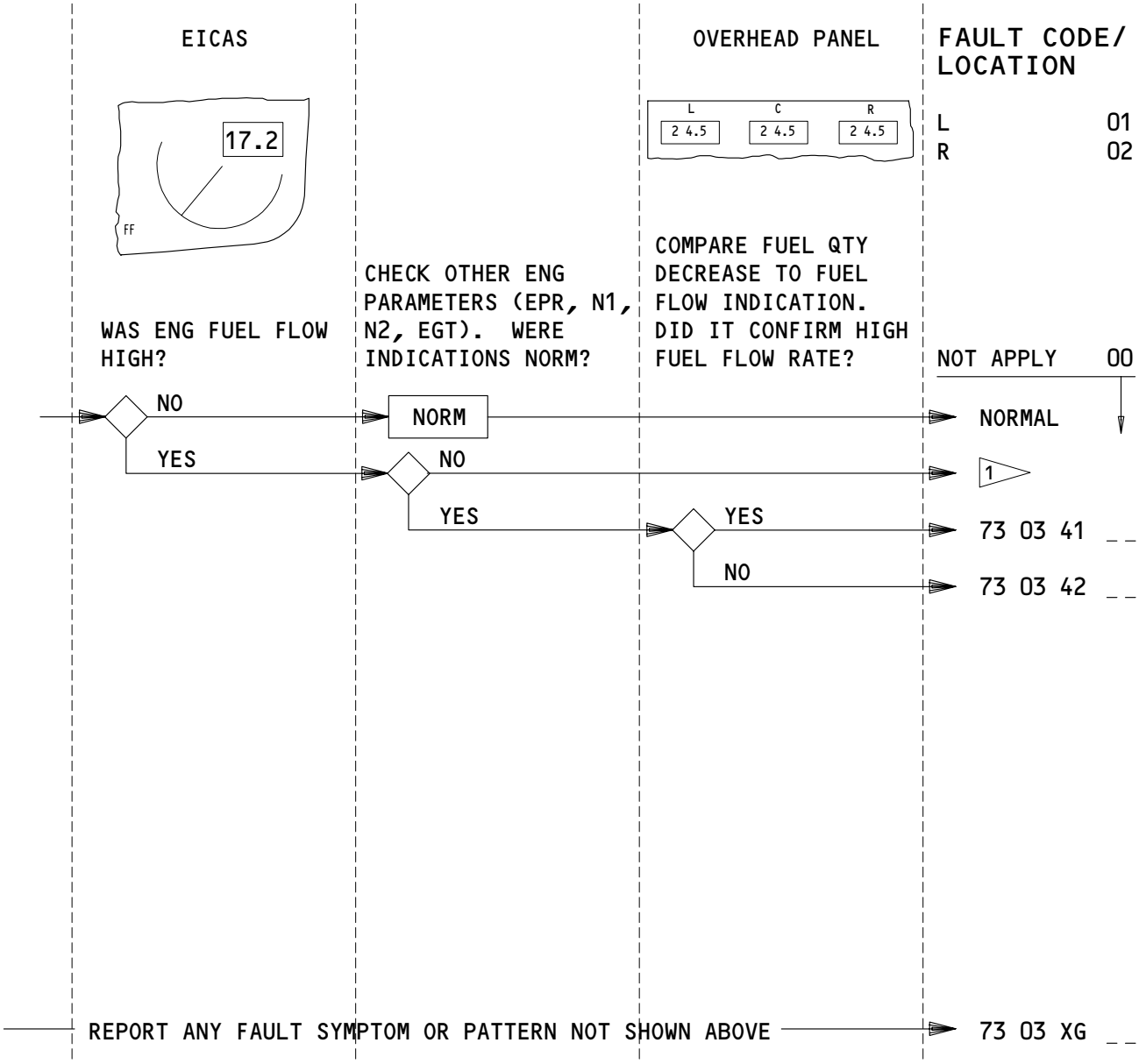
NONE

THRUST LOSS (AUTO DECEL) - FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS

NONE

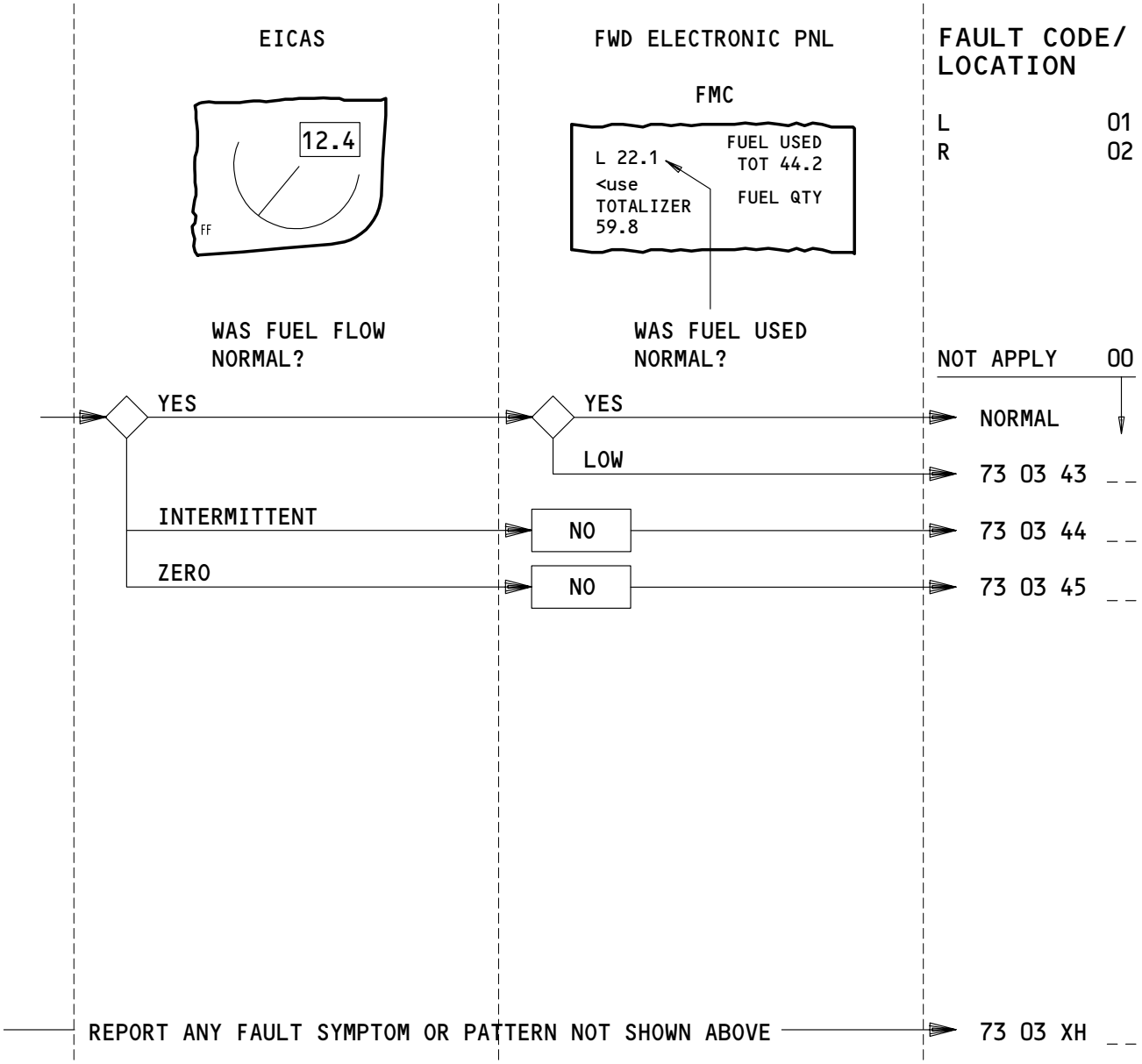
HIGH FUEL FLOW – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295427



APPLICABLE CIRCUIT BREAKERS

NONE

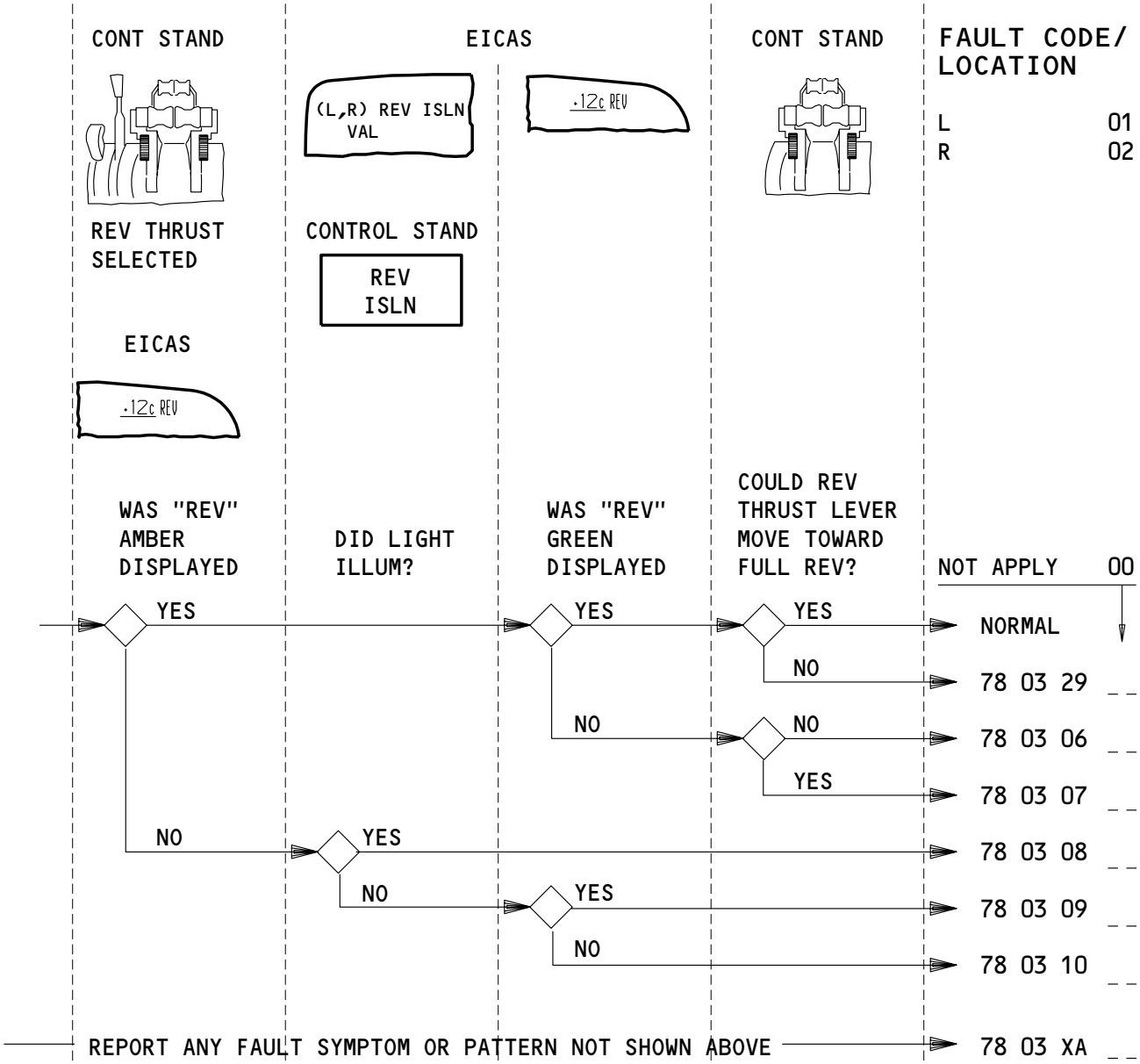
FUEL INDICATORS – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295430



APPLICABLE CIRCUIT BREAKERS AS INSTALLED

11C21	R ENG T/R SSL CONT	11D21	LEFT ENG T/R SSL CONT
11C35	ENG T/L INTERLOCK L	11L6	LEFT ENGINE T/R CONT
11C36	ENG T/L INTERLOCK R ALTN	11L32	RIGHT ENGINE T/R IND
11D13	ENGINE T/R IND L	11L33	RIGHT ENGINE T/R CONT
11D14	ENGINE T/R CONT L		
11D18	T/R SSL CONT L		

REVERSER DEPLOY – FAULT CODES

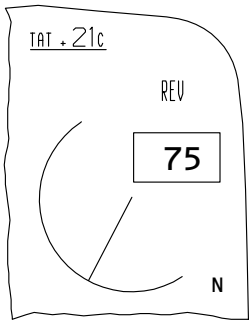
EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

C10372

EICAS



WAS MAX REV N1 RPM ABNORMALLY LOW?

NO → NORMAL

YES → 71 04 24 _ _

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 71 04 XF _ _

FAULT CODE/ LOCATION

L	01
R	02
NOT APPLY	00

APPLICABLE CIRCUIT BREAKERS

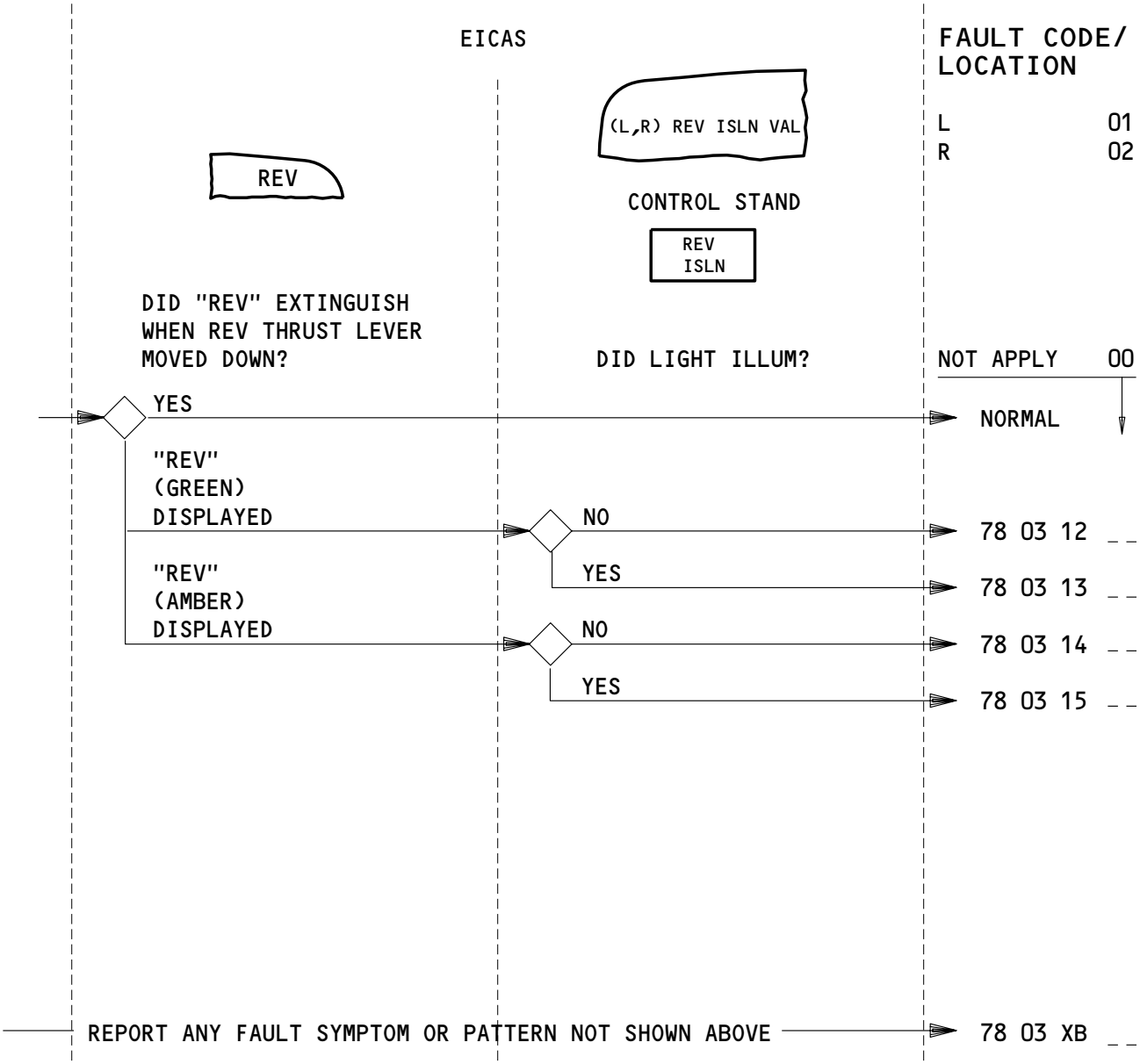
NONE

REVERSER THRUST LIMIT – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS AS INSTALLED

11C21	R ENG T/R SSL CONT	11D21	LEFT ENG T/R SSL CONT
11C35	ENG T/L INTERLOCK L	11L6	LEFT ENGINE T/R CONT
11C36	ENG T/L INTERLOCK R ALTN	11L32	RIGHT ENGINE T/R IND
11D13	ENGINE T/R IND L	11L33	RIGHT ENGINE T/R CONT
11D14	ENGINE T/R CONT L		
11D18	T/R SSL CONT L		

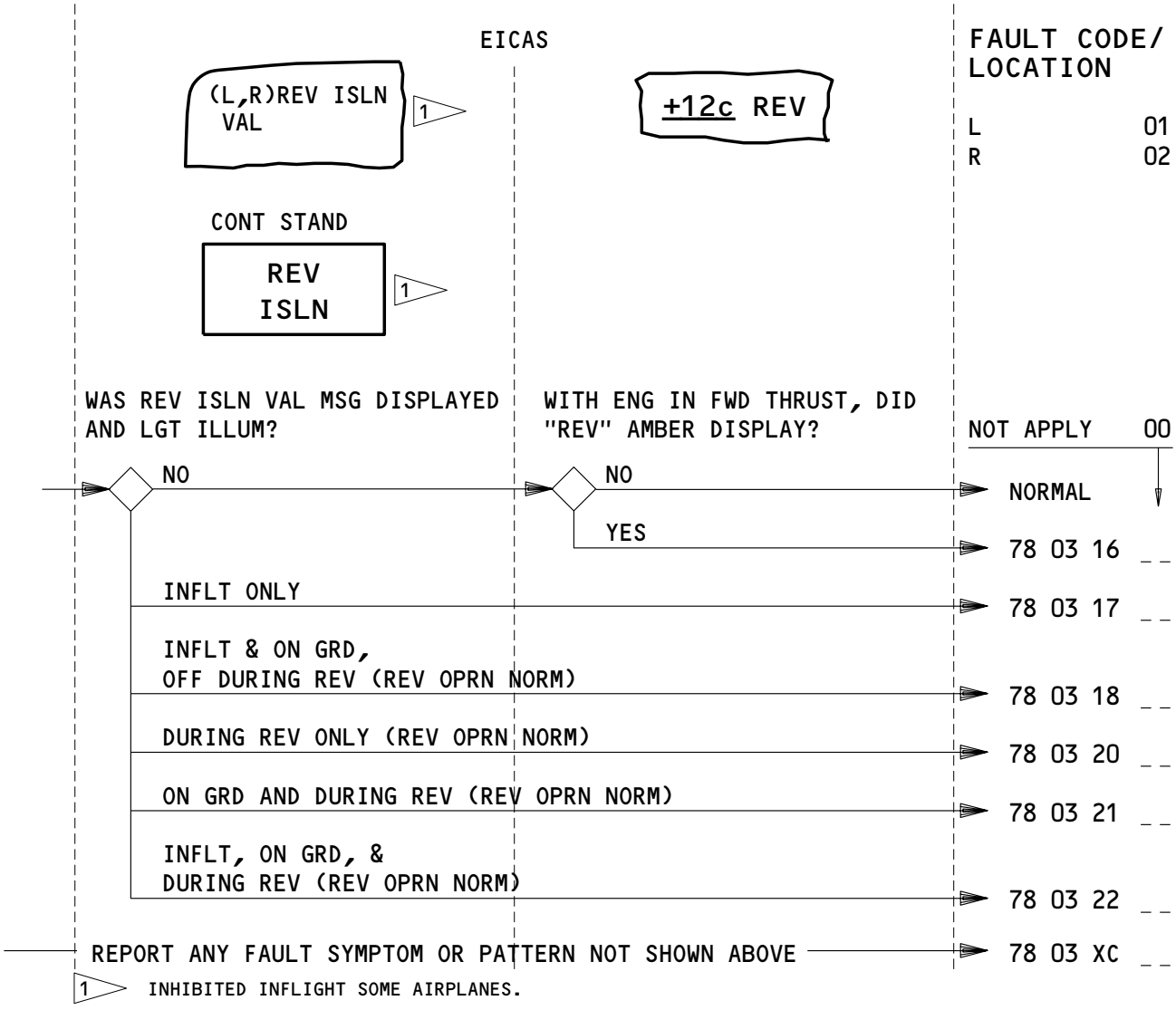
REVERSER STOW – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

672577



APPLICABLE CIRCUIT BREAKERS AS INSTALLED

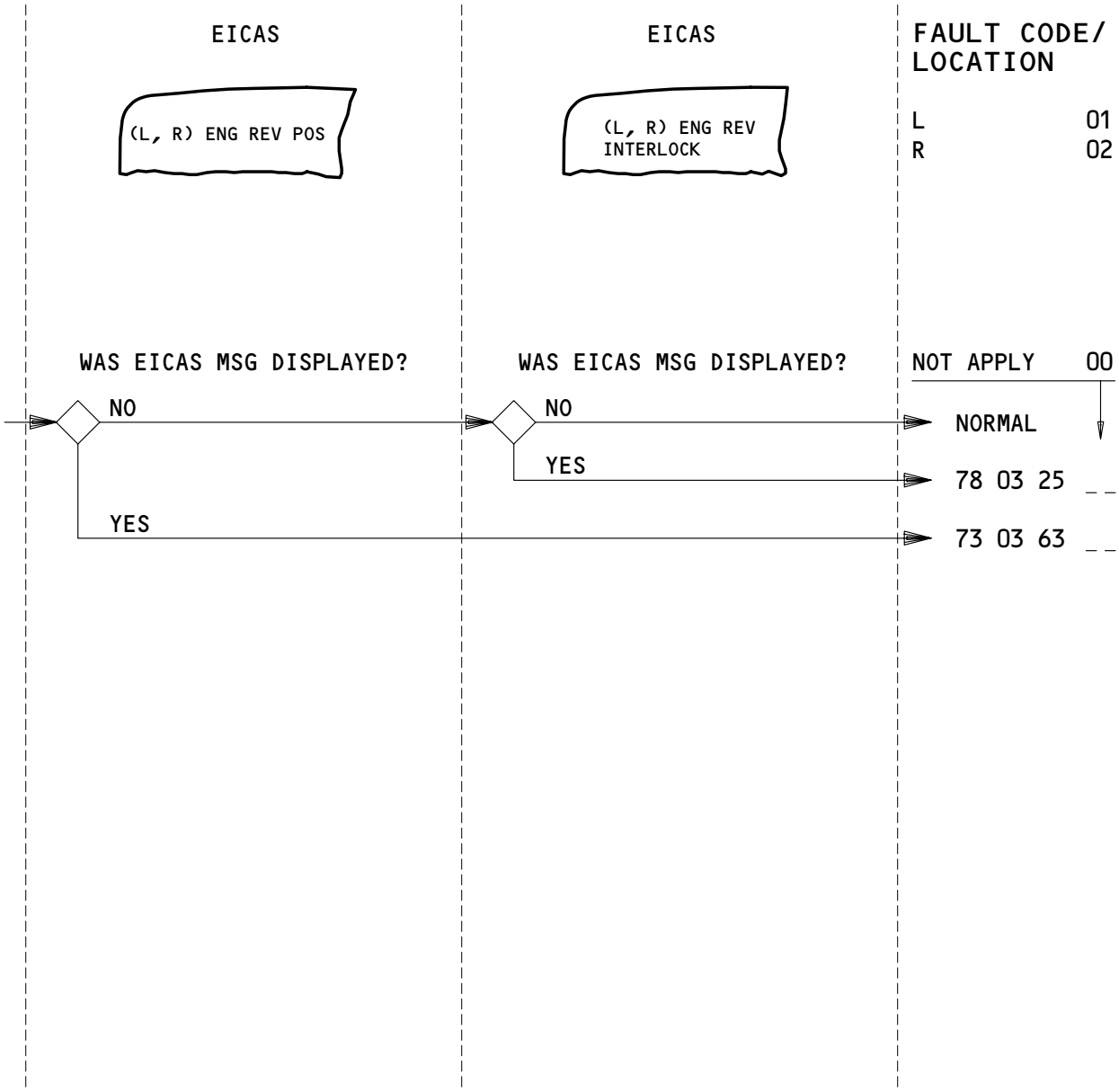
11C21	R ENG T/R SSL CONT	11D18	T/R SSL CONT L
11C35	ENG T/L INTERLOCK L	11D21	LEFT ENG T/R SSL CONT
11C36	ENG T/L INTERLOCK R ALTN	11L6	LEFT ENGINE T/R CONT
11D13	ENGINE T/R IND L	11L32	RIGHT ENGINE T/R IND
11D14	ENGINE T/R CONT L	11L33	RIGHT ENGINE T/R CONT

ENGINE REVERSE POSITION & REVERSE INTERLOCK DISPLAY - FAULT CODES

EFFECTIVITY
ALL

71-FAULT CODE DIAGRAM

C10382



APPLICABLE CIRCUIT BREAKERS

11C35	ENG T/L INTERLOCK L	11L29	R ENG T/L INTLK
11C36	ENG T/L INTERLOCK R ALTN	11L32	RIGHT ENGINE T/R IND
11D13	ENGINE T/R IND L		
11D32	RTGHT ENG T/R IND ALTN		

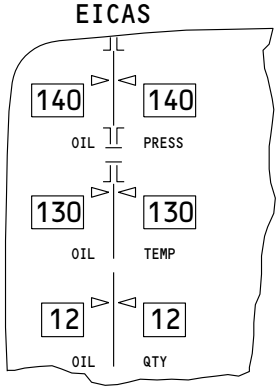
ENGINE REVERSE POSITION & REVERSE INTERLOCK DISPLAY – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

672580



FAULT CODE/ LOCATION

L 01
R 02

WAS ANY OIL INDICATOR INACCURATE, INTERMITTENT OR BLANK WITH OTHER OIL INDICATORS NORM?

DESCRIBE ABNORM INDICATION?

NOT APPLY 00

NO → NORMAL

OIL TEMP → INTERMITTENT → 79 03 07 _ _

BLANK → 79 03 08 _ _

OIL PRESS → INTERMITTENT → 79 03 09 _ _

BLANK → 79 03 10 _ _

OIL QTY → REMAINS CONSTANT → 79 03 12 _ _

INTERMITTENT → 79 03 13 _ _

INDICATES "0" → 79 03 14 _ _

REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 79 03 XA _ _

1 A DROP IN OIL QTY INDICATION OF UP TO (12 QTS/11.36 LITERS) MAY OCCUR WHEN TAKEOFF THRUST IS APPLIED AND WILL REMAIN UNTIL ENGINE SHUTDOWN. THIS IS A NORMAL CONDITION AND NOT HIGH OIL CONSUMPTION.

APPLICABLE CIRCUIT BREAKERS AS INSTALLED

11L9	(L, LEFT) ENGINE OIL PRESS EICAS REF
11L36	(R, RIGHT) ENGINE OIL PRESS EICAS REF

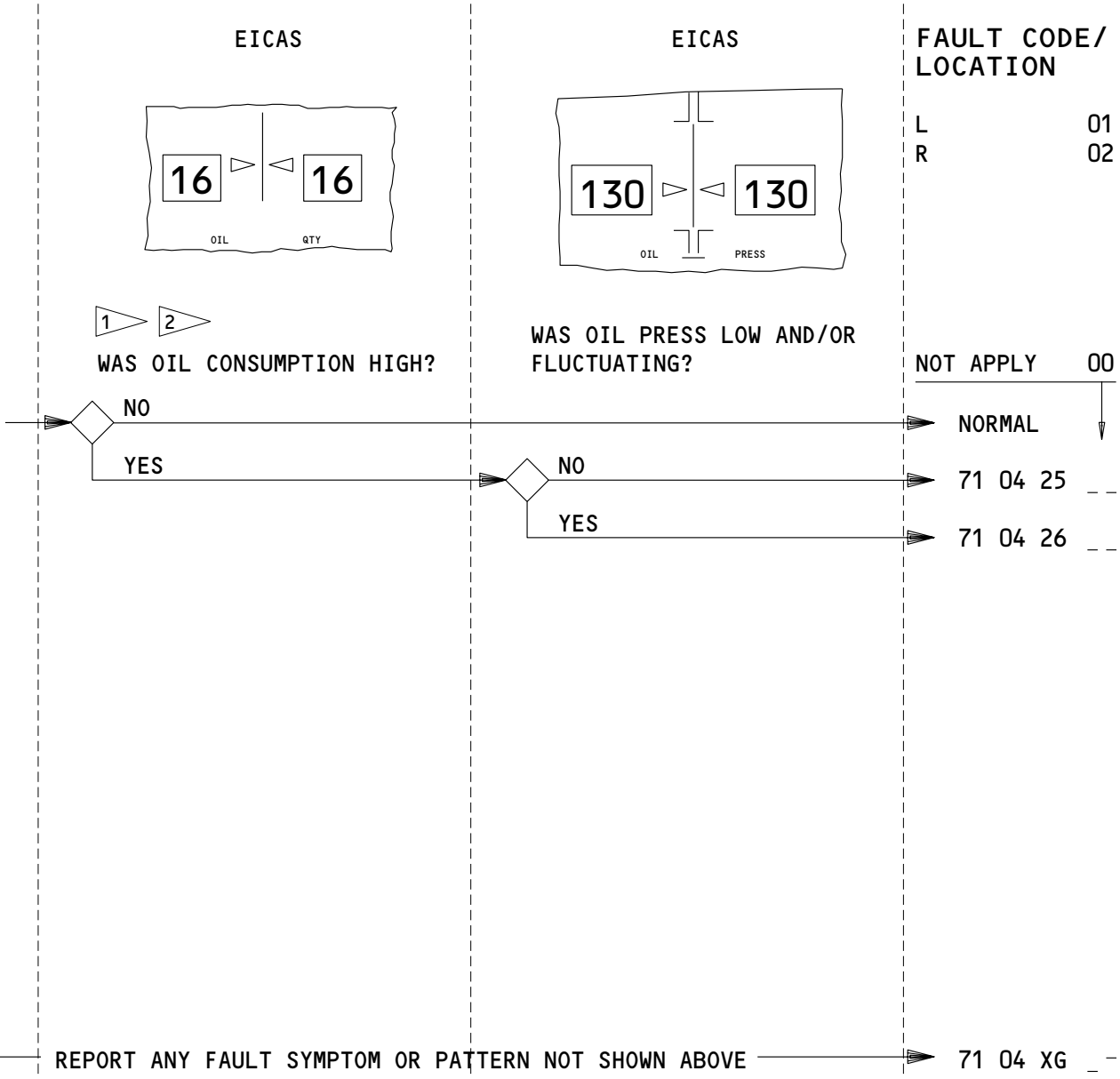
OIL INDICATORS – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295437



1 MAXIMUM OIL CONSUMPTION IS (0.50 U.S. QTS/HR/0.47 LITERS/HR). A SUDDEN INCREASE OR CONTINUALLY INCREASING TREND IN OIL CONSUMPTION SHOULD BE INVESTIGATED.

2 A DROP IN OIL QTY INDICATION OF UP TO (12 QTS/11.36 LITERS) MAY OCCUR WHEN TAKEOFF THRUST IS APPLIED AND WILL REMAIN UNTIL ENGINE SHUTDOWN. THIS IS A NORMAL CONDITION AND NOT HIGH OIL CONSUMPTION.

APPLICABLE CIRCUIT BREAKERS

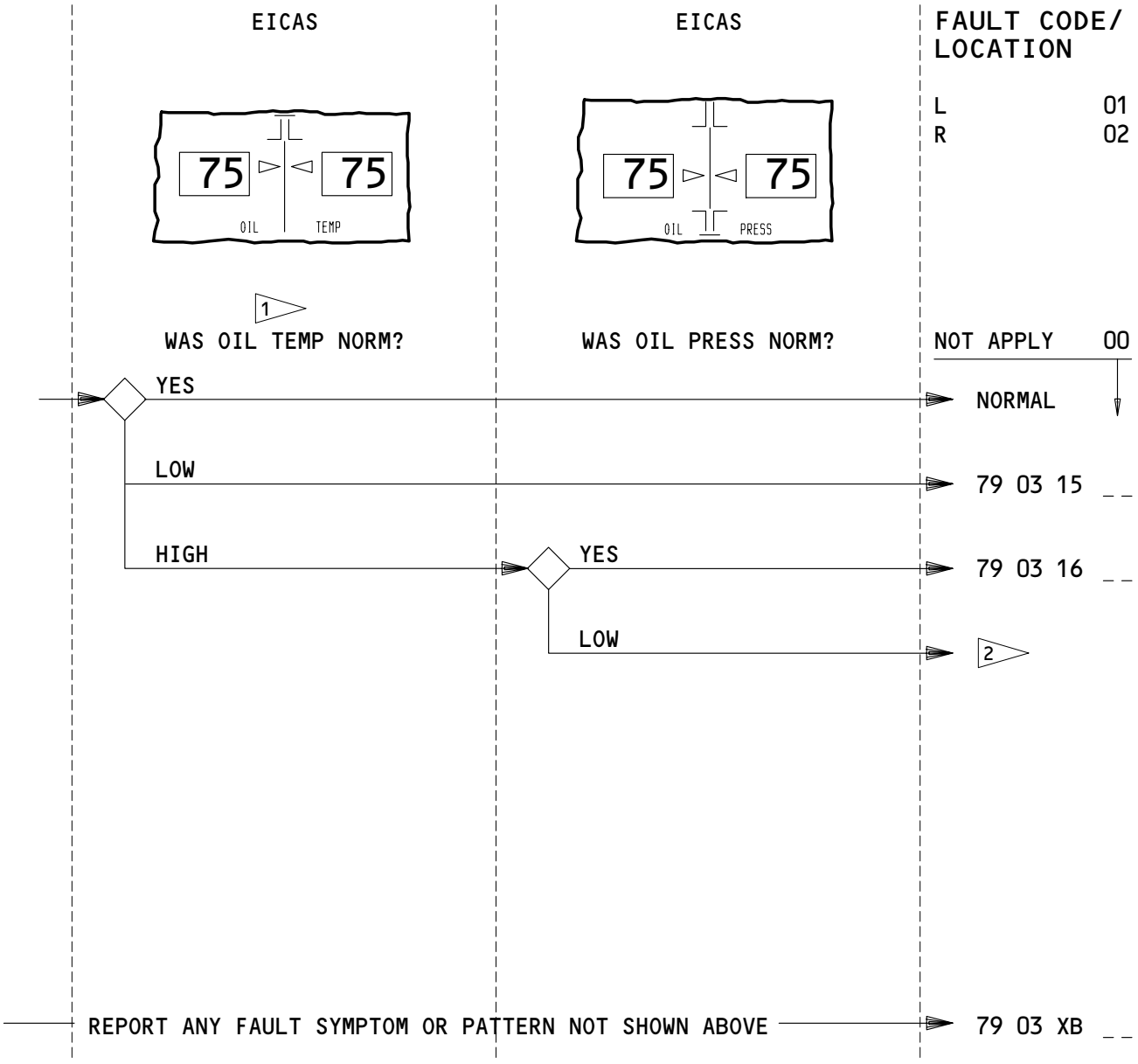
NONE

HIGH OIL CONSUMPTION – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



1 IF ENG SHUTDOWN, ALSO SEE "SHUTDOWN OIL PRESS" FAULT CODES.

2 SEE "OIL PRESSURE" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

NONE

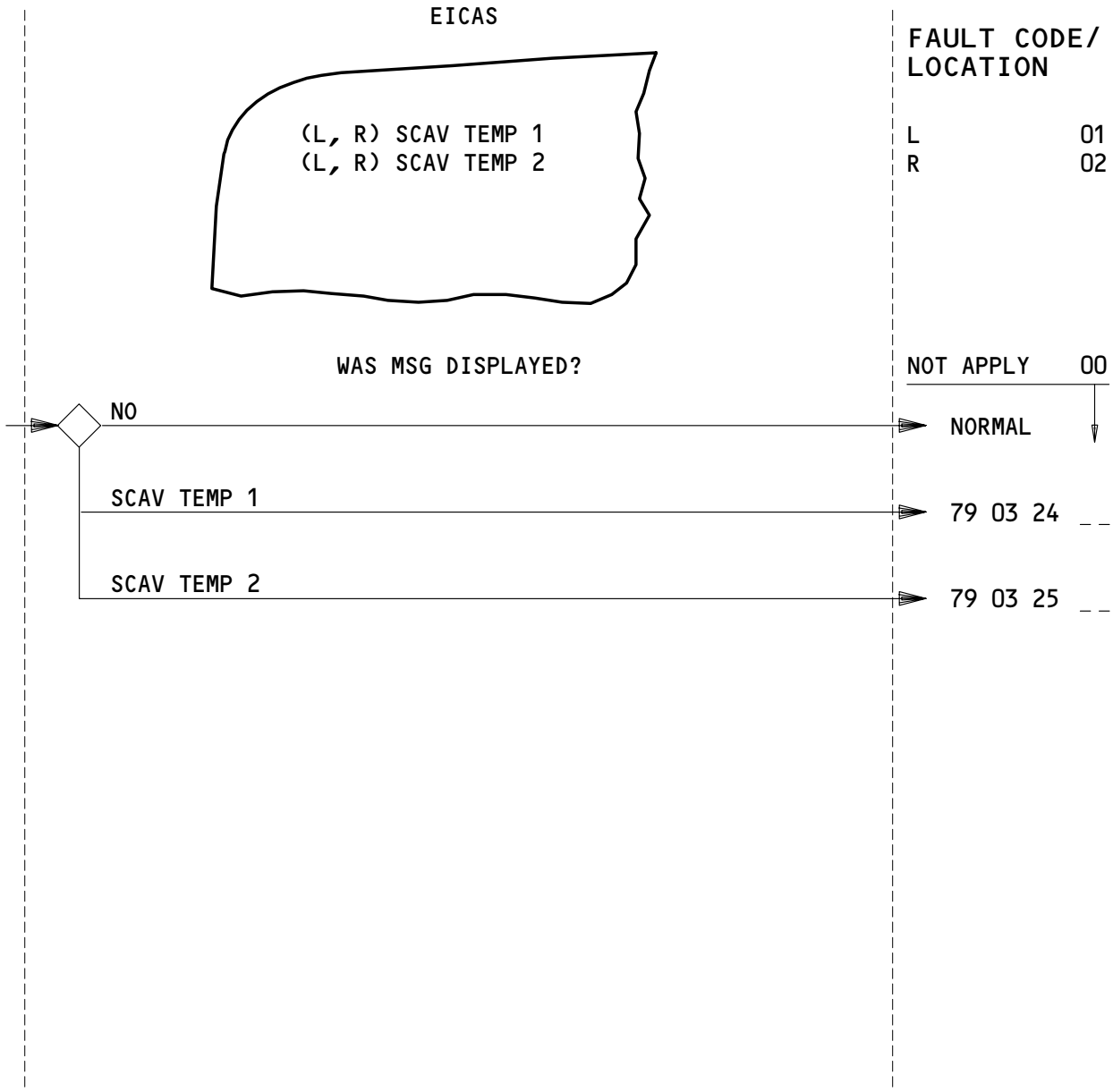
OIL TEMPERATURE - FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

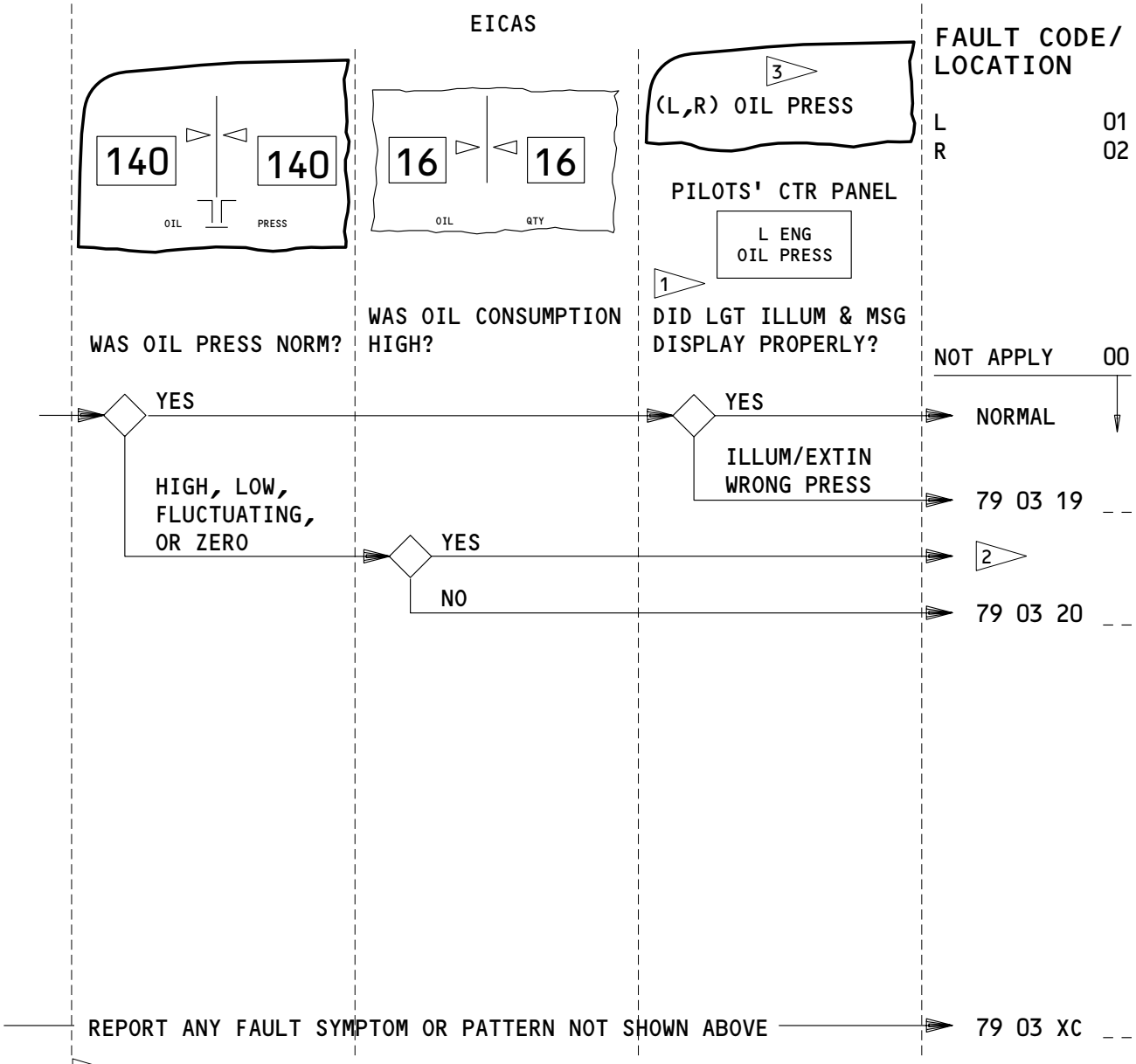
295440



APPLICABLE CIRCUIT BREAKERS

11C27	ENG EEC CHAN A L
11C28	ENG EEC CHAN A R

ENGINE OIL SCAVENGE TEMPERATURE – FAULT CODES



1 ENG OIL PRESS LGT ILLUM & MSG DISPLAYED WHEN OIL PRESS DROPS BELOW 65 PSI. LGT EXTIN & MSG SHOULD NOT BE DISPLAYED ABOVE 80 PSI.

2 SEE "HIGH OIL CONSUMPTION" FAULT CODES.

3 IF (L,R) OIL PRESS STATUS (WHITE) MSG DISPLAYED, SEE "OIL SYSTEM MESSAGES" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

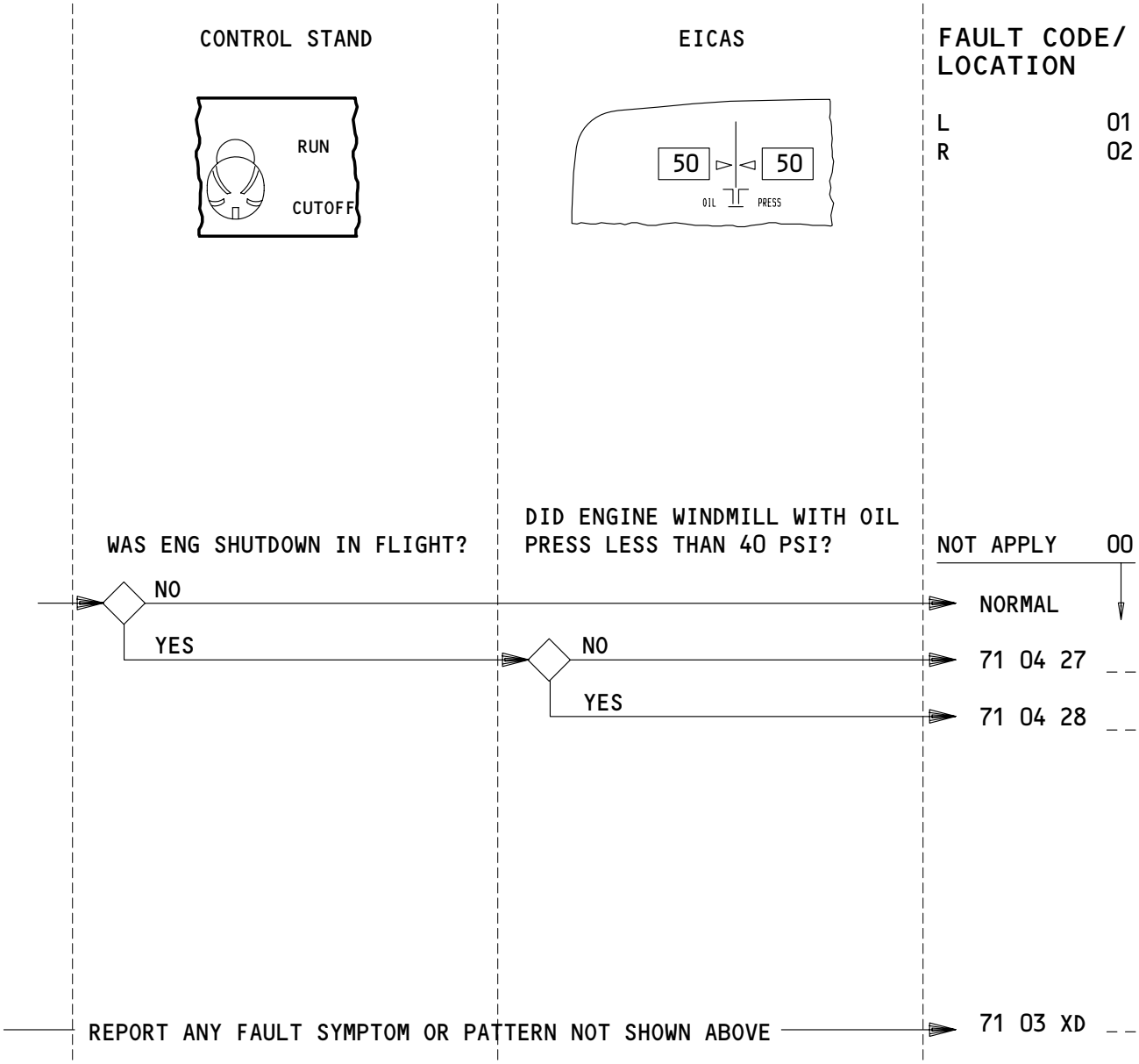
11L9	(L, LEFT) ENGINE OIL PRESS EICAS REF
11L36	(R, RIGHT) ENGINE OIL PRESS EICAS REF

OIL PRESSURE - FAULT CODES

EFFECTIVITY
ALL

71-FAULT CODE DIAGRAM

C10384



APPLICABLE CIRCUIT BREAKERS

NONE

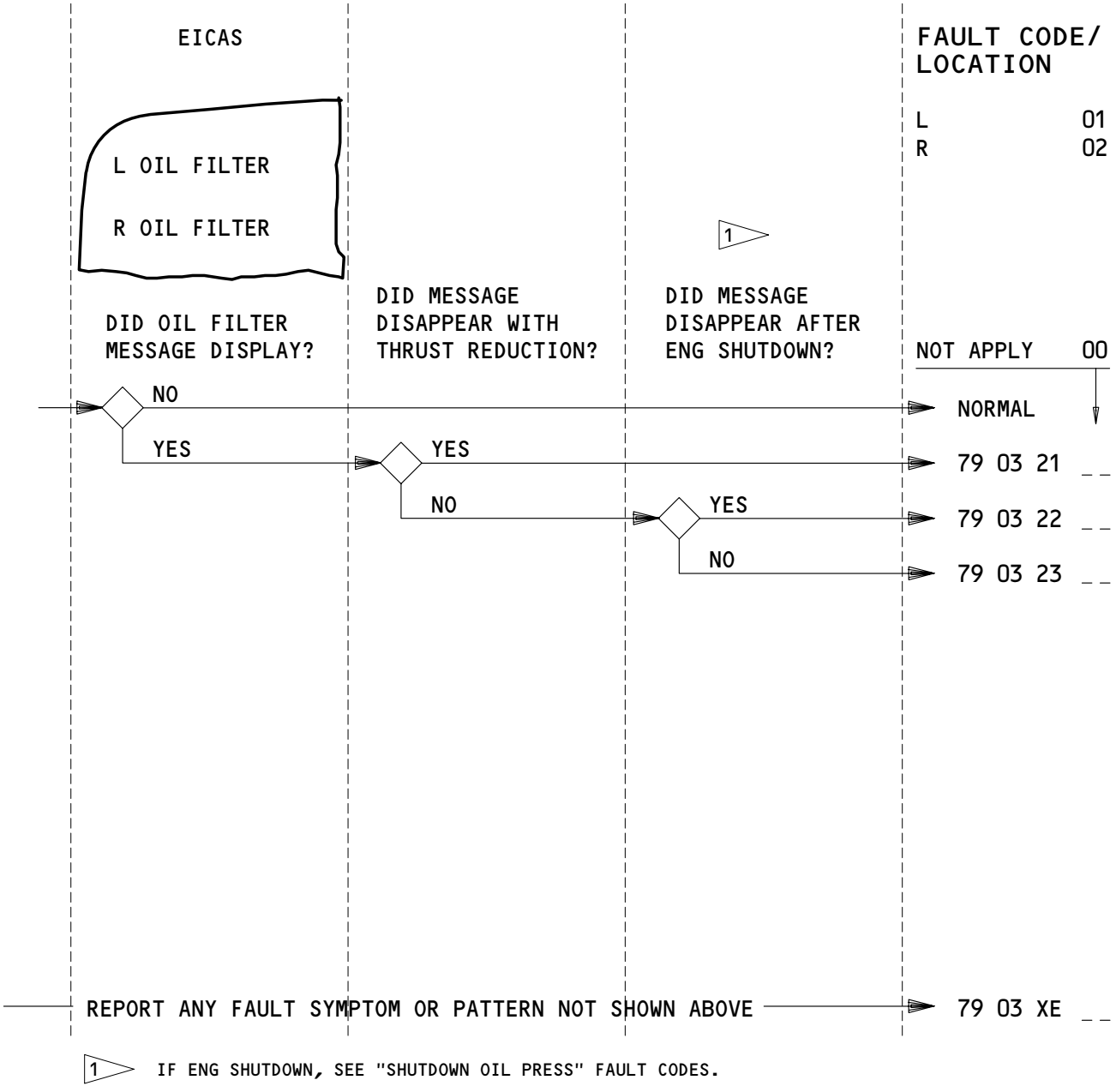
SHUTDOWN OIL PRESS – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295444



1 IF ENG SHUTDOWN, SEE "SHUTDOWN OIL PRESS" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

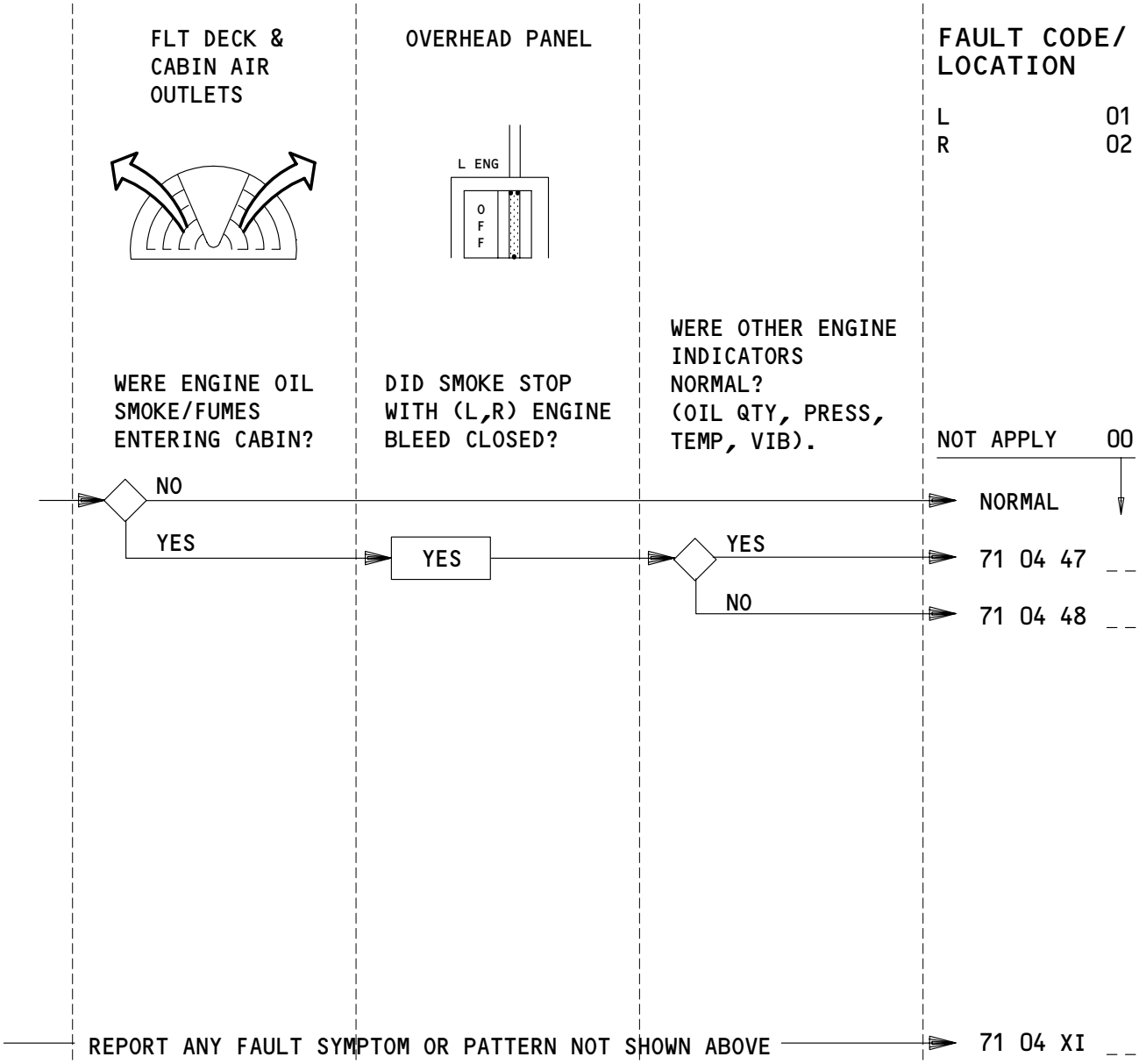
NONE

OIL FILTER BYPASS - FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS

NONE

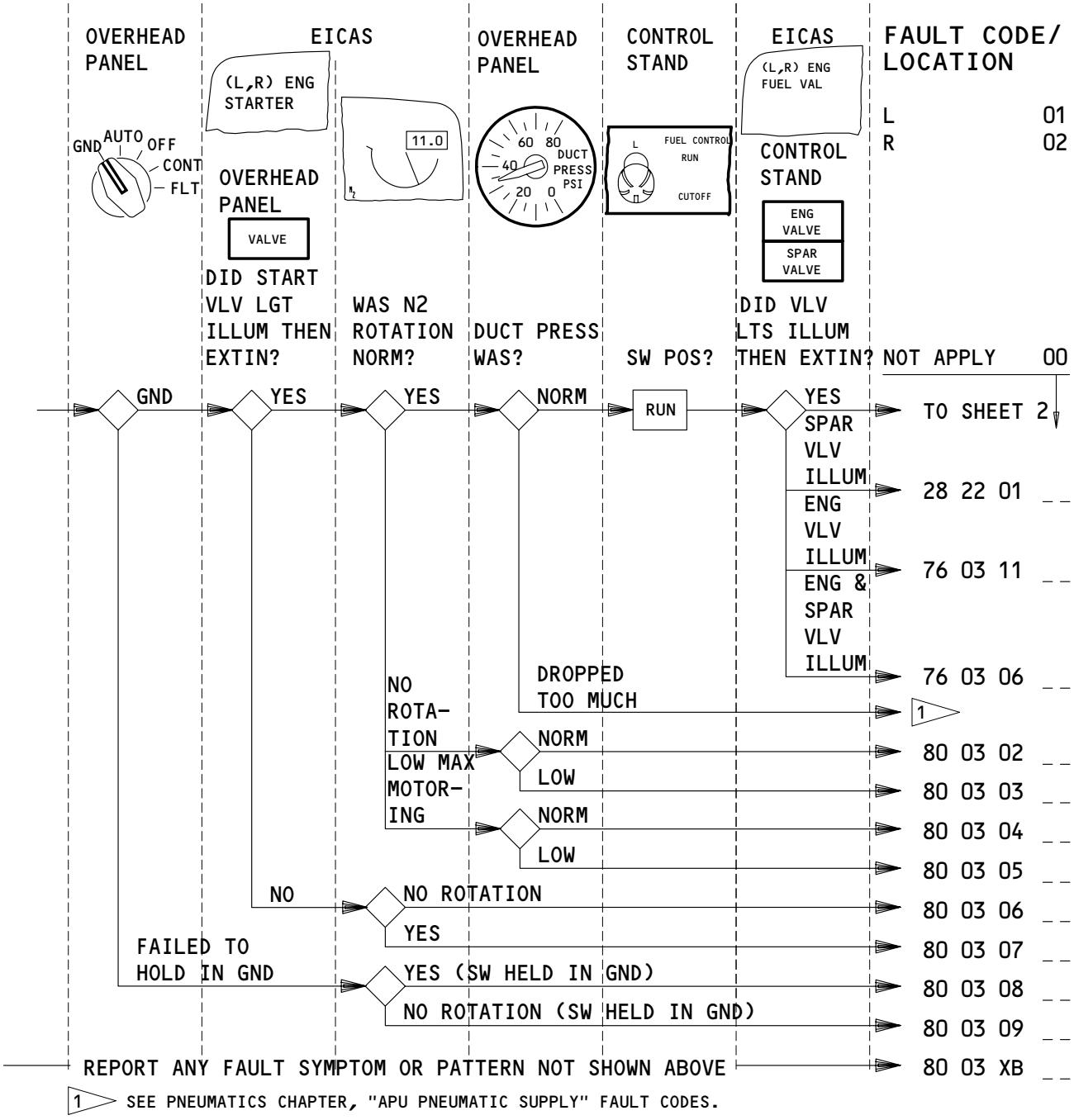
ENGINE OIL SMOKE/FUMES IN CABIN – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

D15720



APPLICABLE CIRCUIT BREAKERS

6E1	L SPAR FUEL VALVES	11D20	START CONT R
6E2	R SPAR FUEL VALVES	11D25	ENGINE FUEL CONT VLV & EEC CHAN B RESET L
11D19	START CONT L	11D26	ENGINE FUEL CONT VLV & EEC CHAN B RESET R

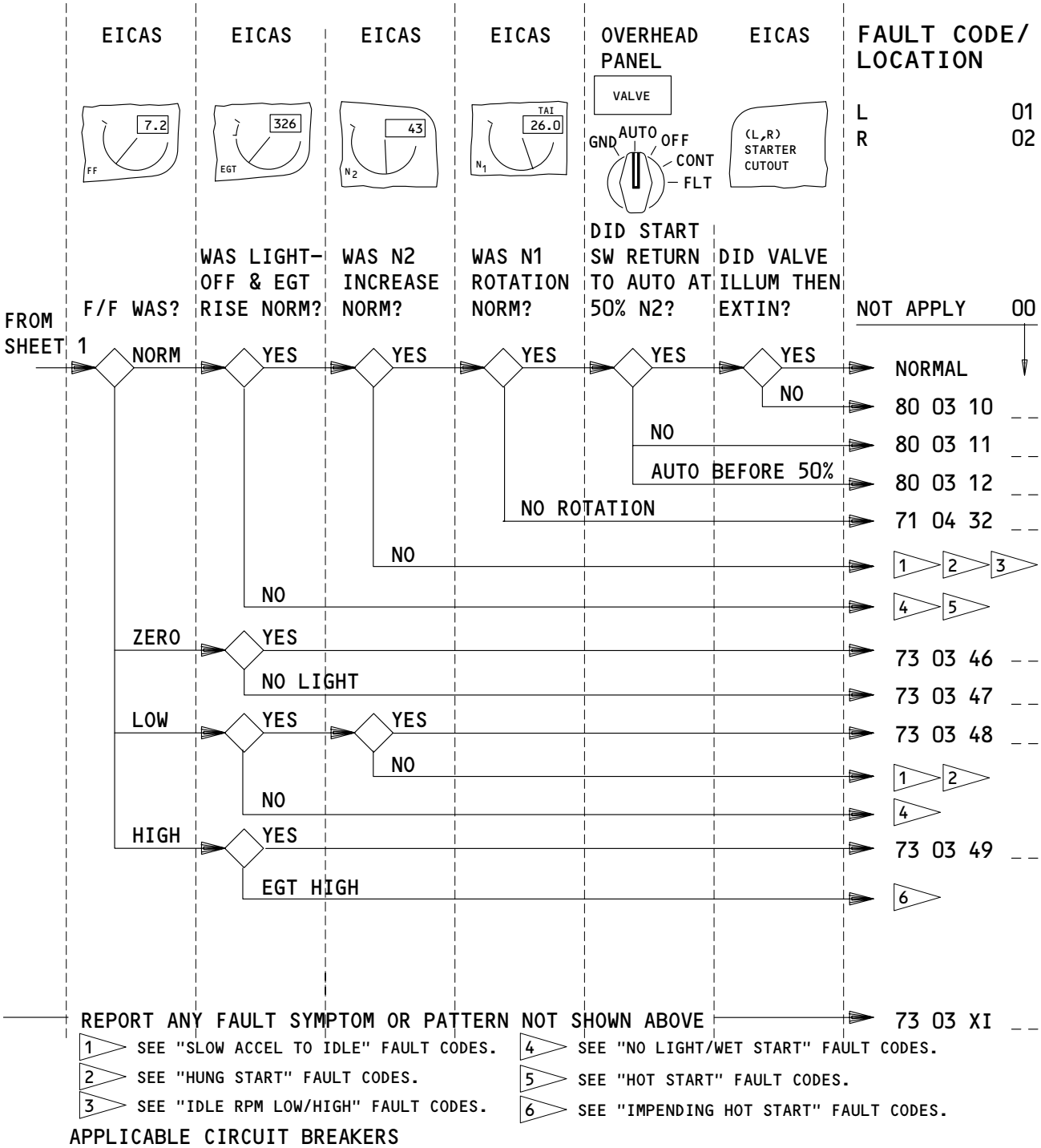
STARTING (SHEET 1) – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295448



APPLICABLE CIRCUIT BREAKERS

11C27	ENG EEC CHAN A L	11D20	START CONT R
11C28	ENG EEC CHAN A R	11D23	SPEED SENSE L 1
11D19	START CONT L	11D24	SPEED SENSE R 1

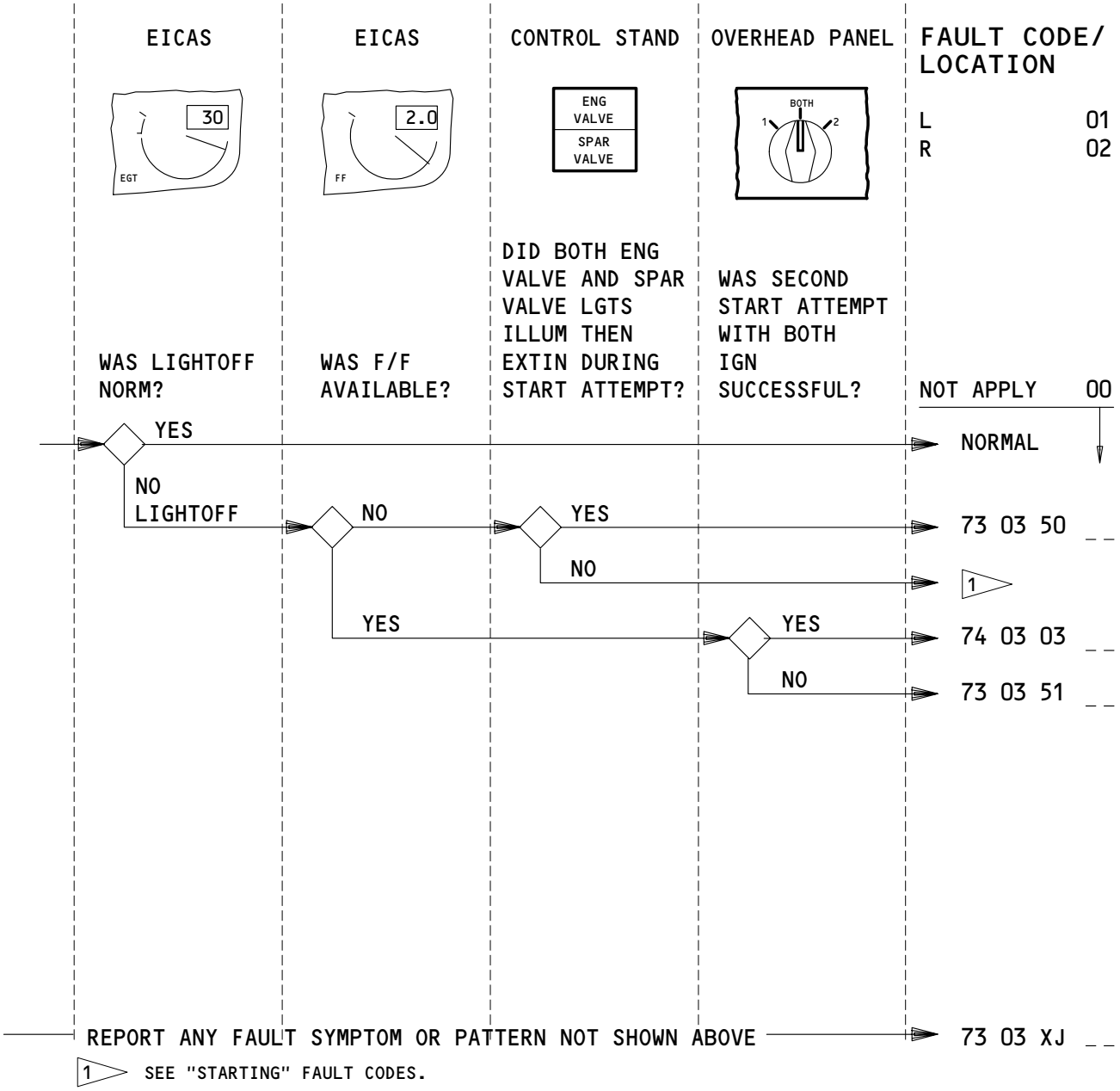
STARTING (SHEET 2) – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

591159



1 SEE "STARTING" FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

11D7	ENGINE STBY IGN 1	11M28	L IGN 2
11D8	ENGINE STBY IGN 2	11M29	R IGN 2
11M1	L IGN 1		
11M2	R IGN 1		

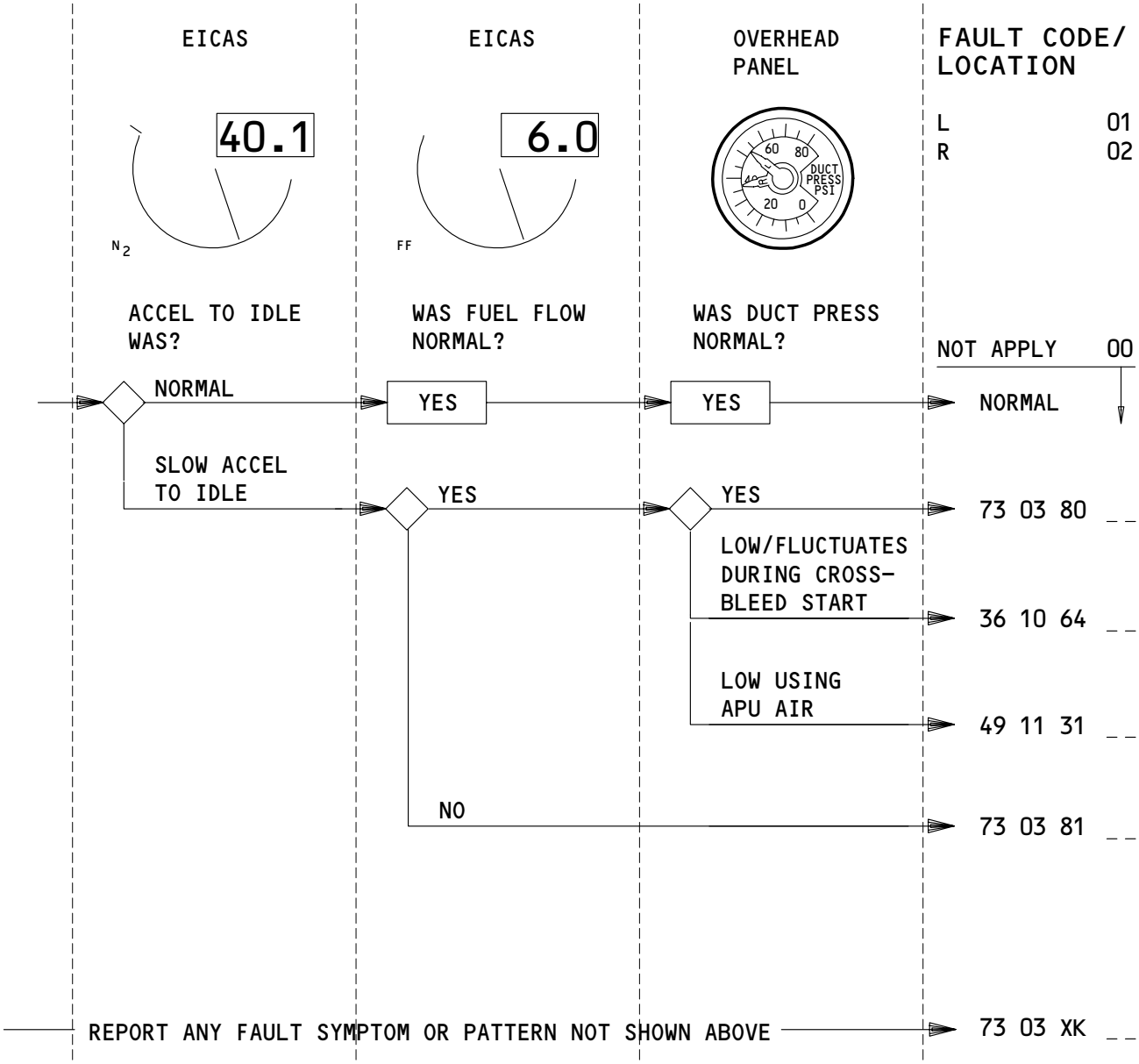
NO LIGHT/WET START – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295456



APPLICABLE CIRCUIT BREAKERS

NONE

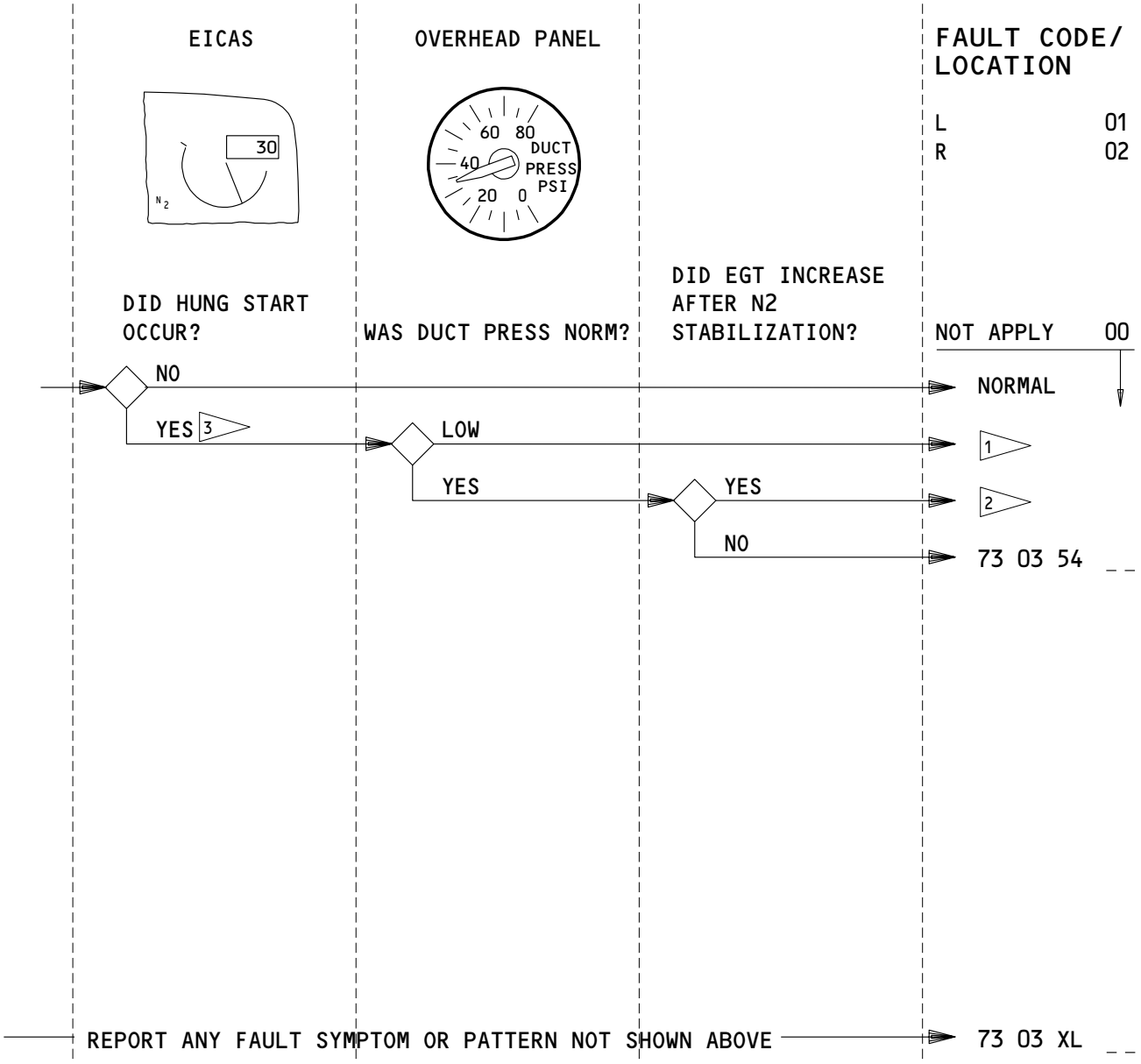
SLOW ACCEL TO IDLE – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295457



1. SEE PNEUMATICS CHAPTER "APU PNEUMATIC SUPPLY" FAULT CODES.
2. SEE "IMPENDING HOT START" FAULT CODES.
3. IF "(L, R) ENG PRV" EICAS MESSAGE IS DISPLAYED, SEE PNEUMATIC CHAPTER FAULT CODES.

APPLICABLE CIRCUIT BREAKERS

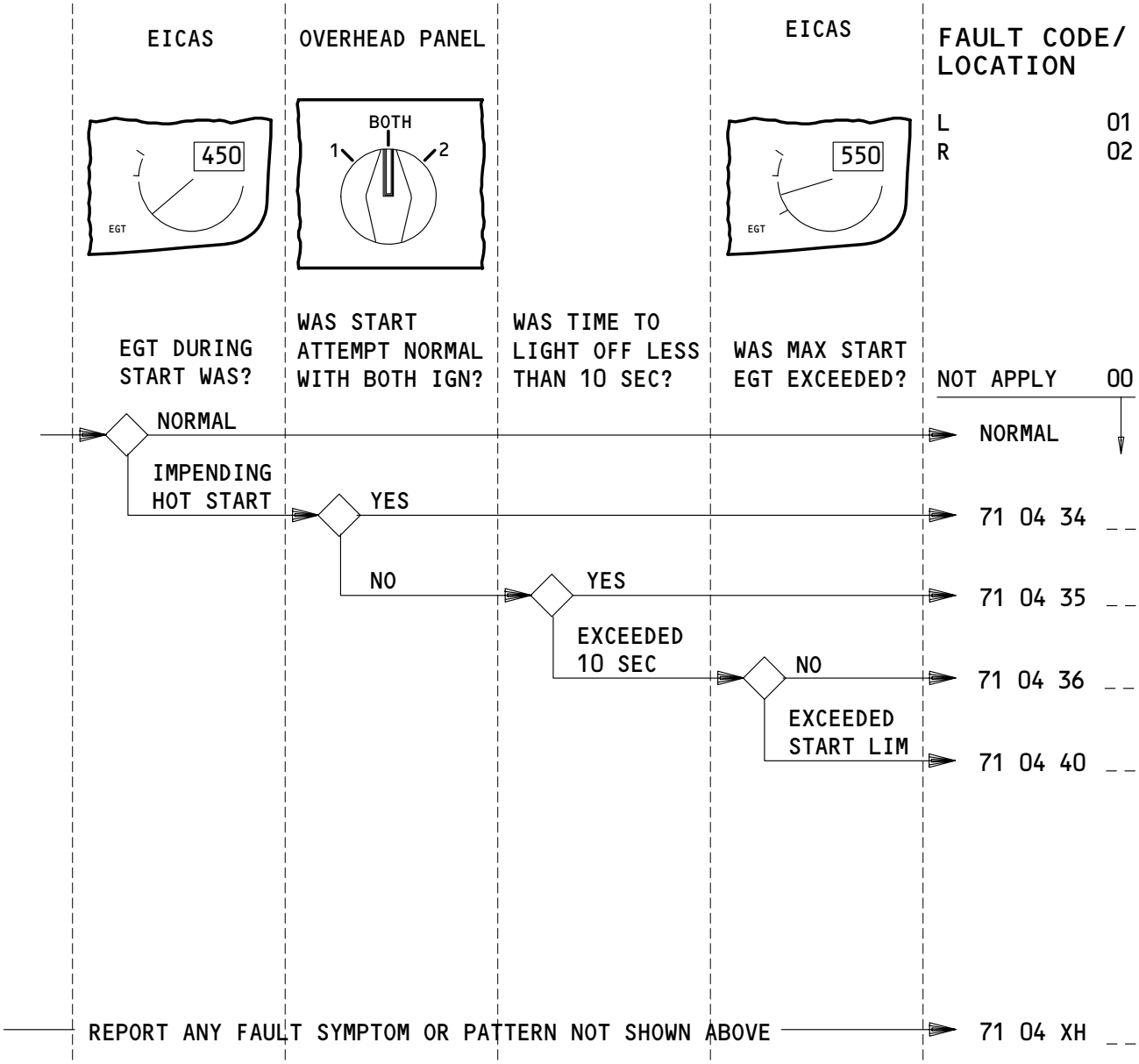
NONE

HUNG START – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS

NONE

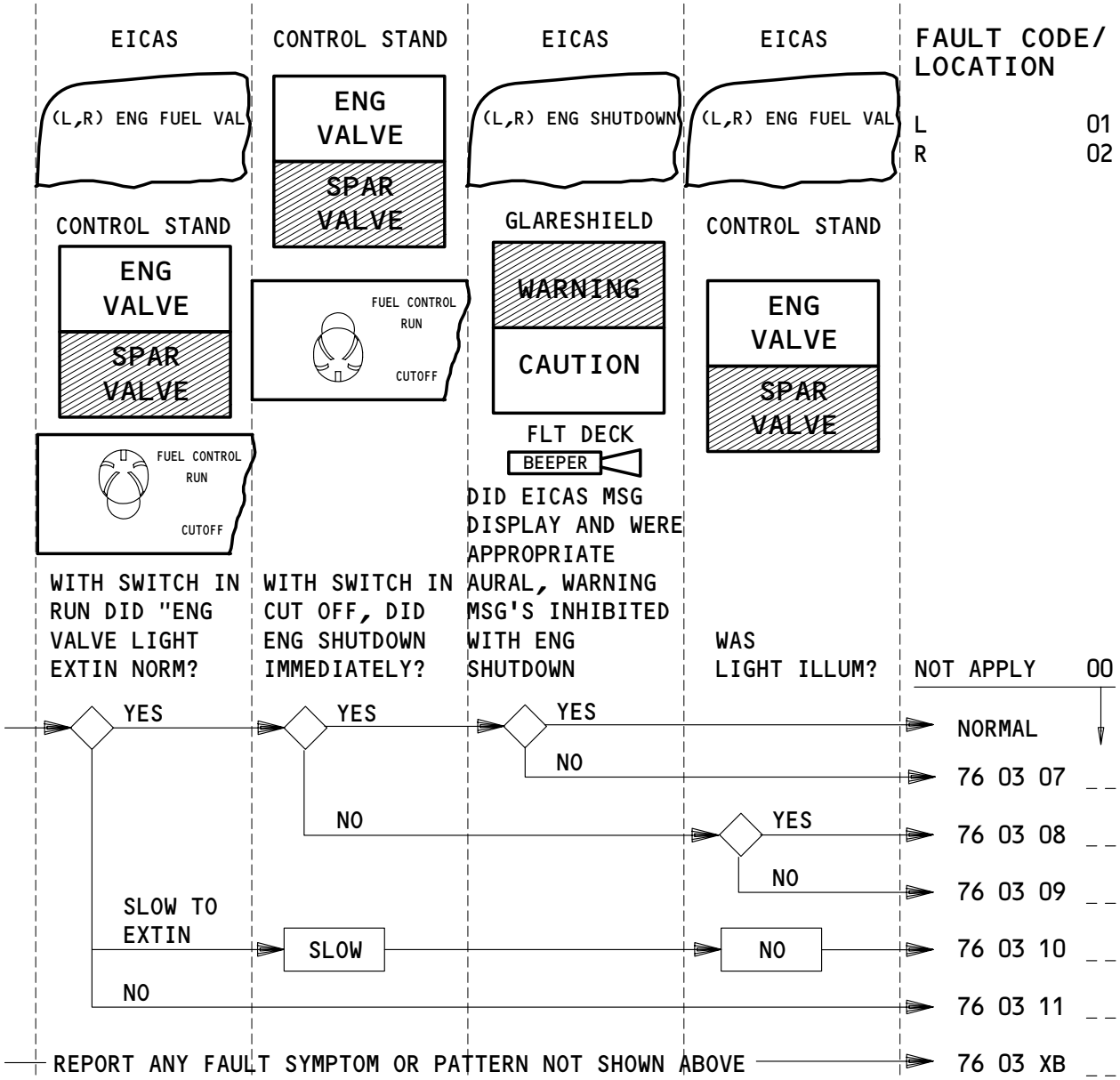
IMPENDING HOT/HOT START – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

295460



APPLICABLE CIRCUIT BREAKERS

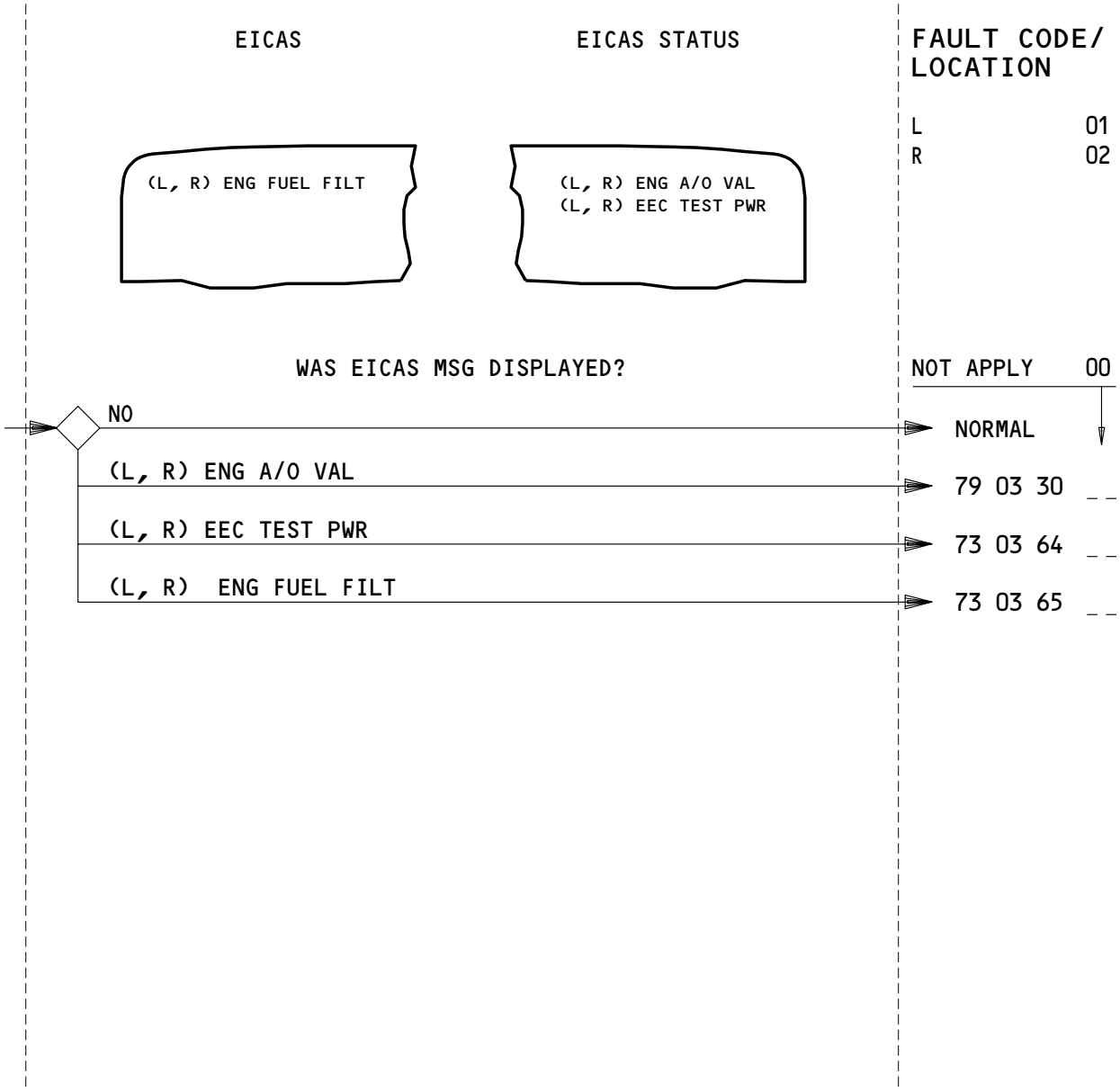
11D25	ENGINE FUEL CONT VLV & EEC CHAN B RESET L
11D26	ENGINE FUEL CONT VLV & EEC CHAN B RESET R

FUEL CONTROL SWITCH – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS

NONE

ENGINE EICAS MESSAGES – FAULT CODES

EFFECTIVITY

ALL

71-FAULT CODE DIAGRAM

672586

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
71 04 XA --	1. A (01=L, 02=R) eng birdstrike or FOD was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagrams for flight crew actions). 2. FIM 71-05-00/101, Fig. 101, Block 1 and AMM 05-51-18/201
71 04 XB --	1. An (01=L, 02=R) engine overspeed problem was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew actions). 2. 71-PIMU MESSAGE INDEX
71 04 XC --	1. An (01=L, 02=R) EGT exceeded limits (except starting) problem was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew actions). 2. FIM 71-05-00/101, Fig. 108. Do the EICAS AUTO-EVENT message verification/erase procedure (FIM 71-08-00/101, Fig. 101) when the fault is corrected.
71 04 XD --	1. A (01=L, 02=R) surge (stall) problem was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew actions). 2. FIM 71-05-00/101, Fig. 103, Block 1
71 04 XE --	1. A (01=L, 02=R) high vibration problem was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew actions). 2. FIM 71-05-00/101, Fig. 104, Block 1
71 04 XF --	1. A (01=L, 02=R) reverse operation problem was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew actions). 2. 71-PIMU MESSAGE INDEX
71 04 XG --	1. A (01=L, 02=R) high oil consumption problem was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew actions). 2. FIM 71-05-00/101, Fig. 106, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
71 04 XH --	1. An (01=L, 02=R) impending hot start was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew actions). 2. FIM 71-06-00/101, Fig. 102, Block 1
71 04 XI --	1. (01=L, 02=R) The flight crew detected oil smoke/fumes in the cabin which is not covered by teh fault code diagrams. See the entry that the flight crew wrote in the log book. 2. FIM 71-08-00/101, Fig. 114.
71 04 XJ --	1. An abnormal (01=L, 02=R) eng parameter problem was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew actions). 2. FIM 71-05-00/101, Fig. 107A, Block 1.
71 04 01 --	1. (01=L, 02=R) eng had (bird strike, FOD). Eng parameters were (abnorm, not checked). 2. FIM 71-05-00/101, Fig. 102, Block 10 and AMM 05-51-18/201
71 04 02 --	1. (01=L, 02=R) eng had (bird strike, FOD). Eng parameters were norm. 2. FIM 71-05-00/101, Fig. 102, Block 1 and AMM 05-51-18/201
71 04 03 00	1. (Bird strike, FOD) on (airframe, area unknown). 2. FIM 71-05-00/101, Fig. 101, Block 2 and AMM 05-51-18/201
71 04 04 --	1. (01=L, 02=R) eng N1 RPM exceeded max limit. 2. Do the engine overspeed inspection (AMM 72-00-00/601).
71 04 05 --	71 04 05 -- thru 71 04 06 -- Not used.
71 04 07 --	1. (01=L, 02=R) eng N2 RPM exceeded max limit. 2. Do the engine overspeed inspection (AMM 72-00-00/601).

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
71 04 08 --	71 04 08 -- thru 71 04 09 -- Not used.
71 04 10 --	1. (01=L, 02=R) eng exceeded EGT limits during surge. 2. FIM 71-05-00/101, Fig. 108, Block 1
71 04 11 --	1. (01=L, 02=R) eng exceeded EGT limits. This did not occur during surge. 2. FIM 71-05-00/101, Fig. 108, Block 1
71 04 12 --	71 04 12 -- thru 71 04 17 -- Not used.
71 04 18 --	1. (01=L, 02=R) eng surge during forward thrust. 2. FIM 71-05-00/101, Fig. 103, Block 1
71 04 19 --	1. (01=L, 02=R) eng surge during reverse thrust. 2. FIM 71-05-00/101, Fig. 103A, Block 1
71 04 20 --	1. (01=L, 02=R) eng vibration high. Other eng indication were abnorm. (See log book report for description of abnorm indications). 2. Replace the engine (AMM 71-00-02/401). Do the EICAS AUTO-EVENT message verification/erase procedure (FIM 71-08-00/101, Fig. 101).
71 04 21 --	1. (01=L, 02=R) eng vibration high. Other eng indications were norm & vibration did not change with thrust lever movement. 2. FIM 71-05-00/101, Fig. 105, Block 1
71 04 22 --	1. (01=L, 02=R) eng vibration high. Other eng indications were norm & vibration indication change with thrust lever movement. 2. FIM 71-05-00/101, Fig. 104, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE

71 04 23 -- Not Used

71 04 24 --
1. (01=L, 02=R) eng rev abnormally low.
2. Do the PIMU BITE procedure (71-PIMU MESSAGE INDEX)
   Look for the PIMU messages that follow:

   EEC CH-A/B REVERSER RNG FAIL (352-25)
   EEC CH-A/B REVR CR-CK FAIL (353-25)
   EEC CH-A/B TRA RNG FAIL (352-26)
   EEC CH-A/B TRA CR-CK FAIL (353-26)
   EEC CH-A/B FMU FD-BK FAIL (351-24)
   EEC CH-A/B FMU T/M W/A FAIL (351-14)
   EEC CH-A/B FMU TR-CK FAIL (351-19)
   EEC A/B-CHAN FAIL (350-14)

   Refer to PIMU Table 101 for the necessary corrections of the above PIMU messages shown.

71 04 25 --
1. (01=L, 02=R) eng oil consumption high, ____ quarts per hour or ____ liters per hour. Oil press was norm.
2. FIM 71-05-00/101, Fig. 106, Block 1

71 04 26 --
1. (01=L, 02=R) eng oil consumption high. Oil press was (low, fluctuating, low and fluctuating).
2. FIM 71-05-00/101, Fig. 106, Block 1

71 04 27 --
1. (01=L, 02=R) eng shutdown. Eng windmilled with oil press ____ psi for ____ hrs/min. (over psi).
2. Examine the engine for damage caused by windmill (AMM 72-00-00/601).

71 04 28 --
1. (01=L, 02=R) eng shutdown. Engine windmilled with oil press less than 40 psi for ____ hrs/min.
2. Replace the engine (AMM 71-00-02/401). Do the EICAS AUTO-EVENT message verification/erase procedure (FIM 71-08-00/101, Fig. 101).

71 04 29 --
71 04 29 -- thru 71 04 31 --
Not used.

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
71 04 32 --	1. (01=L, 02=R) eng N1 failed to rotate during start. 2. FIM 71-05-00/101, Fig. 107, Block 1
71 04 33 --	Not Used.
71 04 34 --	1. (01=L, 02=R) eng impending hot start using ignition selector (1,2). Start aborted. Start normal with ignition selector in BOTH. 2. FIM 71-06-00/101, Fig. 102, Block 1
71 04 35 --	1. (01=L, 02=R) eng impending hot start. Time to lightoff was less than 10 sec. 2. FIM 71-06-00/101, Fig. 101, Block 1
71 04 36 --	1. (01=L, 02=R) eng impending hot start. Time to lightoff was more than 10 sec. 2. FIM 71-06-00/101, Fig. 102, Block 1
71 04 37 --	71 04 37 -- thru 71 04 39 -- Not used.
71 04 40 --	1. (01=L, 02=R) eng exceeded EGT limits during ground start. Time to lightoff exceeded 10 sec. 2. FIM 71-06-00/101, Fig. 103, Block 1
71 04 41 --	71 04 41 -- thru 71 04 42 -- Not used.
71 04 43 --	1. EICAS msg (01=L, 02=R) ENG RPM LIMIT dislayed and eng (N1, N2) RPM did not exceed limit. 2. Find the cause of why the engine did not get to the necessary thrust and correct the cause of the problem.

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
71 04 44 --	1. (01=L, 02=R) eng parameters abnorm. (Ref fault code diagram for recorded engine data). 2. FIM 71-05-00/101, Fig. 107A, Block 1.
71 04 45 --	1. (01=L,02=R) eng N1 RPM exceeded limit. EICAS msg ENG RPM LIM not displayed. 2. Do the engine overspeed inspection (AMM 72-00-00/601).
71 04 46 --	1. (01=L,02=R) eng N2 RPM exceeded limit. EICAS msg ENG RPM LIM not displayed. 2. Do the engine overspeed inspection (AMM 72-00-00/601).
71 04 47 --	1. Engine oil smoke/fumes entered cabin. Smoke stopped with (01=L,02=R) eng bleed closed. All parameters normal. 2. FIM 71-08-00/101, Fig. 114.
71 04 48 --	1. Engine oil smoke/fumes entered cabin. Smoke stopped with (01=L,02=R) eng bleed closed. Parameters abnormal (describe). 2. FIM 71-08-00/101, Fig. 114, Block 1 and FIM 71-05-00/101, Fig. 107A, Block 1.

