

GPA Group plc

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116	SEP 28/05	R03	101	SEP 20/94	R01			
117	SEP 28/05	R03	102	SEP 20/94	R01			
118	SEP 28/01	R03						
119	SEP 28/01	R03						
120	SEP 28/05	R03						
121	SEP 28/01	R03						
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125	MAY 28/05	R08						
126	MAY 28/05	R05						

R = REVISED, A = ADDED OR D = DELETED  
F = FOLDOUT PAGE  
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**D633N632**

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CHAPTER 73 - ENGINE FUEL AND CONTROL

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Component Location			

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FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
73 21 XA --	(01=L,02=R) Min/approach idle select problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 73-21-03
73 21 XB --	(01=L,02=R) Fuel control switch problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 73-21-01, SSM 73-21-02
73 21 XC --	(01=L,02=R) Electronic engine control (EEC) problem was encountered by the flight crew which is not covered in the fault code diagrams.	FIM 73-21-00/101, Fig. 103, Block 1
73 21 XD --	(01=L,02=R) No EGT rise/wet start problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 73-21-01, SSM 73-21-02, SSM 74-31-01, SSM 74-31-02
73 21 XE --	(01=L,02=R) Slow accel to idle/hung start problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 73-21-01, SSM 73-21-02
73 31 XA --	(01=L,02=R) High/low fuel flow problem was encountered by the flight crew which is not covered in the fault code diagrams.	SSM 73-21-01, SSM 73-21-02, SSM 73-31-01
73 11 01 --	EICAS msg: (01=L,02=R) ENG FUEL FILTER displayed. F/F is normal.	FIM 73-11-00/101, Fig. 103, Block 1
73 11 02 --	(01=R,02=L) Engine fuel flow low. EICAS MSG: (L,R) ENG FUEL FILTER displayed. EGT was low and fuel quantity decrease was consistent with fuel flow.	Replace LP Fuel Filter (AMM 73-11-10).
73 11 05 --	EICAS msg: (01=L,02=R) ENG LP PUMP displayed.	FIM 73-11-00/101, Fig. 104, Block 1

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FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
73 11 06 00	EICAS msg L ENG LP PUMP displayed.	FIM 73-11-00/101, Fig. 104, Block 1
73 11 07 00	EICAS msg R ENG LP PUMP displayed.	FIM 73-11-00/101, Fig. 104, Block 1
73 11 08 00	EICAS msg L ENG FUEL FILT displayed.	FIM 73-11-00/101, Fig. 103, Block 1
73 11 09 00	EICAS msg R ENG FUEL FILT displayed.	FIM 73-11-00/101, Fig. 103, Block 1
73 21 01 --	(01=L,02=R) Engine remained in approach idle after landing.	FIM 73-21-00/101, Fig. 104, Block 1
73 21 02 --	(01=L,02=R) Engine remained at minimum idle RPM when landing flaps selected in flight.	FIM 73-21-00/101, Fig. 105, Block 1
73 21 03 --	EICAS msg: (01=L,02=R) ENG FUEL VAL displayed and engine did not shut down immediately with fuel control switch in CUTOFF position. Fuel flow was indicated.	FIM 73-21-00/101, Fig. 106, Block 1
73 21 04 --	(01=L,02=R) ENG VALVE light on and EICAS msg: (L,R) ENG FUEL VAL displayed with fuelcontrol sw in (RUN, RICH, CUTOFF). Fuel flow was indicated.	FIM 73-21-00/101, Fig. 107, Block 1
73 21 05 --	(01=L,02=R) Engine fuel flow high. EGT was high and fuel quantity decrease was consistent with fuel flow.	FIM 73-21-00/101, Fig. 108, Block 1
73 21 06 --	(01=L,02=R) ENG LIMITER INOP light on. EICAS msg: (L,R) ENG LIMITER displayed.	FIM 73-21-00/101, Fig. 115, Block 1
73 21 08 --	(01=L,02=R) EEC INOP light on. EICAS msg: (L,R) ENG EEC displayed.	FIM 73-21-00/101, Fig. 116, Block 1

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FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
73 21 09 --	(O1=L,O2=R) EEC and ENG LIMITER INOP light on. EICAS msg: (L,R) ENG EEC and (L,R) ENG LIMITER displayed.	FIM 73-21-00/101, Fig. 115, Block 1
73 21 11 --	(O1=L,O2=R) ENG VALVE light on and EICAS MSG: (L,R) ENG FUEL VAL displayed with fuel control sw in (RUN, RICH, CUTOFF). No fuel flow indicated.	FIM 73-21-00/101, Fig. 107, Block 1
73 21 12 --	(O1=L,O2=R) Engine no EGT rise during start attempt with fuel control switch in RUN. SPAR VALVE light operates normally. No ENG VALVE light. No fuel flow.	FIM 73-21-00/101, Fig. 108, Block 3
73 21 15 --	(O1=L,O2=R) Engine no EGT rise during start attempt with fuel control sw in RUN, started normal in RICH.	FIM 73-21-00/101, Fig. 108, Block 1
73 21 17 --	(O1=L,O2=R) Engine accel during start was slow, minimum idle N3 rpm was obtained. Starter cutout was normal.	FIM 73-21-00/101, Fig. 108, Block 1
73 21 18 --	(O1=L,O2=R) Engine (accel during start was slow, had hung start) with fuel control sw in RUN. Start in RICH was normal.	FIM 73-21-00/101, Fig. 108, Block 1
73 21 19 --	(O1=L,O2=R) Engine (accel during start was slow, had hung start) with fuel control sw in RUN or RICH.	FIM 73-21-00/101, Fig. 108, Block 1
73 21 23 00	EICAS msg L EEC BITE displayed.	FIM 73-21-00/101, Fig. 103, Block 1
73 21 24 00	EICAS msg R EEC BITE displayed.	FIM 73-21-00/101, Fig. 103, Block 1
73 21 25 --	(O1=L,O2=R) Engine overboosted during T.O. with EEC on. Maximum EPR was _____. Target EPR was _____.	FIM 73-21-00/101, Fig. 103, Block 1

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FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
73 21 26 --	(01=L,02=R) Engine slow in returning to minimum idle RPM after landing.	FIM 73-21-00/101, Fig. 112, Block 1
73 21 27 --	(01=L,02=R) Engine min idle N1 RPM high, read ____% N1.	FIM 73-21-00/101, Fig. 109A, Block 1
73 21 28 00	Engine thrust levers misaligned during T.O. Alignment was normal with eng limiters off (see log book report for description).	FIM 73-21-00/101, Fig. 103, Block 1
73 21 29 --	(01=L,02=R) Engine appr idle N1 RPM low. Reads ____% N1.	FIM 73-21-00/101, Fig. 111, Block 1
73 21 30 --	(01=L,02=R) Engine appr idle N1 RPM high. Reads ____% N1.	FIM 73-21-00/101, Fig. 111, Block 5
73 21 31 00	Engine thrust levers misaligned during all power settings. Alignment was normal with EECs off (see log book report for description).	FIM 73-21-00/101, Fig. 103, Block 1
73 21 32 --	(01=L,02=R) EEC OFF EICAS msg did not display with sw OFF and T.O. power selected.	FIM 73-21-00/101, Fig. 113, Block 1
73 21 33 --	(01=L,02=R) Engine min idle N1 RPM low, reads ____% N1.	FIM 73-21-00/101, Fig. 109A, Block 3
73 21 34 --	EICAS msg: (01=L,02=R) ENG FUEL VAL displayed and ENG VALVE light on with fuel control sw in CUTOFF. Engine did shut down immediately.	FIM 73-21-00/101, Fig. 114, Block 1
73 21 35 --	EICAS msg (01=L,02=R) ENG LOW N1 displayed. N1 RPM was ____%.	FIM 73-21-00/101, Fig. 109A, Block 3
73 21 36 --	(01=L,02=R) Engine min idle RPM low, reads ____% N1. EICAS msg (L/R) ENG LOW N1 displayed.	FIM 73-21-00/101, Fig. 109A, Block 3

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FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
73 21 37 --	(01=L,02=R) Engine failed to light off during start. F/F indicated zero with fuel control sw (RICH, RUN). ENG and SPAR VALVE light off.	FIM 73-21-00/101, Fig. 108, Block 1
73 21 38 --	(01=L,02=R) Engine no EGT rise during start attempt, F/F indicated zero.	FIM 73-21-00/101, Fig. 108, Block 1
73 21 39 --	(01=L,02=R) Engine thrust lever misalignment increases with altitude.	FIM 73-21-00/101, Fig. 117, Block 1
73 21 40 --	(01=L,02=R) Engine power fluctuates. Engine stable with EEC off.	FIM 73-21-00/101, Fig. 103, Block 1
73 21 41 --	(01=L,02=R) Engine reached N1 limit before obtaining T.O. EPR.	FIM 73-21-00/101, Fig. 103, Block 1
73 21 42 --	(01=L,02=R) Engine reached EGT limit before obtaining T.O. EPR.	FIM 73-21-00/101, Fig. 103, Block 1
73 21 44 --	(01=L,02=R) Engine had auto decel without thrust lever movement. Engine did not respond with EEC OFF.	FIM 73-21-00/101, Fig. 103
73 21 46 --	(01=L,02=R) Engine would not reach climb EPR with thrust lever full forward and EEC or eng limiter ON or OFF. Engine parameters were normal. ALT _____, Target EPR _____, Max EPR _____.	FIM 73-21-00/101, Fig. 103, Block 1
73 21 63 00	EICAS msg L ENG LOW N1 displayed.	FIM 73-21-00/101, Fig. 109A, Block 3
73 21 64 00	EICAS msg R ENG LOW N1 displayed.	FIM 73-21-00/101, Fig. 109A, Block 3
73 21 65 --	(01=L,02=R) Engine remained at min idle RPM with Nac anti-ice on.	FIM 73-21-00/101, Fig. 105, Block 1