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
ACARS Management Unit		23-22
Air Data Computer	ADC	34-12
Air Data Inertial Reference Unit	ADIRU	34-26
Air Supply Control and Test Unit	ASCTU	36-20
Air Traffic Control Transponder	ATC	34-53
Airborne Vibration Monitor Signal Conditioner	AVM	77-31
Antiskid/Autobrake Control Unit	AACU	32-42
APU Fire Detection System		26-15
Automatic Direction Finder Receiver	ADF	34-57
APU Control Unit (or Electronic Control Unit)	ECU	49-11
Autopilot/Flight Director	AFDS	22-00
Auxiliary Zone Temperature Controller	AZTC	2160/21-61
Brake Temperature Monitor Unit	BTMU	32-46
Bus Power Control Unit	BPCU	24-20
Cabin Pressure Controller	CPC	21-30/21-31
Cabin Temperature Controller	CTC	21-61
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 Control Unit	ECU	49-11
Electronic Engine Control Monitor Unit (Non-FADEC Engines)	EECM	71-EECM Message Index
Electronic Flight Instrument System	EFIS	34-22

Bite Index
Figure 1 (Sheet 1)

K42824

LRU/System Name	Acronym	FIM Reference
Engine Fire/Overheat Detection System		26-11
Engine Indication and Crew Alerting System Computer	EICAS	31-41
Enhanced Ground Proximity Warning Computer	EGPWC	34-46
Equipment Cooling Systen Controller		21-58
Equipment Cooling Temperature Controller		21-58
Flap/Slat Electronic Unit	FSEU	27-51
Flap/Stabilizer Position Module	FSPM	27-58
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
In-Flight Entertainment Equipment Cooling Card		21-58
Inertial Reference Unit	IRU	34-21
Instrument Comparator Unit	ICU	34-25
Instrument Landing System Receiver	ILS	34-31
Large Format Display System	LFDS	31-63
Lower Cargo Compartment Smoke Detection System		26-16
Maintenance Control Display Panel	MCDP	22-00
Multi-Mode Receiver	MMR	34-31
PA (Passenger Address) Amplifier		23-31
Pack Standby Temperature Controller	PSTC	21-51
Pack Temperature Controller	PTC	21-51
Passenger Entertainment System	PES	23-34
Power Supply Module (Control System Electronics Units)	PSM	27-09
Propulsion Interface and Monitor Unit (FADEC Engines)	PIMU	71-PIMU Message Index
Proximity Switch Electronics Unit	PSEU	32-09

Bite Index
Figure 1 (Sheet 2)

LRU/System Name	Acronym	FIM Reference
Radio Altimeter Transmitter/Receiver	RA	34-33
Rudder Ratio Changer Module	RRCM	27-09
Satellite Data Unit	SDU	23-25
Spoiler Control Module	SCM	27-09
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
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	ZTC	21-60/21-61

Bite Index
Figure 1 (Sheet 3)

ELECTRONIC PROPULSION CONTROL SYSTEM (EPCS)

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
ACTUATOR - (FIM 75-24-00/101)				
LEFT ENGINE TURBINE CASE COOLING (TCC) AIR VALVE, M3107				
RIGHT ENGINE TURBINE CASE COOLING (TCC) AIR VALVE, M3107				
ACTUATOR - (FIM 75-31-00/101)				
LEFT ENGINE VARIABLE STATOR VANE, M3106				
RIGHT ENGINE VARIABLE STATOR VANE, M3106				
ACTUATOR - (FIM 75-32-00/101)				
LEFT ENGINE 2.5 BLEED VALVE, M3105				
RIGHT ENGINE 2.5 BLEED VALVE, M3105				
ACTUATOR - (FIM 78-36-00/101)				
LEFT THRUST REVERSER INTERLOCK				
RIGHT THRUST REVERSER INTERLOCK				
ALTERNATOR - (FIM 73-21-00/101)				
LEFT ENGINE EEC (N2 TRANSDUCER), T1519				
RIGHT ENGINE EEC (N2 TRANSDUCER), T1519				
BOX - (FIM 77-21-00/101)				
LEFT ENGINE EGT (TT4.95) THERMOCOUPLE CABLE TERMINAL				
RIGHT ENGINE EGT (TT4.95) THERMOCOUPLE CABLE TERMINAL				
CIRCUIT BREAKER -			FLT COMPT, P6	
PROBE HEAT LEFT ENG, C1122			6L19	*
PROBE HEAT RIGHT ENG, C1123			6K25	*
CIRCUIT BREAKER -			FLT COMPT, P11	
AIR DATA CMPTR LEFT, C625			11B36	*
AIR DATA CMPTR RIGHT, C626			11F30	*
LEFT ENG CHAN A PERF SOL, C1465			11L3	*
RIGHT ENG CHAN A PERF SOL, C1467			11L30	*
LEFT ENG CHAN B PERF SOL, C1466			11L4	*
RIGHT ENG CHAN B PERF SOL, C1468			11L31	*
LEFT ENG EEC DISCRETE, C1404			11D17	*
RIGHT ENG EEC DISCRETE, C1405			11M32	*
RIGHT ENG EEC DISCRETE ALT, C1401			11A29	*
EICAS COMPUTER LEFT, C4078			11J2	*
EICAS COMPUTER RIGHT, C4079			11J29	*
EICAS DSPL SWITCHING, C4189			11J31	*
EICAS LOWER DSPL, C4082			11J30	*
EICAS PILOTS DSPL, C4094			11J32	*
EICAS UPPER DSPL, C4081			11J3	*
LEFT PROBE HEAT IND, C1120			11A15	*
RIGHT PROBE HEAT IND, C1121			11A28	*
SPEED SENSE L2, C1426			11D15	*
SPEED SENSE R2, C1427			11D16	*
CIRCUIT BREAKERS -			119AL, MAIN EQUIP CTR, P33	
PIMU LEFT ENG, C1475			33D4	*
PIMU RIGHT ENG, C1474			33D5	*
CIRCUIT BREAKER -			119AL, MAIN EQUIP CTR, P34	
EEC GRD TEST - L ENG, C1422			34P2	*
EEC GRD TEST - R ENG, C1423			34P3	*

* SEE THE WDM EQUIPMENT LIST

Electronic Propulsion Control System (EPCS) - Component Index
Figure 1 (Sheet 1)

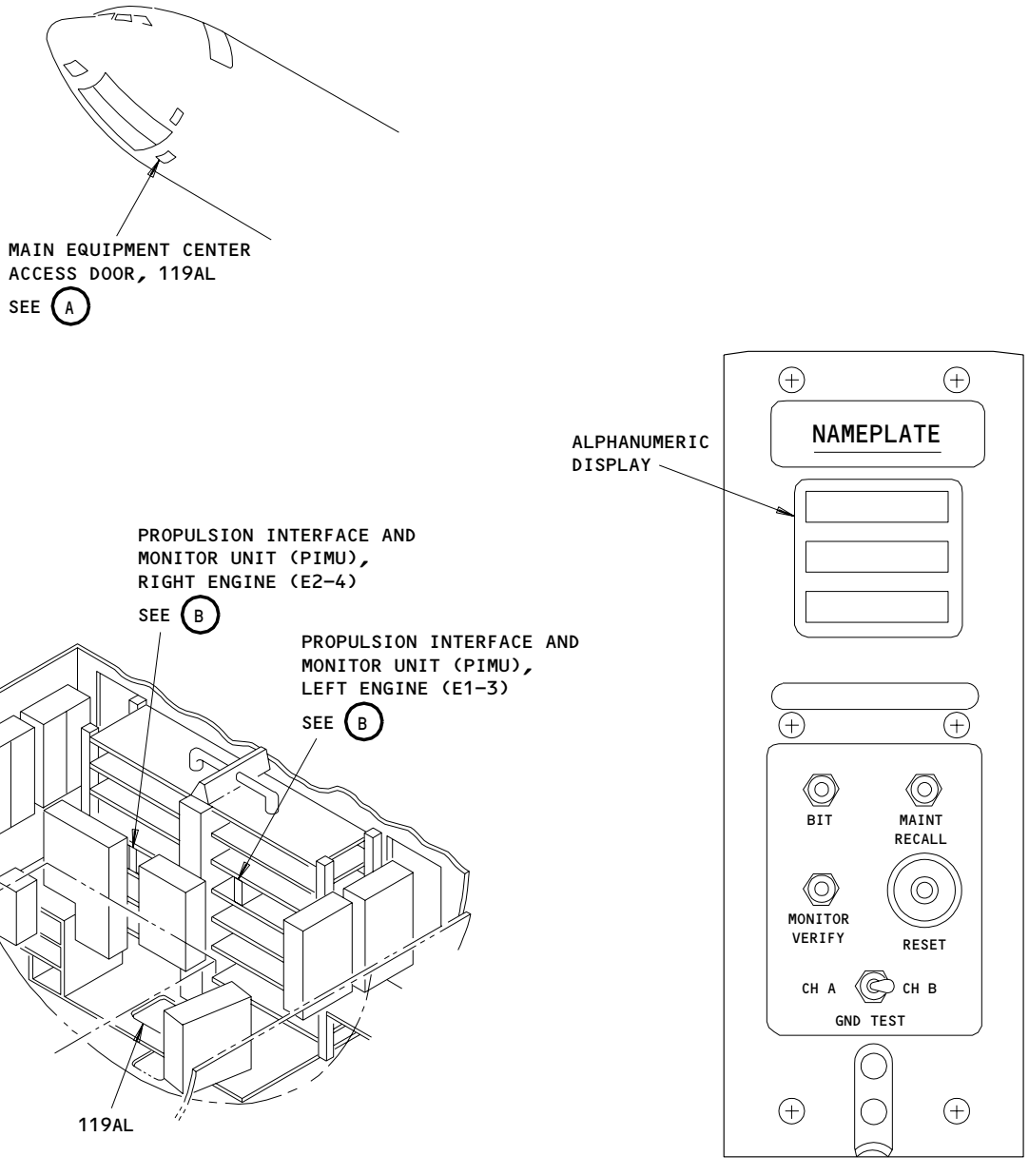
COMPONENT	102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
COMPUTER - (FIM 22-31-00/101) THRUST MANAGEMENT, M183 COMPUTER - (FIM 31-41-00/101) L EICAS, M10181 R EICAS, M10182 COMPUTER - (FIM 34-12-00/101) L AIR DATA, M100 R AIR DATA, M101 CONTROL - (FIM 73-21-00/101) LEFT ELECTRONIC ENGINE, M7198 RIGHT ELECTRONIC ENGINE, M7198 INDICATOR - (FIM 78-36-00/101) L REVERSER INTERLOCK, K2044 R REVERSER INTERLOCK, K2045 LIGHT - (FIM 31-11-00/101) LEFT ENGINE MODE INDICATOR RIGHT ENGINE MODE INDICATOR PLUG - (FIM 73-21-00/101) LEFT ENGINE EEC DATA ENTRY RIGHT ENGINE EEC DATA ENTRY PROBE - (FIM 73-21-00/101) LEFT ENGINE EEC FUEL TEMPERATURE THERMO-COUPLE LEFT ENGINE EEC INLET TOTAL PRESSURE/ TEMPERATURE (PT2/TT2), T687 LEFT ENGINE EEC OIL TEMPERATURE THERMO-COUPLE, T690 LEFT ENGINE EEC THERMOCOUPLE, (TT3) RIGHT ENGINE EEC FUEL TEMPERATURE THERMO-COUPLE RIGHT ENGINE EEC INLET TOTAL PRESSURE/ TEMPERATURE (PT2/TT2), T687 RIGHT ENGINE EEC OIL TEMPERATURE THERMO-COUPLE, T690 RIGHT ENGINE EEC THERMOCOUPLE, (TT3) PROBE - (FIM 77-21-00/101) LEFT ENGINE EGT (TT4.95) THERMOCOUPLE RIGHT ENGINE EGT (TT4.95) THERMOCOUPLE RESOLVER - (FIM 73-21-00/101) L THRUST LEVER ANGLE (TLA), TS171 R THRUST LEVER ANGLE (TLA), TS170 SENSOR - (FIM 79-34-00/101) LEFT ENGINE NO. 3 BEARING OIL TEMPERATURE, T689 RIGHT ENGINE NO. 3 BEARING OIL TEMPERATURE, T689 SOLENOID - (FIM 75-32-00/101) LEFT ENGINE 2.9 BLEED VALVE, V356 RIGHT ENGINE 2.9 BLEED VALVE, V356 SOLENOID - (FIM 79-21-00/101) LEFT ENGINE FUEL/OIL COOLER BYPASS VALVE, V348 RIGHT ENGINE FUEL/OIL COOLER BYPASS VALVE, V358				

Electronic Propulsion Control Sytem (EPCS) - Component Index
Figure 1 (Sheet 2)

H93671

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
SOLENOID - (FIM 75-33-00/101)				
LEFT ENGINE HPC SECONDARY FLOW CONTROL VALVE, TURBINE BLADE AND VANE COOLING AIR VALVE, V354				
LEFT ENGINE HPC SECONDARY FLOW CONTROL VALVE, IDG AIR/OIL HEAT EXCHANGER VALVE OVERRIDE, V355				
RIGHT ENGINE HPC SECONDARY FLOW CONTROL VALVE, TURBINE BLADE AND VANE COOLING AIR VALVE, V354				
RIGHT ENGINE HPC SECONDARY FLOW CONTROL VALVE, IDG AIR/OIL HEAT EXCHANGER VALVE OVERRIDE, V355				
SWITCH - (FIM 31-11-00/101)				
LEFT ENGINE MODE INDICATOR				
RIGHT ENGINE MODE INDICATOR				
SWITCH - (FIM 75-24-00/101)				
LEFT ENGINE TURBINE VANE AND BLADE COOLING AIR VALVE POSITION				
RIGHT ENGINE TURBINE VANE AND BLADE COOLING AIR VALVE POSITION				
TRANSDUCER - (FIM 73-21-00/101)				
LEFT ENGINE EEC SPEED (N1), T688				
RIGHT ENGINE EEC SPEED (N1), T688				
TRANSFORMER - (FIM 78-36-00/101)				
L REVERSER LINEAR VARIABLE DIFFERENTIAL, T10033				
R REVERSER LINEAR VARIABLE DIFFERENTIAL, T10035				
UNIT - (FIM 73-21-00/101)				
LEFT ENGINE FUEL METERING, M3108				
RIGHT ENGINE FUEL METERING, M3108				
UNIT - LEFT PROPULSION INTERFACE AND MONITOR, M1413		1	119AL, MAIN EQUIP CTR ACCESS	77-35-01
UNIT - RIGHT PROPULSION INTERFACE AND MONITOR, M1414		1	119AL, MAIN EQUIP CTR ACCESS	77-35-01
VALVE - (FIM 24-11-00/101)				
LEFT ENGINE IDG AIR/OIL HEAT EXCHANGER AIR SHUTOFF, V350				
RIGHT ENGINE IDG AIR/OIL HEAT EXCHANGER AIR SHUTOFF, V350				
VALVE - (FIM 75-32-00/101)				
LEFT ENGINE 2.9 BLEED				
RIGHT ENGINE 2.9 BLEED				
VALVE - (FIM 75-33-00/101)				
LEFT ENGINE HPC SECONDARY FLOW CONTROL				
RIGHT ENGINE HPC SECONDARY FLOW CONTROL				
VALVE - (FIM 75-24-00/101)				
LEFT ENGINE TURBINE VANE AND BLADE COOLING AIR				
RIGHT ENGINE TURBINE VANE AND BLADE COOLING AIR				
VALVE - (FIM 79-21-00/101)				
LEFT ENGINE AIR/OIL HEAT EXCHANGER, V357				
RIGHT ENGINE AIR/OIL HEAT EXCHANGER, V357				

Electronic Propulsion Control System (EPCS) - Component Index
Figure 1 (Sheet 3)



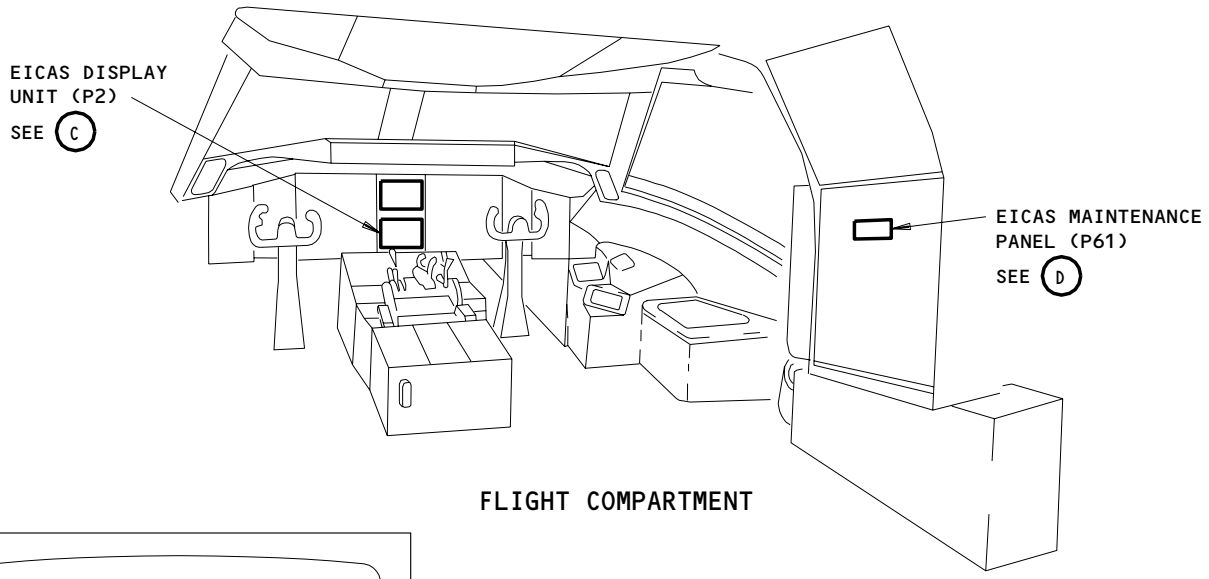
MAIN EQUIPMENT CENTER

A

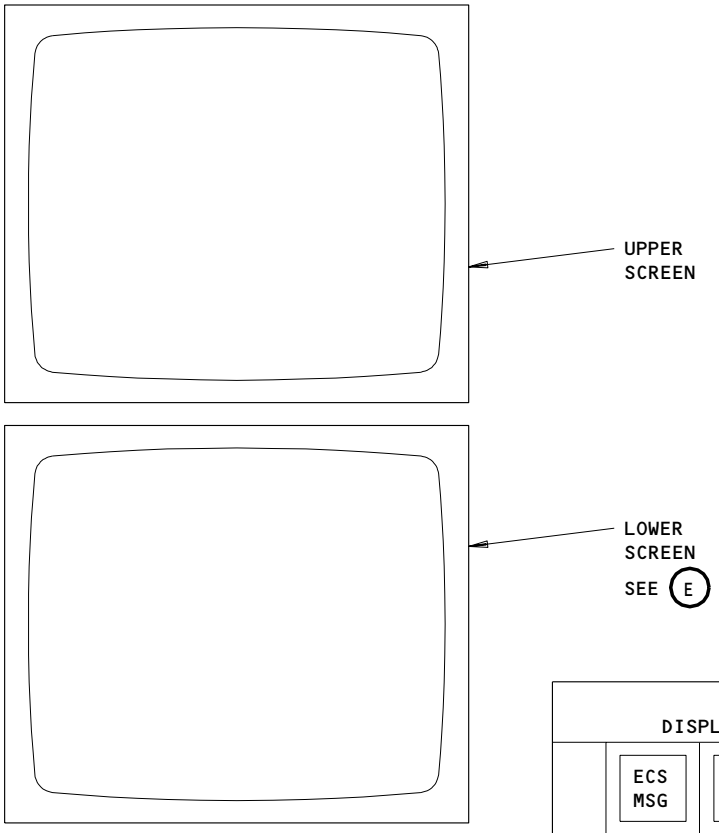
PROPULSION INTERFACE
AND MONITOR UNIT, M1413

B

Electronic Propulsion Control System (EPCS) - Component Location
Figure 2 (Sheet 1)

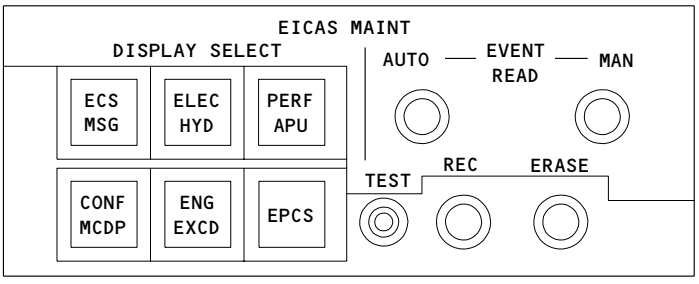


FLIGHT COMPARTMENT



EICAS DISPLAY UNITS

C

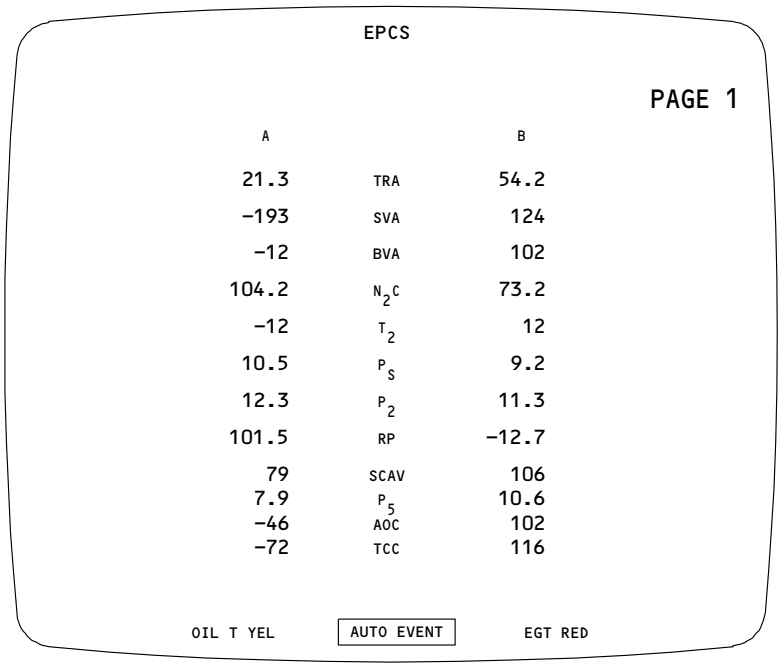


EICAS MAINTENANCE PANEL

D

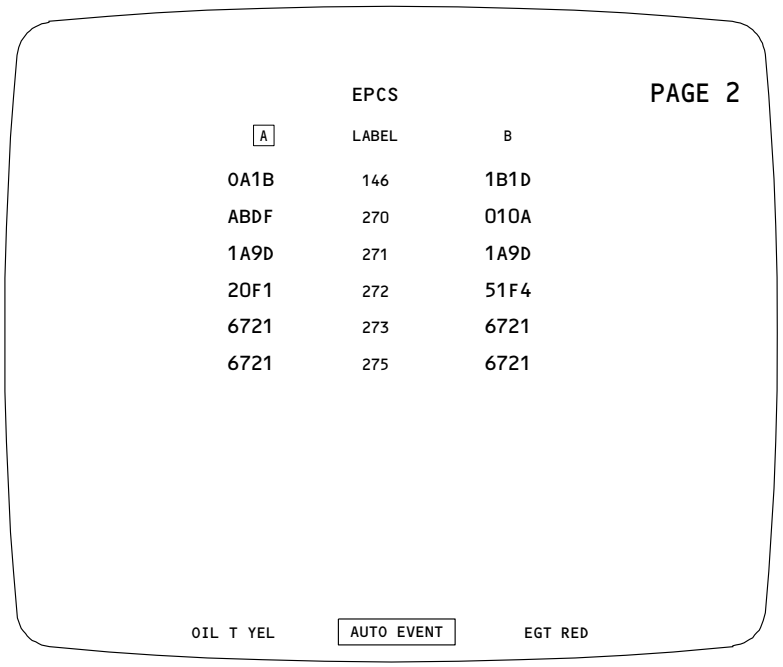
Electronic Propulsion Control System (EPCS) - Component Location
Figure 2 (Sheet 2)

H93685



EPCS PAGE – PERFORMANCE (PAGE 1)
(LOWER SCREEN)

E



EPCS PAGE – STATUS LABELS (PAGE 2)
(LOWER SCREEN)

E

Electronic Propulsion Control System (EPCS) – Component Location
Figure 2 (Sheet 3)

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
33D4, 33D5, 34P2, 34P3

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

PIMU BITE PROCEDURE

DESCRIPTION:

USE THE PIMU BITE PROCEDURE TO INTERROGATE THE PIMU FOR EEC FAULT MESSAGES THAT ARE SET IF THE FAULT OCCURRED BETWEEN ENGINE START AND BEFORE THE AIRPLANE LANDING FOR A GIVEN FLIGHT LEG. THIS IS BECAUSE THE PIMU STORES EEC RELATED FAULT MESSAGES WHEN THE AIRPLANE NOSE LANDING GEAR TOUCHES THE GROUND.

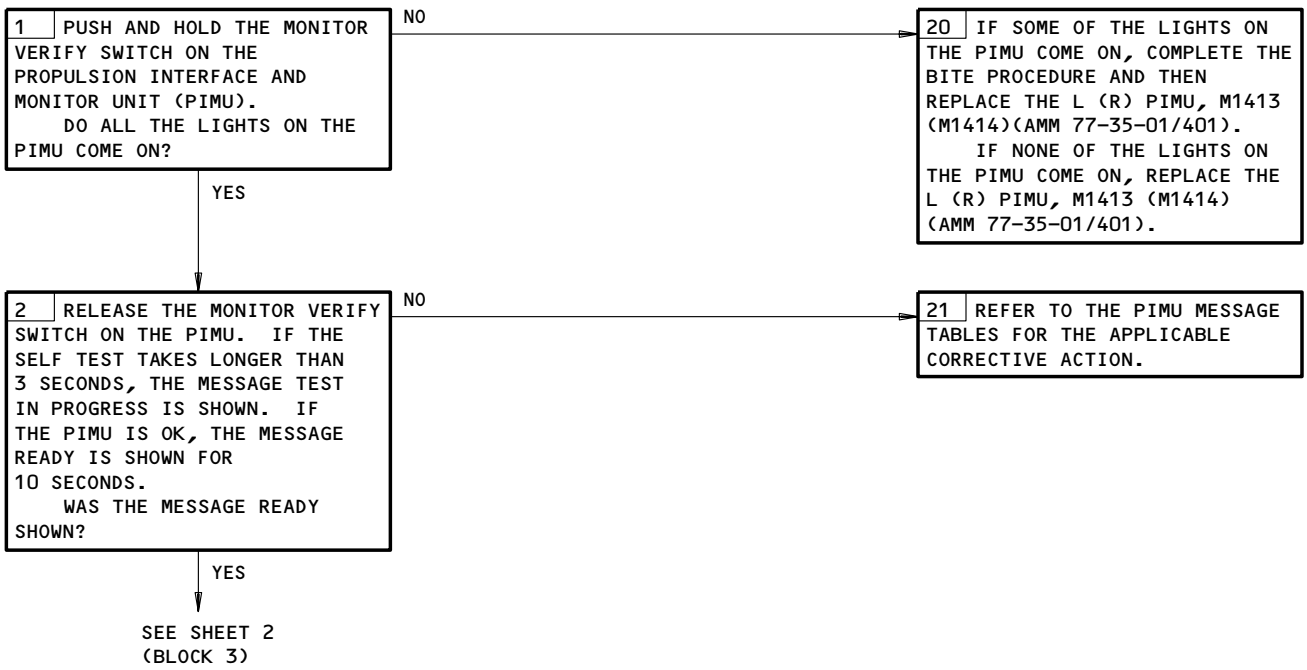
IF THE FAULT OCCURRED DURING LANDING ROLL, TAXI IN, ENGINE SHUTDOWN FROM IDLE, MOTORING, GROUND RUN, AND REJECTED TAKEOFF, DO THE PIMU MAINTENANCE RECALL PROCEDURE (FIM 71-PIMU MESSAGE INDEX, FIG. 4).

IT IS NOT NECESSARY TO HAVE EEC GROUND TEST POWER ON DURING THIS TEST.

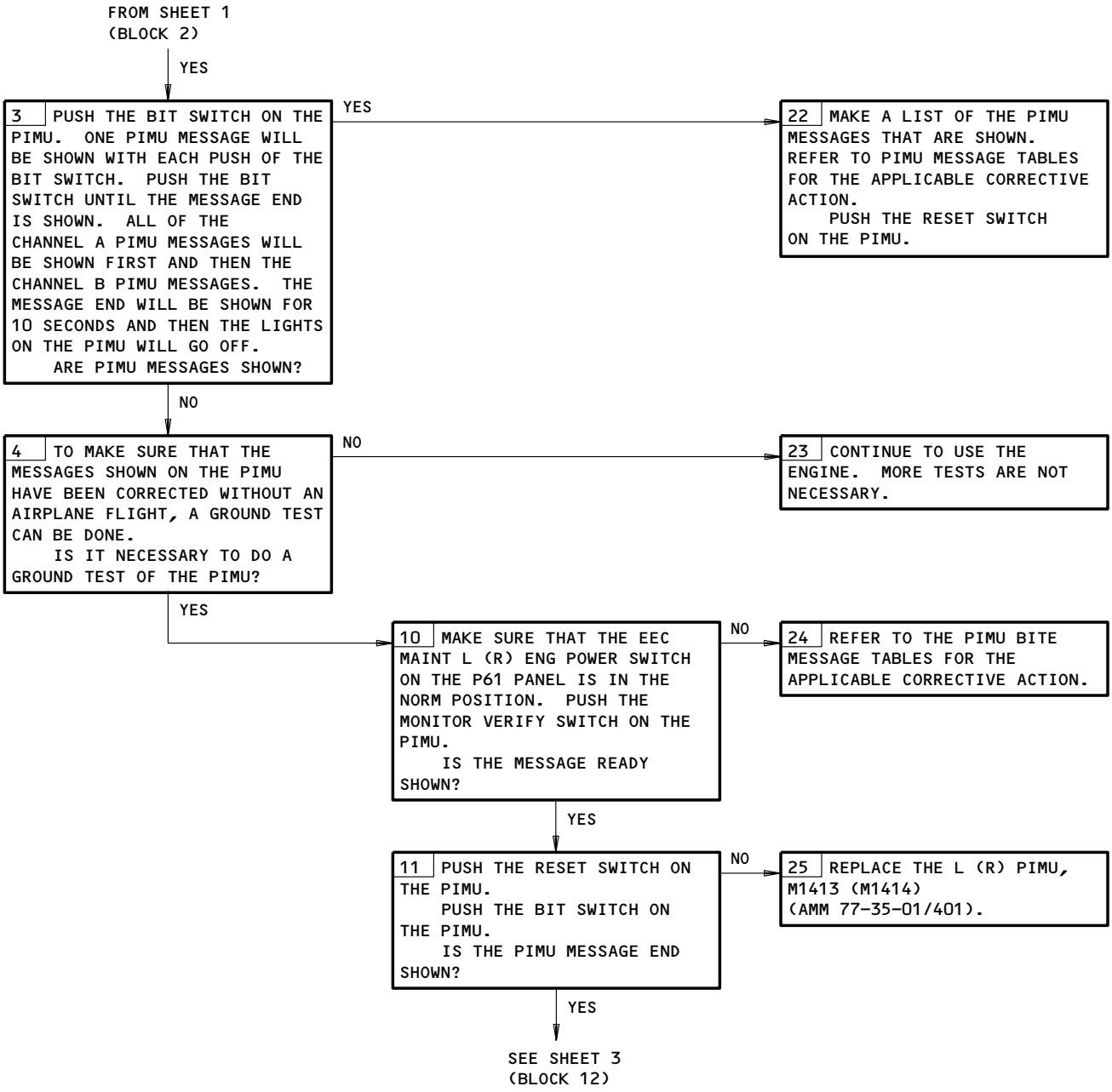
EACH UNIQUE FAULT MESSAGE WILL SHOW ONLY ONCE REGARDLESS OF THE NUMBER OF TIMES IT HAS OCCURRED.

NOTE: FAULT MESSAGES ARE STORED IN THE MEMORY OF THE PIMU UNTIL THEY ARE ERASED WITH THE RESET BUTTON (REFER TO BLOCK 10 OF THIS PROCEDURE). MAKE SURE THAT THE ERASE PROCEDURE IS USED WHEN THE PIMU INTERROGATION IS DONE.

FAULT ISOLATION:

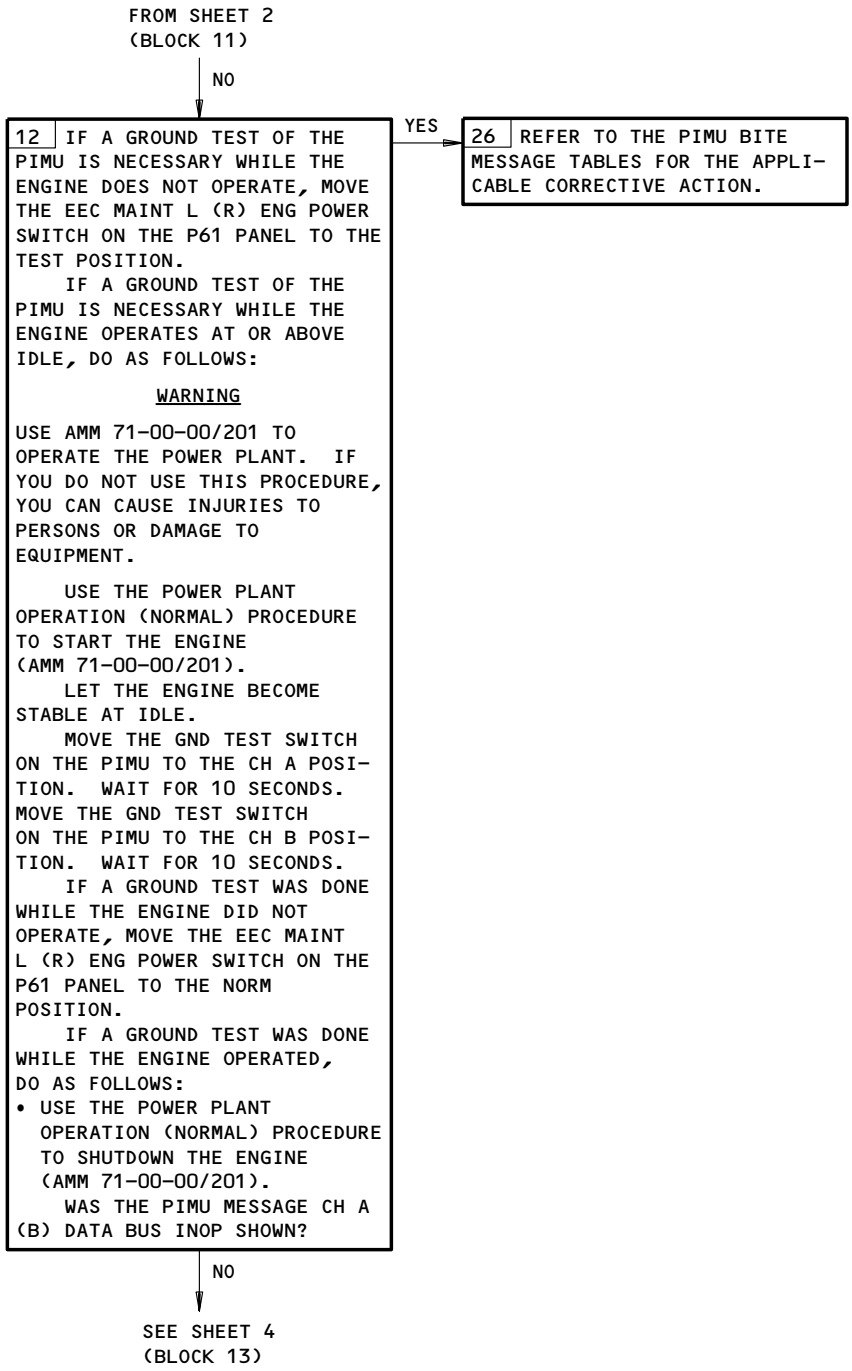


PIMU BITE Procedure
Figure 3 (Sheet 1)

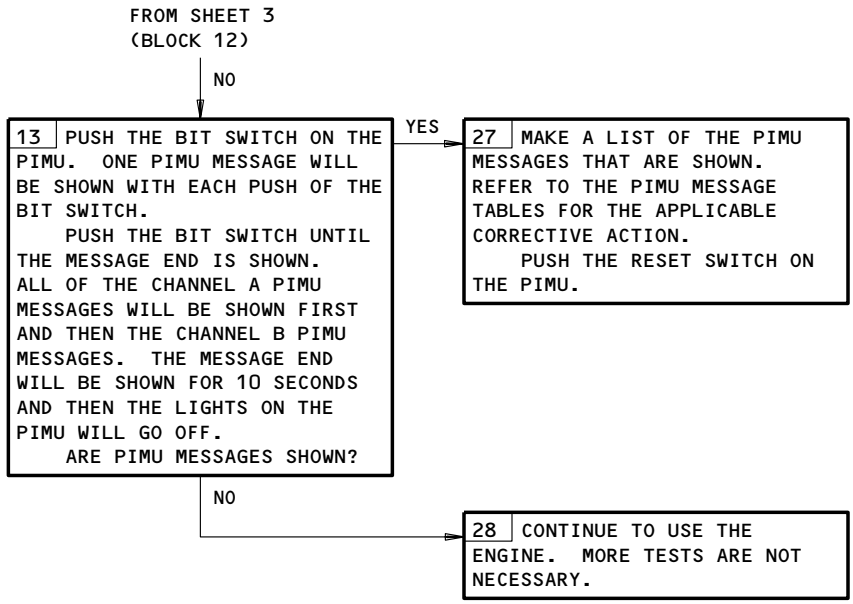


PIMU BITE Procedure
Figure 3 (Sheet 2)

H93691



PIMU BITE Procedure
Figure 3 (Sheet 3)



PIMU BITE Procedure
Figure 3 (Sheet 4)

PIMU MAINTENANCE RECALL FOR PAST FLIGHT LEGS AND THE MOST RECENT GROUND LEG

DESCRIPTION:

USE PIMU MAINTENANCE RECALL TO INTERROGATE THE EEC FOR FAULT MESSAGES THAT ARE STORED IN THE MEMORY OF THE EEC.

USE THE PROCEDURE FOR INTERROGATION OF FAULT MESSAGES WHICH ARE SET DURING LANDING ROLL, TAXI, ENGINE SHUTDOWN FROM IDLE, OR FAULT MESSAGES WHICH OCCUR DURING ANY GROUND OPERATION WHICH DOES NOT END IN AIRPLANE TAKEOFF, SUCH AS MOTORING, GROUND RUN AND REJECTED TAKEOFF.

PIMU MAINTENANCE RECALL CAN ALSO BE USED TO LOOK AT FAULT HISTORY FOR ANY FAULT MESSAGES THAT ARE SET DURING ANY FLIGHT PHASE.

IT IS NECESSARY TO HAVE THE EEC GROUND TEST POWER ON DURING THIS PROCEDURE.

PROCEDURE:

DO THE STEPS THAT FOLLOW TO OPERATE THE PIMU MAINTENANCE RECALL:

1. PUSH AND HOLD THE "MONITOR VERIFY" SWITCH ON THE PROPULSION INTERFACE AND MONITOR UNIT (PIMU) AND MAKE SURE ALL THE SEGMENTS ON THE PIMU COME ON.
2. RELEASE THE "MONITOR VERIFY" SWITCH ON THE PIMU. THIS STARTS THE PIMU SELF-TEST. IF THE SELF-TEST TAKES LONGER THAN 3 SECONDS, THE MESSAGE "TEST IN PROGRESS" WILL BE SHOWN. IF THE PIMU IS OK, THE MESSAGE "READY" SHOWS FOR 10 SECONDS. IF THE PIMU IS NOT OK, THE MESSAGE "PIMU MONITOR FAIL" SHOWS FOR 10 SECONDS.
3. MAKE SURE THE FUEL CONTROL SWITCH IS IN THE "CUTOFF" POSITION.
4. TO TRANSMIT THE EEC FAULT CODES TO THE PIMU, DO THE STEPS THAT FOLLOW:
   A. MOVE THE "ECC MAINT L(R) ENG POWER" SWITCH ON THE P61 PANEL TO THE "TEST" POSITION. THIS WILL SUPPLY POWER TO THE EEC.
   B. MAKE SURE THE ENGINE THROTTLE LEVERS ARE IN THE IDLE POSITION.
   C. PUSH THE "MAINT RECALL" SWITCH ON THE FRONT OF THE PIMU. THIS WILL CAUSE THE PIMU TO READ THE EEC CHANNEL A AND CHANNEL B DATA BUS AND PUT THE FLIGHT LEG NUMBER AND ITS RELATED FAULT CODES IN THE PIMU'S RAM MEMORY.
5. THE MESSAGE "CH A TEST$IN PROGRESS" WILL BE SHOWN WHILE THE CHANNEL A DATA BUS IS BEING READ AND THE MESSAGE "CH B TEST$IN PROGRESS" WILL BE SHOWN WHILE THE CHANNEL B DATA BUS IS BEING READ. 1

   NOTE: THE MESSAGE "CH A TEST IN PROGRESS" CAN FLASH ON THE DISPLAY TOO QUICKLY FOR YOU TO SEE IT.
6. AFTER THE EEC FAULT CODES HAVE BEEN RECEIVED THE MESSAGE "CH A FLIGHT LEG #" WILL BE SHOWN.

   NOTE: THE MESSAGE "CH A/B FLIGHT LEG #" WILL ONLY BE SHOWN WITH THE RELATED PIMU MESSAGES FOR THE FLIGHT LEGS ON WHICH PIMU MESSAGES HAVE OCCURRED.

   - WHEN THE MESSAGE "CH A/B FLIGHT LEG 0" IS SHOWN WITH RELATED PIMU MESSAGES, ONE OF THE CONDITIONS THAT FOLLOW WILL BE CORRECT:
     - THE RELATED PIMU MESSAGES OCCURRED DURING THE LAST ENGINE SHUTDOWN.
     - THE RELATED PIMU MESSAGES OCCURRED DURING THE LAST GROUND RUN IF NO AIRPLANE FLIGHT HAS OCCURRED SINCE.
   - WHEN THE MESSAGE "CH A/B FLIGHT LEG 1" IS SHOWN WITH RELATED PIMU MESSAGES, THE RELATED PIMU MESSAGES OCCURRED ON THE LAST FLIGHT.
   - WHEN THE MESSAGE "CH A/B FLIGHT LEG ***" IS SHOWN WITH RELATED PIMU MESSAGES, THE RELATED PIMU MESSAGES OCCURRED ON FLIGHT NUMBER 64 OR HIGHER.
   - WHEN THE MESSAGE "CH A/B FLIGHT LEG 0" IS SHOWN WITH NO RELATED PIMU MESSAGES, THERE ARE NO MORE PIMU MESSAGES IN THE APPLICABLE CHANNEL OF THE EEC. BUT, MORE PIMU MESSAGES COULD BE SHOWN BY THE OTHER CHANNEL.

1 AIRPLANES WITH A PIMU P/N 285T0607-15 AND SUBSEQUENT;
IF THE EEC IS NOT POWERED OR THE DISCRETE WIRE FROM THE EEC TO THE PIMU IS BROKEN, THE MESSAGE "EEC/PIMU MODE DISAGREE" WILL BE SHOWN. REFER TO PIMU TABLE 102 (FIG. 103B) FOR CORRECTIVE ACTION.

2 REFER TO PIMU MESSAGE TABLES FOR THE APPLICABLE CORRECTIVE ACTION.

PIMU Maintenance Recall Procedure
Figure 4 (Sheet 1)

PIMU MAINTENANCE RECALL FOR PAST FLIGHT LEGS AND THE MOST RECENT GROUND LEG (CONT)

7. PUSH THE "BIT" SWITCH ON THE PIMU AND MAKE A LIST OF THE PIMU MESSAGES FOR EACH FLIGHT LEG SHOWN. 2

   NOTE: CHANNEL A PIMU MESSAGES WILL BE SHOWN FIRST AND THEN THE CHANNEL B PIMU MESSAGES. THE TWO CHANNELS FLIGHT LEG # WILL NOT ALWAYS BE THE SAME.

   PIMU MESSAGES FOR MAINTENANCE RECALL HAVE A DOLLAR SIGN BETWEEN THE LABEL AND THE BIT. OTHER THAN THIS, THE MESSAGES FOR MAINTENANCE RECALL ARE THE SAME AS THE OTHER PIMU MESSAGES.

8. CONTINUE TO PUSH THE "BIT" SWITCH AND MAKE A LIST OF THE PIMU MESSAGES UNTIL THE MESSAGE "END$CH B" IS SHOWN. 2

9. TO LOOK AT THE PIMU MESSAGES FOR SUBSEQUENT FLIGHT LEGS ON WHICH PIMU MESSAGES OCCURRED, PUSH THE "MAINT RECALL" SWITCH ON THE PIMU.

10. DO STEPS 6-8 UNTIL SUFFICIENT DATA IS OBTAINED OR "CH A FLIGHT LEG 0" AND "CH B FLIGHT LEG 0" ARE SHOWN WITH NO RELATED PIMU MESSAGES.

    NOTE: THE EEC CAN KEEP UP TO 192 FAULT CODES PER CHANNEL.

11. TO LOOK AT ALL THE FLIGHT LEGS, CONTINUE TO PUSH THE "MAINT RECALL" SWITCH AND THEN THE "BIT" SWITCH.

12. PUSH THE "MONITOR VERIFY" SWITCH ON THE PIMU. THIS WILL CAUSE THE PIMU TO GO OUT OF THE MAINTENANCE MODE AND GO BACK TO ITS USUAL OPERATION.

13. PUSH THE "RESET" SWITCH ON THE PIMU TO ERASE THE PIMU'S RAM MEMORY.

14. MOVE THE "EEC MAINT L(R) ENG POWER" SWITCH ON THE P61 PANEL TO THE "NORMAL" POSITION.

    NOTE: YOU MUST REMOVE THE ELECTRICAL POWER FROM THE EEC OR RESET THE PIMU (STEPS 12-14). IF YOU DO NOT FOLLOW THIS PROCEDURE, YOU CAN CAUSE ONE OF THE CONDITIONS THAT FOLLOW:

    - THE MESSAGE "EEC/PIMU MODE DISAGREE" WILL BE SHOWN ON THE PIMU.
    - IF YOU DO THE PIMU GROUND TEST WITH THE EEC IN THE MAINT MODE, YOU CAN STORE THE WRONG PIMU MESSAGES. THE EEC WILL CONTINUE TO TRANSMIT THE FAULT CODES FROM THE LAST FLIGHT LEG THAT IT LOOKED AT WHILE IT WAS IN THE MAINTENANCE MODE.

PIMU Maintenance Recall Procedure
Figure 4 (Sheet 2)

H93697

PIMU MAINTENANCE RECALL FOR GROUND LEGS

1. PUSH AND HOLD THE "MONITOR VERIFY" SWITCH ON THE PROPULSION INTERFACE AND MONITOR UNIT (PIMU) AND MAKE SURE ALL THE SEGMENTS ON THE PIMU COME ON.
2. RELEASE THE "MONITOR VERIFY" SWITCH ON THE PIMU. THIS STARTS THE PIMU SELF-TEST. IF THE SELF-TEST TAKES LONGER THAN 3 SECONDS, THE MESSAGE "TEST IN PROGRESS" WILL BE SHOWN. IF THE PIMU IS OK, THE MESSAGE "READY" SHOWS FOR 10 SECONDS. IF THE PIMU IS NOT OK, THE MESSAGE "PIMU MONITOR FAIL" SHOWS FOR 10 SECONDS.
3. MAKE SURE THE FUEL CONTROL SWITCH IS IN THE "CUTOFF" POSITION.
4. TO TRANSMIT THE EEC FAULT CODES TO THE PIMU, DO THE STEPS THAT FOLLOW:
   A. MOVE THE "ECC MAINT L(R) ENG POWER" SWITCH ON THE P61 PANEL TO THE "TEST" POSITION. THIS WILL SUPPLY POWER TO THE EEC.
   B. PUT THE ENGINE THROTTLE LEVERS BETWEEN 45 AND 60 DEGREES TRA.
   C. PUSH THE ALTERNATE MODE SELECT SWITCH.
   D. PUSH THE "MAINT RECALL" SWITCH ON THE FRONT OF THE PIMU. THIS WILL CAUSE THE PIMU TO READ THE EEC CHANNEL A AND CHANNEL B DATA BUS. THIS WILL PUT THE GROUND LEG NUMBER AND ITS RELATED FAULT CODES IN THE PIMU'S RAM MEMORY.

      NOTE: THE PIMU WILL SHOW "CH A/B FLIGHT LEG #" WHEN IT TRANSMITS GROUND LEG FAULT INFORMATION.
5. THE MESSAGE "CH A TEST$IN PROGRESS" WILL BE SHOWN WHILE THE CHANNEL A DATA BUS IS BEING READ AND THE MESSAGE "CH B TEST$IN PROGRESS" WILL BE SHOWN WHILE THE CHANNEL B DATA BUS IS BEING READ. 1

   NOTE: THE MESSAGE "CH A TEST IN PROGRESS" CAN FLASH ON THE DISPLAY TOO QUICKLY FOR YOU TO SEE IT.
6. AFTER THE EEC FAULT CODES HAVE BEEN RECEIVED THE MESSAGE "CH A FLIGHT LEG #" WILL BE SHOWN.

   NOTE: THE MESSAGE "CH A/B FLIGHT LEG #" WILL ONLY BE SHOWN WITH THE RELATED PIMU MESSAGES FOR THE GROUND LEGS ON WHICH PIMU MESSAGES HAVE OCCURRED.

   - WHEN THE MESSAGE "CH A/B FLIGHT LEG 0" IS SHOWN WITH RELATED PIMU MESSAGES, ONE OF THE CONDITIONS THAT FOLLOW WILL BE CORRECT:
     - THE RELATED PIMU MESSAGES OCCURRED DURING THE LAST ENGINE SHUTDOWN.
     - THE RELATED PIMU MESSAGES OCCURRED DURING THE LAST GROUND RUN IF NO AIRPLANE FLIGHT HAS OCCURRED SINCE.
   - WHEN THE MESSAGE "CH A/B FLIGHT LEG 1" IS SHOWN WITH RELATED PIMU MESSAGES, THE RELATED PIMU MESSAGES OCCURRED ON THE GROUND LEG BEFORE THE LAST FLIGHT.
   - WHEN THE MESSAGE "CH A/B FLIGHT LEG ***" IS SHOWN WITH RELATED PIMU MESSAGES, THE RELATED PIMU MESSAGES OCCURRED ON GROUND LEG NUMBER 64 OR HIGHER.
   - WHEN THE MESSAGE "CH A/B FLIGHT LEG 0" IS SHOWN WITH NO RELATED PIMU MESSAGES, THERE ARE NO MORE PIMU MESSAGES IN THE APPLICABLE CHANNEL OF THE EEC. BUT, MORE PIMU MESSAGES COULD BE SHOWN BY THE OTHER CHANNEL.
7. PUSH THE "BIT" SWITCH ON THE PIMU AND MAKE A LIST OF THE PIMU MESSAGES FOR EACH GROUND LEG SHOWN. 2

   NOTE: CHANNEL A PIMU MESSAGES WILL BE SHOWN FIRST AND THEN THE CHANNEL B PIMU MESSAGES. THE TWO CHANNELS FLIGHT LEG # WILL NOT ALWAYS BE THE SAME.

   PIMU MESSAGES FOR MAINTENANCE RECALL HAVE A DOLLAR SIGN BETWEEN THE LABEL AND THE BIT. OTHER THAN THIS, THE MESSAGES FOR MAINTENANCE RECALL ARE THE SAME AS THE OTHER PIMU MESSAGES.
8. CONTINUE TO PUSH THE "BIT" SWITCH AND MAKE A LIST OF THE PIMU MESSAGES UNTIL THE MESSAGE "END$CH B" IS SHOWN. 2

1 AIRPLANES WITH A PIMU P/N 285T0607-15 AND SUBSEQUENT;
IF THE EEC IS NOT POWERED OR THE DISCRETE WIRE FROM THE EEC TO THE PIMU IS BROKEN, THE MESSAGE "EEC/PIMU MODE DISAGREE" WILL BE SHOWN. REFER TO PIMU TABLE 102 (FIG. 103B) FOR CORRECTIVE ACTION.

2 REFER TO PIMU MESSAGE TABLES FOR THE APPLICABLE CORRECTIVE ACTION.

PIMU Maintenance Recall Procedure
Figure 4 (Sheet 3)

PIMU MAINTENANCE RECALL FOR GROUND LEGS (CONT)

9. TO LOOK AT THE PIMU MESSAGES FOR SUBSEQUENT GROUND LEGS ON WHICH PIMU MESSAGES OCCURRED, PUSH THE "MAINT RECALL" SWITCH ON THE PIMU.
10. DO STEPS 6-8 UNTIL SUFFICIENT DATA IS OBTAINED OR "CH A FLIGHT LEG 0" AND "CH B FLIGHT LEG 0" ARE SHOWN WITH NO RELATED PIMU MESSAGES.

    NOTE: THE EEC CAN KEEP UP TO 192 FAULT CODES PER CHANNEL.

11. TO LOOK AT ALL THE GROUND LEGS, CONTINUE TO PUSH THE "MAINT RECALL" SWITCH AND THEN THE "BIT" SWITCH.
12. PUSH THE "MONITOR VERIFY" SWITCH ON THE PIMU. THIS WILL CAUSE THE PIMU TO GO OUT OF THE MAINTENANCE MODE AND GO BACK TO ITS USUAL OPERATION.
13. PUSH THE "RESET" SWITCH ON THE PIMU TO ERASE THE PIMU'S RAM MEMORY.
14. MOVE THE "EEC MAINT L(R) ENG POWER" SWITCH ON THE P61 PANEL TO THE "NORMAL" POSITION.

    NOTE: YOU MUST REMOVE THE ELECTRICAL POWER FROM THE EEC OR RESET THE PIMU (STEPS 12-14). IF YOU DO NOT FOLLOW THIS PROCEDURE, YOU CAN CAUSE ONE OF THE CONDITIONS THAT FOLLOW:

    - THE MESSAGE "EEC/PIMU MODE DISAGREE" WILL BE SHOWN ON THE PIMU.
    - IF YOU DO THE PIMU GROUND TEST WITH THE EEC IN THE MAINT MODE, YOU CAN STORE THE WRONG PIMU MESSAGES. THE EEC WILL CONTINUE TO TRANSMIT THE FAULT CODES FROM THE LAST GROUND LEG THAT IT LOOKED AT WHILE IT WAS IN THE MAINTENANCE MODE.

15. RETURN THE THROTTLES TO IDLE STOP AND PUT THE ALTN MODE SWITCH BACK TO NORMAL MODE.

PIMU Maintenance Recall Procedure
Figure 4 (Sheet 4)

1. GENERAL
   A. THIS PROCEDURE CAN BE USED FOR MOST OF THE FOLLOWING TYPES OF COMPONENT FAULT MESSAGES:
      1. WRAPAROUND FAULTS - ARE SENSED BY THE EEC WHEN THE RETURN ELECTRICAL VALUE IS DIFFERENT THAN THE COMMAND ELECTRICAL VALUE BY MORE THAN THE SPECIFIED AMOUNT. WRAPAROUND FAULTS ARE FOUND IN TORQUE MOTOR CIRCUITS AND SOLENOID CIRCUITS (SEE FIG. 4C).
      2. RANGE FAULTS - ARE SENSED BY THE EEC WHEN THE POSITION OR SENSOR FEEDBACK VALUE IS OUT OF THE SPECIFIED RANGE LIMITS. RANGE FAULTS ARE FOUND IN POSITION FEEDBACK AND SENSOR FEEDBACK CIRCUITS (SEE FIG. 4C).
      3. DISAGREE FAULTS - ARE SENSED BY THE EEC WHEN THE POSITION OR SENSOR CROSS-CHECK VALUES FOR CHANNEL A AND CHANNEL B DO NOT AGREE WITHIN THE SPECIFIED CROSS-CHECK TOLERANCE. DISAGREE FAULTS ARE FOUND IN POSITION CROSS-CHECK AND SENSOR CROSS-CHECK CIRCUITS (SEE FIG. 4D).
      4. TRACK-CHECK FAULTS - ARE SENSED BY THE EEC WHEN THE POSITION FEEDBACK INDICATION SHOWS THAT THE COMPONENT IS NOT IN THE COMMANDED POSITION. TRACK-CHECK FAULTS ARE FOUND IN POSITION TRACK-CHECK CIRCUITS (SEE FIG. 4D).
2. INITIAL EVALUATION
   A. MAKE A LIST OF MESSAGE(S) THAT ARE SHOWN.
   B. DO THIS PROCEDURE: MAINTENANCE MESSAGE ERASE PROCEDURE (AMM 31-41-00/201) TO ERASE THE EPCS PAGE.

      NOTE: DURING THIS INITIAL EVALUATION, DO NOT DO THE CORRECTIVE ACTION FOR EACH EPCS MESSAGE THAT IS CALLED FOR IN THE "CAUTION" (IN THE "GENERAL" SECTION) IN FIM 31-41-00/101. BUT MAKE SURE YOU RECORD ALL OF THE EPCS MESSAGES THAT ARE SHOWN, AND INCLUDE THOSE MESSAGES THAT ARE NOT RELATED TO THE POWERPLANT.

   C. PUT THE "EEC MAINT L(R) ENG POWER" SWITCH ON THE P61 PANEL TO THE "NORM" POSITION.

      NOTE: FOR TRACK CHECK FAULTS, AN ENGINE RUN AT IDLE IS REQUIRED.

   D. LOOK AT THE EPCS PAGE FOR THE SAME MESSAGE(S).
      1. IF THE MESSAGE IS NOT SHOWN, THE MESSAGE IS AN INTERMITTENT FAULT, AND THE "INTERMITTENT FAULT TROUBLESHOOTING PROCEDURE" MUST BE USED TO TROUBLESHOOT THE FAULT.
      2. IF THE MESSAGE IS SHOWN, THE MESSAGE IS A HARD FAULT, AND THE "HARD FAULT TROUBLE-SHOOTING PROCEDURE" MUST BE USED TO TROUBLESHOOT THE FAULT.
3. INTERMITTENT FAULT TROUBLESHOOTING PROCEDURE

   NOTE: A WIRING HARNESS SCHEMATIC WITH MESSAGE DESCRIPTION, CONNECTOR, HARNESS, AND COMPONENT INFORMATION IS ON FIGURES 7 THROUGH 23.

   A. VISUALLY INSPECT THE WIRING HARNESS FOR DAMAGE. IF DAMAGE IS FOUND, REPAIR/REPLACE THE WIRING HARNESS (AMM 73-21-07/401).
   B. EXAMINE THE CONNECTOR BACKSHELLS FOR TIGHTNESS. IF LOOSE, LOOK UNDER THE BACKSHELLS FOR CHAFED WIRES. IF DAMAGE IS FOUND, REPAIR THE DAMAGED WIRE.
   C. CHECK THE CONNECTORS FOR LOOSE PINS. THESE ARE THE PINS THAT YOU CAN MOVE BACK AND FORTH IN THE CONNECTOR. IF YOU FIND LOOSE PINS, REPAIR/REPLACE THE PIN LOCKING FEATURE OF THE CONNECTOR.
   D. DO THE "WIRING HARNESS CHECK" WITH SPECIAL ATTENTION TO PARA. 6A (FIM 71-08-00/101, FIG. 112, ENGINE CHECK 12 - WIRE HARNESS CHECK). IF A PROBLEM IN THE HARNESS IS FOUND, REPAIR/REPLACE THE WIRING HARNESS.
   E. REPLACE THE APPLICABLE COMPONENT.
4. HARD FAULT TROUBLESHOOTING PROCEDURE

   NOTE: A WIRING HARNESS SCHEMATIC WITH MESSAGE DESCRIPTION, CONNECTOR, HARNESS, AND COMPONENT INFORMATION IS ON FIGURES 7 THROUGH 23.

   A. VISUALLY INSPECT THE WIRING HARNESS FOR DAMAGE. IF DAMAGE IS FOUND, REPAIR/REPLACE THE WIRING HARNESS (AMM 73-21-07/401), AND DO PARA. C AND D OF THE FAULT "INITIAL EVALUATION". IF THE FAULT DOES NOT SHOW, RETURN TO SERVICE. IF THE FAULT IS SHOWN, GO TO STEP B.
   B. EXAMINE THE CONNECTOR BACKSHELLS FOR TIGHTNESS (START WITH THE CONNECTOR AT THE COMPONENT AND WORK YOUR WAY TO THE CONNECTOR AT THE EEC). IF LOOSE, LOOK UNDER THE BACKSHELLS FOR CHAFED WIRES. IF DAMAGE IS FOUND, REPAIR/REPLACE THE WIRING HARNESS, AND DO PARA. C AND D OF THE FAULT "INITIAL EVALUATION". IF THE FAULT DOES NOT SHOW, RETURN TO SERVICE. IF THE FAULT IS SHOWN, GO TO STEP C.
   C. EXAMINE THE CONNECTORS FOR LOOSENESS (START WITH THE CONNECTOR AT THE COMPONENT AND WORK YOUR WAY TO THE CONNECTOR AT THE EEC). IF FOUND LOOSE, TIGHTEN THE CONNECTOR AND DO PARA. C AND D OF THE FAULT "INITIAL EVALUATION". IF THE FAULT DOES NOT SHOW, RETURN TO SERVICE. IF THE FAULT IS SHOWN, GO TO STEP D.

Fault Message Troubleshooting Procedure
Figure 4A (Sheet 1)

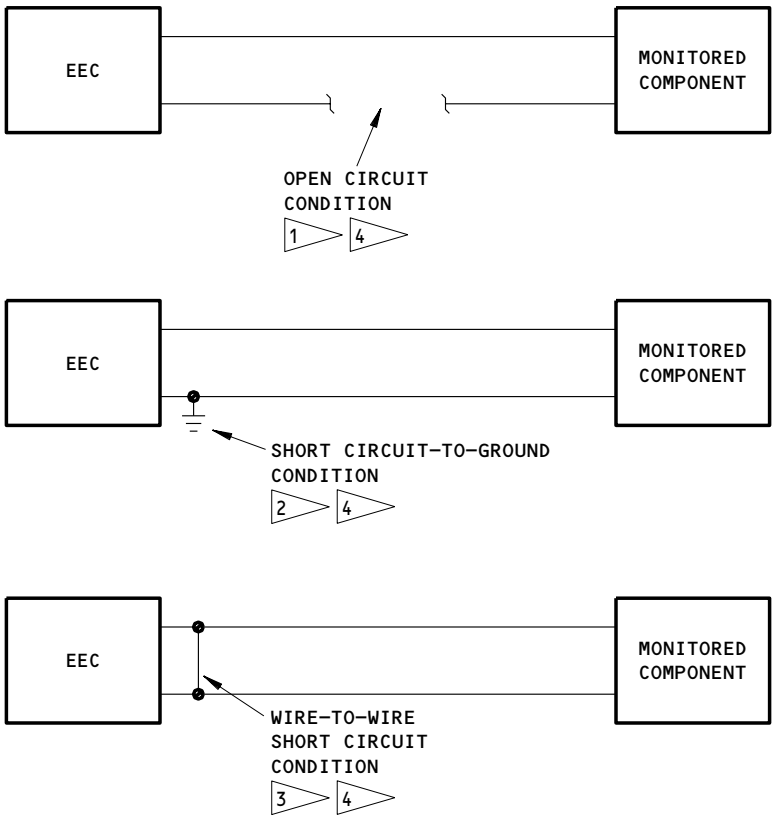
D. EXAMINE THE CONNECTOR PINS AND SOCKETS FOR DAMAGE (START WITH THE CONNECTOR AT THE COMPONENT AND WORK YOUR WAY TO THE CONNECTOR AT THE EEC).

E. CLEAN THE CONNECTOR (START WITH THE CONNECTOR AT THE COMPONENT AND WORK YOUR WAY TO THE CONNECTOR AT THE EEC). DO PARA. C AND D OF THE FAULT "INITIAL EVALUATION". IF THE FAULT DOES NOT SHOW, RETURN TO SERVICE. IF THE FAULT IS SHOWN, GO TO STEP F.

F. EXAMINE THE COMPONENT:
   1. DO THIS PROCEDURE: SIMULATOR BOX PROCEDURE (FIG. 5).
   2. USE A SERVICEABLE COMPONENT IN THE SAME WAY AS YOU WOULD USE A SIMULATOR BOX.
   3. USING AN OHMMETER, EXAMINE THE CIRCUIT IN THE COMPONENT. IF THE RESISTANCE CHECK OF THE COMPONENT IS NOT OK, THE COMPONENT IS NOT SERICEABLE. IF THE RESISTANCE CHECK OF THE COMPONENT IS OK, THE COMPONENT CAN STILL BE BAD. IF THE FAULT COMES BACK AFTER THE WIRING HARNESS AND THE COMPONENT IS FOUND TO BE OK, REPLACE THE COMPONENT.

G. DO THIS PROCEDURE: ENGINE CHECK 12 - WIRE HARNESS CHECK (FIM 71-08-00/101, FIG. 112).

Fault Message Troubleshooting Procedure
Figure 4A (Sheet 2)



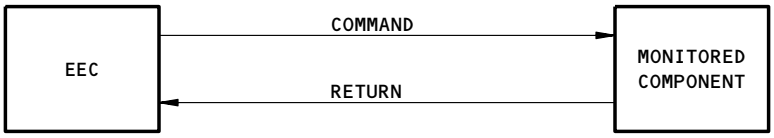
1 THIS CONDITION CAN ALSO RESULT IN AN OPEN CIRCUIT WHICH IS INTERMITTENT.

2 THIS CONDITION CAN ALSO RESULT IN A SHORT CIRCUIT–TO–GROUND CONDITION WHICH IS INTERMITTENT.

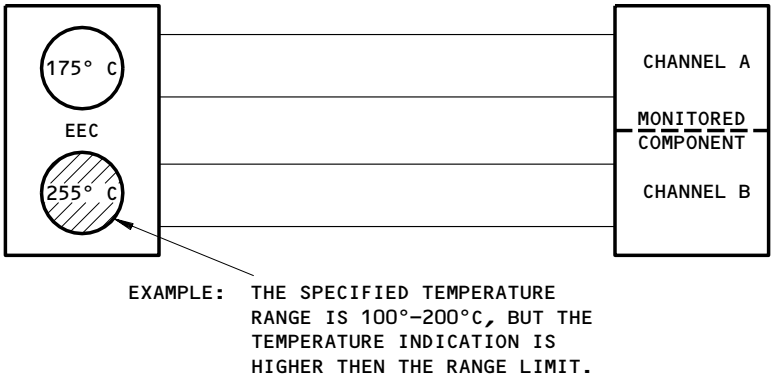
3 THIS CONDITION CAN ALSO RESULT IN A WIRE–TO–WIRE SHORT CIRCUIT WHICH IS INTERMITTENT.

4 TRACK CHECK FAULTS ARE TYPICALLY CAUSED BY MECHANICAL FAILURES OR PNEUMATIC LEAKS.

Causes of Wraparound, Range, and Disagree Types of EEC Faults
Figure 4B

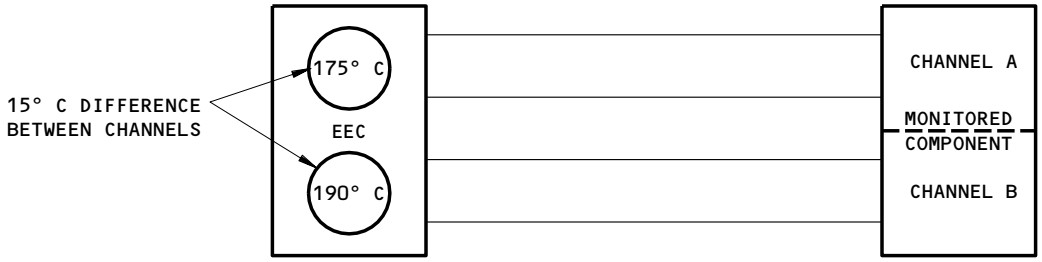


1. WRAPAROUND FAULTS
   A. THESE FAULTS ARE SENSED BY THE EEC WHEN THE RETURN ELECTRICAL VALUE IS DIFFERENT THAN THE COMMAND ELECTRICAL VALUE BY MORE THAN THE SPECIFIED AMOUNT.
   B. THESE FAULTS ARE FOUND IN TORQUE MOTOR CIRCUITS AND SOLENOID CIRCUITS.
   C. THESE FAULTS FREQUENTLY ARE CAUSED BY:
      1. AN OPEN CIRCUIT IN THE MONITORED COMPONENT OR WIRING HARNESS.
      2. A SHORT-TO-GROUND CONDITION IN THE MONITORED COMPONENT OR WIRING HARNESS.
      3. A WIRE-TO-WIRE SHORT CIRCUIT IN THE MONITORED COMPONENT OR WIRING HARNESS.
      4. THE DETERIORATION OR FAILURE OF THE COIL INSIDE THE TORQUE MOTOR OR SOLENOID (WHICH YOU CAN FIND WHEN YOU DO A RESISTANCE CHECK).



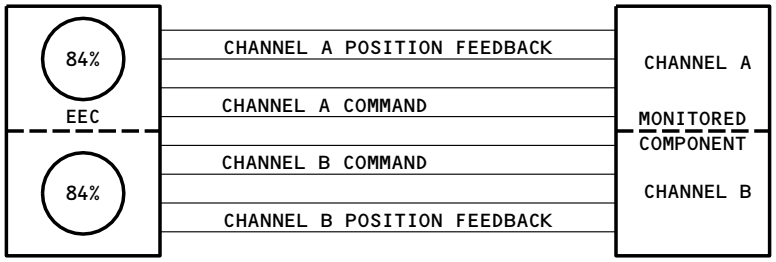
2. RANGE FAULTS
   A. THESE FAULTS ARE SENSED BY THE EEC WHEN THE POSITION OR SENSOR FEEDBACK VALUE IS OUT OF THE SPECIFIED RANGE LIMITS.
   B. THESE FAULTS ARE FOUND IN POSITION FEEDBACK AND SENSOR FEEDBACK CIRCUITS.
   C. THESE FAULTS FREQUENTLY ARE CAUSED BY:
      1. AN OPEN CIRCUIT IN THE MONITORED COMPONENT OR WIRING HARNESS.
      2. A SHORT-TO-GROUND CONDITION IN THE MONITORED COMPONENT OR WIRING HARNESS.
      3. A WIRE-TO-WIRE SHORT CIRCUIT IN THE MONITORED COMPONENT OR WIRING HARNESS.
      4. THE DETERIORATION OR FAILURE OF SOMETHING INSIDE THE MONITORED COMPONENT (WHICH YOU CAN OFTEN - BUT NOT ALWAYS - FIND WHEN YOU DO A RESISTANCE CHECK).

Wraparound and Range Faults
Figure 4C



EXAMPLE: THE PERMITTED DIFFERENCE BETWEEN THE CHANNELS DURING THE CROSS-CHECK IS 3°C OR LESS.

1. DISAGREE FAULTS
   A. THESE FAULTS ARE SENSED BY THE EEC WHEN THE POSITION OR SENSOR CROSS-CHECK VALUES FOR CHANNEL A AND CHANNEL B DO NOT AGREE WITHIN THE SPECIFIED CROSS-CHECK TOLERANCE.
   B. THESE FAULTS ARE FOUND IN POSITION CROSS-CHECK AND SENSOR CROSS-CHECK CIRCUITS.
   C. THESE FAULTS FREQUENTLY ARE CAUSED BY:
      1. AN OPEN CIRCUIT IN THE MONITORED COMPONENT OR WIRING HARNESS.
      2. A SHORT-TO-GROUND CONDITION IN THE MONITORED COMPONENT OR WIRING HARNESS.
      3. A WIRE-TO-WIRE SHORT CIRCUIT IN THE MONITORED COMPONENT OR WIRING HARNESS.
      4. THE DETERIORATION OR FAILURE OF THE COIL INSIDE THE TORQUE MOTOR OR SOLENOID (WHICH YOU CAN OFTEN - BUT NOT ALWAYS - FIND WHEN YOU DO A RESISTANCE CHECK).



EXAMPLE: THE VALVE HAS BEEN COMMANDED TO FULLY OPEN 100%, BUT STOPS WHEN IT HAS OPENED ONLY 84%.

2. TRACK-CHECK FAULTS
   A. THESE FAULTS ARE SENSED BY THE EEC WHEN THE POSITION FEEDBACK INDICATION SHOWS THAT THE COMPONENT IS NOT IN THE COMMANDED POSITION.
   B. THESE FAULTS ARE FOUND IN POSITION TRACK-CHECK CIRCUITS.
   C. THESE FAULTS FREQUENTLY ARE CAUSED BY:
      1. AN EXTERNAL MECHANICAL INTERFERENCE WITH THE AIRFRAME STRUCTURE OR ANOTHER COMPONENT.
      2. AN INTERNAL MECHANICAL INTERFERENCE WITH ANOTHER PART OR WIRE INSIDE THE MONITORED COMPONENT.
      3. AN ELECTRICAL PROBLEM IN THE MONITORED COMPONENT OR THE WIRING HARNESS.

Disagree and Track-Check Faults
Figure 4D

SIMULATOR BOX PROCEDURE

1. GENERAL
   A. THIS PROCEDURE IS OPTIONAL AND CAN BE USED AS AN ALTERNATE TO COMPONENT REPLACEMENT OR COMPONENT RESISTANCE CHECK. IT PERMITS ISOLATION OF THE APPLICABLE COMPONENTS BY THE USE OF A COMPONENT SIMULATOR BOX OR ANOTHER SERVICEABLE COMPONENT (WHERE ACCEPTABLE OPERATOR PROCEDURE ALLOWS) TO DO THIS PROCEDURE.

      WHEN ATTACHED TO THE HARNESS, IN PLACE OF THE POSSIBLE DEFECTIVE COMPONENT, THE BOX SIMULATES THE CORRECT RESISTANCE OF THE POSSIBLE DEFECTIVE COMPONENT. IF THE FAULT COMES BACK AFTER YOU APPLY POWER TO THE "EEC" WITH THE SIMULATOR BOX CONNECTED, THE HARNESS OR "EEC" MAY BE DEFECTIVE. IF THE FAULT DOES NOT COME BACK AFTER YOU APPLY POWER TO THE "EEC" WITH THE SIMULATOR BOX CONNECTED, THE COMPONENT IS DEFECTIVE AND MUST BE REPLACED.
   B. FOR THRUST REVER "LVDT" TROUBLESHOOTING, USE THE THRUST REVERSER SIMULATOR SECTION "B" OF THIS PROCEDURE. THIS WILL DESCRIBE HOW TO USE COMPONENT SIMULATORS "PWA86429" AND "PWA86430".
2. PROCEDURE
   A. DO THE FOLLOWING STEPS TO USE THE SIMULATOR BOX:
      (1) IN THIS PROCEDURE, LOOK AT THE SIMULATOR BOX TABLE TO FIND THE SIMULATOR BOX YOU NEED TO USE.

         NOTE: ON COMPONENTS WITH CHANNEL "A" AND "B" CONNECTORS, BOTH CONNECTORS MUST BE DISCONNECTED FROM THE COMPONENT AND CONNECTED TO THE SIMULATOR BOX RECEPTACLES.

   B. TO TRANSMIT THE CURRENT EEC FAULT CODES TO THE PIMU, DO THE STEPS THAT FOLLOW:
      (1) PUT THE EEC MAINT L (R) ENG POWER SWITCH ON THE P61 PANEL TO THE TEST POSITION.
      (2) PUSH THE RESET SWITCH ON THE PIMU.
      (3) PUT THE GND TEST SWITCH IN THE CH A POSITION AND THEN RELEASE THE SWITCH.
      (4) WAIT 10 SECONDS.
      (5) PUT THE GND TEST SWITCH IN THE CH B POSITION AND THEN RELEASE THE SWITCH.
      (6) WAIT 10 SECONDS.
   C. PUSH THE BIT SWITCH ON THE PIMU AND LOOK FOR THE SAME PIMU MESSAGE THAT IS TO BE REPAIRED.
   D. IF THE PIMU MESSAGE IS NOT SHOWN, THE SIMULATOR BOX PROCEDURE WILL NOT WORK. GO BACK TO THE CORRECTIVE ACTION FOR THAT PIMU MESSAGE.
   E. IF THE PIMU MESSAGE IS SHOWN, DO THE FOLLOWING STEPS TO USE THE SIMULATOR BOX:
      (1) PUT THE EEC MAINT L (R) ENG POWER SWITCH ON THE P61 PANEL TO THE NORMAL POSITION.
      (2) DISCONNECT THE ELECTRICAL CONNECTOR(S) FOR THE COMPONENT AS SHOWN IN THIS PROCEDURE.
      (3) CONNECT THE CONNECTOR(S) TO THE SIMULATOR BOX.
   F. TO TRANSMIT THE CURRENT EEC FAULT CODES TO THE PIMU DO THE STEPS THAT FOLLOW:
      (1) PUT THE EEC MAINT L (R) ENG POWER SWITCH ON THE P61 PANEL TO THE TEST POSITION.
      (2) PUSH THE RESET SWITCH ON THE PIMU.
      (3) PUT THE GND TEST SWITCH IN THE CH A POSITION AND THEN RELEASE THE SWITCH.
      (4) WAIT 10 SECONDS.
      (5) PUT THE GND TEST SWITCH IN THE CH B POSITION AND THEN RELEASE THE SWITCH.
      (6) WAIT 10 SECONDS.
   G. PUSH THE BIT SWITCH ON THE PIMU AND LOOK FOR THE SAME PIMU MESSAGE THAT IS TO BE REPAIRED.
   H. REMOVE THE SIMULATOR BOX AS FOLLOWS:
      (1) PUT THE EEC MAINT L (R) ENG POWER SWITCH ON THE P61 PANEL TO THE NORMAL POSITION.
      (2) REMOVE THE ELECTRICAL CONNECTOR FROM THE SIMULATOR BOX.
   I. IF THE PIMU MESSAGE IS NOT SHOWN, REPLACE THE COMPONENT.
   G. IF THE PIMU MESSAGE IS SHOWN, EXAMINE AND REPAIR THE CIRCUIT AS SHOWN IN THE CORRECTIVE ACTION FOR THE PIMU MESSAGE.

Simulator Box Procedure
Figure 5 (Sheet 1)

THRUST REVERSER SIMULATOR BOX PWA86429 AND PWA 86430 PROCEDURE

1. GENERAL
   A. WHEN THE SIMULATOR BOXES ARE ATTACHED TO THE HARNESS IN PLACE OF THE SUSPECT "LVDT", THE BOXES SIMULATE A 37-40% THRUST REVERSER POSITION (RP) SIGNAL THAT CAN BE SEEN ON THE "EPCS" PAGE. USE BOTH REVERSER SIMULATOR BOXES "PWA86429 (RIGHT SIDE) AND "PWA86430" (LEFT SIDE) WHEN PERFORMING THIS PROCEDURE.

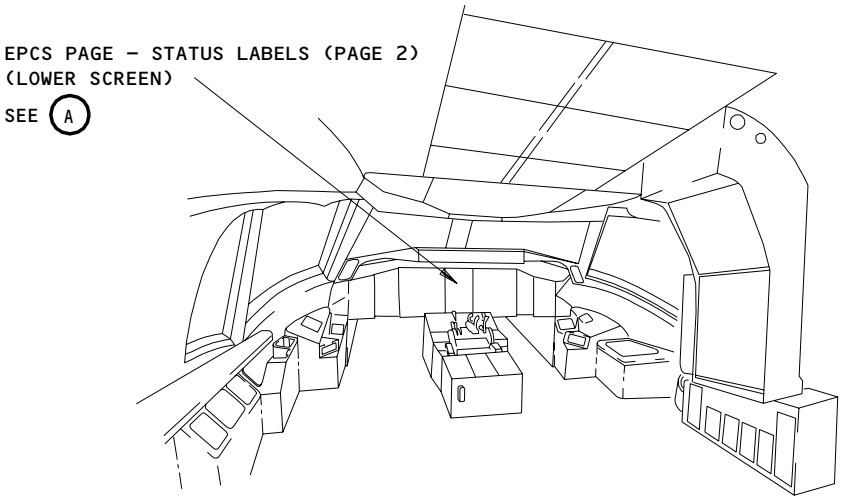
      NOTE: USE THIS PROCEDURE ONLY IF IT CAN BE VERIFIED THAT A FAULT EXISTS THAT IS RELATED TO THE ELECTRICAL CIRCUIT OF THE THRUST REVERSER "LVDT".

2. PROCEDURE
   A. SELECT BOTH OF THE THRUST REVERSER SIMULATOR BOXES "PWA86429" AND "PWA86430".
   B. REMOVE POWER TO THE "EEC".
   C. REMOVE THE HARNESS CONNECTORS FROM THE COMPONENTS.
   D. INSTALL ALL THE CONNECTORS TO THE APPLICABLE REVERSER SIMULATOR BOXES.
   E. APPLY POWER TO THE "EEC"
      (1) DOES 37-40% REVERSER POSITION (RP) SHOW ON THE "EPCS" PAGE?
         (a) YES - THERE IS PROBLEM WITH THE THRUST REVERSER "LVDT".
         (b) NO - THERE IS A PROBLEM WITH THE HARNESS OR THE "EEC".
   F. REPAIR OR REPLACE THE COMPONENT AS NECESSARY.

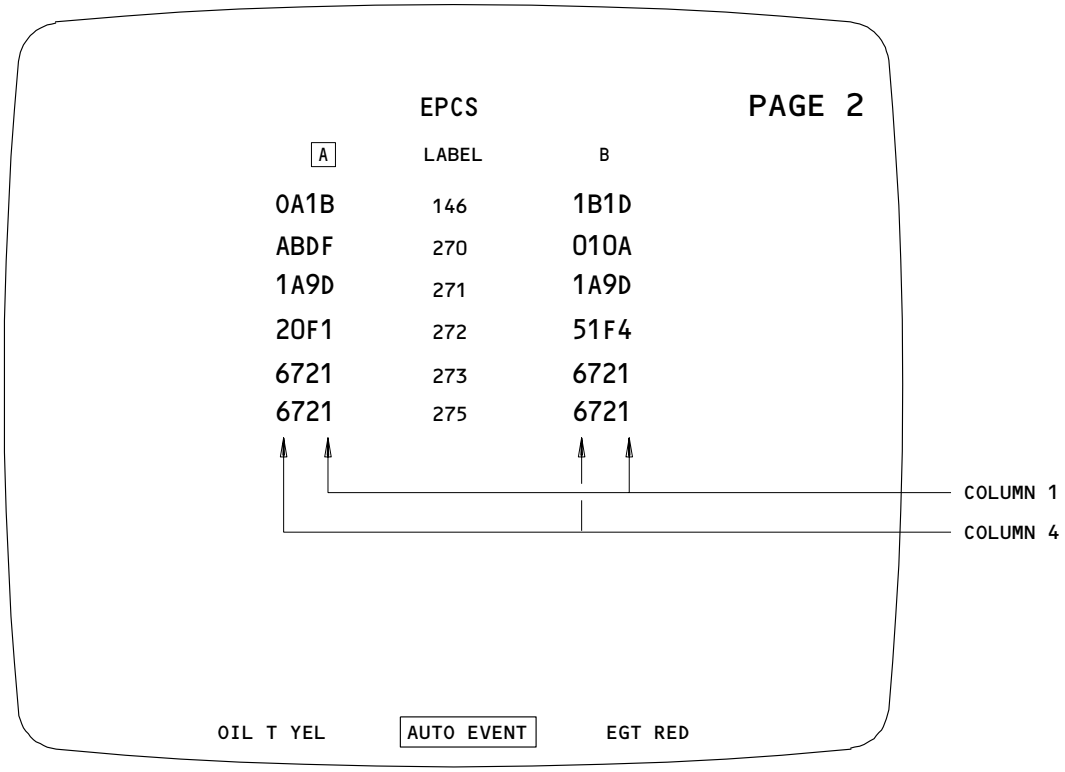
Simulator Box Procedure
Figure 5 (Sheet 2)

SIMULATOR BOX - TABLE A		
SIMULATOR BOX PART NUMBER	COMPONENT	CONNECTOR NUMBER(S)
PWA 86124	FUEL METERING UNIT, M3108 (FOR PIMU MESSAGES 351-14,351-24,353-24, AND 354-14)	W4P2 AND W5P1
PWA 86125	VARIABLE STATOR VANE ACTUATOR, M3106 (FOR PIMU MESSAGES 351-15 & 351-25)	W4P3 AND W5P7
PWA 86126	2.5 BLEED VALVE ACTUATOR, M3105 (FOR PIMU MESSAGES 351-16 & 351-26)	W3P15
PWA 86126	TCC AIR VALVE ACTUATOR, M3107 (FOR PIMU MESSAGES 351-17 & 351-27)	W4P16
PWA 86126	AIR/OIL HEAT EXCHANGER, V357 (FOR PIMU MESSAGES 351-18 & 351-28)	W3P17
PWA 86127	FUEL/OIL COOLER BYPASS VALVE SOLENOID, V358 (FOR PIMU MESSAGE 354-17)	W3P5 & W5P5
PWA 86128	HPC SECONDARY FLOW CONTROL VALVE, IDG AIR/OIL HEAT EXCHANGER VALVE OVERRIDE SOLENOID, V355 (FOR PIMU MESSAGES 354-18 AND 354-20 CHANNEL A)	W1P11 & W1P10
PWA 86128	HPC SECONDARY FLOW CONTROL VALVE, TURBINE VANE AND BLADE COOLING AIR VALVE SOLENOID, V354 (FOR PIMU MESSAGES 354-20 CHAN B, AND 354-22)	W1P12
PWA 86129	2.9 BLEED VALVE SOLENOID, V356 (FOR PIMU MESSAGES 354-15 & 354-16)	W4P4 & W5P11
PWA 86130	HPC SECONDARY FLOW CONTROL VALVES POSITION SWITCH, S1613 (FOR PIMU MESSAGES 354-21)	W4P10 & W5P10
PWA 86130	TURBINE BLADE AND VANE COOLING AIR VALVE POSITION SWITCH, S1615 (FOR PIMU MESSAGE 354-23)	W4P21
PWA 86131	PT2/TT2 PROBE, T867 (FOR PIMU MESSAGES 352-18 & 353-18)	D11420 & D11434
PWA 86429	R THRUST REVERSER LVDT, T10033 (T10035) (FOR PIMU MESSAGES 352-25 & 353-25)	D8340 & D8344
PWA 86430	L THRUST REVERSER LVDT, T10033 (T10035) (FOR PIMU MESSAGES 352-25 & 353-25)	D8338 & D8342

Simulator Box Procedure
Figure 5 (Sheet 3)



FLIGHT COMPARTMENT



EPCS PAGE – STATUS LABELS (PAGE 2)
(LOWER SCREEN)

(A)

EICAS EPCS Page 2
Figure 6 (Sheet 1)

1. TO SHOW THE DATA ON THE EICAS EPCS PAGE 2, DO THE STEPS THAT FOLLOW:

   A. MOVE THE "L (R) ENG POWER" SWITCHES ON THE PILOTS' RIGHT SIDE PANEL, P61, TO THE "TEST" POSITION
   B. PUSH THE "EPCS" SWITCH ON THE EICAS MAINTENANCE PANEL
   C. MAKE SURE THAT THE EICAS EPCS PAGE 1 SHOWS ON THE LOWER EICAS SCREEN
   D. PUSH THE "EPCS" SWITCH
   E. MAKE SURE THAT THE EICAS EPCS PAGE 2 SHOWS ON THE LOWER EICAS SCREEN.

2. USE TABLE 101 TO CHANGE THE HEXIDECIMAL VALUE SHOWN ON THE EPCS PAGE 2 INTO ITS BINARY EQUIVALENT.

3. YOU CAN FIND DESCRIPTIONS OF THE STATUS LABELS IN TABLE 102.

TABLE 101
EPCS PAGE 2 - LABEL CONVERSION (HEXIDECIMAL TO BINARY)

HEX NUMBER	BINARY CONVERSION OF HEX NUMBER FROM COLUMN 4				BINARY CONVERSION OF HEX NUMBER FROM COLUMN 3				BINARY CONVERSION OF HEX NUMBER FROM COLUMN 2				BINARY CONVERSION OF HEX NUMBER FROM COLUMN 1			
	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
2	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
3	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
4	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
6	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0
7	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1
8	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
9	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
A	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1
C	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0
D	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1
E	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0
F	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

EICAS EPCS Page 2
Figure 6 (Sheet 2)

EXAMPLE:

1. CONVERT THE LABEL 272 STATUS MESSAGES FOR THE RIGHT ENGINE AS FOLLOWS:

   A. FROM THE EPCS PAGE ABOVE WE CAN SEE THAT LABEL 272 FOR THE RIGHT ENGINE SHOWS "51F4".
   B. TO FIND OUT WHICH BITS OF LABEL 272 ARE SET TO "1" AND WHICH ARE SET TO "0" WE MUST FIRST CONVERT THE HEXIDECIMAL NUMBER "51F4" TO ITS BINARY EQUIVALENT AS FOLLOW:

      (1) THE NUMBER "5" IS IN THE FOURTH COLUMN OF THE VALUE SHOWN FOR LABEL 272 FOR THE RIGHT ENGINE. FIND THE NUMBER "5" UNDER THE "HEX #" COLUMN IN THE EXAMPLE TABLE BELOW.
      (2) IN THE EXAMPLE TABLE, FIND THE BINARY EQUIVALENT FOR THE NUMBER "5" UNDER THE COLUMN MARKED "BINARY CONVERSION OF HEX # FROM COLUMN 4". FROM THE TABLE WE CAN SEE THAT BITS 26 AND 28 ARE SET TO "1" (SEE THE UNDERLINED NUMBERS IN THE ROW NEXT TO THE NUMBER "5".)
      (3) THE NUMBER "1" IS IN THE THIRD COLUMN OF THE VALUE SHOWN FOR LABEL 272 FOR THE RIGHT ENGINE. FIND THE NUMBER "1" UNDER THE "HEX #" COLUMN IN THE EXAMPLE TABLE BELOW.
      (4) IN THE EXAMPLE TABLE, FIND THE BINARY EQUIVALENT FOR THE NUMBER "1" UNDER THE COLUMN MARKED "BINARY CONVERSION OF HEX # FROM COLUMN 3." FROM THE TABLE WE CAN SEE THAT BIT 22 IS SET TO "1".
      (5) THE NUMBER "F" IS IN THE SECOND COLUMN OF THE VALUE SHOWN FOR LABEL 272 FOR THE RIGHT ENGINE. FIND THE NUMBER "F" UNDER THE "HEX #" COLUMN IN THE EXAMPLE TABLE BELOW.
      (6) IN THE EXAMPLE TABLE, FIND THE BINARY EQUIVALENT FOR THE NUMBER "F" UNDER THE COLUMN MARKED "BINARY CONVERSION OF HEX # FROM COLUMN 2". FROM THE TABLE WE CAN SEE THAT BITS 18,19,20 AND 21 ARE SET TO "1".
      (7) THE NUMBER "4" IS IN THE FIRST COLUMN OF THE VALUE SHOWN FOR LABEL 272 FOR THE RIGHT ENGINE. FIND THE NUMBER "4" UNDER THE "HEX #" COLUMN IN THE EXAMPLE TABLE BELOW.
      (8) IN THE EXAMPLE TABLE, FIND THE BINARY EQUIVALENT FOR THE NUMBER "4" UNDER THE COLUMN MARKED "BINARY CONVERSION OF HEX # FROM COLUMN 1". FROM THE TABLE WE CAN SEE THAT BIT 16 IS SET TO "1".
      (9) WE NOW KNOW WHICH BITS OF LABEL 272 ARE SET TO "1" AND WHICH ARE SET TO "0". WE CAN SUMMARIZE THIS DATA AS FOLLOWS:

272-14 = 0	272-18 = 1	272-22 = 1	272-26 = 1
272-15 = 0	272-19 = 1	272-23 = 0	272-27 = 0
272-16 = 1	272-20 = 1	272-24 = 0	272-28 = 1
272-17 = 0	272-21 = 1	272-25 = 0	272-29 = 0

EXAMPLE TABLE
EPCS PAGE 2 - LABEL CONVERSION (HEXIDECIMAL TO BINARY)

HEX #	BINARY CONVERSION OF HEX # FROM COLUMN 4				BINARY CONVERSION OF HEX # FROM COLUMN 3				BINARY CONVERSION OF HEX # FROM COLUMN 2				BINARY CONVERSION OF HEX # FROM COLUMN 1			
	28	27	26		25	24	23	22	21	20	19	18	17	16	15	14
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
2	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
3	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
4	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
6	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0
7	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1
8	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
9	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
A	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1
C	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0
D	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1
E	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0
F	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

EICAS EPCS Page 2
Figure 6 (Sheet 3)

EICAS EPCS PAGE TWO - TABLE 102

ARINC 429 LABEL-BIT	DESCRIPTION	FUNCTION		RELATED EICAS MESSAGE
		BIT = 1	BIT = 0	
146-14	DEM SELECTED (LSB)	SET	CLEAR	
146-15	DEM SELECTED (BIT 2)	SET	CLEAR	
146-16	DEM SELECTED (BIT 3)	SET	CLEAR	
146-17	DEM SELECTED (BIT 4)	SET	CLEAR	
146-18	DEM SELECTED (BIT 5)	SET	CLEAR	
146-19	DEM SELECTED (MSB)	SET	CLEAR	
146-20	DEM STATUS	FAULT	OK	
146-21	CDX SELECTED (LSB)	SET	CLEAR	
146-22	CDX SELECTED (BIT 10)	SET	CLEAR	
146-23	CDX SELECTED (BIT 11)	SET	CLEAR	
146-24	CDX SELECTED (MSB)	SET	CLEAR	
146-25	MUX MODE STATUS	SECONDARY	PRIMARY	
146-26	RESET DISCRETE	CLOSED	OPEN	
146-27	MAINTENANCE DISCRETE	CLOSED	OPEN	
146-28	ENGINE LOCATION DISCRETES	FAULT	OK	
146-29	GROUND TEST CONFIG	GROUND TEST	NOT GROUND TEST	
270-14	GTP ON	ON	OFF	L (R) EEC TEST PWR
270-15	OVERSPEED SOLENOID	ON	OFF	
270-16	CH SELECT MODE (AUTO/DEP STATUS)	INHIBIT	AUTO	
270-17	AUTO CH TRANSFER	TRANSFER	NO TRANSFER	
270-18	ALTERNATE MODE	ENGAGED	NOT ENGAGED	L (R) ENG EEC MODE
270-19	THRUST LIMITED BY REV POS	LIMITED	NOT LIMITED	
270-20	CHANNEL IN CONTROL	CONTROLLING	NOT CONTROLLING	
270-21	DEGRADED OPERATION	DEGRADED	OK	
270-22	OTHER CHANNEL DISPATCH STAT	OPERATIONAL	NON-OPERATIONAL	
270-23	CHANNEL DISPATCH STATUS	OPERATIONAL	NON-OPERATIONAL	L (R) ENG CONTROL
270-24	OTHER CH INDEPENDENTLY CAPABLE OF CONTROL	CAPABLE	SHARING RESOURCES	L (R) ENG CONTROL
270-25	INDEPENDENTLY CAPABLE OF CONTROL	CAPABLE	SHARING RESOURCES	
270-26	ALT MODE MANUALLY SELECTED	ALT MODE	ALT MODE NOT SEL	L (R) ENG EEC MODE L (R) ENG LIMIT PROT
270-27	CHANNEL ID	CHAN A	CHAN B	
270-28	PROBE HEAT ON	ON	OFF	
270-29	BUMP REQUESTED	REQUESTED	NOT REQUESTED	

EICAS EPCS Page 2
Figure 6 (Sheet 4)

ARINC 429 LABEL-BIT	DESCRIPTION	FUNCTION		RELATED EICAS MESSAGE
		BIT = 1	BIT = 0	
271-14	TCA SOLENOID	ON	OFF	
271-15	TRC SOLENOID	ON	OFF	
271-16	FDC BYPASS VALVE SOLENOID	ON	OFF	
271-17	IDG O/R SOLENOID	ON	OFF	
271-18	HIGH PRESSURE COMPRESSOR	RING CASE COMPRESSOR	SEGMENTED CASE COMPRESSOR	
271-19	START BLEED SOLENOID	ON	OFF	
271-20	STABILITY BLEED SOLENOID	ON	OFF	
271-21	ENGINE RATING CODE 1	SET	CLEAR	
271-22	ENGINE RATING CODE 2	SET	CLEAR	
271-23	ENGINE RATING CODE 3	SET	CLEAR	
271-24	ENGINE RATING CODE 4	SET	CLEAR	
271-25	LOOPNO (LSB)	SET	CLEAR	
271-26	LOOPNO (BIT 1)	SET	CLEAR	
271-27	LOOPNO (BIT 2)	SET	CLEAR	
271-28	LOOPNO (BIT 3)	SET	CLEAR	
271-29	LOOPNO (MSB)	SET	CLEAR	
272-14	OVERSPEED SYSTEM FAIL DETECTED	FAILED	OK	
272-15	TCA VALVE FAILED CLOSED	FAILED	OK	
272-16	TCC VALVE STUCK OPEN	FAILED	OK	
272-17	AOC STUCK OPEN	FAILED	OK	L (R) ENG A/O VAL
272-18	TRC/TBV VALVE FAILED CLOSED	FAILED	OK	
272-19	SPARE		X	
272-20	SVA SYS FAIL	FAILED	OK	
272-21	STABILITY BLEED STATUS	FAILED	OK	
272-22	START BLEED STATUS	FAILED	OK	
272-23	2.5 BLEED STATUS	FAILED	OK	
272-24	2.5 BLEED 2 POSITION MODE	2-POSITION	OK/MODULATING	
272-25	SURGE DETECTED	SURGE	NO	
272-26	FOD DET	FOD	NO	
272-27	REVERSER STATUS	FAILED	OK	L (R) ENG REV POS
272-28	SPARE		X	
272-29	POWER SOURCE DISCRETE	A/C POWER	PMA POWER	

TABLE 102

EICAS EPCS Page 2
Figure 6 (Sheet 5)

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ARINC 429 LABEL-BIT	DESCRIPTION	FUNCTION		RELATED EICAS MESSAGE
		BIT = 1	BIT = 0	
273-14	N1 REDLINE - AT OR ABOVE	YES	NO	
273-15	N2 REDLINE - AT OR ABOVE	YES	NO	
273-16	EGT REDLINE - AT OR ABOVE	YES	NO	
273-17	DOT3 REDLINE - AT OR ABOVE	YES	NO	L (R) SCAV TEMP 1
273-18	DOT3 AMBER BAND	IN BAND	NO	L (R) SCAV TEMP 2
273-19	N1/N2 TOPPING	YES	NO	L (R) ENG RPM LIM
273-20	SPARE		X	
273-21	TOIL REDLINE - AT OR ABOVE	YES	NO	
273-22	TOIL AMBER BAND	IN BAND	NO	
273-23	OIL TEMP BELOW MIN	BELOW MIN	OK	
273-24	SPARE		X	
273-25	EEC TEMP STATUS	HOT	OK	
273-26	SPARE		X	
273-27	GROUND ACTUATOR TEST ABORTED	YES	NO	
273-28	ACTUATOR TEST-IN-PROGRESS	YES	NO	
273-29	ACTUATOR TEST INHIBITED	INHIBITED	NOT INHIBITED	
275-14	TRIM SYS LIMITED	LIMITED	NO	
275-15	TRIM SYS LOCKED IN	LOCKED	NO	
275-16	TRIM SYS AUTHORITY	UPPER LIMIT	BELOW LIMIT	
275-17	ENGLOC A	SET	CLEAR	
275-18	ENGLOC B	SET	CLEAR	
275-19	AIRCRAFT	767	747	
275-20	ENGINE AT IDLE	AT IDLE	OFF IDLE	L (R) ENG LOW IDLE IDLE DISAGREE
275-21	FLIGHT IDLE	FLIGHT	GROUND	L (R) ENG LOW IDLE IDLE DISAGREE
275-22	AUTO THROTTLE ARMED	ARMED	DISARMED	
275-23	AIR CONDITIONING STATUS	SET	CLEAR	
275-24	AIR CONDITIONING STATUS	SET	CLEAR	
275-25	AIR CONDITIONING STATUS	SET	CLEAR	
275-26	AIR CONDITIONING STATUS	SET	CLEAR	
275-27	WING ANTI ICE STATUS	SET	CLEAR	
275-28	WING ANTI ICE STATUS	SET	CLEAR	
275-29	COWL ANTI ICE	ON	OFF	

TABLE 102

EICAS EPCS Page 2
Figure 6 (Sheet 6)

PIMU MESSAGE	
PIMU MONITOR FAIL	

CORRECTIVE ACTION:
A. Replace the L (R) PIMU, M1413 (M1414)(AMM 77-35-01/401).

PIMU MESSAGE	
CHAN A DATA BUS INOP	

DESCRIPTION OF THE FAILURE:
A. One of the conditions that follow can cause this message to be shown:

_ The EEC is not supplied with electrical power during a PIMU ground test
_ The EEC is not supplied with electrical power during a maintenance recall test.
- The EEC is not supplied with electrical power when an air/ground relay transition occurs.

CORRECTIVE ACTION:
A. Make sure this message was not caused because the EEC was not supplied with electrical power.
B. Do a continuity test between the EEC, M7198, and the L (R) PIMU, M1413 (M1414): D11114, pins R,P, to D11786A (D11788A), pins C11,C12 (WDM 73-21-14).
C. If the PIMU message comes back, replace the L (R) PIMU, M1413 (M1414) (AMM 77-35-01/401).
D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

PIMU MESSAGE	
CHAN B DATA BUS INOP	

DESCRIPTION OF THE FAILURE:
A. One of the conditions that follow can cause this message to be shown:

- The EEC is not supplied with electrical power during a PIMU ground test.
- The EEC is not supplied with electrical power during a PIMU maintenance recall test.

CORRECTIVE ACTION:
A. Before you do the corrective action, make sure that this message was not caused because the EEC was not supplied with electrical power.
B. Do a continuity test between the EEC, M7198, and the L (R) PIMU, M1413 (M1414): D11686, pins R,P, to D11786B (D11788B), pins B7,B8 (WDM 73-21-14).
C. If the PIMU message comes back, replace the L (R) PIMU, M1413 (M1414)(AMM 77-35-01/401).
D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

PIMU MESSAGE	
EEC/PIMU MODE DISAGREE	

CORRECTIVE ACTION:
A. If this PIMU message was shown during a PIMU ground test, do the steps that follow:
   (1) Move the EEC MAINT L(R) ENG POWER switch on the right side panel, P61, to the NORM position.
   (2) Move the EEC MAINT L(R) ENG POWER switch on the P61 panel to the TEST position.
   (3) Do the PIMU ground test again.
B. If this PIMU message was shown during a PIMU maintenance recall procedure, do the steps that follow:
   (1) For the left engine, do a continuity test between the EEC, M7198, and the L PIMU, M1413: D11114, pin S, to D11786A, pin A10, and D11686, pin S, to D11786A, pin A10 (WDM 73-21-17).
   (2) For the right engine, do a continuity test between the EEC, M7198, and the R PIMU, M1414: D11114, pin S, to D11788A, pin A10, and D11686, pin S, to D11788A, pin A10 (WDM 73-21-17).
   (3) If there is no continuity, repair the circuit as necessary.
   (4) If there is continuity, replace the L (R) PIMU, M1413 (M1414)(AMM 77-35-01/401).
C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

PIMU MESSAGE	
350-14 A/B CHAN FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed when a fault exists in a specific EEC channel.

CORRECTIVE ACTION:

A. Look for the PIMU message EEC CH-A/B DEM PLUG INVALID (350-26).
   (1) If the PIMU message is shown, do the corrective action for 350-26.

B. If the PIMU message for 350-26 is not shown or the PIMU message for 350-14 comes back, replace the EEC speed transducer (N1), T688 (AMM 73-21-06/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message for 350-14 comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

D. ENGINES WITH EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), AND 791100-4-048 (51D011);
   If the PIMU message for 350-14 comes back, after you replaced the EEC, do a gap check of the N1 probe head (AMM 73-21-06/401) and correct if necessary.
   (1) Do the Repair Confirmation steps at the end of the corrective action.

E. An ARINC W/A fault could set this message. If the failure continues, examine and repair the circuit between the EEC, M7198, and the Miscellaneous Equipment Panels, P36 and P37, as follows (WDM 73-21-14).

Channel A

ENG	EEC CONNECTOR	PIN	CONNECTOR	PIN
1	D11114	P	Panel P36	36
		R	D5300P	37
2	D11114	P	Panel P37	53
		R	D5316P	32

Channel B

ENG	EEC CONNECTOR	PIN	CONNECTOR	PIN
1	D11686	P	Panel P36	3
		R	D6582P	4
2	D11686	P	Panel P37	25
		R	D6584P	26

(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-15 EEC CH-A/B UNIT FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed when a fault exists in the EEC, but not in a specific channel.
CORRECTIVE ACTION:
A. Look for the PIMU messages EEC CH-A/B LOST POWER (352-29) and EEC CH-A/B DEM PLUG INVALID (350-26).
(1) If one of the PIMU messages are shown, do the corrective action for 352-29 or 350-26.
(2) Do the Repair Confirmation steps at the end of the corrective action.
B. If the PIMU messages for 352-29 or 350-26 are not shown or the PIMU message for 350-15 comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation at the end of the corrective action.
REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-16 EEC CH-A/B CONTROL NOTE: The PIMU Message "EEC CH-A/B CONTROL" is related to the EICAS message "L (R) ENG CONTROL".	

DESCRIPTION OF FAILURE:
A. This message is displayed when the channel lacks sufficient resources for dispatch. Specific fault indicated by another PIMU message. This PIMU message is associated with the EICAS message "L(R) ENG CONTROL."

NOTE: A logic diagram (FIM 73-21-00/101, Fig. 112) shows how the EICAS message "L(R) ENG CONTROL" is set. You can use the logic diagram to find the easiest fault to correct so this EICAS message will not show.

CORRECTIVE ACTION:

A. Do the corrective action for the messages from the PIMU that are on the priority list below.

(1) Do the corrective action for the PIMU message that is the highest on the priority list first.

PRIORITY	PIMU MESSAGE
1	350-23, EEC CH-A/B XTRN DIS DISAGREE (*1)
2	352-29, EEC CH-A/B LOST POWER
3	354-14, EEC CH-A/B OVS SOL W/A FAIL
4	351-29, EEC CH-A/B OVS CKT FAIL
5	354-29, EEC CH-A/B LBL 354 BIT 29 (*2)
	354-29, EEC CH-A/B OVS FAIL LAST S/D (*3)
6	353-16, EEC CH-A/B LBL 353 BIT 16 (*2)
	353-16, EEC CH-A/B PMA FAULT (*3)
7	353-19, EEC CH-A/B T5 CROSS CK FAIL (*4)
8	352-28, EEC CH-A/B AOC FAULT
9	353-27, EEC CH-A/B LBL 353 BIT 27 (*2)
	353-27, EEC CH-A/B PO LINE FAIL (*3)
10	351-19, EEC CH-A/B FMU TR CK FAIL
11	351-20, EEC CH-A/B SVA TR CK FAIL
12	351-21, EEC CH-A/B B25 TR CK FAIL
13	350-15, EEC CH-A/B UNIT FAIL
14	350-14, EEC A/B-CHAN FAIL
15	351-14, EEC CH-A/B FMU T/M W/A FAIL
16	351-15, EEC CH-A/B SVA T/M W/A FAIL
17	351-16, EEC CH-A/B B25 T/M W/A FAIL
18	354-24, EEC CH-A/B PMA PWR SOL SHRT
19	354-15, EEC CH-A/B STRT SOL W/A FAIL
20	354-16, EEC CH-A/B STAB SOL W/A FAIL
21	353-29, EEC CH-A/B XLINK FAIL
22	350-26, EEC CH-A/B DEM PLUG INVALID
23	351-24, EEC CH-A/B FMU FD BK FAIL
24	351-25, EEC CH-A/B SVA FD BK FAIL
25	351-26, EEC CH-A/B B25 FD BK FAIL
26	352-14, EEC CH-A/B N1 RANGE FAIL
27	352-15, EEC CH-A/B N2 RANGE FAIL
28	352-18, EEC CH-A/B T2 RANGE FAIL
29	352-19, EEC CH-A/B T5 RANGE FAIL
30	352-21, EEC CH-A/B TOIL RNG FAIL
31	352-26, EEC CH-A/B TRA RNG FAIL

(*1) Engines with EEC software SCN13 SB PW 73-197 do this item first
(*2) PIMU P/N 285T0607-9 only
(*3) PIMU P/N 285T0607-15 only
(*4) ENGINES WITH EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), 791100-4-048 (51D011), 791100-4-044 (50D823), AND 791100-4-049 (51D012)

B. Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-17 EEC CH-A/B FAULT CAT 1 NOTE: The PIMU Message "EEC CH-A/B FAULT CAT 1" is related to the EICAS message "L (R) ENG EEC C1".	

DESCRIPTION OF FAILURE:

A. This message is displayed when the channel's resources are degraded but sufficient resources are available for time-limited dispatch. Specific fault indicated by another PIMU Message. This PIMU message is associated with the EICAS message "L(R) ENG EEC C1."

CORRECTIVE ACTION:

A. Do the corrective action for the messages from the PIMU that are on the priority list below.

(1) Do the corrective action for the PIMU message that is the highest on the priority list first.

PRIORITY	PIMU MESSAGE
1	350-23, EEC CH-A/B XTRN DIS DISAGREE (*1)
2	354-26, EEC CH-A/B 28V PERF SOL PWR
3	353-29, EEC CH-A/B XLINK FAIL (*2)
4	354-25, EEC CH-A/B A/P PWR SOL SHRT
5	354-17, EEC CH-A/B F/OIL SL W/A FAIL
6	352-24, EEC CH-A/B TFUEL HIGH
7	353-24, EEC CH-A/B FMU CR-CK FAIL (*3)
8	352-23, EEC CH-A/B DOT3 RNG FAIL (*3)
9	353-23, EEC CH-A/B DOT3 CR-CK FAIL (*3)
10	351-22, EEC CH-A/B TCC TR CK FAIL
11	351-23, EEC CH-A/B AOC TR CK FAIL
12	350-14, EEC A/B-CHAN FAIL
13	350-15, EEC CH-A/B UNIT FAIL
14	351-14, EEC CH-A/B FMU T/M W/A FAIL
15	351-15, EEC CH-A/B SVA T/M W/A FAI
16	351-16, EEC CH-A/B B25 T/M W/A FAIL
17	351-19, EEC CH-A/B FMU TR CK FAIL
18	351-20, EEC CH-A/B SVA TR CK FAIL
19	351-21, EEC CH-A/B B25 TR CK FAIL
20	351-24, EEC CH-A/B FMU FD BK FAIL
21	351-25, EEC CH-A/B SVA FD BK FAIL
22	351-26, EEC CH-A/B B25 FD BK FAIL
23	352-14, EEC CH-A/B N1 RANGE FAIL
24	352-18, EEC CH-A/B T2 RANGE FAIL
25	352-20, EEC CH-A/B TFUEL RNG FAIL
26	352-26, EEC CH-A/B TRA RNG FAIL
27	354-24, EEC CH-A/B PMA PWR SOL SHRT
28	354-15, EEC CH-A/B STRT SOL W/A FAIL
29	354-16, EEC CH-A/B STAB SOL W/A FAIL
30	351-18, EEC CH-A/B AOC T/M W/A FAIL
31	351-28, EEC CH-A/B AOC FD BK FAIL
32	351-17, EEC CH-A/B TCC T/M W/A FAIL
33	351-27, EEC CH-A/B TCC FD BK FAIL
34	354-20, EEC CH-A/B TRC SOL W/A FAIL
35	354-22, EEC CH-A/B TCA SOL W/A FAIL
36	354-21, EEC CH-A/B TRC EXT W/A FAIL
37	354-23, EEC CH-A/B TCA EXT W/A FAIL

(*1) Engines with EEC software SCN13 PW SB 73-197 do this item first

(*2) ENGINES WITH ALL EEC's EXCEPT P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), AND 791100-4-048 (51D011)

(*3) ENGINES WITH ALL EEC's EXCEPT P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), 791100-4-048 (51D011), 791100-4-044 (50D823), AND 791100-4-049 (51D012)

B. Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-18 EEC CH-A/B FAULT CAT 2 NOTE: The PIMU Message "EEC CH-A/B FAULT CAT 2" is related to the EICAS message "L (R) ENG EEC C2".	

DESCRIPTION OF FAILURE:
A. This message is displayed when a fault has occurred which, in combination with additional EEC CH-A/B FAULT CAT 2 message(s) could lead to an EEC CH-A/B CONTROL (L(R) ENG EEC C1) message. Specific fault indicated by another PIMU message. This PIMU message is associated with the EICAS message "L(R) ENG EEC C2."

CORRECTIVE ACTION:

A. Do the corrective action for the messages from the PIMU that are on the priority list below.

(1) Do the corrective action for the PIMU message that is the highest on the priority list first.

PRIORITY	PIMU MESSAGE
1	352-29, EEC CH-A/B LOST POWER
2	350-15, EEC CH-A/B UNIT FAIL
3	350-14, EEC A/B-CHAN FAIL
4	353-29, EEC CH-A/B XLINK FAIL
5	353-14, EEC CH-A/B N1 CROSS-CK FAIL (*1)
6	353-15, EEC CH-A/B N2 CROSS-CK FAIL (*1)
7	353-19, EEC CH-A/B T5 CROSS-CK FAIL (*1)
8	353-26, EEC CH-A/B TRA CR-CK FAIL (*1)
9	350-27, EEC CH-A/B L ADC CHANFAIL
10	350-28, EEC CH-A/B R ADC CHANFAIL
11	350-29, EEC A/B-CHAN TMC I/F
12	351-14, EEC CH-A/B FMU T/M W/A FAIL
13	351-15, EEC CH-A/B SVA T/M W/A FAIL
14	351-16, EEC CH-A/B B25 T/M W/A FAIL
15	351-19, EEC CH-A/B FMU TR CK FAIL
16	351-20, EEC CH-A/B SVA TR CK FAIL
17	351-21, EEC CH-A/B B25 TR CK FAIL
18	351-24, EEC CH-A/B FMU FD BK FAIL
19	351-25, EEC CH-A/B SVA FD BK FAIL
20	351-26, EEC CH-A/B B25 FD BK FAIL
21	352-14, EEC CH-A/B N1 RANGE FAIL
22	352-15, EEC CH-A/B N2 RANGE FAIL
23	352-18, EEC CH-A/B T2 RANGE FAIL
24	352-19, EEC CH-A/B T5 RANGE FAIL
25	352-21, EEC CH-A/B TOIL RNG FAIL
26	354-15, EEC CH-A/B STRT SOL W/A FAIL
27	352-25, EEC CH-A/B REVERSER RNG FAIL
28	352-26, EEC CH-A/B TRA RNG FAIL
29	353-28, EEC CH-A/B STRT BLD OPEN (*1)
30	354-24, EEC CH-A/B PMA PWR SOL SHRT
31	354-15, EEC CH-A/B STRT SOL W/A FAIL
32	354-16, EEC CH-A/B STAB SOL W/A FAIL
33	354-18, EEC CH-A/B IDG OVS W/A FAIL
34	351-22, EEC CH-A/B TCC TR-CK FAIL
35	351-23, EEC CH-A/B AOC TR-CK FAIL
36	351-17, EEC CH-A/B TCC T/M W/A FAIL
37	351-18, EEC CH-A/B AOC T/M W/A FAIL

(*1) ENGINES WITH ALL EEC's EXCEPT P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), 791100-4-048 (51D011), 791100-4-044 (50D823), AND 791100-4-049 (51D012)

PIMU MESSAGE	
350-19 EEC CH-A/B LBL 350 BIT 19 OR EEC CH-A/B A/C ID FAILSAFE	

DESCRIPTION OF FAILURE:

A. This message is shown when the EEC finds an engine location or airplane identification discrete that is not specified. The EEC looks at these discretes only when electrical power is intially supplied. This message will be shown if channel A and channel B find these bits not specified. This message will also be shown if there is a cross link failure and the channel in control finds these discretes not specified.

CORRECTIVE ACTION:

A. Disconnect connector D11114 (channel A) or D11686 (channel B) from the EEC, M7198.

B. Do the resistance tests that follow:

CH	EEC	PIN	to PIN	L ENG (Ohms)	R ENG (Ohms)
A	D11114	r	D	>100K	<50
		g	D	>100K	<50
		G	D	>100K	>100K
		m	D	<50	<50
B	D11686	r	D	>100K	<50
		g	D	>100K	<50
		G	D	>100K	>100K
		m	D	<50	<50

C. If the resistances are not correct, repair the circuit as necessary.

D. If the resistances are correct, or the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

E. Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-20 EEC CH-A/B P-SENSR DISAGREE	

DESCRIPTION OF FAILURE:
A. EEC pressure sensors disagree. This message is displayed when any pressure sensor comparison made during the pressure sensor static test are not within tolerance.

NOTE: High speed winds can cause this message to be shown on the PIMU. Ignore this PIMU message unless it was shown during the conditions that follow:

- The airplane was in a location where the speed of the wind was low
- The PIMU message was found during a PIMU ground test.

CORRECTIVE ACTION:
A. If the airplane was in a location where the speed of the wind was high during the PIMU ground test, no corrective action is necessary.
(1) High speed wind can cause this message to be shown.
B. If the airplane was in a location where the speed of the wind was low during the PIMU ground test, do these steps:
(1) Replace the EEC, M7198 (AMM 73-21-04/401).
(2) Do the Repair Confirmation steps at the end of the corrective action.
REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-21 EEC CH-A/B P5 LINE FAULT	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the EEC P5 or P2 pneumatic line has failed.
CORRECTIVE ACTION:
A. Examine the pneumatic tubing from the EEC, M7198, to the EEC inlet total pressure/temperature (PT2/TT2) probe, T867.
(1) Repair the problems that you find.
(2) If a problem was found and repaired, do the Repair Confirmation steps at the end of the corrective action.
B. Examine the pneumatic tubing from the EEC, M7198, to the engine pressure ratio (EPR) PT 4.95 probe.
(1) Repair the problems that you find.
(2) If a problem was found and repaired, do the Repair Confirmation steps at the end of the corrective action.

C. Examine the engine pressure ratio (EPR) PT4.95 Probes for blockage (AMM 77-11-01 page block 601)
   (1) Repair the problems that you find.
   (2) If a problem was found and repaired, do the repair confirmation at the end of the correction action.

D. If the PIMU message for 350-21 comes back, look for the PIMU messages that follow:

   - EEC CH-A/B P-SENSOR DISAGREE (350-20)
   - EEC CH-A/B N1 RANGE FAIL (352-14)
   - EEC CH-A/B N2 RANGE FAIL (352-15)

   (1) If one of the PIMU messages is shown, do the corrective action for the applicable message.
      (a) Do the Repair Confirmation steps at the end of the corrective action.

E. If the PIMU message for 350-21 comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

   WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

   (1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
   (2) Operate the engine to 1.40 EPR or to 88.9% N2 whichever occurs first.
   (3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (4) Use the Power Plant Operation procedure (Normal) to do the engine shutdown (AMM 71-00-00/201).
   (5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-22 EEC CH-A/B P2 LINE FAULT	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the EEC inlet total pressure/temperature (PT2/TT2) probe is iced or the P2 pneumatic line has failed.

CORRECTIVE ACTION:

A. If the PIMU message for 350-22 is shown by channel A only, no corrective action is necessary.

B. If the PIMU message for 350-22 is shown by channel A and channel B, do these steps:

(1) Examine the pneumatic tubing from the EEC, M7198, to the EEC inlet total pressure/temperature (PT2/TT2) probe, T867.

(a) You can make sure the failure is corrected with an airplane flight or do Test No. 14 (AMM 71-00-00/501).

(2) If the PIMU message for 350-22 comes back, look for the PIMU message "EEC CH-A/B P-SENSOR DISAGREE" (350-22).

(a) If this PIMU message is shown, do the corrective action for 350-22.

(3) If the PIMU message for 350-22 is not shown or the PIMU message for 350-22 comes back, replace the EEC, M7198 (AMM 73-21-04/401).

PIMU MESSAGE	
350-23 EEC CH-A/B XTRN DIS DISAGREE	

DESCRIPTION OF FAILURE:

A. External discretes disagree. This message is displayed when channel A and channel B hardwired discrete values disagree or when an invalid engine location or aircraft type is received.

CORRECTIVE ACTION:

A. If the engine had a Hung Start, No Light, Hot Start or Impending Hot Start with this PIMU message, do the steps for Label-Bit 271-18, High Pressure Compressor Configuration first.

B. Examine the position of the L (R) FUEL CONTROL on the P10 panel and LEFT (RIGHT) ENGINE fire handle on the P8 panel.

C. If the L (R) FUEL CONTROL switch is in the RUN position and the LEFT (RIGHT) ENGINE fire handle is pulled, no corrective action is necessary.

D. If the L (R) FUEL CONTROL switch is in the CUTOFF position and the LEFT (RIGHT) ENGINE fire handle is not pulled, do the resistance tests that follow for the external discrete circuits to the EEC, M7198.

(1) Look at the EPCS page 2 (lower screen).

(2) Look for the status messages that follow and find which channel the overspeed circuit is in.
(3) If the engine shutdown at 48% N2, examine the External Reset circuit of the applicable channel as shown below.
(4) Look for the status messages in hexadecimal form that follow and convert to label-bit with the table in Fig. 6.
  (a) Measure the resistances for the external discrete circuits to the EEC, M7198.
  (b) Remove the applicable electrical connector, and do the resistance tests as follows:

NOTE: Do this procedure: Engine Check 12 - Wire Harness Check (FIM 71-08-00/101, Fig. 112). Look for continuity to ground and to the backshell for all pins.

NOTE: If the EEC software SCN 13 (PW SB 73-197) is installed, look to make sure that the jumper wires are correctly installed in the connectors as shown in the table and steps for Label-Bit 271-18.

NOTE: If the engine has a segmented style compressor case: verify that PW SB 73-198 (W1/W2 inspection modification) has been completed. If the wiring modification was not completed, a short in the unused section of the fan harness can cause a Fault Level A of Fault Level B message to be set along with this message.

Fault Set	Ring Case Configuration	Segmented Case Configuration
Fault Level A set(1)	2 or more circuits open	2 or more circuits shorted. (short to ground or wire to wire shorts)
Fault Level B set	1 circuit open	1 circuit has a short (short to ground or wire to wire short)
None	4 jumper wires installed	No jumper wires installed

- Label-Bit 271-18, High Pressure Compressor Configuration

CH	EEC	Pin to Pin	
A	W1P6	j	W
A	W1P6	m	t
B	W2P2	j	W
B	W2P2	m	t

The resistance for the 4 circuits should be more than 100K ohms for Engines with Segmented Compressor Case configuration.

The resistance for the 4 circuits should be less than 10 ohms for Engines with Ring Compressor Case configuration.

- Label-Bit 146-26, External Reset

CH	EEC	Pin to Pin	
A	W1P6	D	k
B	W2P2	D	k

The resistance must be more than 100K ohms when the FUEL CONTROL switch is in the RUN position. The resistance must be less than 50 ohms when the FUEL CONTROL switch is in the CUTOFF position (WDM 73-21-11).

- Label-Bit 146-27, Maintenance

CH	EEC	Pin to Pin	
A	D11114	s	c
B	D11686	s	c

The resistance must be more than 100K ohms (WDM 73-21-17).

- Label-Bit 270-26, Alternate Mode

CH	EEC	Pin to Pin	
A	D11114	F	c
B	D11686	F	c

The resistance must be less than 50K ohms when the ELEC ENG CONT switch is in the ALTN position. The resistance must be more than 100K ohms when the ELEC ENG CONT switch is in the NORM position (WDM 73-21-11). The ELEC ENG CONT switch is on the pilots' overhead panel, P5.

- Label-Bit 270-28, P2T2 Probe

CH	EEC	Pin to Pin	
A	D11114	k	c
B	D11686	k	c

The resistance must be more than 100K ohms when the probe heat is off. The resistance must be less than 50 ohms when the probe heat is on (WDM 73-21-12).

- Label-Bit 270-29, Bump Rating

CH	EEC	Pin to Pin	
A	D11114	H	c
B	D11686	H	c

The resistance must be more than 100K ohms (WDM 73-21-17).

- Label-Bit 272-29, EEC Power Source Discrete

CH	EEC	Pin to Pin	
A	D11114	P	S
B	D11686	P	S

The resistance must be more than 100K ohms (WDM 73-21-17).

- Label-Bit 275-17, 275-18, 275-19, Aircraft/Engine Location (WDM 73-21-14)

CH	EEC	Pin to Pin		L ENG (Ohms)	R ENG (Ohms)
A	D11114	r	D	>100K	<50
	D11114	g	D	>100K	<50
	D11114	G	D	>100K	>100K
	D11114	m	D	<50	<50
B	D11686	r	D	>100K	<50
	D11686	g	D	>100K	<50
	D11686	G	D	>100K	>100K
	D11686	m	D	<50	<50

- Label-Bit 275-21, Idle Select

CH	EEC	Pin to Pin	
A	D11114	J	c
B	D11686	J	c

The resistance must be more than 100K ohms when the airplane is in the approach idle mode. The resistance must be less than 50 ohms when the airplane is in the minimum idle mode (WDM 73-21-19).

- Label-Bit 275-22, Autothrottle Armed

CH	EEC	Pin to Pin	
A	D11114	q	c
B	D11686	q	c

The resistance must be more than 100K ohms when the autothrottle is not armed. The resistance must be less than 50 ohms with the autothrottle armed (WDM 73-21-14).

E. If all the resistances are correct, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

F. If some of the resistances are not correct, repair the circuit as necessary.
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-24 EEC CH-A/B LBL 350 BIT 24 OR EEC CH-A/B T2/P2 PROBE HT	

DESCRIPTION OF FAILURE:

A. This message is shown if the P2/T2 probe heat is off for five seconds and the N2 rotor speed is more than 55% or the mach number is more than 0.21.

CORRECTIVE ACTION:

A. If the PIMU message for 350-24 is shown, do these steps:
   (1) Look for the PIMU message "EEC CH-A/B XTRN DIS DISAGREE" (350-23).
      (a) If the PIMU message for 350-23 is shown, do the corrective action for 350-23.
         1) Do the Repair Confirmation steps at the end of the corrective action.
   (2) If the PIMU message for 350-23 comes back or the PIMU message for 350-23 was not shown, disconnect the connector D11434 and do a continuity check for a short to ground or an open circuit from pin 2 to pin 3 on the EEC inlet total pressure/temperature (PT2/TT2) probe, T867 (WDM 30-34-11, WDM 30-34-21).
      (a) If a short to ground or an open circuit is found, replace the EEC inlet total pressure/temperature (PT2/TT2) probe, T867 (AMM 73-21-03/401).
         1) Do the Repair Confirmation steps at the end of the corrective action.
      (b) If a short to ground or an open circuit is not found, do these steps:
         1) Make sure that the circuit breakers that follow are closed:
            a) 6K25, PROBE HEAT RIGHT ENGINE
            b) 6L19, PROBE HEAT LEFT ENGINE
            c) 11A15, PROBE HEAT IND L
            d) 11A28, PROBE HEAT IND R
            e) 11A29, EEC DISCRETE ALT R ENG
            f) 11D15, ENGINE SPEED SENSE L2
            g) 11D16, ENGINE SPEED SENSE R2
            h) 11D17, LEFT ENGINE EEC DISCRETE
            i) 11M32, RIGHT ENGINE EEC DISCRETE

            WARNING: MAKE SURE THAT ALL PERSONNEL ARE AWAY FROM THE ENGINE PROBE WHEN HEAT IS SUPPLIED. THE ENGINE PROBE WILL GET HOT QUICKLY AND CAN CAUSE AN INJURY IF YOU TOUCH THE PROBE.

            CAUTION: THE ENGINE PROBE HEAT CAN STAY ON FOR UP TO 30 SECONDS. LET THE TEMPERATURE OF THE PROBE DECREASE FOR FIVE MINUTES AFTER THE PROBE HEAT IS OFF. THE PROBE CAN BE DAMAGED IF THE PROBE HEAT IS ON FOR MORE THAN 30 SECONDS.

         2) Push and hold the chan 2 test switch for the engine speed card, in the P50 panel, to the TEST position.

            NOTE: This will energize the probe heat circuit.

3) With the probe heat circuit energized, measure the voltage at connector D11434 between pin 2 and pin 3 (WDM 30-34-11, WDM 30-34-21).
4) If 115V AC is not found, examine the circuit from the EEC inlet total pressure/temperature probe, T867, to the L (R) ENGINE PROBE HEAT circuit breaker C1122 (C1123): D11434, pin 2, to D8316J, pin 2 (WDM 30-34-11, WDM 30-34-21).
   a) Repair the problems that you find.
   b) If a problem was found and repaired, do the Repair Confirmation steps at the end of the corrective action.
5) If 115V AC is found, do these steps:
   a) Examine the circuit from the L (R) ENGINE EEC DISCRETE circuit breaker C1404 (C1405) to the L (R) Engine Probe Current Sensing Relay, K402 (K403): D7968J (D7986J), pin 16, to D3924 (D3946), pin A2 (WDM 73-21-12, WDM 73-21-17).
      1 Repair the problems that you find.
      1 If a problem was found and repaired, do the Repair Confirmation steps at the end of the corrective action.
   b) If the PIMU message for 350-24 comes back, replace the L (R) Probe Current Sensing Relay, K402 (K403), in the P33 panel (WDM 30-34-11, WDM 30-34-21).
      1 Do the Repair Confirmation steps at the end of the corrective action.
   c) If the PIMU message for 350-24 comes back, replace the Engine EEC Discrete Printed Circuit Card, M590 (M591) (AMM 73-21-12/401).
      1 Do the Repair Confirmation steps at the end of the corrective action.
   d) If the PIMU message for 350-24 comes back, replace the L (R) Speed Card, M1093 (M1092) (AMM 77-12-01/401).

1 Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-25 EEC CH-A/B TMC DATA	

DESCRIPTION OF FAILURE:

A. This message is displayed when the EEC is unable to validate the Air Data Computer (ADC) altitude or the engine sensed inlet total pressure.

CORRECTIVE ACTION:

A. Do this procedure: MCDP Ground Test 02 - "TMC" (FIM 22-00-03/101, Fig. 103).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-26 EEC CH-A/B DEM PLUG INVALID	

DESCRIPTION OF FAILURE:

A. Data Entry Modifier (DEM) fault. This message is displayed when the Data Entry Modifier (DEM) plug is missing or an invalid modifier is detected.

   NOTE: This maintenance message can be set if an EEC for a Segmented Comperssor Case engine (pre PW SB 73-197) is insatlled on a Ring Case Compressor engine (post PW SB 73-197). This will also set PIMU Message 350-16, EEC CH A/B CONTROL.

CORRECTIVE ACTION:

A. Make sure you have the correct EEC part number for the engine model number shown on the engine data plate.

NOTE: Engines with the Phase 3 engine changes or Phase 3 fan blade changes must use the correct EEC part numbers. Engine models PW40XX(-3), PW40XX(-1C), or PW40XX(-3B) must have EEC part numbers 52D335 or subsequent. A hung start will occur if you use the incorrect part number.

NOTE: Engines with an EEC for a Segmented Compressor Case installed on an engine with a ring compressor Case: Engine starting problems will occur because the engine will be limited to minimum fuel flow. A NO DISPATCH message will also be set.

B. Make sure the EEC programming plug is installed correctly (AMM 73-21-08/401).

C. If the PIMU message comes back, replace the EEC programming plug (AMM 73-21-08/401).

D. If the PIMU message comes back, do these steps:
   (1) Move the EEC MAINT L (R) ENG POWER switch on the right side panel, P61, to the TEST position.
   (2) Move the EEC MAINT L (R) ENG POWER switch on the P61 panel to the NORM position.
   (3) Do the Repair Confirmation steps at the end of the corrective action.

E. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-27 EEC CH-A/B L ADC CHANFAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed when the EEC receives an invalid signal from the left Air Data Computer (ADC).

CORRECTIVE ACTION:
A. Look at the faultball on the left Air Data Computer (ADC), M100.
(1) If the faultball is yellow, replace the L ADC, M100 (AMM 34-12-01/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.
B. If the faultball is not yellow, do these steps:
(1) Examine the circuit from the EEC, M7198, to the L ADC, M100:
- Channel A, D11114, pins U,i to D423B, pins A6,B6,
- Channel B, D11686, pins U,i, to D423B, pins A6,B6
(WDM 34-12-61).
(a) Do the Repair Confirmation steps at the end of the corrective action.
C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.
REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-28 EEC CH-A/B R ADC CHANFAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed when the EEC receives an invalid signal from the right Air Data Computer (ADC).
CORRECTIVE ACTION:
A. Look at the faultball on the right Air Data Computer (ADC), M101.
(1) If the faultball is yellow, replace the R ADC, M101 (AMM 34-22-01/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.
B. If the faultball is not yellow, do these steps:
(1) Examine the circuit from the EEC, M7198, to the R ADC, M101:
- Channel A, D11114, pins V,J to D351B, pins B6,A6,
- Channel B, D11686, pins V,J, to D351B, pins B6,A6
(WDM 34-12-61).
(a) Do the Repair Confirmation steps at the end of the corrective action.
C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
350-29 EEC A/B-CHAN TMC I/F	

DESCRIPTION OF FAILURE:

A. This message is displayed when the EEC receives an invalid signal from the Thrust Management Computer (TMC).

CORRECTIVE ACTION:

A. Do this procedure: MCDP Ground Test 02 - "TMC" (FIM 22-00-03/101, Fig. 103).

B. If no TMC failures are found, do these steps:
   (1) Put the EEC MAINT L ENG POWER and the EEC MAINT R ENG POWER switches on the P61 panel to the TEST position.
   (2) Do the PIMU BITE procedure (71-PIMU Message Index, Fig. 3, Block 10) for the left and right engine to find which EEC channels have a fault of the TMC ARINC Output Bus.
   (3) If the PIMU message "EEC A/B-CHAN TMC I/F" is set by channel A and B of the left and right EEC, it is possible there is a ground on the TMC ARINC Bus Output wiring.
      (a) Examine the wiring to find where the ground is (WDM 22-32-12, WDM 73-21-14):
         1) Examine the wiring between the TMC, M183, connector D427A, pin C4 and these connectors:

	Connector	Pin
Thrust Mode Sel Pnl, M10258	D1669	28
P6-5 Lighting Equip Pnl	D8608	11
L ENG EEC, M7198	D11114 & D11696	T
R ENG EEC, M7198	D11114 & D11686	T

         a) If a problem is found, repair the wiring.
         b) Do the Repair Confirmation steps at the end of the corrective action.

2) Examine the wiring between the TMC, M183, connector D427A, pin C5 and these connectors:

	Connector	Pin
Thrust Mode Sel Pnl, M10258	D1669	29
P6-5 Lighting Equip Pnl	D8608	12
L ENG EEC, M7198	D11114 & D11696	h
R ENG EEC, M7198	D11114 & D11686	h

a) If a problem is found, repair the wiring.
b) Do the Repair Confirmation steps at the end of the corrective action.

(4) If the PIMU message "EEC A/B-CHAN TMC I/F" is set by channel A and B of the left or right EEC, examine the circuit between terminal block TB105, E1-3 Shelf, and these applicable connectors:

Terminal Block		L R EEC Connector
H168	to	D11114 Pin T & D11686 Pin T
H170	to	D11114 Pin h & D11686 Pin h

(a) If a problem is found, repair the wiring.
(b) Do the Repair Confirmation steps at the end of the corrective action.

(5) If the PIMU message "EEC A/B-CHAN TMC I/F" is set by channel A or B of the left or right EEC, do these steps:
(a) For the left engine, examine and repair the circuit between the EEC, M7198, and the strut connector D6384P: Channel A, D11114 pins T,h, to D6484P pins 7,8 (WDM 73-21-14).
(b) For the right engine, examine and repair the circuit between the EEC, M7198, and the strut connector D6382P: Channel A, D11114, pins T,h, to D6482P, pins 7,8 (WDM 73-21-14).
(c) If a problem was found, repair the wiring.
(d) Do the Repair Confirmation steps at the end of the corrective action.

(6) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-14 EEC CH-A/B FMU T/M W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's fuel metering unit (FMU) torque motor coil or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. Disconnect the W4P2 and W5P1 connectors from the FMU.

B. As an alternate procedure, you can use the simulator box (PWA 86124) to find out if the problem is in the fuel metering unit, M3108, or in the wiring from the EEC to the FMU.
   (1) To use the simulator box, do the Simulator Box Procedure, Fig. 5.
   (2) If the Simulator Box Procedure is done, do the Repair Confirmation steps at the end of the corrective action.

C. If you do not use the simulator box, make sure that the resistance from pin F to pin G on the FMU, M3108, is 80-105 ohms (See the simplified schematic shown in Fig. 12).
   (1) Make sure that pin F to pin G do not go to ground.

D. If the resistance above is not correct, replace the FMU, M3108 (AMM 73-21-01/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

E. If the resistance above is correct, do a visual check for chafing of the wires inside or near the FMU, connectors W5P1 and W4P2. Refer to Engine Check 12 - Wire Harness Check, FIM 71-08-00/101.

F. If there is no wire chafing, do a continuity check from the EEC, M7198, to the FMU (T/M coil), M3108:
   - Channel A, W1P6, pins b,G, to W4P2, pins F,G
   - Channel B, W2P2, pins b,G, to pins W5P1, pins F,G
   (WDM 71-51-14) (See the simplified schematic that is shown in Fig. 12).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

G. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-15 EEC CH-A/B SVA T/M W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's variable stator vane actuator (SVA) torque motor coil or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use the simulator box (PWA 86125) to find out if the problem is in the variable stator vane actuator, M3106, or in the wiring between the EEC and the variable stator vane actuator.
   (1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
   (2) If the Simulator Box Procedure is done, do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, do a continuity check from the EEC, M7198, to the variable stator vane actuator (T/M coil), M3106:
   - Channel A, W1P6, pins d,K, to W4P3, pins K,J,
   - Channel B, W2P2, pins d,k, to W5P7, pins K,J
   (WDM 71-51-14) (See the simplified schematic that is shown in Fig. 13).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the variable stator vane actuator, M3106 (AMM 75-31-02/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-16 EEC CH-A/B B25 T/M W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's 2.5 bleed valve actuator torque motor coil or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. If the channel A and channel B PIMU message is shown, do these steps:
   (1) Disconnect connector W3P15 from the 2.5 bleed valve actuator, M3105.
   (2) Examine connector W3P15 and the mating connector on the 2.5 bleed valve actuator, M3105, for bent pins and contamination.
   (3) Make the bent pins straight and clean the connectors as necessary.
   (4) Connect connector W3P15 to the 2.5 bleed valve actuator, M3105.
   (5) Do the Repair Confirmation steps at the end of the corrective action.

B. If only the channel A or channel B PIMU message is shown or the PIMU message comes back, do these steps:
   (1) As an alternate procedure, you can use the simulator box (PWA 86126) to find out if the problem is in the 2.5 bleed valve actuator, M3105, or in the wiring between the EEC and the 2.5 bleed valve actuator.
      (a) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
         1) If the Simulator Box Procedure was done, do the Repair Confirmation steps at the end of the corrective action.
   (2) If you do not use the simulator box, do a continuity check from the EEC, M7198, to the 2.5 bleed valve actuator (T/M coil), M3105:
      - Channel A, W1P6, pins c,J, to W3P15, pins A,B,
      - Channel B, W2P2, pins c,J, to W3P15, pins C,D
      (WDM 71-51-14) (See the simplified schematic that is shown in Fig. 14).
      (a) Repair the problems that you find.
      (b) Do the Repair Confirmation steps at the end of the corrective action.
   (3) If the PIMU message comes back, replace the 2.5 bleed valve actuator, M3105 (AMM 75-31-02/401).
      (a) Do the Repair Confirmation steps at the end of the corrective action.
   (4) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
      (a) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-17 EEC CH-A/B TCC T/M W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's turbine case cooling (TCC) air valve actuator torque motor coil or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. If the channel A and channel B PIMU message is shown, do these steps:
   (1) Disconnect connector W4P16 from the TCC air valve actuator, M3107.
   (2) Examine connector W4P16 and the mating connector on the TCC air valve actuator, M3107, for bent pins and contamination.
   (3) Make the bent pins straight and clean the connectors as necessary.
   (4) Connect connector W4P16 to the TCC air valve actuator, M3107.
   (5) Do the Repair Confirmation steps at the end of the corrective action.

B. If only the channel A or channel B PIMU message is shown or the PIMU message comes back, do these steps:
   (1) As an alternate procedure, you can use the simulator box (PWA 86126) to find out if the problem is in the TCC air valve actuator, M3107, or in the wiring between the EEC and the TCC air valve actuator.
      (a) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
         1) If the Simulator Box Procedure was done, do the Repair Confirmation steps at the end of the corrective action.
   (2) If you do not use the simulator box, do a continuity check from the EEC, M7198, to the TCC air valve actuator (T/M coil), M3107:
   - Channel A, W1P6, pins e,M, to W4P16, pins 1,2,
   - Channel B, W2P2, pins e,M, to W4P16, pins 3,4
   (WDM 71-51-14) (See the simplified schematic that is shown in Fig. 21).
      (a) Repair the problems that you find.

(b) Do the Repair Confirmation steps at the end of the corrective action.

(3) If the PIMU message comes back, replace the TCC air valve actuator, M3107 (AMM 75-24-05/401).

(a) Do the Repair Confirmation steps at the end of the corrective action.

(4) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

(a) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-18 EEC CH-A/B AOC T/M W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's air/oil heat exchanger valve actuator torque motor coil or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. If the channel A and channel B PIMU message is shown, do these steps:

(1) Disconnect connector W3P17 from the air/oil heat exchanger valve actuator, V357.

(2) Examine connector W3P17 and the mating connector on the air/oil heat exchanger valve actuator, V357, for bent pins and contamination.

(3) Make the bent pins straight and clean the connectors as necessary.
(4) Connect connector W3P17 to the air/oil heat exchanger valve actuator, V357.
(5) Do the Repair Confirmation steps at the end of the corrective action.

B. If only the channel A or channel B PIMU message is shown or the PIMU message comes back, do these steps:
(1) As an alternate procedure, you can use the simulator box (PWA 86126) to find out if the problem is in the air/oil heat exchanger valve actuator, V357, or in the wiring between the EEC and the air/oil heat exchanger valve actuator.
(a) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
1) If the Simulator Box Procedure was done, do the Repair Confirmation steps at the end of the corrective action.
(2) If you do not use the simulator box, do a continuity check from the EEC, M7198, to the air/oil heat exchanger valve actuator (T/M coil), V357:
- Channel A, W1P6, pins g,P, to W3P17, pins 1,2,
- Channel B, W2P2, pins g,P, to W3P17, pins 3,4
(WDM 71-51-14) (See the simplified schematic that is shown in Fig. 19).
(a) Repair the problems that you find.
(b) Do the Repair Confirmation steps at the end of the corrective action.
(3) If the PIMU message comes back, replace the air/oil heat exchanger, V357 (AMM 79-21-09/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.
(4) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-19 EEC CH-A/B FMU TR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the fuel metering unit (FMU) fuel flow valve is not within tolerance of the position commanded by the EEC.

NOTE: This PIMU message is transmitted by the EEC channel in control only.

CORRECTIVE ACTION:

A. Look for the PIMU messages that follow:

NOTE: It is possible that the fuel pump main stage bearing distress can set more than one fuel system related out-of-position EEC fault. If more than one type of actuator failure shows from the list below, you must do Engine Check 15 - Servo Fuel Contamination Check (FIM 71-08-00/101). This check is not necessary if only one of these actuator faults shows.

351-19 EEC CH-A/B FMU TR-CK FAIL
351-20 EEC CH-A/B SVA TR-CK FAIL
351-21 EEC CH-A/B B25 TR-CK FAIL
351-22 EEC CH-A/B TCC TR-CK FAIL
351-23 EEC CH-A/B AOC TR-CK FAIL

B. Examine the circuit from the EEC, M7198, and the fuel metering unit, M3108:
- Channel A, W1P6, pins h,i,T,U,V,b,G to W4P2, pins B,A,E,C,D,F,G,
- Channel B, W2P2, pins h,i,T,U,V,b,G, to W5P1, pins B,A,E,C,D,F,G
(WDM 71-51-12) (See the simplified schematic that is shown in Fig. 12).
(1) Repair the problems that you find.

(2) Do the Repair Confirmation steps at the end of the corrective action.

C. Do a visual check for chafing of the wires inside or near the FMU, connectors W5P1 and W4P2. Refer to Engine Check 12 - Wire Harness Check, FIM 71-08-00/101.

D. If no circuit problems are found, replace the FMU, M3108 (AMM 73-21-01/401).

E. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).

(2) Operate the engine to 1.40 EPR.

(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(4) Use the Power Plant Operation Procedure (Normal) to do the engine shutdown (AMM 71-00-00/201).

(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-20 EEC CH-A/B SVA TR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the variable stator vane actuator (SVA) is not within tolerance of the position commanded by the EEC.

CORRECTIVE ACTION:

A. Look for the PIMU messages that follow:

NOTE: It is possible that the fuel pump main stage bearing distress can set more than one fuel system related out-of-position EEC fault. If more than one type of actuator failure shows from the list below, you must do Engine Check 15 - Servo Fuel Contamination Check (FIM 71-08-00/101). This check is not necessary if only one of these actuator faults shows.

351-19 EEC CH-A/B FMU TR-CK FAIL
351-20 EEC CH-A/B SVA TR-CK FAIL
351-21 EEC CH-A/B B25 TR-CK FAIL
351-22 EEC CH-A/B TCC TR-CK FAIL
351-23 EEC CH-A/B AOC TR-CK FAIL

B. Look for the PIMU messages "EEC CH-A/B SVA T/M W/A FAIL" (351-15) or "EEC CH-A/B SVA FD-BK FAIL" (351-25).
   (1) If one of these PIMU messages show, do the corrective action for the applicable message.

C. If the PIMU message for 351-15 or 351-25 does not show, do these steps:
   (1) To make sure the variable stator vane system moves freely, do Engine Check 9 - Variable Stator Vane System Check (FIM 71-08-00/101).
      (a) If the system does not move freely, repair the system as necessary.
      (b) Do the Repair Confirmation steps at the end of the corrective action.
   (2) If the system does move freely or if the PIMU message for 351-20 comes back, replace the variable stator vane actuator, M3106 (AMM 75-31-02/401).
      (a) Do the Repair Confirmation steps at the end of the corrective action.
   (3) If the PIMU message comes back, examine the circuit from the EEC, M7198, to the variable stator vane actuator, M3106:
      - Channel A, W1P6, pins d,K, to W4P3, pins K,J, and W1P7, pins P,R,N,f,r, to W4P3, pins F,E,C,H,G
      - Channel B, W2P2, pins d,K, to W5P7, pins K,J, to W2P3, pins P,R,N,f,r, to W5P7, pins F,E,C,H,G

      (WDM 71-51-14) (See the simplified schematic that is shown in Fig. 13).
      (a) Repair the problems that you find.

(b) Do the Repair Confirmation steps at the end of the corrective action.

(4) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

(a) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).

(2) Operate the engine to 1.30 EPR.

(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(4) Use the Power Plant Operation (Normal) to do the engine shutdown (AMM 71-00-00/201).

(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-21 EEC CH-A/B B25 TR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the 2.5 bleed valve actuator is not within tolerance of the position commanded by the EEC.

NOTE: This message is transmitted by the EEC channel in control only.

CORRECTIVE ACTION:

A. Look for the PIMU messages that follow:

NOTE: It is possible that the fuel pump main stage bearing distress can set more than one fuel system related out-of-position EEC fault. If more than one type of actuator failure shows from the list below, you must do Engine Check 15 - Servo Fuel Contamination Check (FIM 71-08-00/101). This check is not necessary if only one of these actuator faults shows.

351-19 EEC CH-A/B FMU TR-CK FAIL
351-20 EEC CH-A/B SVA TR-CK FAIL
351-21 EEC CH-A/B B25 TR-CK FAIL
351-22 EEC CH-A/B TCC TR-CK FAIL
351-23 EEC CH-A/B AOC TR-CK FAIL

B. Look for the PIMU messages "EEC CH-A/B B25 T/M W/A FAIL" (351-16) or "EEC CH-A/B B25 FD-BK FAIL" (351-26).
(1) If one of these PIMU messages show, do the corrective action for the applicable message.

C. If the PIMU message for 351-16 or 351-26 does not show, do these steps:
(1) To make sure the 2.5 bleed valve system moves freely, do Engine Check 10 - 2.5 Bleed Valve System Check (FIM 71-08-00/101).
(a) If the system does not move freely, repair the system as necessary.
(b) Do the Repair Confirmation steps at the end of the corrective action.
(2) If the system does move freely or if the PIMU message for 351-21 comes back, replace the 2.5 bleed valve actuator, M3105 (AMM 75-32-01/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.
(3) If the PIMU message comes back, examine the circuit from the EEC, M7198, to the 2.5 bleed valve actuator, M3105:
- Channel A, W1P6, pins c,J, to W3P15, pins A,B, and W1P7, pins s,T,t,h, to W3P15, pins E,F,G,H
- Channel B, W2P2, pins c,J, to W3P15, pins c,D, to W2P3, pins s,T,t,h, to W3P15, pins J,K,L,M

(WDM 71-51-14) (See the simplified schematic that is shown in Fig. 14).
(a) Repair the problems that you find.

(b) Do the Repair Confirmation steps at the end of the corrective action.

(4) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

(a) Do the Repair Confirmation steps at the end of the corrective action.

D. To see if the PIMU message comes back, do these steps:

(1) Do the Engine Ground Actuator Test (AMM 71-00-00/501)

PIMU MESSAGE	
351-22 EEC CH-A/B TCC TR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the turbine case cooling (TCC) actuator is not within tolerance of the position commanded by the EEC.

NOTE: This message is transmitted by the EEC channel in control only.

CORRECTIVE ACTION:

A. Look for the PIMU messages that follow:

NOTE: It is possible that the fuel pump main stage bearing distress can set more than one fuel system related out-of-position EEC fault. If more than one type of actuator failure shows from the list below, you must do Engine Check 15 - Servo Fuel Contamination Check (FIM 71-08-00/101). This check is not necessary if only one of these actuator faults shows.

351-19 EEC CH-A/B FMU TR-CK FAIL
351-20 EEC CH-A/B SVA TR-CK FAIL
351-21 EEC CH-A/B B25 TR-CK FAIL
351-22 EEC CH-A/B TCC TR-CK FAIL
351-23 EEC CH-A/B AOC TR-CK FAIL

B. Look for the PIMU messages "EEC CH-A/B TCC T/M W/A FAIL" (351-17) or "EEC CH-A/B TCC FD-BK FAIL" (351-27).
   (1) If one of these PIMU messages is shown, do the corrective action for the applicable message.
C. If the PIMU message for 351-17 or 351-27 is not shown, do these steps:
   (1) To make sure the turbine case cooling (TCC) air valve system can move freely, do Engine Check 7 - Turbine Case Cooling (TCC) Air Valve Actuation Check (FIM 71-08-00/101).
   (2) If the system does not move freely, repair the system as necessary.
      (a) Do the Repair Confirmation steps at the end of the corrective action.
   (3) If the system does move freely or if the PIMU message for 351-22 comes back, replace the TCC air valve actuator, M3107 (AMM 75-24-05/401).
      (a) Do the Repair Confirmation steps at the end of the corrective action.
   (4) If the PIMU message comes back, examine the circuit from the EEC, M7198, to the TCC air valve actuator, M3107:
      - Channel A, W1P6, pins e,M, to W4P16, pins 1,2, and W1P7, pins M,L,e,q, to W4P16, pins 7,8,5,6
      - Channel B, W2P2, pins e,M, to W4P16, pins 3,4, and W2P3, pins M,L,e,q, to W4P16, pins 11,12,9,10

      (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 21).
      (a) Repair the problems that you find.
      (b) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, look for the message on the subsequent flight.

PIMU MESSAGE	
351-23 EEC CH-A/B AOC TR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the air/oil heat exchanger valve is not within tolerance of the position commanded by the EEC.

CORRECTIVE ACTION:

A. Look for the PIMU messages that follow:

NOTE: It is possible that the fuel pump main stage bearing distress can set more than one fuel system related out-of-position EEC fault. If more than one type of actuator failure shows from the list below, you must do Engine Check 15 - Servo Fuel Contamination Check (FIM 71-08-00/101). This check is not necessary if only one of these actuator faults shows.

351-19 EEC CH-A/B FMU TR-CK FAIL
351-20 EEC CH-A/B SVA TR-CK FAIL
351-21 EEC CH-A/B B25 TR-CK FAIL
351-22 EEC CH-A/B TCC TR-CK FAIL
351-23 EEC CH-A/B AOC TR-CK FAIL

B. Replace the air/oil heat exchanger and valve (AMM 79-21-09/401).

NOTE: The intent of this step is to only replace the air/oil heat exchanger valves. Removal and installation of the air/oil heat exchanger and valves as one unit is the preferred method due to the difficulty in separating the valve assembly from the heat exchanger when it is installed on the engine.

(1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the air/oil heat exchanger valve actuator, V357:
- Channel A, W1P6, pins g,P, to W3P17, pins 1,2, and W1P7, pins K,J,d,p, to W3P17, pins 7,8,5,6.
- Channel B, W2P2, pins g,P, to W3P17, pins 3,4, and W2P3, pins K,J,d,p, to W3P17, pins 11,12,9,10.

(WDM 71-51-14) (See the simplified schematic that is shown on Fig. 19).

(1) Repair the problems that you find.

(2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-24 EEC CH-A/B FMU FD-BK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's fuel metering unit (FMU) position feedback signal has failed range, rate or cross-check tests, or is not within tolerance of a valid synthesized position.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use a simulator box (PWA 86124) to find out if the problem is in the fuel metering unit, M3108, or in the wiring from the EEC to the fuel metering unit.
   (1) To use the simulator box, do the Simulator Box Procedure (Fig. 5).
   (2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, do these steps:
   (1) Disconnect the W4P2 and W5P1 connectors from the fuel metering unit (FMU), M3108.
   (2) Make sure the resistance from pin to pin is as follows (See the simplified schematic that is shown on Fig. 12):

Pin to Pin	Resistance (ohms)		
A to B	56-78	88-112	115-146
C to D	28-39	76-96	59-84
D to E	28-39	76-96	59-84

   NOTE: There are three columns of resistances because there are three manufacturers of this component. Use the resistances for the three pin to pin checks from the same column.

   (3) Make sure that pins B,A,E,C,D do not go to ground.

C. If the resistance above is not correct, replace the FMU, M3108 (AMM 73-21-01/401).
   (1) Do the Repair Confirmation at the end of the corrective action.

D. If the resistance above is correct, do a visual check for chafing of the wires inside or near the FMU, connectors W5P1 and W4P2. Refere to Engine Check 12 - Wire Harness Check, FIM 71-08-00/101.

E. If there is no wire chafing, examine the circuit from the EEC, M7198, to the fuel metering unit, M3108:
   - Channel A, W1P6, pins h,i,T,U,V, to W4P2, pins B,A,E,C,D
   - Channel B, W2P2, pins h,i,T,U,V, to W5P1, pins B,A,E,C,D
   (WDM 73-21-11) (See the simplified schematic that is shown in Fig. 12).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

F. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-25 EEC CH-A/B SVA FD-BK FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the channel's variable stator vane actuator (SVA) position feedback signal has failed range, rate or cross-check tests, or is not within tolerance of a valid synthesized position.

CORRECTIVE ACTION:
A. As an alternate procedure, you can use the simulator box (PWA 86125) to find out if the problem is in the variable stator vane actuator, M3106, or in the wiring from the EEC to the variable stator vane actuator.
   (1) To use the simulator box, do the Simulator Box Procedure (Fig. 5).
   (2) Do the Repair Confirmation steps at the end of the corrective action.
B. If you do not use the simulator box, replace the variable stator vane actuator, M3106 (AMM 75-31-02/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.
C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the variable stator vane actuator, M3106:
   - Channel A, W1P7, pins P,R,N,f,r, to W4P3, pins F,E,C,H,G
   - Channel B, W2P3, pins P,R,N,f,r, to W5P7, pins F,E,C,H,G
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 13).
   (1) Repair the problems that you find.

(2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-26 EEC CH-A/B B25 FD-BK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's 2.5 bleed actuator position feedback signal has failed range, rate or cross-check tests, or is not within tolerance of a valid synthesized position.

CORRECTIVE ACTION:

A. If the channel A and the channel B PIMU message is shown , do these steps:
(1) Disconnect the connector, W3P15, from the 2.5 bleed valve actuator, M3105.
(2) Examine the connector, W3P15, and the mating connector on the 2.5 bleed valve actuator, M3105, for bent pins and contamination.
(3) Make the bent pins straight and clean the connectors as necessary.
(4) Connect the connector, W3P15, to the 2.5 bleed valve actuator, M3105.
(5) Do the Repair Confirmation steps at the end of the corrective action.

B. If only the channel A or the channel B PIMU message is shown or the PIMU message comes back, do these steps:
   (1) As an alternate procedure, you can use the simulator box (PWA 86126) to find out if the problem is in the 2.5 bleed valve actuator, M3105, or in the wiring from the EEC to the 2.5 bleed valve actuator.
      (a) To use the simulator box, do the Simulator Box Procedure (Fig. 5).
      (b) Do the Repair Confirmation steps at the end of the corrective action.
   (2) If you do not use the simulator box, replace the 2.5 bleed valve actuator, M3105 (AMM 75-32-01/401).
      (a) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the 2.5 bleed valve actuator, M3105:
   - Channel A, W1P7, pins s,T,t,h, to W3P15, pins E,F,G,H
   - Channel B, W2P3, pins s,T,t,h, to W3P15, pins J,K,L,M
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 14).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-27 EEC CH-A/B TCC FD-BK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's turbine case cooling (TCC) air valve actuator position feedback signal has failed range, rate or cross-check tests, or is not within tolerance of a valid synthesized position.

CORRECTIVE ACTION:

A. If the channel A and the channel B PIMU message is shown, do these steps:
   (1) Disconnect the connector, W4P16, from the turbine case cooling (TCC) air valve actuator, M3107.
   (2) Examine the connector, W4P16, and the mating connector on the TCC air valve actuator, M3107, for bent pins and contamination.
   (3) Make the bent pins straight and clean the connectors as necessary.
   (4) Connect the connector, W4P16, to the TCC air valve actuator, M3107.
   (5) Do the Repair Confirmation steps at the end of the corrective action.

B. If only the channel A or the channel B PIMU message is shown or the PIMU message comes back, do these steps:
   (1) As an alternate procedure, you can use the simulator box (PWA 86126) to find out if the problem is in the TCC air valve actuator, M3107, or in the wiring from the EEC to the TCC air valve actuator.
      (a) To use the simulator box, do the Simulator Box Procedure (Fig. 5).
      (b) Do the Repair Confirmation steps at the end of the corrective action.
   (2) If you do not use the simulator box, replace the TCC air valve actuator, M3107 (AMM 75-24-05/401).

C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the TCC air valve actuator, M3107:
   - Channel A, W1P7, pins M,L,e,q, to W4P16, pins 7,8,5,6
   - Channel B, W2P3, pins M,L,e,q, to W4P16, pins 11,12,9,10
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 21).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-28 EEC CH-A/B AOC FD-BK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's air/oil heat exchanger valve position feedback signal has failed range, rate or cross-check tests, or is not within tolerance of a valid synthesized position.

CORRECTIVE ACTION:

A. If the channel A and the channel B PIMU message is shown, do these steps:
   (1) Disconnect the connector, W3P17, from the air/oil heat exchanger valve actuator, V357.
   (2) Examine the connector, W3P17, and the mating connector on the air/oil heat exchanger valve actuator, V357, for bent pins and contamination.
   (3) Make the bent pins straight and clean the connectors as necessary.
   (4) Connect the connector, W3P17, to the air/oil heat exchanger valve actuator, V357.
   (5) Do the Repair Confirmation steps at the end of the corrective action.

B. If only the channel A or the channel B PIMU message is shown or the PIMU message comes back, replace the air/oil heat exchanger and valve, V357 (AMM 79-21-09/401).

   NOTE: The intent of this step is to only replace the air/oil heat exchanger valves. Removal and installation of the air/oil heat exchanger and valves as one unit is the preferred method due to the difficulty in separating the valve assembly from the heat exchanger when it is installed on the engine.

   (1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the air/oil heat exchanger valve, V357:
   - Channel A, W1P7, pins K,J,d,p, to W3P17, pins 7,8,5,6
   - Channel B, W2P3, pins K,J,d,p, to W3P17, pins 11,12,9,10
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 19).
   (1) Repair the problems that you find.

(2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
351-29 EEC CH-A/B OVS CKT FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate a fault in the fuel metering unit (FMU) overspeed protection system. The fault may be the solenoid coil or a related wiring fault or a mechanical fault in the FMU.

CORRECTIVE ACTION:

A. Look for the PIMU messages "EEC CH-A/B FMU TR-CK FAIL" (351-19), "EEC CH-A/B FMU FD-BK FAIL" (351-24), AND "EEC CH-A/B OVS SOL W/A FAIL" (354-14).
(1) If one of these PIMU messages is shown, do the corrective action for the applicable message.

B. If the PIMU messages for 351-19, 351-24 and 354-14 are not shown or the PIMU message for 351-29 comes back, do these steps:
(1) Replace the fuel metering unit (FMU), M3108 (AMM 73-21-01/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.

(2) If the PIMU message for 351-29 comes back, examine the circuit from the EEC, M7198, to the fuel metering unit (FMU), M3108:
- Channel A, W1P6, pins h,i,T,U,V, to W4P2, pins B,A,E,C,D, and W1P8, pins H,G, to W4P2, pins R,S,
- Channel B, W2P2, pins h,i,T,U,V, to W5P1, pins B,A,E,C,D, and W2P4, pins H,G, to W5P1, pins R,S

(WDM 71-51-14) (See the simplified schematic that is shown on Fig. 12).
(a) Repair the problems that you find.
(b) Do the Repair Confirmation steps at the end of the corrective action.

(3) If the PIMU message for 351-29 comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(4) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-14 EEC CH-A/B N1 RANGE FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the channel's EEC speed transducer (N1) input signal failed the range or rate test.
CORRECTIVE ACTION:
A. Replace the EEC speed transducer (N1), T688 (AMM 73-21-06/401).
B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC speed transducer (N1), T688:
- Channel A, W1P6, pins E,a, to W4P19, pins 1,2
- Channel B, W2P2, pins E,a, to W4P19, pins 4,5
(WDM 73-21-14) (See the simplified schematic that is shown on Fig. 7).
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.
C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.
REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INFURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-15 EEC CH-A/B N2 RANGE FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's EEC alternator (N2) input signal failed the range or rate test.

CORRECTIVE ACTION:

SAS A. Replace the EEC alternator (N2 transducer) stator and/or rotor as
SAS required, T1519 (AMM 73-21-05/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEc, M7198, to the EEC alternator (N2 transducer), T1519:
- Channel A, W1P8, pins A,B,C, to W3P1, pins A,B,C
- Channel B, W2P4, pins A,B,C, to W5P6, pins A,B,C
(WDM 71-51-14) (See the simplified schematic that is shown on Fig. 8).
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

C. Do a continuity check from W1P8, pins W to V, and W2P4, pins W to V (WDM 71-51-14).
(1) If there is no continuity, repair the wires as necessary.
(a) Do the Repair Confirmation steps at the end of the corrective action.

D. If there is continuity or if the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-16 EEC CH-A/B LBL 352 BIT 16	

DESCRIPTION OF FAILURE:

A. The position of the feedback switch in the control valve for the HPC secondary flow did not agree with the commanded signal for the control valve. The control valve failed in the closed position.

CORRECTIVE ACTION:

A. Look for the PIMU message "EEC CH-A/B TRC SOL W/A FAIL" (354-20).
   (1) If the PIMU message shows, do the corrective action for 354-20.

B. If the PIMU message 354-20 does not show, do these steps:
   (1) Replace the HPC secondary flow control valve (AMM 75-33-01/401).

       NOTE: The right valve is for channel A and the left valve is for channel B.

       (a) Do the Repair Confirmation steps at the end of the corrective action.
   (2) If the PIMU message for 354-21 comes back, examine the circuit from the EEC to the HPC secondary flow control valve position switch, S1613 (S1614):
       - Channel A, W1P6, pins j,W, to W4P10, pins B,A
       - Channel B, W2P2, pins j,W, to W5P10, pins B,A
       (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 16).
       (a) Repair the problems that you find.
       (b) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

   WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

   (1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).

(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-17 EEC CH-A/B T29 RNG FAIL	

DESCRIPTION OF FAILURE:

A. This message is shown when the EEC finds a range/rate failure of the thermocouple for the 2.9 bleed valve. The range/rate test is only done by the channel in control. Channel A of the EEC is connected to the thermocouple probe on the left 2.9 bleed valve. Channel B of the EEC is connected to the thermocouple on the right 2.9 bleed valve. The limits specified for a range/rate test of the thermocouple probe on the 2.9 bleed valve are as follows:

Range: -80 to 1000 degrees C
Rate: 200 degrees C/sec

NOTE: This PIMU message can occur as a nuisance message for engines that do not have a T2.9 system; if the EEC software SCN 13 (post PW SB 73-197) is not installed, the engine has a Reing Case Compressor(RCC) and the correct jumper wires are not installed. Install jumper a wires in connector W1P7 between pins i and j and in connector W2P3 between pins i and j to correct the problem.

CORRECTIVE ACTION:

A. Replace the 2.9 bleed valve thermocouple probe (AMM 75-32-06/401).

NOTE: For channel A, replace the left 2.9 bleed valve thermocouple probe. For channel B, replace the right 2.9 bleed valve thermocouple probe.

(1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the 2.9 bleed valve thermocouple probe:
- Channel A, W1P7, pins i,j, to studs CR,AL
- Channel B, W2P3, pins i,j, to studs CR,AL.
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-18 EEC CH-A/B T2 RANGE FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's EEC inlet total pressure/temperature (PT2/TT2) probe T2 input signal failed the range or rate test.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use the simulator box (PWA 86131) to find out if the problem is in the EEC inlet total pressure/temperature (PT2/TT2) probe, T867, or in the wiring from the EEC to the EEC inlet total pressure/temperature (PT2/TT2) probe.
(1) To use the simulator box, do the Simulator Box Procedure (Fig. 5).

(2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, replace the EEC inlet total pressure/temperature (PT2/TT2) probe, T867 (AMM 73-21-03/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC inlet total pressure/temperature (PT2/TT2) probe, T867:
- Channel A, W1P7, pins U,S,g, to D11420, pins 1,2,3
- Channel B, W2P3, pins U,S,g, to D11434, pins 7,6,5
(WDM 73-21-12) (See the simplified schematic that is shown on Fig. 9).
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-19 EEC CH-A/B T5 RANGE FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's EGT (TT4.95) thermocouple probe T5 input signal failed the range or rate test.

CORRECTIVE ACTION:

A. Examine the circuit from the EEC, M7198, to the EGT (TT4.95) thermocouple cable terminal box:
   - Channel A, W1P7, pins A,X, to studs CR,AL
   - Channel B, W2P3, pins A,X, to studs CR,AL
   (See the simplified schematic that is shown on Fig. 10).
   (1) Tighten the alumel connections (larger nut) to 18-22 pound-inches (2.0-2.5 newton-meters).
   (2) Tighten the chromel connections (smaller nut) to 15-18 pound-inches (1.7-2.0 newton-meters).
   (3) Repair the problems that you find.
   (4) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, do the EGT (TT4.95) Thermocouple Box and Cable - Adjustment/Test (AMM 77-21-03/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the EGT (TT4.95) thermocouple box and cable are o.k. or if the PIMU message comes back, do the EGT (TT4.95) Thermocouple Probe - Adjustment/Test (AMM 77-21-01/501).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

D. If the EGT (TT4.95) thermocouple probes are o.k. or if the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-20 EEC CH-A/B TFUEL RNG FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's EEC fuel temperature thermocouple probe input signal failed the range or rate test.

CORRECTIVE ACTION:

A. Replace the EEC fuel temperature thermocouple probe (AMM 73-21-09/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

B. EEC THERMOCOUPLE PROBES WITH A PIN AND SOCKET CONNECTOR;
   Do these steps:
   (1) If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC fuel temperature thermocouple probe:
   - Channel A, W1P7, pins Y,B, to W5P8, pins A,B
   - Channel B, W2P3, pins Y,B, to W5P8, pins D,E
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 11).
      (a) Repair the problems that you find.
      (b) Do the Repair Confirmation steps at the end of the corrective action.

C. EEC THERMOCOUPLE PROBES WITH THE STUD AND LUG CONNECTORS;
   Do these steps:
   (1) If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC fuel temperature thermocouple probe:
   - Channel A, W1P7, pins Y,B, to W5P8, CR (smaller stud), AL:
   - Channel B, W2P3, pins Y,B, to the W5P8, CR (smaller stud), AL
   (See the simplified schematic that is shown on Fig. 11).
      (a) Repair the problems that you find.
      (b) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-21 EEC CH-A/B TOIL RNG FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's EEC oil temperature thermocouple proble input signal failed the range or rate test.

CORRECTIVE ACTION:

A. Replace the EEC oil temperature thermocouple probe, T690 (AMM 73-21-10/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

B. EEC THERMOCOUPLE PROBES WITH A PIN AND SOCKET CONNECTOR;
   Do these steps:
   (1) If the PIMU message comes back, examine the circuit between the EEC, M7198, to the EEC oil temperature thermocouple probe, T690:
   - Channel A, W1P7, pins C,D, to W3P18, pins A,B,
   - Channel B, W2P3, pins C,D, to W3P18, pins D,E
   (WDM 79-34-11) (See the simplified schematic that is shown on Fig. 11).
      (a) Repair the problems that you find.
      (b) Do the Repair Confirmation steps at the end of the corrective action.

C. EEC THERMOCOUPLE PROBES WITH THE STUD AND LUG CONNECTORS;
   Do these steps:
   (1) If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC oil temperature thermocouple probe, T690:
   - Channel A, W1P7, pins C,D, to W3P18, studs CR (smaller stud),AL,
   - Channel B, W2P3, pins C,D, to W3P18, studs CR (smaller stud),AL
   (WDM 79-34-11) (See the simplified schematic that is shown on Fig. 11).
      (a) Repair the problems that you find.
      (b) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-22 EEC CH-A/B T3 RANGE FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's EEC thermocouple probe (TT3) input signal failed the range or rate test.

CORRECTIVE ACTION:

A. Replace the EEC thermocouple probe (TT3) (AMM 73-21-14/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC thermocouple probe (TT3):
   - Channel A, W1P7, pins W,V, to studs CR,AL
   - Channel B, W2P3, pins W,V, to studs CR,AL
   (See the simplified schematic that is shown on Fig. 22).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-23 EEC CH-A/B DOT3 RNG FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the channel's No. 3 bearing oil temperature sensor input signal failed the range or rate test.
CORRECTIVE ACTION:
A. Replace the No. 3 bearing oil temperature sensor, T689 (AMM 79-34-01/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.
B. EEC THERMOCOUPLE PROBES WITH A PIN AND SOCKET CONNECTOR; Do these steps:
   (1) If the PIMU message comes back, examine the circuit from the EEC, M7198, to the No. 3 bearing oil temperature sensor, T689:
   - Channel A, W1P7, pins Z,E, to W5P13, pins A,B
   - Channel B, W2P3, pins Z,E, to W5P13, pins D,E
   (WDM 71-51-14).
   (2) Repair the problems that you find.
   (3) Do the Repair Confirmation steps at the end of the corrective action.
C. EEC THERMOCOUPLE PROBES WITH THE STUD AND LUG CONNECTORS; Do these steps:
   (1) If the PIMU message comes back, examine the circuit from the EEC, M7198, to the No. 3 bearing oil temperature thermocouple probe, T689:
   - Channel A, W1P7, pins Z,E, to W5P13, studs CR (smaller stud),AL
   - Channel B, W2P3, pins Z,E, to W5P13, studs CR (smaller stud),AL
   (WDM 79-34-11).
   (2) Repair the problems that you find.
   (3) Do the Repair Confirmation steps at the end of the corrective action.
D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.
REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-24 EEC CH-A/B TFUEL HIGH	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate fuel temperature has exceeded 300 degrees F (149 degrees C).

CORRECTIVE ACTION:

A. Look for the PIMU messages that follow:

- EEC CH-A/B AOC TR-CK FAIL (351-23)
- EEC CH-A/B TFUEL RNG FAIL (352-20)
- EEC CH-A/B TFUEL CR-CK FAIL (353-20)
- EEC CH-A/B F/OIL SL W/A FAIL (354-17)

(1) If one of these PIMU messages is shown, do the corrective action for the applicable message.

B. If the PIMU message for 351-23, 352-20, 353-20, or 354-17 is not shown or the PIMU message for 352-24 comes back, do these steps:

(1) EEC THERMOCOUPLE PROBES WITH A PIN AND SOCKET CONNECTOR; Do these steps:

(a) Examine the circuit from the EEC, M7198, to the EEC fuel temperature thermocouple probe:
- Channel A, W1P7, pins Y,B, to W5P8, pins A,B
- Channel B, W2P3, pins Y,B, to W5P8, pins D,E.

(b) Repair the problems that you find.

(c) Do the Repair Confirmation steps at the end of the corrective action.

(2) EEC THERMOCOUPLE PROBES WITH A STUD AND LUG CONNECTOR; Do these steps:

(a) Examine the circuit from the EEC, M7198, to the EEC fuel temperature thermocouple probe:
- Channel A, W1P7, pins Y,B, to W5P8, studs CR (smaller stud),AL
- Channel B, W2P3, pins Y,B, to W5P8, studs CR (smaller stud),AL.

(b) Repar the problems that you find.

(c) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the fuel/oil cooler bypass valve (AMM 79-21-01/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the fuel bypass valve (AMM 73-11-07/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

E. If the PIMU message comes back, replace the air/oil heat exchanger and valve (AMM 79-21-09/401).

NOTE: The intent of this step is to only replace the air/oil heat exchanger valves. Removal and installation of the air/oil heat exchanger and valves as one unit is the preferred method due to the difficulty in separating the valve assembly from the heat exchanger when it is installed on the engine.

(1) Do the Repair Confirmation steps at the end of the corrective action.
(2) If the PIMU message comes back, replace the IDG air/oil heat exchanger and valve (AMM 24-11-12/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.
(3) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-25 EEC CH-A/B REVERSER RNG FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's thrust reverser hydraulic actuator position signal failed the range or rate test.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use the simulator box (PWA 86429 or PWA 86430) to find out if the problem is in the thrust reverser LVDT, T10033 (T10035), or in the wiring from the EEC to the thrust reverser LVDT.
(1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
(a) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, do these steps:
(1) Measure the resistance of the thrust reverser LVDT, T10033 (T10035), and the EEC wiring harness (WDM 78-36-11, WDM 78-36-21).

CH	EEC	PIN to PIN		Resistance (Ohms)
A	W1P7	G	a	175-275
		H	F	240-340
B	W2P3	G	a	175-275
		H	F	240-340

(a) If all the resistances are within the limits, replace the EEC, M7198 (AMM 73-21-04/401).
1) Do the Repair Confirmation steps at the end of the corrective action.
2) If the PIMU message comes back, replace the two thrust reverser hydraulic actuators (AMM 78-31-17/401).
3) Do the Repair Confirmation steps at the end of the corrective action.
(b) If all of the resistances are not within the limits, measure the resistance of the thrust reverser LVDT, T10033 (T10035) (WDM 78-36-11, WDM 78-36-21).

CH	REV	CONNECTOR	PIN to PIN		Resistance (ohms)
A	R	D8340P	1	2	400-500
			3	4	130-160
B	R	D8344P	1	2	400-500
			3	4	130-160
A	L	D8338P	1	2	400-500
			3	4	130-160
B	L	D8342P	1	2	400-500
			3	4	130-160

1) If all the resistances are not within the limits, replace the thrust reverser hydraulic actuator (AMM 78-31-17/401).
a) Do the Repair Confirmation steps at the end of the corrective action.

2) If all the resistances are within the limits, do these steps:
   a) Examine the circuit from the EEC, M7198, to the thrust reverser LVDT, T10033 (T10035) (WDM 78-36-11, WDM 78-36-21).

CH	EEC	PIN	REV	CONNECTOR	PIN
A	W1P7	G	R	D8340J	2
		a			1
		H			4
		F			3
		G	L	D8338J	2
		a			1
		H			4
		F			3
B	W2P3	G	R	D8344J	2
		a			1
		H			4
		F			3
		G	L	D8342J	2
		a			1
		H			4
		F			3

   b) Repair the problems that you find.
   c) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-26 EEC CH-A/B TRA RNG FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's thrust lever angle (TLA) resolver input signal failed the range or rate test.

CORRECTIVE ACTION:

A. If the channel A and the channel B PIMU message is shown, do the Thrust Lever Angle (TLA) Resolver - Adjustment/Test (AMM 73-21-11/501).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

B. If only the channel A or the channel B PIMU message is shown, do these steps:
   (1) If the channel A PIMU message is shown, open the circuit breakers that follow:
   - Left Engine Channel B - 11L4, L ENGINE PERF SOL CHAN B
   - Right Engine Channel B - 11L31, R ENGINE PERF SOL CHAN B

   (2) If the channel B PIMU message is shown, open the circuit breakers that follow:
   - Left Engine Channel A - 11L3, L ENGINE PERF SOL CHAN A
   - Right Engine Channel A - 11L30, R ENGINE PERF SOL CHAN A

   (3) Retract the thrust lever interlock actuator.
   (4) Move the EEC MAINT L(R) ENG POWER switch on the right side panel, P61, to the TEST position.
   (5) Find the EICAS Maintenance Panel on the right side panel, P61.
   (6) Push the EPCS switch on the EICAS Maintenance Panel.
   (7) Move the forward thrust lever to the idle position.
   (8) Monitor the TLA data on the EICAS display while you do the steps that follow:
      (a) Move the forward thrust lever to the full forward position.
      (b) Make a record of the TLA data from the EICAS display.
      (c) Move the forward thrust lever to the idle position.
      (d) Move the reverse thrust lever to the full reverse position.
      (e) Make a record of the TLA data from the EICAS display.
   (9) If the TLA data follows the movement of the thrust lever but is out of range (1.5-88.5), do the Thrust Lever Angle (TLA) Resolver - Adjustment/Test (AMM 73-21-11/501).
      (a) Do the Repair Confirmation steps at the end of the corrective action.

(10) If the TLA data does not follow the movement of the thrust lever, do these steps:

(a) Do a continuity test between the EEC, M7198, and the TLA resolver, TS171 (TS170) (WDM 73-21-13).

NOTE: When circuit checks are done, do a continuity test from pin to pin and an insulation resistance test from pin to ground. All resistance measurements from pin to ground must be more than 100K ohms.

CH	CONNECTOR	PIN	TRA	CONNECTOR	PIN
A	D11114	C	R	D5966J	R1
		Y			R3
		B			S1
		A			S2
		X			S3/S4
		C	L	D5964J	R1
		Y			R3
		B			S1
		A			S2
		X			S3/S4
B	D11686	C	R	D4736J	R1
		Y			R3
		B			S1
		A			S2
		X			S3/S4
		C	L	D4734J	R1
		Y			R3
		B			S1
		A			S2
		X			S3/S4

1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the TLA resolver, TS171 (TS170) (AMM 73-21-11/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-27 EEC CH-A/B TRA HI FAIL	

DESCRIPTION OF FAILURE:
A. The internal temperature of the EEC was more than 105 degree C for ten seconds.
CORRECTIVE ACTION:
A. Examine the thermal anti-ice (TAI) duct for the inlet cowl on the left fan case for leakage.
(1) Repair the TAI duct as necessary.
B. After you repair the TAI duct, replace the EEC, M7198 (AMM 73-21-04/401).

PIMU MESSAGE	
352-28 EEC CH-A/B AOC FAULT	

DESCRIPTION OF FAILURE:
A. This message is shown when the valve for the air/oil heat exchanger is open and the T2 temperature is less than -80 degree C and the mach number is less than 0.21.
CORRECTIVE ACTION:
A. Look for the PIMU messages that follow:

- EEC CH-A/B AOC FD-BK FAIL (351-28)
- EEC CH-A/B TFUEL RNG FAIL (352-20)

B. If the channel A and the channel B PIMU message for 351-28 or 352-20 is shown, do the corrective action for 351-28 or 352-20.
C. If the channel A and the channel B PIMU message for 351-28 or 352-20 is not shown or the PIMU message for 351-28 comes back, do these steps:
(1) Look for the PIMU messages that follow:

- EEC CH-A/B AOC T/M W/A FAIL (351-18)
- EEC CH-A/B AOC TR-CK FAIL (351-23)

(2) If one of these PIMU messages is shown, do the corrective action for 351-18 or 351-23.
(3) If none of these PIMU messages are shown or if the PIMU message for 352-28 comes back, do these steps:
(a) Replace the EEC, M7198 (AMM 73-21-04/401).
(b) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
352-29 LOST POWER	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the channel has lost power.
CORRECTIVE ACTION:
A. If the failure is found only when the engine operates and the EEC MAINT L(R) ENG POWER switch is in the NORM position, do these steps:
(1) Examine the circuit from the EEC, M7198, to the EEC alternator (N2 transducer), T1519:
- Channel A, W1P8, pins A,B,C, to W3P1, pins A,B,C
- Channel B, W2P4, pins A,B,C, to W5P6, pins A,B,C
(WDM 73-21-11) (See the simplified schematic that is shown in Fig. 8).
(a) Repair the problems that you find.
(b) Do the Repair Confirmation steps at the end of the corrective action which operates the engine at idle.
SAS (2) If the PIMU message comes back, replace the EEC alternator (N2
SAS transducer) stator and/or rotor as required, T1519
SAS (AMM 73-21-05/401).
(a) Do the Repair Confirmation steps at the end of the corrective action which operates the engine at idle.
(3) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(a) Do the Repair Confirmation steps at the end of the corrective action which operates the engine at idle.
B. If the failure is found onley when the engine is stopped and the EEC MAINT L(R) ENG POWER switch is in the TEST position, do these steps:
(1) Examine the circuit from the EEC, M7198, to the L(R) ENG EEC GRD TEST circuit breaker C1422 (C1423):
- Channel A, W1P8, pin K, to D8016P (D8018P), pin 1
- Channel B, W2P4, pin K, to D8016P (D8018P), pin 1
(WDM 73-21-11).
(a) Repair the problems that you find.
(2) Examine the circuit from the EEC, M7198, to ground:
- Channel A, W1P8, pin J, to ground
- Channel B, W2P4, pin J to ground
(WDM 73-21-11).
(a) Repair the problems that you find.
(b) Do the Repair Confirmation steps at the end of the corrective action which examines the PIMU.
(3) If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(a) Do the Repair Confirmation steps at the end of the corrective action which examines the PIMU.
C. If the failure is found with both conditions shown above, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action which examines the PIMU.
REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps to operate the engine at idle:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Examine the PIMU for the PIMU message.

B. To see if the PIMU message comes back, do these steps to examine the PIMU:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-14 EEC CH-A/B N1 CROSS-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel A and channel B EEC speed transducer (N1) signals have failed the cross-check test.

CORRECTIVE ACTION:

A. Replace the EEC speed transducer (N1), T688 (AMM 73-21-06/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC speed transducer (N1), T688:
- Channel A, W1P6, pins E,a, to W4P19, pins 1,2
- Channel B, W2P2, pins E,a, to W4P19, pins 4,5
(WDM 73-21-14) (See the simplified schematic that is shown on Fig. 7).
(1) Repair the problems that you find.

(2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-15 EEC CH-A/B N2 CROSS-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel A and channel B EEC alternator (N2 transducer) signals have failed the cross-check test.

CORRECTIVE ACTION:

A. Replace the EEC alternator (N2 transducer), T1519 (AMM 73-21-05/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC alternator (N2 transducer), T1519:
- Channel A, W1P8, pin A, to W3P1, pin A
- Channel B, W2P4, pin A, to W5P6, pin A
(WDM 77-12-12) (See the simplified schematic that is shown on Fig. 8).
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

C. Do a continuity check from W1P8, pin W to V, to W2P4, pin W to V.
(1) If there is no continuity, repair the wires as necessary.
(2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-16 EEC CH-A/B PMA FAULT	

DESCRIPTION OF FAILURE:

A. This message is shown when the N2 rotor speed is more than 5000 RPM and the electrical power to the EEC is supplied by the supplemental control unit (SCU) and not the EEC alternator.

CORRECTIVE ACTION:

A. Look for the PIMU message "EEC CH-A/B CONTROL" (350-16).

B. If the PIMU message for 350-16 is not shown, no corrective action is necessary.

C. If the PIMU message for 350-16 is shown, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
  (a) If the engine does not start, replace the EEC alternator (N2 transducer), T1519 (AMM 73-21-05/401).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Look for the PIMU message "EEC CH-A/B LOST POWER" (352-29).
  (a) If the PIMU message 352-29 shows, do these steps:
    1) Examine the circuit from the EEC, M7198, to the EEC alternator (N2 transducer), T1519:
      - Channel A, W1P8, pins A,B,C, to W3P1, pins A,B,C
      - Channel B, W2P4, pins A,B,C, to W5P6, pins A,B,C
      (WDM 73-21-11).
    2) Repair the problems that you find.
    3) Do the Repair Confirmation steps at the end of the corrective action.
    4) If the PIMU message for 352-29 comes back, replace the EEC alternator (N2 transducer), T1519 (AMM 73-21-05/401).
    5) Do the Repair Confirmation steps at the end of the corrective action.
    6) If the PIMU message for 352-29 comes back, replace the EEC, M7198 (AMM 73-21-04/401).
  (b) If the PIMU message 352-29 does not show, do these steps:
    1) Put the EEC MAINT L(R) ENG POWER switch on the right side panel, P61, in the TEST position.

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

2) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).

NOTE: Keep the EEC MAINT L(R) ENG POWER switch in the TEST position during the engine run to supply power from the SCU.

3) Let the engine become stable at idle.
4) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
5) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
6) Put the EEC MAINT L(R) ENG POWER switch to the NORM position.
7) Look for the PIMU message "EEC CH-A/B PMA FAULT".
8) If this PIMU message is not shown, then no corrective action is necessary.
9) If this PIMU message is shown, do these steps:
   a) Disconnect the connectors D11114 and D11686 from the EEC, M7198.
   b) Make sure the resistance between pin p and S of each connector, D11114 and D11686 , is more than 100K ohms and that pin p is not grounded (WDM 71-51-14).
   c) Connect the connectors, D11114 and D11686, to the EEC, M7198.
   d) If the circuit is bad, examine the circuit from the EEC, M7198, to the SCU, M6848:
      - Channel A, D11114, pins p,S, to W2P33, pins N,C
      - Channel B, D11686, pins p,S, to W2P33, pins N,C
      (WDM 71-51-14).
      1 Repair the problems that you find.
   e) If the circuit is good, replace the SCU, M6848 (AMM 73-21-15/401).

(6) If the PIMU message for 353-16 comes back, replace the EEC, M7198 (AMM 73-21-04/401).

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message "EEC CH-A/B LOST POWER" (352-29).

PIMU MESSAGE	
353-17 EEC CH-A/B LBL 353 BIT 17	

DESCRIPTION OF FAILURE:
A. The position of the feedback switch for the cooling air valve for the turbine vane and blade did not agree with the comman signal for the control valve. The cooling air valve failed in the closed position.

CORRECTIVE ACTION:
A. Look for the PIMU message "EEC CH-A/B TCA SOL W/A FAIL" (354-22).
B. If the PIMU message shows, do the corrective action for 354-22.
C. If the PIMU message 354-22 does not show, do these steps:
(1) As an alternate procedure, you can use the simulator box (PWA 86130) to find out if the problem is in the turbine vane and blade cooling air valve position switch, S1615, or in the wiring from the EEC to the turbine vane and blade cooling air valve position switch.
(a) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
1) Do the Repair Confirmation steps at the end of the corrective action.

(2) If you do not use the simulator box, do these steps:
(a) Replace the right turbine vane and blade cooling air valve (AMM 75-24-01/401) and the turbine vane and blade cooling air valve position switch, S1615 (AMM 75-24-13/401).
(b) Do the Repair Confirmation steps at the end of the corrective action.
(c) If the PIMU message for 353-17 come back, examine the circuit from the EEC, M7198, to the turbine vane and blade cooling air valve position switch, S1615: channel A, W1P6, pins m,t, to W4P21, pins B,A (WDM 71-51-14).
1) Repair the problems that you find.
2) Do the Repair Confirmation steps at the end of the corrective action.
(d) If the PIMU message for 353-17 comes back, replace the HPC secondary flow control valve, turbine vane and blade cooling air valve solenoid (AMM 75-33-03/401).
1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, examine the PIMU after the subsequent flight above 25,000 feet.

PIMU MESSAGE	
353-18 EEC CH-A/B T2 CROSS-CK FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the channel A and channel B EEC inlet total pressure/temperature (PT2/TT2) probe T2 signals have failed the cross-check test.

CORRECTIVE ACTION:
A. As an alternate procedure, you can use the simulator box (PWA 86131) to find out if the problem is in the EEC inlet total pressure/temperature (PT2/TT2) probe, T867, or in the wiring from the EEC to the EEC inlet total pressure/temperature (PT2/TT2) probe.
(1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).

(2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, replace the EEC inlet total pressure/temperature (PT2/TT2) probe, T867 (AMM 73-21-03/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, examine the circuit from the EEC to the EEC inlet total pressure/temperature (PT2/TT2) probe, T867:
- Channel A, W1P7, pins U,S,g, to D11420, pins 1,2,3
- Channel B, W2P3, pins U,S,g, to D11434, pins 7,6,5
(WDM 73-21-12) (See the simplified schematic that is shown on Fig. 9).
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-19 EEC CH-A/B T5 CROSS-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel A and channel B EGT (TT4.95) thermocouple probe signals have failed the cross-check test.

CORRECTIVE ACTION:

A. Examine the circuit from the EEC, M7198, to the EGT (TT4.95) thermocouple cable terminal box:
   - Channel A, W1P7, pins A,X, to studs CR,AL
   - Channel B, W2P3, pins A,X, to studs CR,AL
   (See the simplified schematic that is shown on Fig. 10).
   (1) Tighten the alumel connections (larger nut) to 18-22 pound-inches (2.0-2.5 newton-meters).
   (2) Tighten the chromel connections (smaller nut) to 15-18 pound-inches (1.7-2.0 newton-meters).
   (3) Repair the problems that you find.
   (4) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, do the EGT (TT4.95) thermocouple box and cable - Adjustment/Test (AMM 77-21-03/501).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, do the EGT (TT4.95) thermocouple probe - Adjustment/Test (AMM 77-21-01/501).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-20 EEC CH-A/B TFUEL CR-CK FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the channel A and channel B EEC fuel temperature thermocouple probe signals have failed the cross-check test.
CORRECTIVE ACTION:
A. Replace the EEC fuel temperature thermocouple probe (AMM 73-21-09/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.
B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC fuel temperature thermocouple probe:
- Channel A, W1P7, pins Y,B, to W5P8, pins A,B
- Channel B, W2P3, pins Y,B, to W5P8, pins D,E
(WDM 71-51-14) (See the simplified schematic that is shown on Fig. 11).
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.
C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.
REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-21 EEC CH-A/B TOIL CR-CK FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the channel A and channel B EEC oil temperature thermocouple probe signals have failed the cross-check test.

CORRECTIVE ACTION:

A. Replace the EEC oil temperature thermocouple probe, T690 (AMM 73-21-10/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC oil temperature thermocouple probe, T690:
   - Channel A, W1P7, pins C,D, to W3P18, pins A,B
   - Channel B, W2P3, pins C,D, to W3P18, pins D,E
   (WDM 79-34-11) (See the simplified schematic that is shown on Fig. 11).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-22 EEC CH-A/B T3 CROSS-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel A and channel B EEC thermocouple probe (TT3) signals have failed the cross-check test.

CORRECTIVE ACTION:

A. Replace the EEC thermocouple probe (TT3) (AMM 73-21-14/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the EEC thermocouple probe (TT3):
- Channel A, W1P7, pins W,V, to the studs CR,AL
- Channel B, W2P3, pins W,V, to studs CR,AL
(See the simplified schematic that is shown on Fig. 22).
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-23 EEC CH-A/B DOT3 CR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel A and channel B No. 3 bearing oil temperature sensor signals have failed the cross-check test.

CORRECTIVE ACTION:

A. Replace the No. 3 bearing oil temperature sensor, T689 (AMM 79-34-01/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the No. 3 bearing oil temperature sensor, T689:
- Channel A, W1P7, pins Z,E, to W5P13, pins A,B
- Channel B, W2P3, pins Z,E, to W5P13, pins D,E
(WDM 71-51-14).
(1) Repair the problems that you find.

(2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-24 EEC CH-A/B FMU CR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is shown when the position of the fuel flow resolvers for channel A and channel B disagree by more than one degree.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use the simulator box (PWA 86124) to find out if the problem is in the fuel metering unit, M3108, or in the wiring from the EEC to the fuel metering unit.
(1) To use the simulator box, do the simulator box procedure (Fig. 5).
(2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, do these steps:
(1) Disconnect the W4P2 and W5P1 connectors from the fuel metering unit (FMU), M3108.
(2) Make sure that the resistance from pin to pin is as follows (See the simplified schematic that is shown on Fig. 12):

NOTE: There are three columns of resistances because there are three manufacturers of this component. Use the resistances for the three pin to pin checks from the same column.

PIN to PIN	RESISTANCE (Ohms)		
A to B	56-78	88-112	115-146
C to D	28-39	76-96	59-84
D to E	28-39	76-96	59-84

(3) Make sure that pins B,A,E,C,D do not go to ground.

NOTE: You must do all continuity checks from pin to pin. You must measure all insulation resistances from pin to ground. The insulation resistance must be more than 100 ohms.

C. If the resistance above is not correct, replace the FMU, M3108 (AMM 73-21-01/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

D. If the resistance above is correct, do a visual check for chafing of the wires inside or near the FMU, connectors W5P1 and W4P2. Refer to Engine Check 12 - Wire Harness Check, FIM 71-08-00/101.

E. If there is no wire chafing, examine the circuit from the EEC, M7198, to the FMU, M3108:
- Channel A, W1P6, pins h,i,T,U,V, to W4P2, pins B,A,E,C,D
- Channel B, W2P2, pins h,i,T,U,V, to W5P1, pins B,A,E,C,D
(WDM 73-21-11) (See the simplified schematic that is shown on Fig. 12).
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

F. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-25 EEC CH-A/B REVR CR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel A and channel B thrust reverer hydraulic actuator position signals have failed the cross-check test.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use the simulator box (PWA 86429 or PWA 86430) to find out if the problem is in the thrust reverser LVDT, T10033 (T10035), or in the wiring from the EEC to the thrust reverser LVDT.
   (1) To use the simulator box, do the Simulator Box Procedure (Fig. 5).
   (2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, do these steps:
   (1) Measure the resistance of the thrust reverser LVDT, T10033 (T10035), and the EEC wiring harness (WDM 78-36-11, WDM 78-36-21).

CH	EEC	PIN to PIN		RESISTANCE (Ohms)
A	W1P7	G	a	175-275
		H	F	240-340
B	W2P3	G	a	175-275
		H	F	240-340

   (2) Do the Repair Confirmation steps at the end of the corrective action.

(3) If all of the resistances are within the limits, replace the EEC, M7198 (AMM 73-21-04/401).
(a) Do the Repair Confirmation steps at the end of the corrective action.
(b) If the PIMU message comes back, replace the two thrust reverser hydraulic actuators (AMM 78-31-17/401).
(4) If all of the resistances are not within the limits, measure the resistance of the thrust reverser LVDT, T10033 (T10035) (WDM 78-36-11, WDM 78-36-21).

CH	REV	CONNECTOR	PIN to PIN		RESISTANCE (Ohms)
A	R	D8340P	1	2	400-500
			3	4	130-160
B	R	D8344P	1	2	400-500
			3	4	130-160
A	L	D8338P	1	2	400-500
			3	4	130-160
B	L	D8342P	1	2	400-500
			3	4	130-160

(a) Do the Repair Confirmation steps at the end of the corrective action.

C. If all of the resistances are not within the limits, replace the thrust reverser hydraulic actuator (AMM 78-31-17/401).
D. If all of the resistances are within the limits, do these steps:
(1) Examine the circuit from the EEC, M7198, to the thrust reverser LVDT, T10033 (T10035) (WDM 78-36-11, WDM 78-36-12).

CH	EEC	PIN	REV	CONNECTOR	PIN
A	W1P7	G	R	D8340J	2
		a			1
		H			4
		F			3
		G	L	D8338J	2
		a			1
		H			3
		F			4
B	W2P3	G	R	D8344J	2
		a			1
		H			4
		F			3
		G	L	D8342J	2
		a			1
		H			3
		F			4

(a) Repair the problems that you find.

(b) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-26 EEC CH-A/B TRA CR-CK FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel A and channel B thrust lever angle (TLA) resolver signals have failed the cross-check test.

CORRECTIVE ACTION:

A. Replace the thrust lever angle (TLA) resolver, TS171 (TS170) (AMM 73-21-11/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.
B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the TLA resolver, TS171 (TS170) (AMM 73-21-11/401).

   NOTE: When the circuit checks are done, do a continuity check from pin to pin and measure the insulation resistance from pin to ground. All resistancemeasurements from pin to ground must be more than 100K ohms.

CH	CONNECTOR	PIN	TRA	CONNECTOR	PIN
A	D11114	C	R	D5966J	R1
		Y			R3
		B			S1
		A			S2
		X			S3/S4
		C	L	D5964J	R1
		Y			R3
		B			S1
		A			S2
		X			S3/S4
B	D11686	C	R	D4736J	R1
		Y			R3
		B			S1
		A			S2
		X			S3/S4
		C	L	D4734J	R1
		Y			R3
		B			S1
		A			S2
		X			S3/S4

(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-27 EEC CH-A/B PO LINE FAIL	

DESCRIPTION OF FAILURE:

A. This message is shown when there are these conditions:
   (1) The altitude data from the left and right air data computers (ADC) agree
   (2) The probes of at least one ADC are heated
   (3) The altitude data from the left and right ADC is not the same as the altitude data from the EEC.

CORRECTIVE ACTION:

A. Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) while the engine is not in operation.
B. Look for the PIMU message "EEC CH-A/B P-SENSR DISAGREE" (350-20).
C. If the PIMU message for 350-20 is shown, do the corrective action for 350-20.
D. If the PIMU message for 350-20 is not shown, do these steps:
   (1) Remove the water from the PAMB water trap (AMM 73-21-04/601).
   (2) Examine and repair the PAMB tube.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-28 EEC CH-A/B STRT BLD OPEN	

DESCRIPTION OF FAILURE:
A. This message is shown if the left (channel A) or the right (channel B) 2.9 bleed valve stays open when it should be closed.
CORRECTIVE ACTION:
A. Look for the PIMU messages that follow:

- EEC CH-A/B LBL 352 BIT 17 (352-17)
- EEC CH-A/B STRT SOL W/A FAIL (354-15)
- EEC CH-A/B STAB SOL W/A FAIL (354-16)
- EEC CH-A/B PMA PWR SOL SHRT (354-24)

B. If one of these PIMU messages is shown, do the corrective action for the applicable message.
C. If the PIMU message for 352-17, 354-15, 354-16, or 354-24 is not shown or the PIMU message for 353-28 comes back, do these steps:
(1) Do Engine Check 4 - 2.9 Bleed System Check (FIM 71-08-00/101).

NOTE: For channel A, do a check of the left 2.9 bleed system. For channel B, do a check of the right 2.9 bleed system.

(a) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do Test No. 4 - Engine Power and Acceleration/Deceleration Test and operate the engine at 1.30 EPR (AMM 71-00-00/501).
(2) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(3) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
353-29 EEC CH-A/B XLINK FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the communication cross-link between channel A and channel B has failed.
CORRECTIVE ACTION:
A. Look for the PIMU message "EEC CH-A/B LOST POWER" (352-29).
B. If this PIMU message is shown, do the corrective action for 352-29.
C. If the PIMU message for 352-29 is not shown or if the PIMU message for 353-29 comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.
REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-14 EEC CH-A/B OVS SOL W/A FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the fuel metering unit (FMU) overspeed solenoid or its related wiring may have a circuit fault.
CORRECTIVE ACTION:
A. As an alternate procedure, you can use the simulator box (PWA 86124) to find out if the problem is in the fuel metering unit, M3108, or in the wiring from the EEC to the FMU.
(1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
(2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, do these steps:
   (1) Disconnect the W4P2 and W5P1 connectors from the FMU, M3108.
   (2) Make sure the resistance from pin R to pin S on the FMU, M3108, is 80-105 ohms (See the simplified schematic that is shown on Fig. 12).
   (3) Make sure that the pins R and S do not go to ground.

C. If the resistance is not correct, replace the FMU, M3108 (AMM 73-21-01/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

D. If the resistance above is correct, do a visual check for chafing of the wires inside or near the FMU, connectors W5P1 and W4P2. Refer to Engine Check 12 - Wire Harness Check, FIM 71-08-00/101.
   (1) If there is no wire chafing, examine the circuit from the EEC, M7198, to the FMU, M3108:
   - Channel A, W1P8, pins H,G, to W4P2, pins R,S:
   - Channel B, W2P4, pins H,G, to W5P1, pins R,S
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 12).
      (a) Repair the problems that you find.
      (b) Do the Repair Confirmation steps at the end of the corrective action.

E. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-15 EEC CH-A/B STRT SOL W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the left 2.9 bleed valve solenoid or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use the simulator box (PWA 86129) to find out if the problem is in the 2.9 bleed valve solenoid, V356, or in the wiring from the EEC to the 2.9 bleed valve solenoid.
   (1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
   (2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, replace the 2.9 bleed valve solenoid, V356 (AMM 75-32-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the 2.9 bleed valve solenoid, V356:
   - Channel A, W1P8, pins c,b, to W4P4, pins 3,4
   - Channel B, W2P4, pins c,b, to W5P11, pins 3,4
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 23).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-16 EEC CH-A/B STAB SOL W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the left 2.9 bleed valve solenoid or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use the simulator box (PWA 86129) to find out if the problem is in the 2.9 bleed valve solenoid, V356, or in the wiring from the EEC to the 2.9 bleed valve solenoid.
   (1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
   (2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, replace the 2.9 bleed valve solenoid, V356 (AMM 75-32-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the 2.9 bleed valve solenoid, V356:
   - Channel A, W1P8, pins d,a, to W4P4, pins 1,2
   - Channel B, W2P4, pins d,a, to W5P11, pins 1,2
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 23).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-17 EEC CH-A/B F/OIL SOL W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the fuel/oil cooler bypass valve solenoid or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. As an alternate procedure, you can use the simulator box (PWA 86127) to find out if the problem is in the fuel/oil cooler bypass valve solenoid, V358, or in the wiring from the EEC to the fuel/oil cooler bypass valve solenoid.
   (1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
   (2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, replace the fuel/oil cooler bypass valve solenoid, V358 (AMM 79-21-03/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the fuel/oil cooler bypass valve solenoid, V358:
   - Channel A, W1P8, pins R,S, to W3P5, pins 1,2:
   - Channel B, W2P4, pins R,S, to W5P5, pins 1,2
   (WDM 73-21-08) (See the simplified schematic that is shown on Fig. 20).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-18 EEC CH-A/B OVS W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the HPC secondary flow control valve, IDG air/oil heat exchanger valve override solenoid or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. Disconnect the W1P11 and the W1P10 connectors from the HPC secondary flow control valve (Engines without Phase 3 changes) or turbine vane and blade cooling air valve (Engines with Phase 3 changes), and IDG air/oil heat exchanger valve override solenoid (control and override solenoid), V355.

B. As an alternate procedure, you can use the simulator box (PWA 86128) to find out if the problem is in the solenoid or in the wiring from the EEC to the solenoid.
   (1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).

C. If you do not use the simulator box, do these steps:
   (1) Make sure the resistance from pin 1 to pin 2 (channel A) and pin 3 to pin 4 (channel B) on the control and override solenoid is 42-82 ohms.
      (a) Make sure that pins 1,2,3 and 4 do not go to ground.

D. If the resistance above is not correct or pins 1,2,3 or 4 go to ground, replace the IDG air/oil heat exchanger valve override solenoid (AMM 75-33-04/401).

E. If the resistance is correct or if the PIMU message comes back, examine the circuit from the EEC, M7198, to the IDG air/oil heat exchanger valve override solenoid:
   - Channel A, W1P8, pins f,r, to W1P11, pins 1,2,
   - Channel B, W2P4, pins f,r, to W1P10, pins 3,4
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 18).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

F. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-19 EEC CH-A/B LBL 354 BIT 19	

DESCRIPTION OF FAILURE:
A. This PIMU message shows the actuator test is completed without a failure.

CORRECTIVE ACTION:
A. No corrective action is necessary.

PIMU MESSAGE	
354-20 EEC CH-A/B TRC SOL W/A FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the HPC secondary flow control valve position feedback does not agree with the position commanded by the EEC.

CORRECTIVE ACTION:
A. The channel A message is for the TVBCA (Engines with Phase 3 changes) or HPC secondary flow control (Engines without Phase 3 changes)/IDG air/oil heat exchanger valve override solenoid, V355, (Right solenoid at the 1 o'clock position of the intermediate case). The channel B message is for the TVCA (Engines with Phase 3 changes) or HPC secondary flow control (Engines without Phase 3 changes)/TVBCA solenoid, V354 (Left solenoid at the 10 o'clock position of the intermediate case). The possible causes for this message are a failure of the right solenoid (Ch-A) or the left solenoid (Ch-B), or the wiring between the EEC and the solenoid.

B. As an alternate procedure, you can use the simulator box (PWA 86128) to find out if the problem is in the solenoid or in the wiring from the EEC to the solenoid.
   (1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
   (2) Do the Repair Confirmation steps at the end of the corrective action.

C. If you do not use the simulator box, do these steps:
   (1) Disconnect the W1P10 (Ch-A) or W1P12 (Ch-B) connector from the applicable solenoid.
   (2) Make sure the resistance from pin 1 to pin 2 is 47-87 ohms.
   (3) Make sure that pins 1 and 2 do not go to ground.

D. If the resistance above is not correct, replace the applicable solenoid (AMM 75-33-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

E. If the resistance above is correct or if the PIMU message come back, examine the applicable circuit from the EEC, M7198, to the solenoid:
   - Channel A, W1P8, pins P,h, to W1P10, pins 1,2,
   - Channel B, W2P4, pins P,h, to W1P12, pins 1,2
   (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 15).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

F. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-21 EEC CH-A/B TRC EXT W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the channel's HPC secondary flow control valve position feedback does not agree with the position commanded by the EEC.

CORRECTIVE ACTION:

A. Look for the PIMU message "EEC CH-A/B TRC SOL W/A FAIL" (354-20).

B. If this PIMU message shows, do the corrective action for 354-20.

C. ENGINES WITH ALL EEC's EXCEPT EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), 791100-4-048 (51D011), 791100-4-044 (50D823), AND 791100-4-049 (51D012);
If the PIMU message for 354-20 does not show, look for the PIMU message "EEC CH-A/B LBL 352 BIT 16".
(1) If this PIMU message shows, do the corrective action for 352-16.
(2) If the PIMU message does not show, no corrective action is necessary.

D. ENGINES WITH EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), 791100-4-048 (51D011), 791100-4-044 (50D823), AND 791100-4-049 (51D012);
If the PIMU message for 354-20 does not show or if the PIMU message for 354-21 comes back, do these steps:
(1) ENGINES WITH EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), 791100-4-048 (51D011), AND 791100-4-044 (50D823);
Look for the PIMU message "EEC CH-A/B FAULT CAT 1" (350-17).
(2) If this PIMU message for 350-17 does not show, no corrective action is necessary.
(3) If the PIMU message for 350-17 shows, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Use the Power Plant Operation (Normal) procedure to start the engine.
(b) Let the engine become stable at idle.
(c) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(d) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(e) Examine the PIMU for the PIMU message.

E. As an alternate procedure, you can use the simulator box (PWA 86130) to find out if the problem is in the HPC secondary flow control valve or in the wiring from the EEC to the HPC secondary flow control valve.
(1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
(2) Do the Repair Confirmation steps at the end of the corrective action.

F. If you do not use the simulator box, do the steps that follow only if the PIMU message for 354-21 showed during the PIMU BITE procedure:
(1) Replace the HPC secondary flow control valve (AMM 75-33-01/401).

NOTE: For channel A, replace the right control valve. For channel B, replace the left control valve.

(a) Do the Repair Confirmation steps at the end of the corrective action.
(2) If the PIMU message for 354-21 comes back, examine the circuit from the EEC, M7198, to the HPC secondary flow control valve position switch, S1613 (S1614):
- Channel A, W1P6, pins j,w, to W4P10, pins B,A
- Channel B, W2P2, pins j,w, to W5P10, pins B,A
(WDM 71-51-14) (See the simplified schematic that is shown on Fig. 16).
(a) Repair the problems that you find.
(b) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:
A. To see if the PIMU message comes back, you must look for the message after the subsequent flight above 25,000 feet.

PIMU MESSAGE	
354-22 EEC CH-A/B TCA SOL W/A FAIL	

DESCRIPTION OF FAILURE:
A. This message is displayed to indicate that the turbine blade and vane cooling air valve solenoid or its related wiring may have a circuit fault.

CORRECTIVE ACTION:
A. As an alternate procedure, you can use the simulator box (PWA 86128) to find out if the problem is in the TVCA (Engines with Phase 3 changes) or HPC secondary flow control (Engines without Phase 3 changes)/TVBCA solenoid, V354 (Left solenoid at the 10 o'clock position of the intermediate case), or in the wiring from the EEC to the solenoid.
(1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).

(2) Do the Repair Confirmation steps at the end of the corrective action.

B. If you do not use the simulator box, disconnect the W1P12 connector from the solenoid.

C. Make sure the resistance from pin 3 to pin 4 on the solenoid is 47-87 ohms.

D. Make sure that pins 3 and 4 do not go to ground.

E. If the resistance above is not correct, replace the solenoid (AMM 75-33-04/401).

F. If the resistance above is correct or if the PIMU message comes back, examine the circuit from the EEC, M7198, to the solenoid, W1P8, pins g,s to W1P12, pins 3,4 (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 15).