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FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
73 21 66 --	EICAS msg (01=L,02=R) ENG EEC did not display and EEC INOP light did not come on with switch OFF.	FIM 73-21-00/101, Fig. 113, Block 1
73 21 67 --	(01=L,02=R) Electronic engine control switch (does not return to off, light INOP, ect.).	FIM 73-21-00/101, Fig. 114, Block 1
73 31 01 --	(01=L,02=R) Engine fuel flow reads high. EGT or fuel quantity decrease did not reflect high fuel flow.	FIM 73-31-00/101, Fig. 103, Block 1
73 31 02 --	(01=L,02=R) Engine fuel flow reads low. EGT or fuel quantity decrease did not reflect low fuel flow.	FIM 73-31-00/101, Fig. 103, Block 1
73 31 03 --	(01=L,02=R) Engine fuel flow was (fluctuating, intermittent, zero, ect., using either EICAS computer). Engine EGT was normal.	FIM 73-31-00/101, Fig. 103, Block 1
73 31 04 --	(01=L,02=R) Engine F/F indicated zero during start, eng start was normal.	FIM 73-31-00/101, Fig. 103, Block 1
73 31 05 --	(01=L,02=R) Engine F/F indicated low during start, eng start was normal.	FIM 73-31-00/101, Fig. 103, Block 1
73 31 06 --	(01=L,02=R) Engine F/F indicated high during start, eng start was normal.	FIM 73-31-00/101, Fig. 103, Block 1
73 31 07 --	(01=L,02=R) Engine fuel flow was (fluctuating, intermittent, zero, ect.) using (01=L,02=R) EICAS computer. Fuel flow normal using other computer.	FIM 73-31-00/101, Fig. 103, Block 1

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

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R02

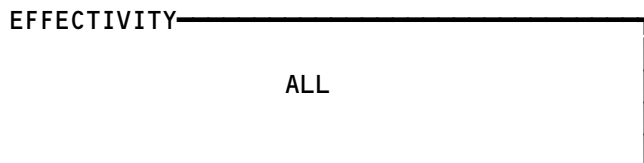
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FUEL DISTRIBUTION SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
ELEMENT - HIGH PRESSURE FUEL FILTER		2	414AR,424AR	73-11-12
ELEMENT - LOW PRESSURE FUEL FILTER		2	414AR,424AR	73-11-10
LINE - ENGINE MAIN FUEL SUPPLY		2	414AR,424AR	73-11-07
MANIFOLD - FUEL		2	415AL,425AL,416AR,426AR	73-11-11
NOZZLE - FUEL SPRAY 		36	415AL,425AL,416AR,426AR	73-11-05
NOZZLE - FUEL SPRAY 		48	415AL,425AL,416AR,426AR	73-11-05
PUMP - HIGH PRESSURE FUEL		2	413AL,423AL	73-11-03
PUMP - LOW PRESSURE FUEL		2	414AR,424AR	73-11-01

-  ENGINES PRE RR-SB 72-C230
-  ENGINES POST RR-SB 72-C230

Fuel Distribution System - Component Index  
Figure 101



73-11-00

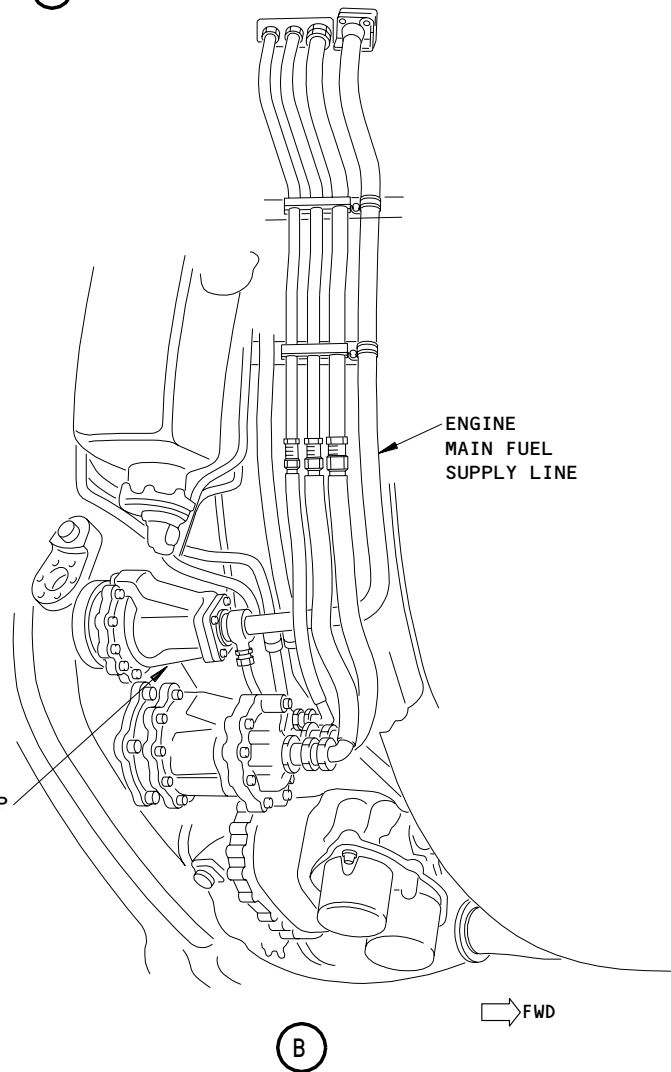
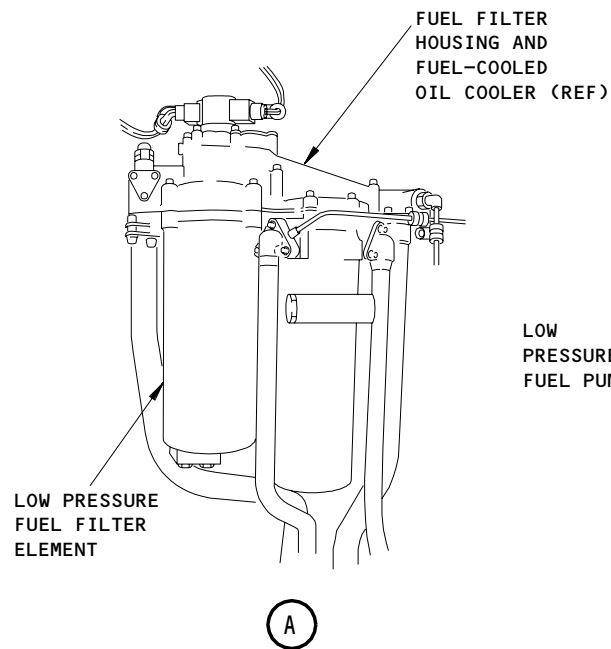
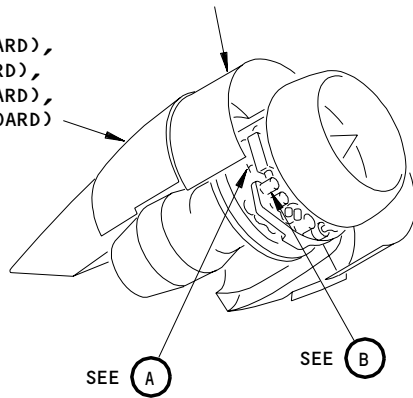
R02

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Jan 20/99

H68102

FAN COWL,  
 413AL (LEFT ENGINE OUTBOARD),  
 414AR (LEFT ENGINE INBOARD),  
 423AL (RIGHT ENGINE INBOARD),  
 424AR (RIGHT ENGINE OUTBOARD)

THRUST REVERSER COWL,  
 415AL (LEFT ENGINE OUTBOARD),  
 416AR (LEFT ENGINE INBOARD),  
 425AL (RIGHT ENGINE INBOARD),  
 426AR (RIGHT ENGINE OUTBOARD)