(1) Repair the problems that you find.

(2) Do the Repair Confirmation steps at the end of the corrective action.

G. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-23 EEC CH-A/B TCA EXT W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the turbine blade and vane cooling air valve position feedback does not agree with the position commanded by the EEC.

CORRECTIVE ACTION:

A. ENGINES WITH EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), 791100-4-048 (51D011), 791100-4-044 (50D823), AND 791100-4-049 (51D012);
Look for the PIMU message "EEC CH-A/B FAULT CAT 1" (350-17) for the applicable engine.

B. If the PIMU message 350-17 is shown, do these steps that follow:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).
(2) Let the engine become stable at idle.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Use the Power Plant Operation (Normal) procedure to do the engine shutdown (AMM 71-00-00/201).
(5) Look for the PIMU messages that follow:

- EEC CH-A/B TCA SOL W/A FAIL (354-22)
- EEC CH-A/B TCA EXT W/A FAIL (354-23)

(6) If the PIMU message 354-22 is shown, do the corrective action for 354-22.
(7) If the PIMU message 354-23 is shown or if the PIMU message for 354-23 comes back frequently, do these steps:
(a) As an alternate procedure, you can use the simulator box (PWA 86130) to find out if the problem is in the turbine vane and blade cooling air valve position switch, S1615, or in the wiring from the EEC to the turbine vane and blade cooling air valve position switch.
1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).
2) To see if the PIMU message comes back, you must look at the PIMU after the subsequent flight above 25,000 feet.
(b) If you do not use the simulator box, do these steps:
1) Replace the right turbine vane and blade cooling air valve (AMM 75-24-01/401) an d the turbine vane and blade cooling air valve position switch, S1615 (AMM 75-24-13/401).

2) To see if the PIMU message comes back, you must look at the PIMU after the subsequent flight above 25,000 feet.

(c) If the PIMU message for 354-23 comes back, examine the circuit from the EEC, M7198, to the turbine vane and blade cooling air valve position switch, S1615: channel A, W1P6, pins m,t, to W4P21, pins B,A (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 17).

1) Repair the problems that you find.

2) To see if the PIMU message comes back, you must look at the PIMU after the subsequent flight above 25,000 feet.

(d) If the PIMU message for 354-23 comes back, replace the HPC secondary flow control valve and turbine vane and blade cooling air valve solenoid, V354 (AMM 75-33-03/401).

(8) If none of the two PIMU messages is shown, no corrective action is necessary.

(9) If the PIMU message 354-23 is shown frequently, do the steps above again for the condition when the 354-23 is shown frequently.

C. If the PIMU message 350-17 is not shown, no corrective action is necessary.

D. If the PIMU message 354-23 is shown frequently, do the steps above again for the condition when 354-23 is shown frequently.

E. ENGINES WITH ALL EEC's EXCEPT EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), 791100-4-048 (51D011), 791100-4-044 (50D823), AND 791100-4-049 (51D012);
Look for the PIMU message "EEC CH-A TCA SOL W/A FAIL" (354-22).

(1) If the PIMU message shows, do the corrective action for 354-22.

(2) If the PIMU message for 354-22 does not show, do these steps:

(3) Look for the PIMU message "EEC CH-A LBL 353 BIT 17".

(4) If the PIMU message 353-17 does not show, no corrective action is necessary.

(5) If the PIMU message 353-17 shows frequently, do the steps that follow:

(a) As an alternate procedure, you can use the simulator box (PWA 86130) to find out if the problem is in the turbine vane and blade cooling air valve position switch, S1615, or in the wiring from the EEC to the turbine vane and blade cooling air valve position switch.

1) To use the simulator box, do this procedure: Simulator Box Procedure (Fig. 5).

(b) If you do not use the simulator box, do these steps:

1) Replace the right turbine vane and blade cooling air valve (AMM 75-24-01/401) and the turbine vane and blade cooling air valve position switch, S1615 (AMM 75-24-13/401).

(c) If the PIMU message for 354-23 comes back, examine the circuit from the EEC, M7198, to the turbine vane and blade cooling air valve position switch, S1615: Channel A, W1P6, pins m,t, to W4P21, pins B,A (WDM 71-51-14) (See the simplified schematic that is shown on Fig. 17).
1) Repair the problems that you find.
2) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-24 EEC CH-A/B PMA PWR SOL SHRT	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the EEC has detected a short circuit in one or more of the solenoids powered by the EEC alternator. The solenoids powered by the EEC alternator are the left 2.9 bleed valve solenoid and the right 2.9 bleed valve solenoid.

CORRECTIVE ACTION:

A. Replace the 2.9 bleed valve solenoid, V356 (AMM 75-32-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

B. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the 2.9 bleed valve solenoid, V356:
- Channel A, W1P8, pins d,a,c,b, to W4P4, pins 1,2,3,4
- Channel B, W2P4, pins d,a,c,b, to W5P11, pins 1,2,3,4
(WDM 71-51-14) (See the simplified schematic that is shown on Fig. 23).
(1) Repair the problems that you find.

(2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-25 EEC CH-A/B A/P PWR SOL SHRT	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the EEC has detected a short circuit in one or more of the solenoids powered from the airplane power system. The solenoids powered from the airplane power system are listed as followed:

- HPC Secondary Flow Control Valve Solenoid
- Fuel/Oil Cooler Bypass Valve Solenoid
- IDG Air/Oil Heat Exchanger Override Solenoid
- Turbine Vane and Blade Cooling Air Valve Solenoid.

CORRECTIVE ACTION:

A. Measure the resistance from pin to pin and from pin to ground on the solenoids that follow:

CAUTION: CONNECT THE TEST EQUIPMENT TO THE SOLENOID ONLY. DO NOT CONNECT THE TEST EQUIPMENT TO THE EEC WIRING HARNESS OR YOU CAN CAUSE DAMAGE TO THE EEC.

(1) HPC Secondary Flow Control Valve, IDG Air/Oil Heat Exchanger Valve Override Solenoid, V355:
- Channel A, J11 (W1P11), pins 1 to 2, and J10 (W1P10), pins 1 to 2
- Channel B, J10 (W1P10), pins 3 to 4

(WDM 73-21-20) (See the simplified schematic that is shown on Fig. 18).

(2) HPC Secondary Flow Control Valve, Turbine Vane and Blade Cooling Air valve Solenoid, V354:
- Channel A, J12 (W1P12), pins 3 to 4,
- Channel B, J12 (W1P12), pins 1 to 2
(WDM 73-21-20) (See the simplified schematic that is shown on Fig. 15).

(3) Fuel/Oil Cooler Bypass Valve Solenoid, V358:
- Channel A, J5 (W3P5), pins 1 to 2,
- Channel B, J5 (W5P5), pins 1 to 2
(WDM 73-21-08) (See the simplified schematic that is shown on Fig. 20).

(4) Repair the problems that you find.

(5) Do the Repair Confirmation steps at the end of the corrective action.

B. If the resistance from pin to pin is less than 10 ohms, the solenoid is unserviceable.

C. If the resistance from pin to ground was less than 100K ohms, the solenoid is unserviceable.

D. If an unserviceable HPC secondary flow control valve, IDG air/oil heat exchanger valve override solenoid, V355, is found, do these steps:
(1) Replace the HPC secondary flow control valve, IDG air/oil heat exchanger valve override solenoid, V355 (AMM 75-33-04/401).
(2) Do the Repair Confirmation steps at the end of the corrective action.

E. If an unserviceable HPC secondary flow control valve, turbine vane and blade cooling air valve solenoid, V354, is found, do these steps:
(1) Replace the HPC secondary flow control valve , turbine vane and blade cooling air valve solenoid, V354 (AMM 75-33-03/401).
(2) Do the Repair Confirmation steps at the end of the corrective action.

F. If an unserviceable fuel/oil cooler bypass valve solenoid, V358, is found, do these steps:
(1) Replace the fuel/oil cooler bypass valve solenoid, V358 (AMM 79-21-01/401).
(2) Do the Repair Confirmation steps at the end of the corrective action.

G. If the PIMU message comes back, examine the circuit from the EEC, M7198, to the solenoids as follows:
(1) HPC Secondary Flow Control Valve, IDG Air/Oil Heat Exchanger Valve Override Solenoid, V355:
- Channel A, W1P8, pins f,r, to W1P11, pins 1,2 and W1P8, pins P,h, to W1P10, pins 1,2,
- Channel B, W2P4, pins f,r, to W1P10, pins 3,4
(WDM 73-21-20) (See the simplified schematic that is shown on Fig. 18).

(2) HPC Secondary Flow Control Valve, Turbine Vane and Blade Cooling Air Valve Solenoid, V354:
- Channel A, W1P8, pins g,s, to W1P12, pins 3,4,
- Channel B, W2P4, pins P,h, to W1P12, pins 1,2
(WDM 73-21-20) (See the simplified schematic that is shown on Fig. 15).

(3) Fuel/Oil Cooler Bypass Valve Solenoid, V358:
- Channel A, W1P8, pins R,S, to W3P5, pins 1,2,
- Channel B, W2P4, pins R,S, to W5P5, pins 1,2
(WDM 73-21-08) (See the simplified schematic that is shown on Fig. 20).

(4) Repair the problems that you find.

(5) Do the Repair Confirmation steps at the end of the corrective action.

H. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-26 EEC CH-A/B 28V PERF SOL PWR	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the airplane's 28V solenoid power was lost for ten seconds or more.

NOTE: This message is set if the engines are started when the airplane is powered by the battery. No corrective action is necessary if the message is set while you do and engine start with the airplane battery power.

CORRECTIVE ACTION:

A. Make sure these circuit breakers on the pilots' overhead circuit breaker panel, P11, are closed:
   (1) 11L3, L ENGINE PERF SOL CH A
   (2) 11L4, L ENGINE PERF SOL CH B
   (3) 11L30, R ENGINE PERF SOL CH A
   (4) 11L31, R ENGINE PERF SOL CH B

B. Measure the voltage at the EEC electrical connectors; channel A, W1P8, between pins M and N (ground); channel B, W2P4, between pins M and N (ground).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

C. If the PIMU message for 354-26 comes back, do the corrective action for 354-25.
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
   (2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-27 EEC CH-A/B MDE INC W/A FAIL	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the cockpit mode indicator or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. Examine the position of the EEC MAINT L(R) ENG POWER switch on the P61 panel.

B. ENGINES WITH EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821), AND 791100-4-048 (51D011);
If the switch is in the TEST position, do these steps:
(1) Put the switch to the NORM position.
(2) Put the switch back to the TEST position.
(3) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(4) Examine the PIMU for the message 354-27.
(5) If this PIMU message does not show, put the airplane back to its usual configuration.
(6) Put the switch back to the NORM position.

C. ENGINES WITH ALL EEC's EXCEPT EEC P/N's 791100-4-035 (50D437), 791100-4-038 (50D821) AND 791100-4-048 (51D011);
If the PIMU message for 354-27 shows with the EEC MAINT L(R) ENG POWER switch on the P61 panel in the NORM position, do these steps:
(1) Put the mode indicator switch on the pilots' overhead panel, P5, to the ALTN position.
(2) Look for the light on the mode indicator switch.
(3) If the mode indicator light does not come on, replace the light bulb (WDM 73-21-11).

D. Examine the circuit from the EEC, M7198, to the mode indicator light:
- Channel A, W1P8, pin e, to ground, and W1P8, pin p, to D2083 (D2085), pin 15,
- Channel B, W2P4, pin e, to ground, and W2P4, pin p, to D2083 (D2085), pin 15.
(1) Repair the problems that you find.
(2) Do the Repair Confirmation steps at the end of the corrective action.

E. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
(1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
(1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.
(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-28 EEC CH-A/B REVERSER INTRLOCK	

DESCRIPTION OF FAILURE:

A. This message is displayed to indicate that the cockpit reverse interlock relay coil or its related wiring may have a circuit fault.

CORRECTIVE ACTION:

A. Examine the circuit from the EEC, M7198, to the reverse interlock relay, K2044 (K2045):
   - channel A, W1P8, pin F,E, to D13040 (D13042), pin x2, ground
   - channel B, W2P4, pin F,E, to D13040 (D13042), pin x2, ground
   (WDM 78-36-11, WDM 78-36-21).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

B. For the left engine thrust reverser, if the PIMU message comes back, examine the circuit from D13040, pins x1,x2, to D7986P, pin 5 (C/B 1493) (WDM 78-36-11).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

C. For the right engine thrust reverser, if the PIMU message comes back, examine the circuit from D13042, pins x1,x2, to D7986P, pin 1 (R BUS PWR SENS relay K898, pin B2) (WDM 78-36-21).
   (1) Repair the problems that you find.
   (2) Do the Repair Confirmation steps at the end of the corrective action.

D. If the channel A and channel B PIMU message is shown, replace the reverse interlock relay, K2044 (K2045).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

E. If the PIMU message comes back, replace the EEC, M7198 (AMM 73-21-04/401).
   (1) Do the Repair Confirmation steps at the end of the corrective action.

REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:
   (1) Do this procedure: PIMU BITE Procedure (Fig. 3, Block 10) which transmits EEC fault codes to the PIMU.

(2) Examine the PIMU for the PIMU message.

PIMU MESSAGE	
354-29 EEC CH-A/B OVS FAIL LAST S/D	

DESCRIPTION OF FAILURE:

A. This message is shown when the EEC finds a failure in the overspeed protection circuits. The EEC does this test whenever the engine is shutdown.

CORRECTIVE ACTION:

A. Look for the PIMU messages that follow:

- EEC A/B CHAN FAIL (350-14) in both EEC channels
- EEC CH-A/B UNIT FAIL (350-15) in both EEC channels
- EEC CH-A/B OVS CKT FAIL (351-29)
- EEC CH-A/B OVS SOL W/A FAIL (354-14)

B. If one of these PIMU messages is shown, do the corrective action for the applicable message.

C. If none of the above PIMU messages shows, replace the EEC, M7918 (AMM 73-21-04/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

D. If PIMU message 354-29 comes back, replace the fuel metering unit (FMU), M3108 (AMM 73-21-01/401).

(1) Do the Repair Confirmation steps at the end of the corrective action.

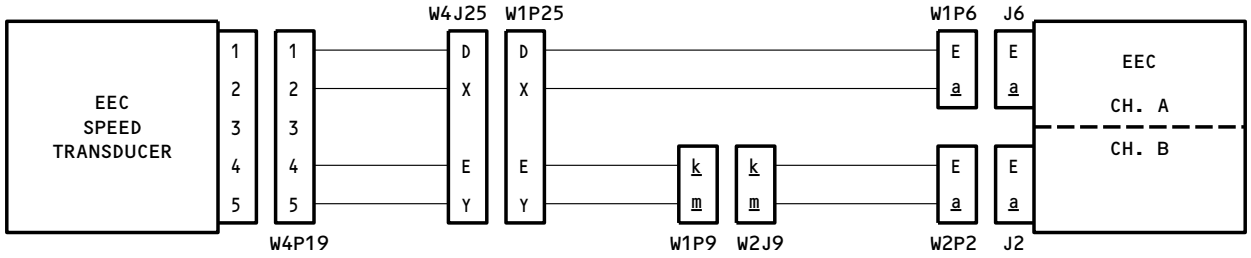
REPAIR CONFIRMATION:

A. To see if the PIMU message comes back, do these steps:

WARNING: USE AMM 71-00-00/201 TO OPERATE THE POWER PLANT. IF YOU DO NOT USE THIS PROCEDURE, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Use the Power Plant Operation (Normal) procedure to start the engine (AMM 71-00-00/201).

(2) Let the engine become stable at idle.
(3) Use the Power Plant Operation (Normal) procedure to shut down the engine (AMM 71-00-00/201).
(4) Repeat steps 1, 2, and 3 four more times, so the engine has been started and shutdown a total of five times.
(5) Examine the PIMU for the PIMU messages.

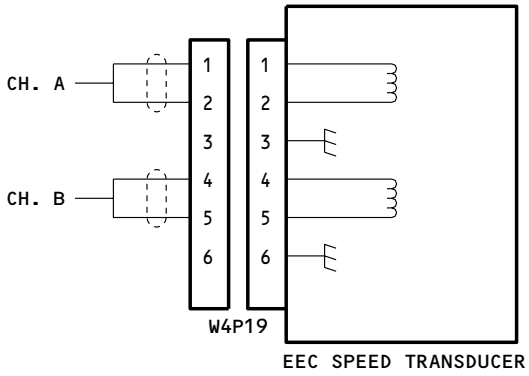


WIRING HARNESS

MESSAGES	LABEL-BIT
N1 RANGE FAIL	352-14
N1 CROSS-CK FAIL	353-14

PIMU MESSAGES

CH. A		CH. B	
N1 SENSOR	EEC	N1 SENSOR	EEC
W4P19	W1P6	W4P19	W2P2
1	E	4	E
2	a	5	a

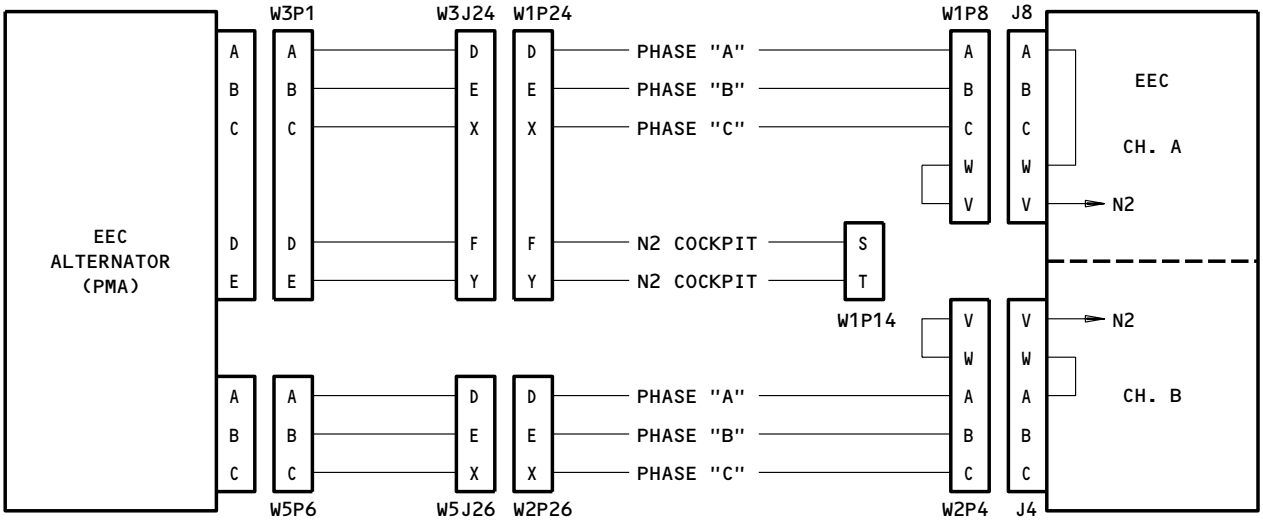


COMPONENT SCHEMATIC

PINS		RESISTANCE
1	2	301-369 OHMS
4	5	301-369 OHMS

NOTE: THE RESISTANCE VALUES GIVEN IN THIS TABLE ARE FOR REFERENCE ONLY. TEST EQUIPMENT, TEMPERATURE, HUMIDITY, SERVICE, ETC. CAN HAVE AN EFFECT ON THE RESISTANCE VALUES.

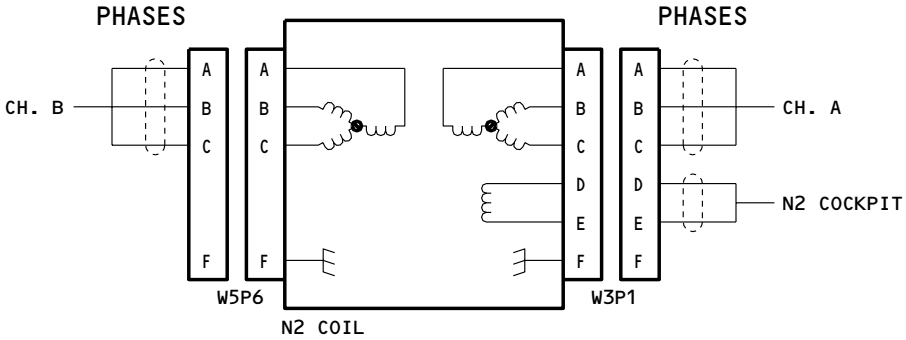
EEC Speed Transducer (N1) Schematics
Figure 7



WIRING HARNESS

PIMU MESSAGES	
MESSAGES	LABEL–BIT
N2 RANGE FAIL	352–15
LOSS POWER	352–29
N2 CROSS–CK FAIL	353–15

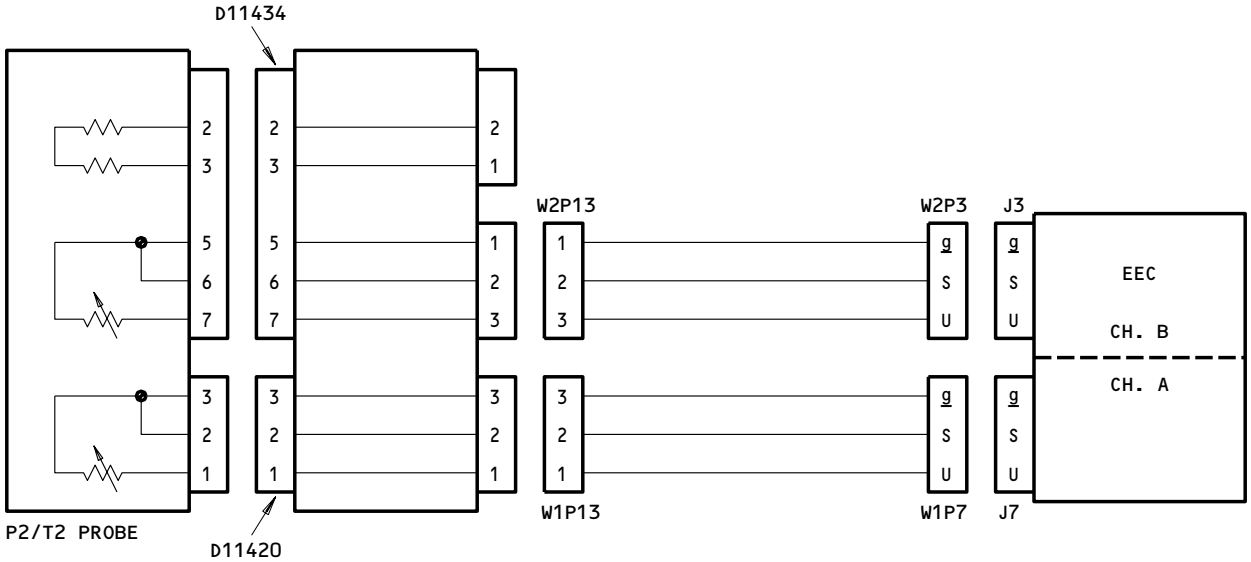
CH. A		CH. B	
PMA	EEC	PMA	EEC
W3P1	W1P8	W5P6	W2P4
A	A	A	A
B	B	B	B
C	C	C	C



COMPONENT SCHEMATIC

COMPONENT	PINS	RESISTANCE
ALTERNATOR COILS	A TO B	5 OHMS
	A TO C	5 OHMS
	B TO C	5 OHMS
N2 SPEED	D TO E	950–1050 OHMS (CHANNEL A ONLY)

EEC Alternator (N2 Speed Transducer) Schematics
Figure 8



WIRING HARNESS

PIMU MESSAGES	
MESSAGES	LABEL-BIT
T2 RANGE FAIL	352-18
T2 CROSS-CK FAIL	353-18

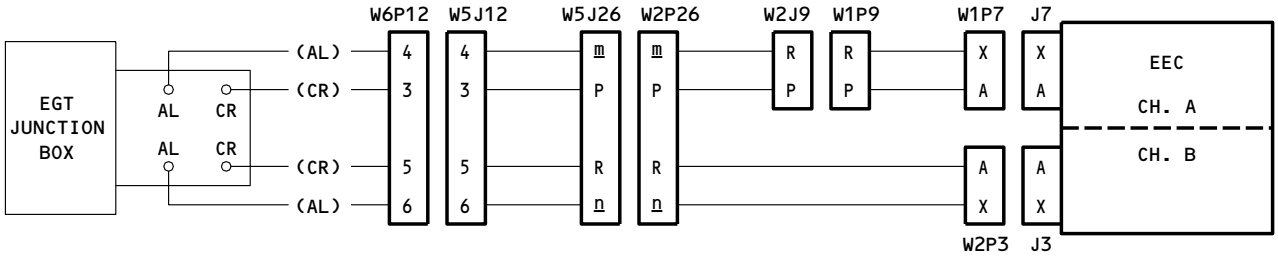
CH. A		CH. B	
P2/T2	EEC	P2/T2	EEC
D11420	W1P7	D11434	W2P3
1	U	5	g
2	S	6	S
3	g	7	U

COMPONENT	PINS	RESISTANCE
SENSOR A (CH. A)	1 TO 2	365Ω (-65°F/-54°C) 690Ω (+200°F/+93°C) 1 2
	1 TO 3	
SENSOR B (CH. B)	7 TO 6	
	7 TO 5	

1 THE RESISTANCE WILL VARY LINEARLY WITH THE TEMPERATURE

2 THE CIRCUIT RESISTANCE DIFFERENCE BETWEEN SENSOR A AND SENSOR B MUST NOT BE MORE THAN 6 OHMS.

EEC Inlet Total Pressure/Temperature (PT2/TT2) Probe Schematics
Figure 9

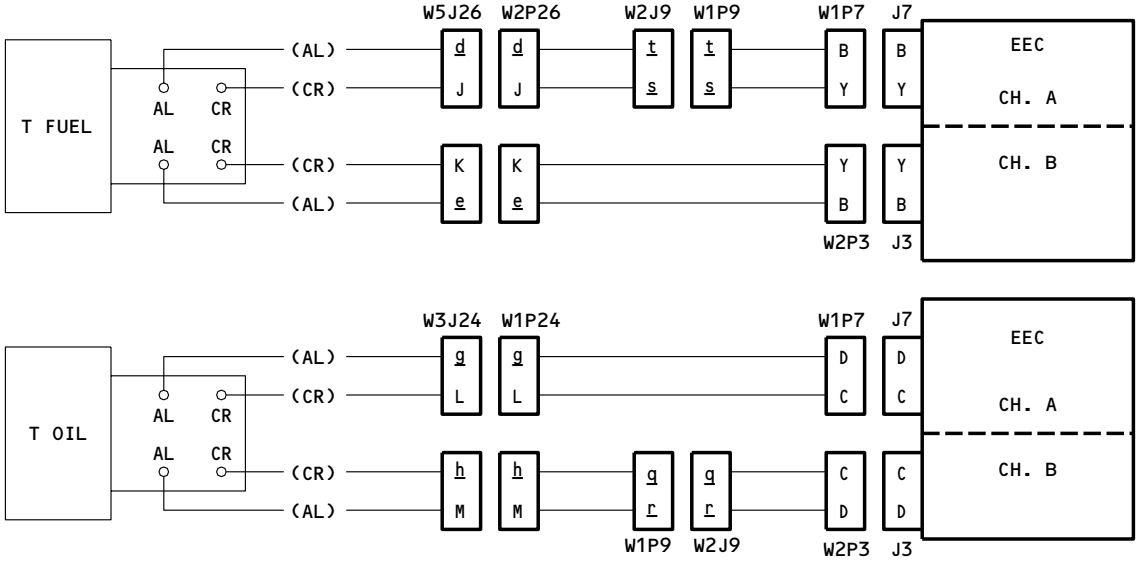


WIRING HARNESS

PIMU MESSAGES	
MESSAGES	LABEL-BIT
T5 RANGE FAIL	352-19
T5 CROSS-CK FAIL	353-19

CH. A		CH. B	
T4.95 PROBE	EEC W1P7	T4.95 PROBE	EEC W2P3
AL	X	CR	A
CR	A	AL	X

TT4.95 (EGT) Harness Schematics
Figure 10



WIRING HARNESS

MESSAGES	LABEL-BIT
T FUEL RANGE FAIL	352-20
T FUEL CR-CK FAIL	353-20

PIMU MESSAGES-FUEL TEMPERATURE

MESSAGES	LABEL-BIT
T OIL RANGE FAIL	352-21
T OIL CR-CK FAIL	353-21

PIMU MESSAGES-OIL TEMPERATURE

CH. A		CH. B	
PROBE	EEC	PROBE	EEC
	W1P7		W2P3
CR	Y	CR	Y
AL	B	AL	B

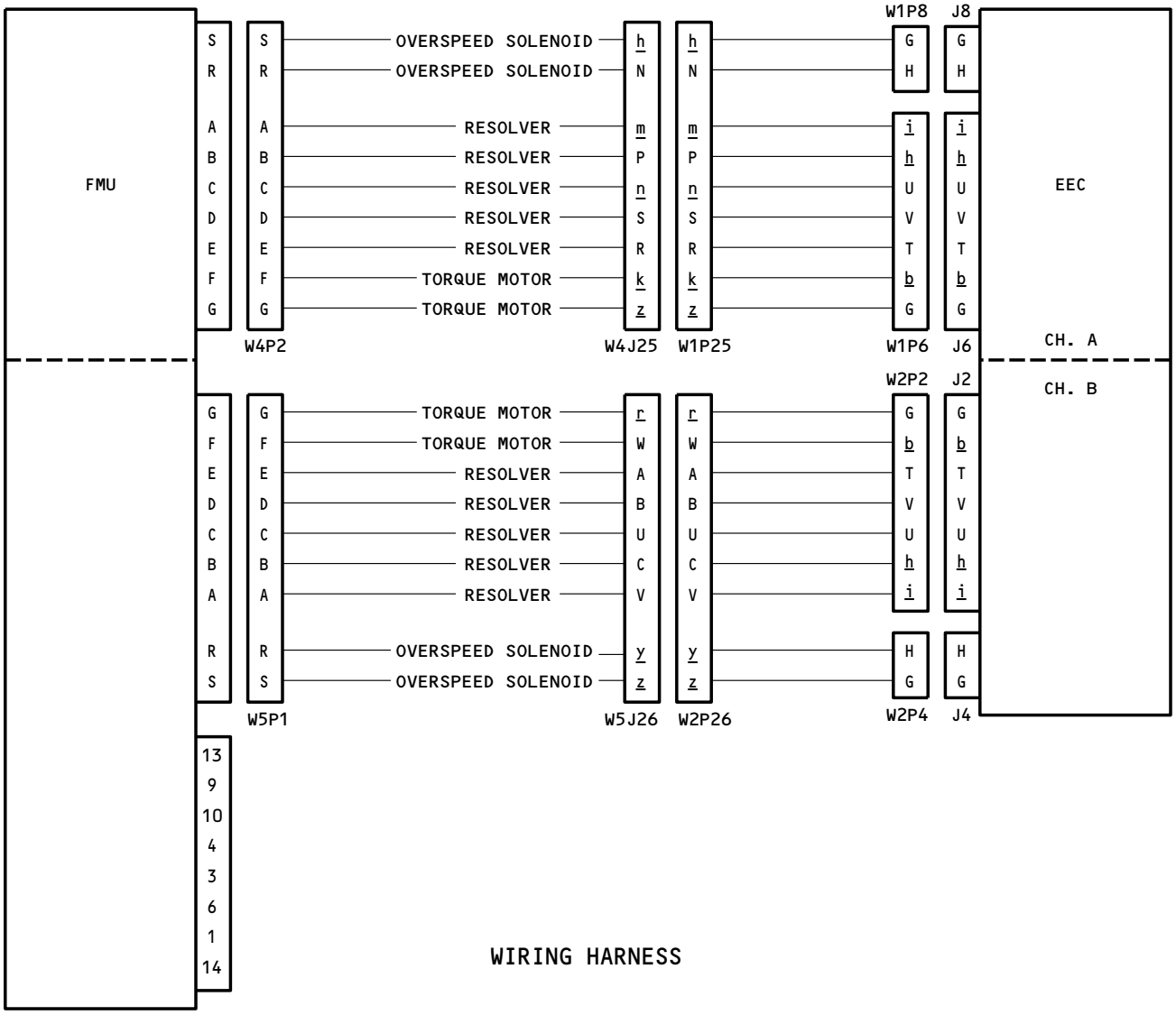
T FUEL

CH. A		CH. B	
PROBE	EEC	PROBE	EEC
	W1P7		W2P3
CR	C	CR	C
AL	D	AL	D

T OIL

STUDS		RESISTANCE
CR	AL	< 1 OHM

Fuel and Oil Temperature Probe/Harness Schematics
Figure 11



Fuel Metering Unit (FMU) Schematics
Figure 12 (Sheet 1)

H93741

MESSAGES	LABEL-BIT
FMU TR-CK FAIL	351-19
FMU FD-BC FAIL	351-24

PIMU MESSAGES

CH. A		CH. B	
EEC	FMU	EEC	FMU
W1P6	W4P2	W2P2	W5P1
T	E	T	E
V	D	V	D
U	C	U	C
h	B	h	B
i	A	i	A

MESSAGES	LABEL-BIT
FMU T/M W/A FAIL	351-14
FMU CR-CK FAIL	353-24

PIMU MESSAGES

CH. A		CH. B	
EEC	FMU	EEC	FMU
W1P6	W4P2	W2P2	W5P1
G	G	G	G
b	F	b	F

MESSAGES	LABEL-BIT
OVS CKT FAIL	351-29
OVS SOL W/A FAIL	354-14
OVS FAIL LAST S/D	354-29

PIMU MESSAGES

CH. A		CH. B	
EEC	FMU	EEC	FMU
W1P8	W4P2	W2P4	W5P1
H	R	H	R
G	S	G	S

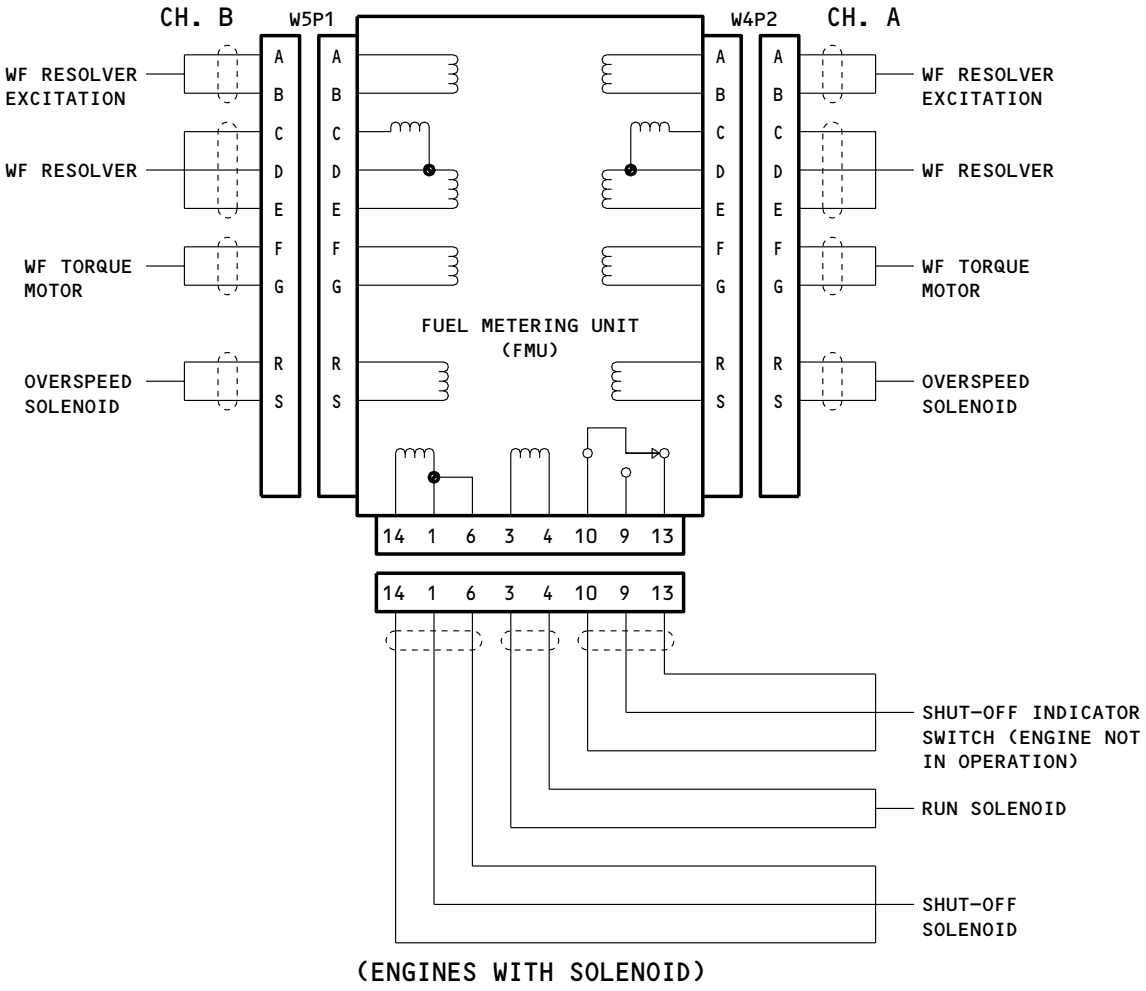
FMU	PINS	RESISTANCE 1 2		
		COLUMN 1	COLUMN 2	COLUMN 3
WF RESOLVER	A TO B	47-67 OHMS	88-112 OHMS	115-146 OHMS
	C TO D	28-39 OHMS	76-96 OHMS	59-84 OHMS
	D TO E	28-39 OHMS	76-96 OHMS	59-84 OHMS
THE RESULTING VALUES OF ADDING THE READINGS (C TO D) AND (D TO E) MUST MATCH THE READING BETWEEN (C TO E) WITHIN THE INDICATED VALUE.		1.0 MAX	2.0 MAX	2.0 MAX

FMU	PINS	RESISTANCE 2
TORQUE MOTOR	F TO G	78-102
OVERSPEED SOLENOID	R TO S	84-103
SHUTOFF SOLENOID	1 TO 14	41-60
SHUTOFF SOLENOID	6 TO 14	41-60
START/RUN SOLENOID	3 TO 4	41-60
SHUTOFF SWITCH (SHUTOFF POSITION)	10 TO 13	LESS THAN 0.25 OHM
SHUTOFF SWITCH (RUN POSITION)	9 TO 10	OPEN CIRCUIT

1 EACH COLUMN IS FOR A DIFFERENT SUPPLIER FOR THIS PART. USE ALL THE RESISTANCE VALUES FROM THE SAME COLUMN FOR EACH RESISTANCE CHECK.

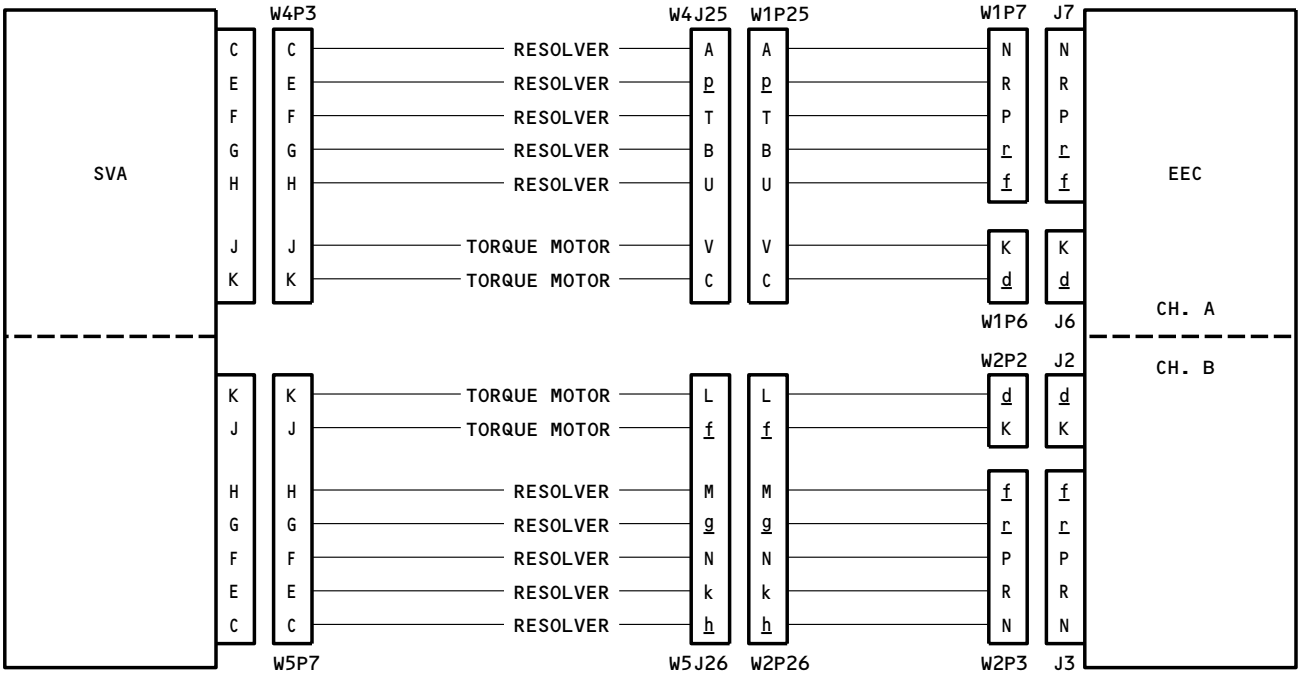
2 THE RESISTANCE VALUES GIVEN IN THIS TABLE ARE FOR REFERENCE ONLY. TEST EQUIPMENT, TEMPERATURE, HUMIDITY, SERVICE, ETC., CAN HAVE AN EFFECT ON THE RESISTANCE VALUES.

Fuel Metering Unit (FMU) Schematics
Figure 12 (Sheet 2)



(ENGINES WITH SOLENOID)

Fuel Metering Unit (FMU) Schematics
Figure 12 (Sheet 3)



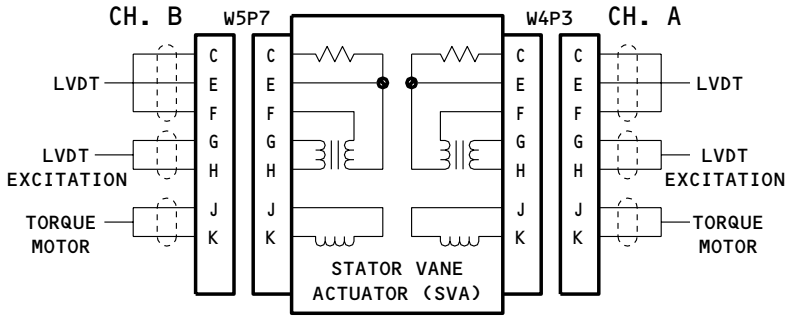
WIRING HARNESS

MESSAGES	LABEL-BIT
SVA T/M W/A FAIL	351-15
SVA TR-CK FAIL	351-20
SVA FD-BK FAIL	351-25

PIMU MESSAGES

Stator Vane Actuator (SVA) Schematics
Figure 13 (Sheet 1)

CH. A		CH. B	
EEC	SVA	EEC	SVA
W1P6	W4P3	W2P2	W5P7
d	K	d	K
K	J	K	J



COMPONENT SCHEMATIC

CH. A		CH. B	
EEC	SVA	EEC	SVA
W1P7	W4P3	W2P3	W5P7
f	H	f	H
r	G	r	G
P	F	P	F
R	E	R	E
N	C	N	C

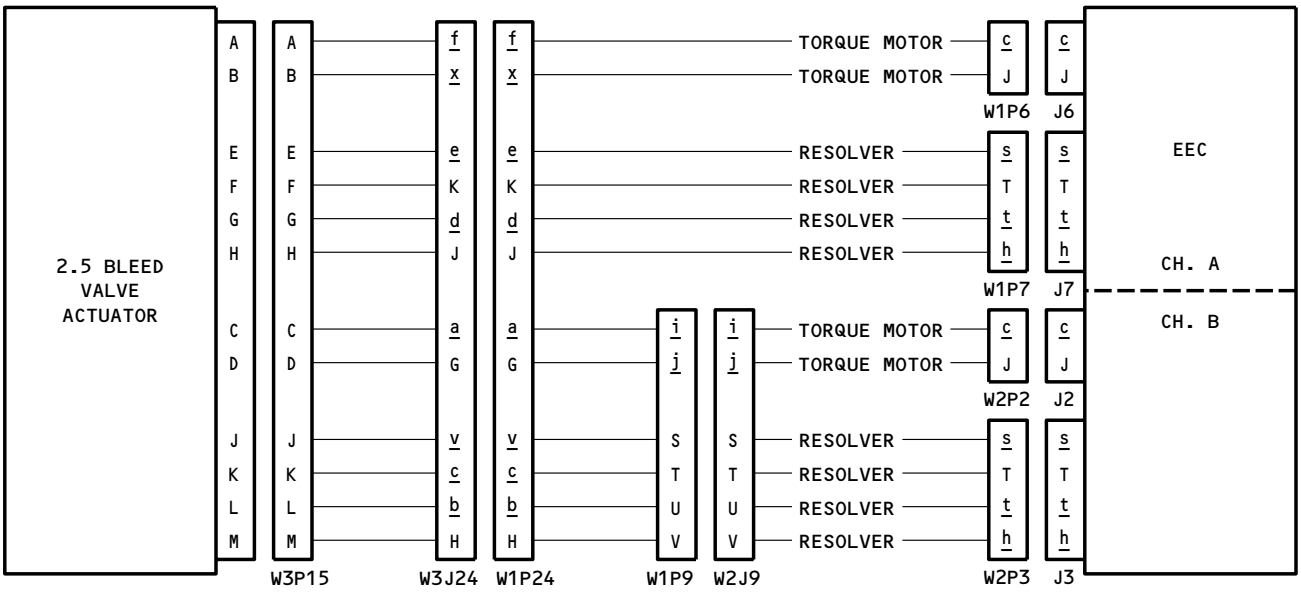
COMPONENT	PINS	RESISTANCE 1 2	
		COLUMN 1	COLUMN 2
LVDT	C TO E	195–275 OHMS	420–510 OHMS
	E TO F	465–637 OHMS	425–515 OHMS
	G TO H	194–356 OHMS	200–225 OHMS

COMPONENT	PINS	RESISTANCE 2
TORQUE MOTOR	J TO K	80–100 OHMS

1 EACH COLUMN IS FOR A DIFFERENT SUPPLIER FOR THIS PART. USE ALL THE RESISTANCE VALUES FROM THE SAME COLUMN FOR EACH RESISTANCE CHECK. MAKE SURE YOU DO A CHECK OF ALL PIN–TO–PIN COMBINATIONS.

2 THE RESISTANCE VALUES GIVEN IN THIS TABLE ARE FOR REFERENCE ONLY. TEST EQUIPMENT, TEMPERATURE, HUMIDITY, SERVICE, ETC., CAN HAVE AN EFFECT ON THE RESISTANCE VALUES.

Stator Vane Actuator (SVA) Schematics
Figure 13 (Sheet 2)

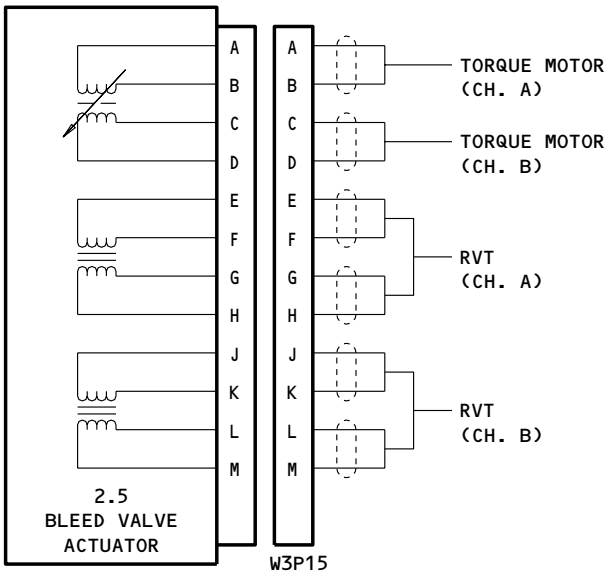


WIRING HARNESS

MESSAGES	LABEL-BIT
B25 T/M W/A FAIL	351-16
B25 TR-CK FAIL	351-21
B25 FD-BK FAIL	351-26

PIMU MESSAGES

2.5 Bleed Valve Actuator Schematics
Figure 14 (Sheet 1)



COMPONENT SCHEMATIC

CH. A		CH. B	
2.5 BLEED	EEC	2.5 BLEED	EEC
W3P15	W1P6	W3P15	W2P2
A	c	C	c
B	J	D	J
W3P15	W1P7	W3P15	W2P3
E	s	J	s
F	T	K	T
G	t	L	t
H	h	M	h

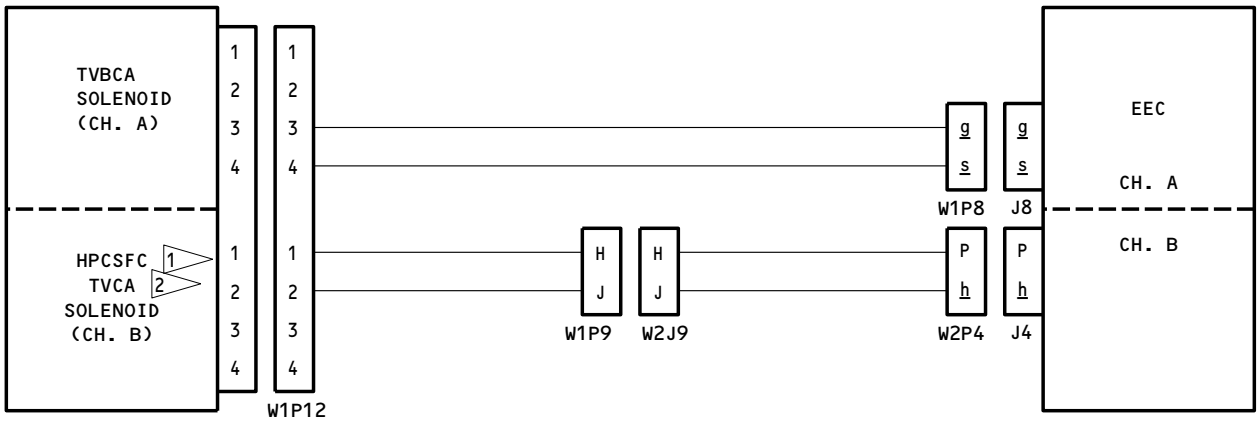
COMPONENT	PINS	RESISTANCE
TORQUE MOTOR	A TO B	80–100 OHMS
	C TO D	80–100 OHMS

COMPONENT	PINS	RESISTANCE 1 2	
		COLUMN 1	COLUMN 2
RVDT	E TO F	40–100 OHMS	99–157 OHMS
	G TO H	85–200 OHMS	179–257 OHMS
	J TO K	40–100 OHMS	99–157 OHMS
	L TO M	85–200 OHMS	179–257 OHMS

1 EACH COLUMN IS FOR A DIFFERENT SUPPLIER FOR THIS PART. USE ALL THE RESISTANCE VALUES FROM THE SAME COLUMN FOR EACH RESISTANCE CHECK. MAKE SURE YOU DO A CHECK OF ALL PIN-TO-PIN COMBINATIONS.

2 THE RESISTANCE VALUES GIVEN IN THIS TABLE ARE FOR REFERENCE ONLY. TEST EQUIPMENT, TEMPERATURE, HUMIDITY, SERVICE, ETC., CAN HAVE AN EFFECT ON THE RESISTANCE VALUES.

2.5 Bleed Valve Actuator Schematics
Figure 14 (Sheet 2)

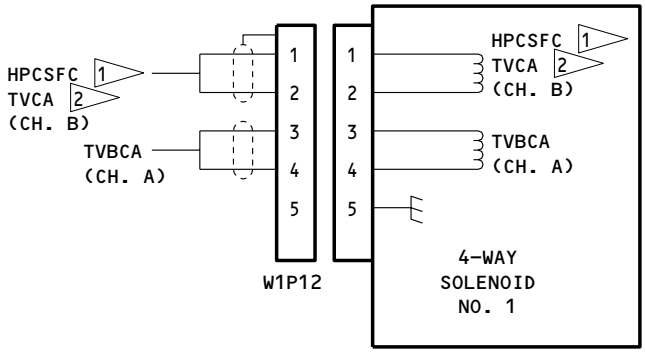


WIRING HARNESS

MESSAGES	LABEL-BIT
TRC SOL W/A FAIL	354-20
TCA SOL W/A FAIL	354-22
A/P PWR SOL SHRT	354-25

PIMU MESSAGES

CH. A		CH. B	
SOLENOID	EEC	SOLENOID	EEC
W1P12	W1P8	W1P12	W2P4
3	g	1	P
4	s	2	h



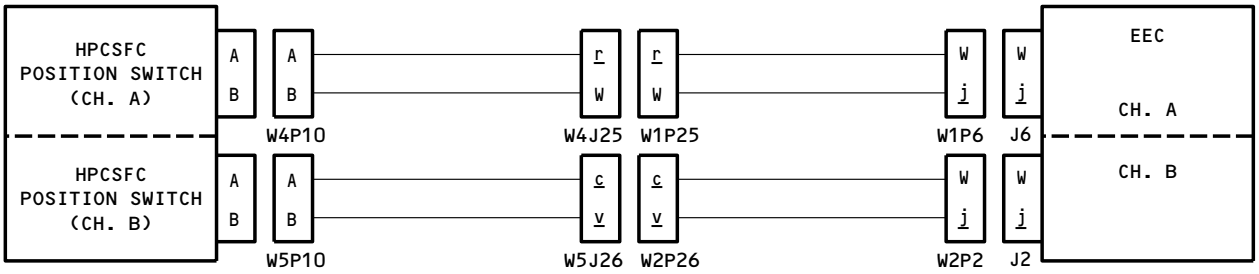
COMPONENT SCHEMATIC

PINS	RESISTANCE
1 TO 2	47-87 OHMS
3 TO 4	47-87 OHMS

1 ENGINES WITHOUT PHASE 3 CHANGES

2 ENGINES WITH PHASE 3 CHANGES

HPC Secondary Flow Control, Turbine Cooling Solenoids Schematics
Figure 15

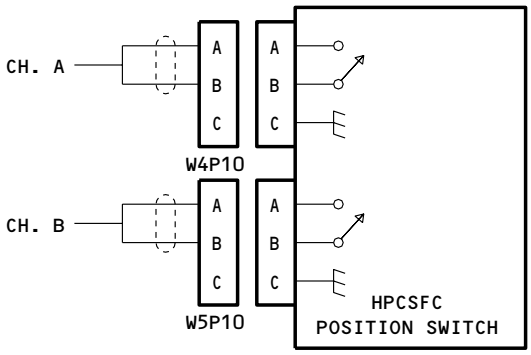


WIRING HARNESS

MESSAGES	LABEL-BIT
TRC EXT W/A FAIL	354-21

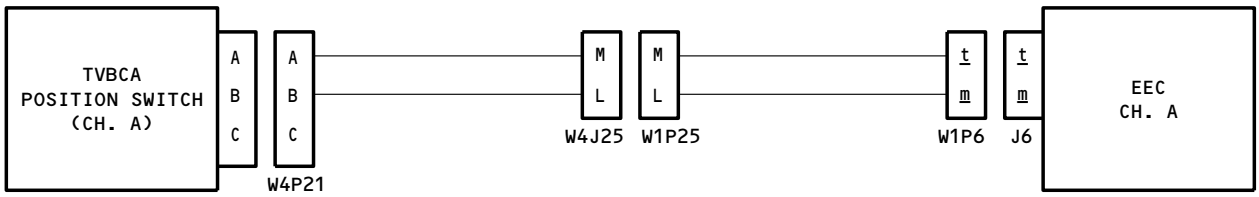
PIMU MESSAGES

CH. A		CH. B	
SWITCH	EEC	SWITCH	EEC
W4P10	W1P6	W5P10	W2P2
A	W	A	W
B	j	B	j



COMPONENT SCHEMATIC

HPC Secondary Flow Control (HPC SFC) Position Switch Schematics
Figure 16

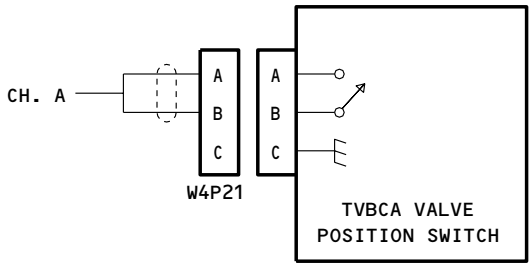


WIRING HARNESS

MESSAGES	LABEL-BIT
TCA EXT W/A FAIL	354-23

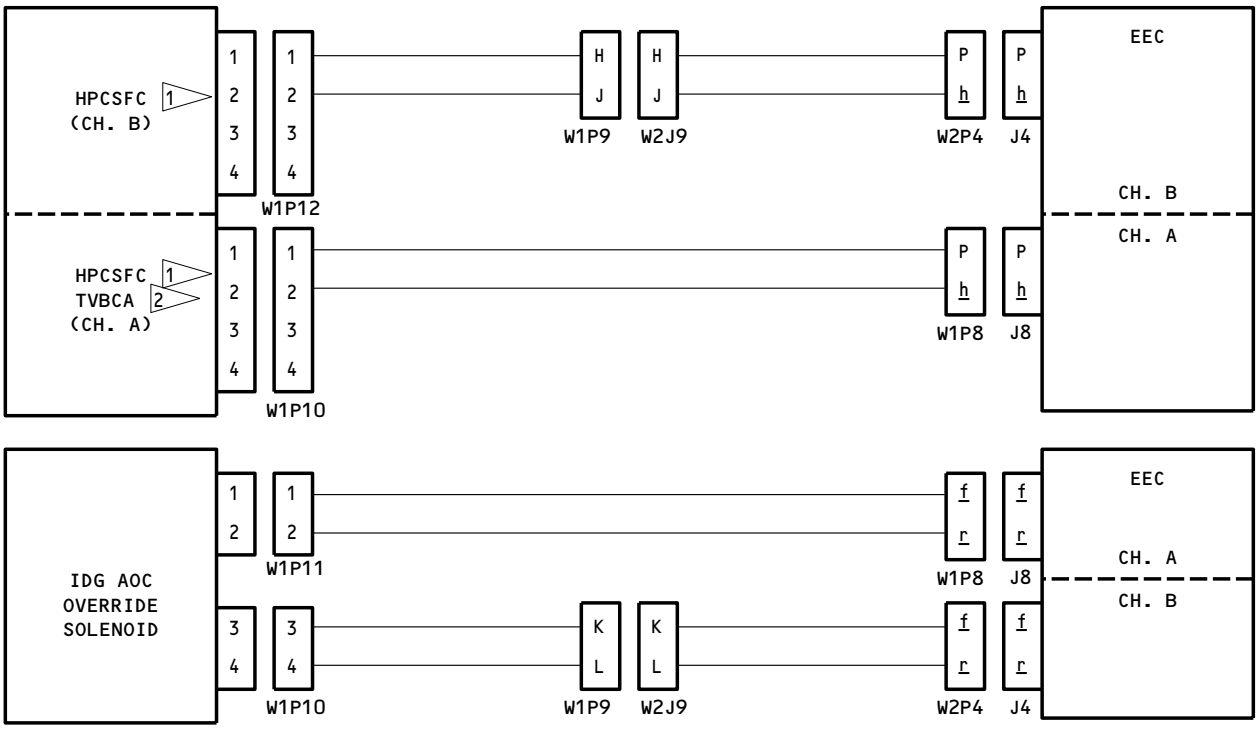
PIMU MESSAGES

CH. A	
SWITCH	EEC
W4P21	W1P6
A	t
B	m



COMPONENT SCHEMATIC

Turbine Vane and Blade Control Air (TVBCA)
Position Switch (Ch. A) Schematics
Figure 17



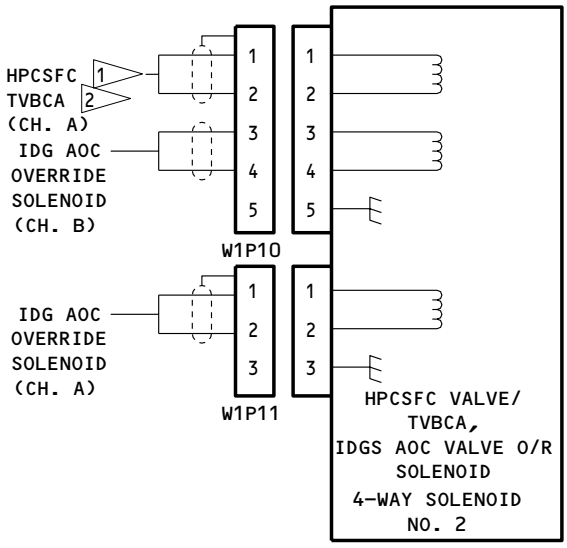
WIRING HARNESS

MESSAGES	LABEL-BIT
IDG OVS W/A FAIL	354-18

PIMU MESSAGES

1 ENGINES WITHOUT PHASE 3 CHANGES
2 ENGINES WITH PHASE 3 CHANGES

HPC Secondary Flow Control, Turbine Cooling Solenoids Schematics
Figure 18 (Sheet 1)



COMPONENT SCHEMATIC

CH. A		CH. B	
HPCSFC/TVBCA	EEC	HPCSFC	EEC
W1P10	W1P8	W1P12	W2P4
1	P	1	P
2	h	2	h

CH. A		CH. B	
SOLENOID	EEC	SOLENOID	EEC
W1P11	W1P8	W1P10	W2P4
1	f	3	f
2	r	4	r

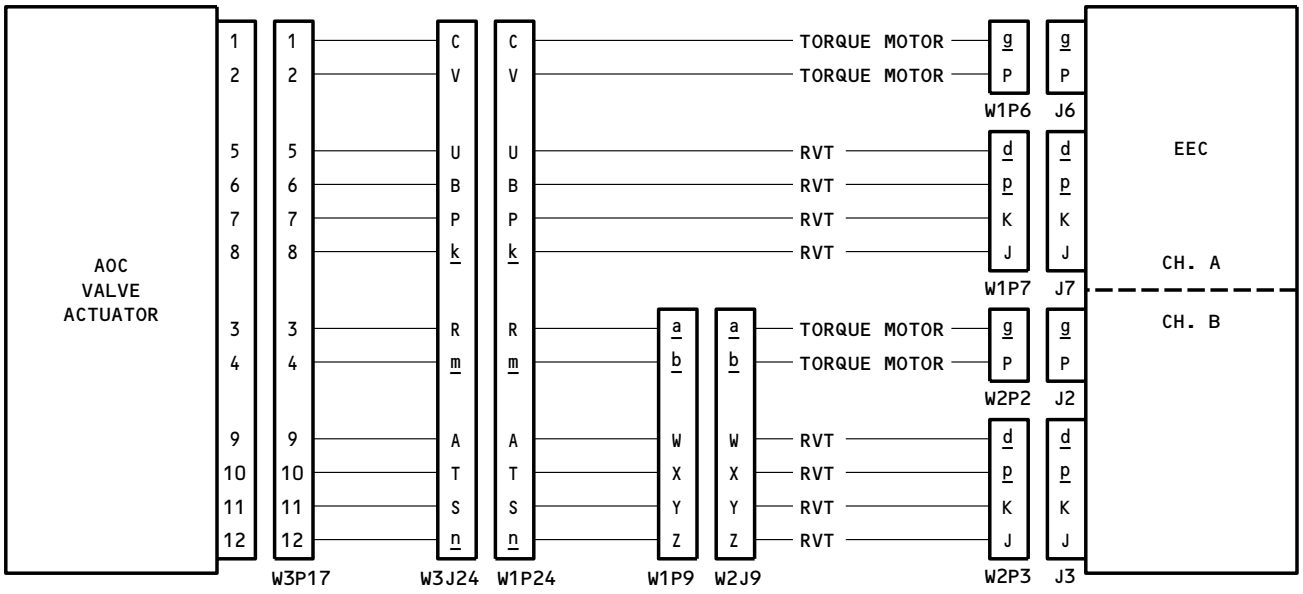
PINS		RESISTANCE
CONNECTOR W1P10		
1	2	47-87 OHMS
3	4	42-82 OHMS
CONNECTOR W1P11		
1	2	42-82 OHMS

NOTE: THE RESISTANCE VALUES GIVEN IN THIS TABLE ARE FOR REFERENCE ONLY. TEST EQUIPMENT, TEMPERATURE, HUMIDITY, SERVICE, ETC. CAN HAVE AN EFFECT ON THE RESISTANCE VALUES.

1 ENGINES WITHOUT PHASE 3 CHANGES

2 ENGINES WITH PHASE 3 CHANGES

HPC Secondary Flow Control, Turbine Cooling Solenoids Schematics
Figure 18 (Sheet 2)



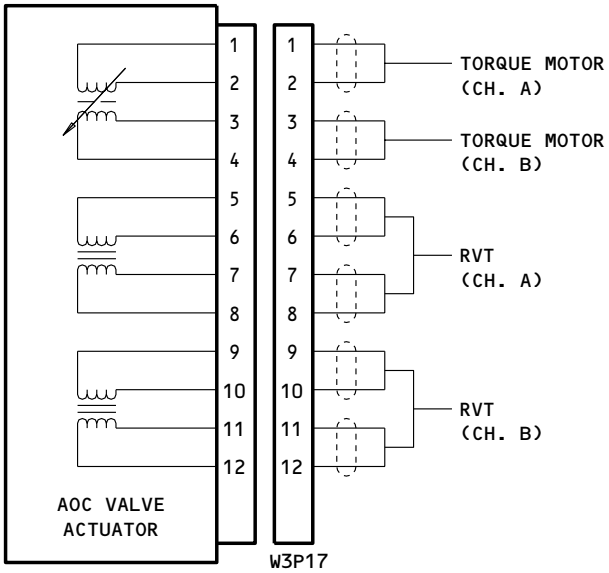
WIRING HARNESS

MESSAGES	LABEL-BIT
AOC T/M W/A FAIL	351-18
AOC TR-CK FAIL	351-23
AOC FD-BK FAIL	351-28

PIMU MESSAGES

CH. A		CH. B	
AOC VALVE	EEC	AOC VALVE	EEC
W3P17	W1P6	W3P17	W2P2
1	g	3	g
2	P	4	P
W3P17	W1P7	W3P17	W2P3
5	d	9	d
6	p	10	p
7	K	11	K
8	J	12	J

Engine Air/Oil Heat Exchanger Valve Schematics
Figure 19 (Sheet 1)



COMPONENT SCHEMATIC

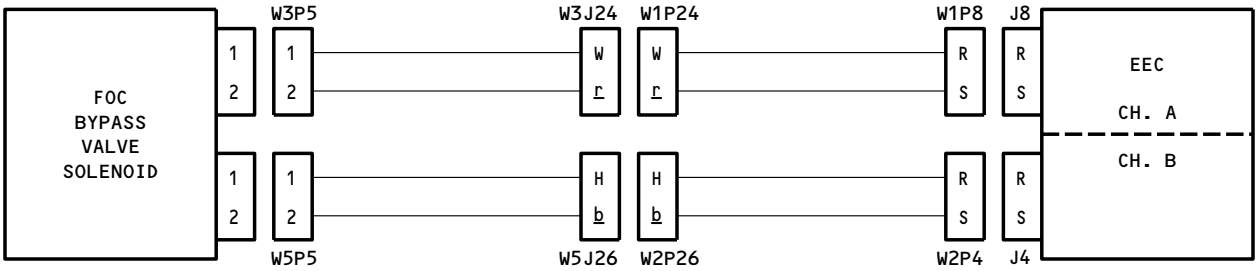
COMPONENT	PINS	RESISTANCE 1 2	
		COLUMN 1	COLUMN 2
RVDT	5 TO 6	70–98 OHMS	99–157 OHMS
	7 TO 8	143–202 OHMS	179–257 OHMS
	9 TO 10	70–98 OHMS	99–157 OHMS
	11 TO 12	143–202 OHMS	179–257 OHMS

COMPONENT	PINS	RESISTANCE 2
TORQUE MOTOR	1 TO 2	78–102 OHMS
	3 TO 4	78–102 OHMS

1 EACH COLUMN IS FOR A DIFFERENT SUPPLIER FOR THIS PART. USE ALL THE RESISTANCE VALUES FROM THE SAME COLUMN FOR EACH RESISTANCE CHECK. MAKE SURE YOU DO A CHECK OF ALL PIN–TO–PIN COMBINATIONS.

2 THE RESISTANCE VALUES GIVEN IN THIS TABLE ARE FOR REFERENCE ONLY. TEST EQUIPMENT, TEMPERATURE, HUMIDITY, SERVICE, ETC., CAN HAVE AN EFFECT ON THE RESISTANCE VALUES.

Engine Air/Oil Heat Exchanger Valve Schematics
Figure 19 (Sheet 2)

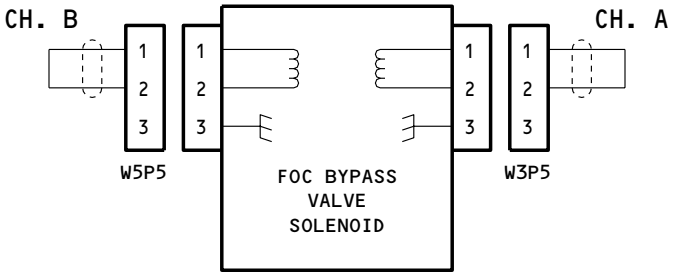


WIRING HARNESS

MESSAGES	LABEL-BIT
F/OIL SL W/A FAIL	354-17
A/P PWR SOL SHRT	354-25

PIMU MESSAGES

CH. A		CH. B	
SOLENOID	EEC	SOLENOID	EEC
W3P5	W1P8	W5P5	W2P4
1	R	1	R
2	S	2	S



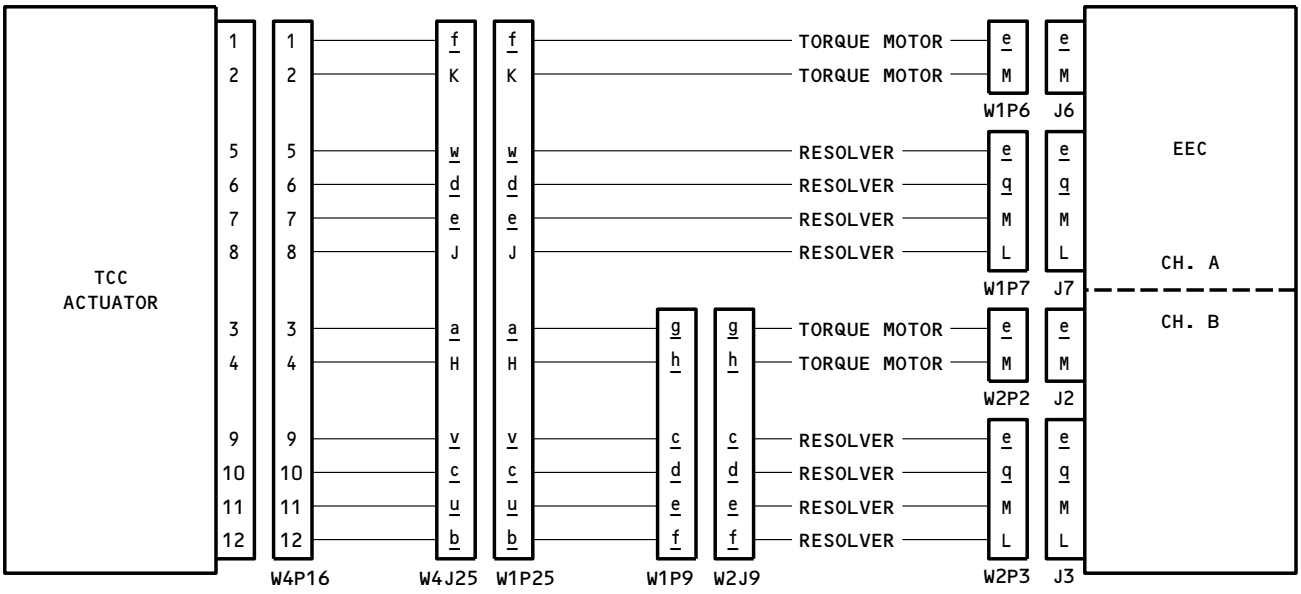
COMPONENT SCHEMATIC

PINS		RESISTANCE
1	2	56-60 OHMS

SOLENOID

NOTE: THE RESISTANCE VALUES GIVEN IN THIS TABLE ARE FOR REFERENCE ONLY. TEST EQUIPMENT, TEMPERATURE, HUMIDITY, SERVICE, ETC. CAN HAVE AN EFFECT ON THE RESISTANCE VALUES.

Fuel/Oil Cooler Bypass Valve Solenoid Schematics
Figure 20

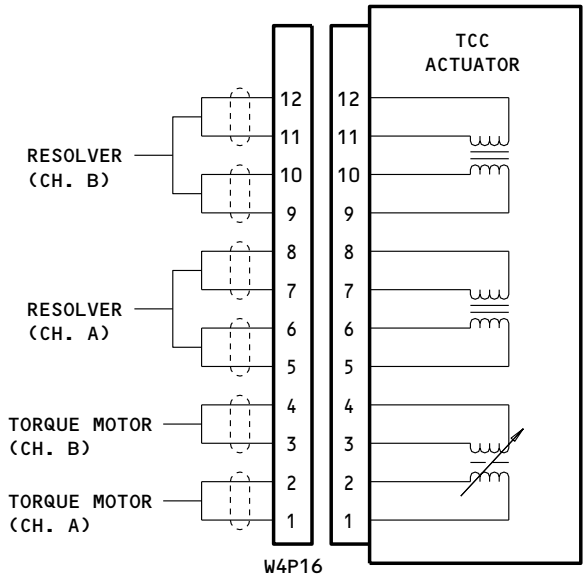


WIRING HARNESS

MESSAGES	LABEL-BIT
TCC T/M W/A FAIL	351-17
TCC TR-CK FAIL	351-22
TCC FD-BK FAIL	351-27

PIMU MESSAGES

CH. A		CH. B	
EEC	TCC	EEC	TCC
W1P6	W4P16	W2P2	W4P16
e	1	e	3
M	2	M	4
W1P7	W4P16	W2P3	W4P16
e	5	e	9
q	6	q	10
M	7	M	11
L	8	L	12

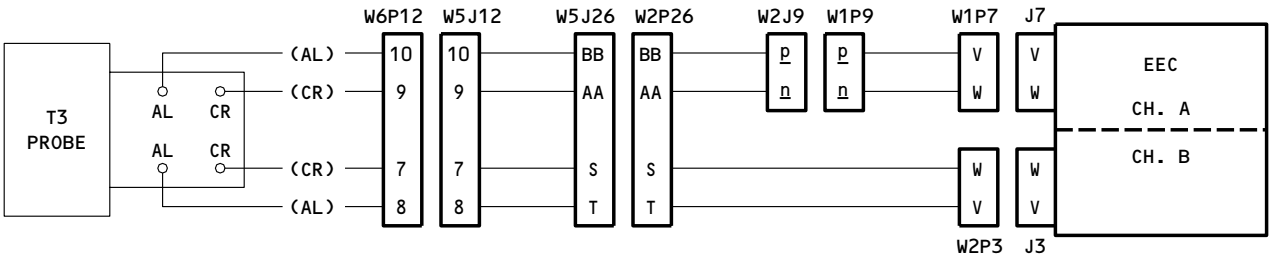


COMPONENT SCHEMATIC

CH. A			CH. B		
PINS		RESISTANCE	PINS		RESISTANCE
1	2	22-28 OHMS	3	4	22-28 OHMS
5	6	60-80 OHMS	9	10	60-80 OHMS
7	8	25-45 OHMS	11	12	25-45 OHMS

NOTE: THE RESISTANCE VALUES GIVEN IN THIS TABLE ARE FOR REFERENCE ONLY. TEST EQUIPMENT, TEMPERATURE, HUMIDITY, SERVICE, ETC. CAN HAVE AN EFFECT ON THE RESISTANCE VALUES.

Turbine Case Cooling (TCC) Air Valve Actuator Schematics
Figure 21

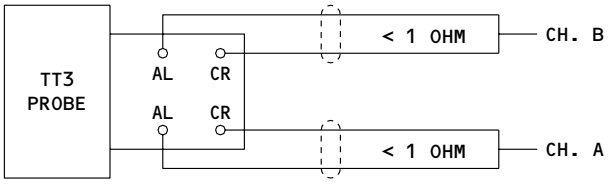


WIRING HARNESS

MESSAGES	LABEL-BIT
T3 RANGE FAIL	352-22
T3 CROSS-CK FAIL	353-22

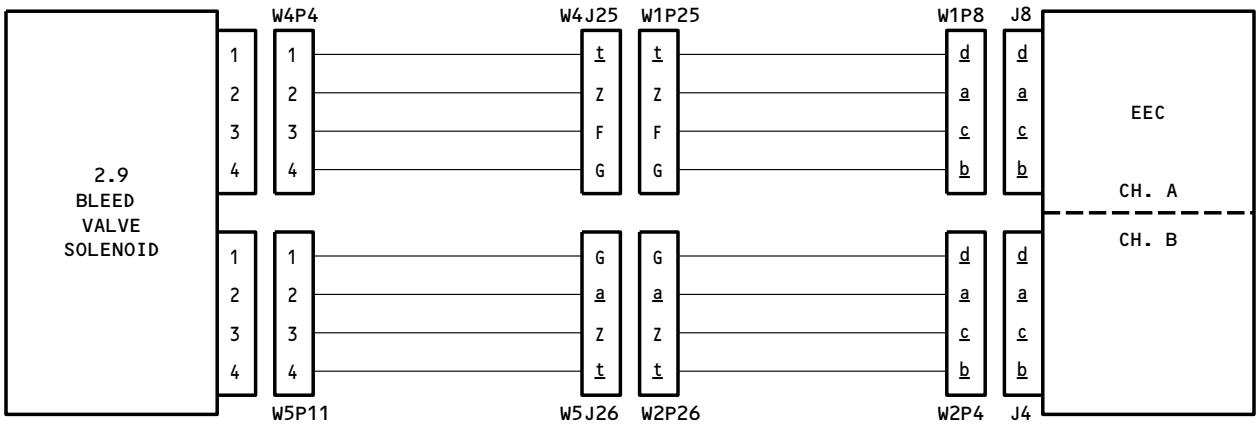
PIMU MESSAGES

CH. A		CH. B	
T3 PROBE	EEC	T3 PROBE	EEC
W6P12	W1P7	W6P12	W2P3
CR	W	CR	W
AL	V	AL	V



COMPONENT SCHEMATIC

EEC Thermocouple Probe (TT3) Schematics
Figure 22

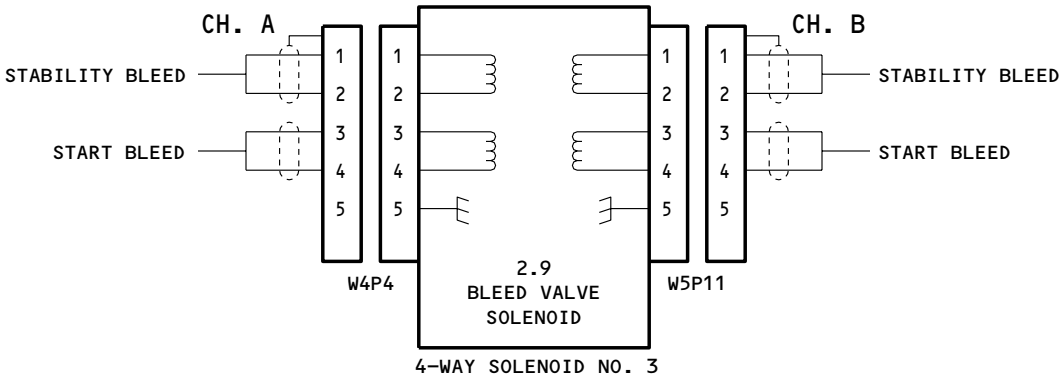


WIRING HARNESS

MESSAGES	LABEL-BIT
STRT SOL W/A FAIL	354-15
STAB SOL W/A FAIL	354-16
PMA PWR SOL SHRT	354-24

PIMU MESSAGES

CH. A		CH. B	
SOLENOID	EEC	SOLENOID	EEC
W4P4	W1P8	W5P11	W2P4
1	d	1	d
2	a	2	a
3	c	3	c
4	b	4	b



COMPONENT SCHEMATIC

PINS		RESISTANCE
1	2	128-138 OHMS
3	4	128-138 OHMS

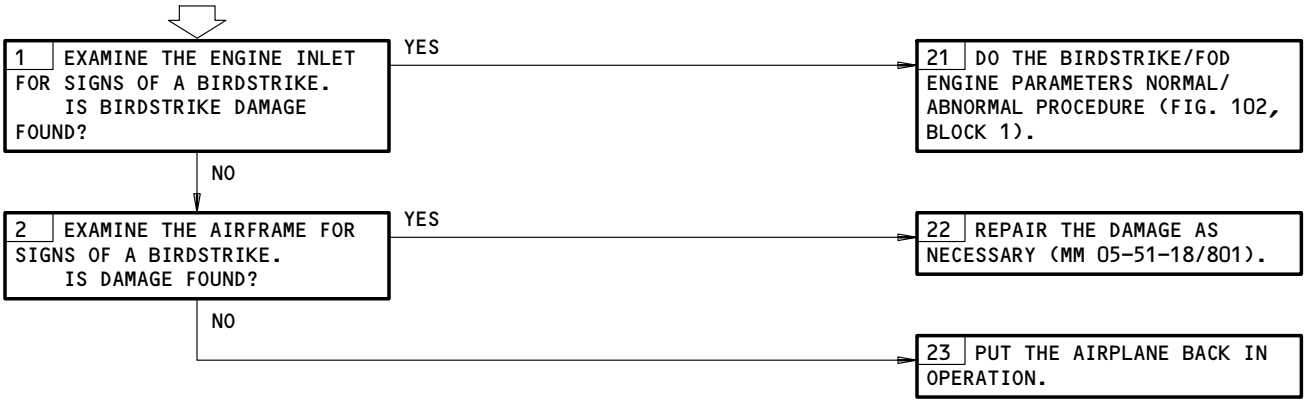
2.9 Bleed Valve Solenoid Schematics
Figure 23

POWER PLANT - FAULT ISOLATION (EXCEPT HOT START)

1. General
   A. This section includes fault isolation (except hot start) procedures for the power plant. The fault isolation for a hot start is in FIM 71-06-00/101.
   B. Visual Checks are given in FIM 71-07-00/101.
   C. Engine Checks are given in FIM 71-08-00/101.

BIRDSTRIKE ON AIRPLANE

PREREQUISITES
NONE



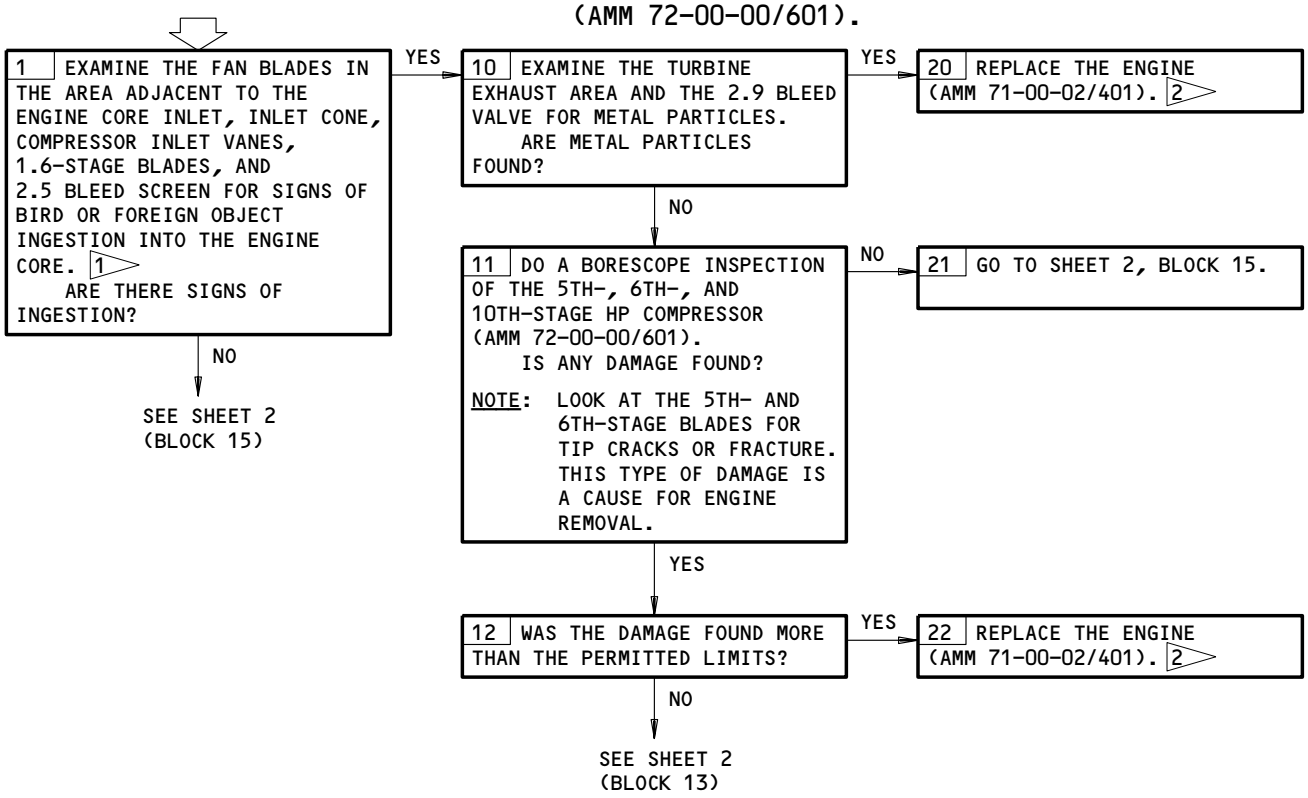
Birdstrike on Airplane
Figure 101

BIRDSTRIKE/FOD ENGINE PARAMETERS NORMAL/ABNORMAL

PREREQUISITES

NONE

NOTE: IF AN IN-FLIGHT ENGINE SHUTDOWN HAS OCCURRED, DO THE ENGINE WINDMILLING INSPECTION (AMM 72-00-00/601).

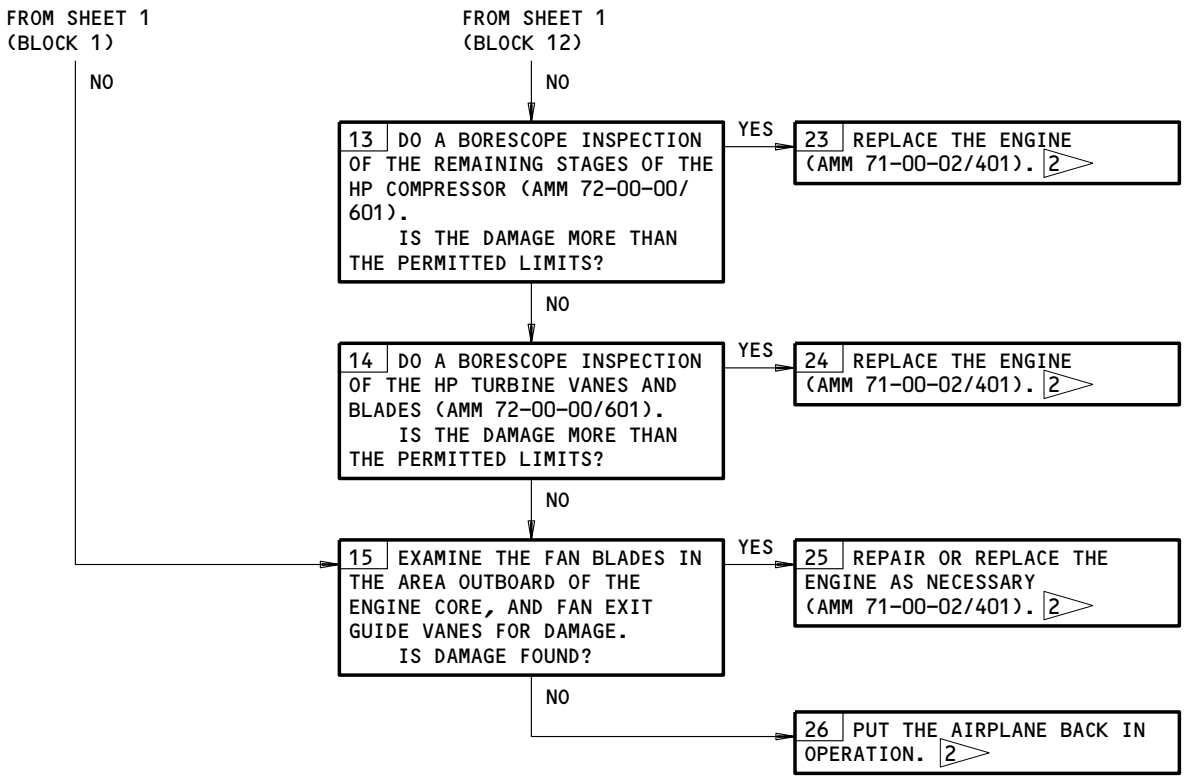


1 IT IS NOT EASY TO FIND SIGNS OF THE BIRDSTRIKE IF IT HAS BEEN A LONG TIME OR THERE ARE BAD WEATHER CONDITIONS. A SMALL QUANTITY OF ORGANIC MATERIAL IN THE INLET IS A SIGN OF A BIRDSTRIKE. PIECES OF THE BIRD ARE USUALLY FOUND IN THE AREAS THAT FOLLOW: ON THE INBOARD SURFACES OF THE AFT (CONCAVE SIDE) SPAN SHROUDS; AT THE OUTBOARD ENDS OF THE FAN EXIT GUIDE VANES OR THE INLET GUIDE VANES AND 1.6-STAGE BLADES OF THE LOW PRESSURE COMPRESSOR; AT THE 2.5 BLEED SCREEN; IN THE THRUST REVERSER LINKAGE.

DO THE INSPECTION OF THE INLET AREA WHERE THE BIRD PIECES ARE TO FIND THE POSSIBLE AREAS WITH DAMAGE. EXAMINE THE FAN EXIT GUIDE VANES, SOUND ABSORBING LINERS, AND THE INLET (WITH THE INLET GUIDE VANES) OF THE LOW PRESSURE COMPRESSOR WHILE YOU EXAMINE THE FAN BLADES AND THE INLET CONE AS SHOWN.

2 DO THIS PROCEDURE: EICAS AUTO EVENT MESSAGE VERIFICATION/ERASE PROCEDURE (FIM 71-08-00/101, FIG. 101).

Birdstrike/FOD Engine Parameters Normal/Abnormal
Figure 102 (Sheet 1)



Birdstrike/FOD Engine Parameters Normal/Abnormal
Figure 102 (Sheet 2)

ENGINE SURGE DURING FORWARD THRUST

PREREQUISITES

NONE

DESCRIPTION (IT IS NOT NECESSARY TO IDENTIFY ALL OF THE CONDITIONS THAT FOLLOW):

1. ENGINE OPERATION WAS IN FORWARD THRUST (OFF IDLE, ACCEL, STEADY STATE, HIGH POWER, DECEL)
2. ENGINE NOISES, FROM LOW RUMBLES TO LOUD BANGS
3. ENGINE PARAMETERS (EPR, N1, N2, AND FUEL FLOW) ARE NOT STABLE AT A FIXED THRUST SETTING
4. INCREASE IN EGT OR EGT WAS HIGH
5. FLAMES FROM THE ENGINE INLET OR THE ENGINE EXHAUST

NOTE: CORRECTIVE ACTION IS NECESSARY ONLY IF THE INDICATIONS GIVEN ABOVE (ENGINE NOISES, ENGINE PARAMETER CHANGES, FLAMES FROM THE ENGINE) WERE REPORTED BY THE FLIGHT CREW OR BY GROUND OBSERVATIONS.

AS PART OF THE TROUBLESHOOTING, YOU MUST DETERMINE IF THE ENGINE SURGE OCCURRED AT TAKEOFF POWER, WHILE THE AIRPLANE WAS ATTEMPTING TO TAKEOFF. FOR ALL OTHER CONDITIONS, YOU MUST DETERMINE IF THE ENGINE PRESSURE RATIO (EPR) WAS MORE THAN 1.25.

YOU CAN OBTAIN THE EPR FROM THE DIGITAL FLIGHT DATA RECORDER (DFDR) OR ANY OTHER SOURCE OF ELECTRONIC RECORDED DATA OF THE EVENT. HOWEVER, IF YOU CAN NOT DETERMINE THE EPR DURING THE EVENT, PROCEED AS IF THE EPR WAS MORE THAN 1.25.

POSSIBLE CAUSES:

1. ENGINE CONTROL SYSTEM
2. GASPATH DAMAGE/DETERIORATION
3. VARIABLE STATOR VANE SYSTEM
4. 2.9 BLEED VALVE SYSTEM
5. UNSTABLE ATMOSPHERIC CONDITIONS (LIGHTNING) – THIS CONDITION CAN CAUSE A SHORT ENGINE SURGE. THE SMALL ENGINE PARAMETER CHANGES FROM THIS TYPE OF SURGE CAN BE SEEN BY THE FLIGHT CREW. HOWEVER, IN MOST CASES, THE SMALL CHANGES WILL NOT BE SEEN.

NOTE: IF THE SURGE WAS DUE TO WIND DIRECTION OR SPEED AND/OR VISIBLE VORTEX INGESTION DURING STATIC OR TAXI GROUND OPERATION, DO BLOCKS 2, 3, 4 AND 12 ONLY. REFER TO AMM 71-00-00/201 FOR IMPORTANT INFORMATION ON WIND DIRECTION AND SPEED DURING GROUND OPERATION.

IF NECESSARY, DO THE ENGINE WINDMILLING INSPECTION (AMM 72-00-00/601).

IF NECESSARY, DO THE INSPECTION OF THE ENGINE AFTER EXHAUST GAS OVERTEMPERATURE (AMM 72-00-00/601).

IF NECESSARY, DO THE INSPECTION OF THE ENGINE AFTER OVERSPEED (AMM 72-00-00/601).

Engine Surge During Forward Thrust
Figure 103 (Sheet 1)

FAULT ISOLATION:

1 DO THIS PROCEDURE: PIMU BITE PROCEDURE (FIM 71-PIMU MESSAGE INDEX, FIG. 103).

LOOK FOR THE MESSAGES THAT FOLLOW:

EEC CH A/B SVA TR-CK FAIL (351-20)
EEC CH-A/B STRT BLD OPEN (353-28)
EEC CH-A/B STRT SOL W/A FAIL (354-15)
EEC CH-A/B STAB SOL W/A FAIL (354-16)
EEC A/B-CHAN FAIL (350-14)
EEC CH-A/B UNIT FAIL (350-15)
EEC CH-A/B XTRN DIS DISAGREE (350-23)
EEC CH-A/B FMU T/M W/A FAIL (351-14)
EEC CH-A/B SVA T/M W/A FAIL (351-15)
EEC CH-A/B FMU TR-CK FAIL (351-19)
EEC CH-A/B FMU FD-BK FAIL (351-24)
EEC CH-A/B SVA FD-BK FAIL (351-25)
EEC CH-A/B N1 RANGE FAIL (352-14)
EEC CH-A/B N2 RANGE FAIL (352-15)
EEC CH-A/B T2 RANGE FAIL (352-18)
EEC CH-A/B REVERSER RNG FAIL (352-25)
EEC CH-A/B TRA RNG FAIL (352-26)
EEC CH-A/B LOST POWER (352-29)
EEC CH-A/B N1 CROSS-CK FAIL (353-14)
EEC CH-A/B N2 CROSS-CK FAIL (353-15)
EEC CH-A/B PMA FAULT (353-16)
EEC CH-A/B T2 CROSS-CK FAIL (353-18)
EEC CH-A/B FMU CR-CK FAIL (353-24)
EEC CH-A/B REVR CR-CK FAIL (353-25)
EEC CH-A/B TRA CR-CK FAIL (353-26)
EEC CH-A/B XLINK FAIL (353-29)

DOES ONE OR MORE OF THE ABOVE MESSAGES SHOW?

YES → 40 REFER TO PIMU TABLE 101 FOR THE NECESSARY CORRECTIVE ACTION.

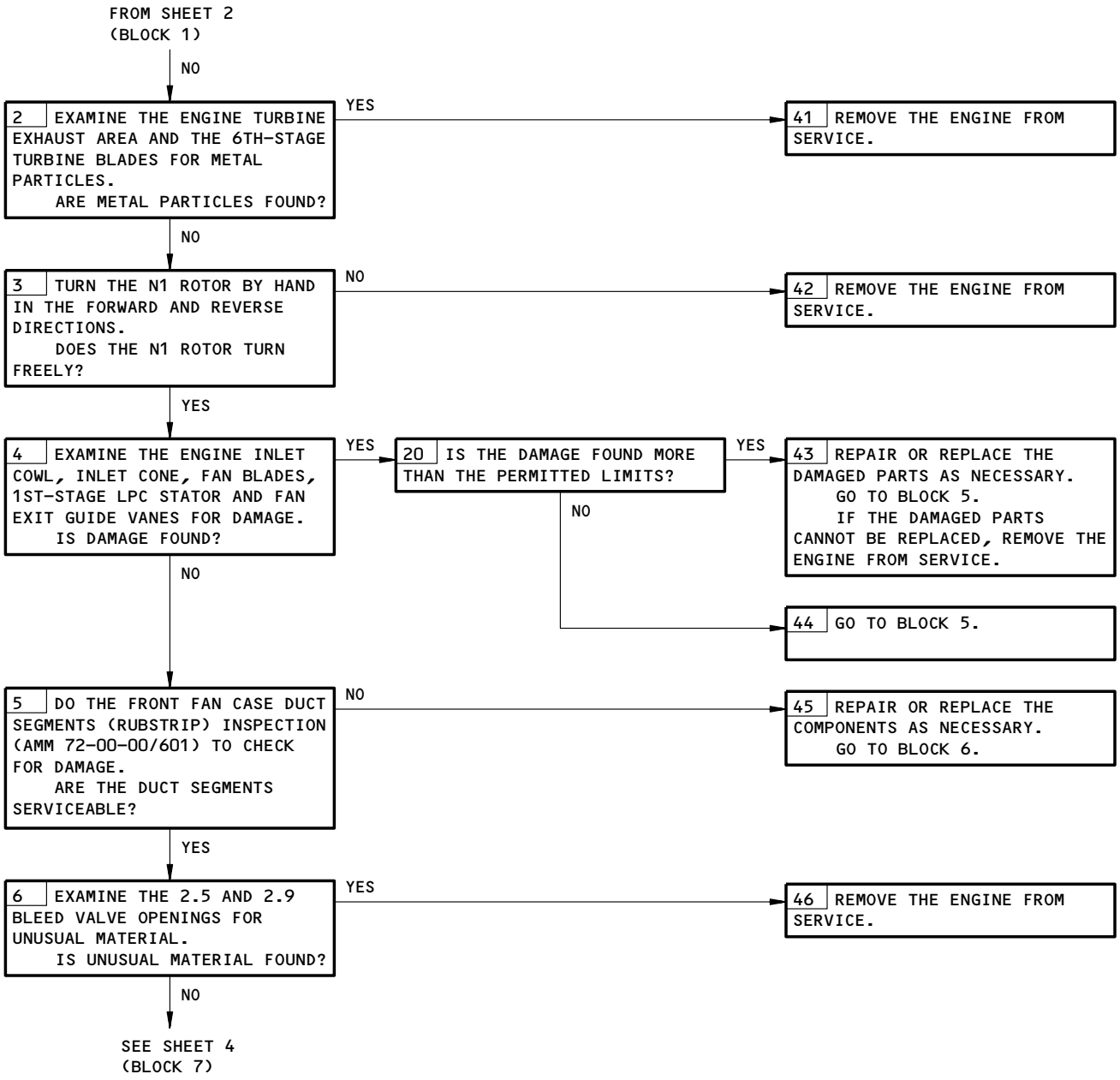
NOTE: YOU CAN DELAY THE CORRECTIVE ACTIONS FOR THE EEC FAULT MESSAGES UNTIL SUBSEQUENT BLOCKS ARE COMPLETED. YOU MUST CORRECT DUAL CHANNEL, OR TWO OR MORE SINGLE CHANNEL FAULTS, BEFORE THE ENGINE CAN BE RETURNED TO SERVICE.

GO TO BLOCK 2.