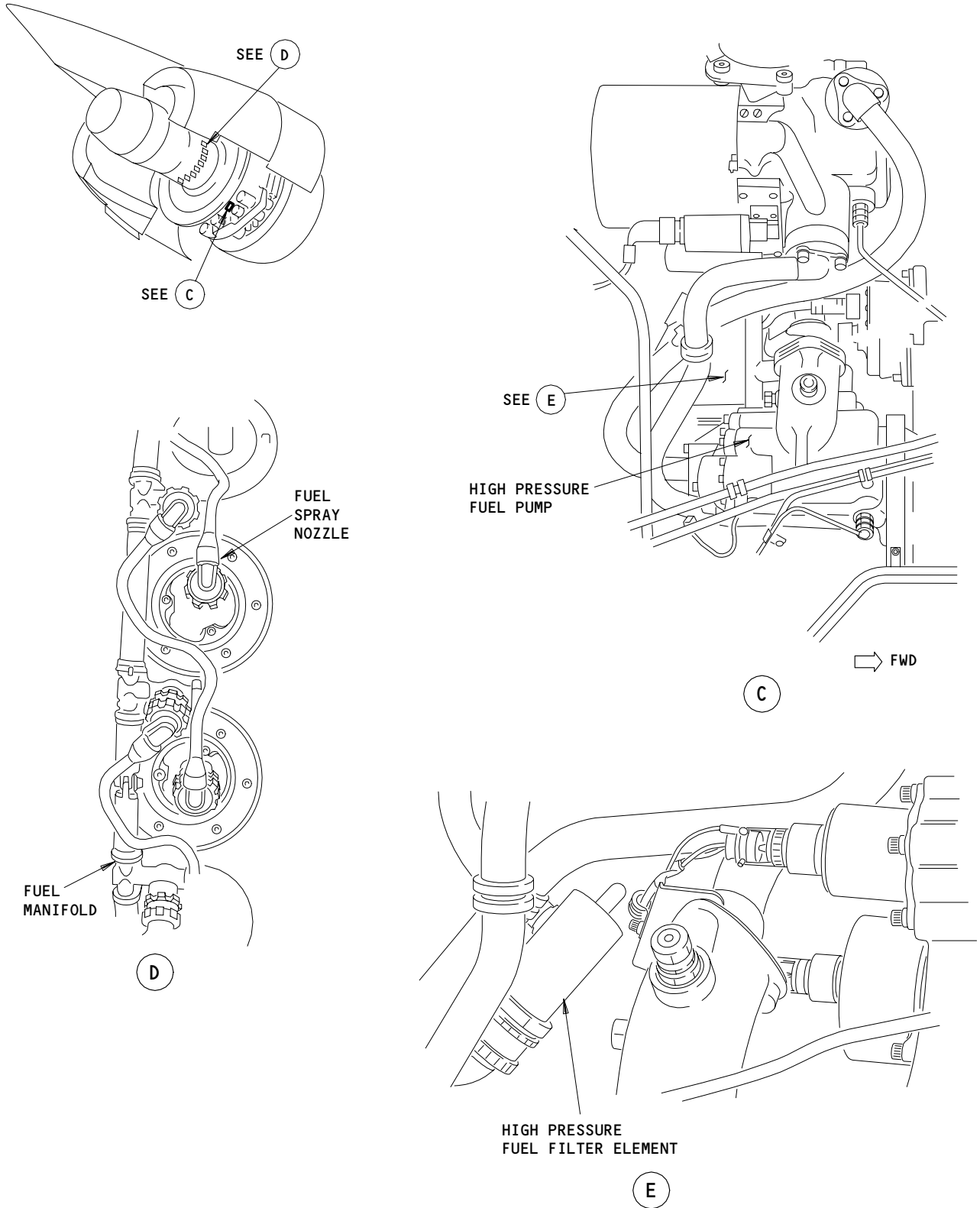
Fuel Distribution System - Component Location  
 Figure 102 (Sheet 1)

EFFECTIVITY	
	ALL

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R01

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Component Location  
Figure 102 (Sheet 2)

EFFECTIVITY	
	ALL

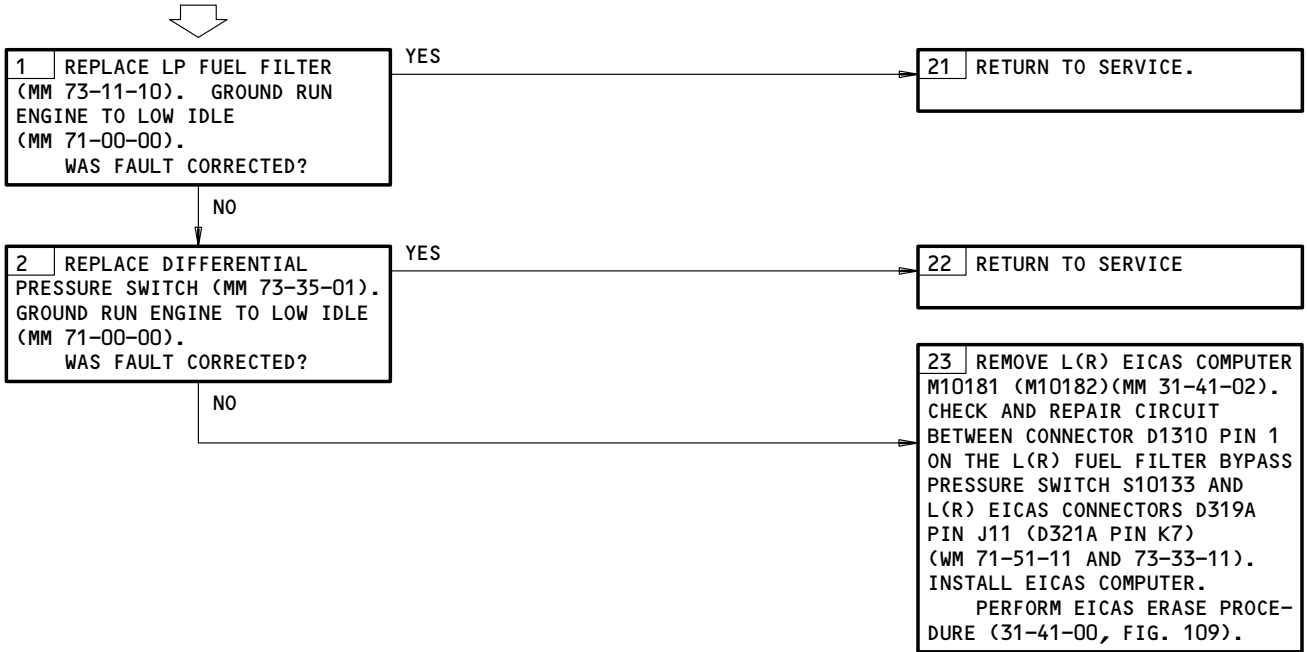
73-11-00

R01

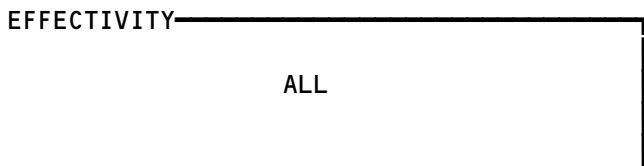
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"ENG FUEL FILT"  
MESSAGE DISPLAYED

**PREREQUISITES**  
NONE



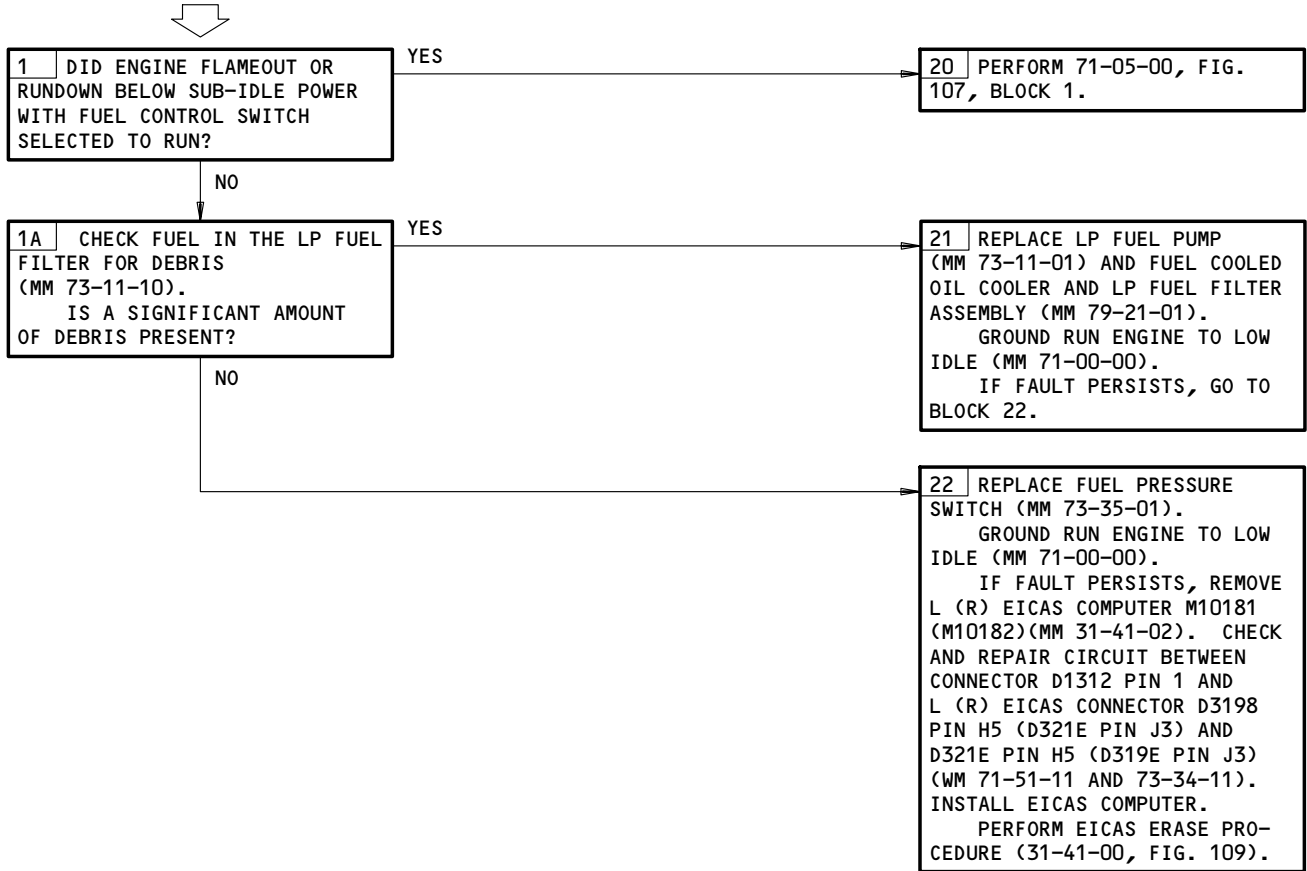
"ENG FUEL FILT" Message Displayed  
Figure 103



**73-11-00**

**PREREQUISITES**  
NONE

**"L (R) ENG LP PUMP"  
MESSAGE DISPLAYED**



"L (R) ENG LP PUMP" Message Displayed  
Figure 104

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ALL

**73-11-00**

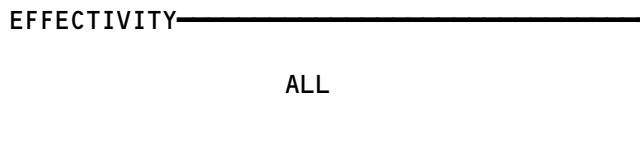
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FUEL CONTROL SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CONTROL - ELECTRONIC ENGINE (EEC), SUPERVISORY AND LIMITER L EEC, M10391 R EEC, M10392	3	2	119BL, MAIN EQUIPMENT CENTER	73-21-07
GENERATOR - DEDICATED, M10169	1	2	414AR,424AR L (R) FAN COWL PANEL	73-21-08
GOVERNOR - FUEL FLOW, M10154	1	2	414AR,424AR L (R) FAN COWL PANEL	73-21-01
MODULE - EEC PATCH CABLE, M10158	2	2	414AR,424AR L (R) FAN COWL PANEL	73-21-12
PROBE - P1, B10010	2	2	FORWARD FAIRING - FORWARD SECTION	73-21-04
RELAY - (FIM 31-01-36/101) LEFT ENGINE CLOSE DISAGREE, K10124 LEFT ENGINE IDLE CONTROL, K10103 LEFT ENGINE OPEN DISAGREE, K10126 <span style="border: 1px solid black; padding: 0 2px;">1</span>				
RELAY - (FIM 31-01-37/101) RIGHT ENGINE CLOSE DISAGREE, K10125 RIGHT ENGINE IDLE CONTROL, K10102 RIGHT ENGINE OPEN DISAGREE, K10127 <span style="border: 1px solid black; padding: 0 2px;">1</span>				
SENSOR - T2 (FAN STREAM) TEMPERATURE, TS5024	2	2	414AR,424AR L (R) FAN COWL PANEL	73-21-11
TRANSDUCER - THRUST LEVER ANGLE, TS171	3	2	113AL, FWD EQUIPMENT CENTER	73-21-09
UNIT - DEDICATED GENERATOR CONTROL			414AR,424AR L (R) FAN COWL PANEL	73-21-10
DGCU A, M10157	2	2		
DGCU B, M10165	2	2		
VALVE - TRANSIENT FUEL, V10031	1	2	414AR,424AR L (R) FAN COWL PANEL	73-21-14

1 AIRPLANES WITHOUT SB 76-0011

Fuel Control System - Component Index  
Figure 101



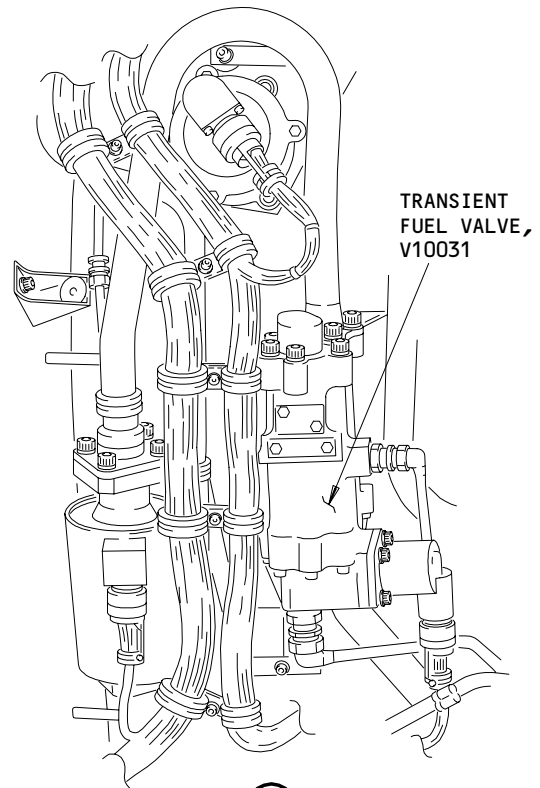
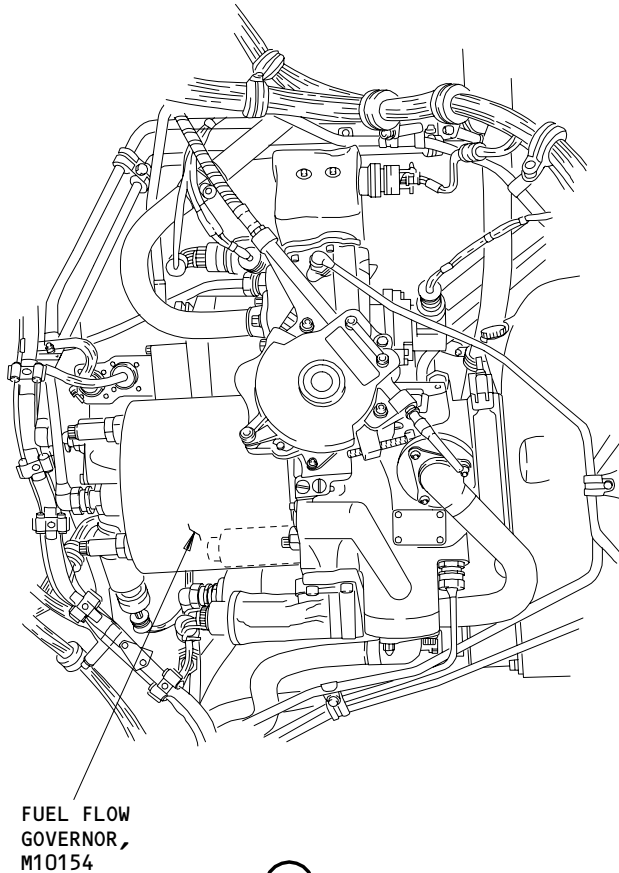
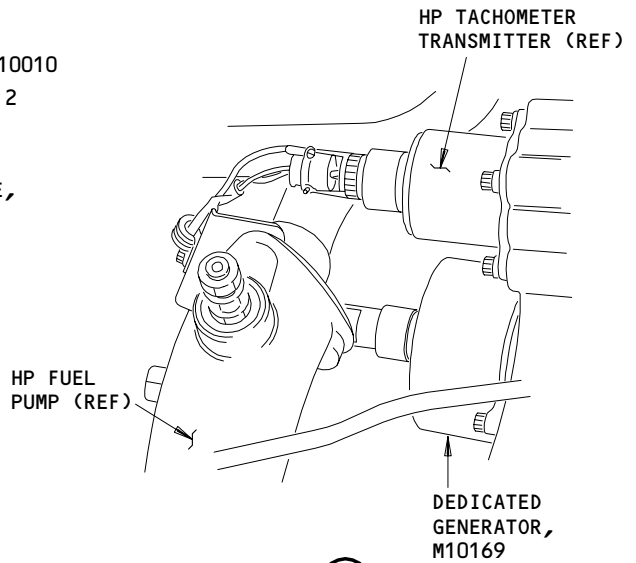
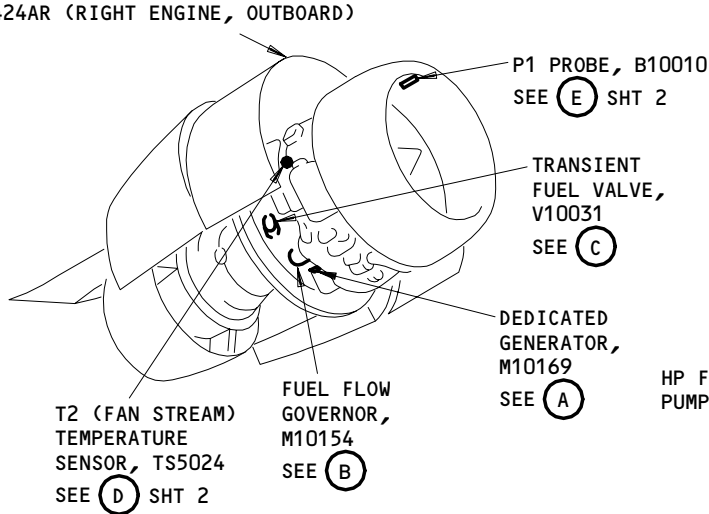
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FAN COWL PANEL,  
414AR (LEFT ENGINE, INBOARD)  
424AR (RIGHT ENGINE, OUTBOARD)