NO

SEE SHEET 3
(BLOCK 2)

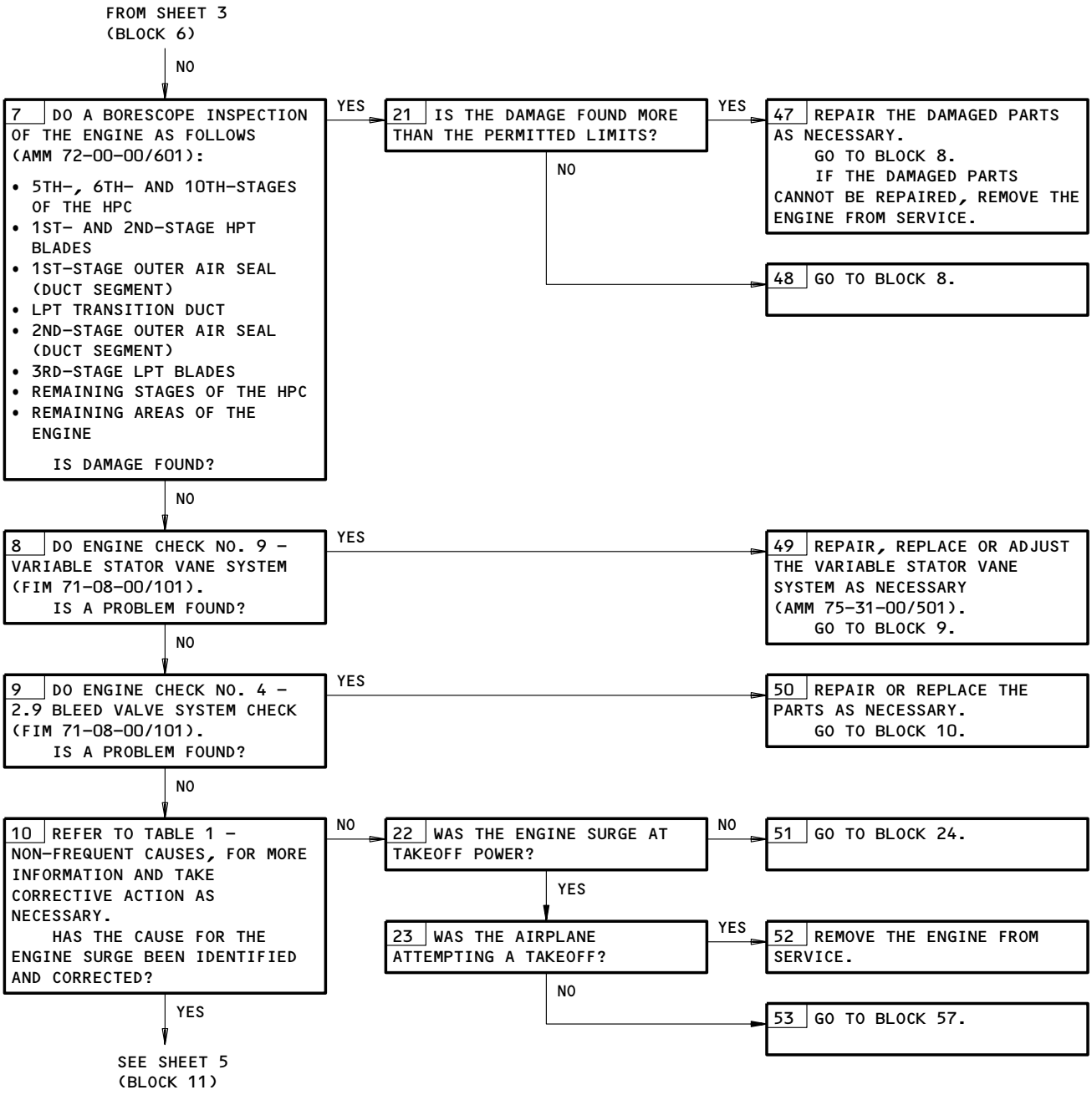
Engine Surge During Forward Thrust
Figure 103 (Sheet 2)



Engine Surge During Forward Thrust
Figure 103 (Sheet 3)

EFFECTIVITY
SEGMENTED CASE ENGINES ONLY
PRE SB PW4ENG 72-755

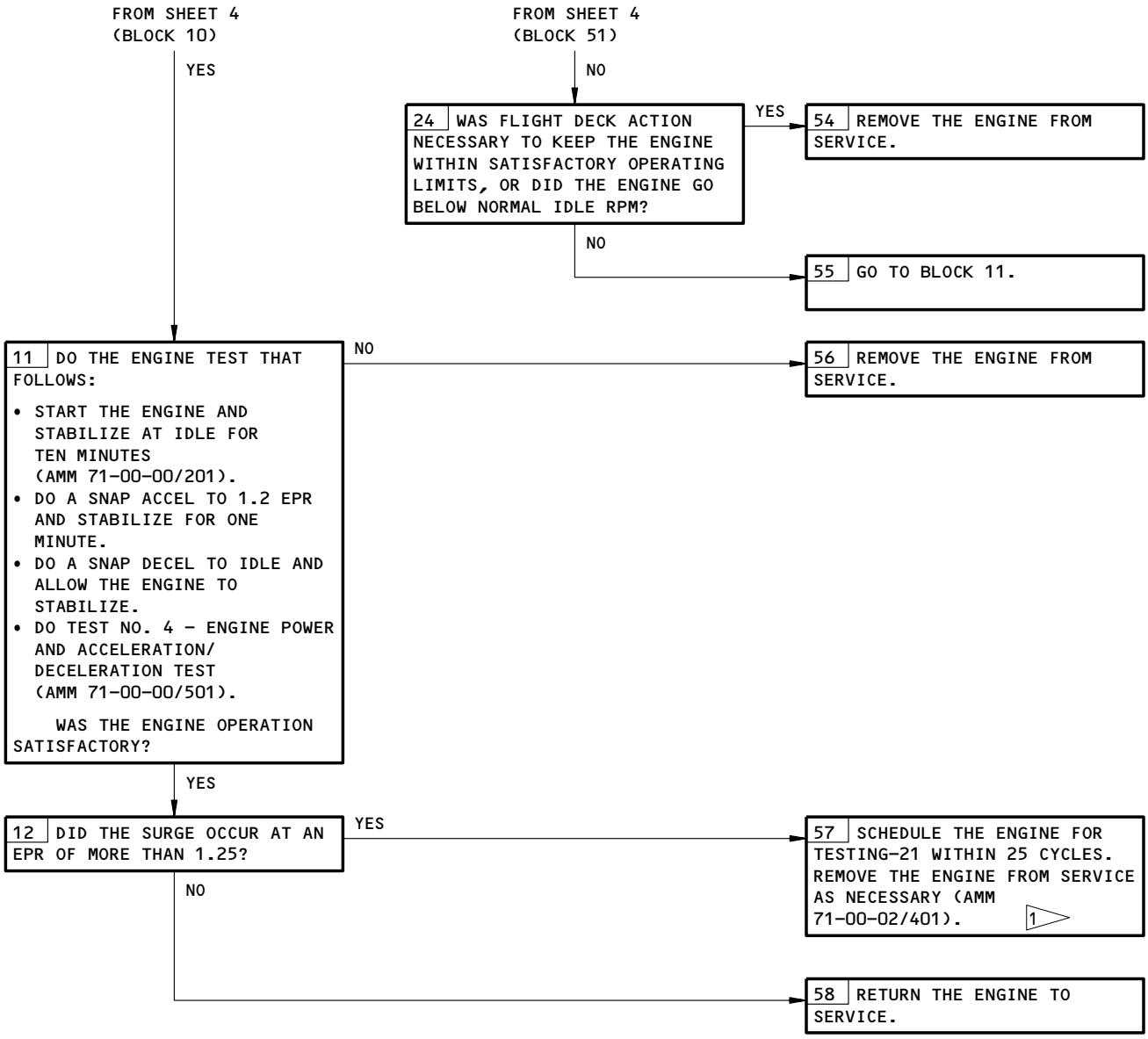
H71620



Engine Surge During Forward Thrust
Figure 103 (Sheet 4)

EFFECTIVITY
SEGMENTED CASE ENGINES ONLY
PRE SB PW4ENG 72-755

H71621



1 YOU MUST DO ONE OF THE FOLLOWING:
- COOL ENGINE FUEL SPIKE STABILITY TEST (OFF-WING)(TESTING-21 PER PRATT & WHITNEY PW4000 ENGINE MANUAL)(P/N 50A605), OR
- ON-WING COOL ENGINE FUEL SPIKE STABILITY TEST PER BOEING SERVICE BULLETIN 767-72-0054.

Engine Surge During Forward Thrust
Figure 103 (Sheet 5)

EFFECTIVITY
SEGMENTED CASE ENGINES ONLY
PRE SB PW4ENG 72-755

H71622

NON-FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
2.5 BLEED SYSTEM	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 10 - 2.5 BLEED VALVE SYSTEM CHECK (FIM 71-08-00/101).
BEARING DAMAGE (N2 ROTOR SYSTEM)	EXAMINE THE MAGNETIC CHIP DETECTORS AND MAIN OIL FILTER (AMM 79-21-10/601).
BIRDSTRIKE/FOD	EXAMINE THE ENGINE (FIM 71-05-00/101, FIG. 102).
COWL LOAD SHARE OUT OF ADJUSTMENT	DO THE COWL LOAD SHARE ADJUSTMENT (AMM 78-31-01/501).
EEC ALTERNATOR (AND N2 SPEED SIGNAL)	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE THE EEC ALTERNATOR FOR OIL LEAKS AND DAMAGE.
EEC RESET DISCRETE SIGNAL TEMPORARY LOSS (BOTH CHANNELS) NOTE: THE EEC RESET DISCRETE SIGNAL IS A FUNCTION OF THE FUEL CONTROL SWITCH. IF THE SIGNAL IS TEMPORARILY LOST, THE ENGINE CAN SURGE.	REVIEW THE FLIGHT DECK ACTIONS. EXAMINE THE FUEL CONTROL SWITCH AND WIRING (WDM 76-11-11).
FAN BLADE TIP CLEARANCE	DO THE FRONT FAN CASE DUCT SEGMENT (RUBSTRIP) INSPECTION (AMM 72-00-00/601) TO CHECK FOR THE FAN BLADE TIP CLEARANCE. REPAIR OR REPLACE THE DAMAGED COMPONENTS AS NECESSARY.
FUEL METERING UNIT	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE/ REPAIR/REPLACE THE FUEL METERING UNIT (AMM 73-21-01/401).
FUEL SYSTEM CONTAMINATION	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 3 - FUEL SYSTEM CONTAMINATION CHECK (FIM 71-08-00/101). DO ENGINE CHECK NO. 15 - SERVO FUEL CONTAMINATION (FIM 71-08-00/101).
INTERMEDIATE PRESSURE CHECK VALVE FAILURE OR WRONG PART NUMBER AND HIGH PRESSURE SHUTOFF VALVE FAILURE	EXAMINE THE INTERMEDIATE PRESSURE CHECK VALVE (AMM 36-11-06/601) AND HIGH PRESSURE SHUTOFF VALVE (AMM 36-11-07/601).
MAINTENANCE DONE BEFORE	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE THE MAINTENANCE HISTORY RECORD.
Pb SIGNAL	EXAMINE THE Pb SENSE LINES FOR LEAKS/BLOCKAGE (AMM 73-21-04/601).
POWER LOSS TO OTHER EEC CHANNEL	LOOK FOR RELATED EEC FAULT MESSAGES.
T2 SIGNAL	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 16 - T2 SIGNAL (FIM 71-08-00/101).

TABLE 101

Engine Surge During Forward Thrust
Figure 103 (Sheet 6)

ENGINE SURGE DURING REVERSE THRUST

PREREQUISITES

NONE

DESCRIPTION (IT IS NOT NECESSARY TO IDENTIFY ALL OF THE CONDITIONS THAT FOLLOW):

1. ENGINE OPERATION WAS IN REVERSE THRUST
2. ENGINE NOISES, FROM LOW RUMBLES TO LOUD BANGS
3. ENGINE PARAMETERS (EPR, N1, N2, AND FUEL FLOW) ARE NOT STABLE AT A FIXED THRUST SETTING
4. INCREASE IN EGT OR EGT WAS HIGH
5. FLAMES FROM THE ENGINE INLET OR THE ENGINE EXHAUST

NOTE: CORRECTIVE ACTION IS NECESSARY ONLY IF THE INDICATIONS GIVEN ABOVE (ENGINE NOISES, ENGINE PARAMETER CHANGES, FLAMES FROM THE ENGINE) WERE REPORTED BY THE FLIGHT CREW OR BY GROUND OBSERVATIONS.

AS PART OF THE TROUBLESHOOTING, YOU MUST DETERMINE IF THE ENGINE PRESSURE RATIO (EPR) WAS MORE THAN 1.25.

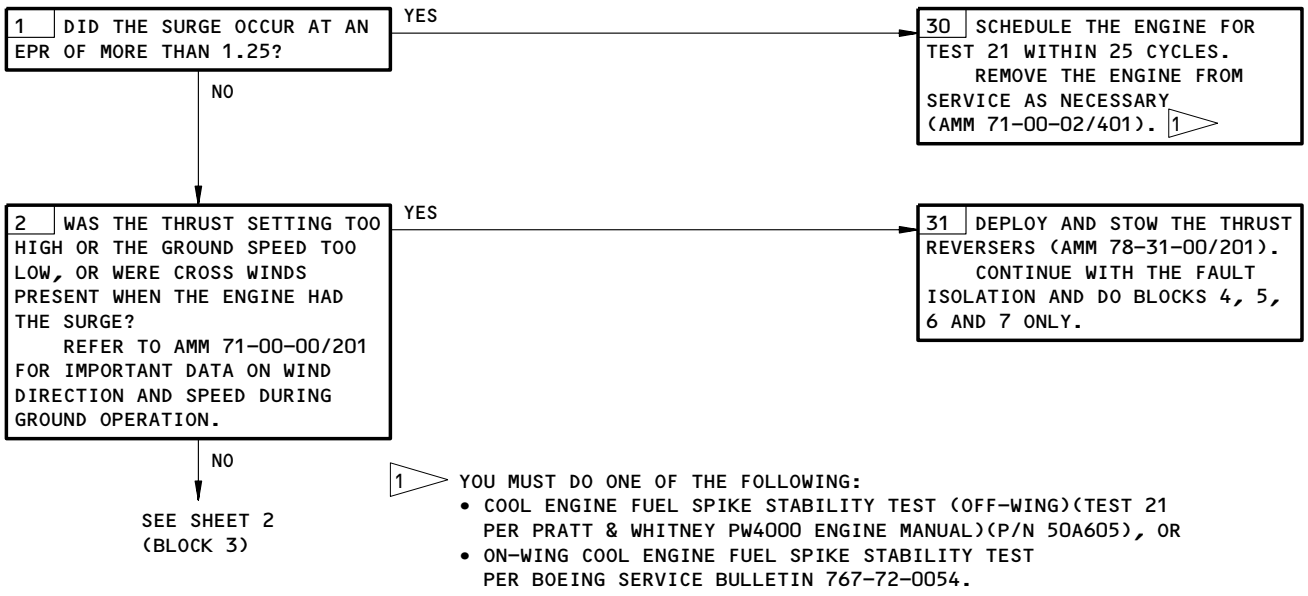
YOU CAN OBTAIN THE EPR FROM THE DIGITAL FLIGHT DATA RECORDER (DFDR) OR ANY OTHER SOURCE OF ELECTRONIC RECORDED DATA OF THE EVENT. HOWEVER, IF YOU CAN NOT DETERMINE THE EPR DURING THE EVENT, PROCEED AS IF THE EPR WAS MORE THAN 1.25.

POSSIBLE CAUSES:

1. REVERSE THRUST SETTING TOO HIGH AND GROUND SPEED TOO LOW
2. CROSSWINDS
3. 2.5 BLEED VALVE SYSTEM

NOTE: IF NECESSARY, DO THE INSPECTION OF THE ENGINE AFTER EXHAUST GAS OVERTEMPERATURE (AMM 72-00-00/601).

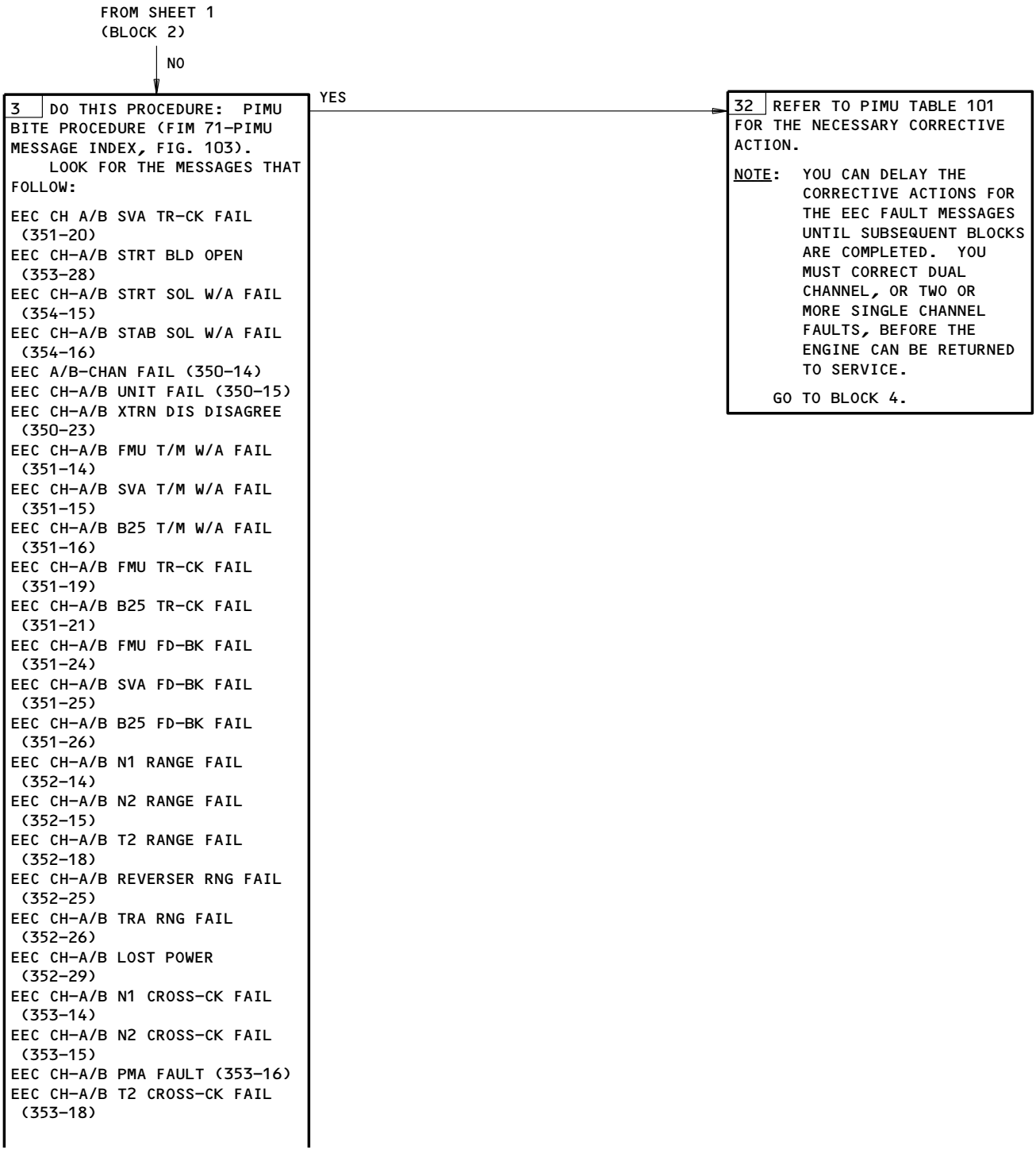
FAULT ISOLATION:



Engine Surge During Reverse Thrust
Figure 103A (Sheet 1)

EFFECTIVITY
SEGMENTED CASE ENGINES ONLY
PRE SB PW4ENG 72-755

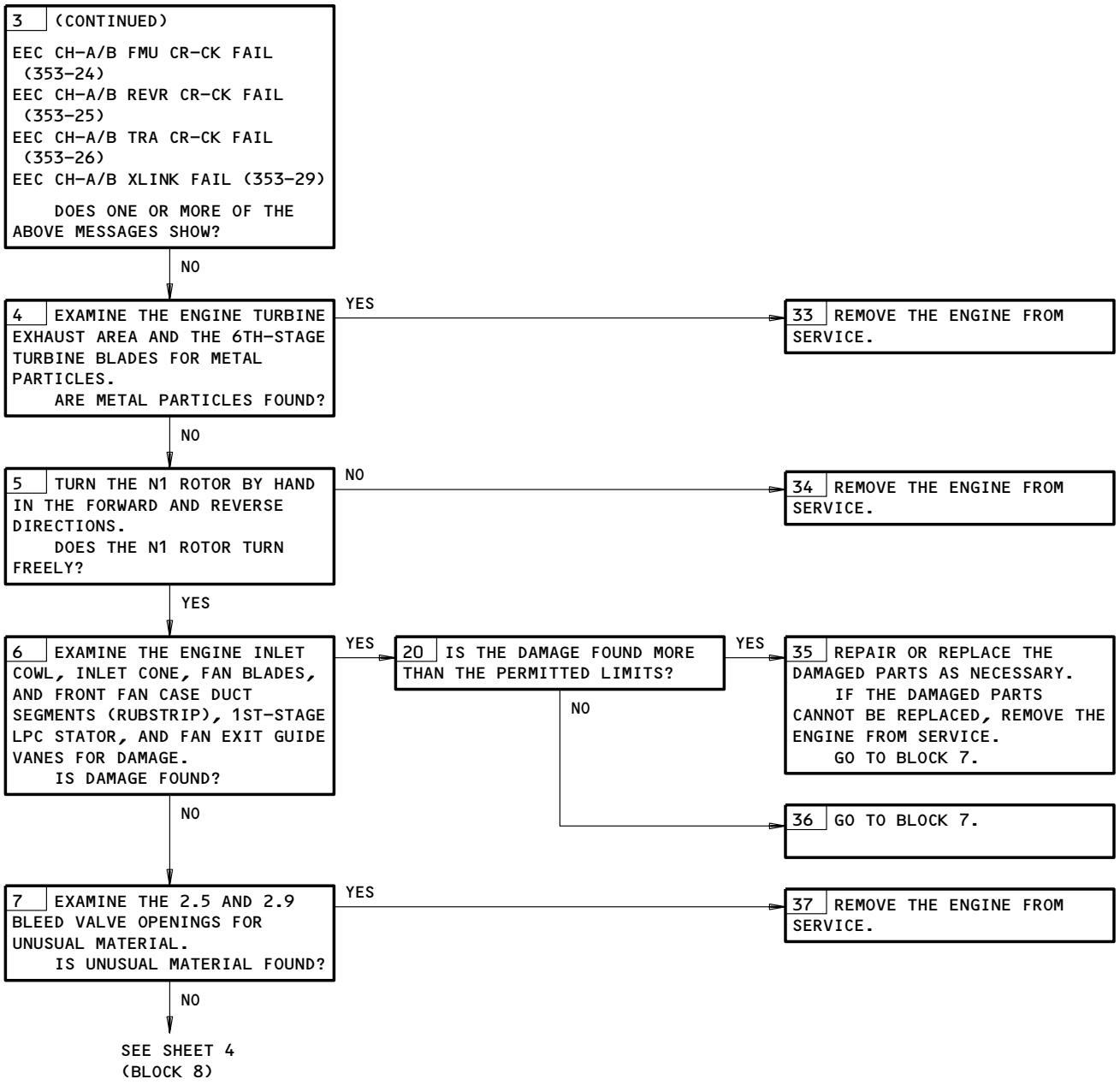
H71625



Engine Surge During Reverse Thrust
Figure 103A (Sheet 2)

EFFECTIVITY
SEGMENTED CASE ENGINES ONLY
PRE SB PW4ENG 72-755

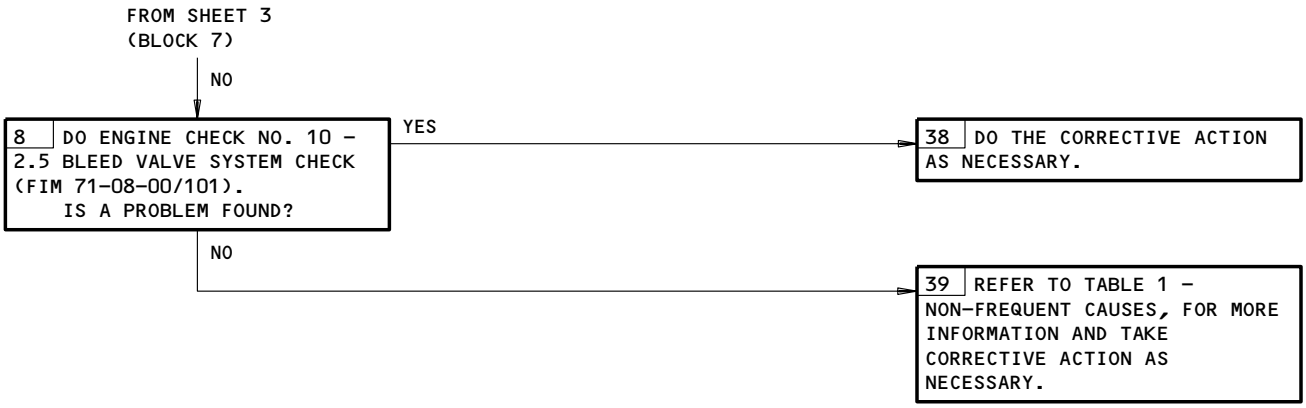
H71626



Engine Surge During Reverse Thrust
Figure 103A (Sheet 3)

EFFECTIVITY
SEGMENTED CASE ENGINES ONLY
PRE SB PW4ENG 72-755

H71627



Engine Surge During Reverse Thrust
Figure 103A (Sheet 4)

H71628

NON-FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
2.9 BLEED SYSTEM	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 4 - 2.9 BLEED VALVE SYSTEM CHECK (FIM 71-08-00/101).
BEARING DAMAGE (N2 ROTOR SYSTEM)	EXAMINE THE MAGNETIC CHIP DETECTORS AND MAIN OIL FILTER (AMM 79-21-10/601).
BIRDSTRIKE/FOD	EXAMINE THE ENGINE (FIM 71-05-00/101, FIG. 102).
EEC ALTERNATOR (AND N2 SPEED SIGNAL)	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE THE EEC ALTERNATOR FOR OIL LEAKS AND DAMAGE.
EEC RESET DISCRETE SIGNAL TEMPORARY LOSS (BOTH CHANNELS) NOTE: THE EEC RESET DISCRETE SIGNAL IS A FUNCTION OF THE FUEL CONTROL SWITCH. IF THE SIGNAL IS TEMPORARILY LOST, THE ENGINE CAN SURGE.	REVIEW THE FLIGHT DECK ACTIONS. EXAMINE THE FUEL CONTROL SWITCH AND WIRING (WDM 76-11-11).
FUEL METERING UNIT	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE/ REPAIR/REPLACE THE FUEL METERING UNIT (AMM 73-21-01/401).
FUEL SYSTEM CONTAMINATION	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 3 - FUEL SYSTEM CONTAMINATION CHECK (FIM 71-08-00/101). DO ENGINE CHECK NO. 15 - SERVO FUEL CONTAMINATION (FIM 71-08-00/101).
INTERMEDIATE PRESSURE CHECK VALVE FAILURE OR WRONG PART NUMBER AND HIGH PRESSURE SHUTOFF VALVE FAILURE	EXAMINE THE INTERMEDIATE PRESSURE CHECK VALVE (AMM 36-11-06/601) AND HIGH PRESSURE SHUTOFF VALVE (AMM 36-11-07/601).
MAINTENANCE DONE BEFORE	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE THE MAINTENANCE HISTORY RECORD.
Pb SIGNAL	EXAMINE THE Pb SENSE LINES FOR LEAKS/BLOCKAGE (AMM 73-21-04/601).
POWER LOSS TO OTHER EEC CHANNEL	LOOK FOR RELATED EEC FAULT MESSAGES.
REVERSER CASCADES DAMAGED, WRONG PART NUMBER OR NOT INSTALLED CORRECTLY	EXAMINE THE CASCADE SEGMENTS FOR THE CORRECT PART NUMBER, CONDITION AND CORRECT INSTALLATION (AMM 78-31-16/601).
T2 SIGNAL	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 16 - T2 SIGNAL (FIM 71-08-00/101).
VARIABLE STATOR VANE SYSTEM	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 9 - VARIABLE STATOR VANE SYSTEM CHECK (FIM 71-08-00/101).

TABLE 1

Engine Surge During Reverse Thrust
Figure 103A (Sheet 5)

H71629

ENGINE SURGE DURING FORWARD THRUST

PREREQUISITES

NONE

DESCRIPTION (IT IS NOT NECESSARY TO IDENTIFY ALL OF THE CONDITIONS THAT FOLLOW):

1. ENGINE OPERATION WAS IN FORWARD THRUST (OFF IDLE, ACCEL, STEADY STATE, HIGH POWER, DECEL)
2. ENGINE NOISES, FROM LOW RUMBLES TO LOUD BANGS
3. ENGINE PARAMETERS (EPR, N1, N2, AND FUEL FLOW) ARE NOT STABLE AT A FIXED THRUST SETTING
4. INCREASE IN EGT OR EGT WAS HIGH
5. FLAMES FROM THE ENGINE INLET OR THE ENGINE EXHAUST

NOTE: CORRECTIVE ACTION IS NECESSARY ONLY IF THE INDICATIONS GIVEN ABOVE (ENGINE NOISES, ENGINE PARAMETER CHANGES, FLAMES FROM THE ENGINE) WERE REPORTED BY THE FLIGHT CREW OR BY GROUND OBSERVATIONS.

AS PART OF THE TROUBLESHOOTING, YOU MUST DETERMINE IF THE ENGINE SURGE OCCURRED AT TAKEOFFPOWER, WHILE THE AIRPLANE WAS ATTEMPTING TO TAKEOFF.

POSSIBLE CAUSES:

1. ENGINE CONTROL SYSTEM
2. GASPATH DAMAGE/DETERIORATION
3. VARIABLE STATOR VANE SYSTEM
4. 2.9 BLEED VALVE SYSTEM
5. UNSTABLE ATMOSPHERIC CONDITIONS (LIGHTNING) – THIS CONDITION CAN CAUSE A SHORT ENGINE SURGE. THE SMALL ENGINE PARAMETER CHANGES FROM THIS TYPE OF SURGE CAN BE SEEN BY THE FLIGHT CREW. HOWEVER, IN MOST CASES, THE SMALL CHANGES WILL NOT BE SEEN.

NOTE: IF THE SURGE WAS DUE TO WIND DIRECTION OR SPEED AND/OR VISIBLE VORTEX INGESTION DURING STATIC OR TAXI GROUND OPERATION, DO BLOCKS 2, 3 AND 4 ONLY. REFER TO AMM 71-00-00/201 FOR IMPORTANT INFORMATION ON WIND DIRECTION AND SPEED DURING GROUND OPERATION.

IF NECESSARY, DO THE ENGINE WINDMILLING INSPECTION (AMM 72-00-00/601).

IF NECESSARY, DO THE INSPECTION OF THE ENGINE AFTER EXHAUST GAS OVERTEMPERATURE (AMM 72-00-00/601).

IF NECESSARY, DO THE INSPECTION OF THE ENGINE AFTER OVERSPEED (AMM 72-00-00/601).

Engine Surge During Forward Thrust
Figure 103B (Sheet 1)

FAULT ISOLATION:

1 DO THIS PROCEDURE: PIMU BITE PROCEDURE (FIM 71-PIMU MESSAGE INDEX, FIG. 103).
LOOK FOR THE MESSAGES THAT FOLLOW:

EEC CH A/B SVA TR-CK FAIL (351-20)
EEC CH-A/B STRT BLD OPEN (353-28)
EEC CH-A/B STRT SOL W/A FAIL (354-15)
EEC CH-A/B STAB SOL W/A FAIL (354-16)
EEC A/B-CHAN FAIL (350-14)
EEC CH-A/B UNIT FAIL (350-15)
EEC CH-A/B XTRN DIS DISAGREE (350-23)
EEC CH-A/B FMU T/M W/A FAIL (351-14)
EEC CH-A/B SVA T/M W/A FAIL (351-15)
EEC CH-A/B FMU TR-CK FAIL (351-19)
EEC CH-A/B FMU FD-BK FAIL (351-24)
EEC CH-A/B SVA FD-BK FAIL (351-25)
EEC CH-A/B N1 RANGE FAIL (352-14)
EEC CH-A/B N2 RANGE FAIL (352-15)
EEC CH-A/B T2 RANGE FAIL (352-18)
EEC CH-A/B REVERSER RNG FAIL (352-25)
EEC CH-A/B TRA RNG FAIL (352-26)
EEC CH-A/B LOST POWER (352-29)
EEC CH-A/B N1 CROSS-CK FAIL (353-14)
EEC CH-A/B N2 CROSS-CK FAIL (353-15)
EEC CH-A/B PMA FAULT (353-16)
EEC CH-A/B T2 CROSS-CK FAIL (353-18)
EEC CH-A/B FMU CR-CK FAIL (353-24)
EEC CH-A/B REVR CR-CK FAIL (353-25)
EEC CH-A/B TRA CR-CK FAIL (353-26)
EEC CH-A/B XLINK FAIL (353-29)

DOES ONE OR MORE OF THE ABOVE MESSAGES SHOW?

YES → 40 REFER TO PIMU TABLE 101 FOR THE NECESSARY CORRECTIVE ACTION.

NOTE: YOU CAN DELAY THE CORRECTIVE ACTIONS FOR THE EEC FAULT MESSAGES UNTIL SUBSEQUENT BLOCKS ARE COMPLETED. YOU MUST CORRECT DUAL CHANNEL, OR TWO OR MORE SINGLE CHANNEL FAULTS, BEFORE THE ENGINE CAN BE RETURNED TO SERVICE.

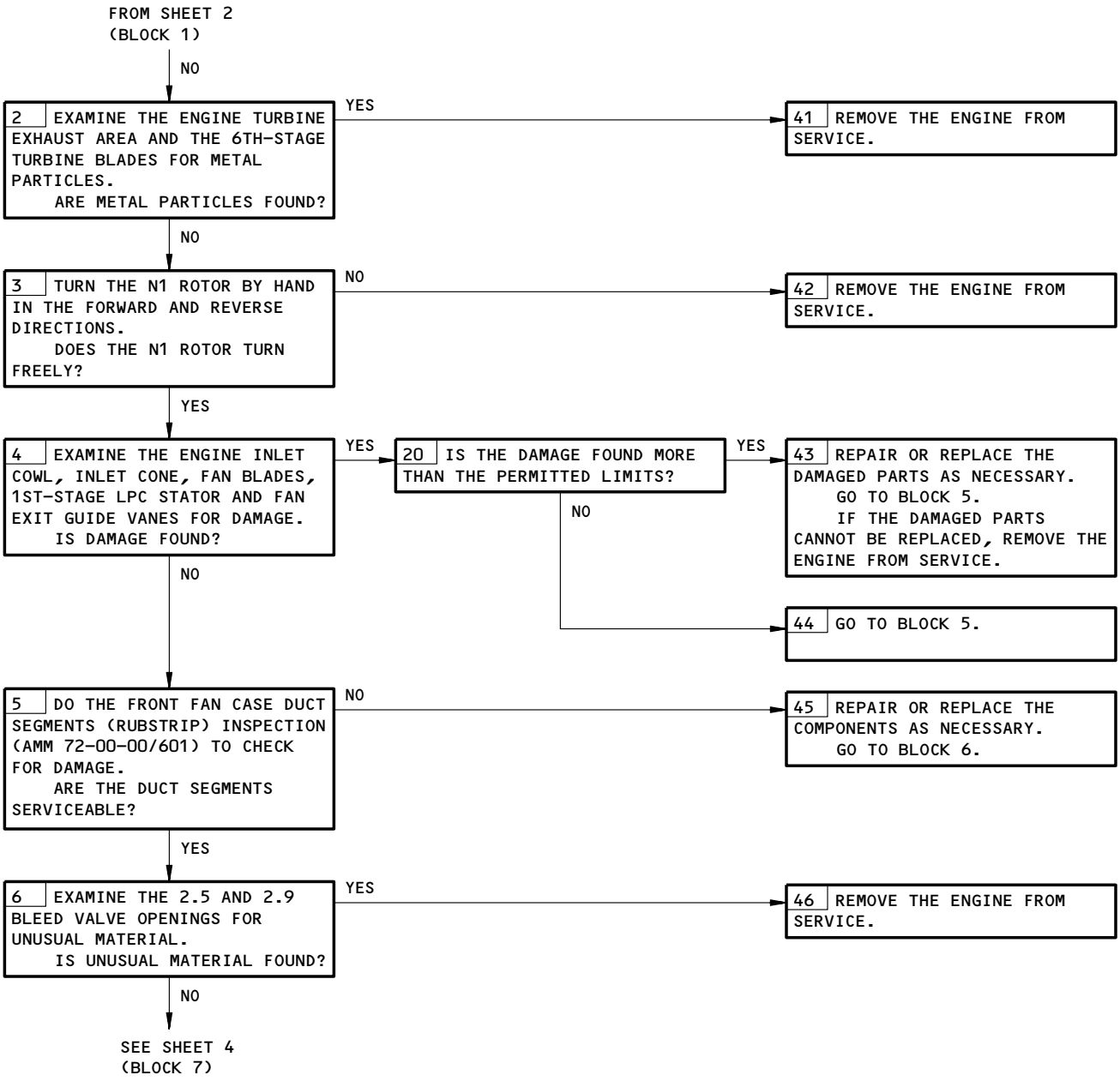
GO TO BLOCK 2.

NO → SEE SHEET 3 (BLOCK 2)

Engine Surge During Forward Thrust
Figure 103B (Sheet 2)

EFFECTIVITY
RING CASE ENGINES ONLY
POST SB PW4ENG 72-755

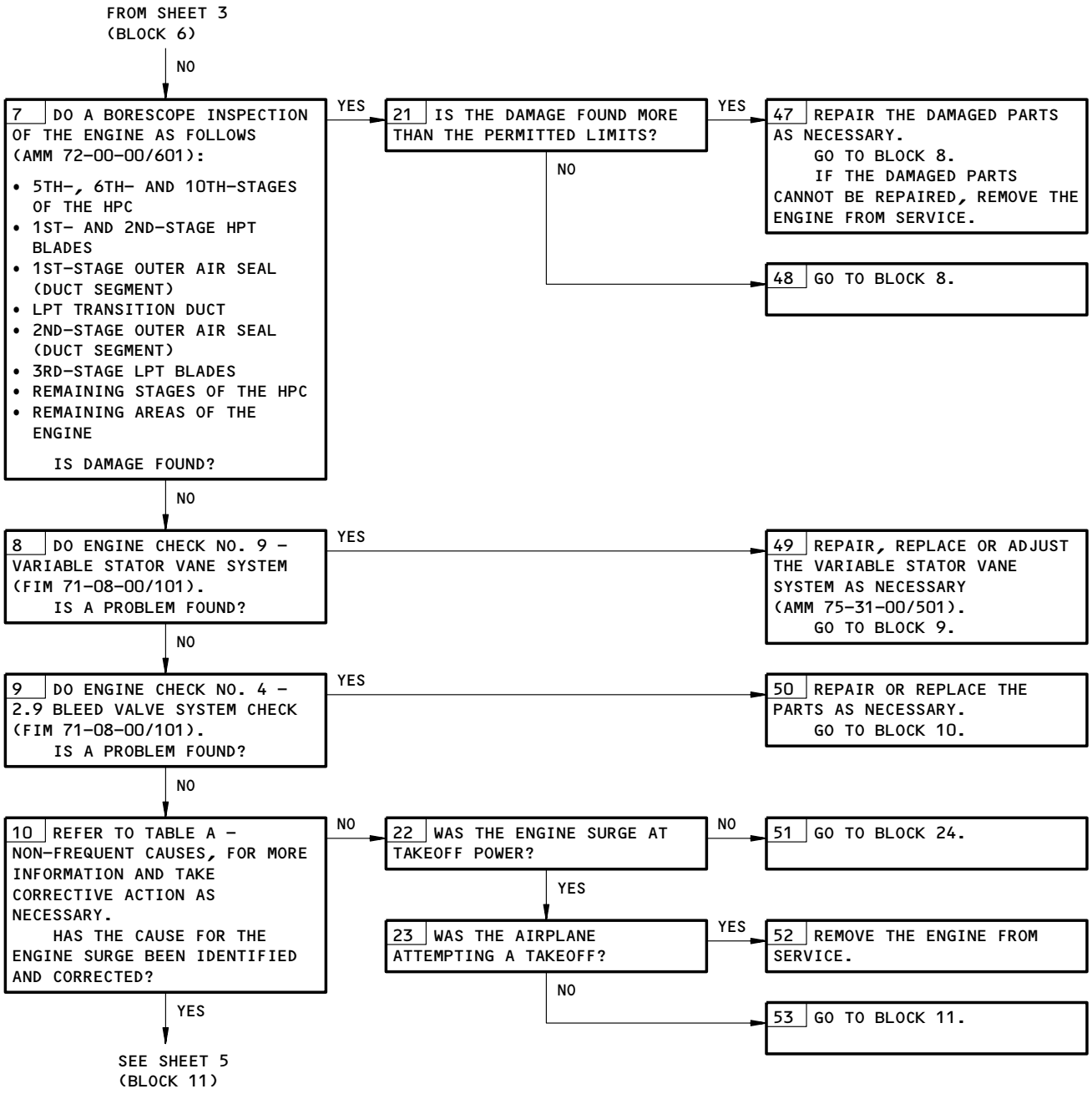
J30774



Engine Surge During Forward Thrust
Figure 103B (Sheet 3)

EFFECTIVITY
RING CASE ENGINES ONLY
POST SB PW4ENG 72-755

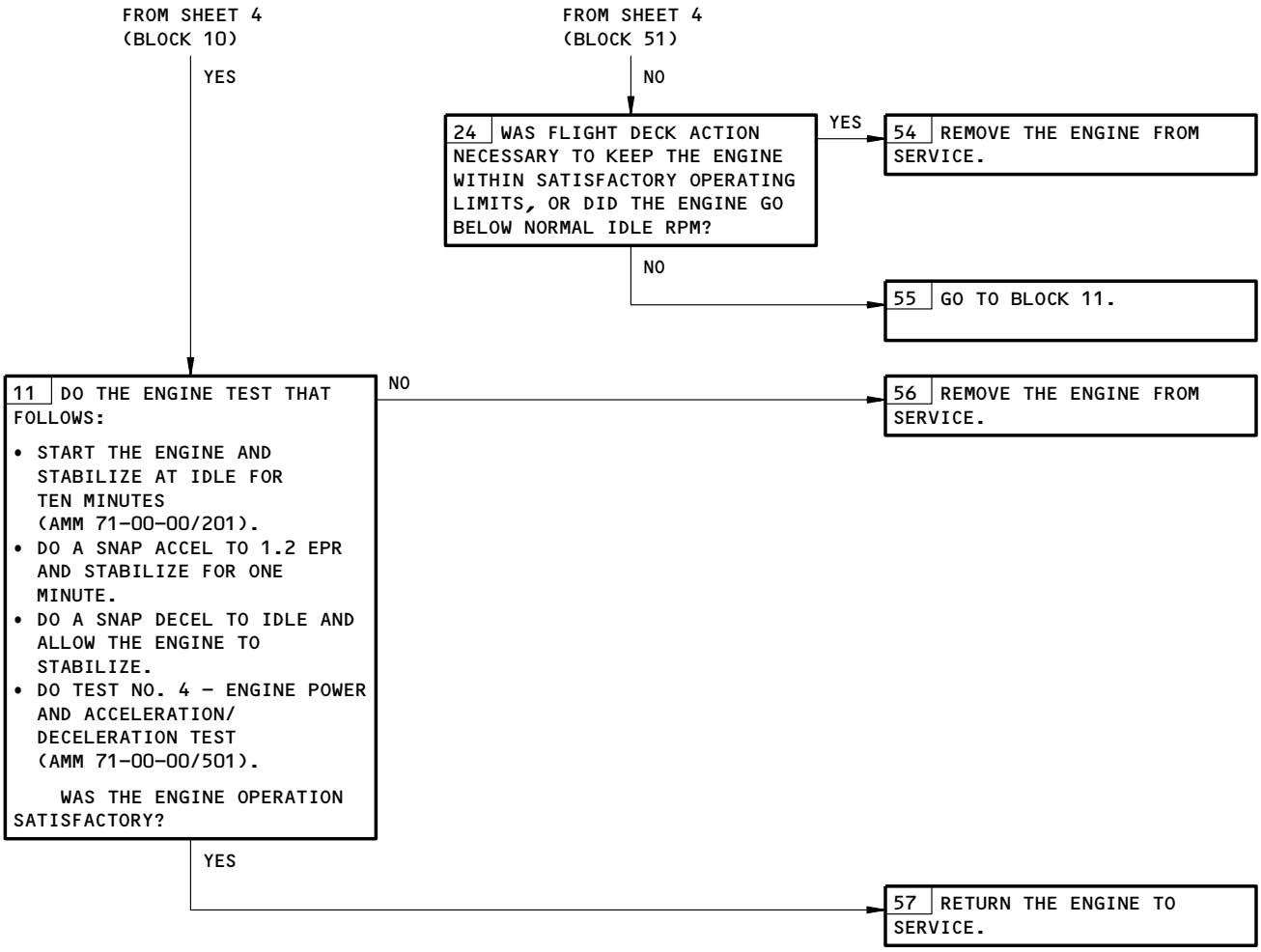
J30810



Engine Surge During Forward Thrust
Figure 103B (Sheet 4)

EFFECTIVITY
RING CASE ENGINES ONLY
POST SB PW4ENG 72-755

J30816



Engine Surge During Forward Thrust
Figure 103B (Sheet 5)

EFFECTIVITY
RING CASE ENGINES ONLY
POST SB PW4ENG 72-755

J30833

NON-FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
2.5 BLEED SYSTEM	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 10 - 2.5 BLEED VALVE SYSTEM CHECK (FIM 71-08-00/101).
BEARING DAMAGE (N2 ROTOR SYSTEM)	EXAMINE THE MAGNETIC CHIP DETECTORS AND MAIN OIL FILTER (AMM 79-21-10/601).
BIRDSTRIKE/FOD	EXAMINE THE ENGINE (FIM 71-05-00/101, FIG. 102).
COWL LOAD SHARE OUT OF ADJUSTMENT	DO THE COWL LOAD SHARE ADJUSTMENT (AMM 78-31-01/501).
EEC ALTERNATOR (AND N2 SPEED SIGNAL)	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE THE EEC ALTERNATOR FOR OIL LEAKS AND DAMAGE.
EEC RESET DISCRETE SIGNAL TEMPORARY LOSS (BOTH CHANNELS) NOTE: THE EEC RESET DISCRETE SIGNAL IS A FUNCTION OF THE FUEL CONTROL SWITCH. IF THE SIGNAL IS TEMPORARILY LOST, THE ENGINE CAN SURGE.	REVIEW THE FLIGHT DECK ACTIONS. EXAMINE THE FUEL CONTROL SWITCH AND WIRING (WDM 76-11-11).
FAN BLADE TIP CLEARANCE	DO THE FRONT FAN CASE DUCT SEGMENT (RUBSTRIP) INSPECTION (AMM 72-00-00/601) TO CHECK FOR THE FAN BLADE TIP CLEARANCE. REPAIR OR REPLACE THE DAMAGED COMPONENTS AS NECESSARY.
FUEL METERING UNIT	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE/ REPAIR/REPLACE THE FUEL METERING UNIT (AMM 73-21-01/401).
FUEL SYSTEM CONTAMINATION	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 3 - FUEL SYSTEM CONTAMINATION CHECK (FIM 71-08-00/101). DO ENGINE CHECK NO. 15 - SERVO FUEL CONTAMINATION (FIM 71-08-00/101).
INTERMEDIATE PRESSURE CHECK VALVE FAILURE OR WRONG PART NUMBER AND HIGH PRESSURE SHUTOFF VALVE FAILURE	EXAMINE THE INTERMEDIATE PRESSURE CHECK VALVE (AMM 36-11-06/601) AND HIGH PRESSURE SHUTOFF VALVE (AMM 36-11-07/601).
MAINTENANCE DONE BEFORE	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE THE MAINTENANCE HISTORY RECORD.
Pb SIGNAL	EXAMINE THE Pb SENSE LINES FOR LEAKS/BLOCKAGE (AMM 73-21-04/601).
POWER LOSS TO OTHER EEC CHANNEL	LOOK FOR RELATED EEC FAULT MESSAGES.
T2 SIGNAL	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 16 - T2 SIGNAL (FIM 71-08-00/101).

TABLE A

Engine Surge During Forward Thrust
Figure 103B (Sheet 6)

ENGINE SURGE DURING REVERSE THRUST

PREREQUISITES

NONE

DESCRIPTION (IT IS NOT NECESSARY TO IDENTIFY ALL OF THE CONDITIONS THAT FOLLOW):

1. ENGINE OPERATION WAS IN REVERSE THRUST
2. ENGINE NOISES, FROM LOW RUMBLES TO LOUD BANGS
3. ENGINE PARAMETERS (EPR, N1, N2, AND FUEL FLOW) ARE NOT STABLE AT A FIXED THRUST SETTING
4. INCREASE IN EGT OR EGT WAS HIGH
5. FLAMES FROM THE ENGINE INLET OR THE ENGINE EXHAUST

NOTE: CORRECTIVE ACTION IS NECESSARY ONLY IF THE INDICATIONS GIVEN ABOVE (ENGINE NOISES, ENGINE PARAMETER CHANGES, FLAMES FROM THE ENGINE) WERE REPORTED BY THE FLIGHT CREW OR BY GROUND OBSERVATIONS.

POSSIBLE CAUSES:

1. REVERSE THRUST SETTING TOO HIGH AND GROUND SPEED TOO LOW
2. CROSSWINDS
3. 2.5 BLEED VALVE SYSTEM

NOTE: IF NECESSARY, DO THE INSPECTION OF THE ENGINE AFTER EXHAUST GAS OVERTEMPERATURE (AMM 72-00-00/601).

FAULT ISOLATION:

Engine Surge During Reverse Thrust
Figure 103C (Sheet 1)

EFFECTIVITY
RING CASE ENGINES ONLY
POST SB PW4ENG 72-755

J30852

FROM SHEET 1
(BLOCK 1)

NO

2 DO THIS PROCEDURE: PIMU BITE PROCEDURE
(FIM 71-PIMU MESSAGE INDEX, FIG. 103).

LOOK FOR THE MESSAGES THAT FOLLOW:
EEC CH A/B SVA TR-CK FAIL (351-20)
EEC CH-A/B STRT BLD OPEN (353-28)
EEC CH-A/B STRT SOL W/A FAIL (354-15)
EEC CH-A/B STAB SOL W/A FAIL (354-16)
EEC A/B-CHAN FAIL (350-14)
EEC CH-A/B UNIT FAIL (350-15)
EEC CH-A/B XTRN DIS DISAGREE (350-23)
EEC CH-A/B FMU T/M W/A FAIL (351-14)
EEC CH-A/B SVA T/M W/A FAIL (351-15)
EEC CH-A/B B25 T/M W/A FAIL (351-16)
EEC CH-A/B FMU TR-CK FAIL (351-19)
EEC CH-A/B B25 TR-CK FAIL (351-21)
EEC CH-A/B FMU FD-BK FAIL (351-24)
EEC CH-A/B SVA FD-BK FAIL (351-25)
EEC CH-A/B B25 FD-BK FAIL (351-26)
EEC CH-A/B N1 RANGE FAIL (352-14)
EEC CH-A/B N2 RANGE FAIL (352-15)
EEC CH-A/B T2 RANGE FAIL (352-18)
EEC CH-A/B REVERSER RNG FAIL (352-25)
EEC CH-A/B TRA RNG FAIL (352-26)
EEC CH-A/B LOST POWER (352-29)
EEC CH-A/B N1 CROSS-CK FAIL (353-14)
EEC CH-A/B N2 CROSS-CK FAIL (353-15)
EEC CH-A/B PMA FAULT (353-16)
EEC CH-A/B T2 CROSS-CK FAIL (353-18)
EEC CH-A/B FMU CR-CK FAIL (353-24)
EEC CH-A/B REVR CR-CK FAIL (353-25)
EEC CH-A/B TRA CR-CK FAIL (353-26)
EEC CH-A/B XLINK FAIL (353-29)

DOES ONE OR MORE OF THE ABOVE MESSAGES SHOW?

YES

31 REFER TO PIMU TABLE 101 FOR THE NECESSARY CORRECTIVE ACTION.

NOTE: YOU CAN DELAY THE CORRECTIVE ACTIONS FOR THE EEC FAULT MESSAGES UNTIL SUBSEQUENT BLOCKS ARE COMPLETED. YOU MUST CORRECT DUAL CHANNEL, OR TWO OR MORE SINGLE CHANNEL FAULTS, BEFORE THE ENGINE CAN BE RETURNED TO SERVICE.

GO TO BLOCK 3.

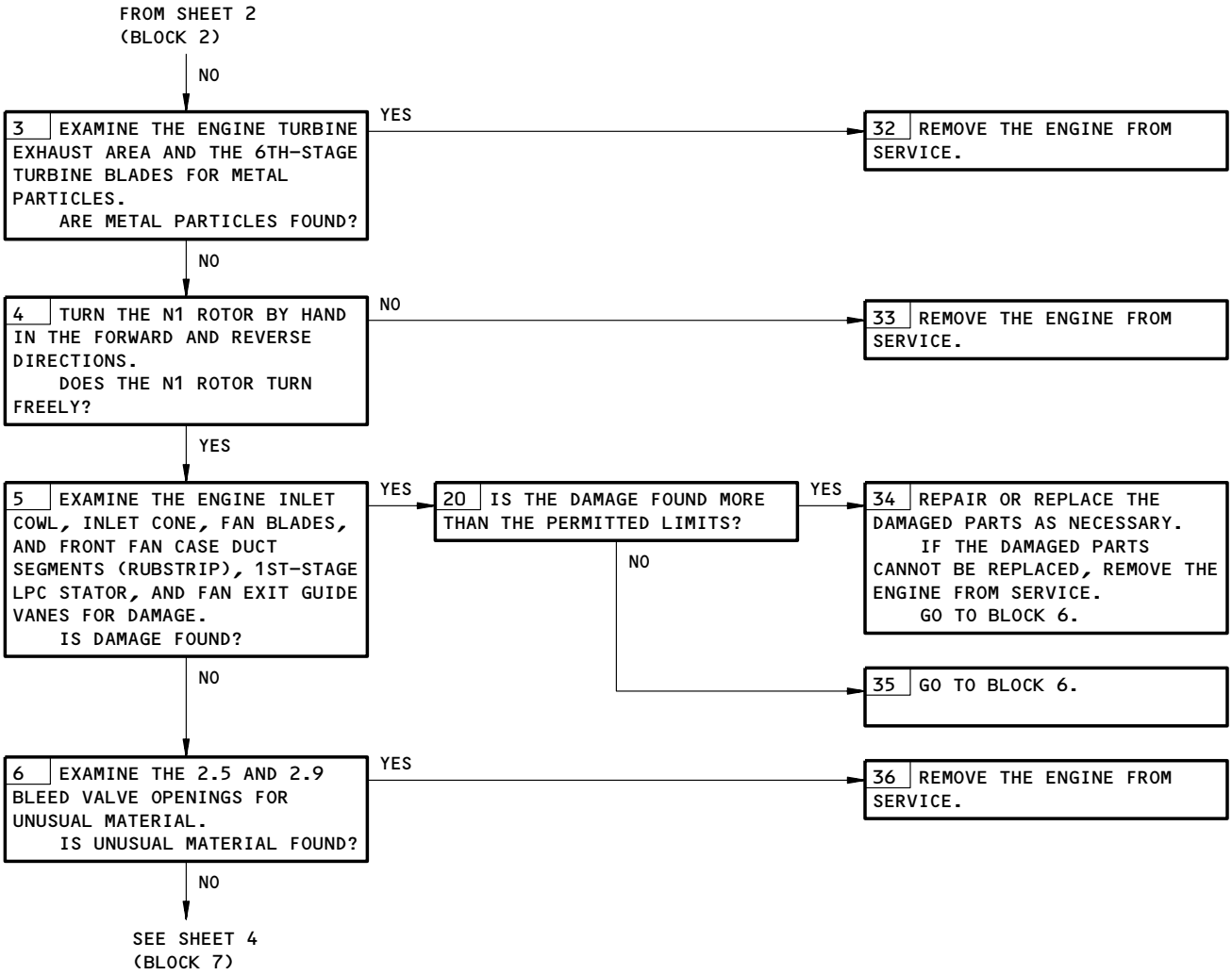
NO

SEE SHEET 3
(BLOCK 3)

Engine Surge During Reverse Thrust
Figure 103C (Sheet 2)

EFFECTIVITY
RING CASE ENGINES ONLY
POST SB PW4ENG 72-755

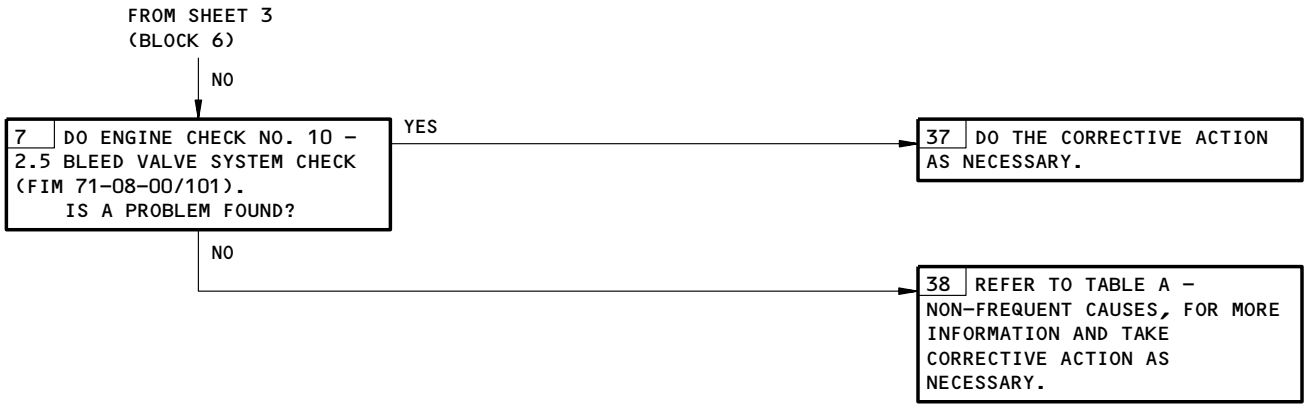
J30866



Engine Surge During Reverse Thrust
Figure 103C (Sheet 3)

EFFECTIVITY
RING CASE ENGINES ONLY
POST SB PW4ENG 72-755

J30869



Engine Surge During Reverse Thrust
Figure 103C (Sheet 4)

EFFECTIVITY
RING CASE ENGINES ONLY
POST SB PW4ENG 72–755

J30873

NON-FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
2.9 BLEED SYSTEM	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 4 - 2.9 BLEED VALVE SYSTEM CHECK (FIM 71-08-00/101).
BEARING DAMAGE (N2 ROTOR SYSTEM)	EXAMINE THE MAGNETIC CHIP DETECTORS AND MAIN OIL FILTER (AMM 79-21-10/601).
BIRDSTRIKE/FOD	EXAMINE THE ENGINE (FIM 71-05-00/101, FIG. 102).
EEC ALTERNATOR (AND N2 SPEED SIGNAL)	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE THE EEC ALTERNATOR FOR OIL LEAKS AND DAMAGE.
EEC RESET DISCRETE SIGNAL TEMPORARY LOSS (BOTH CHANNELS) NOTE: THE EEC RESET DISCRETE SIGNAL IS A FUNCTION OF THE FUEL CONTROL SWITCH. IF THE SIGNAL IS TEMPORARILY LOST, THE ENGINE CAN SURGE.	REVIEW THE FLIGHT DECK ACTIONS. EXAMINE THE FUEL CONTROL SWITCH AND WIRING (WDM 76-11-11).
FUEL METERING UNIT	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE/ REPAIR/REPLACE THE FUEL METERING UNIT (AMM 73-21-01/401).
FUEL SYSTEM CONTAMINATION	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 3 - FUEL SYSTEM CONTAMINATION CHECK (FIM 71-08-00/101). DO ENGINE CHECK NO. 15 - SERVO FUEL CONTAMINATION (FIM 71-08-00/101).
INTERMEDIATE PRESSURE CHECK VALVE FAILURE OR WRONG PART NUMBER AND HIGH PRESSURE SHUTOFF VALVE FAILURE	EXAMINE THE INTERMEDIATE PRESSURE CHECK VALVE (AMM 36-11-06/601) AND HIGH PRESSURE SHUTOFF VALVE (AMM 36-11-07/601).
MAINTENANCE DONE BEFORE	LOOK FOR RELATED EEC FAULT MESSAGES. EXAMINE THE MAINTENANCE HISTORY RECORD.
Pb SIGNAL	EXAMINE THE Pb SENSE LINES FOR LEAKS/BLOCKAGE (AMM 73-21-04/601).
POWER LOSS TO OTHER EEC CHANNEL	LOOK FOR RELATED EEC FAULT MESSAGES.
REVERSER CASCADES DAMAGED, WRONG PART NUMBER OR NOT INSTALLED CORRECTLY	EXAMINE THE CASCADE SEGMENTS FOR THE CORRECT PART NUMBER, CONDITION AND CORRECT INSTALLATION (AMM 78-31-16/601).
T2 SIGNAL	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 16 - T2 SIGNAL (FIM 71-08-00/101).
VARIABLE STATOR VANE SYSTEM	LOOK FOR RELATED EEC FAULT MESSAGES. DO ENGINE CHECK NO. 9 - VARIABLE STATOR VANE SYSTEM CHECK (FIM 71-08-00/101).

TABLE A

Engine Surge During Reverse Thrust
Figure 103C (Sheet 5)

J30876

ENGINE VIBRATION INDICATION CHANGED WITH THRUST LEVER MOVEMENT 1

PREREQUISITES

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

MAKE SURE THIS CIRCUIT BREAKER IS CLOSED:
11K1

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

NOTE: IF AN IN-FLIGHT ENGINE SHUTDOWN OCCURRED, DO THE ENGINE WINDMILLING INSPECTION (AMM 72-00-00/601).

POSSIBLE CAUSES:

1. FOD (AMM 72-00-00/601)
2. INLET CONE SEALS
3. FAN BLADE LOCK-UP, SHINGLING, OR DAMAGE (AMM 72-31-02/601)
4. LOOSE SCREW(S) ON ENGINE ACCELEROMETER (AMM 77-31-01/401)
5. LOOSE CABLES OR CLAMPS ON ENGINE ACCELEROMETER (AMM 70-24-05/201)
6. OXIDATION ON ACCELEROMETER CONNECTOR PINS (AMM 70-24-05/201)
7. BAD ENGINE ACCELEROMETER (AMM 77-31-01/401)
8. VIBRATION MONITORING SYSTEM PROBLEMS (FIM 77-31-00/101, FIG. 103)
9. WORN FAN RUBSTRIP (AMM 72-33-01/601)
10. FAN ROTOR OUT OF BALANCE (AMM 72-31-00/501)
11. LOOSE ENGINE COWLING, THRUST REVERSER COMPONENTS, OR ENGINE COMPONENTS (AMM 72-00-00/601).

FAULT ISOLATION:

1 LOOK ON THE ECS/MSG PAGE FOR THE "ENG VIB BITE" EICAS MAINTENANCE MESSAGE.
DOES THE MESSAGE SHOW?
YES → 21 DO THIS PROCEDURE: VIB INDICATION PROBLEMS (FIM 77-31-00/101, FIG. 103).
NO ↓

2 EXAMINE THE ENGINE INLET FOR FOD. EXAMINE THE EXHAUST AREA FOR METAL PARTICLES.
ARE FOD OR METAL PARTICLES FOUND?
YES → 22 REPLACE THE ENGINE (AMM 71-00-02/401).
NO ↓

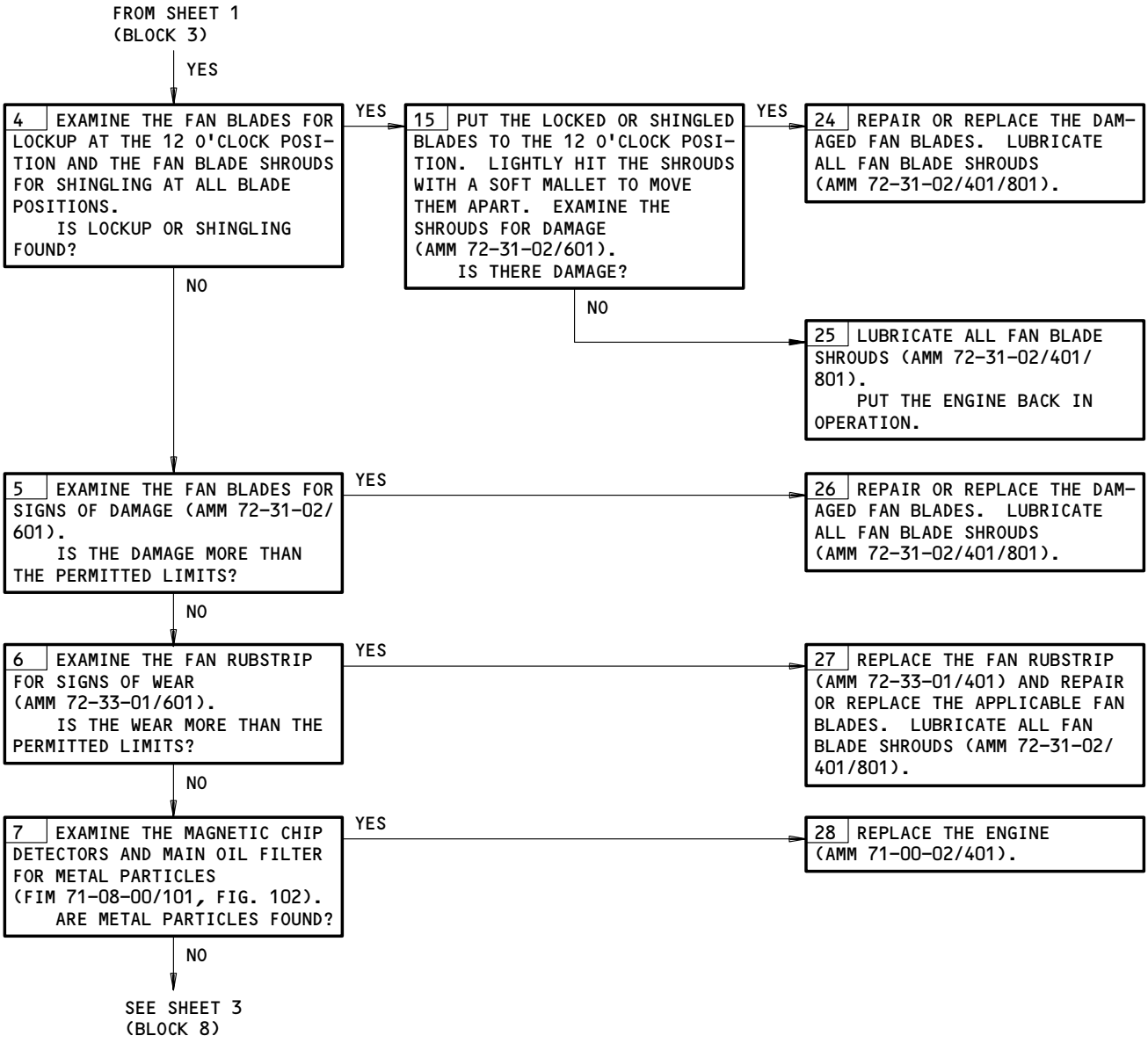
2A EXAMINE THE INLET CONE FOR MISSING SEALS.
AREA ANY SEALS MISSING?
YES → 22A REPLACE THE INLET CONE (AMM 72-31-01/401).
NO ↓

3 EXAMINE THE ENGINE ACCELEROMETER AND MAKE SURE THE SCREWS ARE TIGHT.
ARE THE SCREWS TIGHT?
NO → 23 TIGHTEN THE SCREWS.
YES ↓

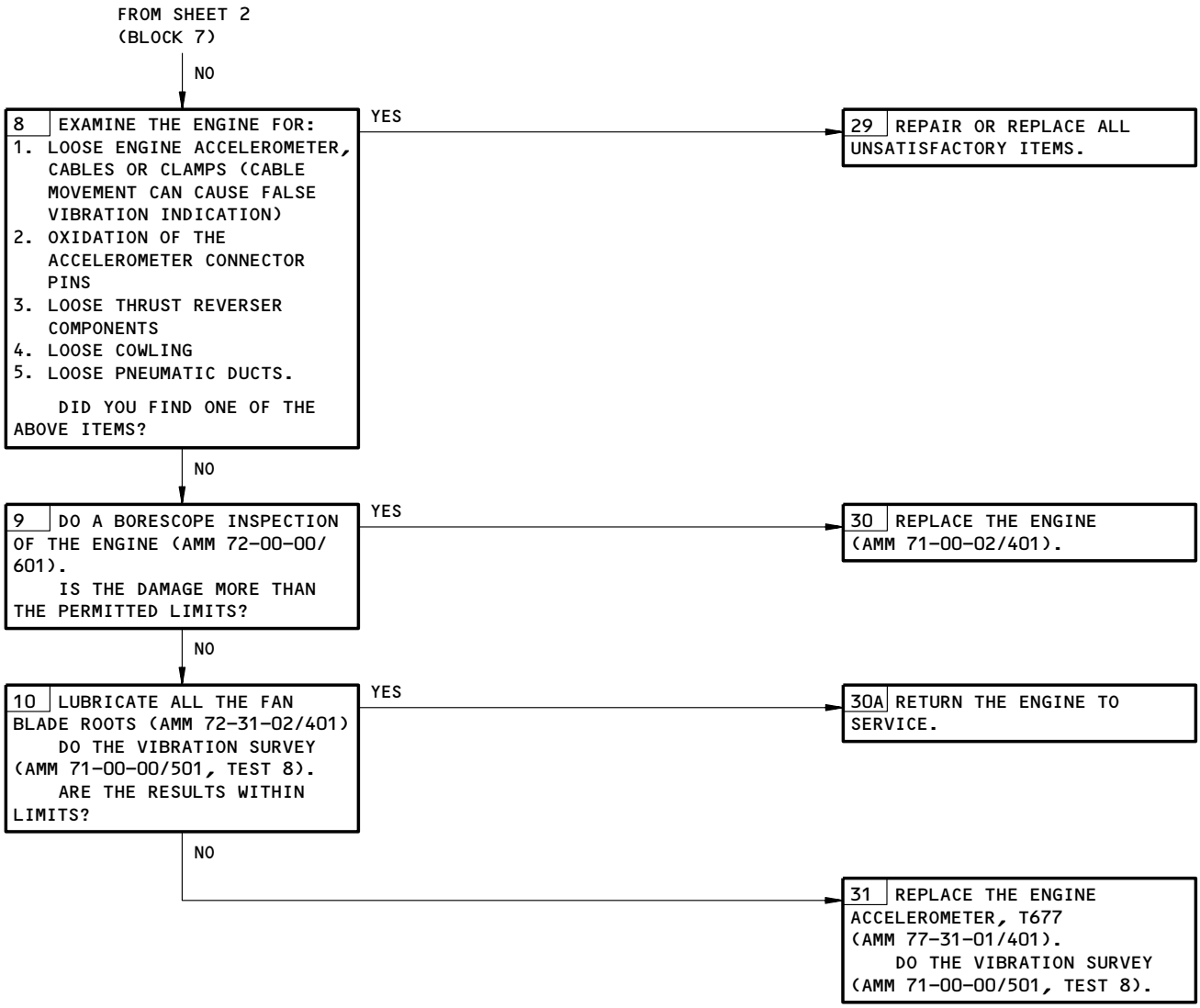
SEE SHEET 2
(BLOCK 4)

1 IF THE AIRPLANE HAS ONE PHASE 1 AND ONE PHASE 3 ENGINE INSTALLED, HIGH VIBRATION WILL OCCUR DUE TO A MISMATCH IN N1 AND N2 ROTOR SPEEDS BETWEEN THE TWO ENGINES. IF THIS CONDITION OCCURS, NO CORRECTIVE ACTION IS NECESSARY.

Engine Vibration Indication Changed with Thrust Lever Movement
Figure 104 (Sheet 1)



Engine Vibration Indication Changed with Thrust Lever Movement
Figure 104 (Sheet 2)



Engine Vibration Indication Changed with Thrust Lever Movement
Figure 104 (Sheet 3)

PREREQUISITES

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

MAKE SURE THIS CIRCUIT BREAKER IS CLOSED:
11K1

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

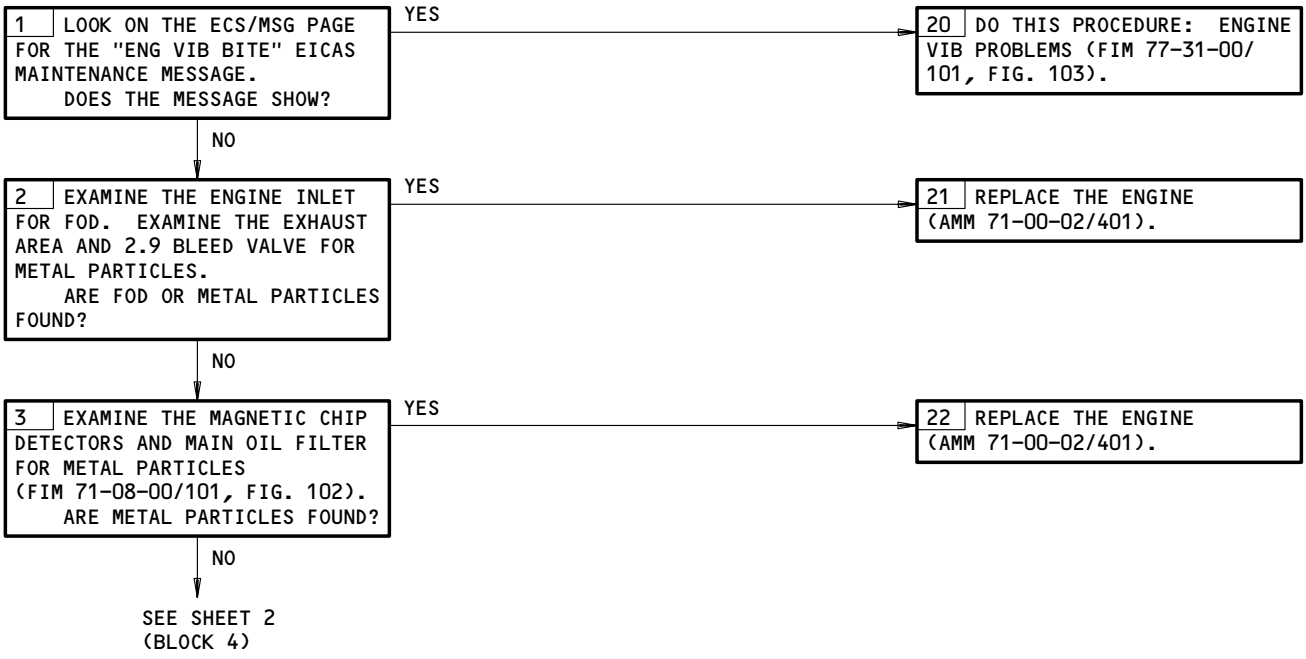
ENGINE VIBRATION DID NOT CHANGE WITH THRUST LEVER MOVEMENT

NOTE: IF AN INFLIGHT ENGINE SHUTDOWN HAS OCCURRED, DO THE ENGINE WINDMILLING INSPECTION (AMM 72-00-00/601).

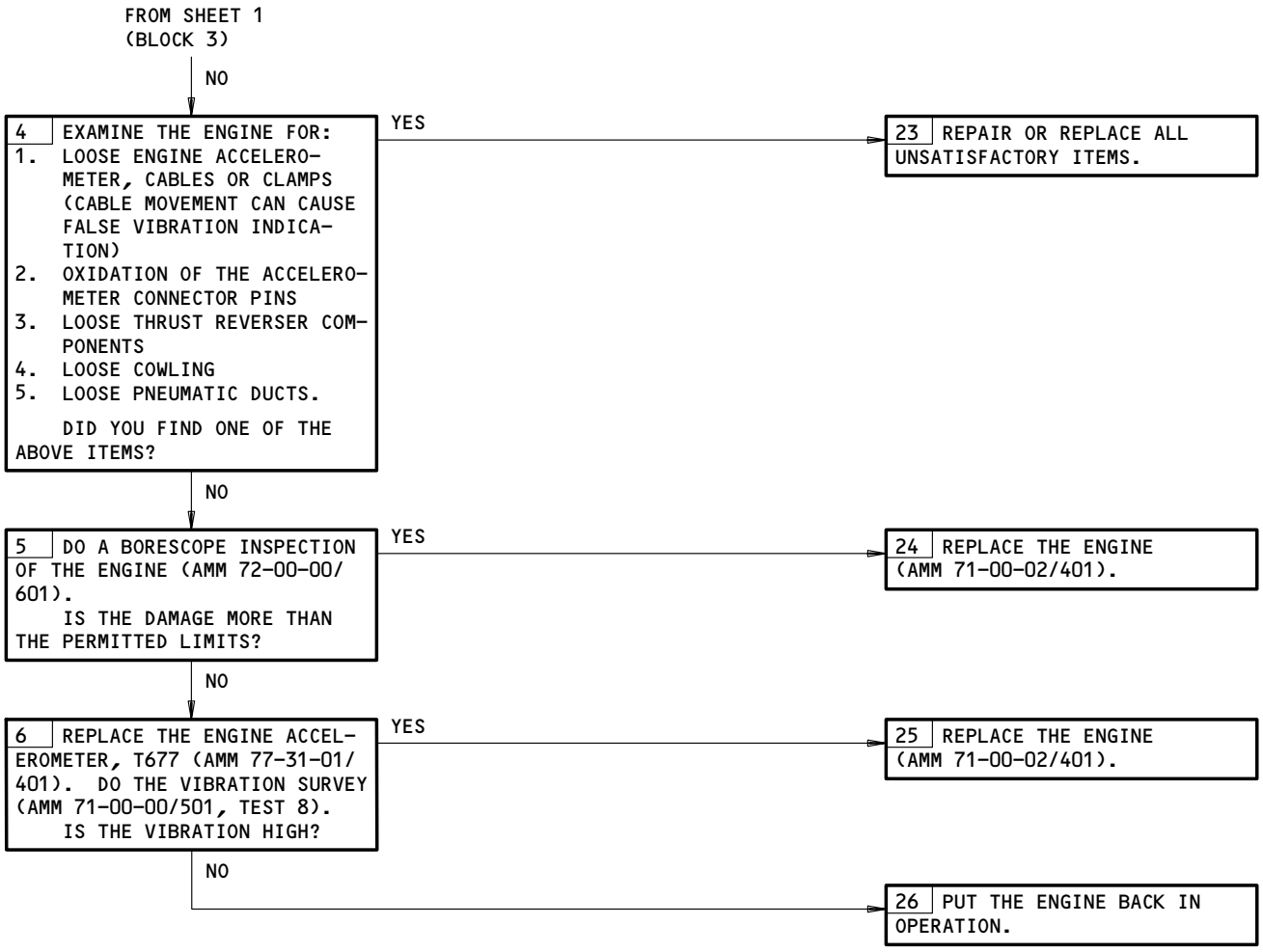
POSSIBLE CAUSES:

1. FOD
2. LOOSE ENGINE ACCELEROMETER (AMM 71-31-01/401)
3. LOOSE CABLES OR CLAMPS ON ACCELEROMETER (AMM 77-31-01/401)
4. OXIDATION ON ACCELEROMETER CONNECTOR PINS
5. LOOSE THRUST REVERSER COMPONENTS
6. LOOSE COWLING
7. LOOSE PNEUMATIC DUCTS.

FAULT ISOLATION:



Engine Vibration Did Not Change with Thrust Lever Movement
Figure 105 (Sheet 1)



Engine Vibration Did Not Change with Thrust Lever Movement
Figure 105 (Sheet 2)

PREREQUISITES

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

NOTE: IF AN INFLIGHT ENGINE SHUTDOWN HAS OCCURRED, DO THE ENGINE WINDMILLING INSPECTION (AMM 72-00-00/601).

HIGH OIL CONSUMPTION

NOTE: IF LOW/DECREASING OIL QUANTITY IS OBSERVED AT ALTITUDE, NOT ACCOMPANIED BY LOW OIL PRESSURE OR HIGH OIL TEMPERATURE, DO THIS PROCEDURE: QUANTITY INDICATION PROBLEMS (FIM 79-31-00/101).

POSSIBLE CAUSES:

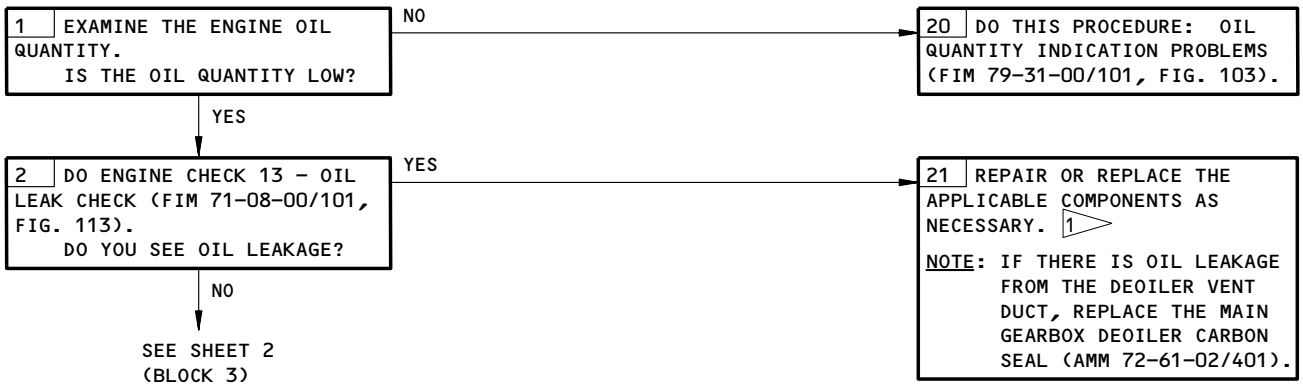
1. BAD OIL QUANTITY INDICATOR (FIM 79-31-00/101, FIG. 103)
2. OIL LEAKAGE (FIM 71-08-00/101, FIG. 113).

NOTE:

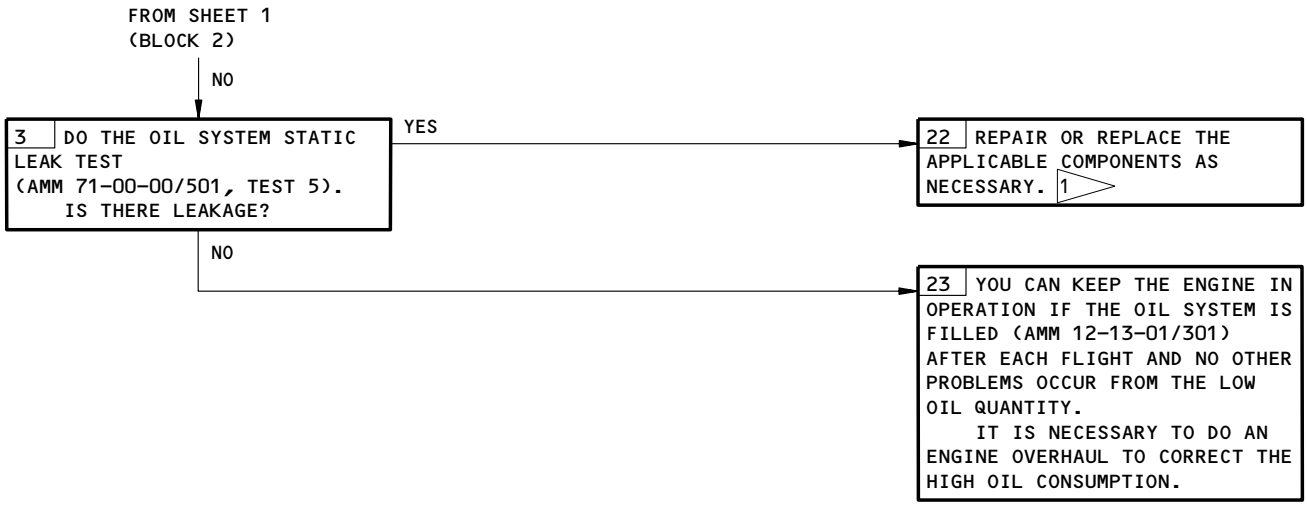
IF THERE ARE REPORTS OF OIL HIDING, WITH NO TEMPERATURE INCREASE, DO THE FOLLOWING:
1. PERFORM A MAGNETIC CHIP DETECTOR INSPECTION PER THE AMM.
2. DO A VISUAL INSPECTION OF ALL ENGINE OIL SCAVENGE LINES TO LOOK FOR BENDS OR KINKS. REMOVE/REPLACE AS NECESSARY.
3. BORESCOPE INSPECT THE OIL SCAVENGE LINE BETWEEN THE MAIN OIL PUMP AND THE FRONT BEARING COMPARTMENT. CLEAN OR REPLACE AS NECESSARY.
4. IF NO OIL SCAVENGE LINE PROBLEMS ARE FOUND, REMOVAL/REPLACE THE MAIN OIL PUMP.
5. IF OIL HIDING PERSISTS, REMOVE THE ENGINE FROM SERVICE.

IF THERE ARE REPORTS OF OIL HIDING, WITH TEMPERATURE INCREASE, PERFORM A MAGNETIC CHIP DETECTOR INSPECTION PER THE AMM. REMOVE/REPLACE THE MAIN OIL PUMP. IF OIL HIDING PERSISTS, REMOVE THE ENGINE FROM SERVICE.

FAULT ISOLATION:



High Oil Consumption
Figure 106 (Sheet 1)



1 DO THIS PROCEDURE: ENGINE CHECK 1 - EICAS AUTO-EVENT MESSAGE VERIFICATION/ERASE PROCEDURE (FIM 71-08-00/101, FIG. 101).

High Oil Consumption
Figure 106 (Sheet 2)

NO N1 ROTATION AT ENGINE START

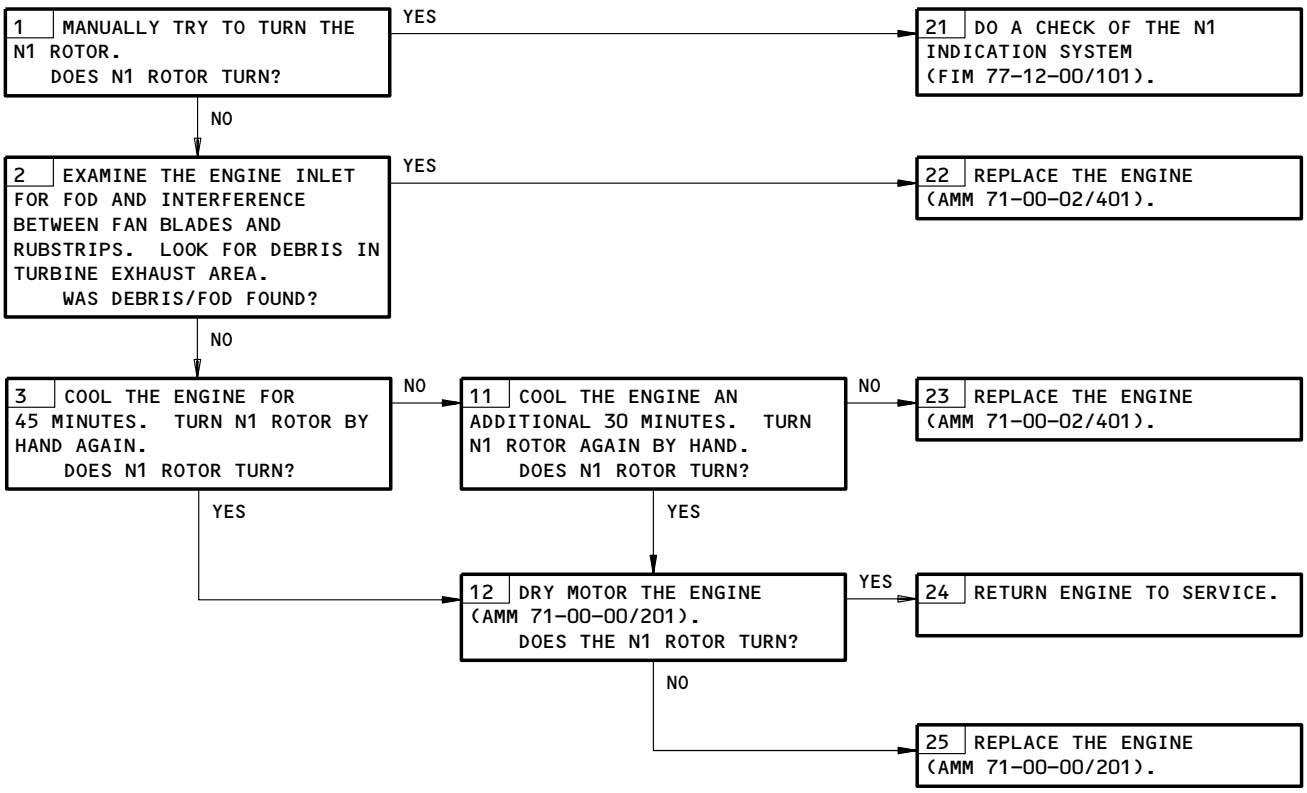
PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
ENGINE OPERATION (AMM 71-00-00/201)

POSSIBLE CAUSES:

1. FOD
2. INTERFERENCE BETWEEN FAN BLADES AND RUB STRIP
3. N1 ROTOR WILL NOT TURN.

FAULT ISOLATION:



No N1 Rotation at Engine Start
Figure 107

PREREQUISITES

MAKE SURE THESE SYSTEMS WILL OPERATE:
EICAS (AMM 31-61-00/201)
CMCS (AMM 45-10-00/201)

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

ENGINE PARAMETERS ABNORMAL

1 DO THIS PROCEDURE: PIMU BITE PROCEDURE (FIM 71-PIMU MESSAGE INDEX, FIG. 3).
LOOK FOR THE MESSAGES THAT FOLLOW:

EEC CH-A/B P-SENSOR DISAGREE (350-20)
EEC CH-A/B P5 LINE FAULT (350-21)
EEC CH-A/B P2 LINE FAULT (350-22)
EEC CH A/B SVA T/M W/A FAIL (351-15)
EEC CH-A/B B25 T/M W/A FAIL (351-16)
EEC CH-A/B SVA TR-CK FAIL (351-20)
EEC CH-A/B B25 TR-CK FAIL (351-21)
EEC CH-A/B SVA FD-BK FAIL (351-25)
EEC CH-A/B B25 FD-BK FAIL (351-26)
EEC CH-A/B T2 CROSS-CK FAIL (353-18)
EEC CH-A/B STRT SOL W/A FAIL (354-15)
EEC CH-A/B STAB SOL W/A FAIL (354-16)
EEC CH-A/B PMA PWR SOL SHRT (354-24)

DO ONE OR MORE OF THE ABOVE MESSAGES SHOW?

YES → 21 REFER TO THE PIMU MESSAGE TABLES (FIM 71-PIMU MESSAGE INDEX) AND DO THE CORRECTIVE ACTION FOR THE APPLICABLE MESSAGE(S) AS NECESSARY.

NO ↓

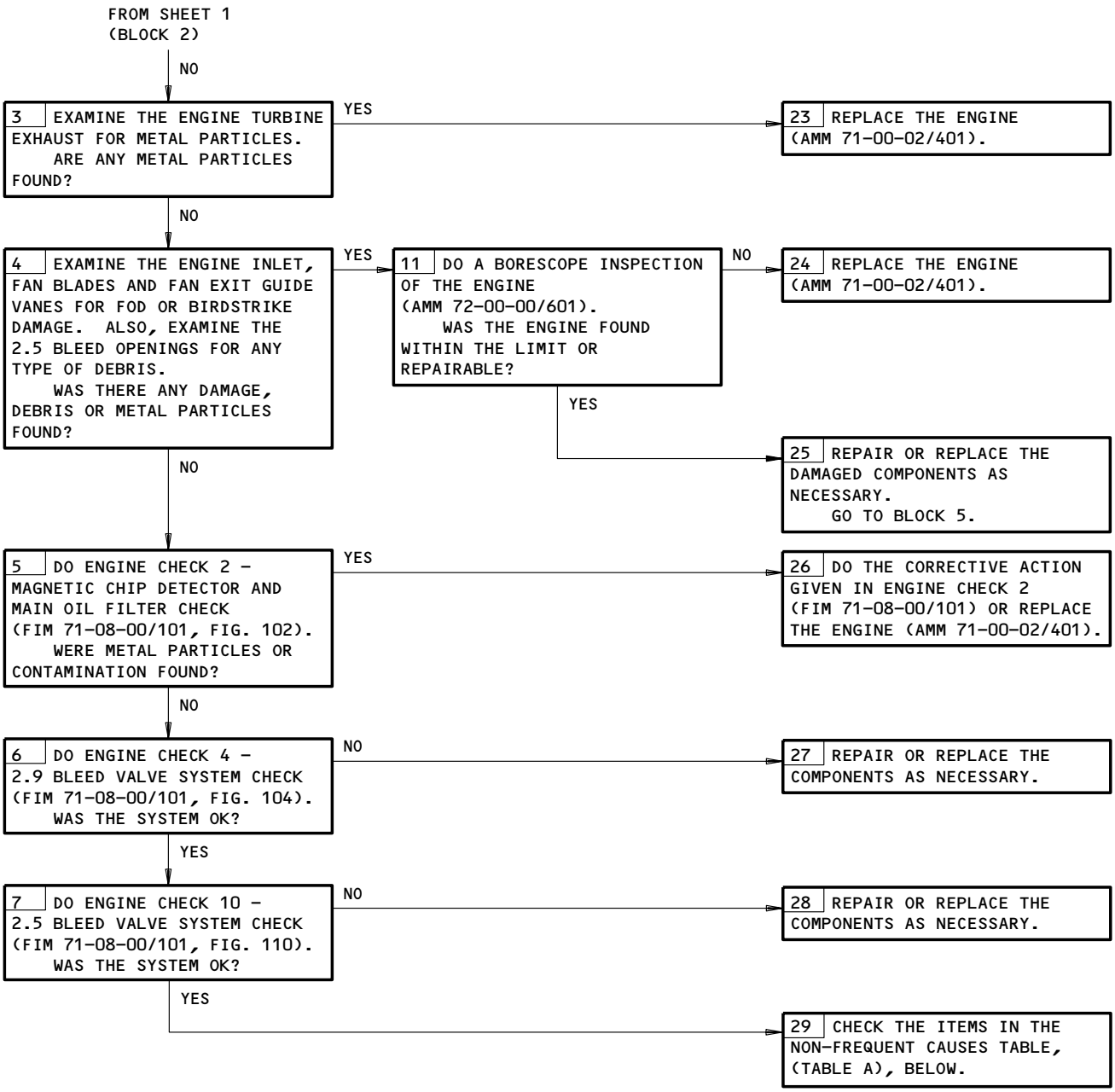
2 LOOK AT THE PW4000 ENGINE PARAMETER CHANGE TABLE (AT THE END OF THIS FIGURE) BEFORE YOU CONTINUE. IF THE TABLE DOES NOT DIRECT YOU TO A PARTICULAR PROBLEM, CONTINUE WITH THIS FAULT ISOLATION PROCEDURE.
DID YOU FIND DATA IN THE TABLE TO CORRECT THE PROBLEM?

YES → 22 DO THE RECOMMENDED CORRECTIVE ACTION FOUND AT THE END OF THE PW4000 ENGINE PARAMETER CHANGE TABLE.

NO ↓

SEE SHEET 2
(BLOCK 3)

Engine Parameters Abnormal
Figure 107A (Sheet 1)



Engine Parameters Abnormal
Figure 107A (Sheet 2)

NON-FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
AIRPLANE BLEED SYSTEM	EXAMINE/REPAIR/REPLACE THE BLEED SYSTEM COMPONENTS (CHAPTER 36).
AIRPLANE INDICATING SYSTEMS	EXAMINE/REPAIR/REPLACE THE INDICATING SYSTEM COMPONENTS (CHAPTER 31).
FUEL CONTAMINATION	DO ENGINE CHECK 3 - FUEL SYSTEM CONTAMINATION CHECK (FIM 71-08-00/101, FIG. 103).
FUEL PUMP	DO ENGINE CHECK 5 - FUEL PUMP PRESSURE CHECK (FIM 71-08-00/101, FIG. 105).
PB MANIFOLD LEAKAGE	DO VISUAL CHECK 4 - BURNER PRESSURE (PB) MANIFOLD CONDITION (FIM 71-07-00/101, FIG. 104). DO ENGINE CHECK 11 - BURNER PRESSURE (PB) MANIFOLD CHECK (FIM 71-08-00/101, FIG. 111).
PT4.95 MANIFOLD	DO THE EPR MANIFOLD SYSTEM LEAK CHECK (AMM 77-11-01/501).
PT4.95 PROBE PLUGGING	EXAMINE/REPAIR/REPLACE THE PT4.95 PROBES (AMM 77-11-01/501).
PT2 MANIFOLD	DO ENGINE CHECK 16 - T2 SIGNAL (FIM 71-08-00/101, FIG. 116).
PT2 PROBE (PT2/TT2 PROBE)	DO ENGINE CHECK 16 - T2 SIGNAL (FIM 71-08-00/101, FIG. 116).
TT2 PROBE (PT2/TT2 PROBE)	EXAMINE/REPAIR/REPLACE THE PT2/TT2 PROBES (AMM 73-21-03/401).

TABLE A

Engine Parameters Abnormal
Figure 107A (Sheet 3)

NOTE: THIS TABLE IS A GUIDE TO HELP IDENTIFY THE POSSIBLE CAUSES OF ENGINE PARAMETER CHANGES. THE CAUSES OF CHANGE ARE NOT ALWAYS ACCURATE FOR EACH CAUSE BUT THE RELATIVE VALUES AND DIRECTIONS OF CHANGE ARE CORRECT.

PW4000 ENGINE PARAMETER CHANGE TABLE
STEADY STATE CRUISE (ALTITUDE = 35K FT, SPEED = 0.8 MN)

EGT (Deg C)	FUEL FLOW (%) CHANGE	N2 (%) CHANGE	N1 (%) CHANGE	CAUSE OF THE CHANGE
+86	+16.2	+5.3	+0.8	THE TWO 2.9 BLEED VALVES ARE OPEN
+44	+7.3	+2.7	+0.7	THE 2.5 BLEED VALVE IS FULLY OPEN
+35	+7.1	+1.5	+0.4	ONE 2.9 BLEED VALVE OPEN
+20	+2.6	−0.9	0	HPT MODULE PERFORMANCE LOSS (−2% HPT EFFICIENCY/−1.5% EFFECTIVE A4)
+18	+2.1	−0.5	+0.1	TURBINE CASE COOLING (TCC) SYSTEM OFF (VALVES CLOSED)
+17	+3.6	+0.2	+0.2	+2% LEAKAGE FROM THE 15TH STAGE BLEED
+17	+1.4	+1.0	+1.0	−5 DEG C TAT ERROR
+12	+1.6	0	0	HPC MODULE PERFORMANCE LOSS (−2% HPC EFFICIENCY/−1.6% HPC FLOW CAPACITY)
+9	+2.0	+0.5	+0.2	+2% FLOW FROM THE 8TH−STAGE BLEED
+8	+1.3	+0.4	+0.3	LPC MODULE PERFORMANCE LOSS (−2% LPC EFFICIENCY/−2.2% LPC FLOW CAPACITY)

Engine Parameters Abnormal
Figure 107A (Sheet 4)

PW4000 ENGINE PARAMETER CHANGE TABLE RECOMMENDED CORRECTIVE ACTION	
CAUSE OF CHANGE	RECOMMENDED CORRECTIVE ACTION
THE TWO 2.9 BLEED VALVES ARE OPEN	DO ENGINE CHECK 4 – 2.9 BLEED VALVE SYSTEM CHECK (FIM 71-08-00/101, FIG. 104).
THE 2.5 BLEED VALVE IS FULLY OPEN	LOOK FOR THESE EEC FAULT MESSAGES TO EXAMINE THE FLIGHT LEG ON WHICH THE PARAMETER CHANGES OCCURRED: 351-16 351-17 IF ONE OF THE MESSAGES IS FOUND, DO THE CORRECTIVE ACTION FOR THE MESSAGE: • IF THE PROBLEM CONTINUES, DO ENGINE CHECK 10 – 2.5 BLEED VALVE SYSTEM CHECK (FIM 71-08-00/101, FIG. 110). • IF THE PROBLEM DOES NOT SHOW, THE SYSTEM IS OK. IF NO MESSAGES ARE FOUND, DO ENGINE CHECK 10 – 2.5 BLEED VALVE SYSTEM CHECK (FIM 71-08-00/101, FIG. 110).
ONE 2.9 BLEED VALVE IS OPEN	LOOK FOR THESE EEC FAULT MESSAGES TO EXAMINE THE FLIGHT ON WHICH THE PARAMETER CHANGES OCCURRED: 353-28 354-16 354-24 IF ONE OF THE MESSAGES IS FOUND, DO THE CORRECTIVE ACTION FOR THE MESSAGE: • IF THE PROBLEM CONTINUES, DO ENGINE CHECK 4 – 2.9 BLEED • VALVE SYSTEM CHECK (FIM 71-08-00/101, FIG. 104). IF THE PROBLEM DOES NOT SHOW, THE SYSTEM IS OK. IF NO MESSAGES ARE FOUND, DO ENGINE CHECK 4 – 2.9 BLEED VALVE SYSTEM CHECK (FIM 71-08-00/101, FIG. 104).
HPT MODULE PERFORMANCE LOSS (–2% HPT EFFICIENCY/+1.5% EFFECTIVE A4)	DO THE BORESCOPE INSPECTION OF THE HPT (AMM 72-00-00/601). DO THE CORRECTIVE ACTION AS NECESSARY.
TCC SYSTEM OFF (VALVES CLOSED)	LOOK FOR THESE EEC FAULT MESSAGES TO EXAMINE THE FLIGHT ON WHICH THE PARAMETER CHANGES OCCURRED: 350-14 351-17 351-21 351-27 354-28 IF ONE OF THE MESSAGES IS FOUND, DO THE CORRECTIVE ACTION FOR THE MESSAGE: • IF THE PROBLEM CONTINUES, EXAMINE THE TCC VALVE POSITION • INDICATOR (AMM 75-24-00/601). IF THE PROBLEM DOES NOT SHOW, THE SYSTEM IS OK. IF NO MESSAGES ARE FOUND, DO A CHECK OF THE TCC SYSTEM (AMM 75-24-00/601).
+2% LEAKAGE FROM THE 15-STAGE BLEED	EXAMINE THE 15TH-STAGE BLEED SYSTEM CONTROLS AND COMPONENTS FOR LEAKAGE OR OTHER MALFUNCTIONS. DO THE NECESSARY CORRECTIVE ACTION.
HPC MODULE PERFORMANCE LOSS (–2% HPC EFFICIENCY/–1.6% HPC FLOW CAPACITY)	DO THE BORESCOPE INSPECTION OF THE HPC (AMM 72-00-00/601). DO THE NECESSARY CORRECTIVE ACTION.
+2% FLOW FROM THE 8TH-STAGE BLEED	EXAMINE THE 8TH-STAGE BLEED SYSTEM CONTROLS AND COMPONENTS FOR LEAKAGE OR OTHER MALFUNCTIONS. DO THE NECESSARY CORRECTIVE ACTION.
LPC MODULE PERFORMANCE LOSS (–2% LPC EFFICIENCY/–2.2% LPC FLOW CAPACITY)	DO THE BORESCOPE INSPECTION OF THE LPC (AMM 72-00-00/601). DO THE NECESSARY CORRECTIVE ACTION.

Engine Parameters Abnormal
Figure 107A (Sheet 5)

HIGH EGT

PREREQUISITES

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

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

1 DO THIS PROCEDURE: PIMU MAINTENANCE RECALL PROCEDURE (FIM 71-PIMU MESSAGE INDEX, FIG. 103).

LOOK FOR THE MESSAGES THAT FOLLOW:

EEC CH-A/B T5 RANGE FAIL (352-19)
EEC CH-A/B T5 CROSS-CK FAIL (353-19)
EEC CH-A/B B25 TR-CK FAIL (351-21)
EEC CH-A/B B25 T/M W/A FAIL (351-16)
EEC CH-A/B B25 FD-BK FAIL (351-26)
EEC CH-A/B SVA TR-CK FAIL (351-20)
EEC CH-A/B PMA PWR SOL SHRT (354-24)
EEC CH-A/B STAB SOL W/A FAIL (354-16)
EEC CH-A/B LBL 353 BIT 28
EEC CH-A/B N1 RANGE FAIL (352-14)
EEC CH-A/B P5 LINE FAULT (350-21)
EEC CH-A/B P2 LINE FAULT (350-22)
EEC CH-A/B N1 CROSS-CK FAIL (353-14)
EEC CH-A/B T2 RANGE FAIL (352-18)
EEC CH-A/B FMU TR-CK FAIL (351-19)
EEC CH-A/B FMU FD-BK FAIL (351-24)
EEC CH-A/B CHAN FAIL (350-14)
EEC CH-A/B TCC TR-CK FAIL (351-22)

DOES ONE OR MORE OF THE ABOVE MESSAGES SHOW?

YES → 21 LOOK FOR THE FOLLOWING MESSAGES:

EEC CH-A/B T5 RANGE FAIL (352-19)
EEC CH-A/B T5 CROSS-CK FAIL (353-19)

DO ANY OF THESE MESSAGES SHOW?

NO → 31 DO THE CORRECTIVE ACTION SHOWN IN PIMU TABLE 101.

YES → 22 EXAMINE THE WIRING FROM THE EGT THERMOCOUPLE PROBES TO THE EEC.

NOTE: HIGH RESISTANCE ON ONE SIDE OF THE CIRCUIT, IN COMBINATION WITH A SHORT TO GROUND ON EITHER SIDE, CAN CAUSE HIGH EGT READINGS.

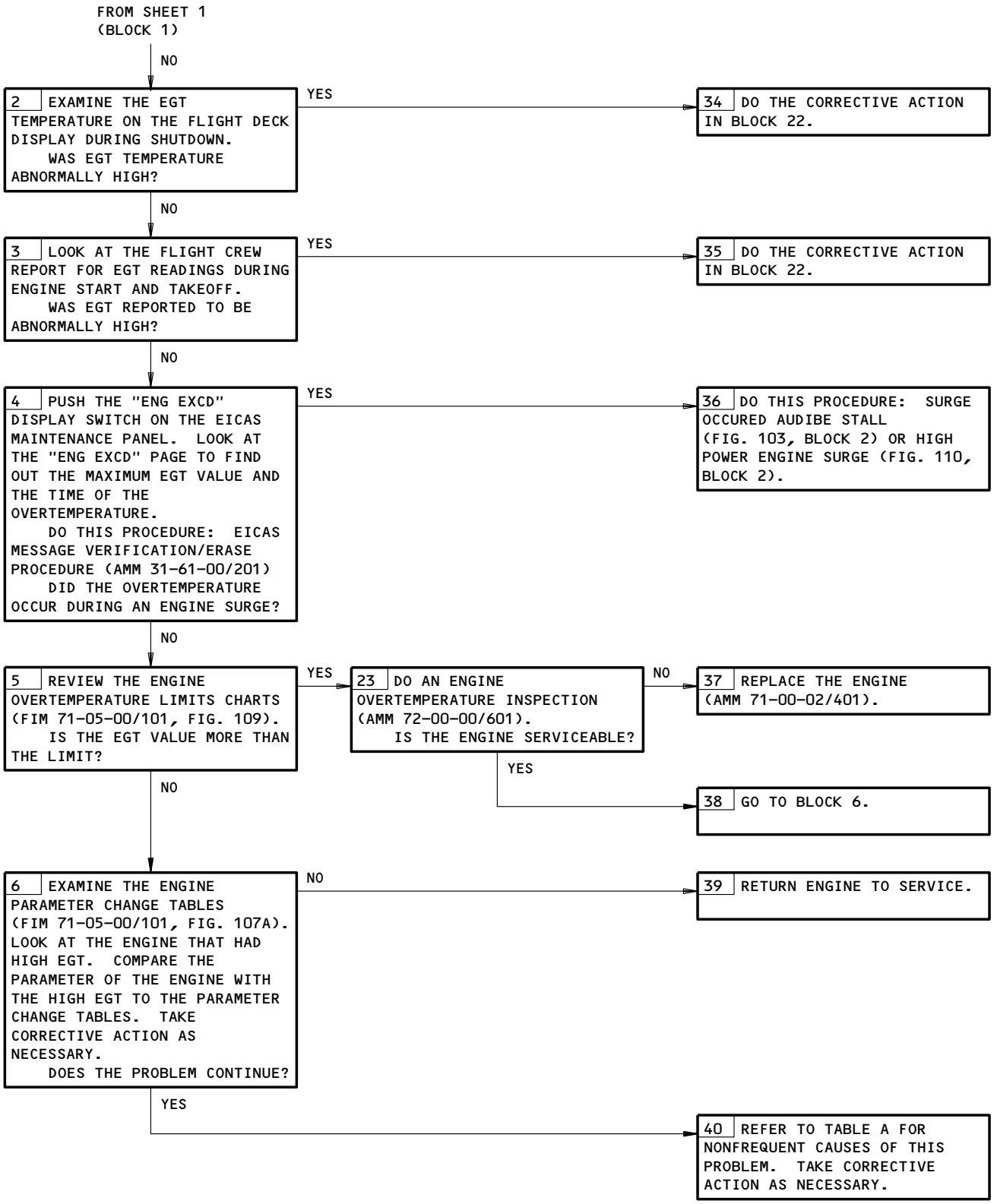
DOES THE PROBLEM CONTINUES?

YES → 32 REPAIR OR REPLACE BAD COMPONENTS (AMM 77-21-01/401).

NO → 33 RETURN THE ENGINE TO SERVICE.

NO → SEE SHEET 2 (BLOCK 2)

High EGT
Figure 108 (Sheet 1)

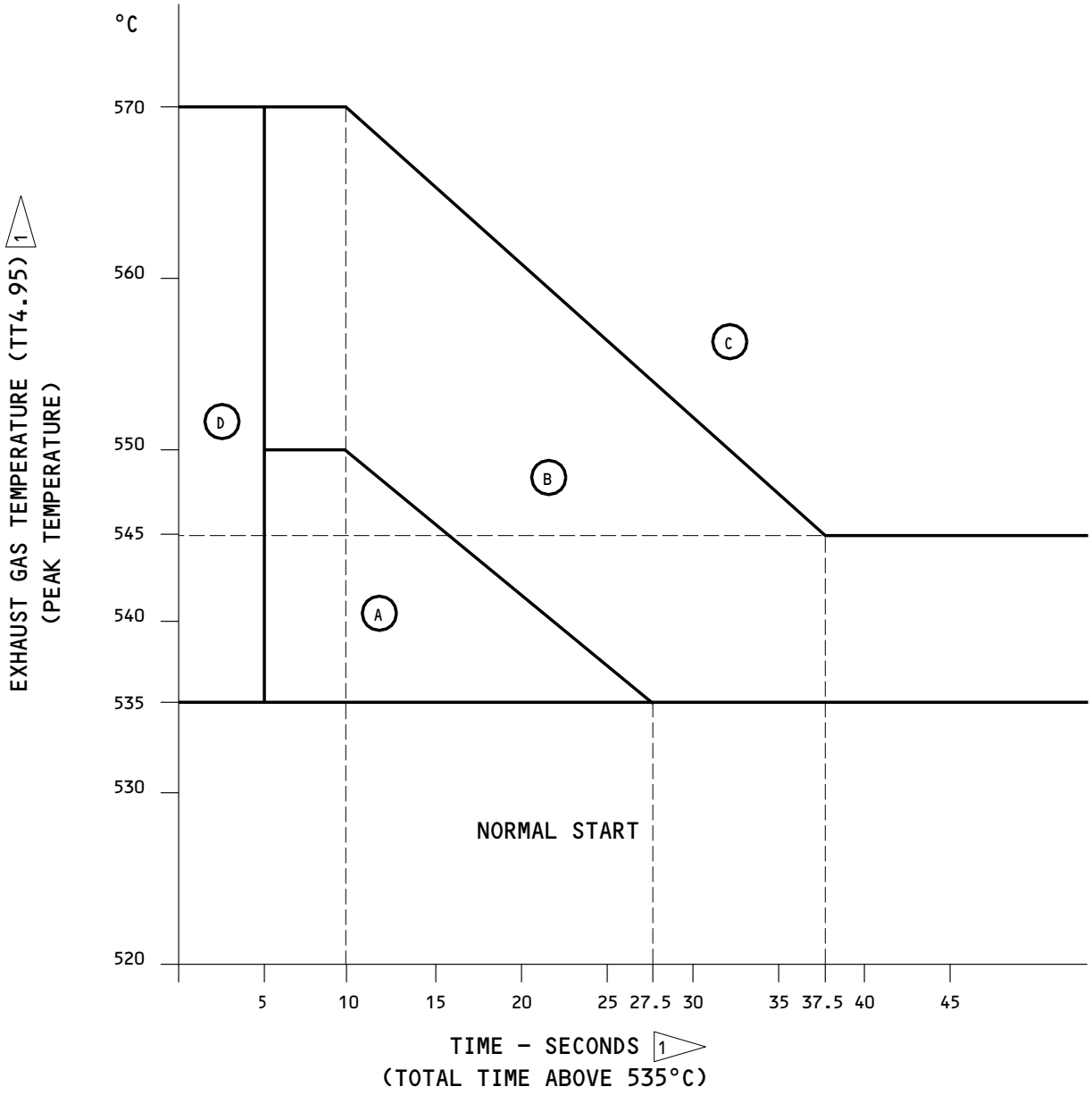


High EGT
Figure 108 (Sheet 2)

NON-FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
AIRPLANE PNEUMATIC SYSTEM	DO TROUBLESHOOTING PROCEDURE FOR BLEED AIR SYSTEM.
BEARING DAMAGE	EXAMINE THE MAGNETIC CHIP DETECTORS AND THE MAIN OIL FILTER (FIM 71-08-00/101, FIG. 102).
FUEL CONTAMINATION	DO ENGINE CHECK 3 - FUEL SYSTEM CONTAMINATION CHECK (FIM 71-08-00/101, FIG. 103).
MAINTENANCE	EXAMINE MAINTENANCE HISTORY RECORD. TAKE CORRECTIVE ACTION AS NECESSARY
P4.95 SIGNAL	EXAMINE, REPAIR OR REPLACE THE BAD COMPONENTS.
TT2 SIGNAL	DO ENGINE CHECK 16 - T2 SIGNAL (FIM 71-08-00/101, FIG. 116).
T4.95 SIGNAL	EXAMINE, REPAIR OR REPLACE THE BAD COMPONENTS.

TABLE A

High EGT
Figure 108 (Sheet 3)



NOTE: DO THE INSPECTION FOR AREA C IF AN IN–FLIGHT RESTART HAS AN EGT OF 650°C OR MORE.

1 PLOT A POINT AT MAXIMUM EGT ATTAINED VS DURATION OF OVERTEMPERATURE (AMOUNT OF TIME WAS ABOVE 535°C). FOLLOW THE INSTRUCTION APPLICABLE TO THE AREA IN WHICH IT LIES).

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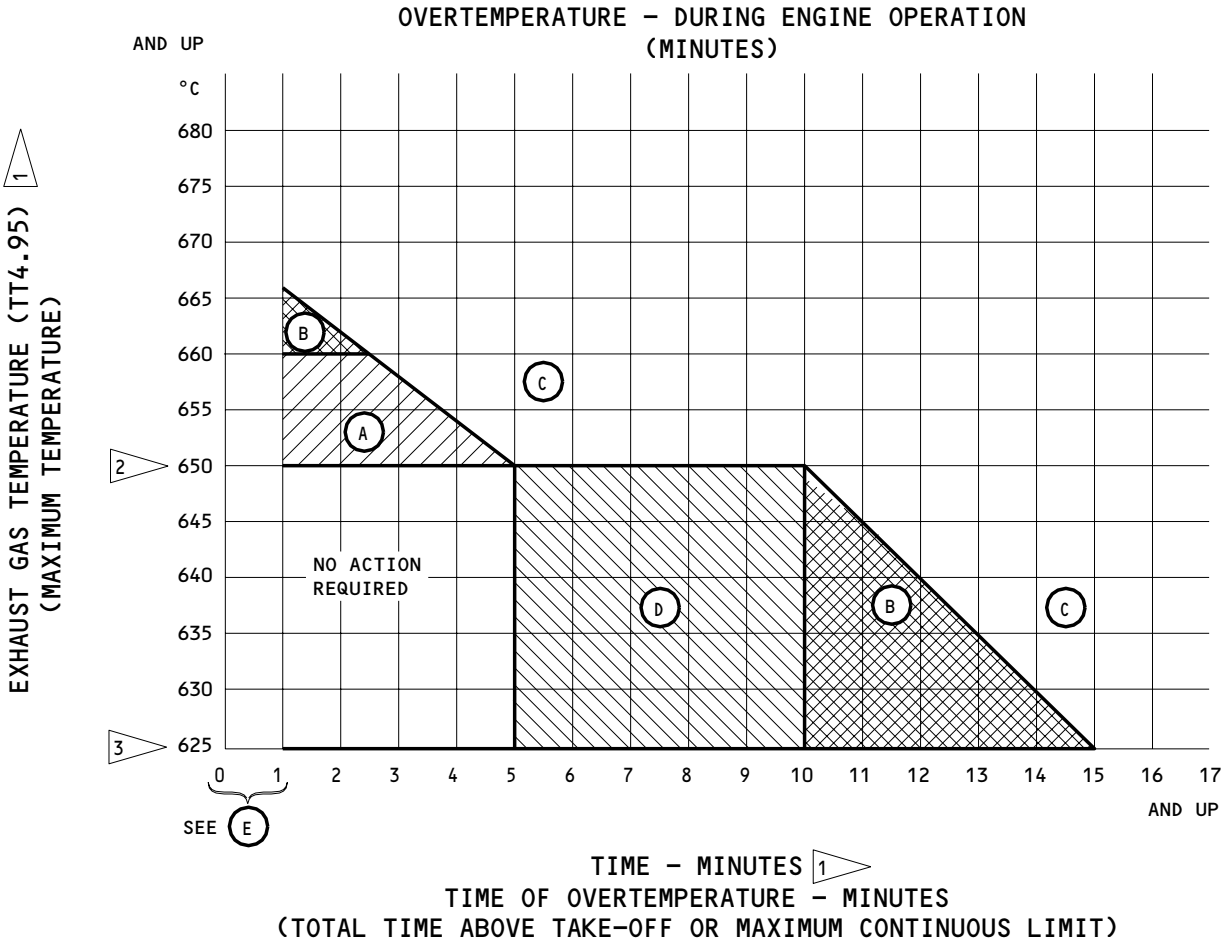
Engine Overtemperature Inspection Requirements
(Ground and In–Flight Starting, and Engine Operation Below Idle Speed)
Figure 109 (Sheet 1)

CHART AREA	INSPECTION REQUIREMENTS
A	1. Record: (1) Engine Serial No. (2) Max Temperature (3) Time the EGT was over the limit (Takeoff or Max Continues) (4) Steady-State or Surge Conditions 2. Do the visual inspection as follows: A. Examine the exhaust sleeve, exhaust plug, and the aft of the low pressure turbine for the burned residue, distortion, and the metal particles. Examine the evidence of the distress on the turbine blades or vanes. B. If the inspection is not satisfactory, do the borescope inspection (AMM 72-00-00/601, Engine Gaspath Inspection). 3. Correct the cause of the overtemperature with the procedure for More Than One Engine Parameter Indication is Not Correct (FIM 71-05-00/101, Fig. 107A).
B	1. Record: (1) Engine Serial No. (2) Max Temperature (3) Time the EGT was over the limit (Takeoff or Max Continues) (4) Steady-State or Surge Conditions 2. Do the visual inspection as follows: A. Examine the exhaust sleeve, exhaust plug, and the aft of the low pressure turbine for the burned residue, distortion, and the metal particles. Examine the evidence of the distress on the turbine blades or vanes. B. If the inspection is not satisfactory, do the borescope inspection (AMM 72-00-00/601, Engine Gaspath Inspection). 3. Do the hot section inspection (AMM 72-00-00/601) within 60 hours. 4. Correct the cause of the overtemperature with the procedure for More Than One Engine Parameter Indication is Not Correct (FIM 71-05-00/101, Fig. 107A).
C	1. Remove the Engine (AMM 71-00-02/401). 2. Record: (1) Engine Serial No. (2) Max Temperature (3) Time the EGT was over the limit (Takeoff or Max Continues) (4) Steady-State or Surge Conditions 3. Correct the cause of the overtemperature in the shop (see the PW4000 Engine Manual).
D	1. Record: (1) Engine Serial No. (2) Max Temperature (3) Time the EGT was over the limit (Takeoff or Max Continues) (4) Steady-State or Surge Conditions 2. Put the engine back to service.

Engine Overtemperature Inspection Requirements
(Ground and In-Flight Starting, and Engine Operation Below Idle Speed)
Figure 109 (Sheet 2)



1 MAKE A GRAPH OF THE MAXIMUM EGT VALUE VS. TIME OF OVERTEMPERATURE (QUANTITY OF TIME THE EGT WAS MORE THAN 650°C). DO THE INSTRUCTIONS APPLICABLE TO THE AREA IN WHICH THE POINT IS IN.

NOTE: FOR OVERTEMPERATURES MORE THAN 625°C BUT LESS THAN 650°C, MAKE A GRAPH OF THE MAXIMUM EGT VALUE VS. THE TIME THE EGT WAS MORE THAN 625°C.

NOTE: EEC OUTPUT EGT TEMPERATURE INCLUDES 4°C SHUNT. FOR ENGINES PRE–PW–SB 73–166, ADD 4°C TO TEMPERATURE LIMITS.

2 TAKEOFF LIMIT, MAXIMUM REVERSE LIMIT

3 MAXIMUM CLIMB, MAXIMUM CONTINUOUS LIMIT

NOTE: NO EXCEEDANCE OF THE MAXIMUM CLIMB, MAXIMUM CONTINUOUS LIMIT OCCURS FOR 5 MINUTES FROM THE START OF THE TAKE–OFF.

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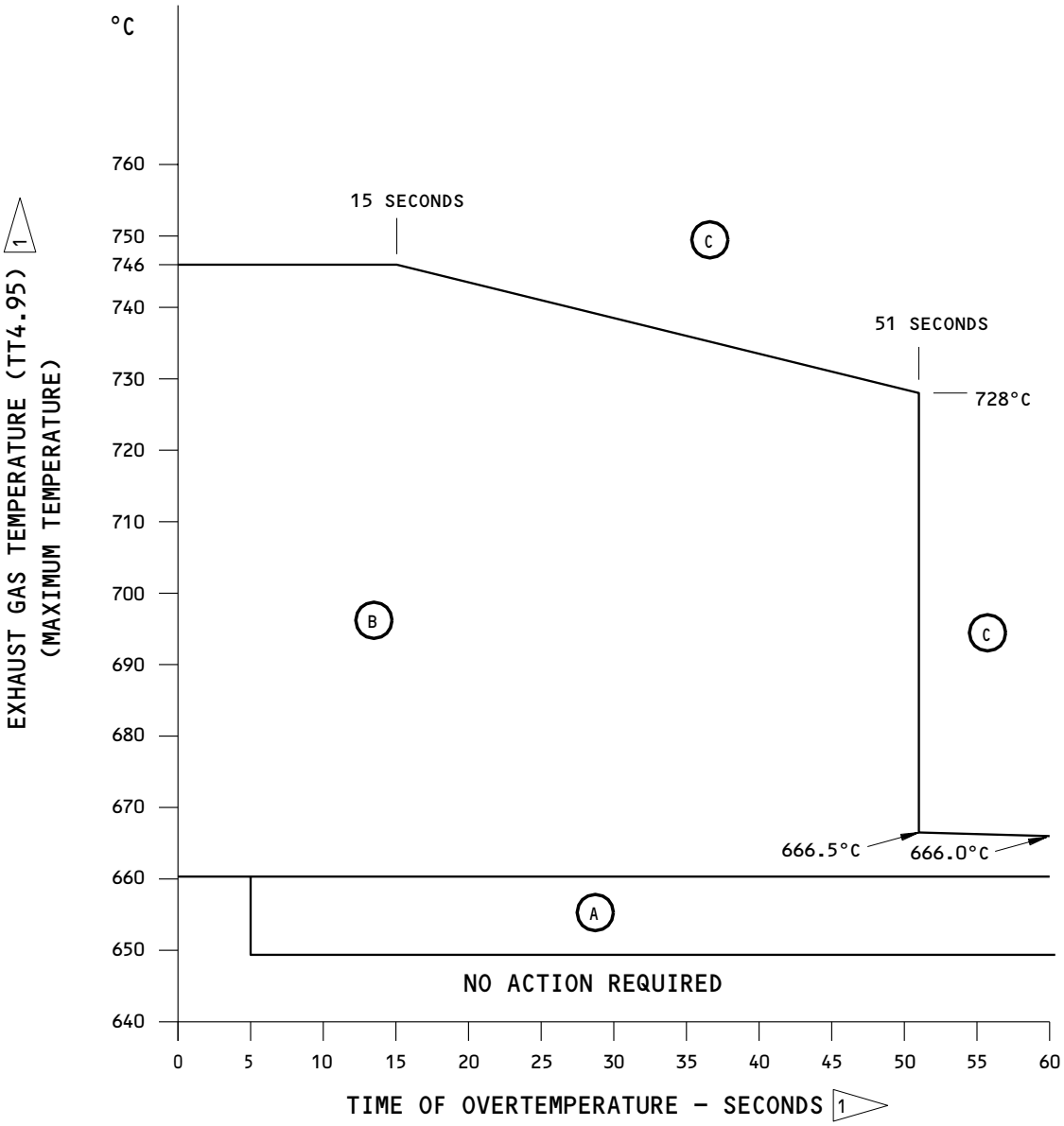
PW V

Engine Overtemperature Inspection Requirements
(Engine Operation at or Above Idle Speed)
Figure 109A (Sheet 1)



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Engine Overtemperature Inspection Requirements
(Engine Operation at or Above Idle Speed)
Figure 109A (Sheet 2)

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CHART AREA	NO. OF 4 INCIDENTS	INSPECTION REQUIREMENTS
A	1-15 5	(1) Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Time the EGT was over the limit (Takeoff or Max Continuous) (4) Steady-state or Surge Conditions (2) Do the visual inspection as follows: A. Examine the exhaust sleeve, exhaust plug, and the area to the rear of the low pressure turbine for burned residue, distortion, and metal particles. Examine for signs of distress on the turbine blades or vanes. B. If the inspection is not satisfactory, do the borescope inspection (AMM 72-00-00/601, LPT Vane and Blade Inspection). (3) Correct the cause of the overtemperature with the procedure for More Than One Engine Parameter Indication is Not Correct (FIM 71-05-00/101, Fig. 107A).
	16 5	(1) Remove the engine (AMM 71-00-02/401). (2) Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Time the EGT was over the limit (Takeoff or Max Continuous) (4) Steady-state or Surge Conditions (3) Correct the cause of the overtemperature in the shop (see the PW4000 Engine Manual).

4 NUMBER OF OVERTEMPERATURES AFTER THE LAST ENGINE HOT SECTION REFURBISHMENT

5 INCLUDE ALL OVERTEMPERATURES WHICH EXTENDED INTO CHART AREAS A OR B

Engine Overtemperature Inspection Requirements
(Engine Operation at or Above Idle Speed)
Figure 109A (Sheet 3)

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CHART AREA	NO. OF INCIDENTS [4]	INSPECTION REQUIREMENTS
B	1-7 [5]	(1) Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Time the EGT was over the limit (Takeoff or Max Continuous) (4) Steady-state or Surge Conditions (2) Do the visual inspection as follows: A. Examine the exhaust sleeve, exhaust plug, and the area to the rear of the low pressure turbine for burned residue, distortion, and metal particles. Examine for signs of distress on the turbine blades or vanes. B. If the inspection is not satisfactory, do the borescope inspection (AMM 72-00-00/601, LPT Vane and Blade Inspection). (3) Do the hot section inspection in less than 60 hours of operation (AMM 72-00-00/601, Engine Overtemperature Inspection/Check). (4) Correct the cause of the overtemperature with the procedure for More Than One Engine Parameter Indication is Not Correct (FIM 71-05-00/101, Fig. 107A).
	8 [5]	(1) Remove the engine (AMM 71-00-02/401). (2) Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Time the EGT was over the limit (Takeoff or Max Continuous) (4) Steady-state or Surge Conditions (3) Correct the cause of the overtemperature in the shop (see the PW4000 Engine Manual).
C	1	(1) Remove the engine (AMM 71-00-02/401). (2) Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Time the EGT was over the limit (Takeoff or Max Continuous) (4) Steady-state or Surge Conditions (3) Correct the cause of the overtemperature in the shop (see the PW4000 Engine Manual).
D	No Limit	(1) Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Time the EGT was over the limit (Takeoff or Max Continuous) (4) Steady-state or Surge Conditions (2) Correct the cause of the overtemperature with the procedure for More Than One Engine Parameter Indication is Not Correct (FIM 71-05-00/101, Fig. 107A).

Engine Overtemperature Inspection Requirements
(Engine Operation at or Above Idle Speed)
Figure 109A (Sheet 4)

ENGINE POWER FLUCTUATES

PREREQUISITES

NONE

POSSIBLE CAUSES

1. FUEL METERING UNIT (AMM 73-21-01/401)
2. AUTOTHROTTLE SYSTEM (AMM 22-00-22/601)
3. AIRCRAFT PNEUMATIC SYSTEM (AMM 36-00-22/501)

FAULT ISOLATION

1 DO THIS PROCEDURE: PIMU BITE PROCEDURE (FIM 71-PIMU MESSAGE INDEX, FIG. 3)

EEC A/B- CHAN FAIL (350-14)
EEC CH-A/B UNIT FAIL (350-15)
EEC CH-A/B FMU T/M W/A FAIL (351-14)
EEC CH-A/B FMU T/M W/A FAIL (351-14)
EEC CH-A/B SVA TR-CK FAIL (351-20)
EEC CH-A/B B25 TR-CK FAIL (351-21)
EEC CH-A/B FMU FD-BK FAIL (351-24)
EEC CH-A/B SVA FD-BK FAIL (351-25)
EEC CH-A/B B25 FD-BK FAIL (351-26)
EEC CH-A/B N1 RANGE FAIL (352-14)
EEC CH-A TRA HI RNG FAIL (352-26) (-9 PIMU)
EEC CH-A TRA RNG FAIL (352-26) (-15 PIMU)
EEC CH-A/B N1 CROSS-CK FAIL (353-14)
EEC CH-A/B FMU CR-CK FAIL (353-24)
EEC CH-A/B FMU TR-CK FAIL (353-26)

DOES ONE OR MORE OF THE ABOVE MESSAGES SHOW?

YES → 20 REFER TO THE PIMU MESSAGE TABLES (FIM 71-PIMU MESSAGE INDEX) AND DO THE CORRECTIVE ACTION FOR THE APPLICABLE MESSAGE(S) AS NECESSARY.

NOTE: REVERSER DE-ACTIVATION WILL NOT CORRECT POWER FLUCTUATION.

NO

2 REPLACE THE FUEL METERING UNIT (FMU) (AMM 73-21-01/401).
DOES ONE OR MORE OF THE ABOVE MESSAGES SHOW?

NO → 21 RELEASE THE ENGINE FOR SERVICE.

YES

3 EXAMINE TABLE A FOR NON-FREQUENT CAUSES OF THIS FAULT. TAKE CORRECTIVE ACTION AS NECESSARY.

Engine Power Fluctuates
Figure 110 (Sheet 1)

NON-FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
AIRCRAFT PNEUMATIC SYSTEM	TEST THE SYSTEM FOR PROPER OPERATION (AMM 36-00-22/501)
AUTOTHROTTLE SYSTEM	CHECK SYSTEM FOR PROPER OPERATION (AMM 22-32-00/501)
EEC	REMOVE/REPLACE THE EEC (AMM 73-21-04/401)
FUEL BOOST PUMPS	CHECK PUMPS FOR PROPER OPERATION (AMM 28-22-00/501)
N1 SIGNAL	REMOVE/REPLACE THE N1 SPEED TRANSDUCER (AMM 73-21-06/401)
THRUST LEVER POSITION RESOLVER	CHECK RESOLVER FOR PROPER OPERATION (AMM 22-32-00/501)

NON-FREQUENT CAUSES
ENGINE POWER FLUCTUATION
TABLE A

Engine Power Fluctuates
Figure 110 (Sheet 2)

POWER PLANT - FAULT ISOLATION (HOT START)

1. General
   A. This section includes fault isolation procedures for a hot start. The fault isolation (except hot start) for the power plant is in FIM 71-05-00/101.
   B. The visual checks are given in FIM 71-07-00/101.
   C. The engine checks are given in FIM 71-08-00/101.

HOT/IMPENDING HOT START (LIGHTOFF WITHIN 10 SECONDS)

PREREQUISITES

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

POSSIBLE CAUSES:

1. FOD
2. FUEL SYSTEM CONTAMINATION
3. LEAK IN PNEUMATIC SYSTEM
4. BAD 2.9 BLEED VALVE (AMM 75-32-03/401)
5. BAD 2.9 BLEED VALVE SOLENOID (AMM 75-32-04/401)
6. INCORRECT IGNITER PLUG IMMERSION DEPTH (AMM 74-21-02/601)
7. BAD PT2/TT2 PROBE (AMM 73-21-03/401)
8. BAD FUEL METERING UNIT (AMM 73-21-01/401).

FAULT ISOLATION:

1 DO THIS PROCEDURE: PIMU MAINTENANCE RECALL PROCEDURE (FIM 71-PIMU MESSAGE INDEX, FIG. 103).

LOOK FOR THE PIMU MESSAGES THAT FOLLOW:

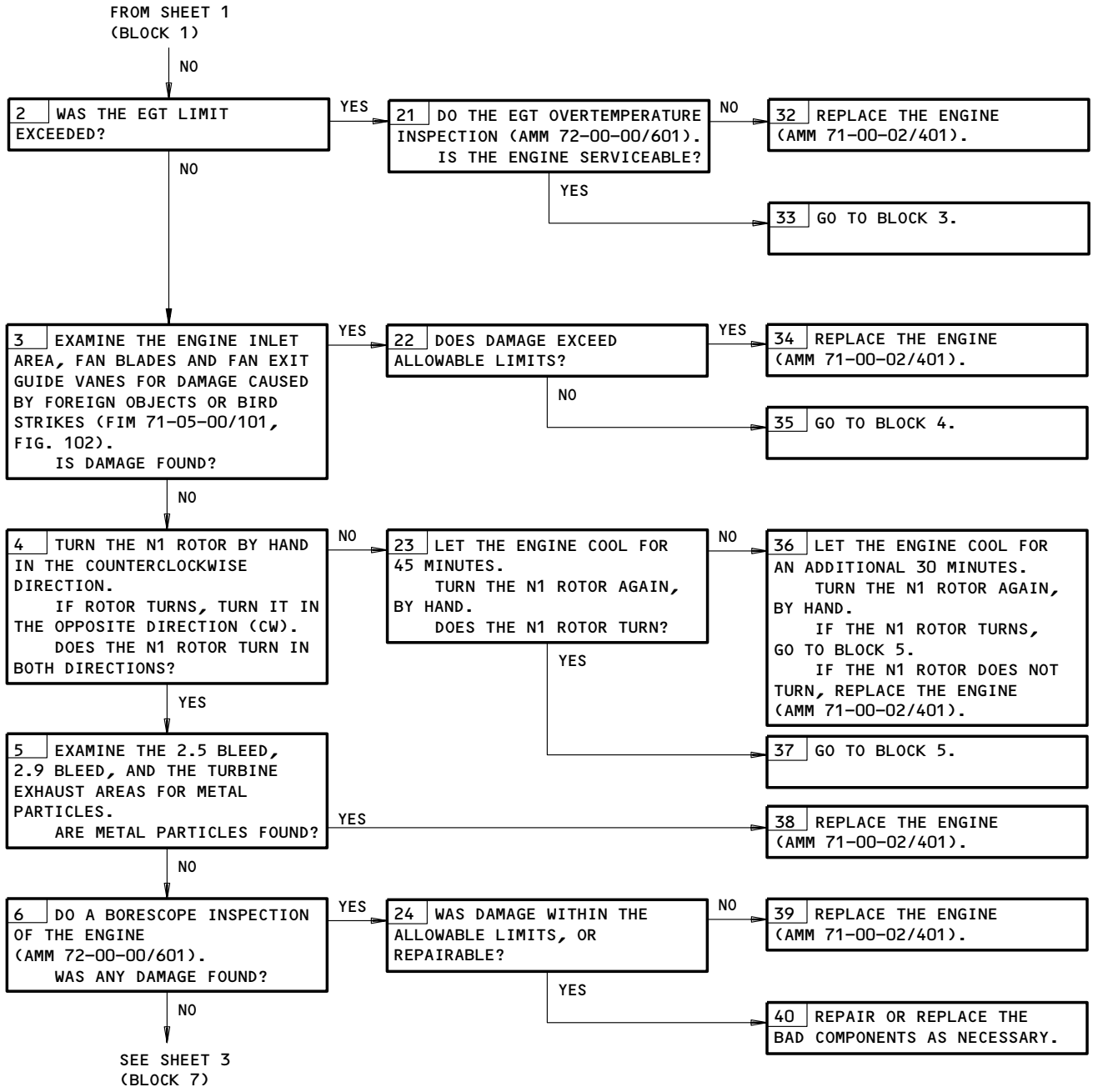
EEC CH-A/B FMU TR-CK FAIL (351-19)
EEC CH-A/B SVA TR-CK FAIL (351-20)
EEC CH-A/B B25 TR-CK FAIL (351-21)
EEC CH-A/B T2 RANGE FAIL (352-18)
EEC CH-A/B T5 RANGE FAIL (352-19)
EEC CH-A/B T3 RANGE FAIL (352-22)
EEC CH-A/B T2 CROSS-CK FAIL (353-18)
EEC CH-A/B T5 CROSS-CK FAIL (353-19)
EEC CH-A/B T3 CROSS-CK FAIL (353-22)
EEC CH-A/B FMU FD-BK FAIL (351-24)
EEC CH-A/B FMU T/M W/A FAIL (351-14)
EEC CH-A/B STRT SOL W/A FAIL (354-15)
EEC A/B-CHAN FAIL (350-14)
EEC CH-A/B UNIT FAIL (350-15)
EEC CH-A/B SVA T/M W/A FAIL (351-15)
EEC CH-A/B STAB SOL W/A FAIL (354-16)

DOES ONE OR MORE OF THE ABOVE PIMU MESSAGES SHOW?

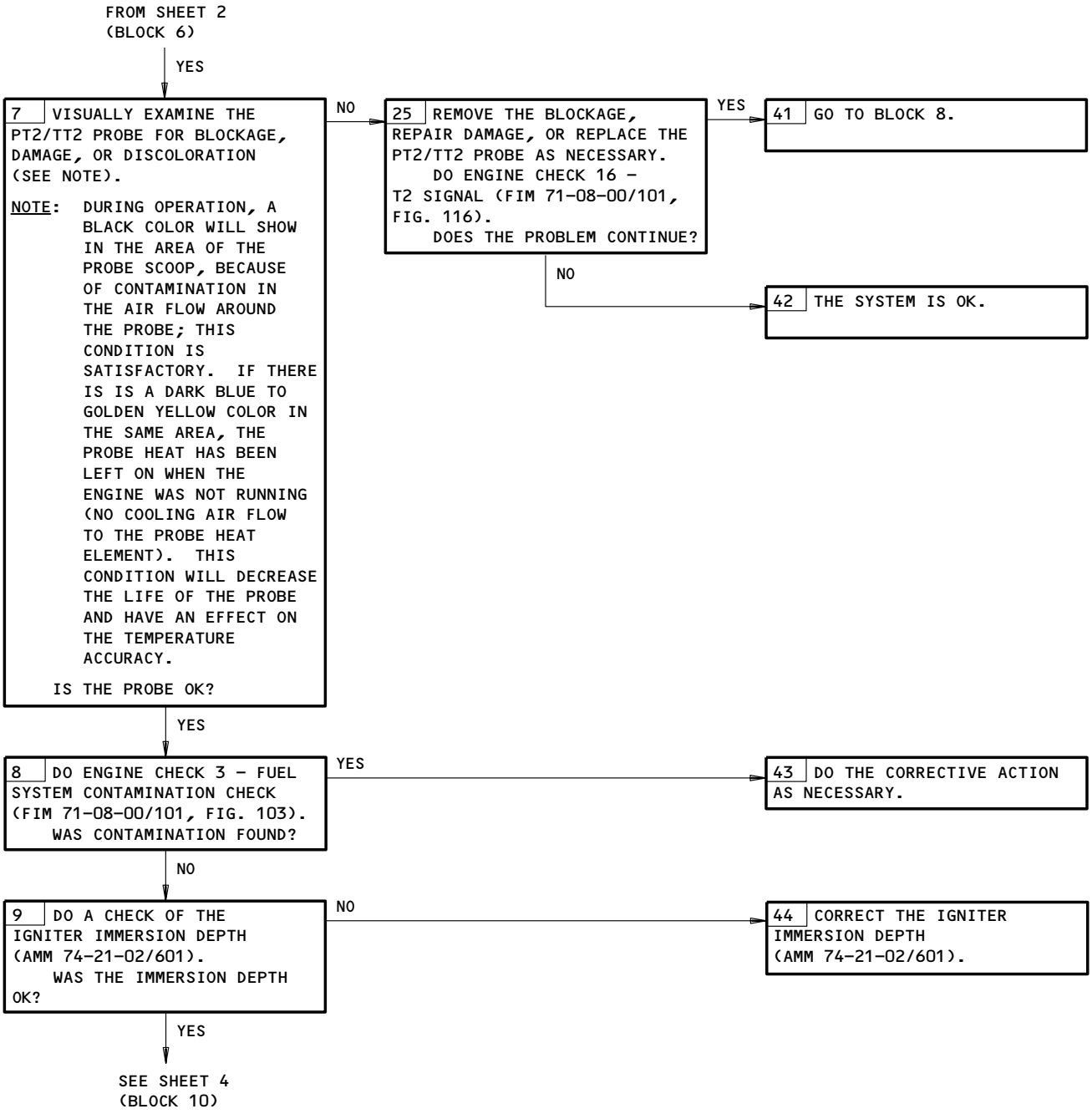
YES → 31 DO THE CORRECTIVE ACTION SHOWN IN THE PIMU MESSAGE TABLES.

NO → SEE SHEET 2 (BLOCK 2)

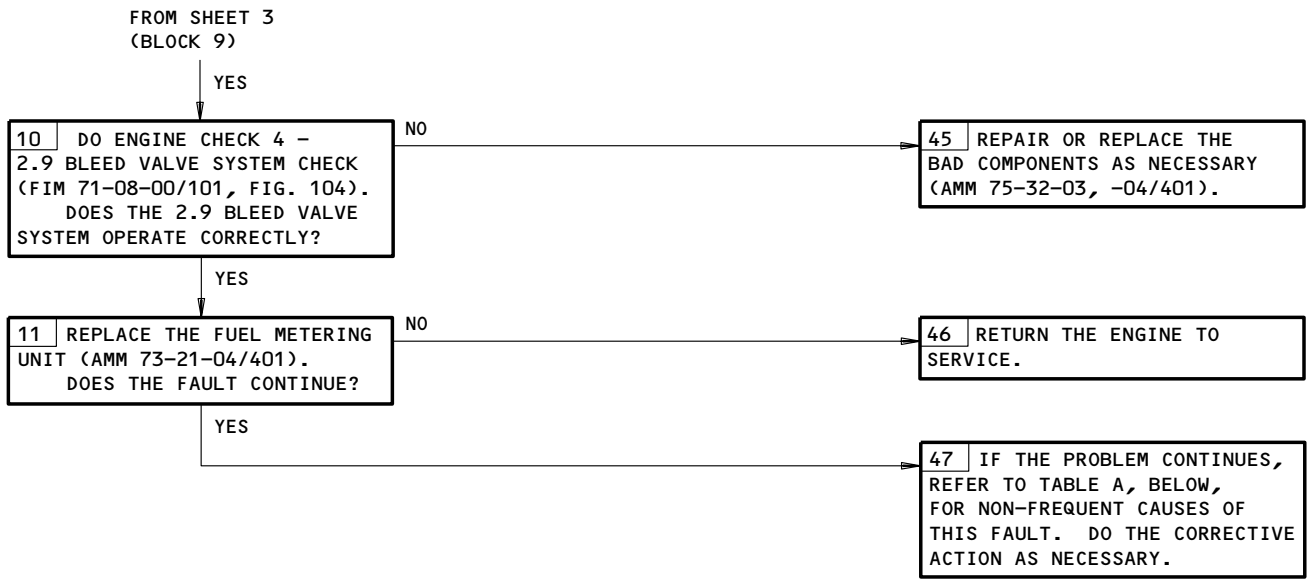
Hot/Impending Hot Start (Lightoff Within 10 Seconds)
Figure 101 (Sheet 1)



Hot/Impending Hot Start (Lightoff Within 10 Seconds)
Figure 101 (Sheet 2)



Hot/Impending Hot Start (Lightoff Within 10 Seconds)
Figure 101 (Sheet 3)



NON–FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
MAINTENANCE	EXAMINE THE MAINTENANCE HISTORY RECORD. DO THE CORRECTIVE ACTION AS NECESSARY.
STARTER	
STARTER CUTOUT	
STARTER DUCT PREESSURE	
STATOR VANE UNISON RING/ACTUATOR LINKAGE	DO A VISUAL CHECK OF LINKAGE (FIM 71–07–00/101, FIG. 102).

TABLE A

Hot/Impending Hot Start (Lightoff Within 10 Seconds)
Figure 101 (Sheet 4)

HOT/IMPENDING HOT START (LIGHTOFF MORE THAN 10 SECONDS)

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
(LEFT ENGINE) 11D7, 11D8, 11M1, 11M28, 11M9, 11D19
(RIGHT ENGINE) 11D7, 11D8, 11M2, 11M29, 11M36, 11D20

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

POSSIBLE CAUSES:

1. FUEL DISTRIBUTION SYSTEM LEAK (AMM 73-11-00/601)
2. BAD EXCITER-TO-IGNITER PLUG CABLE (AMM 74-21-01/401)
3. BAD IGNITER PLUG (AMM 74-21-02/401)
4. BAD IGNITION EXCITER (AMM 74-11-01/401)
5. BAD FUEL METERING UNIT (AMM 73-21-01/401).

FAULT ISOLATION:

1 DO THIS PROCEDURE: PIMU MAINTENANCE RECALL PROCEDURE (FIM 71-PIMU MESSAGE INDEX, FIG. 3).
LOOK FOR THE MESSAGES THAT FOLLOW:

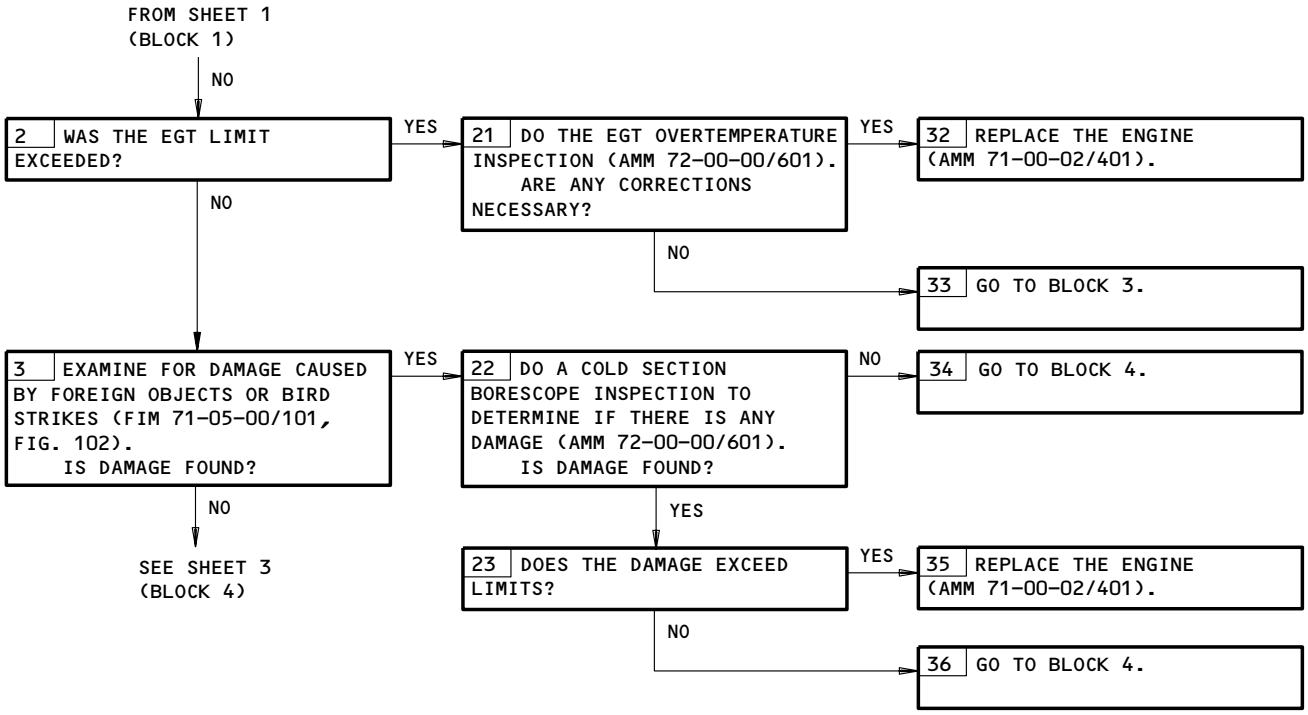
EEC CH-A/B FMU TR-CK FAIL (351-19)
EEC CH-A/B SVA TR-CK FAIL (351-20)
EEC CH-A/B B25 TR-CK FAIL (351-21)
EEC CH-A/B T2 RANGE FAIL (352-18)
EEC CH-A/B T5 RANGE FAIL (352-19)
EEC CH-A/B T3 RANGE FAIL (352-22)
EEC CH-A/B T2 CROSS-CK FAIL (353-18)
EEC CH-A/B T5 CROSS-CK FAIL (353-19)
EEC CH-A/B T3 CROSS-CK FAIL (353-22)
EEC CH-A/B FMU FD-BK FAIL (351-24)
EEC CH-A/B FMU T/M W/A FAIL (351-14)
EEC CH-A/B STRT SOL W/A FAIL (354-15)
EEC A/B-CHAN FAIL (350-14)
EEC CH-A/B UNIT FAIL (350-15)
EEC CH-A/B SVA T/M W/A FAIL (351-15)
EEC CH-A/B STAB SOL W/A FAIL (354-16)

DO ONE OR MORE OF THE ABOVE PIMU MESSAGES SHOW?

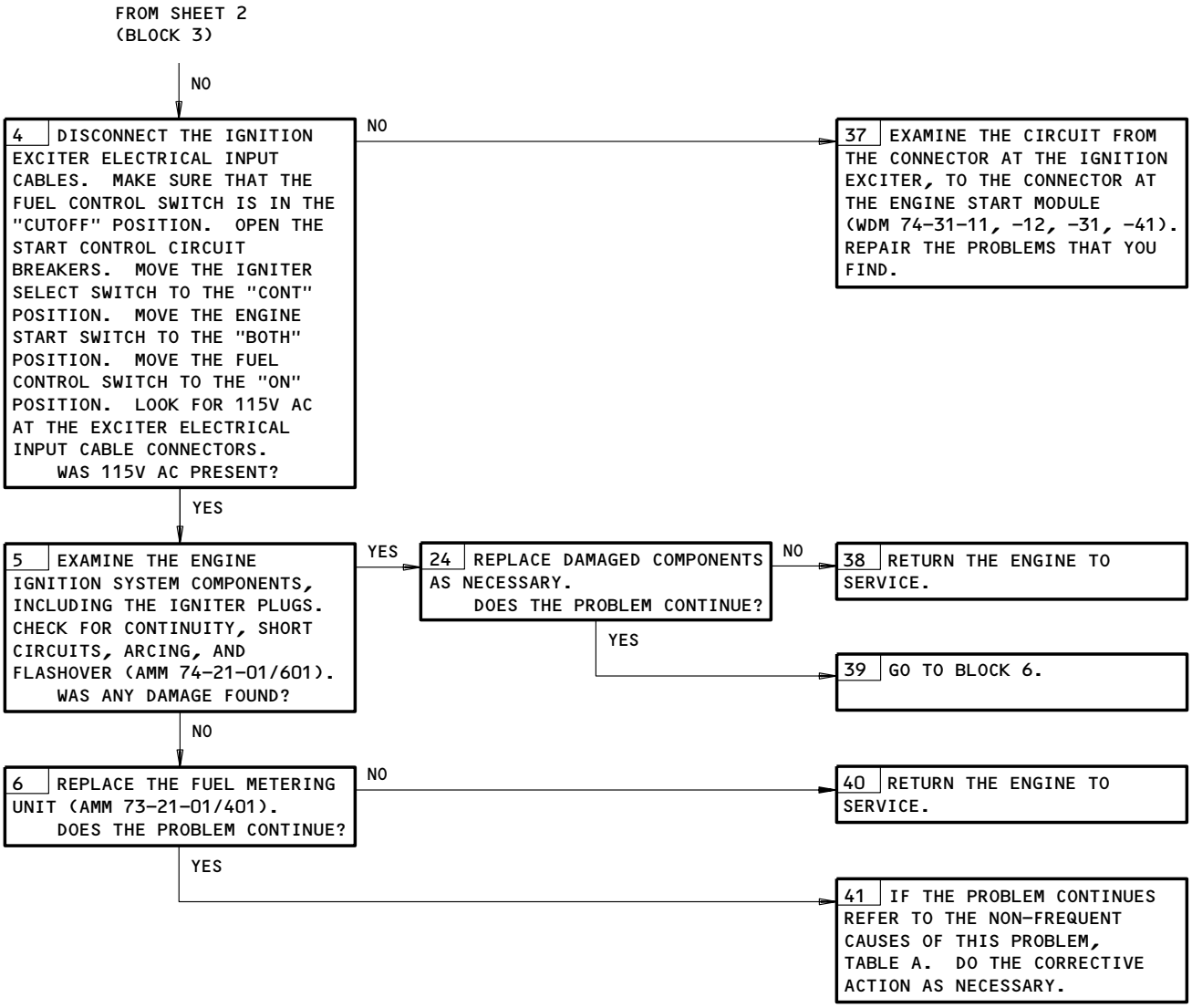
YES → 31 DO THE CORRECTIVE ACTION SHOWN IN PIMU MESSAGE TABLES.

NO → SEE SHEET 2 (BLOCK 2)

Hot/Impending Hot Start (Lightoff More Than 10 Seconds)
Figure 102 (Sheet 1)



Hot/Impending Hot Start (Lightoff More Than 10 Seconds)
Figure 102 (Sheet 2)



Hot/Impending Hot Start (Lightoff More Than 10 Seconds)
Figure 102 (Sheet 3)

NON-FREQUENT CAUSES OF THIS PROBLEM IN ALPHABETICAL ORDER	RECOMMENDED CORRECTIVE ACTION
AIRCRAFT PNEUMATIC SYSTEM	
BLEED SYSTEM	DO THE 2.9 BLEED VALVE SYSTEM CHECK, ENGINE CHECK 4 (FIM 71-08-00/101, FIG. 104).
EEC TT2/TT3 THERMOCOUPLE PROBES	EXAMINE/REPAIR THE PROBE AND WIRING (FIM 71-08-00/101, FIG. 116 OR AMM 73-21-14/401).
FUEL CONTAMINATION	FUEL SYSTEM CONTAMINATION CHECK, ENGINE CHECK 3 (FIM 71-08-00/101, FIG. 103).
IGNITER IMMERSION DEPTH	MEASURE/ADJUST THE IGNITER IMMERSION DEPTH (AMM 74-21-02/601).
MAINTENANCE	EXAMINE MAINTENANCE HISTORY RECORD. TAKE CORRECTIVE ACTION AS NECESSARY.
PLUGGED FUEL INJECTORS	EXAMINE/REPLACE FUEL INJECTORS (AMM 73-11-05/401).
VARIABLE STATOR VANE SYSTEM	DO THE VARIABLE STATOR VANE SYSTEM CHECK, ENGINE CHECK 9 (FIM 71-08-00/101, FIG. 109).

NON-FREQUENT CAUSES FOR HOT/IMPENDING HOT START - LIGHTOFF MORE THAN 10 SECONDS
TABLE A

Hot/Impending Hot Start (Lightoff More Than 10 Seconds)
Figure 102 (Sheet 4)

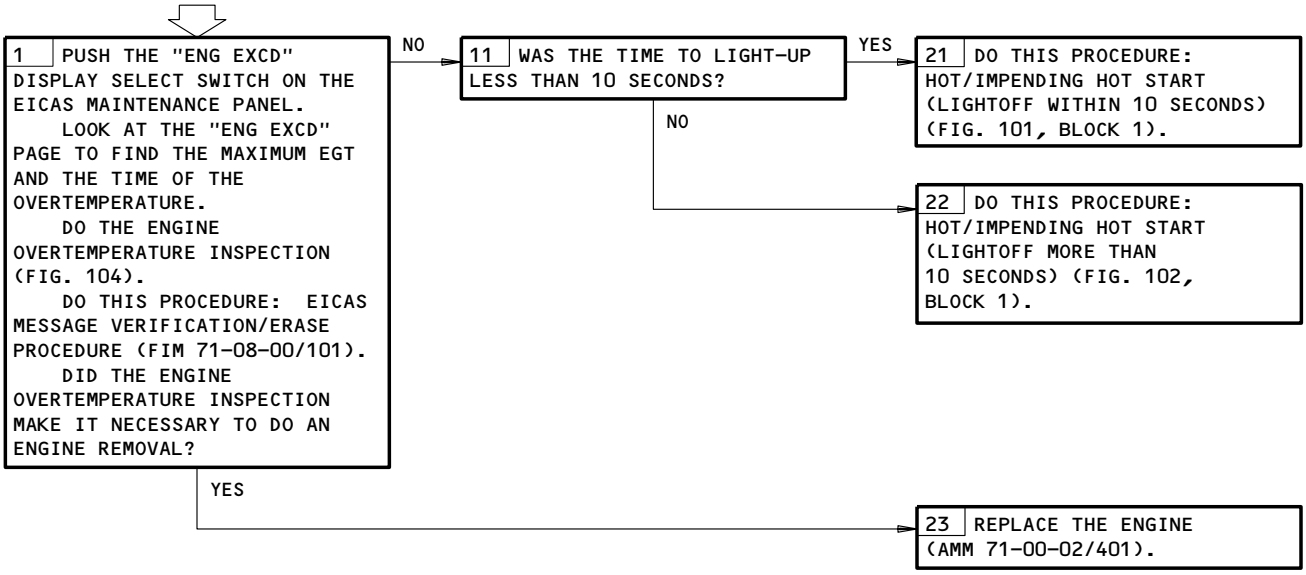
PREREQUISITES

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

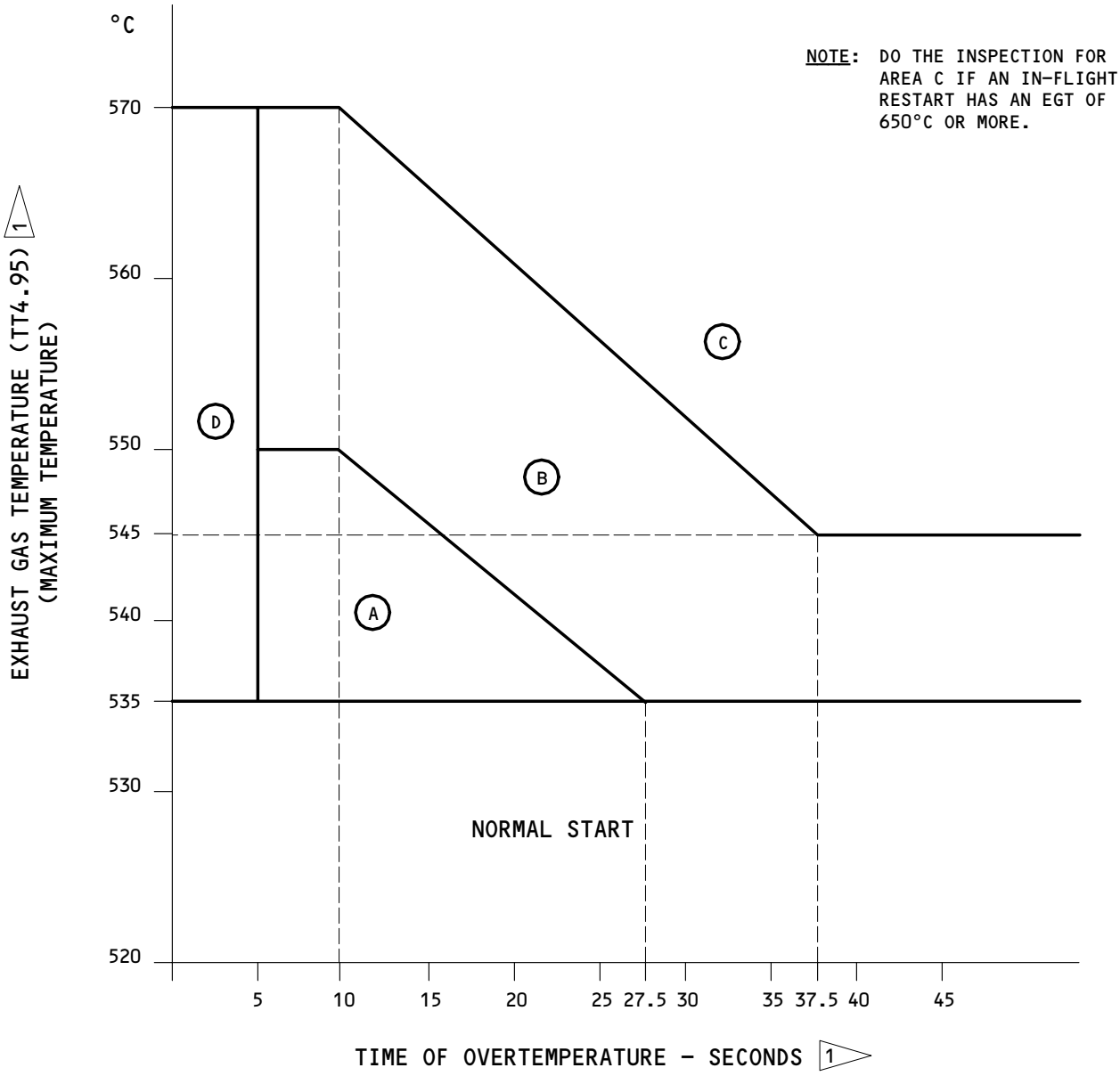
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

NOTE: IF THERE WAS A HIGH EGT DURING CLIMB OR CRUISE, ENGINE GASPATH DAMAGE (WHICH CAN CAUSE HOT STARTS) CAN OCCUR. DO THE GASPATH INSPECTION (AMM 72-00-00/601) IF YOU THINK THERE IS GASPATH DAMAGE.

HOT START OCCURRED



Hot Start Occurred
Figure 103



1 MAKE A GRAPH OF THE MAXIMUM EGT VALUE VS. TIME OF OVERTEMPERATURE (QUANTITY OF TIME EGT WAS MORE THAN 535°C). DO THE INSTRUCTION APPLICABLE TO THE AREA IN WHICH THE POINT IS IN.

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Engine Overtemperature Inspection Requirements
(Ground and In Flight Starting, and Engine Operation Below Idle Speed)
Figure 104 (Sheet 1)

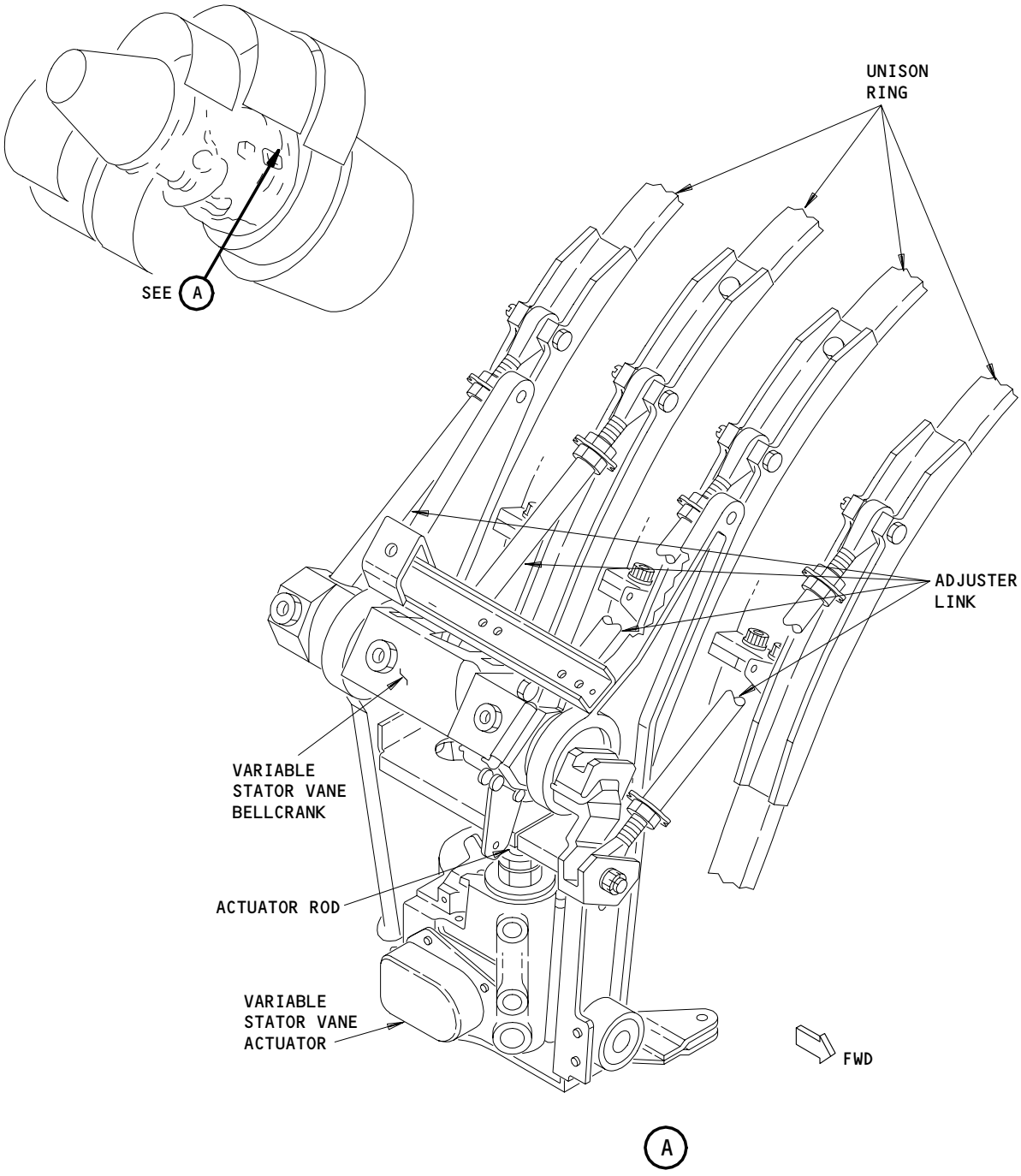
CHART AREA	INSPECTION REQUIREMENTS
A	1. Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Duration, (4) Steady-State or Surge Conditions 2. Do the visual inspection as follows: A. Examine the exhaust sleeve, exhaust plug, and the area to the rear of the low pressure turbine for burned residue, distortion, and metal particles. Examine for signs of distress on the turbine blades or vanes. B. If the inspection is not satisfactory, do the borescope inspection (MM 72-00-00/601, LPT Vane and Blade Inspection). 3. Correct the cause of the overtemperature with the procedure on the Engine Parameters Abnormal (71-05-00/101, Fig. 107A).
B	1. Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Duration, (4) Steady-State or Surge Conditions 2. Do the visual inspection as follows: A. Examine the exhaust sleeve, exhaust plug, and the area to the rear or the low pressure turbine for burned residue, distortion, and metal particles. Examine for signs of distress on the turbine blades or vanes. B. If the inspection is not satisfactory, do the borescope inspection (MM 72-00-00/601, LPT Vane and Blade Inspection). 3. Do the Hot Section Inspection (MM 72-00-00/601) in less than 60 hours of operation. 4. Correct the cause of the overtemperature with the procedure on the Engine Parameters Abnormal (71-05-00/101, Fig. 107A).
C	1. Remove the engine (MM 71-00-02/401). 2. Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Duration, (4) Steady-State or Surge Conditions 3. Correct the cause of the overtemperature in the shop (see the PW4000 Engine Manual).
D	1. Make a record of these items: (1) Engine Serial No., (2) Max Temperature, (3) Duration, (4) Steady-State or Surge Conditions 2. Put the airplane back in operation.

Engine Overtemperature Inspection Requirements
(Ground and In Flight Starting, and Engine Operation Below Idle Speed)
Figure 104 (Sheet 2)

POWER PLANT - VISUAL CHECKS

1. General
   A. This section includes the visual checks of the engine for fault isolation. The visual checks do not use too much equipment.
   B. The engine checks are in 71-08-00 and use some equipment.

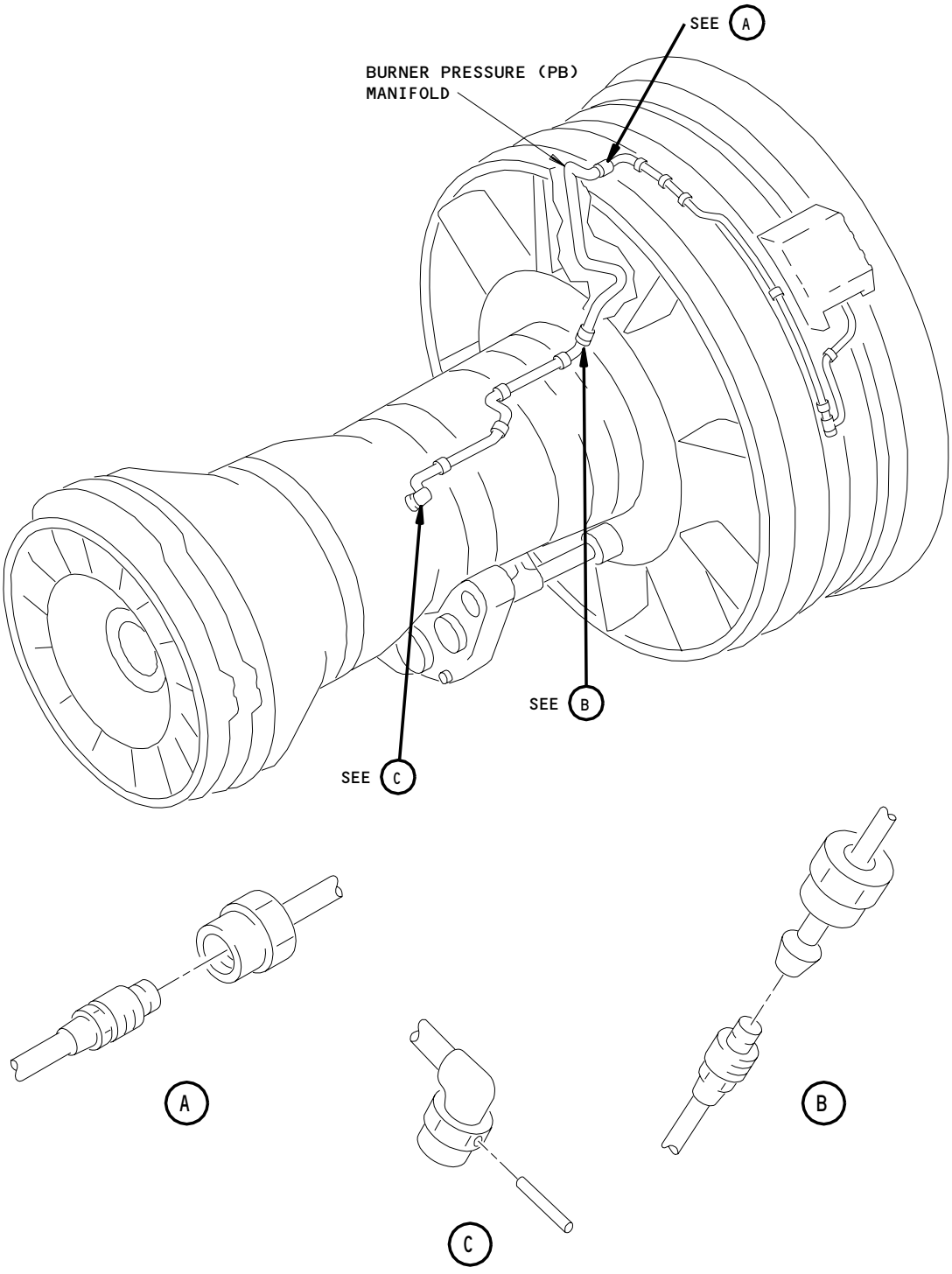
Not Used
Figure 101



1. MAKE SURE THE UNISON RING LINKAGE IS CORRECTLY ATTACHED TO THE UNISON RING AND TO THE BELLCRANK.
2. MAKE SURE THE ACTUATOR ROD IS CORRECTLY ATTACHED TO THE BELLCRANK.
3. MAKE SURE THE STATOR VANE ACTUATOR IS CORRECTLY ATTACHED TO THE ENGINE.

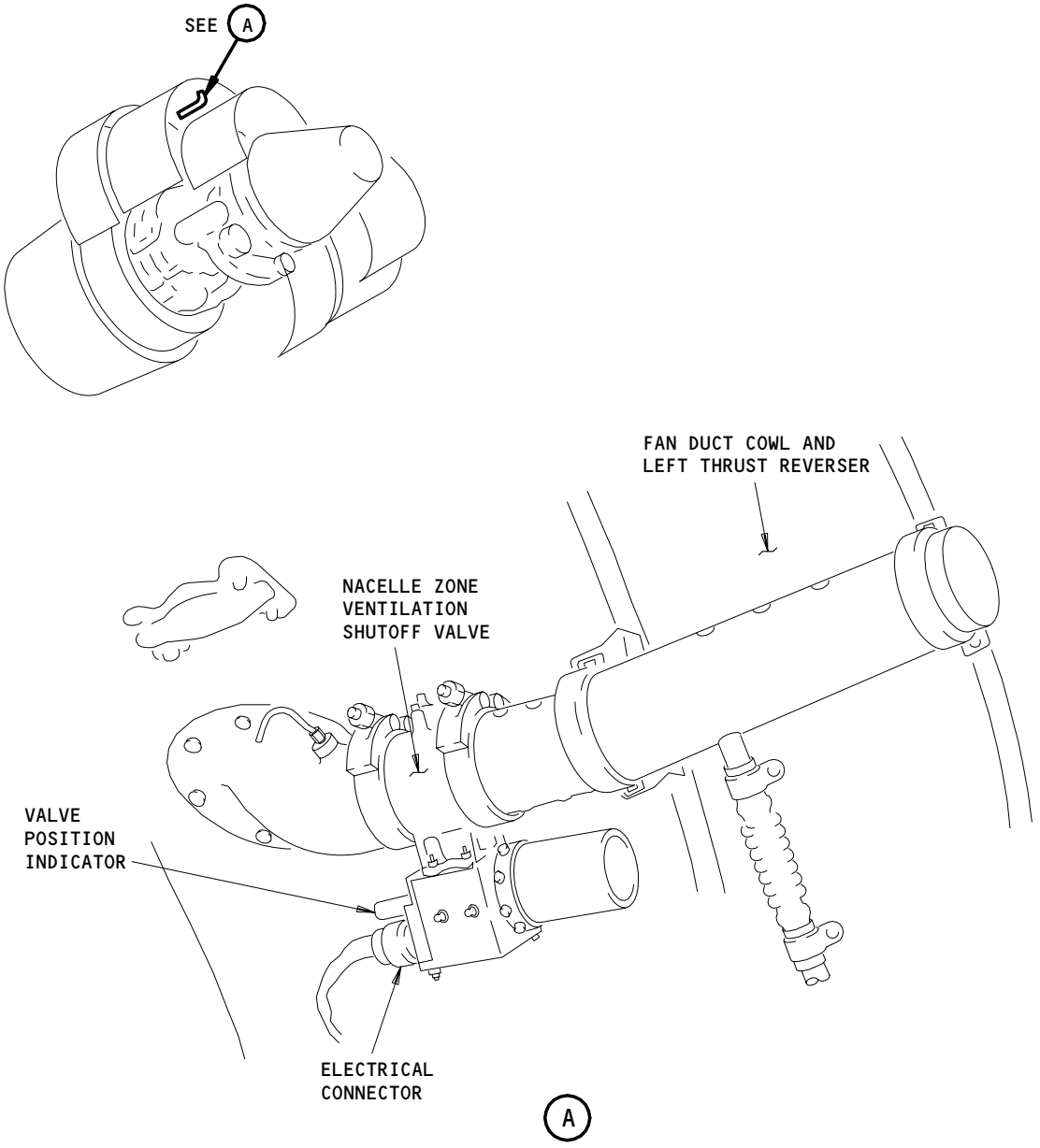
Visual Check 2 - Stator Vane Unison Ring/Actuator Linkage
Figure 102

Not Used
Figure 103



1. EXAMINE THE FULL LENGTH OF THE THE BURNER PRESSURE (PB) MANIFOLD FOR SIGNS OF LOOSE FITTINGS, LINE FRACTURE OR OTHER DAMAGE THAT CAN CAUSE LEAKAGE. TIGHTEN THE FITTINGS AND REPLACE THE DAMAGED LINE SECTIONS AS NECESSARY.

Visual Check 4 - Burner Pressure (PB) Manifold Condition
Figure 104



1. EXAMINE THE PNEUMATIC LINE CONNECTION AT THE VALVE FOR SIGNS OF LEAKS AND IF IT IS ATTACHED CORRECTLY.
2. EXAMINE THE PNEUMATIC LINE FOR CRACKS, DENTS OR SIGNS OF LEAKS.
3. EXAMINE THE PNEUMATIC LINE CONNECTION TO THE FLEX HOSE FOR SIGNS OF LEAKS AND IF IT IS ATTACHED CORRECTLY.
4. EXAMINE THE FLEX HOSE FOR CRACKS, KINKS OR SIGNS OF LEAKS.

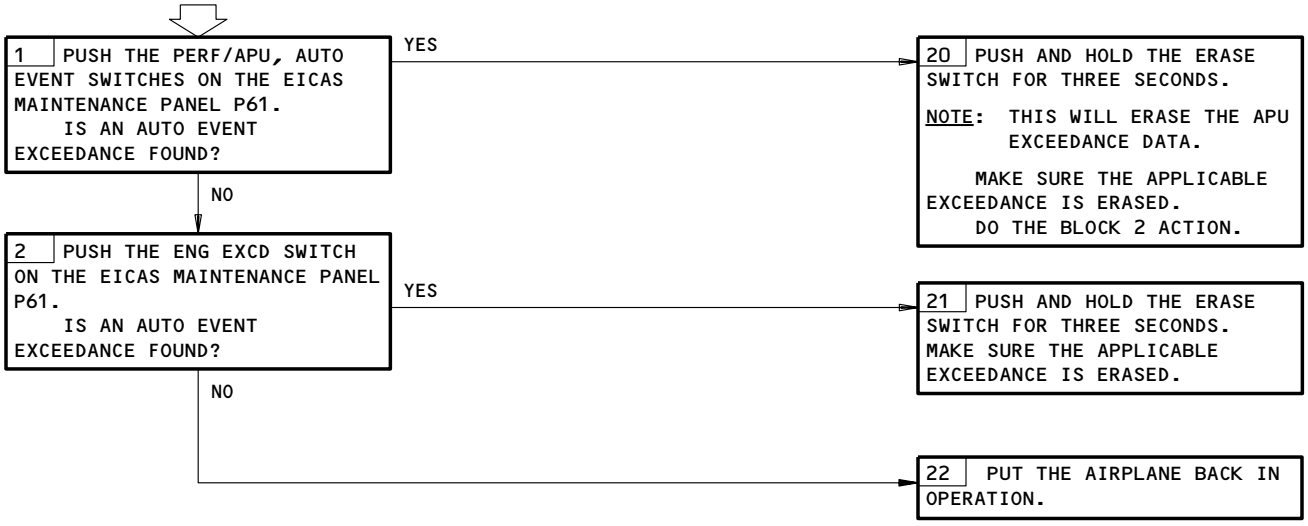
Visual Check 5 - Nacelle Zone Ventilation Shutoff Valve Pneumatic Line
Figure 105

EICAS AUTO EVENT MESSAGE VERIFICATION/ ERASE PROCEDURE

PREREQUISITES

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

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



Engine Check 1 - EICAS Auto Event Message Verification/Erase Procedure
Figure 101

MAGNETIC CHIP DETECTORS AND MAIN OIL FILTER CHECK

PREREQUISITES
NONE

1 EXAMINE ALL THE MAGNETIC CHIP DETECTORS FOR CONTAMINATION (AMM 79-21-10/601).
ARE METAL PARTICLES FOUND ON THE MAGNETIC CHIP DETECTORS? 1

YES → 21 DO THE VISUAL INSPECTION OF THE MAGNETIC CHIP DETECTORS (AMM 79-21-10/601).

CAUTION

IF CONTAMINATION IS FOUND IN THE FILTER, YOU MUST FIND THE SOURCE OF THE METAL PARTICLES BEFORE YOU PUT THE ENGINE BACK IN OPERATION. ENGINE DAMAGE CAN OCCUR IF THE ENGINE IS OPERATED BEFORE YOU FIND THE PROBLEM AND THE APPLICABLE FLYBACK LIMITS ARE NOT FOLLOWED.

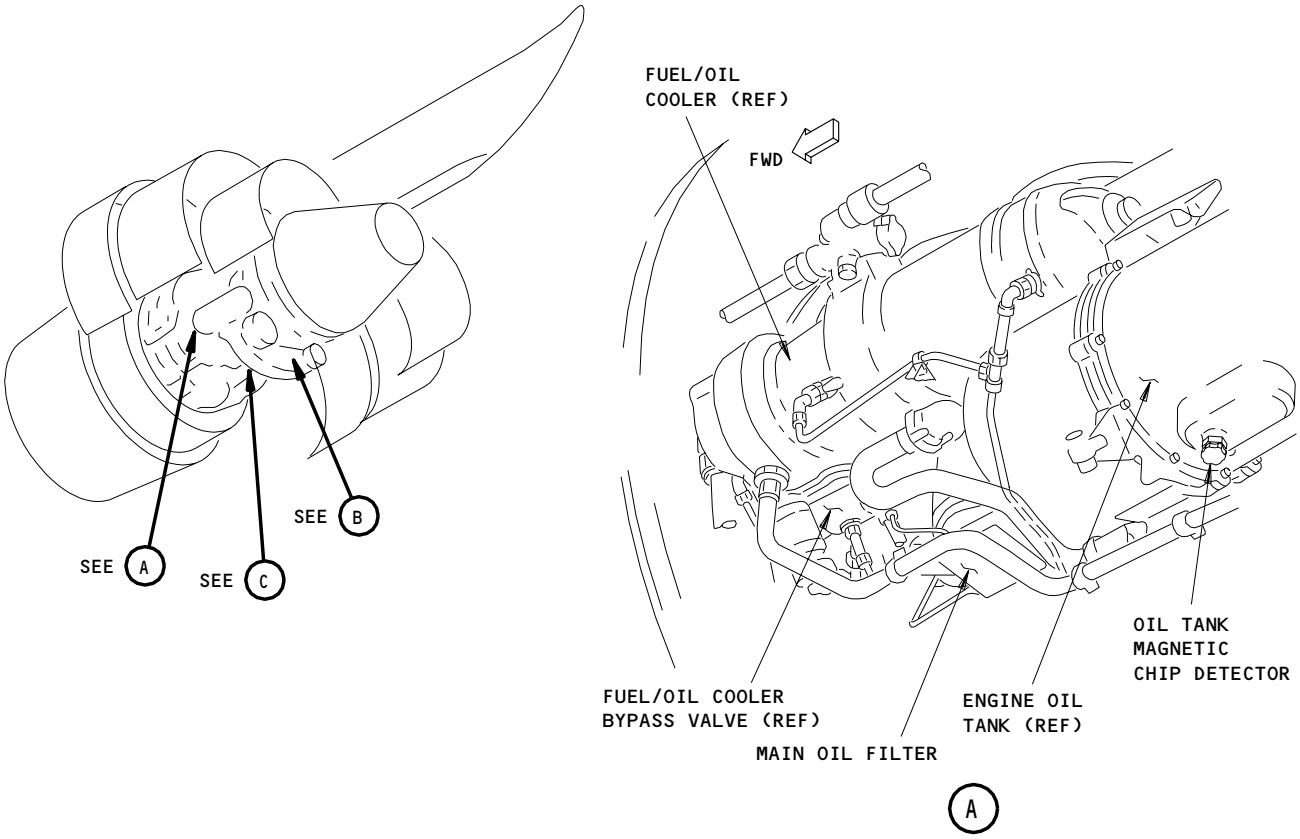
NO

2 EXAMINE THE MAIN OIL FILTER FOR CONTAMINATION (AMM 79-21-05/601).
IS CONTAMINATION FOUND ON THE MAIN OIL FILTER? 1

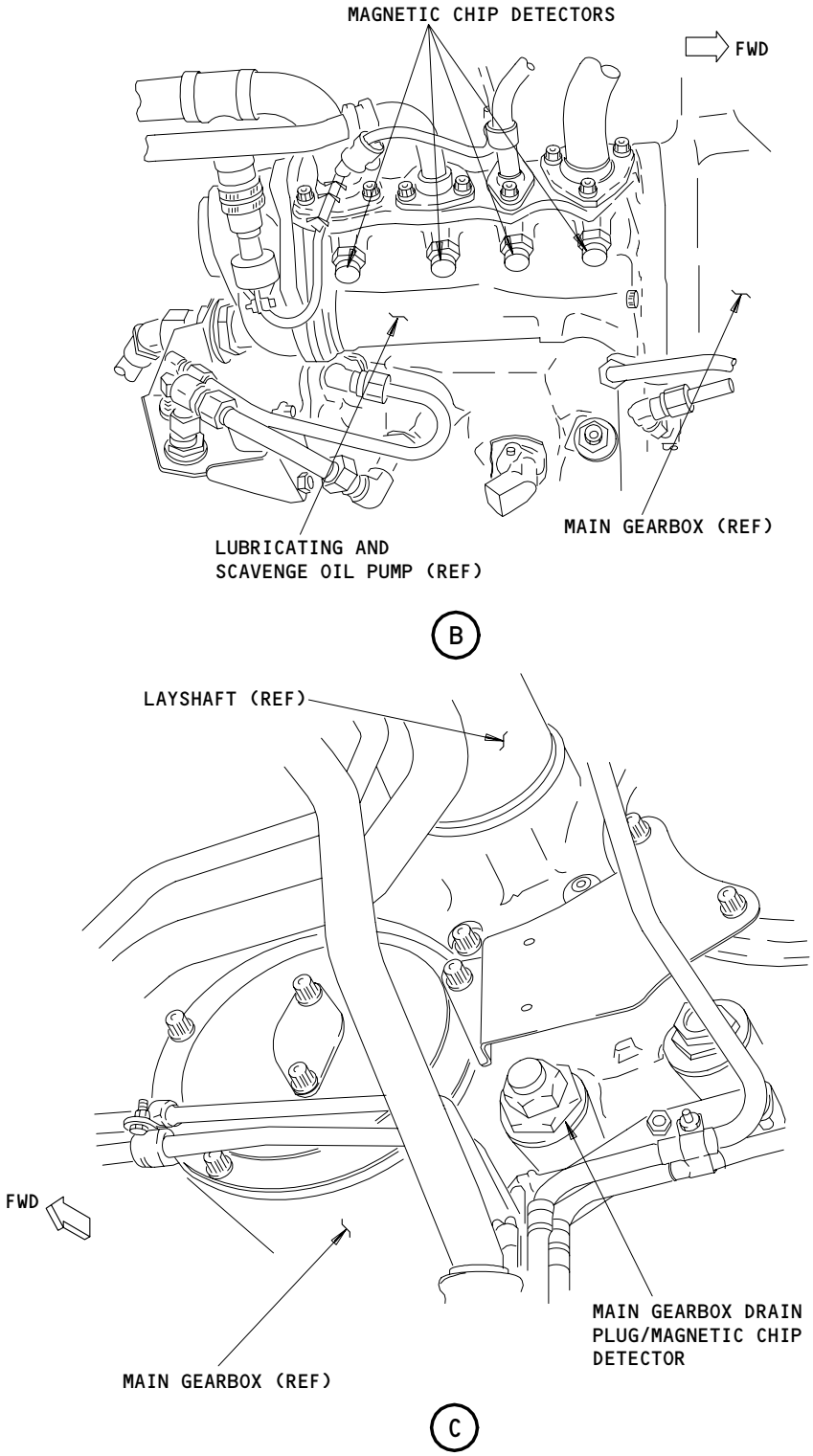
YES → 21 DO THE VISUAL INSPECTION OF THE MAGNETIC CHIP DETECTORS (AMM 79-21-10/601).

NO → 22 INSTALL A NEW FILTER (AMM 79-21-05/401).

1 KEEP THE CONTAMINATION THAT IS FOUND FOR SPECTROGRAPHIC OIL ANALYSIS.



Engine Check 2 - Magnetic Chip Detectors and Main Oil Filter Check
Figure 102 (Sheet 1)



Engine Check 2 – Magnetic Chip Detectors and Main Oil Filter
Figure 102 (Sheet 2)

FUEL SYSTEM CONTAMINATION CHECK

PREREQUISITES

NONE

1 EXAMINE THE FUEL PUMP FILTER ELEMENT FOR COMTAMINATION (AMM 73-11-02/601).
IS CONTAMINATION FOUND?

NO → 21 INSTALL A NEW FUEL PUMP FILTER (AMM 73-11-02/401). CONTINUE TO OPERATE THE ENGINE.

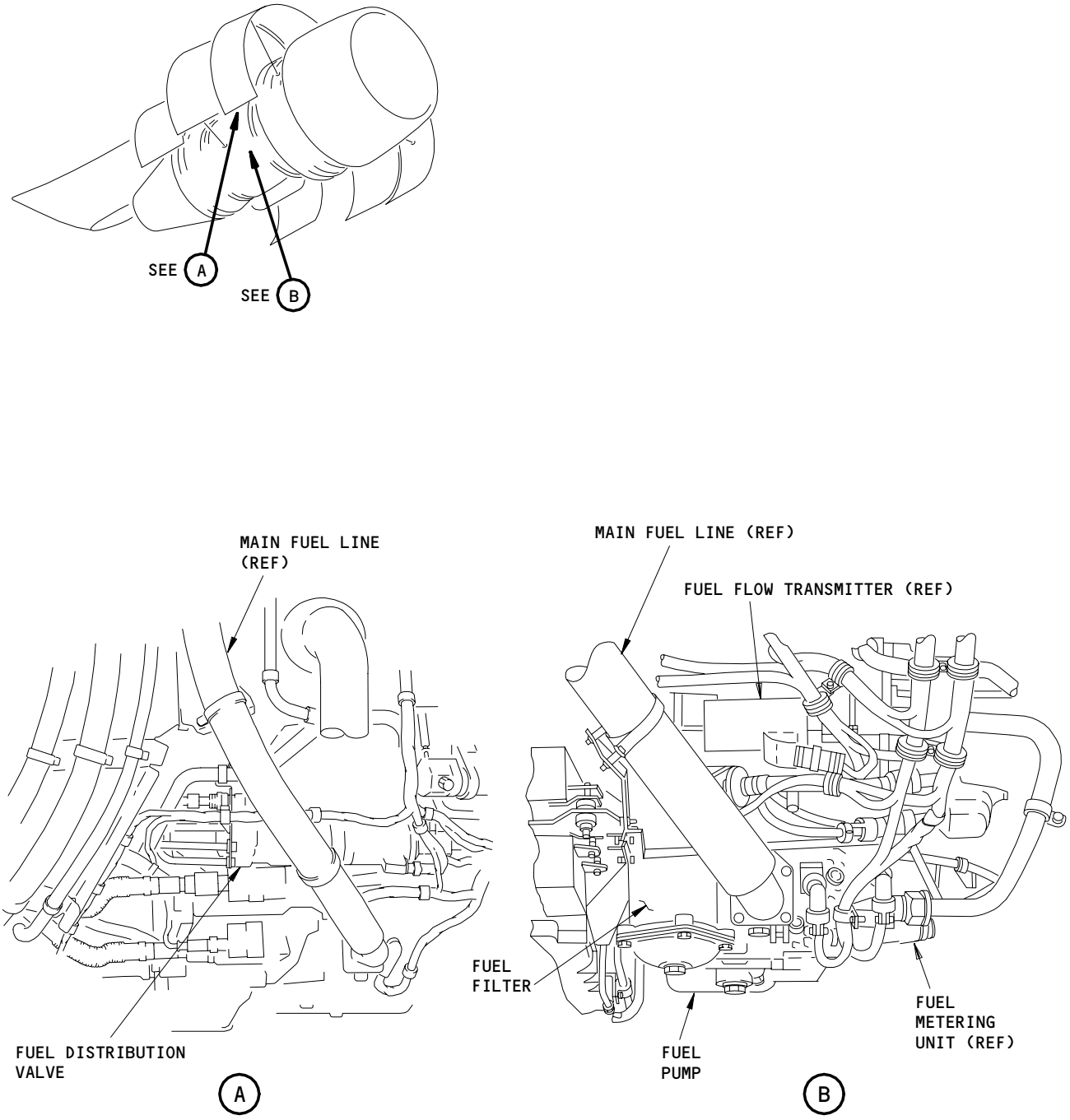
YES

2 EXAMINE THE FUEL DISTRIBUTION VALVE STRAINER FOR CONTAMINATION (AMM 73-11-04/601).
IS CONTAMINATION FOUND?

NO → 22 REPLACE THE FUEL PUMP FILTER (AMM 73-11-02/401).
FIND THE SOURCE OF THE CONTAMINATION UPSTREAM OF THE FUEL PUMP AND REPAIR AS NECESSARY.
THE SOURCE OF CONTAMINATION CAN BE FROM ONE OF THESE COMPONENTS:
- FUEL PUMP
- FUEL/OIL HEAT EXCHANGER
- AIRPLANE FUEL SUPPLY
- MAINTENANCE.

YES → 23 REPLACE THE FUEL PUMP AND THE FUEL METERING UNIT (AMM 73-11-01/401).
REPLACE THE FUEL DISTRIBUTION VALVE (AMM 73-11-03/401).
IF IT APPEARS THAT THE FUEL DISTRIBUTION VALVE STRAINER HAS BYPASSED, REMOVE AND REPLACE THE FUEL INJECTORS (AMM 73-11-05/401).
FIND THE SOURCE OF THE CONTAMINATION UPSTREAM OF THE FUEL PUMP AND REPAIR AS NECESSARY.
THE SOURCE OF CONTAMINATION CAN BE FROM ONE OF THESE COMPONENTS:
- FUEL PUMP
- FUEL/OIL HEAT EXCHANGER
- AIRPLANE FUEL SUPPLY
- MAINTENANCE.

Engine Check 3 - Fuel System Contamination Check
Figure 103 (Sheet 1)



Engine Check 3 – Fuel System Contamination Check
Figure 103 (Sheet 2)

2.9 BLEED VALVE SYSTEM CHECK

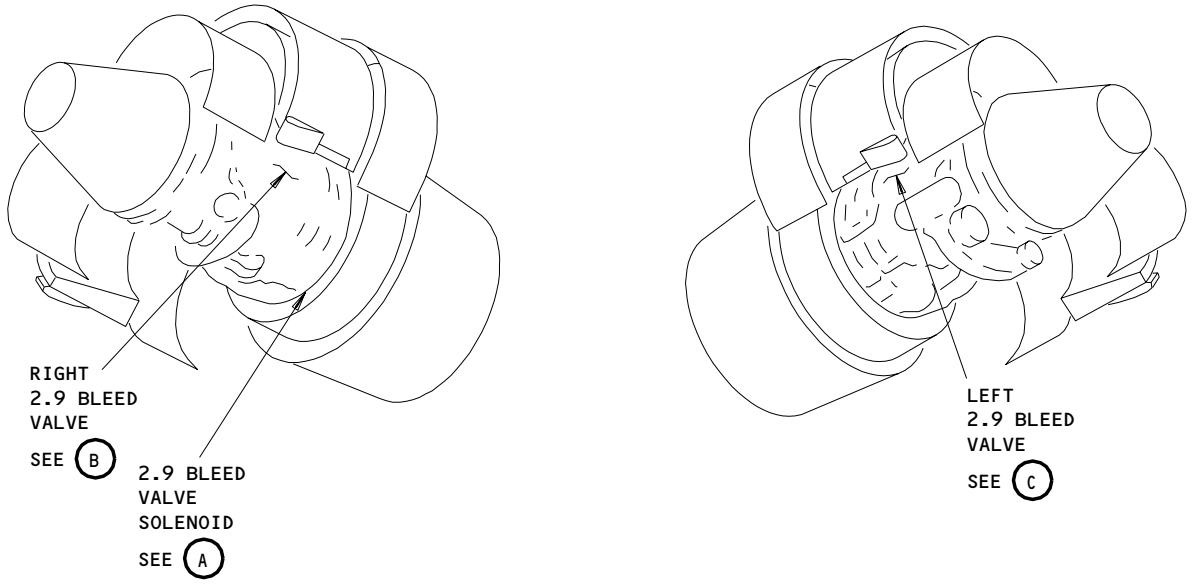
1. GENERAL
   A. THIS IS A CHECK OF THE 2.9 START (RIGHT) AND STABILITY (LEFT) BLEED VALVE PNEUMATIC SYSTEM FOR PROBLEMS.
2. STANDARD TOOLS AND EQUIPMENT
   A. (1) HIGH PRESSURE HOSE
   B. (2) NO. 6 FITTING
   C. (1) 28V DC POWER SOURCE
   D. (1) HARNESS TO CONNECT POWER SOURCE TO THE SOLENOID
   E. (1) 0 - 100 PSI GAGE
   F. (1) TORQUE WRENCH
   G. (1) REGULATED AIR SOURCE - 35 PSI MINIMUM
3. REFERENCES
   A. AMM 71-11-04/201, FAN COWL PANEL
   B. AMM 71-11-06/201, CORE COWL PANEL
   C. AMM 75-32-03/401, 2.9 BLEED VALVE
   D. AMM 75-32-04/401, 2.9 BLEED VALVE SOLENOID
   E. AMM 75-32-05/401, STABILITY BLEED PNEUMATIC RELAY VALVE
   F. AMM 75-33-05/201, PS3 AIR FILTER ELEMENT
   G. AMM 78-31-00/201, THRUST REVERSER SYSTEM
4. PREPARE TO EXAMINE THE 2.9 BLEED SYSTEM

   WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

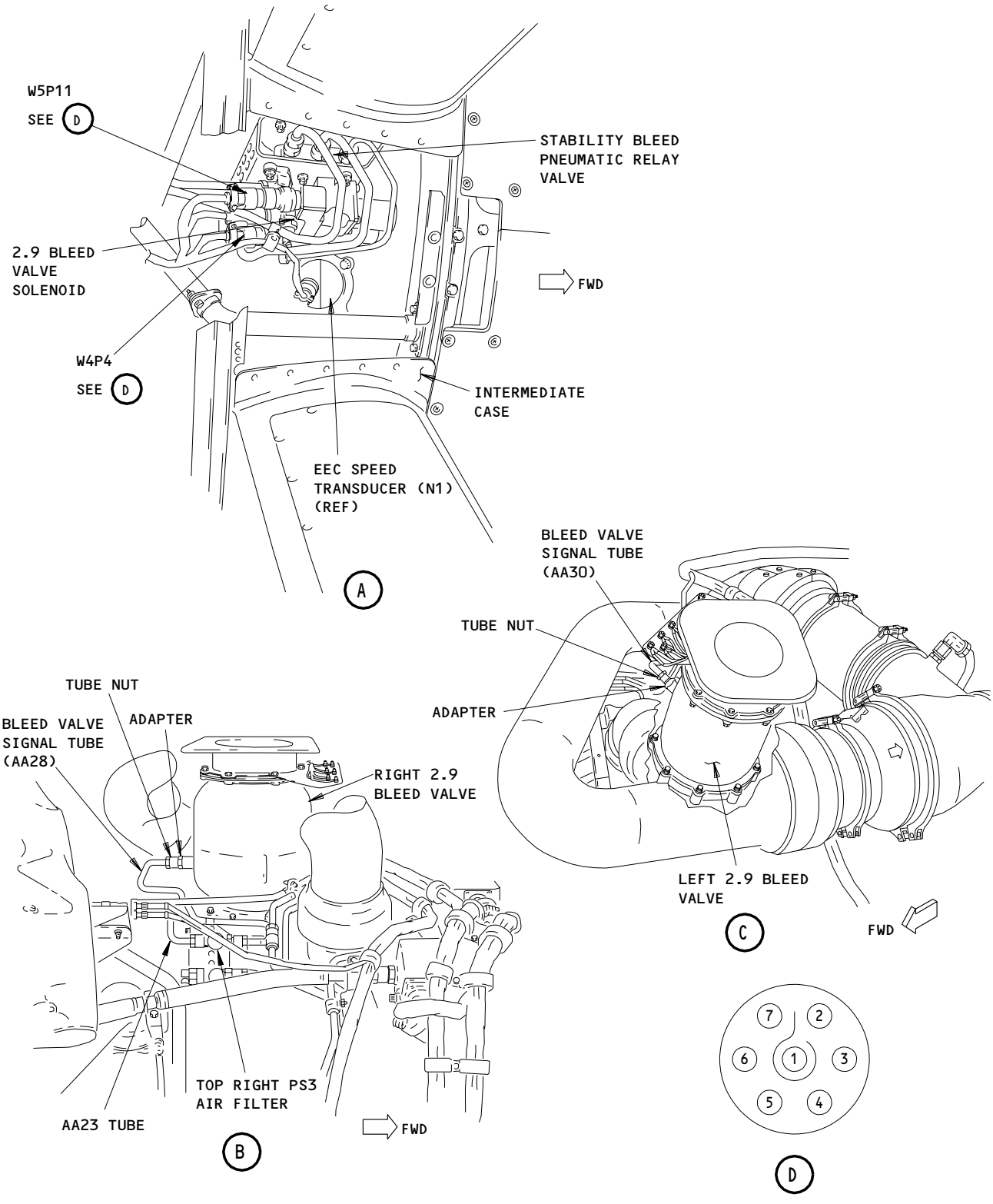
   A. DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER FOR GROUND MAINTENANCE (AMM 78-31-00/201).
   B. OPEN THE FAN COWL PANELS (AMM 71-11-04/201).
   C. OPEN THE CORE COWL PANELS (AMM 71-11-06/201).

   WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

   D. OPEN THE THRUST REVERSERS (AMM 78-31-00/201).



Engine Check 4 - 2.9 Bleed Valve System Check
Figure 104 (Sheet 1)



Engine Check 4 – 2.9 Bleed Valve System Check
Figure 104 (Sheet 2)

5. EXAMINE THE PNEUMATIC CONNECTORS IN THE 2.9 START/STABILITY BLEED SYSTEM.
   A. MAKE SURE THE CONNECTORS (B NUTS) ARE TIGHT TO MAKE SURE THERE ARE NO LEAKS.
6. DO A CHECK OF THE PS3 FILTER (VIEW B)

   NOTE: THE FILTER ELEMENT FOR THE 2.9 BLEED VALVE SOLENOID IS THE TOP FILTER OF THE TWO FILTERS ATTACHED TO THE FLANGE J BRACKET AT APPROXIMATELY THE 1:30 O'CLOCK LOCATION. THIS ALSO FILTERS AIR TO THE HPC SECONDARY FLOW CONTROL VALVE (NON-PHASE 3 ENGINES) OR THE TURBINE VANE AND BLADE COOLING AIR VALVE (PHASE 3 ENGINES) SOLENOID.

   A. EXAMINE THE FILTER ELEMENT FOR SIGNS OF UNWANTED MATERIAL (AMM 75-33-05/201).
   B. CLEAN THE FILTER ELEMENT (AMM 75-33-05/201).
   C. INSTALL THE FILTER ELEMENT (AMM 75-33-05/201).
7. DO A CHECK OF THE START BLEED (RIGHT) VALVE SYSTEM (VIEW B)
   A. DISCONNECT AA23 TUBE FROM THE B NUT AT THE TOP RIGHT PS3 FILTER ELEMENT (VIEW B).

      NOTE: YOU WILL NEED TO LOOSEN THE CLAMP AND DISCONNECT THE B NUT AT THE OTHER END OF THE TUBE TO MOVE IT OUT OF THE WAY.

   B. CONNECT A REGULATED CLEAN AIR OR NITROGEN SUPPLY TO THE PS3 FILTER ASSEMBLY WITH A 3/8 FLEX HOSE OR SIZE 6 PNEUMATIC LINE.
   C. SLOWLY APPLY 35 PSI PENUMATIC PRESSURE THROUGH THE PS3 FILTER ASSEMBLY.

      NOTE: THE START BLEED (RIGHT) VALVE SHOULD CLOSE.

      (1) LISTEN FOR A SOFT AUDIBLE CLUNK SOUND THAT INDICATES THE VALVE HAS CLOSED.

          NOTE: AS YOU SLOWLY APPLY PRESSURE, THE VALVE WILL CLOSE SLOWLY. THIS CAN MAKE IT DIFFICULT TO HEAR THE CLUNK SOUND THE VALVE MAKES WHEN IT CLOSES. IF YOU PUT YOUR HAND ON THE TOP OF THE VALVE, YOU CAN FEEL THE VIBRATION THE VALVE MAKES WHEN IT CLOSES.