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

EFFECTIVITY

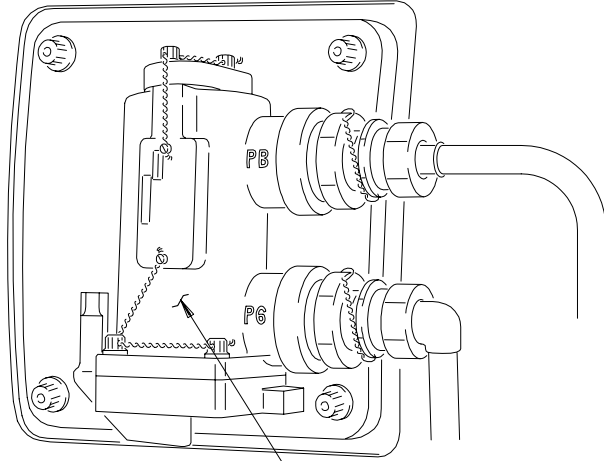
ALL

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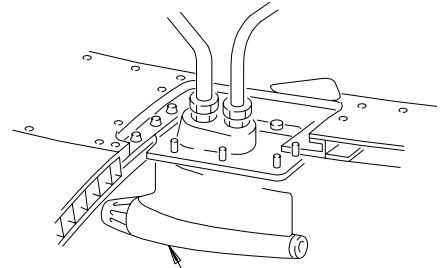
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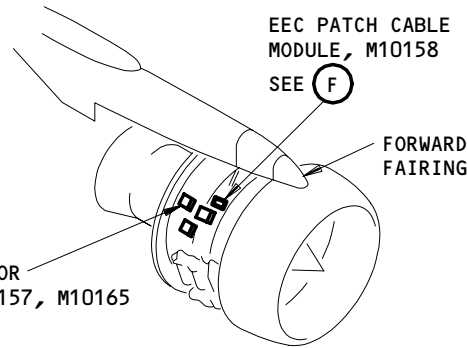
T2 (FAN STREAM) TEMPERATURE SENSOR, TS5024

(D) FROM SHT 1



P1 PROBE, B10010

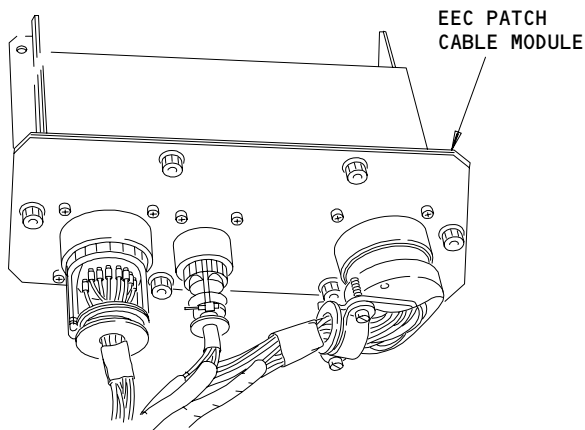
(E) FROM SHT 1



EEC PATCH CABLE MODULE, M10158  
SEE (F)

FORWARD FAIRING

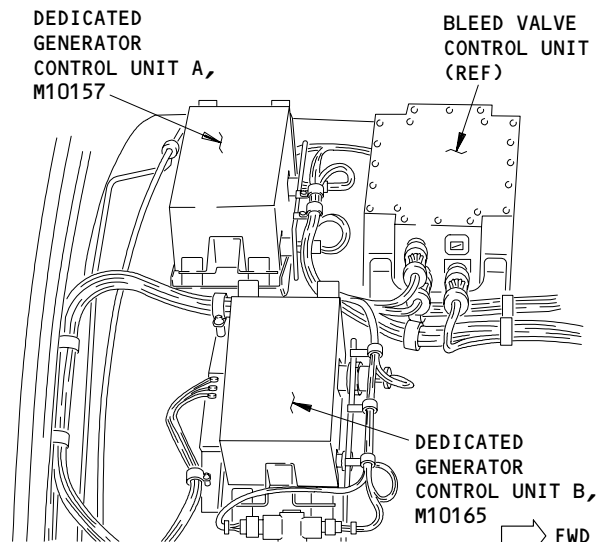
DEDICATED GENERATOR CONTROL UNIT, M10157, M10165  
SEE (G)



EEC PATCH CABLE MODULE

EEC PATCH CABLE MODULE, M10158

(F)



DEDICATED GENERATOR CONTROL UNIT A, M10157

BLEED VALVE CONTROL UNIT (REF)

DEDICATED GENERATOR CONTROL UNIT B, M10165

→ FWD

DEDICATED GENERATOR CONTROL UNIT, M10157, M10165

(G)

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

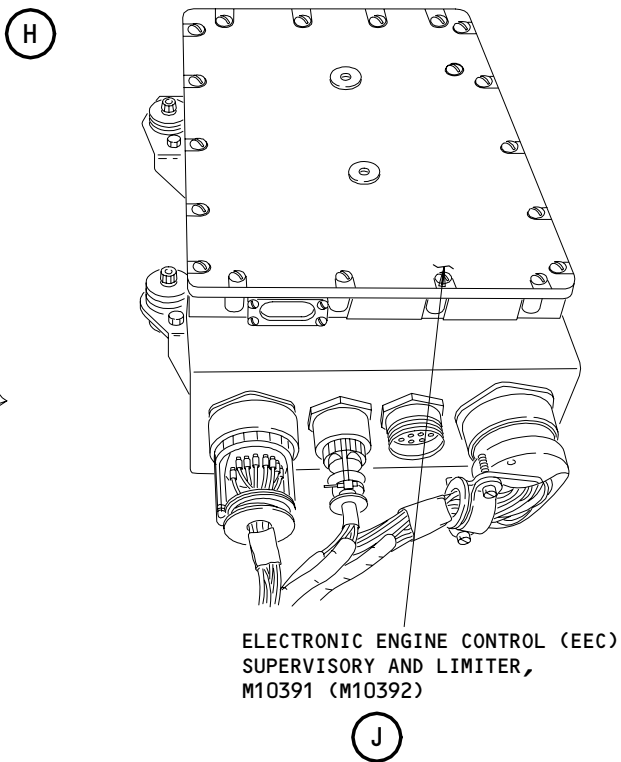
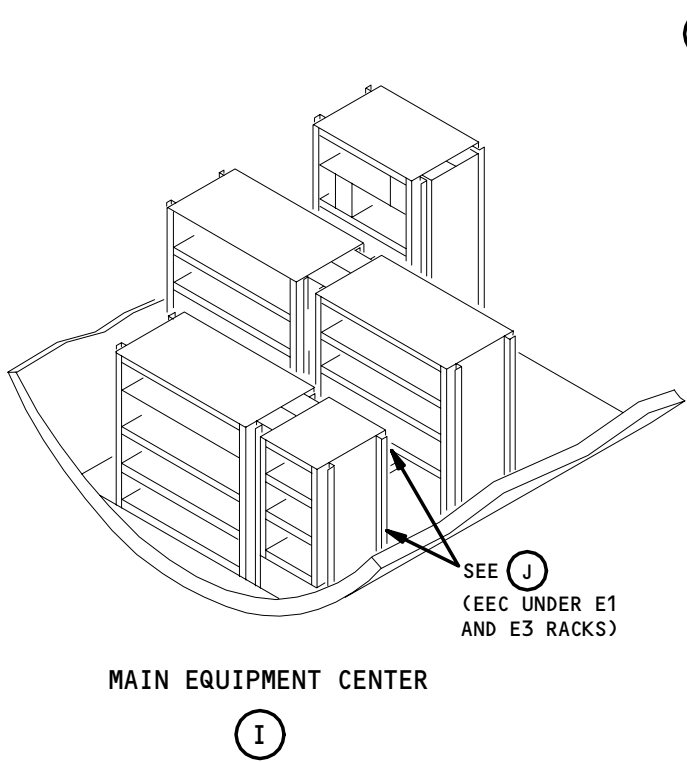
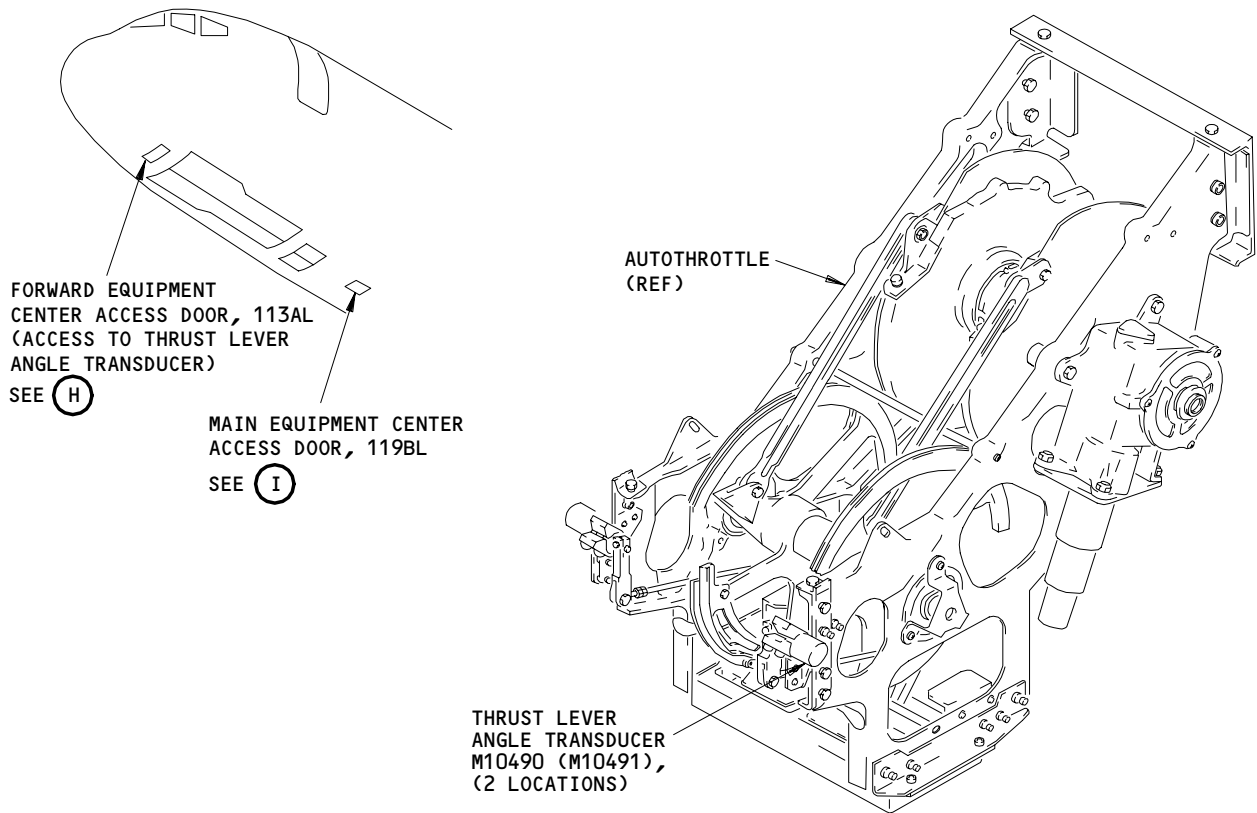
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Fuel Control System - Component Location  
Figure 102 (Sheet 3)