   D. APPLY AND REMOVE AIR PRESSURE THREE TIMES TO CYCLE THE VALVE.
   E. IF THE BLEED VALVE DOES NOT CLOSE, DO A CHECK FOR AIR LEAKS IN THE 2.9 BLEED SYSTEM TUBING.
      (1) IF LEAKS ARE FOUND, REPAIR OR REPLACE THE TUBING AS NECESSARY.
          (a) REPEAT THE STEP TO APPLY AND REMOVE THE AIR PRESSURE THREE TIMES TO MAKE SURE THE PROBLEM IS GONE.
      (2) IF NO LEAKS ARE FOUND, DO A CHECK OF THE 2.9 BLEED VALVE BELOW AS FOLLOWS:
          (a) DISCONNECT THE BLEED VALVE SIGNAL TUBE (AA28) AT THE BLEED VALVE SERVO PORT.
          (b) APPLY 10 PSIG PNEUMATIC PRESSURE DIRECTLY INTO THE SERVO PORT OF THE BLEED VALVE.
          (c) IF THE BLEED VALVE DOES NOT CLOSE, REPLACE IT (AMM 75-32-03/401)
          (d) IF THE BLEED VALVE CLOSES, REPLACE THE 2.9 BLEED VALVE SOLENOID (AMM 75-32-04/401).
          (e) CONNECT THE SIGNAL TUBE TO THE START BLEED VALVE SERVO PORT.
   F. IF THE BLEED VALVE CLOSES, DO THE STEPS THAT FOLLOW TO OPERATE THE 2.9 BLEED VALVE AND SOLENOID.
      (1) DISCONNECT THE ELECTRICAL HARNESS CONNECTOR (W4P4 OR W5P11) FROM THE 2.9 BLEED VALVE SOLENOID FOUND AT THE 5:00 POSITION IN THE INTERMEDIATE CASE (VIEW A).
      (2) SLOWLY APPLY 35 PSI PNEUMATIC PRESSURE THROUGH THE PS3 FILTER ASSEMBLY.
      (3) APPLY 28V DC TO PINS 3 AND 4 IN THE SOLENOID W4P4 OR W5P11 CONNECTOR (PIN 3 IS +, PIN 4 IS -) TO ENERGIZE THE SOLENOID (VIEW D).

          NOTE: THE START BLEED VALVE SHOULD OPEN WHEN 28V DC POWER IS APPLIED.

      (4) TURN THE POWER ON AND OFF FIVE TIMES TO CYCLE THE BLEED VALVE.
          (a) MAKE SURE THE VALVE OPENS AND CLOSES SMOOTHLY.
      (5) REMOVE THE 28V DC POWER AND DECREASE THE PNEUMATIC PRESSURE TO THE SOLENOID TO ZERO PSI.
      (6) IF THE BLEED VALVE DOES NOT OPEN WHEN POWER IS APPLIED, REPLACE THE SOLENOID (AMM 75-32-04/401).
8. DO A CHECK OF THE STABILITY BLEED (LEFT) VALVE SYSTEM (VIEW C).
   A. DISCONNECT THE ELECTRICAL HARNESS CONNECTOR (W4P4 OR P5P11) FROM THE 2.9 BLEED VALVE SOLENOID FOUND AT THE 5:00 POSITION IN THE INTERMEDIATE CASE (VIEW A).
   B. APPLY 35 PSI THROUGH THE PS3 FILTER ASSEMBLY.
   C. APPLY 28V DC TO PINS 1 AND 2 IN THE SOLENOID W4P4 OR P5P11 CONNECTOR (PIN 1 IS +, PIN 2 IS -) TO ENERGIZE THE SOLENOID (VIEW D).
      (1) LISTEN FOR A SOFT CLUNK SOUND THAT INDICATES THE VALVE HAS CLOSED.

Engine Check 4 - 2.9 Bleed Valve System Check
Figure 104 (Sheet 3)

D. TURN THE POWER ON AND OFF FIVE TIMES TO CYCLE THE BLEED VALVE.
   (a) MAKE SURE THE VALVE OPENS AND CLOSES SMOOTHLY.
E. REMOVE THE 28V DC POWER AND THE PNEUMATIC PRESSURE FROM THE SOLENOID VALVE.
F. IF THE BLEED VALVE DOES NOT CLOSE, DO A CHECK FOR AIR LEAKS IN THE 2.9 BLEED SYSTEM TUBING.
   (1) IF LEAKS ARE FOUND, REPAIR OR REPLACE THE TUBING AS NECESSARY.
       (a) REPEAT THE STEP TO TURN THE POWER ON AND OFF.
   (2) IF NO LEAKS ARE FOUND OR IF THE VALVE DOES NOT OPERATE SMOOTHLY, DO THE CHECK OF THE BLEED VALVE AS FOLLOWS:
       (a) DISCONNECT THE BLEED VALVE SIGNAL TUBE (AA30) AT THE BLEED VALVE SERVO PORT.
       (b) APPLY 10 PSIG PNEUMATIC PRESSURE DIRECTLY INTO THE SERVO PORT OF THE BLEED VALVE.
           1) IF THE BLEED VALVE DOES NOT CLOSE, REPLACE IT (AMM 75-32-03/401)
           2) IF THE BLEED VALVE CLOSES, REPLACE THE PNEUMATIC RELAY VALVE (AMM 75-32-04/401) AND THE 2.9 BLEED VALVE SOLENOID (AMM 75-32-05/401).
G. CONNECT THE SIGNAL TUBE TO THE STABILITY BLEED VALVE SERVO PORT.
H. CONNECT THE AA23 TUBE AND CLAMP.
I. CONNECT THE ELECTRICAL HARNESS CONNECTOR (W4P4 OR W5P11) AT THE 2.9 BLEED VALVE SOLENOID.

NOTE: MAKE SURE THAT ALL PNEUMATIC CONNECTORS IN THE 2.9 START/STABILITY BLEED SYSTEM ARE PROPERLY CONNECTED AND THERE ARE NO LEAKS.

9. PUT THE AIRPLANE BACK TO ITS USUAL CONDITION.

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

A. CLOSE THE RIGHT THRUST REVERSER (AMM 78-31-00/201).
B. CLOSE THE RIGHT CORE COWL PANEL (AMM 71-11-06/201).
C. CLOSE THE RIGHT FAN COWL PANEL (AMM 71-11-04/201).
D. DO THE ACTIVATION PROCEDURE FOR THE THRUST REVERSER (AMM 78-31-00/201).

Engine Check 4 - 2.9 Bleed Valve System Check
Figure 104 (Sheet 4)

G09983

FUEL PUMP PRESSURE CHECK

1. STANDARD TOOLS AND EQUIPMENT
   A. CONTAINER - 5 GALLON (20 LITER) CAPACITY, USED TO COLLECT THE FUEL
   B. GAUGE - PRESSURE, 0-1000 PSI (0-7000 KPA)
   C. HOSE - EXTENSION, CONNECTS TO THE FUEL PUMP TEST PORT AND THE PRESSURE GAUGE
2. CONSUMABLE MATERIALS
   A. D00250 PETROLATUM WHITE
3. PREPARE FOR THE TEST
   A. SUPPLY ELECTRICAL POWER (AMM 24-22-00/201).
   B. MAKE SURE THIS CIRCUIT BREAKER 6E1 (6E2) IS CLOSED.
   C. MAKE SURE THE FUEL CONTROL SWITCH IS IN CUTOFF POSITION.
   D. MAKE SURE THE "SPAR VALVE" PANEL LIGHT ON THE CONTROL STAND IS OFF.
   E. OPEN THIS CIRCUIT BREAKER 6E1 (6E2).
   F. REMOVE ELECTRICAL POWER (AMM 24-22-00/201).
   G. OPEN THE THRUST REVERSERS (AMM 78-31-00/201).
   H. REMOVE THE DRAIN PLUG FROM THE FP3 PORT TO DRAIN THE FUEL.
   I. ATTACH A 0-1000 PSIG PRESSURE GAUGE TO THE FP3 PORT.
   J. SUPPLY ELECTRICAL POWER (AMM 24-22-00/201).
   K. MAKE SURE THE EICAS CIRCUIT BREAKERS ARE CLOSED.
   L. MAKE SURE THE L (R) EEC GND TEST CIRCUIT BREAKER ON THE P34 PANEL IS CLOSED.
   M. PUT THE L (R) EEC MAINT POWER SWITCH ON THE P61 PANEL TO THE TEST POSITION.
   N. MAKE SURE THE FLIGHT COMPARTMENT AND THE GROUND CREW CAN TALK TO EACH OTHER.
4. DO THE FUEL PUMP PRESSURE TEST
   A. DRY-MOTOR THE ENGINE (AMM 71-00-00/201). USE THE N2 INDICATION ON THE EICAS TO MAKE SURE THE FUEL PUMP HAS 300 PSIG BEFORE N2 GETS TO 7.6%.

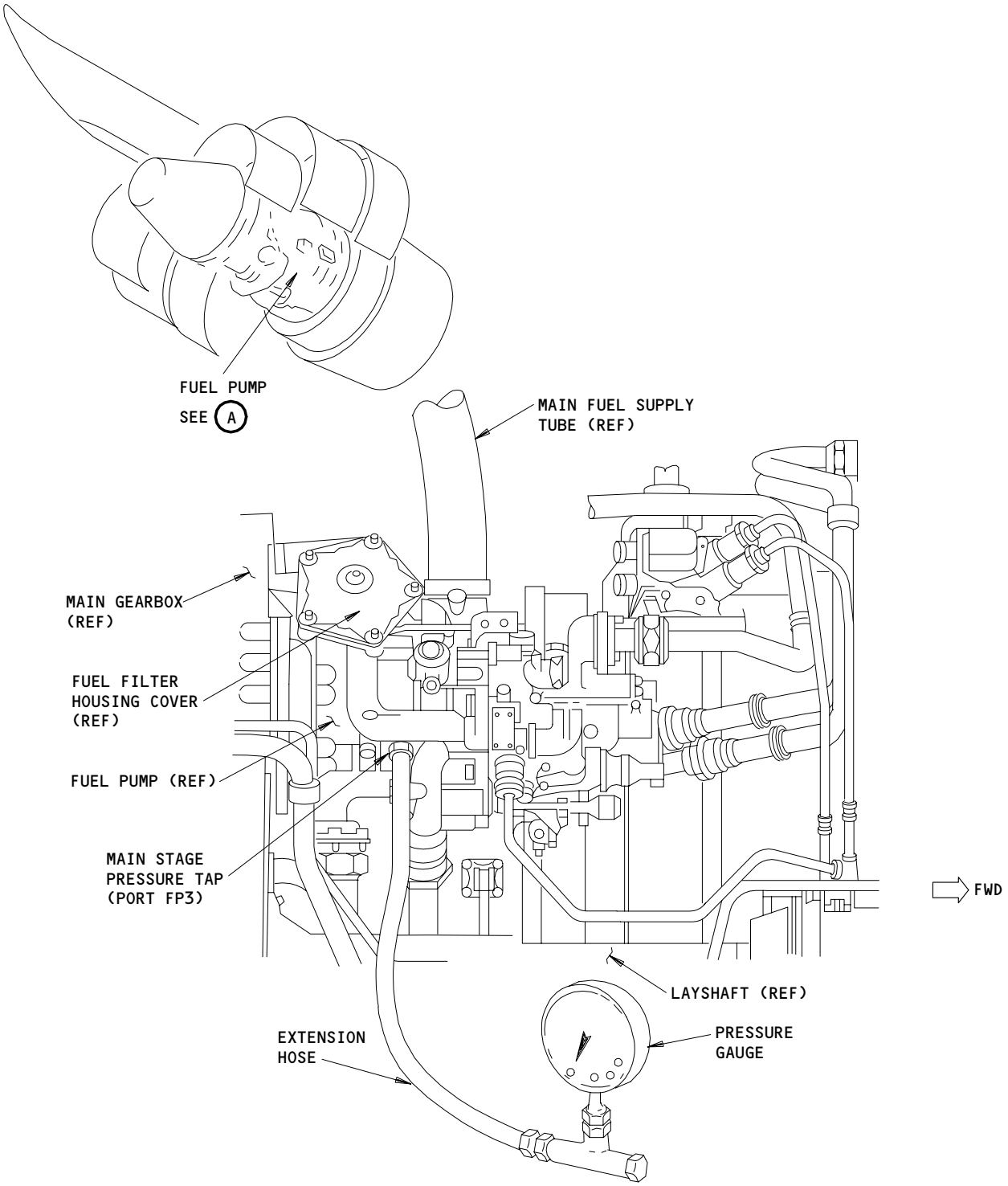
      NOTE: N2 WILL NOT SHOW ON THE EICAS UNTIL N2 IS APPROXIMATELY 6%.

5. PUT THE AIRPLANE BACK TO ITS USUAL CONDITION.
   A. STOP THE DRY-MOTOR PROCEDURE.
   B. PUT THE EEC MAINT POWER SWITCH TO THE OFF POSITION.
   C. PUT THE CONTAINER BELOW THE FUEL PUMP.
   D. REMOVE THE EXTENSION HOSE AND THE PRESSURE GAUGE FROM THE FUEL PUMP. PERMIT THE FUEL TO DRAIN INTO THE CONTAINER.
   E. INSTALL NEW PACKING, LUBRICATED WITH PETROLATUM, ON THE DRAIN PLUG.
   F. INSTALL THE DRAIN PLUG IN THE FP3 PORT OF THE FUEL PUMP. TIGHTEN THE DRAIN PLUG TO 45-55 POUND-INCHES (5.1-6.2 NEWTON-METERS).

      NOTE: USE HIGH TEMPERATURE FLOUROSILICONE O-RING.

   G. CLOSE THE THRUST REVERSERS (AMM 78-31-00/201).

Engine Check 5 - Fuel Pump Pressure Check
Figure 105 (Sheet 1)

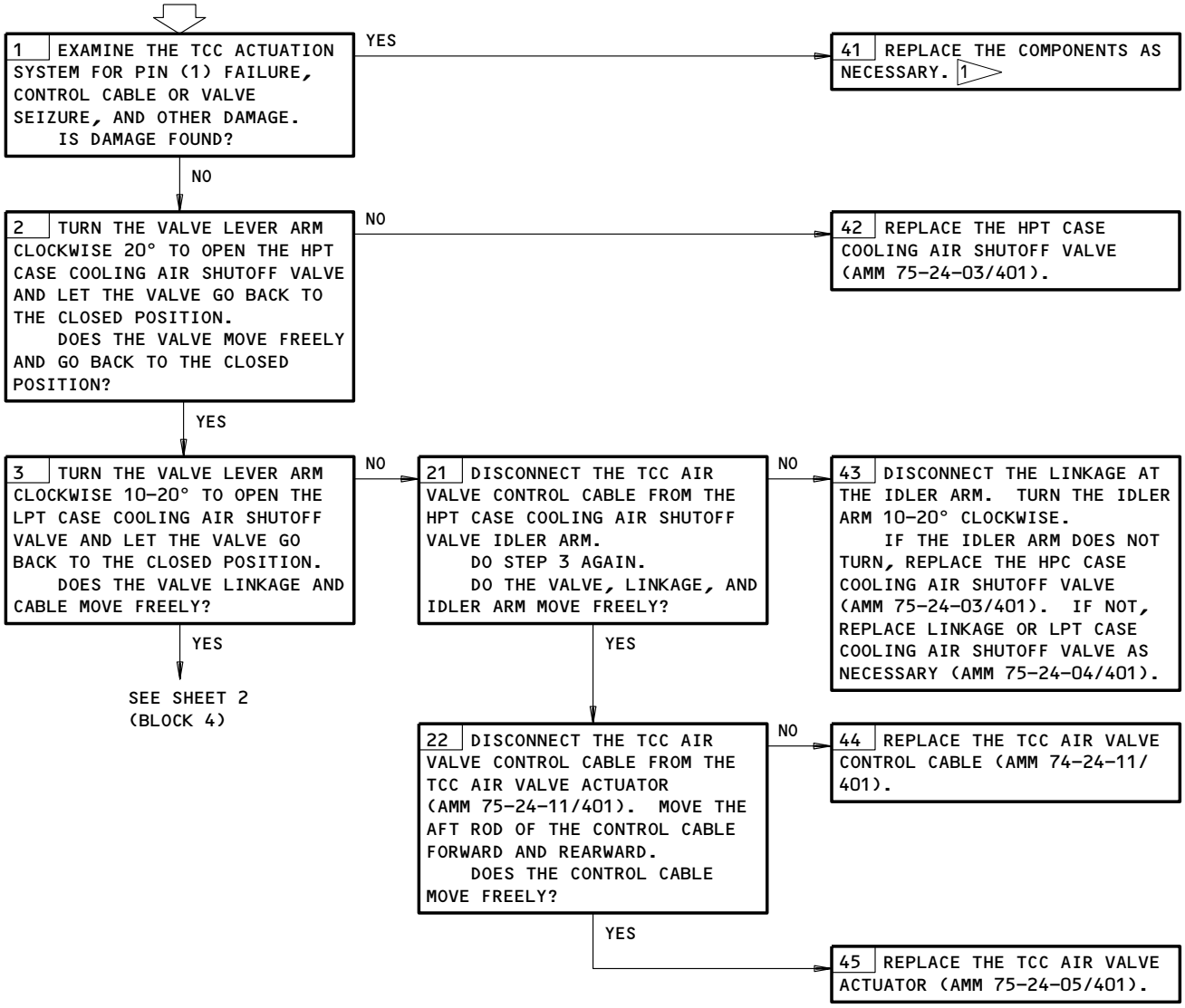


Engine Check 5 – Fuel Pump Pressure Check
Figure 105 (Sheet 2)

Not Used
Figure 106

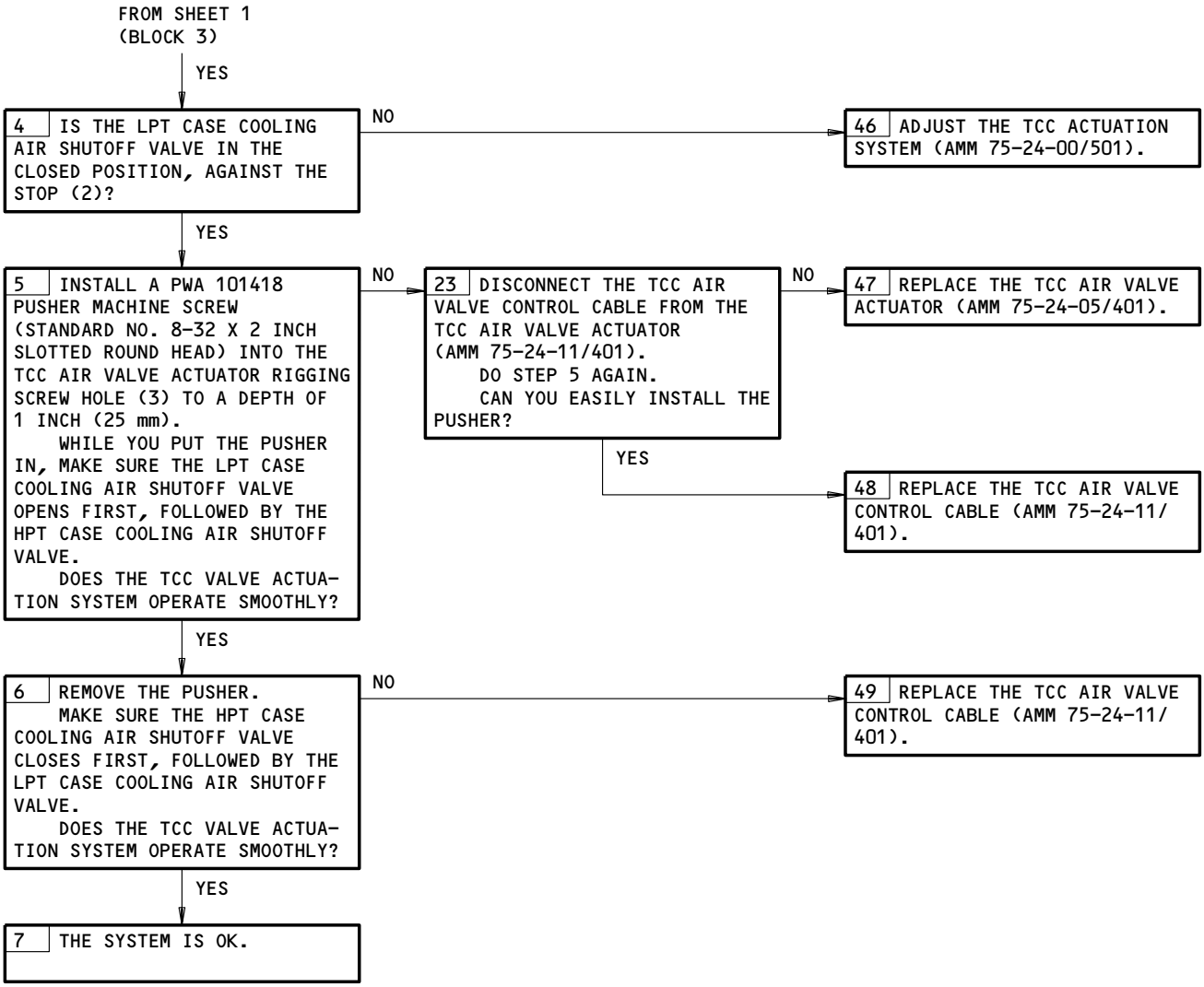
TURBINE CASE COOLING (TCC) VALVE ACTUATION CHECK

PREREQUISITES
NONE

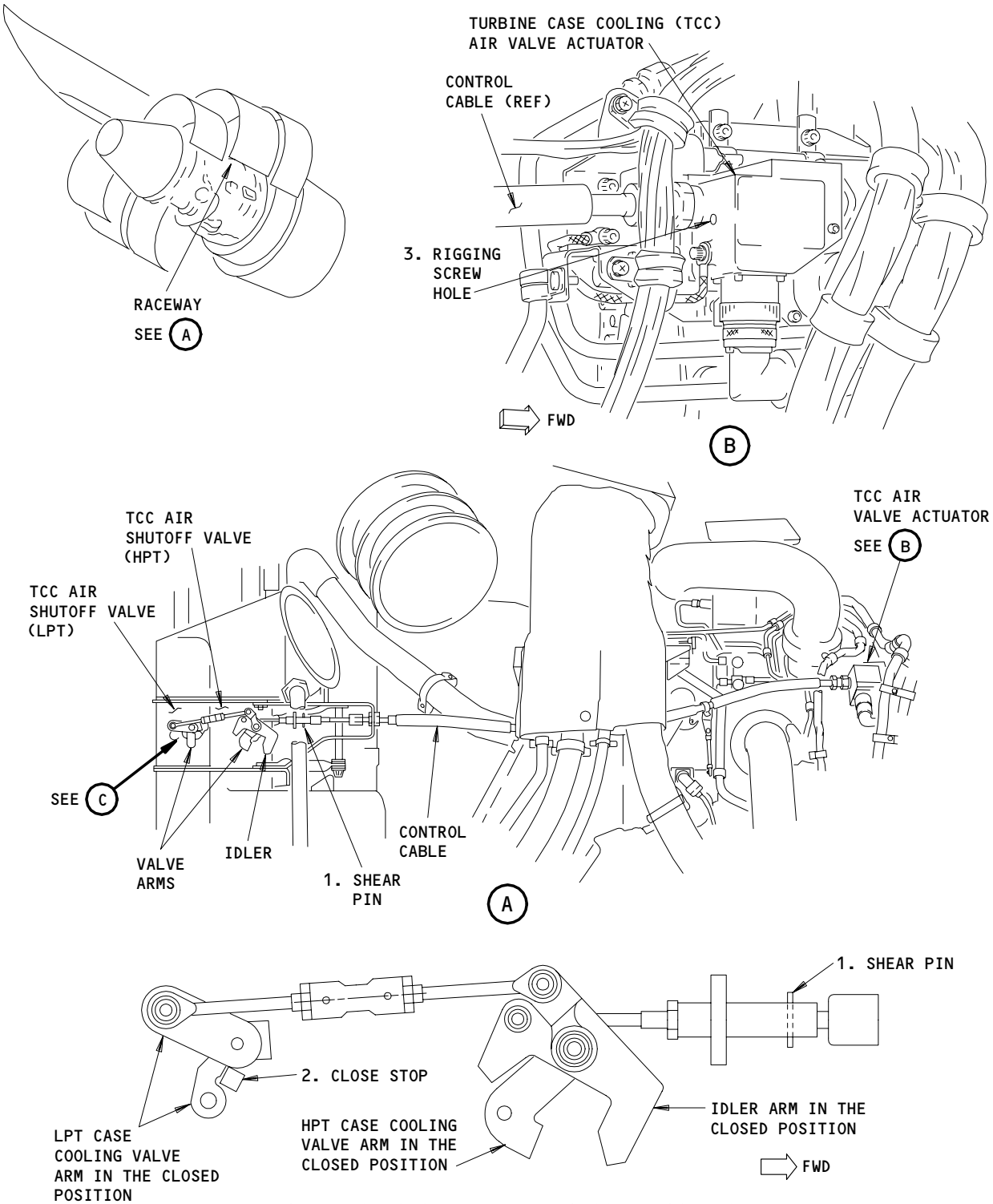


1 HPT CASE COOLING AIR SHUTOFF VALVE (AMM 75-24-03/401), LPT CASE COOLING AIR SHUTOFF VALVE (AMM 75-24-04/401), TCC AIR VALVE ACTUATOR (AMM 75-24-05/401), OR TCC AIR VALVE CONTROL CABLE (AMM 75-24-11/401)

Engine Check 7 - Turbine Case Cooling (TCC) Valve Actuation Check
Figure 107 (Sheet 1)



Engine Check 7 – Turbine Case Cooling (TCC) Valve Actuation Check
Figure 107 (Sheet 2)



ACTUATION SYSTEM IN THE CLOSED POSITION

C

Engine Check 7 – Turbine Case Cooling (TCC) Valve Actuation Check
Figure 107 (Sheet 3)

297745

NACELLE ZONE VENTLATION SHUTOFF VALVE OPERATIONAL CHECK

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
- 11U15,11U24
- (LEFT ENGINE) 11K9
- (RIGHT ENGINE) 11L35

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

EQUIPMENT:
- VACUUM GAUGE - CAPABLE OF READING ALTITUDE OF 25,000 FT, ACCURATE TO ±50 FT
- VACUUM PUMP - CAPABLE OF A VACUUM OF 10 PSIG (25,000 FT ALTITUDE) AT THE BAROMETRIC SWITCH
- PNEUMATIC GROUND CART

1 DO THE EICAS STATUS/MAINTENANCE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).
OPEN THIS CIRCUIT BREAKER L (R) ENG NAC VENT VALVE 11K9 (11L35).
DOES THE EICAS MESSAGE, "L (R) NAC VENT VAL" SHOW AFTER 5 TO 7 SECONDS?

NO → 21 REMOVE THE L (R) EICAS COMPUTER, M10181 (M10182) (AMM 31-41-02/401).
EXAMINE THE CIRCUIT FROM THE L (R) NAC COOLING VALVE, V353, CONNECTOR, D8314, PIN 8, TO THE L (R) EICAS COMPUTER CONNECTOR D881B (D883B), PIN H5, AND D881E (D883E), PIN J3 (WDM 75-23-11). REPAIR THE PROBLEMS THAT YOU FIND.
INSTALL THE EICAS COMPUTER.

YES ↓

2 CLOSE THIS CIRCUIT BREAKER L (R) ENG NAC VENT VALVE 11K9 (11L35).
REMOVE THE L (R) BAROMETRIC SWITCH, S494 (S495), PORT PLUG AND ATTACH THE VACUUM PUMP LINE TO THE VENT PORT. SLOWLY INCREASE THE VACUUM TO THE BAROMETRIC SWITCH. CONTINUE TO INCREASE THE VACUUM TO 25,000 FT.
DOES THE EICAS MESSAGE "L (R) NAC VENT VAL" SHOW?

NO → 22 REPLACE THE L (R) BAROMETRIC SWITCH, S494 (S495) (AMM 75-23-04/401).

YES ↓

3 ATTACH THE PNEUMATIC GROUND CART TO THE NACELLE VENTILATION SHUTOFF VALVE, V353, PNEUMATIC LINE. APPLY 25 TO 35 PSIG PRESSURE TO THE NACELLE VENTILATION SHUTOFF VALVE.
DOES THE NACELLE VENTILATION SHUTOFF VALVE CLOSE?

NO → 23 REPLACE THE NACELLE ZONE SHUTOFF VALVE, V353 (AMM 75-23-02/401).

YES ↓

4 SLOWLY DECREASE THE VACUUM TO 20,000 FT AND MONITOR THE POINT WHEN THE SHUTOFF VALVE OPENS.
DID THE SOV OPEN BETWEEN 23,000 AND 22,000 FT?

NO → 24 REPLACE THE L (R) BAROMETRIC SWITCH, S494 (S495) (AMM 75-23-04/401).

YES ↓

5 INCREASE THE VACUUM TO 25,000 FT AND MONITOR THE POINT WHEN THE SHUTOFF VALVE CLOSES.
DID THE SOV CLOSE BETWEEN 23,500 AND 24,300 FT?

NO → 25 REPLACE THE L (R) BAROMETRIC SWITCH, S494 (S495) (AMM 75-23-04/401).

YES ↓

26 THE SYSTEM IS OK.

Engine Check 8 - Nacelle Zone Ventilation Shutoff Valve Operational Check
Figure 108

VARIABLE STATOR VANE SYSTEM CHECK

1. PREPARE TO EXAMINE THE VARIABLE STATOR VANE SYSTEM.

   WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

   A. DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER FOR GROUND MAINTENANCE (AMM 78-31-00/201).
   B. OPEN THE FAN COWL PANELS (AMM 71-11-04/201).
   C. OPEN THE CORE COWL PANELS (AMM 71-11-06/201).

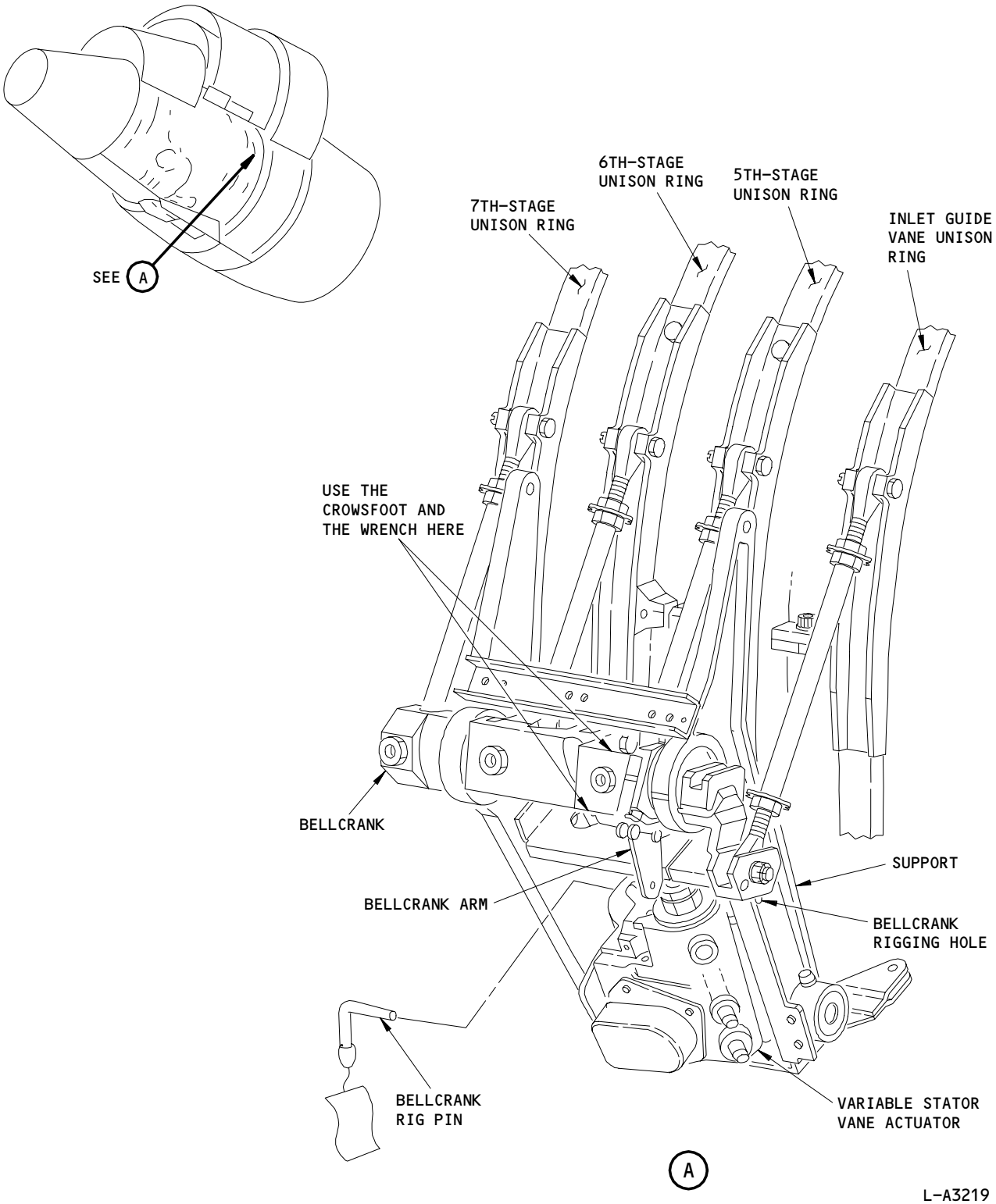
   WARNING: FOLLOW THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT FOLLOW THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

   D. OPEN THE THRUST REVERSER (AMM 78-31-00/201).
2. EXAMINE THE VARIABLE STATOR VANE SYSTEM.
   A. MAKE SURE THAT THE FOUR LINKAGE RODS (INLET, FIFTH, SIXTH, AND SEVENTH STAGES) ARE ATTACHED CORRECTLY TO THE UNISON RINGS AND TO THE BELLCRANK.
   B. MAKE SURE THAT THE STATOR VANE ACTUATOR IS ATTACHED CORRECTLY TO THE BELLCRANK AND TO THE COMPRESSOR STATOR SUPPORT BRACKET.
   C. MAKE SURE THAT THE BELLCRANK IS ATTACHED CORRECTLY TO THE COMPRESSOR STATOR SUPPORT BRACKET.
   D. MAKE SURE THAT THE COMPRESSOR STATOR SUPPORT BRACKET IS ATTACHED CORRECTLY TO THE ENGINE.
   E. EXAMINE THESE COMPONENTS FOR DAMAGED, LOOSE, OR WORN PARTS OR PARTS THAT ARE MISSING:
      (1) RIVET PIN ASSEMBLIES FOR THE INLET, FIFTH, SIXTH AND SEVENTH STAGE HPC UNISON RING
      (2) TOP HALF RUNNER PADS FOR THE HPC FRONT CASE ASSEMBLY
      (3) ALL VANE ARMS AND CONNECTOR LINKS.
   F. MAKE SURE THAT THERE ARE NO OBJECTS NEAR THE STATOR VANE UNISON RING WHICH WILL INTERFERE WITH ITS MOVEMENT.
   G. USE A 2-1/4 INCH CROWSFOOT AND WRENCH ON THE BELLCRANK WRENCH FLATS AND OPERATE THE VARIABLE STATOR VANE SYSTEM, MORE THAN ONE TIME, FROM THE FULL CLOSED (ACTUATOR ROD RETRACTED) POSITION TO THE FULL OPEN (ACTUATOR ROD EXTENDED) POSITION.
   H. IF YOU ARE TROUBLESHOOTING A HIGH POWER ENGINE SURGE, DO AN INSPECTION OF THE SYNCHRONIZING RING (AMM 75-31-00/601).
   I. DO A CHECK OF THE SVA POSITION INDICATION OF THE EPCS MAINTENANCE PAGE OF THE EICAS.
      (1) USE A 2-1/4 INCH CROWSFOOT AND WRENCH ON THE BELLCRANK WRENCH FLATS AND PULL DOWN TO MOVE THE BELLCRANK TO THE STATOR VANES FULL OPEN (ACTUATOR ROD EXTENDED) POSITION.
      (2) INSTALL THE BELLCRANK RIG PIN.
      (3) SET THE EEC MAINT POWER SWITCH ON THE OVERHEAD MAINTENANCE PANEL, P61, TO THE TEST POSITION.
      (4) PUSH THE EPCS BUTTON ON THE AUTOMATIC FLIGHT CONTROL PANEL, P10, TO SHOW THE EPCS MAINTENANCE PAGE ON THE EICAS DISPLAY.
      (5) LOOK AT THE SVA POSITION INDICATION ON THE EPCS MAINTENANCE PAGE.
          (a) THE TWO CHANNELS MUST SHOW 94 TO 96 PERCENT.
      (6) USE A 2-1/4 INCH CROWSFOOT AND WRENCH ON THE BELLCRANK WRENCH FLATS AND PUSH UP TO MOVE THE BELLCRANK TO THE STATOR VANES FULL CLOSED (ACTUATOR ROD RETRACTED) POSITION.
      (7) LOOK AT THE SVA POSITION INDICATION ON THE EPCS MAINTENANCE PAGE.
          (a) THE TWO CHANNELS MUST SHOW -6 TO -4 PERCENT.
      (8) SET THE EEC MAINT POWER SWITCH ON THE P61 PANEL TO THE NORM POSITION.
   J. IF ONE OR MORE OF THE POSITION INDICATIONS IS INCORRECT OR, IF THE SYSTEM IS DIFFICULT TO OPERATE, DO THIS TASK: STATOR VANE CONTROL SYSTEM ADJUSTMENT TEST (AMM 75-31-00/501).
   K. IF THE PROBLEM CONTINUES, REPLACE THE STATOR VANE ACTUATOR (AMM 75-31-01/401).
3. PUT THE AIRPLANE BACK TO ITS USUAL CONDITION.

   WARNING: FOLLOW THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT FOLLOW THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

   A. CLOSE THE THRUST REVERSER (AMM 78-31-00/201).
   B. CLOSE THE CORE COWL PANEL (AMM 71-11-06/201).
   C. CLOSE THE FAN COWL PANEL (AMM 71-11-04/201).
   D. DO THE ACTIVATION PROCEDURE FOR THE THRUST REVERSER (AMM 78-31-00/201).

Engine Check 9 - Variable Stator Vane System Check
Figure 109 (Sheet 1)



Engine Check 9 - Variable Stator Vane System Check
Figure 109 (Sheet 2)

2.5 BLEED VALVE SYSTEM CHECK

1. REFERENCES
   A. AMM 71-11-04/201, FAN COWL PANELS
   B. AMM 71-11-06/201, CORE COWL PANELS
   C. AMM 75-32-01/501, 2.5 BLEED VALVE ACTUATOR
   D. AMM 78-31-00/201, THRUST REVERSER SYSTEM
2. DO A CHECK OF THE 2.5 BLEED VALVE SYSTEM.
   A. OPEN THE LEFT FAN COWL PANEL (AMM 71-11-04/201).

   WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO YOU OR DAMAGE TO EQUIPMENT.

   B. DO THIS PROCEDURE: THRUST REVERSER DEACTIVATION FOR GROUND MAINTENANCE (AMM 78-31-00/201).
   C. OPEN THE LEFT CORE COWL PANEL (AMM 71-11-06/201).

   WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

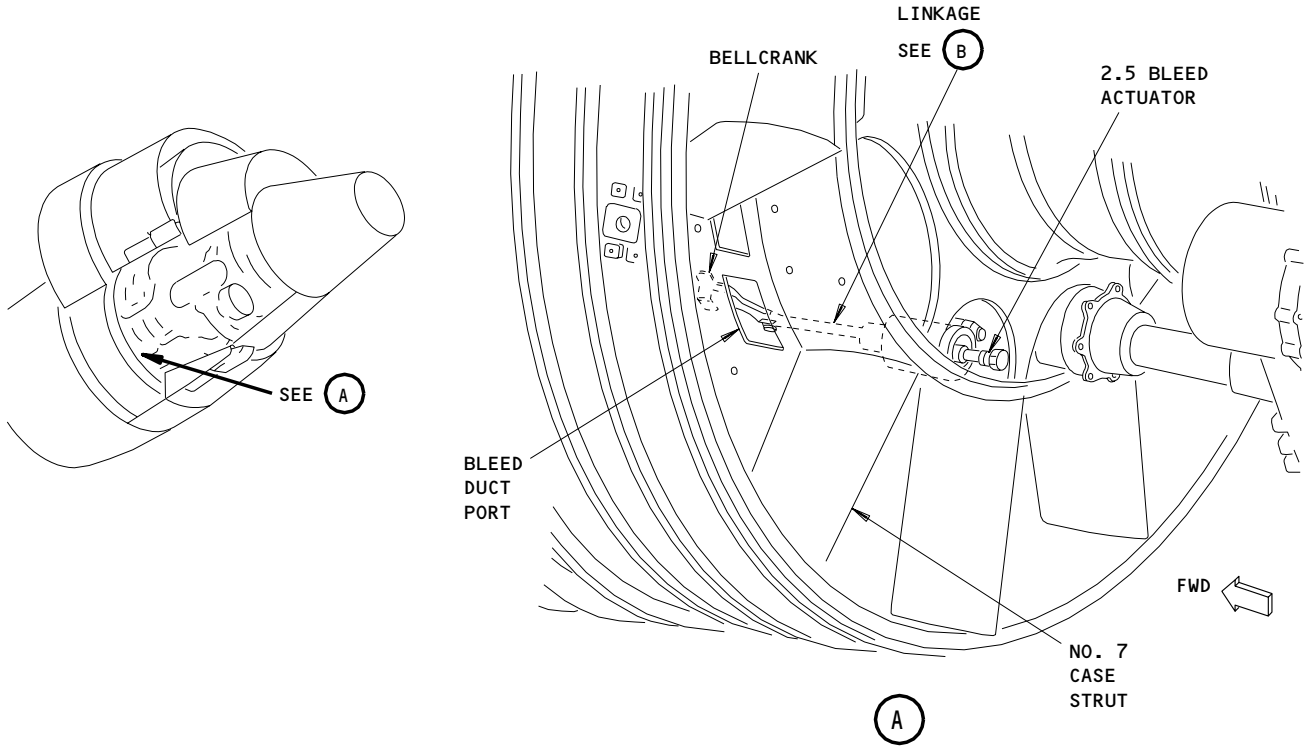
   D. OPEN THE LEFT THRUST REVERSER (AMM 78-31-00/201).
   E. WITH A FLASHLIGHT AND MIRROR, LOOK THROUGH THE TWO BLEED DUCT PORTS ON EACH SIDE OF THE NO. 7 CASE STRUT TO MAKE SURE THE 2.5 BLEED VALVE LINKAGE AND BELLCRANK ARE CORRECTLY CONNECTED TO THE 2.5 BLEED VALVE ACTUATOR.
   F. MANUALLY ATTEMPT TO PUSH THE BLEED VALVE RING FORWARD AND UP TO THE OPEN POSITION.
   G. MANUALLY ATTEMPT TO PULL THE BLEED VALVE RING AFT AND DOWN TO THE CLOSED POSITION.
      (1) TO MANUALLY ATTEMPT BLEED VALVE RING MOVEMENT, PUSH AND PULL ON THE CASTELLATED NUT, WHICH CAN BE SEEN AND ACCESSED FROM THE UPPER 2.5 BLEED PORT ADJACENT TO THE NO. 7 STRUT.
      (2) AT ENGINE SHUTDOWN, THE BLEED VALVE RING WILL BE IN THE FULL OPEN POSITION (FORWARD AND UP).
      (3) THERE MUST NOT BE ANY LOOSE MOVEMENT WHEN PULLED AFT AND DOWN.
      (4) PULL AND PUSH ON THE CASTELLATED NUT TO FIND ANY DISCONNECTED PARTS IN THE 2.5 BLEED SYSTEM.
   H. LOOK THROUGH ALL THE LOWER BLEED PORTS.
      (1) EXAMINE THE CASE MOUNTED SEAL AND THE SEAL RING CONTACT SURFACE WHEN THE BLEED VALVE RING IS IN THE OPEN POSITION (FORWARD AND UP).
         (a) THE BLEED MOUNTED SEAL CANNOT BE SEEN THROUGH THE BLEED PORTS.
   I. IF THERE ARE NO EEC MESSAGES RELATED TO THE 2.5 BLEED VALVE ACTUATOR AND NO PROBLEMS ARE IDENTIFIED IN THE ABOVE STEPS, ADJUST THE 2.5 BLEED VALVE ACTUATOR (AMM 75-32-01/501).

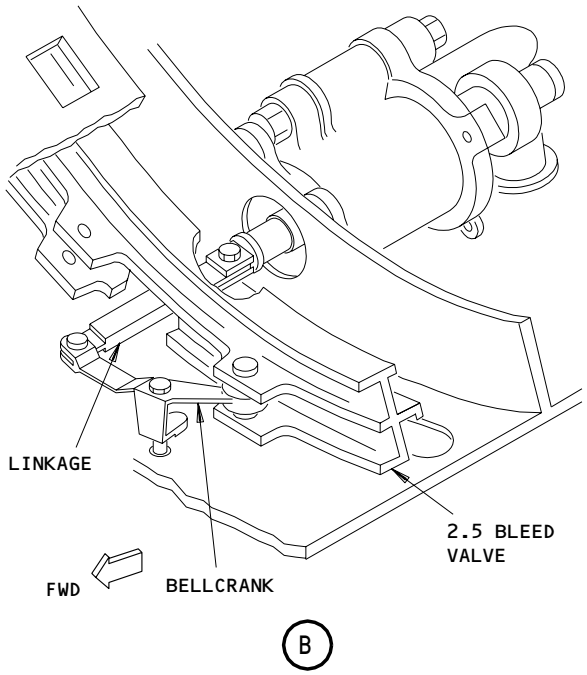
   WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT COULD OCCUR.

   J. CLOSE THE LEFT THRUST REVERSER (AMM 78-31-00/201).
   K. CLOSE THE LEFT CORE COWL PANEL (AMM 71-11-06/201).
   L. CLOSE THE LEFT FAN COWL PANEL (AMM 71-11-04/201).
   M. DO THE ACTIVATION PROCEDURE FOR THE THRUST REVERSER (AMM 78-31-00/201).

Engine Check 10 - 2.5 Bleed Valve System Check
Figure 110 (Sheet 1)

G53969





Engine Check 10 – 2.5 Bleed Valve System Check
Figure 110 (Sheet 2)

BURNER PRESSURE (PB) MANIFOLD CHECK

1. STANDARD TOOLS AND EQUIPMENT
   A. GAGE - PRESSURE, 0-1000 PSI (0-6895 KPA)
   B. LINE - EXTENSION, TO CONNECT THE PB MANIFOLD TO THE AIR/NITROGEN SOURCE AND PRESSURE GAGE
   C. SOURCE - AIR OR NITROGEN, 10 PSI (69 KPA) MINIMUM
2. REFERENCES
   A. AMM 71-11-04/201, FAN COWL PANEL
   B. AMM 71-11-06/201, CORE COWL PANEL
   C. AMM 78-31-00/201, THRUST REVERSER SYSTEM
   D. AMM 73-21-04/601, ELECTRONIC ENGINE CONTROL
3. PREPARE TO DO THE PB MANIFOLD CHECK.

   WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

   A. DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER FOR GROUND MAINTENANCE (AMM 78-31-00/201).
   B. OPEN THE RIGHT FAN COWL PANEL (AMM 71-11-04/201).
   C. OPEN THE RIGHT CORE COWL PANEL (AMM 71-11-06/201).

   WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

   D. OPEN THE RIGHT THRUST REVERSER (AMM 78-31-00/201).
4. DO THE PB MANIFOLD CHECK.
   A. DISCONNECT THE PB MANIFOLD WATER TRAP.
   B. EXAMINE THE TRAP FOR BLOCKAGE (AMM 73-21-04/601).
   C. INSTALL A CAP IN PLACE OF THE PB MANIFOLD WATER TRAP.
   D. DISCONNECT THE PB HOSE FROM THE ADAPTER ON THE EEC.
   E. CONNECT A 0-1000 PSI PRESSURE GAGE TO AN AIR OR NITROGEN SUPPLY.
   F. USE AN EXTENSION LINE TO CONNECT THE OUTPUT OF THE AIR/NITROGEN SUPPLY GAGE TO THE DISCONNECTED END OF THE PB HOSE.
   G. DISCONNECT THE PB TUBE AT THE DIFFUSER CASE.
   H. COVER THE MANIFOLD AT THE DIFFUSER END WITH A SCREEN, OR EQUIVALENT, TO CATCH ANY LOOSENED BLOCKAGE.

   NOTE: THE USUAL CAUSE OF THE PB MANIFOLD BLOCKAGE IS ICE THAT FORMS NEAR THE TEE-FITTING ABOVE THE WATER TRAP. A HEAT SOURCE IS NEEDED TO MELT THIS ICE.

   I. APPLY HEAT (LESS THAN 200°F [90°C]) TO THE AREA AROUND THE TEE-FITTING ABOVE THE WATER TRAP TO MELT THE ICE WHILE YOU APPLY THE GAS PRESSURE.
   J. APPLY A MINIMUM OF 10 PSI (69 KPA) OF PRESSURE.
   K. INCREASE THE PRESSURE AS NECESSARY UNTIL THE GAS FLOWS FREELY THROUGH THE LINES.
   L. EXAMINE THE SCREEN FOR BLOCKAGE.
   M. REPEAT THE ABOVE STEPS BUT CONNECT THE GAS PRESSURE SUPPLY TO THE DIFFUSER END AND THE SCREEN TO THE EEC END.
   N. INSTALL A CAP ON THE END OF THE PB MANIFOLD, DISCONNECTED FROM THE EEC.

   CAUTION: DO NOT PUT AIR PRESSURE INTO THE EEC. IF YOU DO, YOU CAN CAUSE DAMAGE TO THE EEC.

   O. APPLY A MINIMUM PRESSURE OF 10 PSIG (89KPA) FROM THE AIR/NITROGEN SUPPLY. INCREASE PRESSURE AND MAKE SURE THERE ARE NO LEAKS FROM THE PB MANIFOLD.
   P. LOOK AND LISTEN FOR SIGNS OF LOOSE FITTINGS, LINE FRACTURE AND OTHER DAMAGE THAT CAN CAUSE LEAKS. CHECK FOR PROPER CLAMP INSTALLATION AND AREAS AROUND CLAMPS TO BE SURE THERE IS NO CHAFFING. USE LEAK CHECK FLUID TO DETECT ANY LEAKS AROUND FITTINGS AND OTHER SUSPECTED LEAK AREAS.
   Q. TORQUE FITTINGS AND REPLACE DAMAGED MANIFOLD SECTIONS AS NECESSARY TO STOP LEAKS.
   R. DISCONNECT THE AIR/NITROGEN SOURCE, PRESSURE GAGE, AND EXTENSION LINE FROM THE PB MANIFOLD.

   CAUTION: DO NOT LUBRICATE THE PB MANIFOLD CONNECTIONS. THIS CAN CAUSE CONTAMINATION OF THE EEC.

   S. REMOVE THE CAP AND CONNECT THE PB MANIFOLD TO THE ADAPTER ON THE EEC.
   T. REMOVE THE CAP AND INSTALL THE PB MANIFOLD WATER TRAP (AMM 73-21-04/601).
   U. TIGHTEN THE COUPLING NUT FOR THE PB MANIFOLD (AT THE EEC) TO 270-300 POUND-INCHES (30.5-33.9 NEWTON-METERS).
   V. CONNECT THE PB MANIFOLD TO THE DIFFUSER.
   W. TIGHTEN THE NUT FOR THE PB MANIFOLD AT THE DIFFUSER CASE TO 270-300 POUND-INCHES (30.5-33.9 NEWTON-METERS).

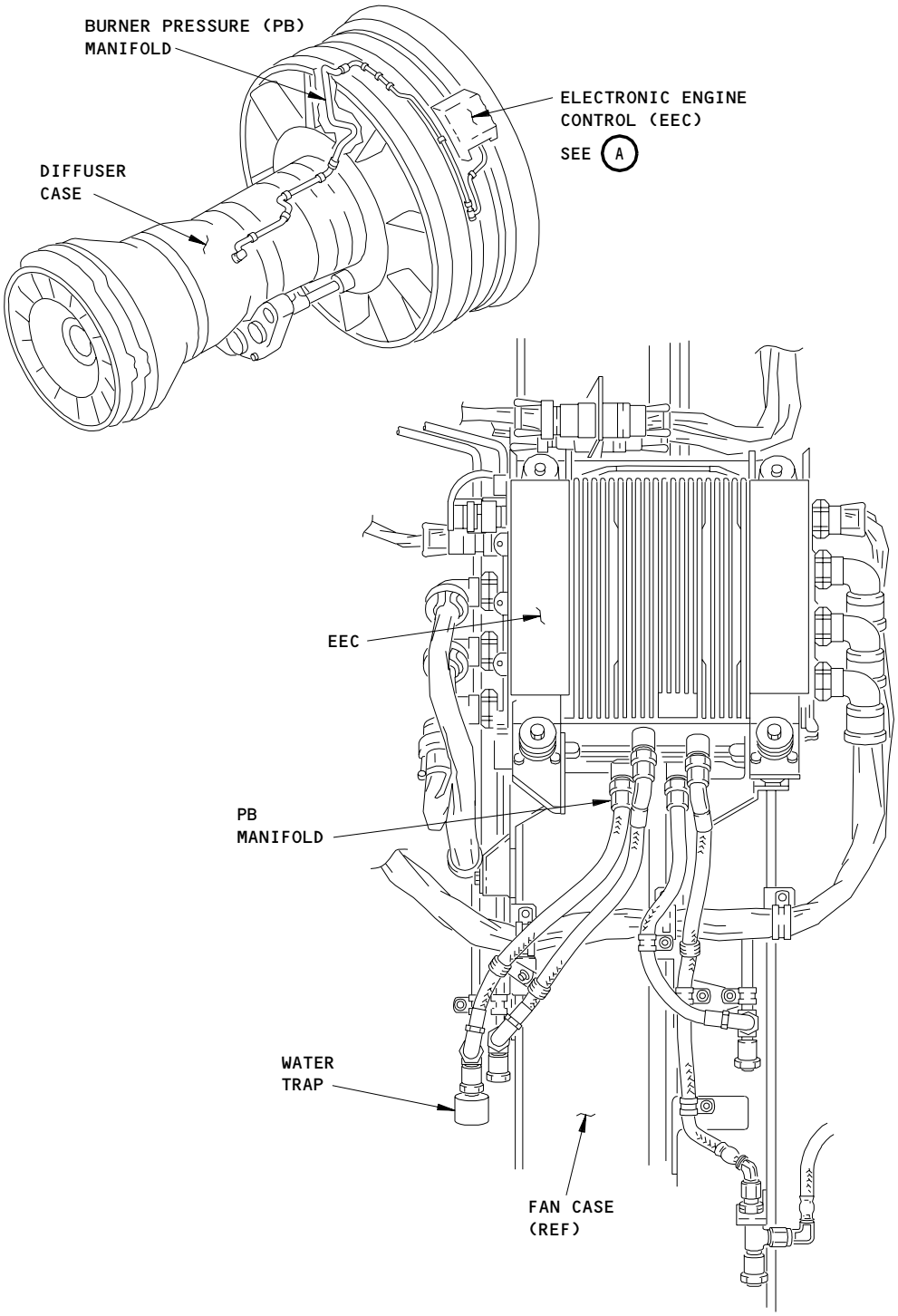
Engine Check 11 - Burner Pressure (PB) Manifold Check
Figure 111 (Sheet 1)

5. PUT THE AIRPLANE BACK TO ITS USUAL CONDITON.

WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) CLOSE THE RIGHT THRUST REVERSER (AMM 78-31-00/201).
(2) CLOSE THE RIGHT CORE COWL PANEL (AMM 71-11-06/201).
(3) CLOSE THE RIGHT FAN COWL PANEL (AMM 71-11-04/201).
(4) DO THE ACTIVATION PROCEDURE FOR THE THRUST REVERSER (AMM 78-31-00/201).

Engine Check 11 - Burner Pressure (PB) Manifold Check
Figure 111 (Sheet 2)



Engine Check 11 – Burner Pressure (PB) Manifold Check
Figure 111 (Sheet 3)

1. GENERAL
   A. THIS PROCEDURE GIVES THE NECESSARY STEPS TO FIND PROBLEMS IN ENGINE WIRE HARNESSES.
   B. IF YOU HAVE INTERMITTENT FAULTS, DO THE PROCEDURE IN STEP 7, INTERMITTENT FAULTS.
   C. IF YOU HAVE A PIMU MAINTENANCE MESSAGE RELATED TO FUEL METERING UNIT (FMU), THERE COULD BE DAMAGE TO THE INTERNAL WIRES OF CONNECTORS W5P1 OR W4P2. THERE CAN BE THREE CAUSES FOR THIS WIRE INSULATION CHAFING:
      (1) LOOSE BACKSHELLS
      (2) ACCIDENTAL DAMAGE DURING REMOVAL OR INSTALLATION
      (3) CHAFING FROM NORMAL ENGINE VIBRATION.
   D. IF YOU FIND DAMAGE ON AN ENGINE WIRING HARNESS, REPAIR THE HARNESS (AMM 71-51-00/801).

   NOTE: WHEN YOU COMPLETE THIS PROCEDURE, MAKE SURE YOU TIGHTEN THE CONNECTORS.

2. EQUIPMENT
   A. WRENCH - GLENAIR TG-70 (OR EQUIVALENT)
   B. WRENCH, STRAP - DANIELS BT-BS-611 (OR EQUIVALENT)
   C. PLIERS, CONNECTOR SOFT JAW - GLENAIR TG-69 (OR EQUIVALENT)
   D. KIT, CONNECTOR ADAPTER - CM-S-837 OR CM-S-839T (OR EQUIVALENT)
3. CONSUMABLES
   A. TAPE - ELECTRICAL INSULATION
4. VISUALLY EXAMINE THE WIRE HARNESS:
   A. EXAMINE THE WIRE HARNESS CONNECTORS AND BACKSHELLS IN THE CIRCUIT. EACH CONNECTOR AND BACKSHELL SHOULD BE TIGHT WITH NO NOTICEABLE LOOSENESS WHEN GRASPED BY THE HAND AND MOVED BACK AND FORTH.

   NOTE: SOME CLAMPS MAY REQUIRE LOOSENING TO ALLOW HARNESS MOVEMENT.

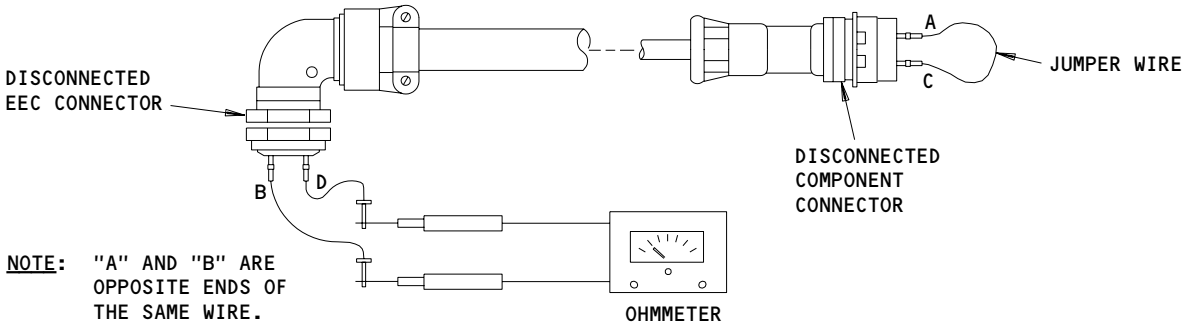
   B. LOOK AT THE HARNESS FOR CUTS, CHAFING, AND OTHER DAMAGE.
   C. IF YOU HAVE A CMCS MAINTENANCE MESSAGE RELATED TO THE FMU, DO A VISUAL CHECK FOR CHAFING OF THE WIRES THAT GO TO THE FMU CONNECTORS W5P1 AND W4P2.
5. EXAMINE THE CONTACTS (PINS/SOCKETS) IN THE CONNECTORS.
   A. FOR THE CIRCUIT YOU WANT TO EXAMINE, DISCONNECT THE APPLICABLE HARNESS CONNECTORS FROM THE EEC AND THE COMPONENT.
   B. EXAMINE THE CONTACTS (PINS/SOCKETS) IN EACH CONNECTOR FOR TIGHTNESS.
   C. LOOK FOR CONTACTS (PINS/SOCKETS) PUSHED REARWARD INTO THE CONNECTOR FACE.
   D. LOOK FOR BENT PINS OR DAMAGED SOCKETS (CONTACTS).
   E. CLEAN THE CONTACTS (PINS/SOCKETS) WITH A CLEAN CLOTH MOIST WITH ISOPROPYL ALCOHOL. BLOW DRY AIR (LESS THAN 30 PSI) ACROSS THE CONNECTOR FACE.
6. TEST EACH CIRCUIT SHOWN IN THE APPLICABLE FIM PROCEDURE AS FOLLOWS:

   NOTE: YOU CAN SHAKE AND TWIST THE WIRE BUNDLES ALONG THE FULL CIRCUIT WHEN YOU DO THESE CHECKS TO CAUSE THE VIBRATION CONDITIONS THAT HAPPEN TO THE WIRE HARNESS.

   A. CONTINUITY CHECK
      (1) CONNECT AN OHMMETER AND JUMPER WIRE (VIEW A) FOR THE CIRCUIT YOU EXAMINE.
         (a) AN OHMMETER INDICATION LESS THAN 10 OHMS (20 OHMS FOR THERMOCOUPLE WIRES/CIRCUITS) INDICATES THE CIRCUIT IS OK.
         (b) AN OHMMETER INDICATION MORE THAN 10 OHMS (20 OHMS FOR THERMOCOUPLE WIRES/CIRCUITS) INDICATES AN OPEN CIRCUIT AND MUST BE REPAIRED.

Engine Check 12 - Wire Harness Check
Figure 112 (Sheet 1)

(2) ISOLATE THE WIRE AS FOLLOWS:
(a) REMOVE THE JUMPER WIRE.
(b) CONNECT THE OHMMETER (VIEW B) AND COMPARE THE RESULTS WITH STEPS (1)(a) AND (1)(b) ABOVE.

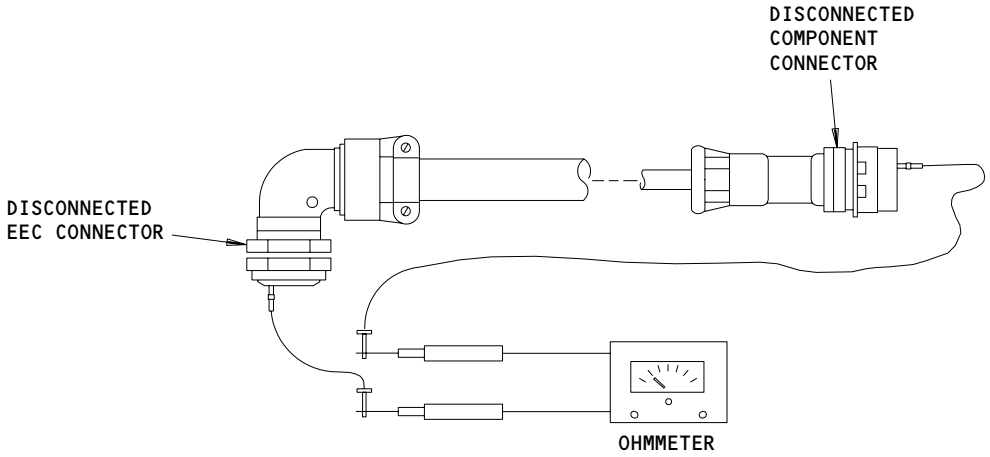


NOTE: "A" AND "B" ARE OPPOSITE ENDS OF THE SAME WIRE.

NOTE: "C" AND "D" ARE OPPOSITE ENDS OF THE SAME WIRE.

CHECK CIRCUIT

(A)

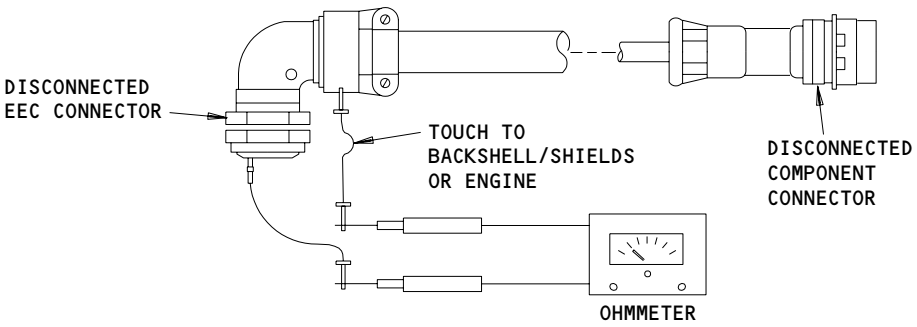


ISOLATE WIRE

(B)

Engine Check 12 – Wire Harness Check
Figure 112 (Sheet 2)

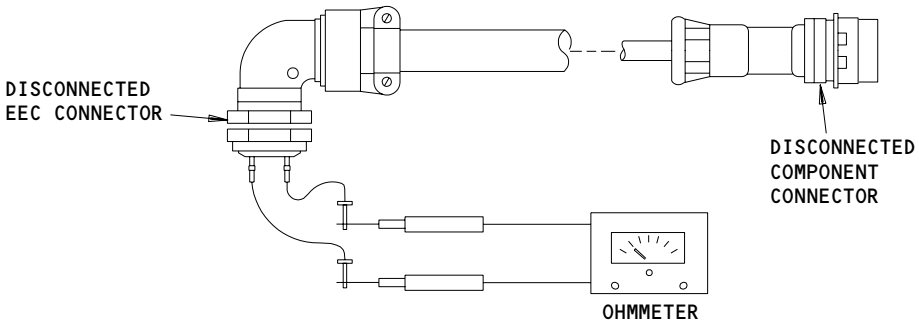
B. SHORT TO GROUND CHECK
(1) CONNECT AN OHMMETER AND JUMPER WIRE (VIEW C) FOR THE CIRCUIT YOU EXAMINE.
(a) AN OHMMETER INDICATION MORE THAN 100K OHMS INDICATES THE WIRE IS OK.
(b) AN OHMMETER INDICATION LESS THAN 100K OHMS INDICATES THE WIRE IS SHORTED TO GROUND AND MUST BE REPAIRED.



SHORT TO GROUND CHECK

C

C. WIRE TO WIRE SHORT CIRCUIT CHECK
(1) CONNECT AN OHMMETER (VIEW D) FOR THE CIRCUIT YOU EXAMINE.
(a) AN OHMMETER INDICATION MORE THAN 100K OHMS INDICATED THE WIRES ARE OK.
AN OHMMETER INDICATION LESS THAN 100K OHMS INDICATES THE WIRES ARE SHORTED AND MUST BE REPAIRED.
(2) DO A WIRE TO WIRE SHORT CIRCUIT CHECK FOR ALL POSSIBLE COMBINATIONS.



WIRE TO WIRE SHORT CIRCUIT CHECK

D

Engine Check 12 – Wire Harness Check
Figure 112 (Sheet 3)

7. INTERMITTENT FAULTS
   A. WHEN YOU DO THE CIRCUIT CHECK, SHAKE AND TWIST THE WIRE BUNDLES ALONG ALL THE CIRCUITS TO SIMULATE THE USUAL ENGINE OPERATING CONDITIONS.
   B. REMOVE EACH CONNECTOR IN THE BAD CIRCUIT ONE AT A TIME, AND EXAMINE IT AS FOLLOWS:
      (1) EXAMINE EACH PIN AND SOCKET (CONTACTS) IN EACH HALF OF THE CONNECTOR TO MAKE SURE THEY ARE TIGHTLY ATTACHED.
      (2) LOOK FOR THE PINS OR THE SOCKETS (CONTACTS) THAT ARE PUSHED INTO THE CONNECTOR FACE.
      (3) LOOK FOR THE BENT CONTACT PINS OR THE DAMAGED SOCKETS (CONTACTS) IN EACH CONNECTOR.
         (a) REPAIR OR REPLACE THE PINS AND SOCKETS (CONTACTS) OR CONNECTORS THAT ARE BENT, LOOSE OR DAMAGED (AMM 71-50-00/801).
      (4) CLEAN THE CONNECTOR PINS AND SOCKETS (CONTACTS) AS FOLLOWS:
         (a) MAKE A CLEAN CLOTH MOIST WITH ISOPROPYL ALCOHOL (OR ANOTHER APPROVED SOLUTION PER SPOP 6) AND USE IT TO CLEAN THE CONTACT PINS AND THE SOCKETS (CONTACTS) OF EACH CONNECTOR.
         (b) USE CLEAN, DRY AIR THAT HAS A PRESSURE LESS THAN 30 PSI TO BLOW ACROSS THE FACE OF EACH CONNECTOR.
            1) THIS WILL DRY THE ISOPROPYL ALCOHOL AND BLOW AWAY THE LOOSE DUST AND UNWANTED MATERIAL.

            NOTE: USUALLY, THE STEPS SHOWN ABOVE WILL CORRECT MOST INTERMITTENT FAULTS. AFTER YOU ASSEMBLE EACH CONNECTOR YOU EXAMINED, DO A CHECK TO SEE IF THE INTERMITTENT FAULT CONTINUES.

      (5) MAKE SURE THAT THE MATING SOCKETS AND PINS FOR EACH CONNECTOR IN THE CIRCUIT HAVE A GOOD INTERFERENCE FIT BY DOING THE FOLLOWING:
         (a) DETERMINE THE SIZE OF THE SOCKETS AND PINS OF THE CONNECTOR TO BE TESTED. USE THE SAME SIZE PINS AND SOCKETS TO MAKE THE TEST LEAD IN THE NEXT STEP.
         (b) MAKE A TEST LEAD APPROXIMATELY 6 INCHES (15.25 CM) LONG, WITH A SOCKET AT ONE END, THE SAME SIZE (GAGE) PIN AT THE OTHER END.
            1) INSERT THE PIN FROM THE TEST LEAD INTO EACH SOCKET OF THE CONNECTOR IN THE SUSPECT CIRCUIT.
               a) MAKE SURE THAT THERE IS SOME RESISTANCE OR FRICTION FELT WHEN YOU TRY TO INSTALL AND REMOVE THE TEST LEAD FROM EACH SOCKET.

            CAUTION: DAMAGE TO THE CONNECTOR CAN RESULT IF YOU TEST A SOCKET WITH A PIN THAT IS NOT THE SAME SIZE.

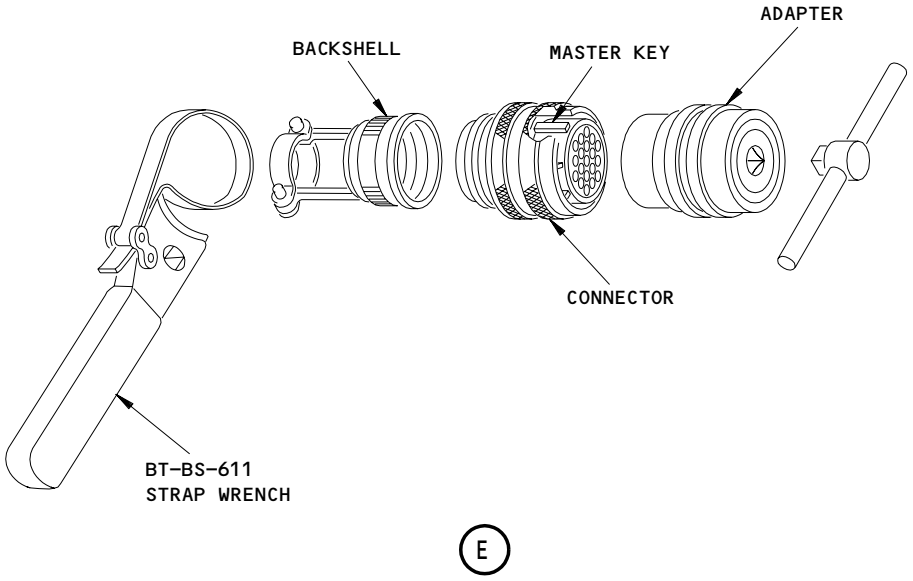
            2) INSERT THE SOCKET FROM THE LEAD ONTO EACH PIN OF THE MATING CONNECTOR IN THE SUSPECT CIRCUIT.
               a) MAKE SURE THAT THERE IS SOME RESISTANCE OR FRICTION FELT WHEN YOU TRY TO INSTALL AND REMOVE THE TEST LEAD FROM EACH PIN.
         (c) REPEAT THE STEPS WITH THE OTHER CONNECTOR CONTACTS BETWEEN THE EEC AND THE COMPONENT, AS NECESSARY. IF YOU FIND A LOOSE FIT, IT COULD BE THE CAUSE OF THE INTERMITTENT FAULT.

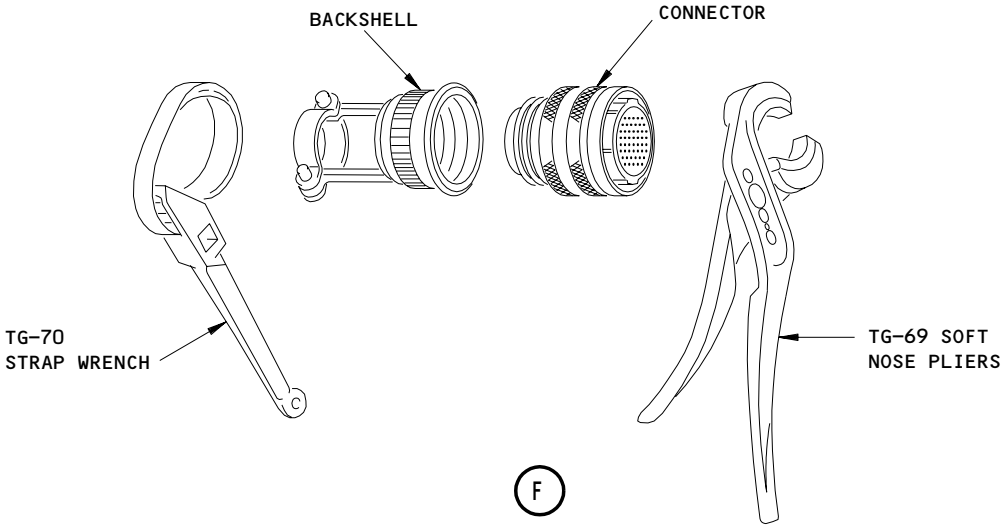
            NOTE: FOR BEST RESULTS, USE A NEW TEST LEAD FOR EACH ELECTRICAL CONNECTOR.

         (d) REPAIR THE PROBLEMS THAT YOU FOUND (AMM 71-50-00/801).
            1) OPTIONAL - APPLY STABILLANT 22, ELECTRICAL CONTACT ENHANCER, TO THE MATING SURFACES OF THE CONNECTOR AFTER CLEANING IF THERE ARE CORROSION DEPOSITS OR IF IT IS WORN OR NOT TIGHT FITTING. USE THE CONTACT ENHANCER FOR A TEMPORARY REPAIR ONLY. REPAIR OR REPLACE THE ELECTRICAL CONNECTOR AT THE NEXT MAINTENANCE OPPORTUNITY.
   C. IF THE INTERMITTENT FAULT STILL SHOWS, DO THE STEPS THAT FOLLOW IN THE SEQUENCE THEY ARE SHOWN:
      (1) DO THE STEPS SHOWN ABOVE AGAIN FOR EACH CONNECTOR ALONG ALL THE CIRCUITS TO MAKE SURE YOU FOUND ALL THE PROBLEMS.
      (2) REPLACE THE APPLICABLE COMPONENT THAT IS SHOWN AS THE SOURCE OF THE FAULT.
      (3) DISASSEMBLE EACH CONNECTOR BACKSHELL ALL ALONG THE CIRCUIT TO EXAMINE THE INNER WIRES FOR CHAFING OR DAMAGE.
         (a) REPAIR OR REPLACE THE WIRES IN THE CONNECTOR BACKSHELL THAT ARE CHAFED OR DAMAGED (AMM 71-50-00/801).
      (4) REPLACE THE APPLICABLE WIRE HARNESS.
      (5) REPLACE THE EEC.

Engine Check 12 - Wire Harness Check
Figure 112 (Sheet 4)

8. CHAFE PROTECTION FOR ELECTRICAL CONNECTOR BACKSHELLS FOR THE FMU
   A. DO THE ELECTRICAL TESTS IN STEP 4.
   B. BEND AND TWIST THE HARNESS DIRECTLY BEHIND THE BACKSHELL TO TRY TO MAKE THE SHORT SHOW.
   C. EXAMINE THE INTERNAL WIRES OF FMU CONNECTOR BACKSHELLS W5P1 AND W4P2 AS FOLLOWS:
      (1) CUT AND REMOVE THE LOCKWIRE FROM THE BACKSHELL ASSEMBLIES.
      (2) LOOSEN THE SCREWS AND REMOVE THE HOSE CLAMP AND STRAIN RELIEF CLAMP ON THE BACKSHELL.
      (3) FOLD THE BRAIDED SHIELDS OVER THE STRAIN RELIEF CLAMP TO MAKE THE SHIELDS STRAIGHT.
      (4) INSTALL THE CORRECT SIZE CONNECTOR ADAPTER ON THE CONNECTOR ASSEMBLY (VIEW E AND F).





Engine Check 12 - Wire Harness Check
Figure 112 (Sheet 5)

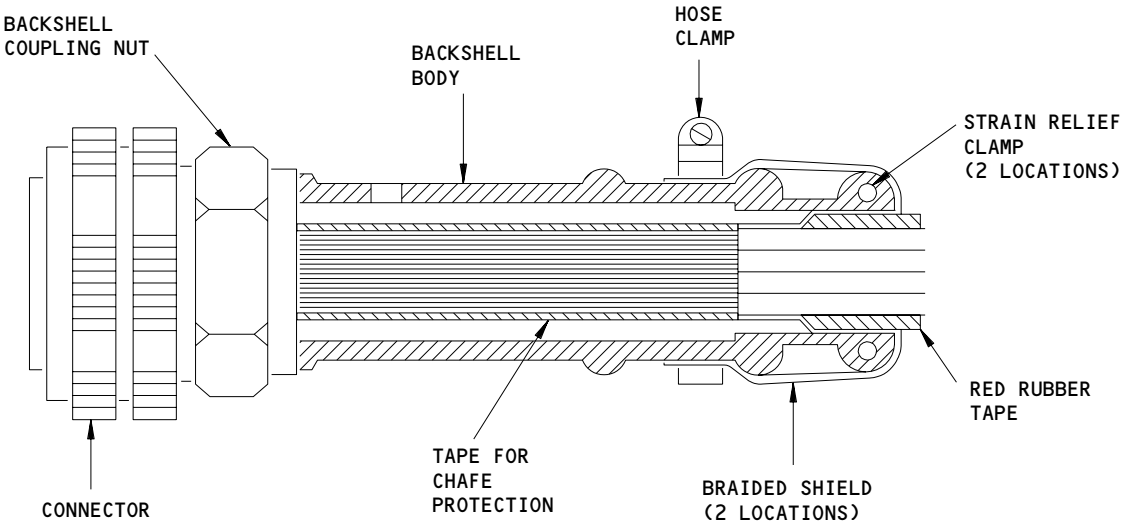
NOTE: THE CONNECTOR ADAPTER KIT HOLDS THE CONNECTOR ASSEMBLY AND PREVENTS MOVEMENT OF THE CONNECTOR WHEN YOU REMOVE THE BACKSHELL. USE THE CM-S-837 OR CM-S-839T CONNECTOR ADAPTER KIT, OR EQUIVALENT.

(5) HOLD THE CONNECTOR AND ADAPTER AND DISCONNECT THE BACKSHELL.

NOTE: USE A TG-70 OR BT-BS-611 STRAP WRENCH OR TG-69 PLIERS, OR EQUIVALENT.

(6) MOVE THE BACKSHELL TO THE REAR OF THE HARNESS AND AWAY FROM THE CONNECTOR.
(7) EXAMINE THE WIRES FOR DAMAGE.
(8) EXAMINE THE CONNECTORS AND COUPLING NUTS FOR DAMAGED THREADS.
(9) REPAIR THE DAMAGED WIRES OR CONNECTORS, AS NECESSARY (AMM 71-50-00/801).

D. USE THE INSULATION TAPE FOR CHAFE PROTECTION OF THE INTERNAL WIRES OF THE FMU CONNECTOR BACKSHELLS.
(1) CLEAN THE CABLE ASSEMBLY WITH THE SOLVENT.
(2) WIND THE INSULATION TAPE AROUND THE WIRES INSIDE THE BACKSHELL, IF THERE IS SPACE (VIEW G).



(3) CONNECT THE BACKSHELL TO THE CONNECTOR:
(a) HOLD THE CONNECTOR IN YOUR HAND AND MOVE THE BACKSHELL OVER THE HARNESS AND THE FOLDED BRAIDED SHIELD.
(b) CONNECT THE BACKSHELL COUPLING NUT TO THE CONNECTOR.
(c) TIGHTEN THE COUPLING NUT BY HAND TO ENGAGE THE ANTI-ROTATION TEETH.
(d) INSTALL THE CORRECT SIZE OF CONNECTOR ADAPTER ON THE CONNECTOR ASSEMBLY.

NOTE: THE CONNECTOR ADAPTER KIT IS USED TO HOLD THE CONNECTOR ASSEMBLY AND PREVENT MOVEMENT OF THE CONNECTOR WHEN YOU INSTALL THE BACKSHELL. USE THE CM-S-837 OR CM-S-839T CONNECTOR ADAPTER KIT, OR EQUIVALENT.

(e) TIGHTEN THE BACKSHELL COUPLING NUT TO THE CONNECTOR UNTIL THE METAL SURFACE OF THE COUPLING NUT TOUCHES THE METAL SURFACE OF THE CONNECTOR.

NOTE: USE A TG-70 OR BT-BS-611 STRAP WRENCH, OR EQUIVALENT. THE RUBBER STRAP ON THE STRAP WRENCH WILL NOT HOLD THE BACKSHELL IF YOU APPLY TOO MUCH FORCE.

Engine Check 12 - Wire Harness Check
Figure 112 (Sheet 6)

(4) INSTALL THE BACKSHELL STRAIN-RELIEF CLAMP (VIEW G).
    (a) ALIGN THE HARNESS IN EACH HALF OF THE STRAIN-RELIEF CLAMP.
        1) MAKE SURE THE HARNESS IS STRAIGHT.
    (b) MAKE SURE THE TWO BRAIDED SHIELD GROUPS GO BETWEEN THE RED RUBBER TAPE AND THE STRAIN-RELIEF CLAMP HALVES.
        1) DO THIS FOR EACH SIDE OF THE CLAMP HALVES.
    (c) TIGHTEN THE STRAIN-RELIEF CLAMP SCREWS EQUALLY TO ENGAGE THE HARNESS IN THE CLAMP CORRECTLY.
        1) MAKE SURE THE BRAIDED SHIELDS ARE STRAIGHT.
    (d) CONTINUE TO TIGHTEN THE SCREWS UNTIL THE CLAMP BARS TOUCH.
        1) THE HARNESS MUST NOT MOVE IN THE CLAMP.
        2) IF THE HARNESS IS NOT TIGHT IN THE CLAMP, REPEAT THE STEP TO ADD THE RED RUBBER TAPE AROUND THE HARNESS ASSEMBLY.
        3) IF THE CLAMP BAR SURFACES DO NOT TOUCH, REMOVE SOME OF THE RED RUBBER TAPE.
    (e) TORQUE THE SCREWS TO 20 POUND-INCHES (2.26 NEWTON METERS).
    (f) FOLD THE TWO GROUPS OF THE BRAIDED SHIELD OVER THE STRAIN-RELIEF CLAMPS AND INTO THE REAR GROOVE OF THE BACKSHELL.
    (g) TO HOLD THE BRAIDED SHIELD, INSTALL THE HOSE CLAMP ON THE REAR BACKSHELL GROOVE OVER THE BRAIDED SHIELDS.
    (h) TIGHTEN AND TORQUE THE HOSE CLAMP SCREWS TO 20 POUND-INCHES (2.26 NEWTON METERS).
    (i) IF NECESSARY, CUT THE FRONT SIDE OF THE BRAIDED SHIELD TO THE FRONT OF THE CLAMP.
    (j) DO AN OPERATIONAL CHECK OF THE SYSTEM.

Engine Check 12 - Wire Harness Check
Figure 112 (Sheet 7)

OIL LEAK CHECK

A. GENERAL

(1) THIS PROCEDURE DOES A CHECK OF THE ENGINE TO FIND OIL LEAKS. THE LOCATIONS CHECKED ARE AS FOLLOWS:

(a) LOW PRESSURE TURBINE AND EXHAUST CASE AREA
(b) EXHAUST PLUG AND EXHAUST SLEEVE AREA
(c) NO. 3 SCAVENGE LINE
(d) PRESSURE LINE FOR THE ANGLE GEARBOX
(e) DIFFERENTIAL PRESSURE SWITCH FOR THE OIL FILTER
(f) OIL PRESSURE LINE FOR THE NO. 3 BEARING
(g) MAIN OIL LINE
(h) ENGINE DRAINS
(i) OIL PRESSURE TRANSMITTER AND WARNING SWITCH FOR THE LOW OIL PRESSURE
(j) HOUSING FLANGE FOR THE CONNECTOR FOR THE MAIN OIL BEARING
(k) MATING FLANGE FOR THE OIL COOLER BYPASS VALVE
(l) NO. 3 BREATHER TUBE
(m) SCAVENGE OIL TUBE FOR THE NO. 4 BEARING
(n) MATING FLANGE FOR THE COVER FOR THE MAIN OIL FILTER
(o) FILLER NECK AND OIL CAP FOR THE MAIN OIL TANK
(p) INLET CONE AND WEEP HOLE LOCATIONS
(q) FAN BLADES AND FAN CASE STRUT
(r) 2.5 BLEED AREA
(s) OVERBOARD BREATHER.

NOTE: A LEAK DETECTION TEST WITH RED DYE MAY BE NECESSARY TO FIND THESE LEAKS (AMM 79-00-00/601).

B. REFERENCES

(1)	AMM 71-00-02/401	POWER PLANT
(2)	AMM 71-11-04/201	FAN COWL PANELS
(3)	AMM 71-11-06/201	CORE COWL PANELS
(4)	AMM 71-71-00/601	ENGINE VENTS AND DRAINS
(5)	AMM 72-00-00/201	ENGINE GAS PATH
(6)	AMM 72-54-01/201	TURBINE EXHAUST CASE
(7)	AMM 78-11-02/401	TURBINE EXHAUST PLUG
(8)	AMM 78-31-00/201	THRUST REVERSER SYSTEM
(9)	AMM 79-00-00/601	OIL - GENERAL
(10)	AMM 79-11-01/401	ENGINE OIL TANK
(11)	AMM 79-11-03/201	ENGINE OIL TANK CAP
(12)	AMM 79-21-01/401	FUEL/OIL COOLER AND BYPASS VALVE
(13)	AMM 79-21-05/401	MAIN OIL FILTER

C. ACCESS

(1) LOCATIONS ZONES:

411 ENGINE, LEFT
421 ENGINE, RIGHT

(2) ACCESS PANELS:

413AL FAN COWL PANEL, LEFT ENGINE
414AR FAN COWL PANEL, LEFT ENGINE
415AL FAN REVERSER, LEFT ENGINE
416AR FAN REVERSER, LEFT ENGINE
417AL CORE COWL, LEFT ENGINE
418AR CORE COWL, LEFT ENGINE
423AL FAN COWL PANEL, RIGHT ENGINE
424AR FAN COWL PANEL, RIGHT ENGINE
425AL FAN REVERSER, RIGHT ENGINE
426AR FAN REVERSER, RIGHT ENGINE
427AL CORE COWL, RIGHT ENGINE
428AR CORE COWL, RIGHT ENGINE

Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 1)

D. DO THE OIL LEAK CHECK
(1) OPEN THE FAN COWL PANELS (AMM 71-11-04/201).

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

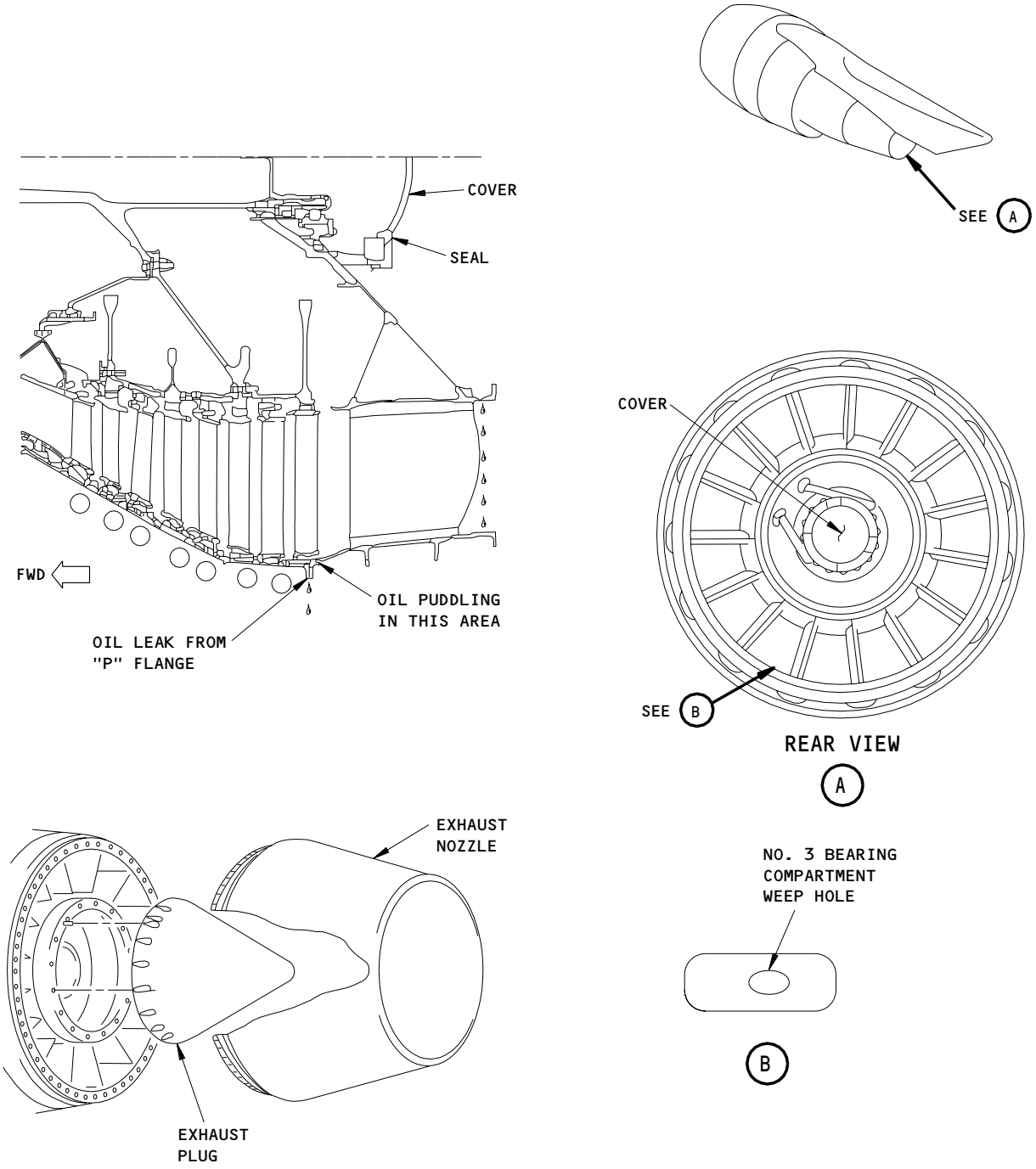
(2) DO THIS PROCEDURE: THRUST REVERSER DEACTIVATION FOR GROUND MAINTENANCE (AMM 78-31-00/201).
(3) OPEN THE CORE COWL PANELS (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN (AMM 78-31-00/201) WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(4) OPEN THE THRUST REVERSERS (AMM 78-31-00/201).
(5) MAKE SURE THE ENGINE WAS NOT OPERATED FOR A MINIMUM OF FIVE MINUTES.
(6) EXAMINE THE ENGINE EXHAUST AREA.
(a) LOOK FOR OIL STREAKS ON THE INNER SIDE OF THE TURBINE EXHAUST SLEEVE AND THE OUTER SIDE OF THE TURBINE EXHAUST PLUG.
(b) LOOK AT THE LAST STAGE OF THE LOW PRESSURE TURBINE (LPT) AND TURBINE EXHAUST CASE AT THE 6 O'CLOCK POSITION FOR SIGNS OF OIL LEAKAGE PAST THE NO. 4 BEARING COMPARTMENT COVER SEAL. OIL LEAKAGE FROM THE HOLE AT THE 6 O'CLOCK POSITION JUST FORWARD OF THE EXHAUST PLUG MOUNTING FLANGE AND POSSIBLY PUDDLING IN THE AREA OF THE LAST STAGE OF THE LOW PRESSURE TURBINE (LPT) IS A SIGN OF AN OIL LEAK FROM THE NO. 4 BEARING COMPARTMENT COVER SEAL.
(c) IF ANY OIL IS PRESENT, REMOVE THE EXHAUST PLUG (AMM 78-11-02/401) AND REPLACE THE SEAL PER AMM 72-54-04/401. WHEN THE BEARING COMPARTMENT COVER IS REMOVED, LOOK FOR SIGNS OF COKING IN THE BEARING COMPARTMENT FOR ENGINES THAT HAVE NOT INCORPORATED PW4ENG 79-76 AND PW4ENG 72-472. REFER TO PW4ENG A72-436 FOR INSPECTION PROCEDURES.
(d) LOOK AT THE LAST STAGE OF THE LOW PRESSURE TURBINE (LPT), TURBINE EXHAUST CASE AND EXHAUST NOZZLE FOR A SIGN OF OIL LEAKAGE FROM THE NO. 3 BEARING COMPARTMENT WEEP HOLE. THE WEEP HOLE IS THE OVAL HOLE AT THE 7 O'CLOCK POSITION IN THE TURBINE EXHAUST CASE JUST FORWARD OF THE T FLANGE. OIL LEAKAGE FROM THE WEEP HOLE AND POSSIBLY PUDDLING IN THE AREA OF THE LAST STAGE OF THE LOW PRESSURE TURBINE (LPT) IS A SIGN OF AN OIL LEAK FROM THE NO. 3 BEARING COMPARTMENT SEALS. IF OIL IS PRESENT, MONITOR ENGINE OIL CONSUMPTION. VISUALLY CHECK FOR LEAKAGE AT THE NO. 4 SCAVENGE JOINTS. RETORQUE IF NECESSARY. REMOVE THE ENGINE (AMM 71-00-02/401) IF OIL CONSUMPTION IS MORE THAN THE LIMITS FOUND IN AMM 71-00-00/201.

NOTE: IF OIL WETTING OF THE LPT BLADE TIPS IS PRESENT AND THE OIL CONSUMPTION IS WITHIN THE AMM LIMITS, YOU CAN OPERATE THE ENGINE TO THE NEXT MAINTENANCE BASE IF NECESSARY. OIL WETTING OF THE ENTIRE LENGTH OF THE LPT BLADES INDICATES THAT THE LAST STAGE LPT TURBINE DISK HAS BEEN OIL WETTED. REMOVE THE ENGINE (AMM 71-00-02/401). IF THE OIL CONSUMPTION IS WITHIN THE AMM LIMITS, YOU CAN OPERATE THE ENGINE TO THE NEXT MAINTENANCE BASE IF NECESSARY TO PERFORM THE MAINTENANCE.

Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 2)



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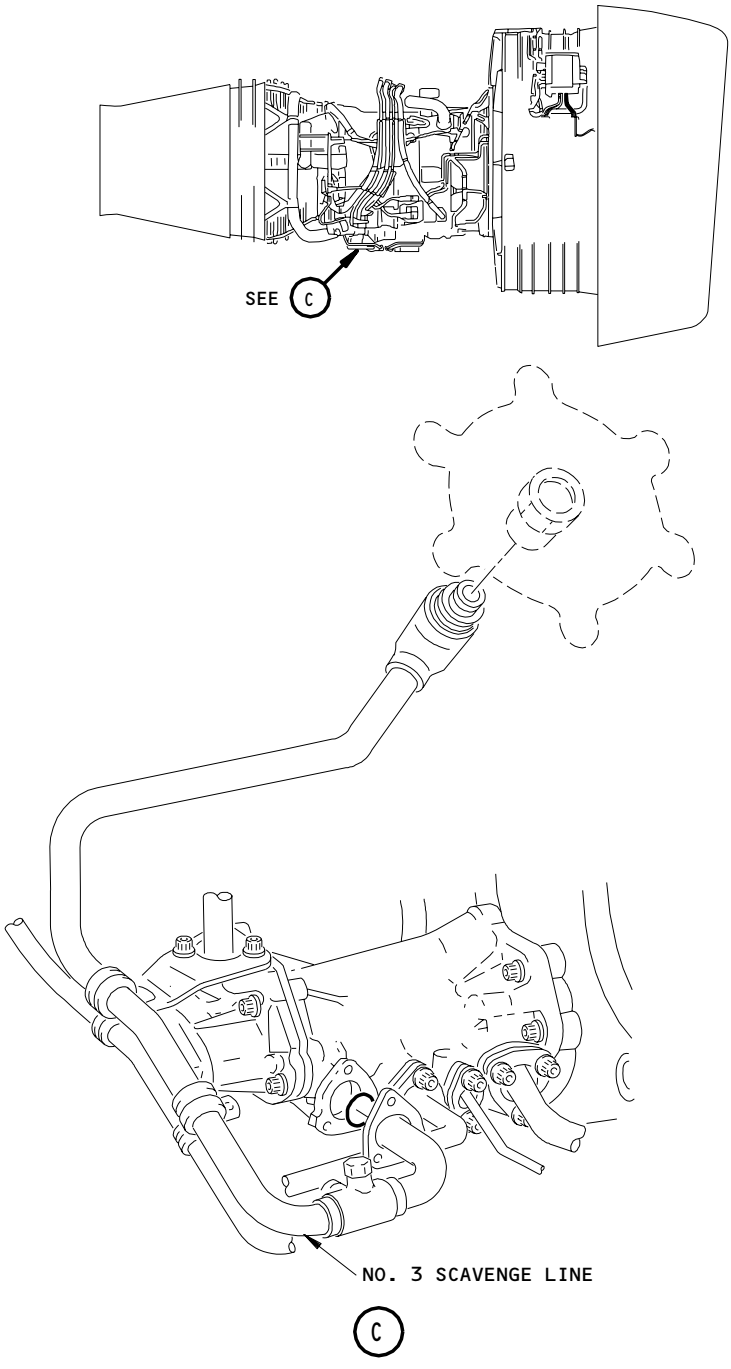
Engine Check 13 – Oil Leak Check
Figure 113 (Sheet 3)

(7) EXAMINE THE NO. 3 SCAVENGE LINE.
    (a) LOOK FOR OIL LEAKAGE ALONG ALL OF THE NO. 3 SCAVENGE LINE.

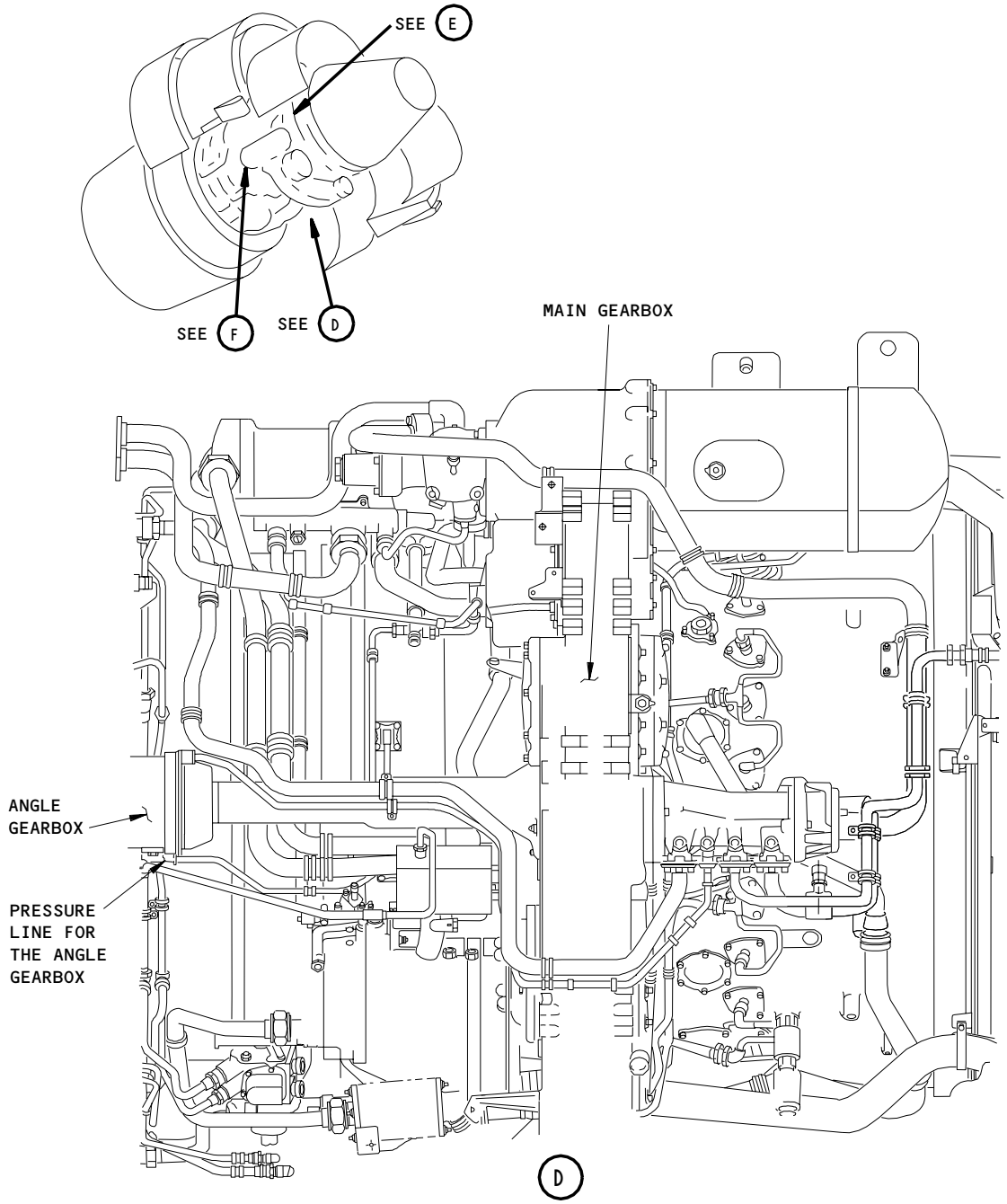
        NOTE: MAKE SURE YOU LOOK CAREFULLY AT LOCATIONS WITH CLAMPS.

    (b) MAKE SURE THE "B" NUT LOCATED AT THE DIFFUSER CASE IS TIGHT.
    (c) REPAIR AND REPLACE PARTS AS NECESSARY.

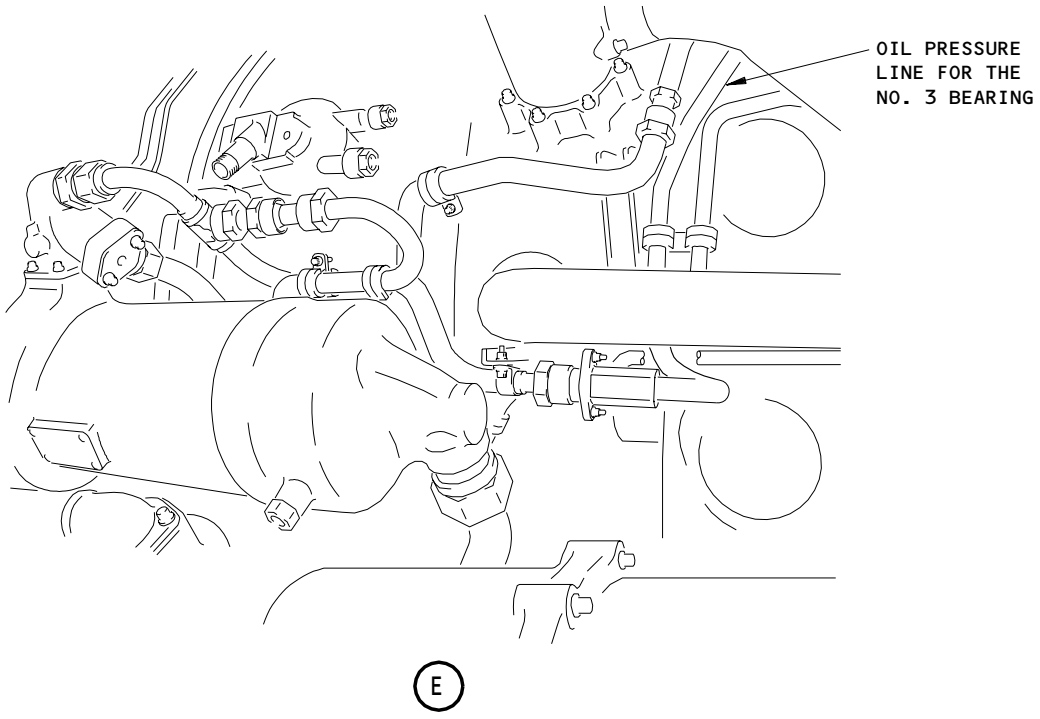


Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 4)

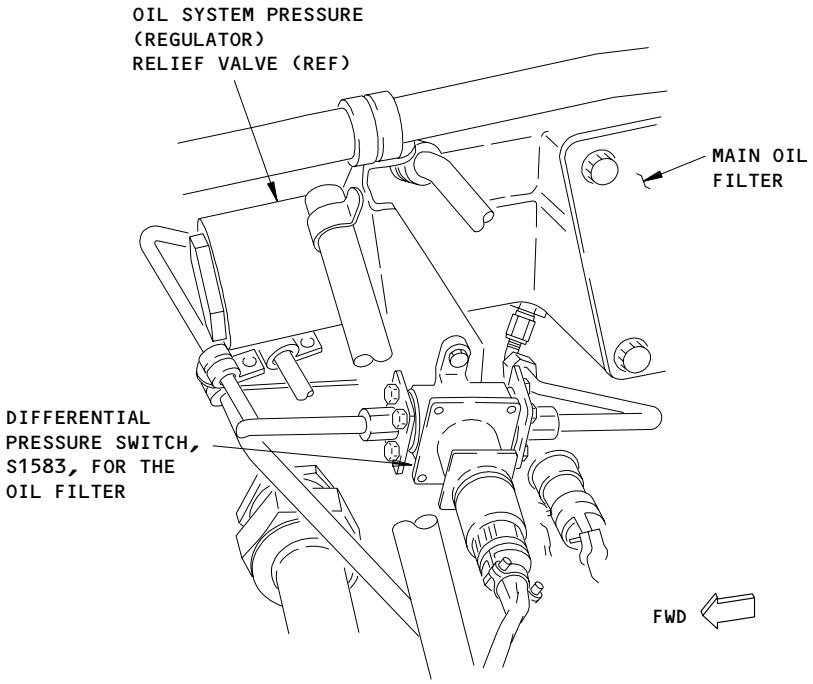
(8) EXAMINE THE PRESSURE LINE FOR THE ANGLE GEARBOX, THE OIL PRESSURE LINE FOR THE NO. 3 BEARING, AND THE DIFFERENTIAL PRESSURE SWITCH FOR THE OIL FILTER.
    (a) MAKE SURE THESE "B" NUTS ARE TIGHT AND DO NOT LEAK OIL:
        1) THE PRESSURE LINE FOR THE ANGLE GEARBOX
        2) THE OIL PRESSURE LINE FOR THE NO. 3 BEARING
        3) THE DIFFERENTIAL PRESSURE SWITCH FOR THE OIL FILTER.
    (b) LOOK FOR OIL LEAKAGE ALONG ALL OF THE ABOVE LINES.
    (c) REPAIR AND REPLACE PARTS AS NECESSARY.



Engine Check 13 – Oil Leak Check
Figure 113 (Sheet 5)



E



(VIEW IN THE UP DIRECTION)

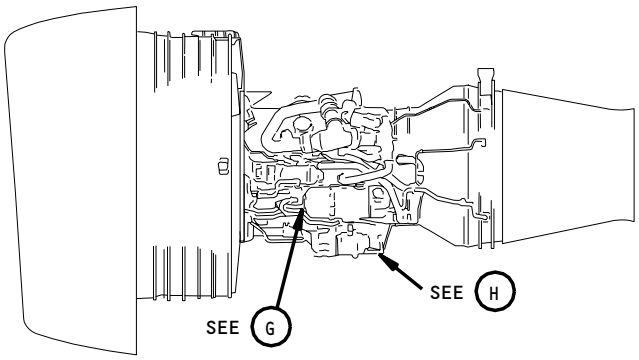
F

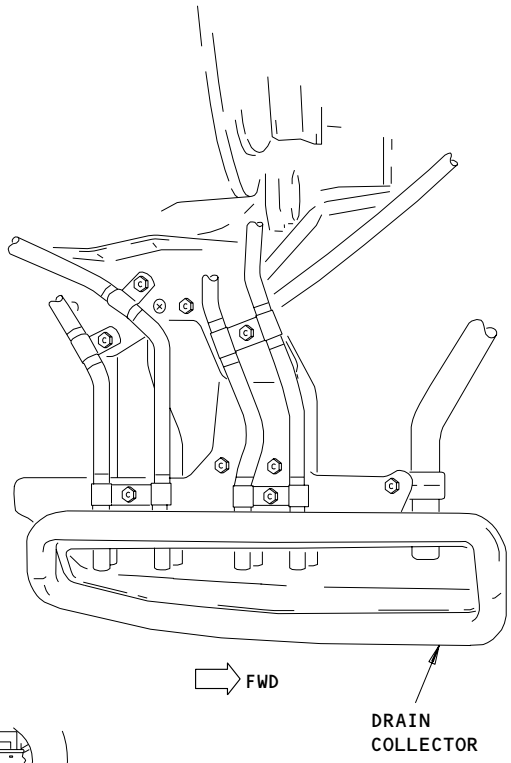
Engine Check 13 – Oil Leak Check
Figure 113 (Sheet 6)

(9) EXAMINE THE MAIN OIL LINE AND ENGINE DRAINS
(a) LOOK FOR OIL LEAKAGE ALONG ALL OF THE MAIN OIL LINE.

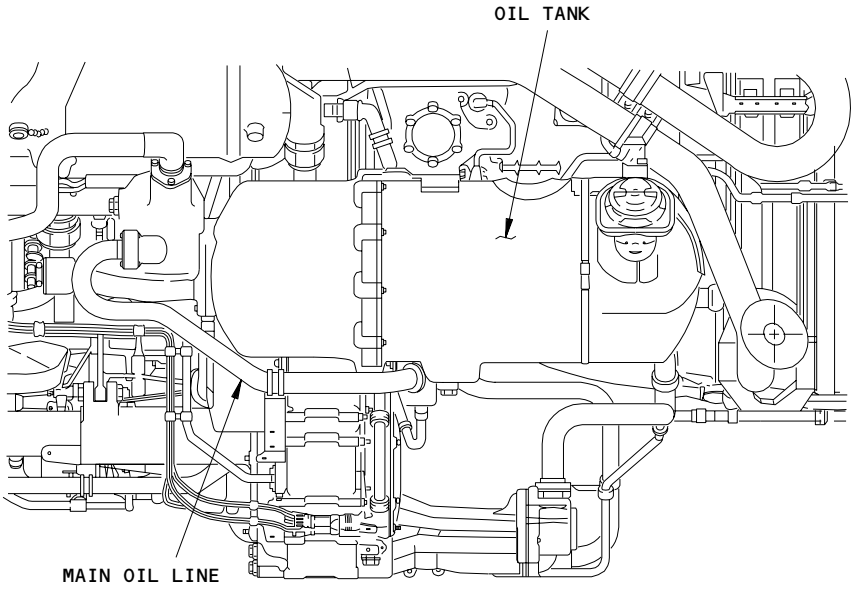
NOTE: MAKE SURE YOU LOOK CAREFULLY AT LOCATIONS WITH CLAMPS.

(b) LOOK AT THE "B" NUTS AT EACH END OF THE MAIN OIL LINE AND MAKE SURE THEY ARE TIGHT.
(c) REPAIR AND REPLACE PARTS AS NECESSARY.
(d) LOOK FOR OIL LEAKAGE AT THE ENGINE DRAINS.
1) IF YOU SEE OIL LEAKAGE, DO THE INSPECTION FOR THE ENGINE VENTS AND DRAINS (AMM 71-71-00/601).





ENGINE DRAINS
H



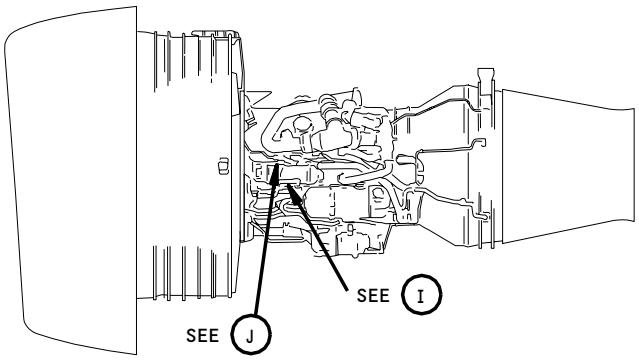
G

Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 7)

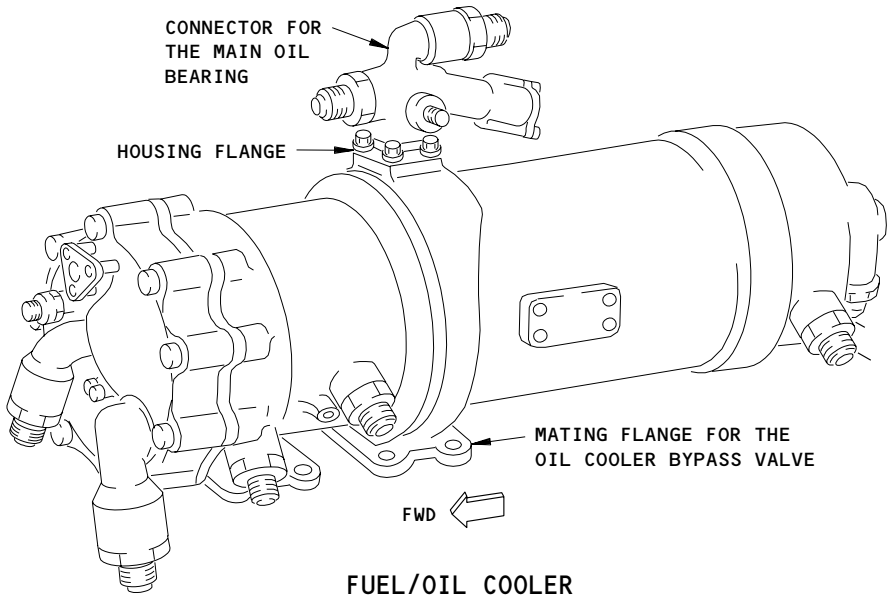
(10) EXAMINE THE OIL PRESSURE TRANSMITTER, THE WARNING SWITCH FOR THE LOW OIL PRESSURE, THE CONNECTOR FOR THE MAIN OIL BEARING, AND THE BYPASS VALVE FOR THE FUEL OIL COOLER.
  (a) LOOK AT THESE LINES AND "B" NUTS:
    1) THE OIL PRESSURE TRANSMITTER
    2) THE WARNING SWITCH FOR THE LOW OIL PRESSURE
  (b) REPAIR AND REPLACE DAMAGED COMPONENTS AS NECESSARY.
  (c) LOOK AT THE HOUSING FLANGE FOR THE CONNECTOR FOR THE MAIN OIL BEARING.
    1) IF THERE IS OIL LEAKAGE, REPLACE THE HOUSING.

      NOTE: AN OIL LEAK IN THIS AREA MAY BE FROM A SMALL CRACK IN THE CONNECTOR HOUSING OR FROM A DAMAGED "O" RING. IT IS POSSIBLE YOU MAY NOT FIND THIS LEAK AT LOW OIL PRESSURE.

  (d) LOOK AT THE MATING FLANGE FOR THE OIL COOLER BYPASS VALVE.
  (e) IF THERE IS OIL LEAKAGE, REPLACE THE GASKET BETWEEN THE BYPASS VALVE AND THE FUEL OIL COOLER (AMM 79-21-01/401).

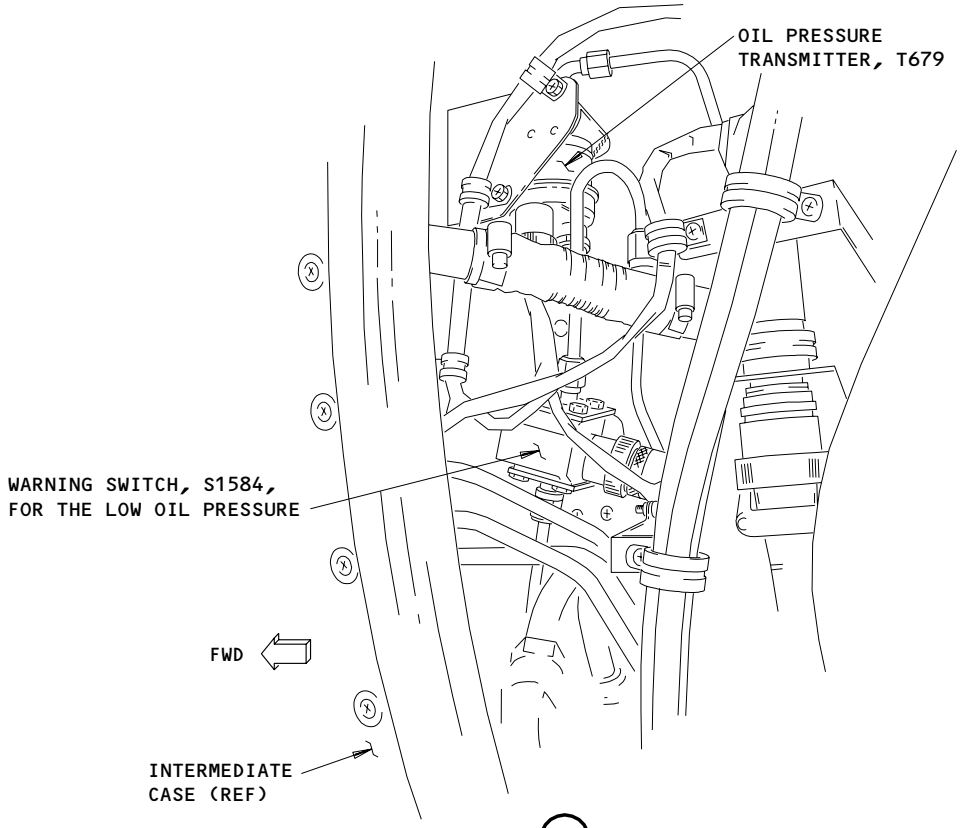


Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 8)



FUEL/OIL COOLER

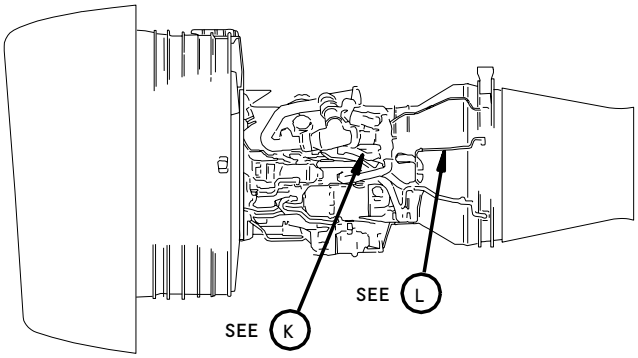
I

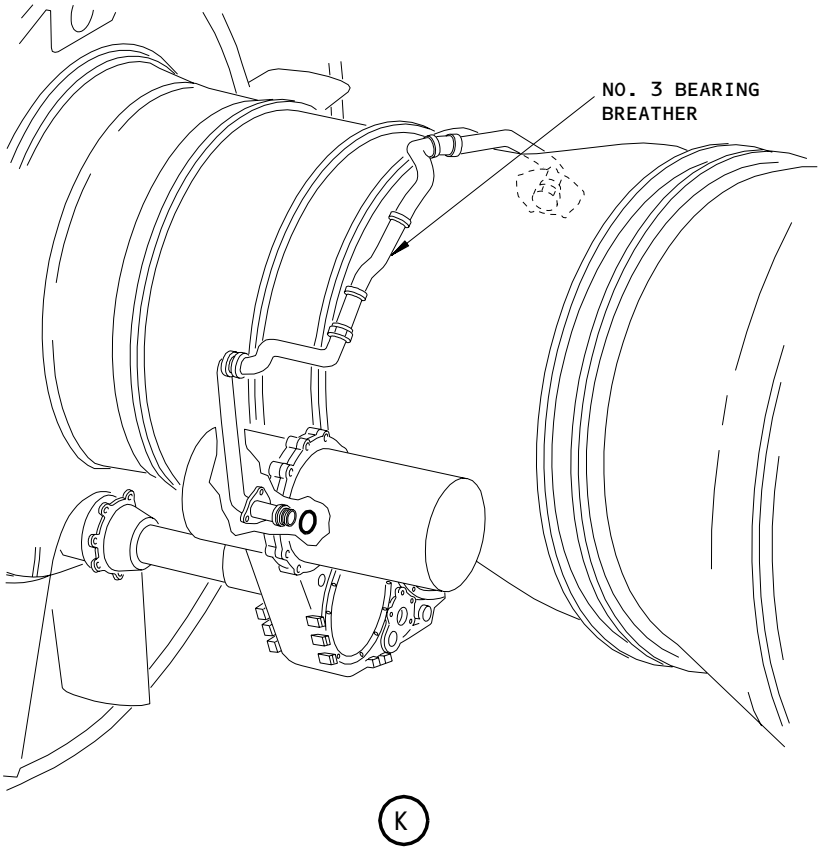


J

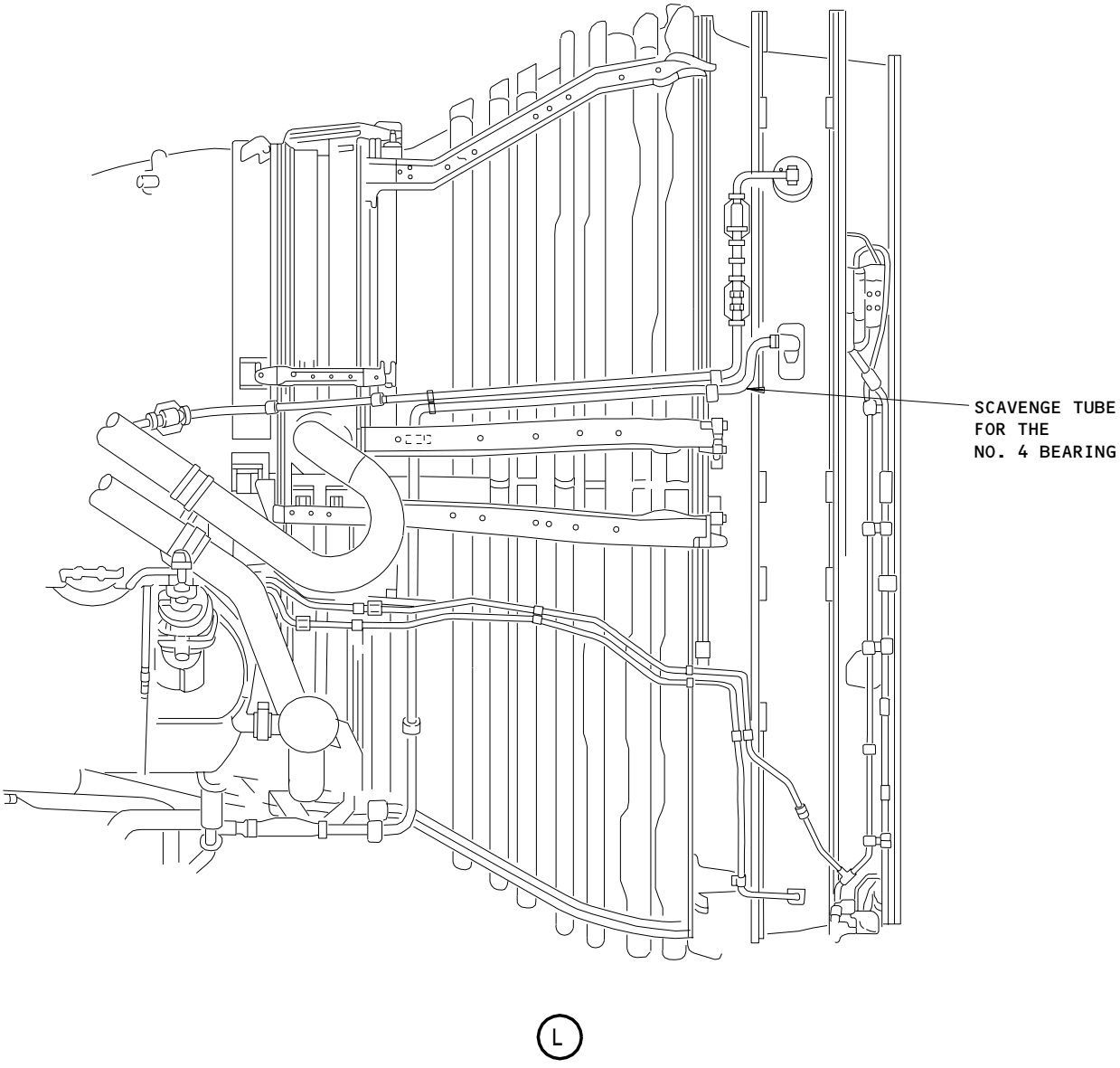
Engine Check 13 – Oil Leak Check
Figure 113 (Sheet 9)

(11) EXAMINE THE NO. 3 BEARING BREATHER AND THE SCAVENGE TUBE FOR THE NO. 4 BEARING.
  (a) LOOK FOR OIL LEAKAGE ALONG ALL OF THESE AREAS:
    1) THE NO. 3 BEARING BREATHER TUBE
    2) THE SCAVENGE TUBE FOR THE NO. 4 BEARING
  (b) MAKE SURE THE "B" NUTS THAT ATTACH TO THESE TUBES ARE TIGHT.
  (c) REPAIR AND REPLACE DAMAGED COMPONENTS AS NECESSARY.



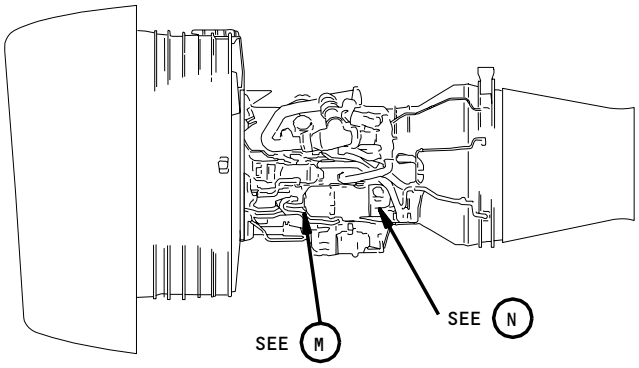


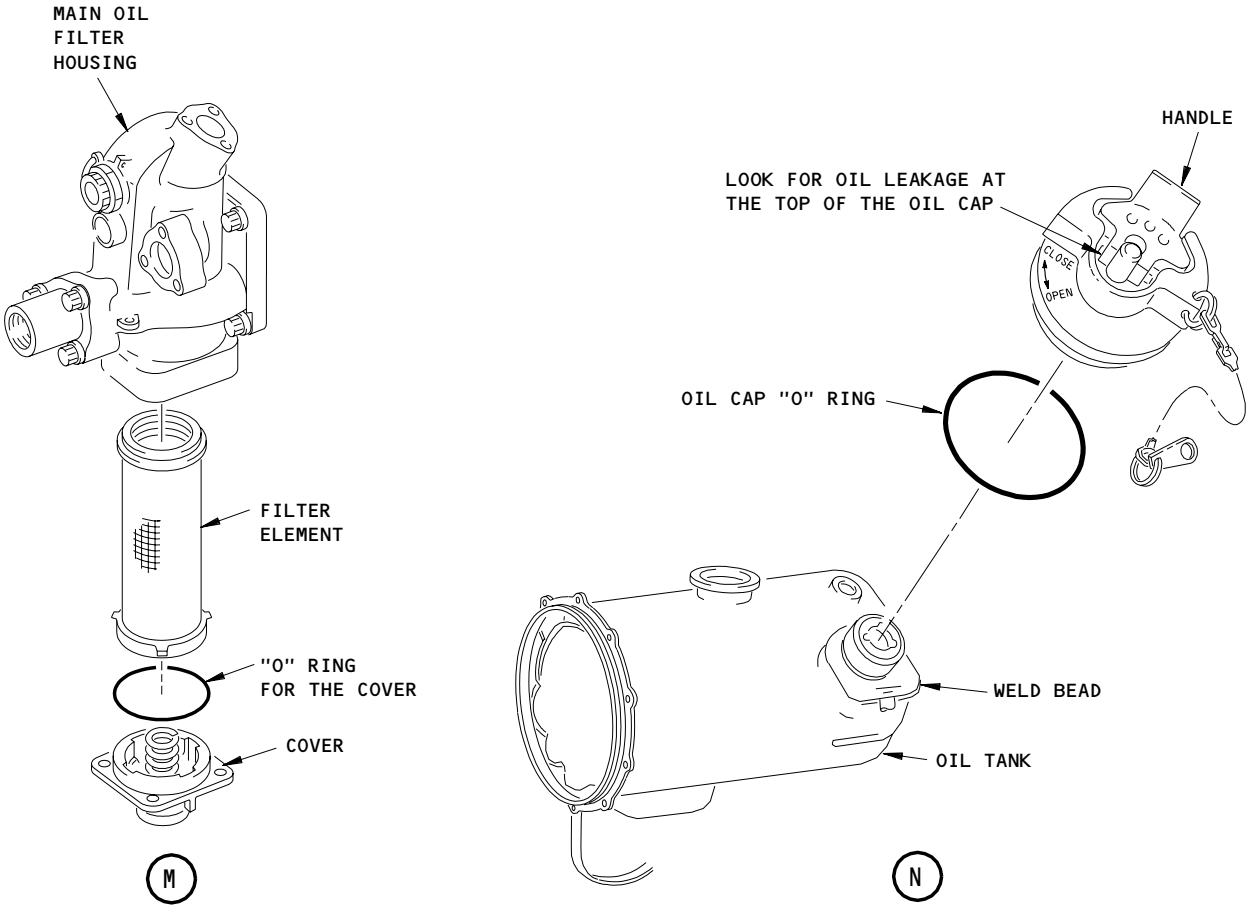
Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 10)



Engine Check 13 – Oil Leak Check
Figure 113 (Sheet 11)

(12) EXAMINE THE COVER FOR THE MAIN OIL FILTER AND THE FILLER NECK AND OIL CAP FOR THE OIL TANK.
(a) LOOK AT THE MATING FLANGE FOR THE COVER FOR THE MAIN OIL FILTER.
1) IF THERE IS OIL LEAKAGE, REPLACE THE "O" RING FOR THE OIL FILTER COVER (AMM 79-21-05/401).
(b) LOOK AT THE WELD BEAD AROUND THE FILLER NECK FOR THE OIL TANK.
1) IF THERE IS OIL LEAKAGE REPLACE THE OIL TANK (AMM 79-11-01/401).
(c) MAKE SURE THE OIL CAP "O" RING IS INSTALLED AND NOT DAMAGED.
(d) LOOK FOR OIL LEAKAGE AT THE TOP OF THE OIL CAP NEAR THE HANDLE.
1) IF OIL LEAKAGE IS FOUND, REPLACE THE OIL CAP (AMM 79-11-03/201).

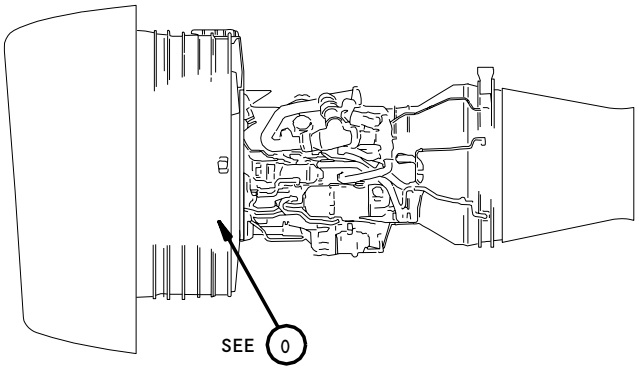


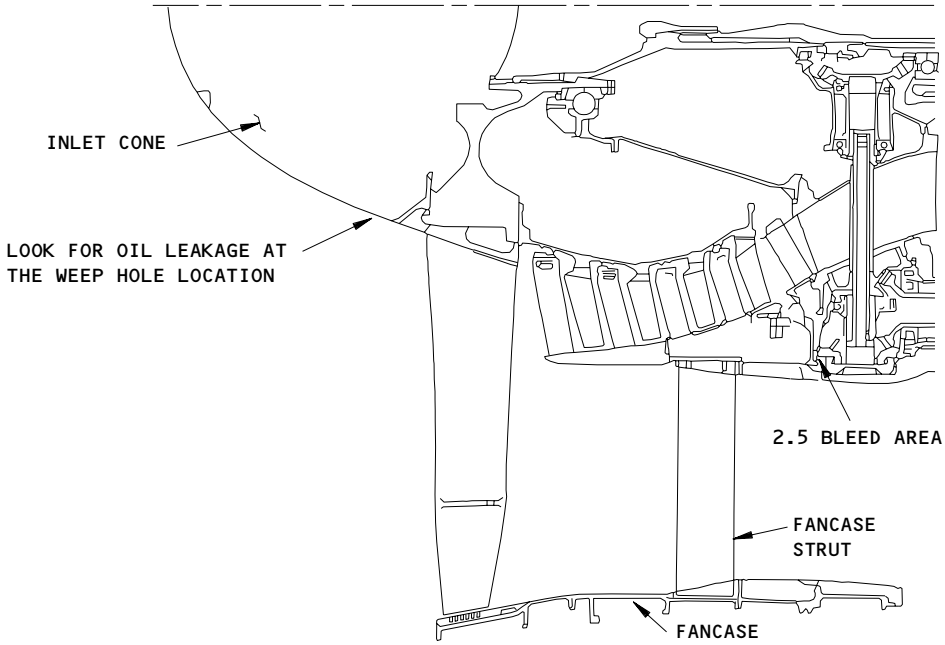


Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 12)

(13) EXAMINE THE FAN INLET, FAN EXIT, AND THE 2.5 BLEED AREA.
  (a) LOOK FOR OIL LEAKAGE AND AREAS WHERE OIL COLLECTS FOR THESE LOCATIONS:
    1) AT THE SURFACE OF THE INLET CONE
    2) AT WEEP HOLE LOCATIONS
    3) AT THE 2.5 BLEED AREA
    4) AT THE STRUT AT THE 6 O'CLOCK POSITION
    5) AT THE BOTTOM OF THE FAN EXIT CASE
    6) AT THE SURFACE OF THE FAN BLADES
  (b) FIND OUT IF THE FLIGHT CREW SMELLED OIL FUMES WHILE THE ENGINES OPERATED.
  (c) IF THERE WAS OIL LEAKAGE IN ANY OF THE ABOVE AREAS AND OIL FUMES IN THE CABIN, THERE IS A BEARING SEAL LEAK.
    1) REPLACE THE ENGINE (AMM 71-00-02/401)

NOTE: A SMALL QUANTITY OF OIL LEAKAGE IS PERMITTED. ONLY REPLACE THE ENGINE IF YOU FIND NO OTHER OIL LEAKS AND OIL USE IS HIGH. USUAL OIL USE IS LESS THAN 0.1 QUARTS PER HOUR. MAXIMUM OIL USE IS 0.5 QUARTS PER HOUR.





Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 13)

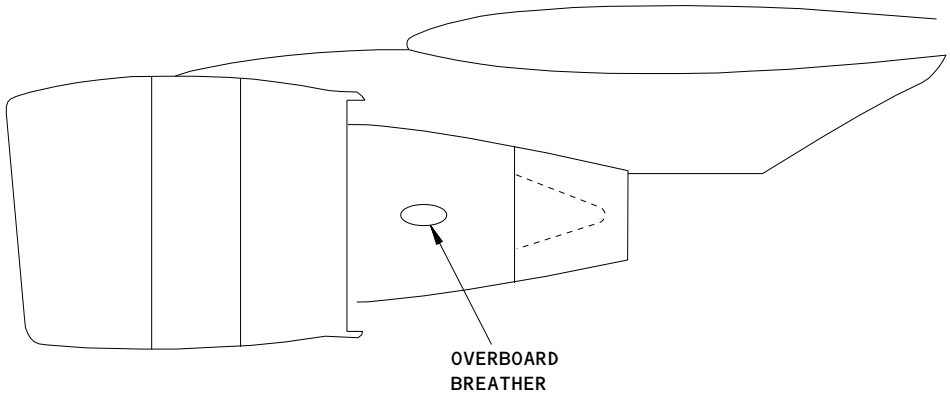
(14) OIL LEAKAGE ON THE CORE COWL DOOR
(a) LOOK FOR OIL LEAKAGE ON THE OUTSIDE OF THE CORE COWL DOOR NEAR THE OVERBOARD BREATHER.

NOTE: A SMALL QUANTITY OF OIL LEAKAGE IS PERMITTED. ONLY REPLACE THE ENGINE IF YOU FIND NO OTHER OIL LEAKS AND OIL USE IS HIGH. USUAL OIL USE IS LESS THAN 0.1 QUARTS PER HOUR. MAXIMUM OIL USE IS 0.5 QUARTS PER HOUR.

(b) IF YOU FIND A LARGE QUANTITY OF OIL, DO AS FOLLOWS:

NOTE: A LARGE QUANTITY OF OIL SHOWS THE DEOILER IDLER BEARING IN THE MAIN GEARBOX COULD BE DEFECTIVE.

1) REMOVE THE OVERBOARD BREATHER LINE FROM THE GEARBOX.
2) MANUALLY ROTATE THE N2 ROTOR AND MAKE SURE THE DEOILER IMPELLER TURNS (AMM 72-00-00/201).
3) IF THE DEOILER IMPELLER DOES NOT TURN, THE DEOILER IDLER BEARING MAY BE DEFECTIVE.
   a) REPLACE THE ENGINE (AMM 71-00-02/401).
4) IF THE DEOILER IMPELLER DOES TURN, REPLACE THE DEOILER CARBON SEAL (AMM 72-61-02/401).



Engine Check 13 - Oil Leak Check
Figure 113 (Sheet 14)

SMOKE/FUMES IN THE CABIN

A. GENERAL
   (1) THIS PROCEDURE DOES A CHECK OF THE ENGINE WHEN THE FLIGHT CREW SMELLS SMOKE OR FUMES IN THE CABIN.
B. REFERENCES
   (1) AMM 71-00-02/401, POWER PLANT
   (2) AMM 71-11-04/201, FAN COWL PANEL
   (3) AMM 71-11-06/201, CORE COWL PANEL
   (4) AMM 78-31-00/201, THRUST REVERSER SYSTEM
C. ACCESS
   (1) LOCATION ZONES
       411 ENGINE LEFT
       421 ENGINE RIGHT
   (2) ACCESS PANELS
       413 AND 414 FAN COWL PANELS, LEFT ENGINE
       423 AND 424 FAN COWL PANELS, RIGHT ENGINE
D. DO A LEAK CHECK FOR ENGINE OIL IN THE FAN COWL AREA.

   WARNING: DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

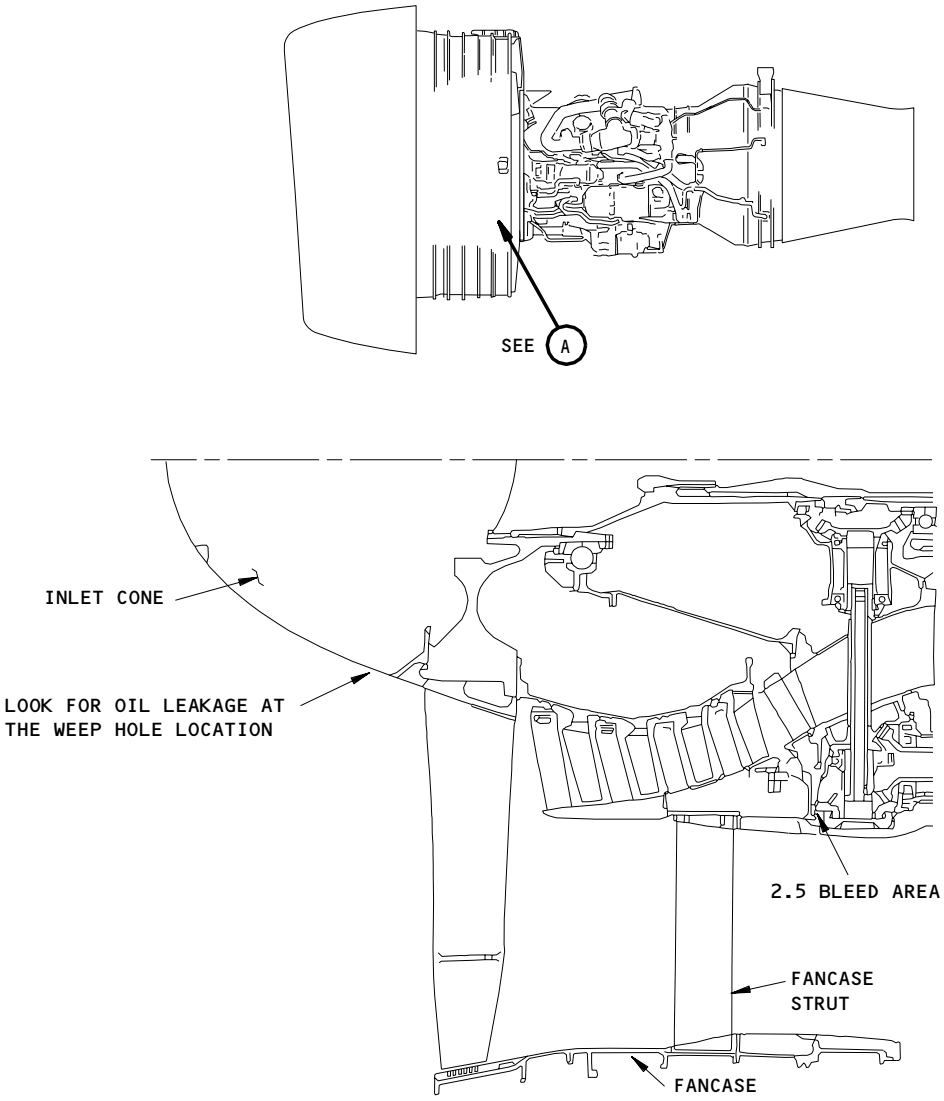
   (1) DO THE DEACTIVATION PROCEDURE OF THE THRUST REVERSER FOR GROUND MAINTENENACE (AMM 78-31-00/201).
   (2) OPEN THE FAN COWL PANELS (AMM 71-11-04/201).
   (3) OPEN THE CORE COWL PANELS (AMM 71-11-06/201).

   WARNING: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

   (4) OPEN THE THRUST REVERSERS (AMM 78-31-00/201).
   (5) EXAMINE THE FAN INLET, FAN EXIT, AND THE 2.5 BLEED AREA.
       (a) LOOK FOR OIL LEAKAGE AND AREAS WHERE OIL COLLECTS AT THESE LOCATIONS:
           1) AT THE SURFACE OF THE INLET CONE
           2) AT WEEP HOLE LOCATIONS
           3) AT THE 2.5 BLEED AREA
           4) AT THE STRUT AT THE 6 O'CLOCK POSITION
           5) AT THE BOTTOM OF THE FAN EXIT CASE
           6) AT THE SURFACE OF THE FAN BLADES
       (b) FIND OUT IF THE FLIGHT CREW SMELLED OIL FUMES WHILE THE ENGINES OPERATED.
       (c) IF THERE WAS OIL LEAKAGE IN ANY OF THE ABOVE AREAS AND SMOKE OR OIL FUMES IN THE CABIN, THERE IS A BEARING SEAL LEAK.
           1) REPLACE THE ENGINE (AMM 71-00-02/401).

              NOTE: A SMALL QUANTITY OF OIL LEAKAGE IS PERMITTED. ONLY REPLACE THE ENGINE IF YOU FIND NO OTHER OIL LEAKS AND OIL USE IS HIGH. USUAL OIL CONSUMPTION IS LESS THAN 0.1 QUARTS PER HOUR. MAXIMUM OIL CONSUMPTION IS 0.5 QUARTS PER HOUR.

Engine Check 14 - Smoke/Fumes in Cabin
Figure 114 (Sheet 1)



Engine Check 14 – Smoke/Fumes in Cabin
Figure 114 (Sheet 2)

PREREQUISITES

NONE

SERVO FUEL CONTAMINATION CHECK

1 REMOVE THE FUEL FILTER ELEMENT FOR THE FUEL PUMP (AMM 73-11-02/401).
EXAMINE THE FUEL FILTER ELEMENT 1, FILTER HOUSING AND FILTER COVER FOR BRONZE PARTICLES.
LOOK AT THE FUEL COLLECTED IN A WHITE 5 GALLON CONTAINER FOR FINE BRONZE PARTICLES (GOLD IN COLOR).
DRAIN FUEL FROM THE FP3 PORT ON THE FUEL PUMP INTO A CLEAR CONTAINER.
EXAMINE THE FUEL FOR FINE BRONZE PARTICLES USING A WHITE LIGHT.
ARE BRONZE PARTICLES FOUND?

NO → 41 INSTALL A NEW FUEL FILTER ELEMENT (AMM 73-11-02/401).
NO FURTHER CORRECTIVE ACTION IS NECESSARY.

YES ↓

2 REPLACE THE FUEL PUMP AND THE FUEL METERING UNIT (AMM 73-11-01/401).
REMOVE AND EXAMINE THE FUEL DISTRIBUTION VALVE STRAINER FOR BRONZE PARTICLES (AMM 73-11-04/401).
ARE BRONZE PARTICLES FOUND?

NO → 42 REINSTALL THE STRAINER. REPLACE ANY COMPONENTS THAT EXHIBITED TRACK CHECK MESSAGES.
EXAMINE OR MONITOR THE COMPONENTS THAT FOLLOW FOR CORRECT OPERATION. DO CORRECTIVE ACTION AS NECESSARY:
- FUEL PUMP FILTER DIFFERENTIAL PRESSURE SWITCH
- ENGINE AIR/OIL HEAT EXCHANGER
- STATOR VANE ACTUATOR
- TURBINE CASE COOLING AIR VALVE ACTUATOR
- IDG AIR/OIL HEAT EXCHANGER
- 2.5 BLEED VALVE ACTUATOR

YES ↓

SEE SHEET 2
(BLOCK 43)

Engine Check 15 – Servo Fuel Contamination Check
Figure 115 (Sheet 1)

FROM SHEET 1
(BLOCK 2)

YES

43 CLEAN THE STRAINER (AMM 73-11-04/701).

INSTALL THE STRAINER (AMM 73-11-04/401).

REPLACE ANY COMPONENTS THAT EXHIBITED TRACK CHECK MESSAGES.

EXAMINE OR MONITOR THE COMPONENTS THAT FOLLOW FOR CORRECT OPERATION. DO THE CORRECTIVE ACTION AS NECESSARY:

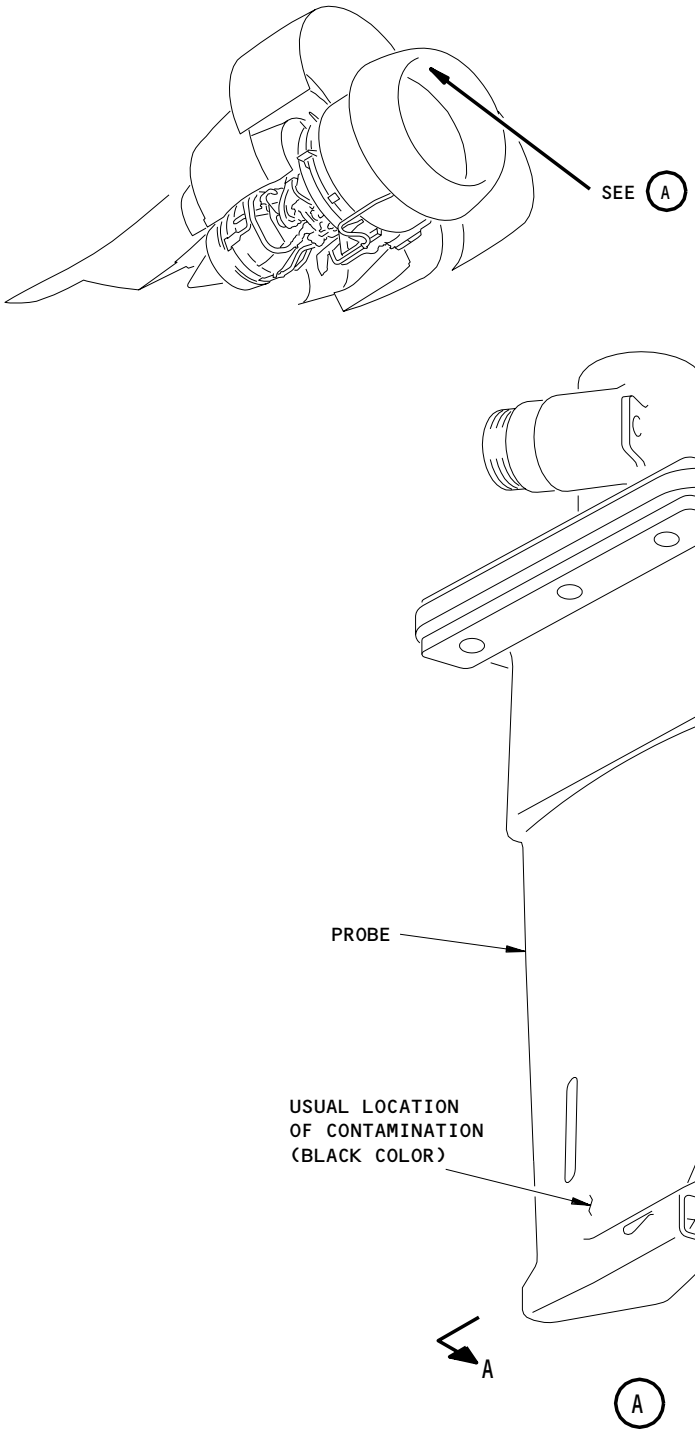
- FUEL PUMP FILTER DIFFERENTIAL PRESSURE SWITCH
- ENGINE AIR/OIL HEAT EXCHANGER
- STATOR VANE ACTUATOR
- TURBINE CASE COOLING AIR VALVE ACTUATOR
- IDG AIR/OIL HEAT EXCHANGER
- 2.5 BLEED VALVE ACTUATOR
- FUEL FLOW TRANSMITTER
- REPLACE THE FUEL NOZZLES AS NECESARY.

1 WHEN INSPECTING THE FILTER ELEMENT, MAKE SURE TO PULL BACK THE PLEATS AND CAREFULLY LOOK FOR BRONZE PARTICLES. PAY CLOSE ATTENTION WHEN INSPECTING THE CENTER OF THE FILTER. FINE BRONZE PARTICLES, WHICH HAVE ACCUMULATED TOWARD THE CENTER OF THE FILTER, MAY APPEAR AS A GOLD COLOR METAL SPINE. FINE BRONZE PARTICLES MAY ALSO MAKE THE FILTER APPEAR SLIGHTLY GOLD IN COLOR.

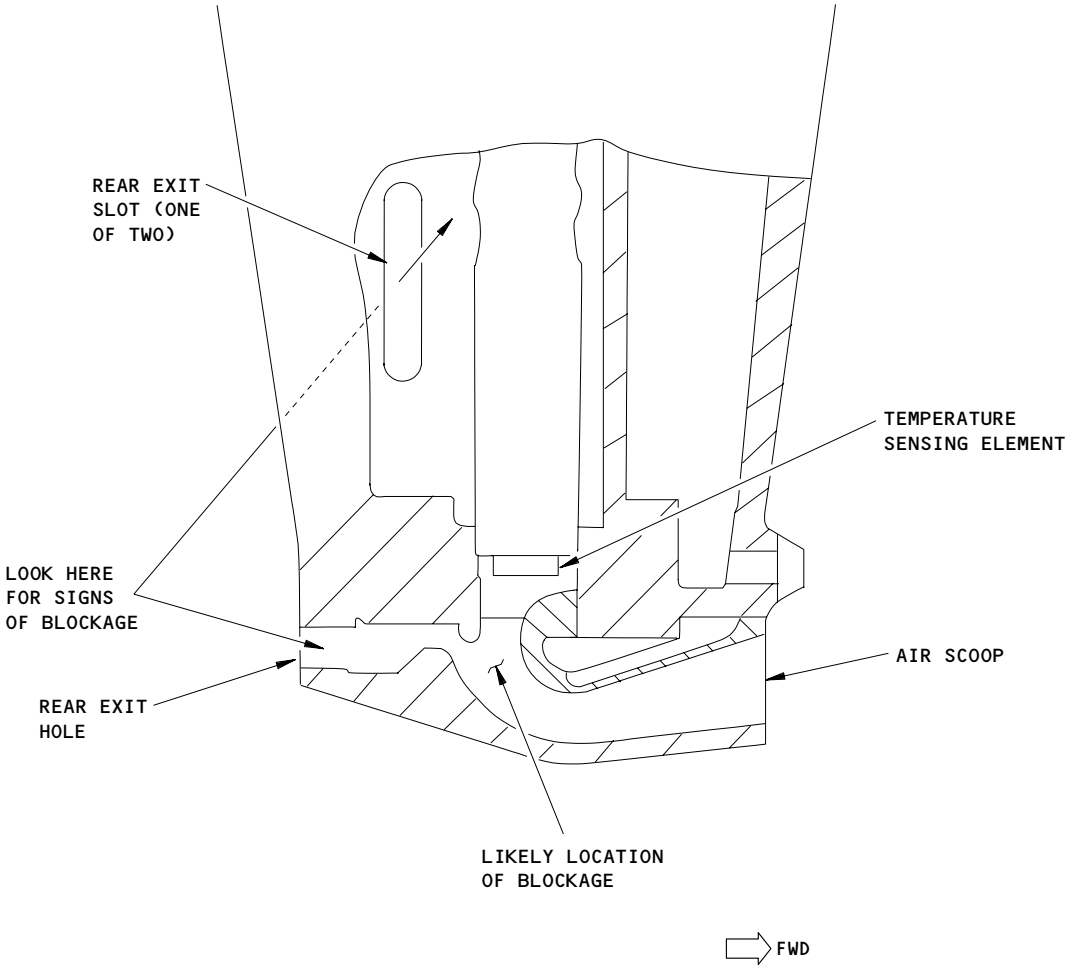
Engine Check 15 - Servo Fuel Contamination Check
Figure 115 (Sheet 2)

T2 SIGNAL

A. GENERAL
   (1) THIS PROCEDURE IS FOR TROUBLESHOOTING THE T2 SIGNAL TO THE EEC.



Engine Check 16 – T2 Signal
Figure 116 (Sheet 1)



A-A

G-05687 (0000)

Engine Check 16 - T2 Signal
Figure 116 (Sheet 2)

B. PROCEDURE

(1) VISUALLY EXAMINE THE PT2/TT2 PROBE FOR DISCOLORATION AND FOR DAMAGE.

NOTE: DISCOLORATION IN THE AREA OF THE AIR SCOOP CAN BE AN INDICATION THAT THE SENSORS COOLING AIR HOLES ARE BLOCKED.

DURING OPERATION, A BLACK COLOR WILL SHOW IN THE AREA OF THE AIR SCOOP BECAUSE OF CONTAMINATION IN THE AIR FLOW AROUND THE SENSOR; THIS CONDITION IS NORMAL. IF THERE IS A DARK BLUE TO BLUE TO GOLDEN COLOR, IN THIS SAME AREA, THEN THE SENSOR HAS BEEN DAMAGED BY INSUFFICIENT COOLING AIR FLOW. THIS CONDITION WILL DECREASE THE SERVICE LIFE OF THE SENSOR'S T2 SIGNAL ACCURACY.

OPERATION OF THE HEAT ELEMENT, WITHOUT COOLING AIRFLOW, FOR A SPECIFIED TIME IS PERMITTED FOR TROUBLESHOOTING PROCEDURES. THE FIM CORRECTIVE ACTIONS THAT INSTRUCT YOU TO OPERATE THE HEAT ELEMENT, WILL ALSO PROVIDE THE SPECIFIED TIME LIMITS FOR OPERATION. THIS LIMITED OPERATION WILL NOT CAUSE DAMAGE TO THE T2 SENSOR.

(2) EXAMINE THE SENSOR AIR SCOOP AIRFLOW PASSAGE FOR BLOCKAGE OR A RESTRICTION OR REPLACE THE THE PT2/TT2 PROBE:

(a) LOOK INTO THE FORWARD PART OF THE AIR SCOOP FOR A BLOCKAGE OR RESTRICTION.

NOTE: IT IS POSSIBLE THAT THERE IS A BLOCKAGE, OR A RESTRICTION, IN THE AREA BETWEEN THE AIRFLOW PASSAGE DESCRIBED ABOVE AND THE AREA INSIDE THE TWO REAR EXIT SLOTS; IT IS DIFFICULT TO SEE THIS AREA AND THE LOCATIONS WHERE A BLOCKAGE OR RESTRICTION CAN HAPPEN. IT IS POSSIBLE THAT THERE IS A PROBLEM IN THIS AREA THAT CANNOT BE IDENTIFIED BY USING THIS VISUAL/BORESCOPE INSPECTION.

(b) IF YOU CAN NOT SEE A BLOCKAGE OR RESTRICTION IN THE FORWARD PART OF THE AIR SCOOP, DO THESE STEPS:

1) IF A 3MM FLEXIBLE BORESCOPE IS AVAILABLE, THEN DO THESE STEPS:
   a) USE A 3MM FLEXIBLE BORESCOPE TO EXAMINE THE PART OF THE AIRFLOW PASSAGE THAT IS INSIDE THE SENSOR AND NOT VISIBLE FROM THE OUTSIDE.
   b) INSTALL THE FLEXIBLE BORESCOPE INTO THE REAR EXIT HOLE FIRST, THEN INTO THE AIR SCOOP, TO LOOK FOR BLOCKAGE OR A RESTRICTION.
2) IF A 3MM BORESCOPE IS NOT AVAILABLE, REPLACE THE PT2/TT2 PROBE (AMM 73-21-03/401).

CAUTION: DO NOT TRY TO REMOVE ANY BLOCKAGE OR RESTRICTION USING A MECHANICAL TOOL. IF YOU DO, YOU CAN DAMAGE THE TEMPERATURE SENSING ELEMENT AND CAUSE A PROBLEM WITH THE OPERATION OF THE ENGINE.

CAUTION: DO NOT BLOW NITROGEN OR AIR INTO THE AIR SCOOP. THE FORCE IN THIS DIRECTION CAN CAUSE ANY BLOCKAGE OR RESTRICTION TO BECOME MORE DIFFICULT TO REMOVE.

   c) YOU CAN TRY TO REMOVE ANY BLOCKAGE OR RESTRICTION BY BLOWING LOW PRESSURE (LESS THAN 30 PSI) CLEAN DRY NITROGEN, OR AIR, THROUGH THE PROBE:
      1) TEMPORARILY SEAL THE REAR EXIT HOLE AND ONE OF THE TWO REAR EXIT SLOTS.
      2) BLOW THROUGH THE OTHER REAR EXIT SLOT.
      3) TEMPORARILY SEAL THE TWO REAR EXIT SLOTS.
      4) BLOW THROUGH THE REAR EXIT HOLE.

NOTE: A BLOCKAGE OR RESTRICTION OF AIRFLOW PASSAGE IN THIS AREA WILL ALSO DECREASE THE SERVICE LIFE OF THE T2 SENSOR AND HAVE AN AFFECT ON THE SENSOR'S T2 SIGNAL ACCURACY.

3) IF THE FAULT CONTINUES, REPLACE THE PT2/TT2 SENSOR (AMM 73-21-03/401).
4) IF THE FAULT CONTINUES AFTER THE SENSOR HAS BEEN REPLACED, IT IS POSSIBLE THAT THERE IS A PROBLEM WITH THE T2 SENSOR CIRCUIT.
   a) LOOK AT THE PIMU FOR THIS RELATED MAINTENANCE MESSAGE:

      352-18 EEC CH A/B T2 RANGE FAIL

   b) IF THERE IS A RELATED MAINTENANCE MESSAGE, FIND THE MAINTENANCE MESSAGE IN THE 71-PIMU MESSAGE INDEX AND DO THE SPECIFIED FAULT ISOLATION TASK.

Engine Check 16 - T2 Signal
Figure 116 (Sheet 3)

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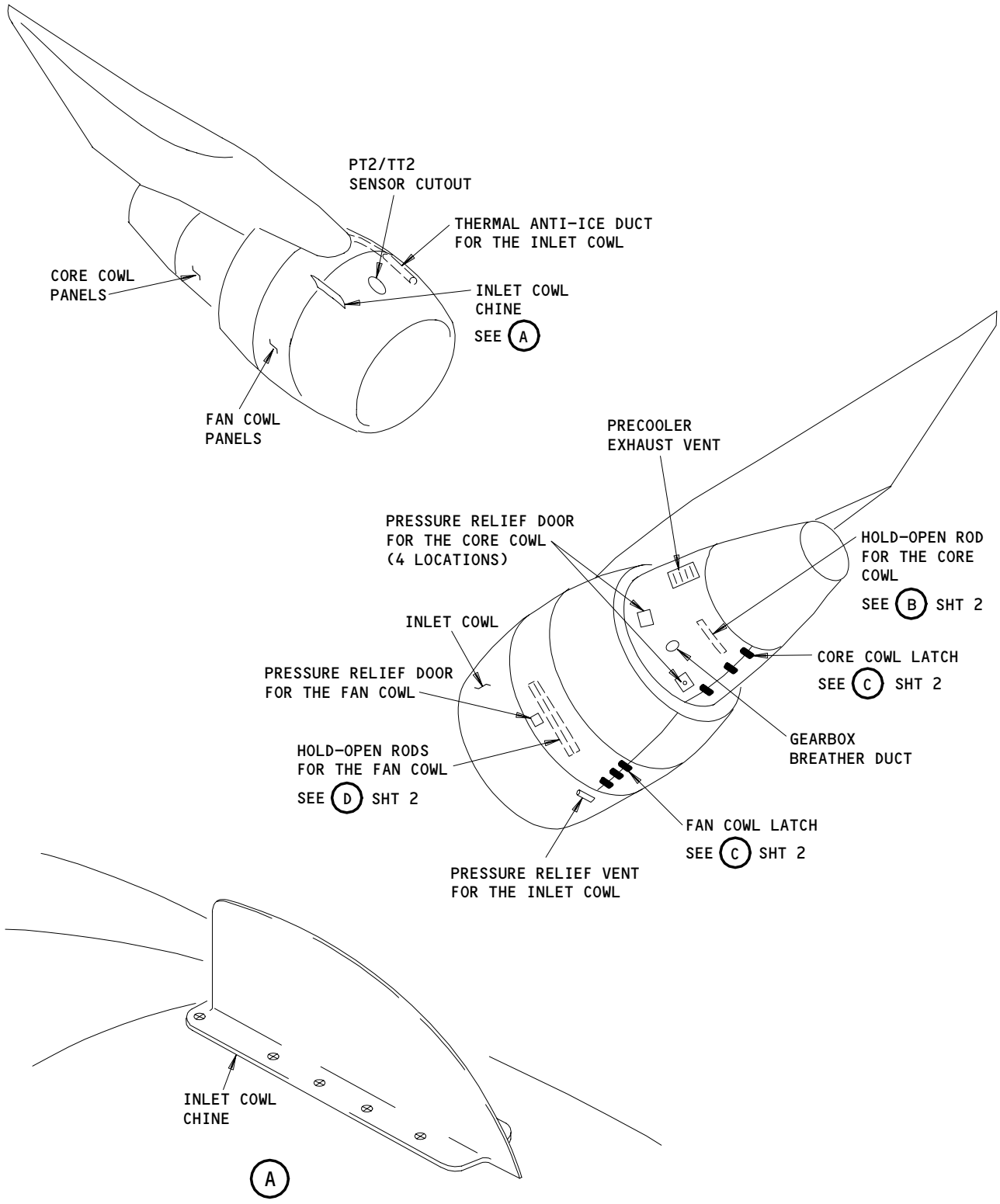
ENGINE COWLING

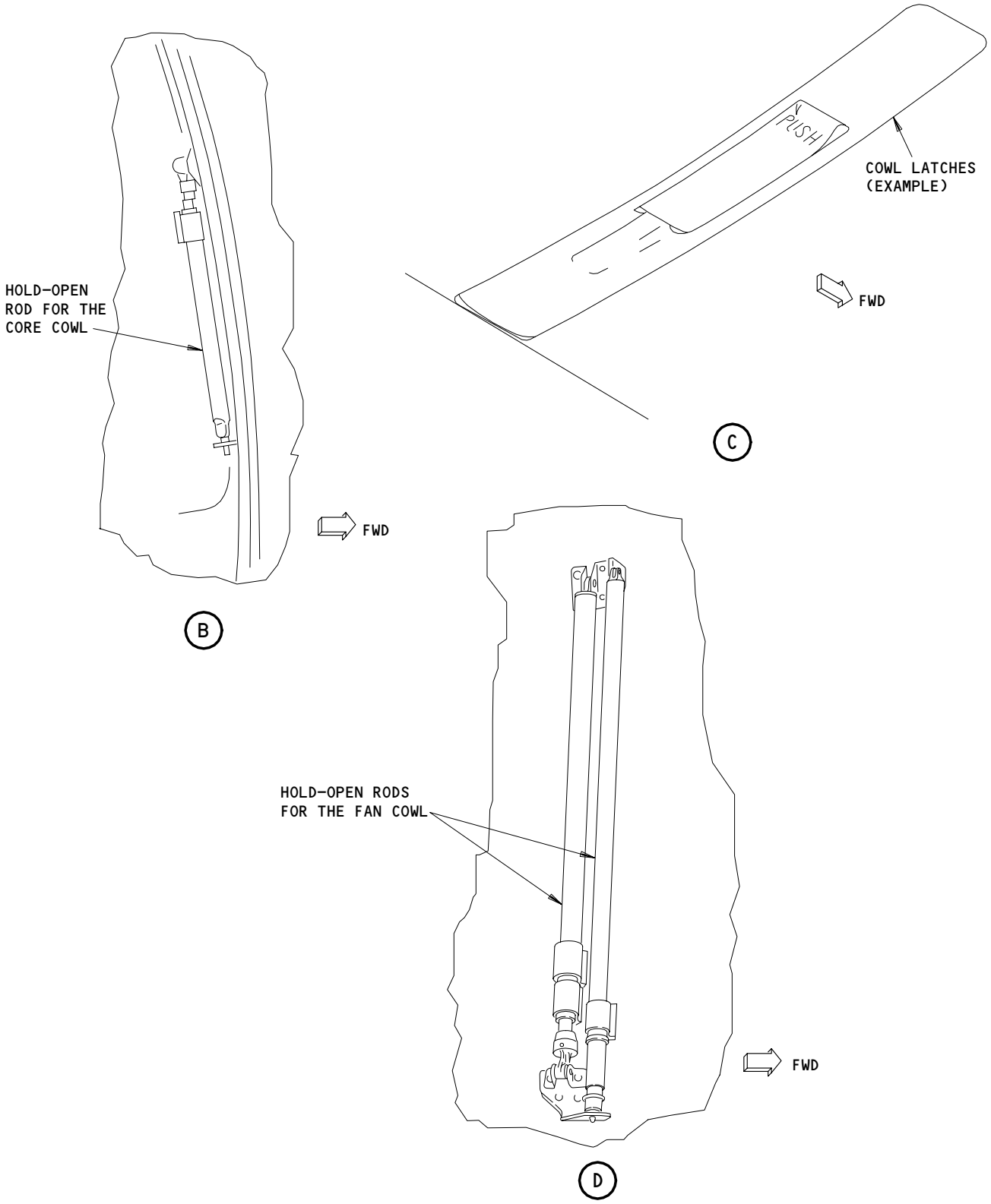
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CHINE - LEFT ENGINE INLET COWL	1	1	INLET COWL	71-11-02
CHINE - RIGHT ENGINE INLET COWL	1	1	INLET COWL	71-11-02
COWL - LEFT ENGINE INLET	1	1		71-11-01
COWL - RIGHT ENGINE INLET	1	1		71-11-01
CUTOUT - LEFT ENGINE PT2/TT2 SENSOR	1	1	413AL, FAN COWL	71-11-00
CUTOUT - RIGHT ENGINE PT2/TT2 SENSOR	1	1	423AL, FAN COWL	71-11-00
DOOR - LEFT ENGINE CORE COWL PRESSURE RELIEF	1	4	417AL, CORE COWL	71-11-08
DOOR - LEFT ENGINE FAN COWL PRESSURE RELIEF	1	1	413AL, FAN COWL	71-11-08
DOOR - RIGHT ENGINE CORE COWL PRESSURE RELIEF	1	4	427AL, CORE COWL	71-11-08
DOOR - RIGHT ENGINE FAN COWL PRESSURE RELIEF	1	1	423AL, FAN COWL	71-11-08
DUCT - LEFT ENGINE GEARBOX BREATHER	1	1	417AL, CORE COWL	71-11-00
DUCT - LEFT ENGINE INLET COWL THERMAL ANTI-ICE	1	1	413AL, FAN COWL	71-11-09
DUCT - RIGHT ENGINE GEARBOX BREATHER	1	1	427AL, CORE COWL	71-11-00
DUCT - RIGHT ENGINE INLET COWL THERMAL ANTI-ICE	1	1	423AL, FAN COWL	71-11-09
LATCH - LEFT ENGINE CORE COWL	2	4	417AL,418AR, CORE COWL	71-11-07
LATCH - LEFT ENGINE FAN COWL	2	3	413AL,414AR, FAN COWL	71-11-05
LATCH - RIGHT ENGINE CORE COWL	2	4	427AL,428AR, CORE COWL	71-11-07
LATCH - RIGHT ENGINE FAN COWL	2	3	423AL,424AR, FAN COWL	71-11-05
PANEL - LEFT ENGINE CORE COWL	1	2	417AL,418AR, CORE COWL	71-11-06
PANEL - LEFT ENGINE FAN COWL	1	2	413AL,414AR, FAN COWL	71-11-04
PANEL - RIGHT ENGINE CORE COWL	1	2	427AL,428AR, CORE COWL	71-11-06
PANEL - RIGHT ENGINE FAN COWL	1	2	423AL,424AR, FAN COWL	71-11-04
ROD - LEFT ENGINE CORE COWL HOLD OPEN	2	2	417AL,418AR, CORE COWL	71-11-10
ROD - LEFT ENGINE FAN COWL HOLD OPEN	2	4	413AL,414AR, FAN COWL	71-11-10
ROD - RIGHT ENGINE CORE COWL HOLD OPEN	2	2	427AL,428AR, CORE COWL	71-11-10
ROD - RIGHT ENGINE FAN COWL HOLD OPEN	2	4	423AL,424AR, FAN COWL	71-11-10
VENT - LEFT ENGINE INLET COWL PRESSURE RELIEF	1	1	INLET COWL	71-11-00
VENT - LEFT ENGINE PRECOOLER EXHAUST	1	1	417AL, CORE COWL	71-11-00
VENT - RIGHT ENGINE INLET COWL PRESSURE RELIEF	1	1	INLET COWL	71-11-00
VENT - RIGHT ENGINE PRECOOLER EXHAUST	1	1	427AL, CORE COWL	71-11-00

Engine Cowling - Component Index
Figure 101

293537



Engine Cowling - Component Location
Figure 102 (Sheet 1)

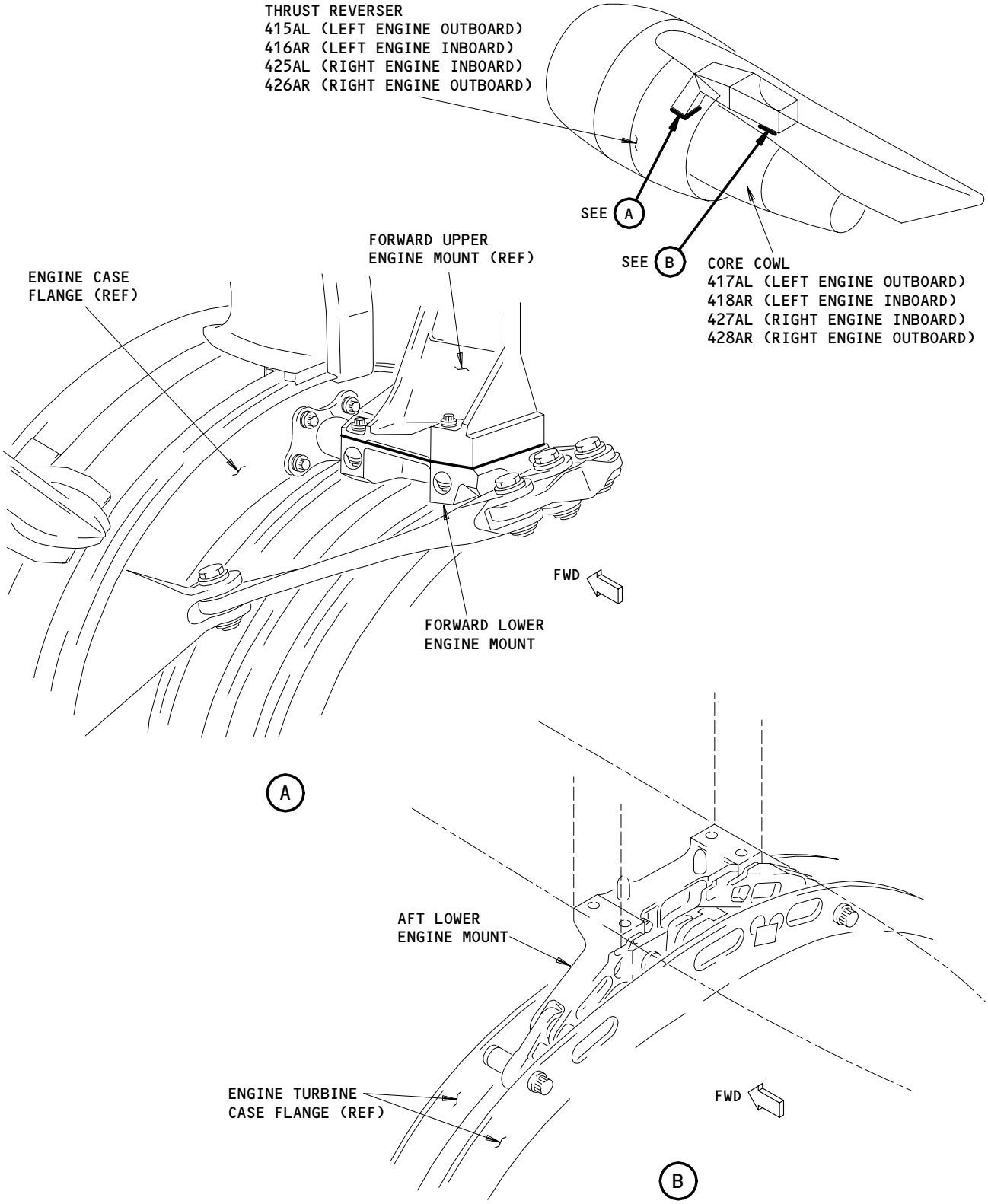


Engine Cowling - Component Location (Details from Sht 1)
Figure 102 (Sheet 2)

ENGINE MOUNTS

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
MOUNT - LEFT ENGINE AFT LOWER ENGINE	--	1	417AL,418AR, CORE COWL	71-21-02
MOUNT - LEFT ENGINE FORWARD LOWER ENGINE	--	1	415AL,416AR, THRUST REVERSER	71-21-01
MOUNT - RIGHT ENGINE AFT LOWER ENGINE	--	1	427AL,428AR, CORE COWL	71-21-02
MOUNT - RIGHT ENGINE FORWARD LOWER ENGINE	--	1	425AL,426AR, THRUST REVERSER	71-21-01

Engine Mounts - Component Index
Figure 101



Engine Mounts - Component Location
Figure 102

ENGINE VENTS AND DRAINS

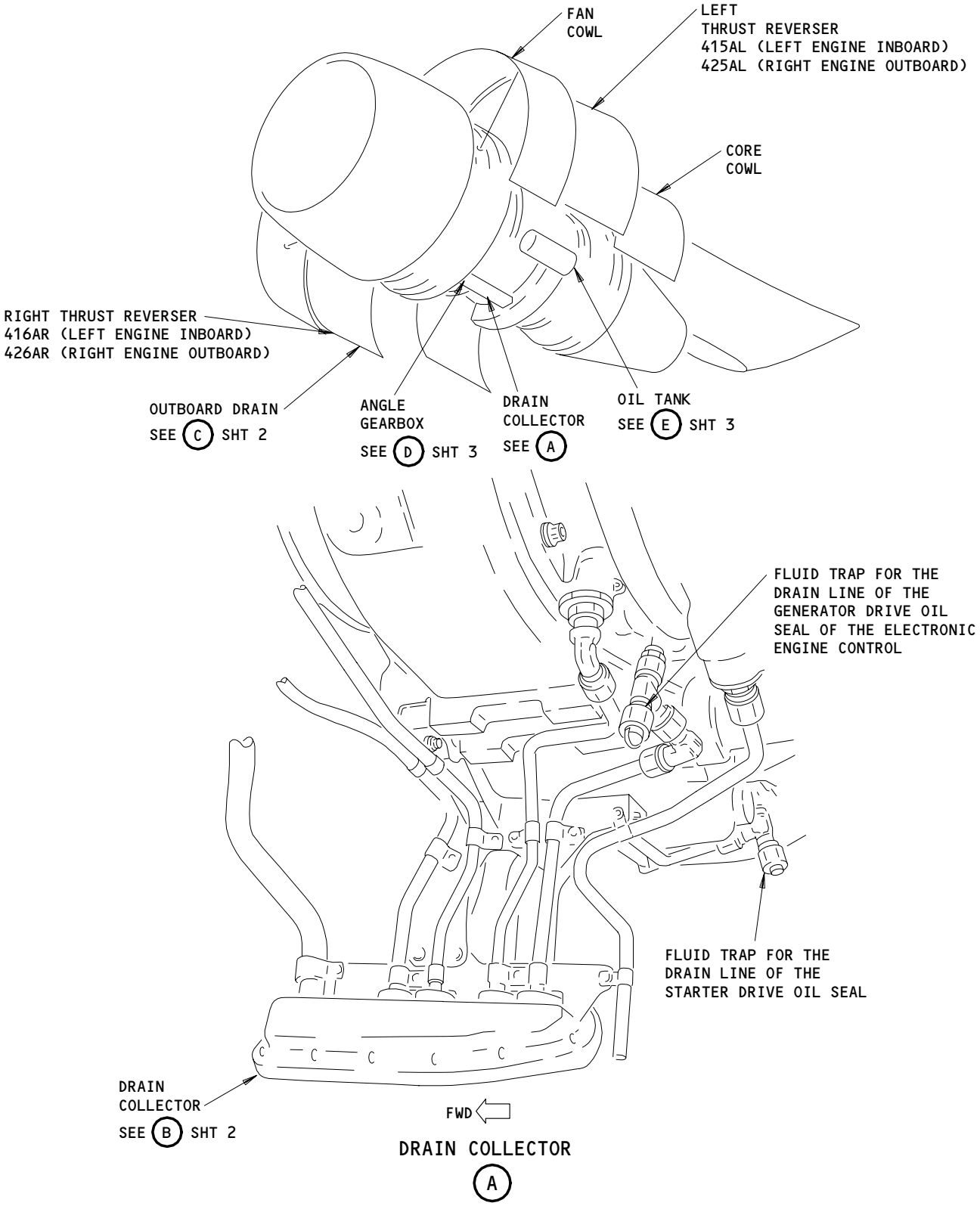
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
COLLECTOR - LEFT ENGINE DRAIN	1	1	416AR, DRAIN COLLECTOR	71-71-00
COLLECTOR - LEFT ENGINE OVERBOARD DRAIN FLUID	2	1	416AR, OVERBOARD DRAIN	71-71-00
COLLECTOR - RIGHT ENGINE DRAIN	1	1	426AR, DRAIN COLLECTOR	71-71-00
COLLECTOR - RIGHT ENGINE OVERBOARD DRAIN FLUID	2	1	426AR, OVERBOARD DRAIN	71-71-00
DRAIN - LEFT ENGINE AIR/OIL HEAT EXCHANGER VALVE AND 2.5 BLEED VALVE ACTUATOR	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - LEFT ENGINE EEC ALTERNATOR DRIVE OIL SEAL	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - LEFT ENGINE FUEL/OIL COOLER, FUEL/OIL COOLER BYPASS VALVE, AND IDG FUEL/OIL HEAT EXCHANGER	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - LEFT ENGINE FUEL PUMP DRIVE OIL SEAL	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - LEFT ENGINE HYDRAULIC PUMP DRIVE OIL SEAL	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - LEFT ENGINE IDG DRIVE OIL SEAL	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - LEFT ENGINE OIL TANK SCUPPER	5	1	417AL, AFT DRAIN	71-71-00
DRAIN - LEFT ENGINE STARTER DRIVE OIL SEAL	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - LEFT ENGINE STRUT	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - LEFT ENGINE TURBINE CASE COOLING AIR SHUTOFF VALVE, VARIABLE STATOR VANE ACTUATOR, AND IDG AIR/OIL HEAT EXCHANGER	2	1	416AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE AIR/OIL HEAT EXCHANGER VALVE AND 2.5 BLEED VALVE ACTUATOR	2	1	426AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE EEC ALTERNATOR DRIVE OIL SEAL	2	1	426AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE FUEL/OIL COOLER, FUEL/OIL COOLER BYPASS VALVE, AND IDG FUEL/OIL HEAT EXCHANGER	2	1	426AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE FUEL PUMP DRIVE OIL SEAL	2	1	426AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE HYDRAULIC PUMP DRIVE OIL SEAL	2	1	426AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE IDG DRIVE OIL SEAL	2	1	426AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE OIL TANK SCUPPER	5	1	427AL, AFT DRAIN	71-71-00
DRAIN - RIGHT ENGINE STARTER DRIVE OIL SEAL	2	1	426AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE STRUT	2	1	426AR, DRAIN COLLECTOR	71-71-00
DRAIN - RIGHT ENGINE TURBINE CASE COOLING AIR SHUTOFF VALVE, VARIABLE STATOR VANE ACTUATOR, AND IDG AIR/OIL HEAT EXCHANGER	2	1	426AR, DRAIN COLLECTOR	71-71-00
PORT - LEFT ENGINE MAIN OVERBOARD DRAIN	2	1	416AR, OVERBOARD DRAIN	71-71-00
PORT - RIGHT ENGINE MAIN OVERBOARD DRAIN	2	1	426AR, OVERBOARD DRAIN	71-71-00
TRAP - LEFT ENGINE AIR/OIL HEAT EXCHANGER ENGINE SEAL DRAIN LINE FLUID	2	1	415AL, ANGLE GEARBOX	71-71-00
TRAP - LEFT ENGINE EEC ALTERNATOR DRIVE OIL SEAL DRAIN LINE FLUID	1	1	415AL, DRAIN COLLECTOR	71-71-00
TRAP - LEFT ENGINE FUEL/OIL COOLER BYPASS VALVE AND IDG FUEL/OIL HEAT EXCHANGER DRAIN LINE FLUID	3	1	415AL, OIL TANK	71-71-00
TRAP - LEFT ENGINE FUEL/OIL HEAT EXCHANGER VALVE DRAIN LINE FLUID	3	1	415AL, OIL TANK	71-71-00
TRAP - LEFT ENGINE IDG AIR/OIL HEAT EXCHANGER VALVE DRAIN LINE FLUID	4	1	416AR, STATOR VANE ACTUATOR	71-71-00
TRAP - LEFT ENGINE STARTER DRIVE OIL SEAL DRAIN LINE FLUID	1	1	416AR, DRAIN COLLECTOR	71-71-00
TRAP - LEFT ENGINE TURBINE CASE COOLING AIR SHUTOFF VALVE DRAIN LINE FLUID	4	1	416AR, STATOR VANE ACTUATOR	71-71-00

Engine Vents and Drains - Component Index
Figure 101 (Sheet 1)

279035

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
TRAP - LEFT ENGINE TURBINE CASE COOLING AIR SHUTOFF VALVE, VARIABLE STATOR VANE ACTUATOR, AND IDG AIR/OIL HEAT EXCHANGER VALVE DRAIN LINE FLUID	4	1	416AR, STATOR VANE ACTUATOR	71-71-00
TRAP - LEFT ENGINE 2.5 BLEED VALVE ACTUATOR DRAIN LINE FLUID	2	1	415AL, ANGLE GEARBOX	71-71-00
TRAP - RIGHT ENGINE AIR/OIL HEAT EXCHANGER ENGINE SEAL DRAIN LINE FLUID	2	1	425AL, ANGLE GEARBOX	71-71-00
TRAP - RIGHT ENGINE EEC ALTERNATOR DRIVE OIL SEAL DRAIN LINE FLUID	1	1	425AL, DRAIN COLLECTOR	71-71-00
TRAP - RIGHT ENGINE FUEL/OIL COOLER BYPASS VALVE AND IDG FUEL/OIL HEAT EXCHANGER DRAIN LINE FLUID	3	1	425AL, OIL TANK	71-71-00
TRAP - RIGHT ENGINE FUEL/OIL HEAT EXCHANGER VALVE DRAIN LINE FLUID	3	1	425AL, OIL TANK	71-71-00
TRAP - RIGHT ENGINE IDG AIR/OIL HEAT EXCHANGER VALVE DRAIN LINE FLUID	4	1	426AR, STATOR VANE ACTUATOR	71-71-00
TRAP - RIGHT ENGINE STARTER DRIVE OIL SEAL DRAIN LINE FLUID	1	1	426AR, DRAIN COLLECTOR	71-71-00
TRAP - RIGHT ENGINE TURBINE CASE COOLING AIR SHUTOFF VALVE DRAIN LINE FLUID	4	1	426AR, STATOR VANE ACTUATOR	71-71-00
TRAP - RIGHT ENGINE TURBINE CASE COOLING AIR SHUTOFF VALVE, VARIABLE STATOR VANE ACTUATOR, AND IDG AIR/OIL HEAT EXCHANGER VALVE DRAIN LINE FLUID	4	1	426AR, STATOR VANE ACTUATOR	71-71-00
TRAP - RIGHT ENGINE 2.5 BLEED VALVE ACTUATOR DRAIN LINE FLUID	2	1	425AL, ANGLE GEARBOX	71-71-00
VENT - LEFT ENGINE IDG THERMAL RELIEF	2	1	416AR, DRAIN COLLECTOR	71-71-00
VENT - RIGHT ENGINE IDG THERMAL RELIEF	2	1	426AR, DRAIN COLLECTOR	71-71-00

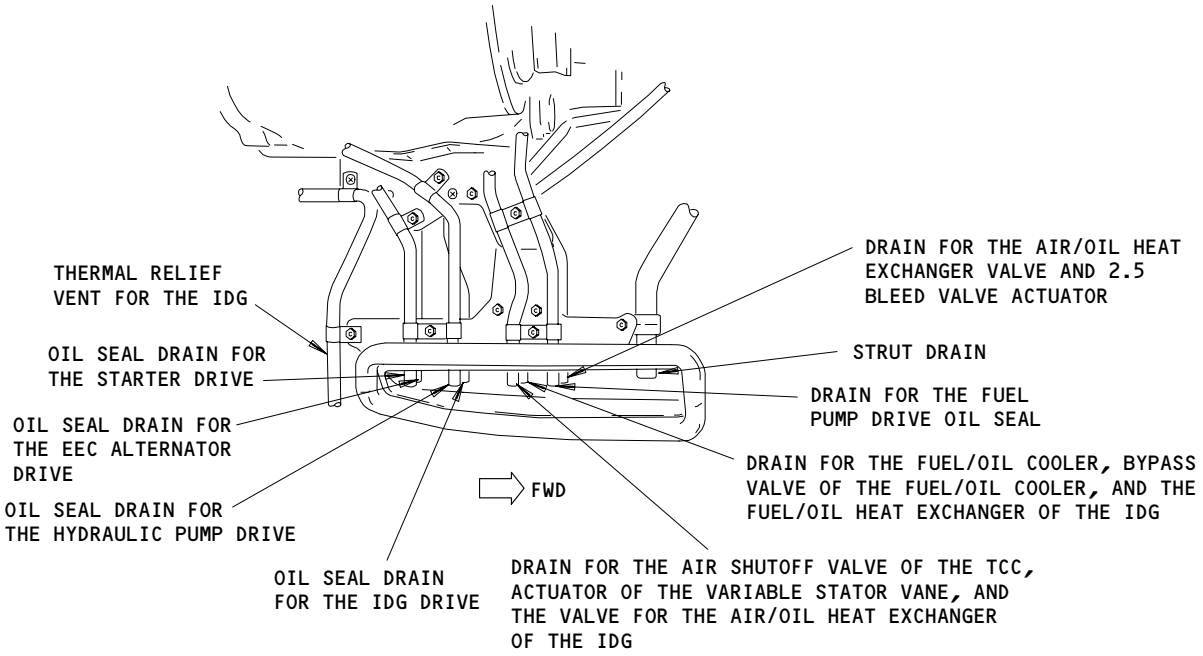
Engine Vents and Drains - Component Index
Figure 101 (Sheet 2)



DRAIN COLLECTOR
A

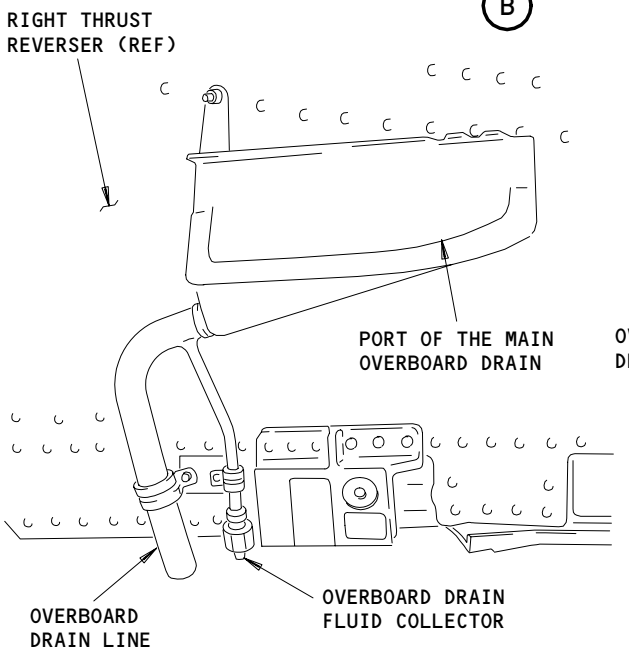
Engine Vents and Drains - Component Location
Figure 102 (Sheet 1)

281319



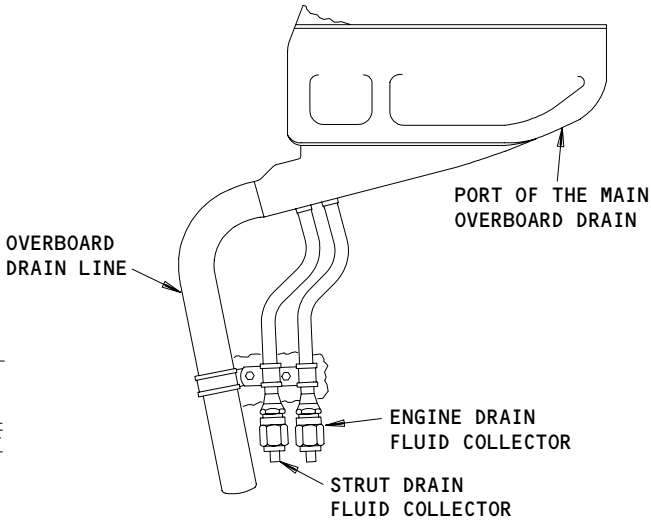
DRAIN COLLECTOR

B



OVERBOARD DRAIN

C 1



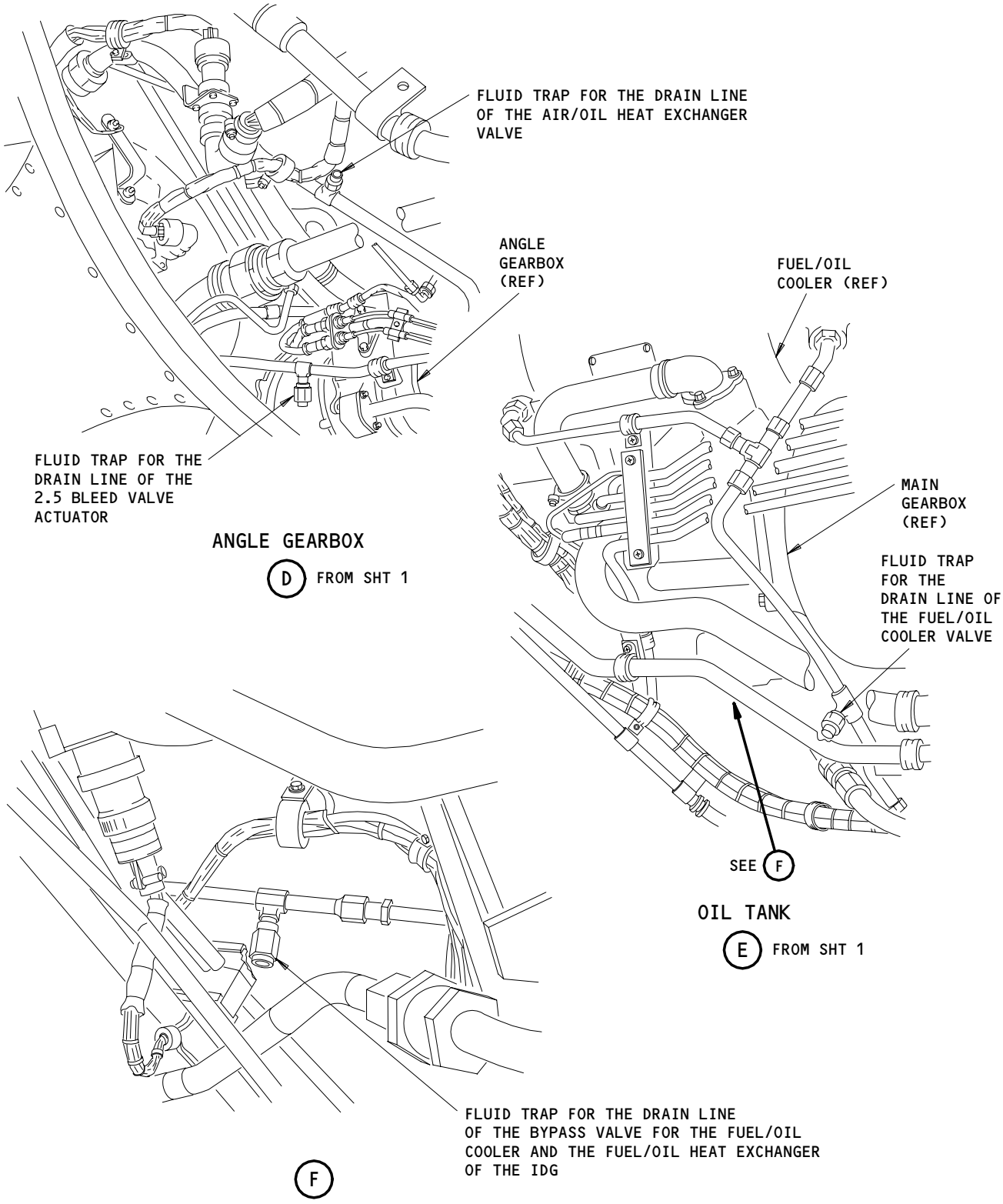
OVERBOARD DRAIN

C 2

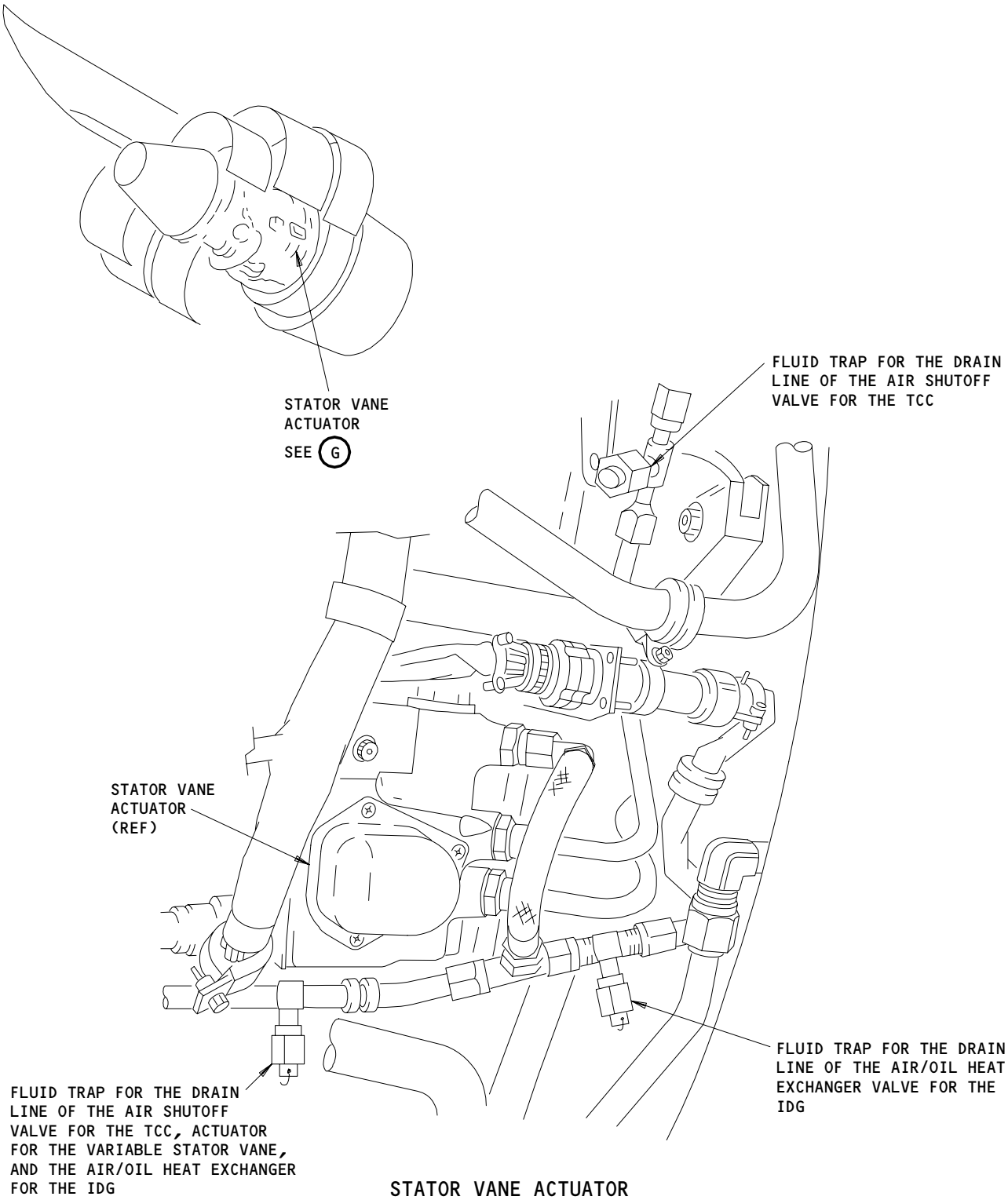
1 AIRPLANES WITH ONE FLUID COLLECTOR TUBE FOR THE OVERBOARD DRAIN

2 AIRPLANES WITH TWO FLUID COLLECTOR TUBES FOR THE OVERBOARD DRAIN

Engine Vents and Drains - Component Location (Details from Sht 1)
Figure 102 (Sheet 2)



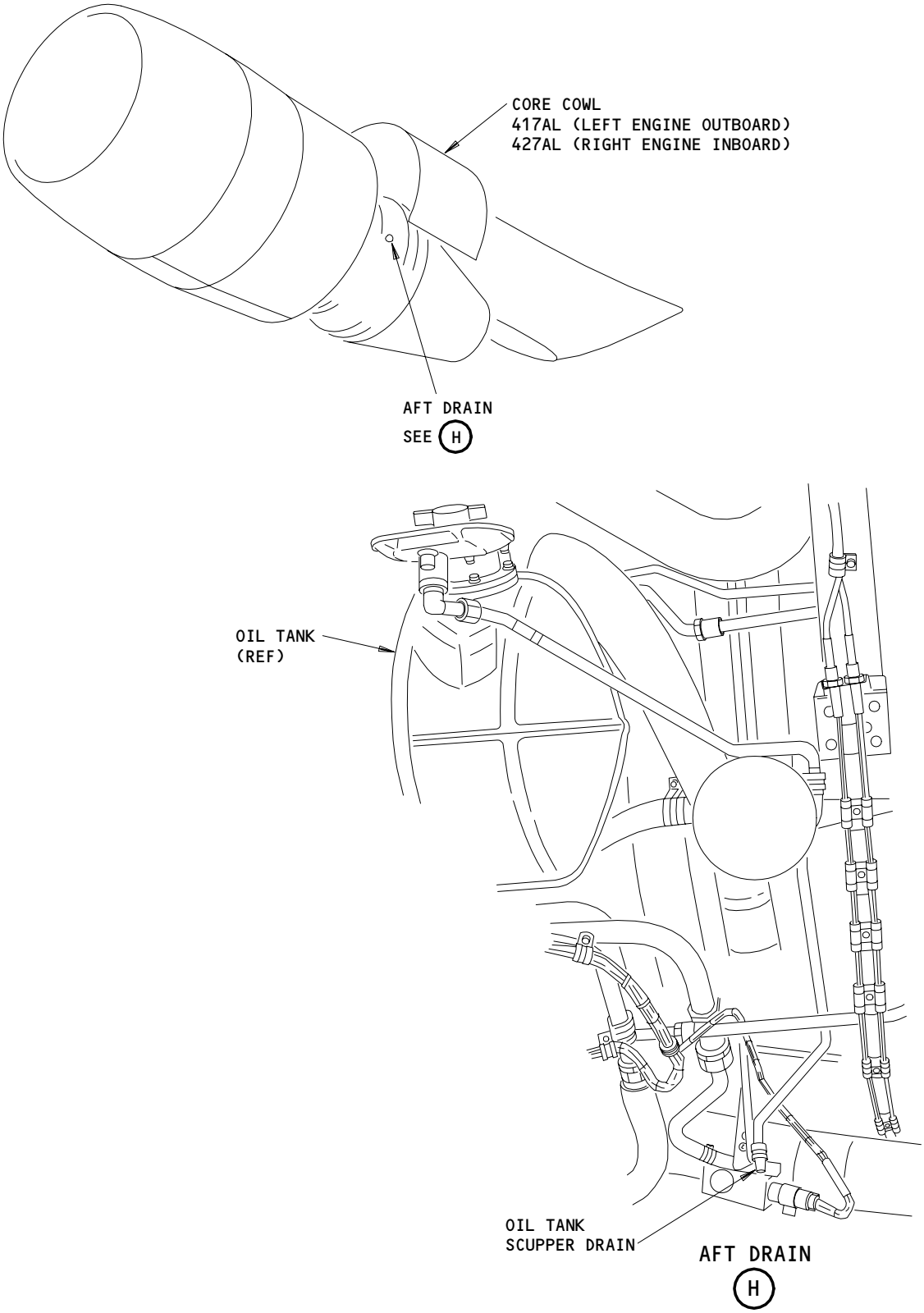
Engine Vents and Drains - Component Location
Figure 102 (Sheet 3)



STATOR VANE ACTUATOR

G

Engine Vents and Drains – Component Location
Figure 102 (Sheet 4)



Engine Vents and Drains - Component Location
Figure 102 (Sheet 5)