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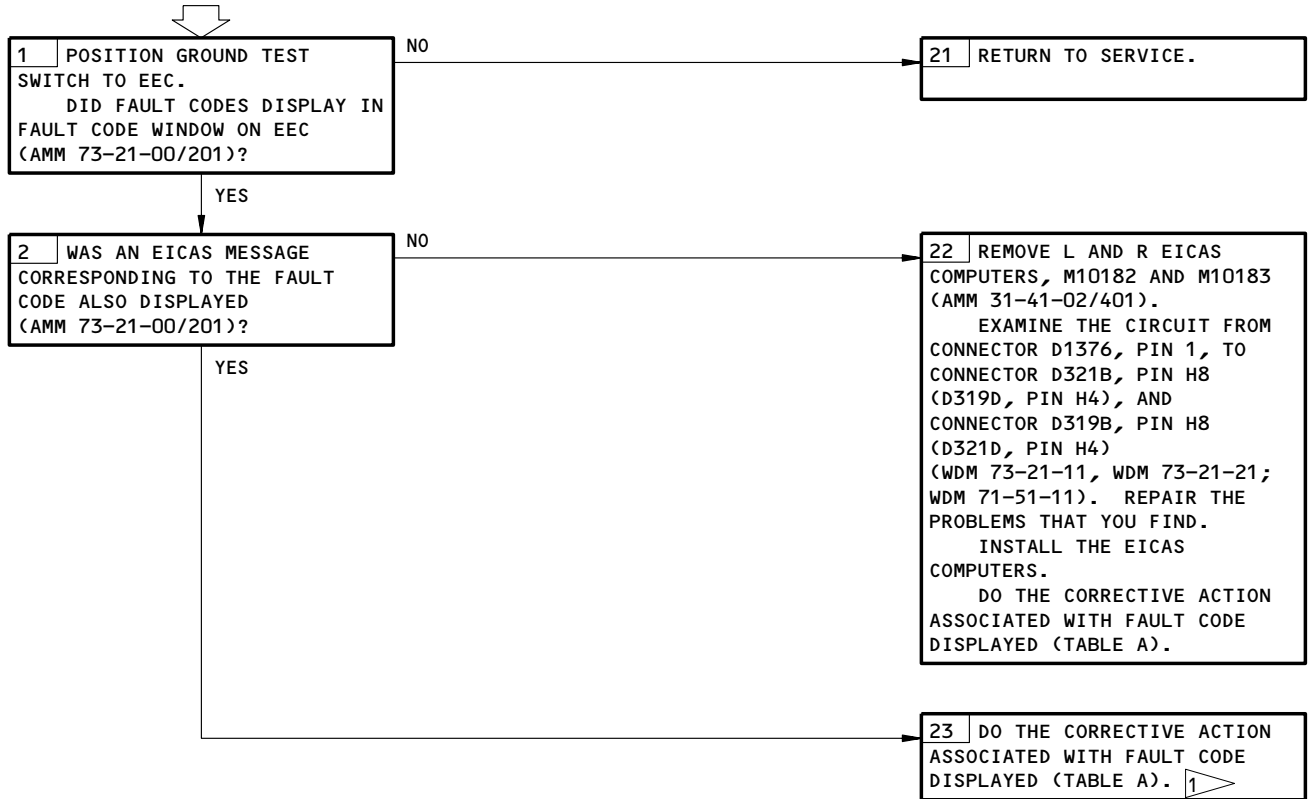
**PREREQUISITES**

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
11D11, 11D12, 11D21, 11D22

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

**CAUTION:** VOLTAGE SENSITIVE EQUIPMENT BEING TESTED.  
USE LOW VOLTAGE TEST EQUIPMENT ONLY  
PRODUCING VOLTAGES OF 100V DC OR LESS.

**EEC BITE PROCEDURE**



1 IF NO FAULT IS FOUND AFTER YOU TROUBLESHOOT, DO AN INSPECTION OF THE MODULAR TERMINAL BLOCK/TERMINAL BLOCK FOR A POSSIBLE WIRING FAULT (AMM 71-51-01/601).

EEC BITE Procedure  
Figure 103 (Sheet 1)

EFFECTIVITY

ALL

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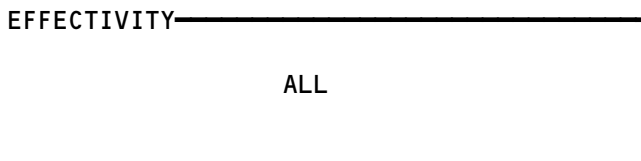
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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION
02	GROUND TEST SWITCH "ON" WITH ENGINE RUNNING	CHECK THAT EEC GROUND TEST SWITCH, S10379, LEFT ENGINE; S10380, RIGHT ENGINE ON THE SUPPORT NEAR EEC IS IN THE "OFF" POSITION. ALSO CHECK IF THE EEC/BVCU GROUND TEST SWITCH, S10150, ON THE ENGINE TEST RECEPTACLE BLOCK IS IN THE CENTER "OFF" POSITION. IF SWITCHES ARE "OFF", DISCONNECT EEC PLUG, 4 (D4162, LEFT ENGINE; D4064, RIGHT ENGINE) AND CHECK IF 28V DC IS PRESENT AT PIN 15 OR 16. IF 28V DC IS PRESENT, CHECK GROUND TEST SWITCHES S10150 AND S10379, LEFT ENGINE OR S10150 AND S10380, RIGHT ENGINE FOR SHORT CIRCUIT. IF 28V DC IS NOT PRESENT, REPLACE EEC (AMM 73-21-07/401).
1A	SHORT DURATION INTERMITTENT N1 FAULT	NO IMMEDIATE ACTION REQUIRED. IF THE FAULT CODE PERSISTS, CHECK TIGHTNESS OF CONNECTOR D40152, AND N1 ACTIVE PLUG, D1436. DISCONNECT CONNECTOR D40152, AND PLUG, D1436 AND CHECK CLEANLINESS OF PINS/SOCKETS AND SECURITY OF PIN GRIP. REPAIR AS NEEDED (WDM 71-51-11). RECONNECT CONNECTOR AND PLUG AND CHECK TIGHTNESS. IF FAULT CODE PERSISTS, DO THE CORRECTIVE ACTION FOR FAULT CODE 14.
14	N1 MAJOR SIGNAL FAULT N1 SIGNAL OUT OF RANGE OR RATE OF CHANGE EXCESSIVE	IF N1 IS OPERATIVE, DISCONNECT EEC PLUG, D4162 (D4064), AND CHECK RESISTANCE BETWEEN PINS, 26 AND 27. THE RESISTANCE SHOULD BE BETWEEN 5.0 TO 7.0 OHMS. MAKE SURE THE INSULATION OF EACH PIN TO AIRPLANE GROUND IS AT LEAST 20 MEGAOHMS. REPAIR AS NEEDED. IF N1 INDICATIONS ARE INOPERATIVE OR FAULT PERSISTS, CONNECT ALTERNATIVE SPEED PROBE (AMM 77-12-01/201). IF FAULT CODE PERSISTS, REPLACE THE EEC (AMM 75-21-07/401).

TABLE A

EEC BITE Procedure  
Figure 103 (Sheet 2)



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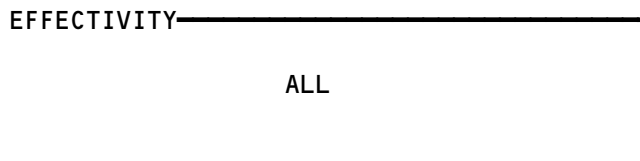
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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION
21	EGT SIGNAL MAJOR OPEN CIRCUIT FAULT	<p>ENGINES WITH RR SB 71-8093; TROUBLE SHOOTING IS STEP NO. 3. SEE NOTE </p>
24	EGT MAJOR SIGNAL FAULT INDICATES OUT-OF-RANGE OR RATE OF CHANGE EXCESSIVE	<p>1. IF EGT INDICATION ON EICAS WAS FAULTY - CHECK THERMOCOUPLES, ELECTRICAL CABLES, TERMINAL BLOCKS AND RESISTORS (AMM 77-21-03/601, AMM 77-21-04/601).</p> <p>2. IF EGT INDICATION IS NOT AFFECTED - DISCONNECT EEC PLUG, 3 (D4164, LEFT ENGINE; D4066, RIGHT ENGINE). CHECK CONTINUITY BETWEEN EEC PLUG, 3 AND EGT TERMINAL BLOCK, TB-2, AS FOLLOWS:</p> <ul style="list-style-type: none"> <li>• PLUG 3, PIN 3 TO TB-2, POST 1</li> <li>• PLUG 3, PIN 4 TO TB-2, POST 2</li> </ul> <p>IF NO CONTINUITY, REPAIR AS REQUIRED. IF CIRCUIT CONTINUITY, CONNECT PLUG, 3, TO EEC. IF FAULT PERSISTS, DISCONNECT PLUGS, D1378, D1380 AND INTERFACE PLUG, C1 (D1004). CHECK CLEANLINESS OF PINS/SOCKETS AND SECURITY OF PIN GRIP. CHECK RESISTANCE OF INSULATION TO AIRPLANE GROUND (SHOULD BE AT LEAST 20 MEGAOHMS). RECONNECT PLUGS AND CHECK TIGHTNESS. REPAIR AS REQUIRED. IF FAULT PERSISTS, REPLACE EEC (AMM 78-21-07/401).</p> <p><u>NOTE:</u> IF CODE 24 IS DISPLAYED, CHECK POLARITY OF CHROMEL AND ALUMEL WIRES THROUGH COMPLETE CIRCUIT.</p> <p>3. DISCONNECT PLUG, D4164, (LEFT ENGINE) D4066 (RIGHT ENGINE) AND CHECK FOR CONTINUITY BETWEEN PIN SOCKETS, 3 AND 4.</p> <p>IF NO CONTINUITY, REPAIR AS REQUIRED. IF ELECTRICAL CONTINUITY EXISTS, REPLACE EEC (AMM 73-21-07/401).</p>
2A	SHORT DURATION INTERMITTENT EGT FAULT DUE TO OUT-OF-RANGE OR RATE OF CHANGE EXCESSIVE	<p>ENGINES WITH RR SB 71-8093; TROUBLE SHOOTING IS STEP NO. 3. SEE NOTE </p> <p>1. CHECK TIGHTNESS OF PLUGS D1378, D1380 AND D1004.</p> <p>2. IF FAULT PERSISTS, DISCONNECT PLUGS, D1378, D1380 AND D1004. CHECK CLEANLINESS OF PINS/SOCKETS AND SECURITY OF PIN GRIP. REPAIR AS REQUIRED. RECONNECT PLUGS AND CHECK TIGHTNESS.</p> <p>3. IF FAULT PERSISTS, TROUBLE SHOOT PER FAULT CODES, 21 AND 24, STEP NO. 3.</p>
2B	SHORT DURATION INTERMITTENT EGT FAULT DUE TO OPEN CIRCUIT	

TABLE A

**NOTE:** ENGINES WITH RR SB 71-8093;  
IT IS UNLIKELY THAT FAULT CODES, 21, 24, 2A OR 2B, WILL EVER BE DISPLAYED. HOWEVER, IF ANY OR ALL OF THESE CODES ARE DISPLAYED, IT CAN ONLY BE CAUSED BY AN EEC INTERNAL FAULT OR OPEN CIRCUIT IN THE SHORTING LINK, IN PLUG, D4164 (D4066).

EEC BITE Procedure  
Figure 103 (Sheet 3)

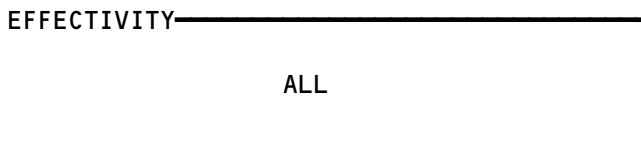


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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION
31	TORQUE MOTOR OPEN CIRCUIT (BOTH COILS)	DISCONNECT CONNECTOR D1370, FROM THE FUEL FLOW GOVERNOR (FFG), M10154. MEASURE THE RESISTANCE BETWEEN PIN 1 AND PIN 2. THE RESISTANCE MUST BE BETWEEN 18 AND 22 OHMS.  <u>NOTE:</u> IF THE ENGINE IS WARM, THE RESISTANCE CAN BE APPROXIMATELY 6 OHMS HIGHER. IF THE RESISTANCE IS BETWEEN 36 AND 44 OHMS, ONE OF THE TWO COILS IN THE TORQUE MOTOR HAS AN OPEN CIRCUIT.
	TORQUE MOTOR SHORT CIRCUIT	MEASURE THE RESISTANCE BETWEEN PINS, 1 AND 2, TO GROUND TO MAKE SURE THE INSULATION IS OK. THE RESISTANCE MUST BE MORE THAN 20M OHMS. IF THE RESISTANCE IS NOT CORRECT, REPLACE THE FFG, M10154 (AMM 73-21-01/401). IF THE RESISTANCE IS CORRECT, CONNECT CONNECTOR D1370, AND DISCONNECT CONNECTOR D4162 (D4064), FROM THE ELECTRONIC ENGINE CONTROL (EEC), M10391 (M10392). MEASURE THE RESISTANCE BETWEEN PINS, 21 AND 22, TO GROUND TO MAKE SURE THE INSULATION IS OK. THE RESISTANCE MUST BE MORE THAN 20M OHMS. IF THE RESISTANCE IS INCORRECT, REPAIR THE WIRING AS NECESSARY.
	TORQUE MOTOR CIRCUIT (ONE COIL OPEN)	IF THE FAULT CODE COMES BACK, MOVE THE EEC FROM THE POSITION FOR THE LEFT ENGINE TO THE POSITION FOR THE RIGHT ENGINE AND FROM THE POSITION FOR THE RIGHT ENGINE TO THE LEFT ENGINE. AFTER THE NEXT FLIGHT, FIND OUT IF THE FAULT CODE COMES BACK. IF THE FAULT CODE COMES BACK, EXAMINE THE TIGHTNESS OF THREE GROUND WIRES ON THE LEFT EEC TO GROUND LOCATIONS, GD2168-DC AND GD2169-ST. ALSO, EXAMINE THE TIGHTNESS OF THREE GROUND WIRES ON THE RIGHT EEC TO GROUND LOCATIONS, GD2170-DC AND GD2171-ST. IF THE FAULT CODE COMES BACK ON THE SAME EEC, REPLACE THE EEC, M10391 (M10392)(AMM 73-21-07/401). IF THE FAULT CODE COMES BACK ON THE SAME ENGINE, DISCONNECT CONNECTOR D4162 (D4064), FROM THE EEC. MAKE SURE THE L (R) ENG LIMITER SWITCH IS ON AND THE L (R) ENG LIMITER CIRCUIT BREAKER 11L4 (11L31), ARE CLOSED. MEASURE FOR 28V DC FROM D4162 (D4064), PIN 2, TO GROUND. IF THE VOLTAGE IS NOT CORRECT, EXAMINE THE WIRING FROM THE L (R) ENG LIMITER CB TO THE EEC. REPAIR THE PROBLEMS THAT YOU FIND. IF THE WIRING IS OK, REPLACE THE ENG/START RAT MODULE, M10468, FOR A BAD L (R) ENG LIMITER SWITCH. IF THE VOLTAGE IS CORRECT, REPLACE THE FFG, M10154 (AMM 73-21-01/401).

TABLE A

EEC BITE Procedure  
Figure 103 (Sheet 4)



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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION
34	LINEAR VARIABLE DIFFERENTIAL TRANSFORMER (LVDT)	<p>DISCONNECT CONNECTOR D1372, FROM THE FUEL FLOW GOVERNOR (FFG), M10154. MEASURE THE RESISTANCE BETWEEN FFG PINS, 4 AND 7, AND BETWEEN PINS, 1 AND 2. THE RESISTANCE BETWEEN PINS, 4 AND 7, MUST BE BETWEEN 120 AND 180 OHMS. THE RESISTANCE BETWEEN PINS, 1 AND 2 MUST BE BETWEEN 16 AND 26 OHMS. MEASURE THE RESISTANCE BETWEEN PINS, 1, 2, 4, AND 7, TO GROUND TO MAKE SURE THE INSULATION IS OK. THE RESISTANCE MUST BE MORE THAN 20M OHMS. IF THESE RESISTANCES ARE NOT CORRECT, REPLACE THE FFG, M10154 (AMM 73-21-01/401).</p> <p>IF THE FFG RESISTANCES ARE CORRECT, CONNECT CONNECTOR D1372, ON THE FFG, M10154.</p> <p>DISCONNECT CONNECTOR D4162 (D4064), FROM THE ELECTRONIC ENGINE CONTROL (EEC), M10391 (M10392). MAKE SURE THERE IS CONTINUITY BETWEEN CONNECTOR PIN 12 AND PIN 13, AND BETWEEN PIN 28 AND PIN 29. MEASURE THE RESISTANCE BETWEEN PINS, 12, 13, 28, AND 29, TO GROUND TO MAKE SURE THE INSULATION IS OK. THE RESISTANCE MUST BE MORE THAN 20M OHMS.</p> <p>IF THE CONTINUITY AND THE RESISTANCE ARE NOT CORRECT, REPAIR THE WIRING AS NECESSARY.</p> <p>IF THE FAULT CODE COMES BACK, MOVE THE EEC FROM THE POSITION FOR THE LEFT ENGINE TO THE POSITION FOR THE RIGHT ENGINE AND FROM THE POSITION FOR THE RIGHT ENGINE TO THE LEFT ENGINE. AFTER THE NEXT FLIGHT, FIND OUT IF THE FAULT CODE COMES BACK.</p> <p>IF THE FAULT CODE COMES BACK ON THE SAME EEC, REPLACE THE EEC, M10391 (M10392)(AMM 73-21-07/401).</p> <p>IF THE FAULT CODE COMES BACK ON THE SAME ENGINE, REPLACE THE FFG, M10154 (AMM 73-21-01/401).</p>
35	LVDT AND TORQUE MOTOR FAULT DETECTED DURING POWER UP	<p>DO THE CORRECTIVE ACTION FOR FAULT CODES 31, 34 AND 39.</p> <p>IF THE FAULT CODE COMES BACK, MOVE THE ELECTRONIC ENGINE CONTROL (EEC) FROM THE POSITION FOR THE LEFT ENGINE TO THE POSITION FOR THE RIGHT ENGINE AND FROM THE POSITION FOR THE RIGHT ENGINE TO THE LEFT ENGINE. AFTER THE NEXT FLIGHT, FIND OUT IF THE FAULT CODE COMES BACK.</p> <p>IF THE FAULT CODE COMES BACK, EXAMINE THE TIGHTNESS OF THREE GROUND WIRES ON THE LEFT EEC TO GROUND LOCATIONS, GD2168-DC AND GD2169-ST. ALSO, EXAMINE THE TIGHTNESS OF THREE GROUND WIRES ON THE RIGHT EEC TO GROUND LOCATIONS, GD2170-DC AND GD2171-ST.</p> <p>IF THE FAULT CODE COMES BACK ON THE SAME EEC, REPLACE THE EEC, M10391 (M10392)(AMM 73-21-07/401).</p> <p>IF THE FAULT CODE COMES BACK ON THE SAME ENGINE, REPLACE THE FUEL FLOW GOVERNOR (FFG), M10154 (AMM 73-21-01/401).</p> <p><u>NOTE:</u> PRE-RR-SB 73-C181 FFGs CAN HAVE INTERMITTENT FAILURE OF THE FAIL-FIX SOLENOID SYSTEM. THIS RESULTS IN FAULT CODE 35. IF THIS OCCURS REPLACE THE FFG. MODIFIED FFGs DATA PLATE WILL SHOW "C181".</p>
39	FAIL FIX SOLENOID FAULT	<p>DISCONNECT CONNECTOR D1374, FROM THE FUEL FLOW GOVERNOR (FFG), M10154. MEASURE THE RESISTANCE BETWEEN PINS, 1 AND 2. THE RESISTANCE MUST BE BETWEEN 100 AND 140 OHMS. MEASURE THE RESISTANCE BETWEEN PINS, 1 AND 2, TO GROUND TO MAKE SURE THE INSULATION IS OK. THE RESISTANCE MUST BE MORE THAN 20M OHMS.</p> <p>IF THE RESISTANCE IS NOT CORRECT, REPLACE THE FAIL FIX SOLENOID, V10025 (AMM 73-21-15/401). MEASURE THE RESISTANCE AGAIN.</p> <p>IF THE RESISTANCE IS STILL INCORRECT, REPLACE THE FFG, M10154 (AMM 73-21-01/401).</p> <p>IF THE RESISTANCE IS CORRECT, CONNECT CONNECTOR D1374, AND DISCONNECT CONNECTOR D4162 (D4064), FROM THE ELECTRONIC ENGINE CONTROL (EEC), M10391 (M10392). MEASURE THE RESISTANCE BETWEEN PIN 19 (CASE GROUND) AND PIN 24, TO MAKE SURE THE INSULATION IS OK.</p>

TABLE A  
 EEC BITE Procedure  
 Figure 103 (Sheet 5)

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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION									
39 (CONT.)	FAIL FIX SOLENOID FAULT	<p>IF CONTINUITY IS FOUND, REPAIR THE WIRING AS NECESSARY.</p> <p>IF THE FAULT CODE COMES BACK, MOVE THE EEC FROM THE POSITION FOR THE LEFT ENGINE TO THE POSITION FOR THE RIGHT ENGINE AND FROM THE POSITION FOR THE RIGHT ENGINE TO THE LEFT ENGINE. AFTER THE NEXT FLIGHT, FIND OUT IF THE FAULT CODE COMES BACK.</p> <p>IF THE FAULT CODE COMES BACK ON THE SAME EEC, REPLACE THE EEC, M10391 (M10392)(AMM 73-21-07/401).</p> <p>IF THE FAULT CODE COMES BACK ON THE SAME ENGINE, REPLACE THE FFG, M10154 (AMM 73-21-01/401).</p>									
40	EPR AND P1 SIGNAL FAILURE	<p>MAKE SURE APPLICABLE CIRCUIT BREAKERS ARE CLOSED.</p> <p>IF EPR IS NOT INDICATED ON EICAS, REPLACE EPR TRANSMITTER (AMM 77-11-01/401).</p>									
43	EPR OR P1 SIGNAL FAILURE	<p>IF EPR EICAS INDICATION OK, DISCONNECT EEC PLUG 4 (D4162, LEFT ENGINE; D4064, RIGHT ENGINE) AND EPR TRANSMITTER PLUG, D1368. LOOK FOR CONTINUITY BETWEEN THESE PINS (WDM 71-51-11):</p> <table style="margin-left: 40px; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>D4162/D4064</u></td> <td style="text-align: center;">TO</td> <td style="text-align: center;"><u>D1368</u></td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">TO</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">11</td> <td style="text-align: center;">TO</td> <td style="text-align: center;">10</td> </tr> </table> <p>MEASURE THE RESISTANCE OF EACH PIN INSULATION TO AIRPLANE GROUND. RESISTANCE SHOULD BE 20 MEGAOHMS MINIMUM.</p> <p>IF NOT OK, REPAIR THE PROBLEMS THAT YOU FIND.</p> <p>IF OK, REPLACE EPR TRANSMITTER (AMM 77-11-01/401).</p> <p>IF THE PROBLEM CONTINUES, REPLACE EEC (AMM 73-21-07/401).</p>	<u>D4162/D4064</u>	TO	<u>D1368</u>	3	TO	3	11	TO	10
<u>D4162/D4064</u>	TO	<u>D1368</u>									
3	TO	3									
11	TO	10									
44	EPR AND/OR P1 SIGNAL ERROR OR L (R) ENG EPR XMTR 11D17 (11D18) CIRCUIT BREAKER OPEN WITH GROUND TEST SWITCH ACTIVATED	<p>CODE COULD BE DISPLAYED DUE TO SEVERE ENGINE INLET AIRFLOW DISTORTION IF RUNNING IN HIGH CROSSWINDS.</p> <p>IF CODE DISPLAYED DURING GROUND TEST, MAKE SURE APPLICABLE CIRCUIT BREAKER IS CLOSED. EXAMINE P1 AND PF CONNECTIONS TO EPR TRANSMITTER AND EPR SYSTEM FOR LEAKS.</p> <p>IF OK, EXAMINE THE WIRING FROM EPR TRANSMITTER TO EEC PER CORRECTIVE ACTION FOR FAULT CODES 40 AND 43. REPAIR THE PROBLEMS THAT YOU FIND.</p> <p>IF NOT OK, REPLACE EPR TRANSMITTER (AMM 77-11-01/401).</p> <p>IF THE PROBLEM CONTINUES, REPLACE EEC (AMM 73-21-07/401).</p>									
47	P1 FROM EPR XMTR (P1E) HAS FAILED CROSS-CHECK WITH P1 FROM LEFT AND RIGHT ADCS	<p>CODE COULD BE DISPLAYED DUE TO SEVERE ENGINE INLET AIRFLOW DISTORTION IF RUNNING IN HIGH CROSSWINDS.</p> <p>EXAMINE P1 CONNECTIONS TO EPR TRANSMITTER FOR LEAKS.</p> <p>IF OK, EXAMINE WIRING BETWEEN EPR XMTR AND EEC PER CORRECTIVE ACTION FOR FAULT CODES 40 AND 43.</p> <p>IF OK, REPLACE EPR TRANSMITTER (AMM 77-11-01/401).</p> <p>IF THE PROBLEM CONTINUES, REPLACE EEC (AMM 73-21-07/401).</p>									
4A	SHORT DURATION INTERMITTENT EPR AND P1 FAULT	<p>EXAMINE TIGHTNESS OF EEC CONNECTORS D4162 (D4064) AND D1368.</p> <p>IF THE PROBLEM CONTINUES, DISCONNECT CONNECTORS D4162 (D4064) AND D1368, AND EXAMINE FOR CLEANLINESS OF PINS/SOCKETS AND SECURITY OF PIN GRIP.</p> <p>RECONNECT PLUGS AND TIGHTEN.</p>									

TABLE A

EEC BITE Procedure  
Figure 103 (Sheet 6)

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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION									
54	THRUST LEVER ANGLE (TLA) TRANSDUCER OUTPUT INCORRECT	CHECK THRUST LEVER ANGLE TRANSDUCER FOR SECURITY AND CORRECT RIGGING (AMM 73-21-09/201). SECURE AND/OR RERIG AS REQUIRED (AMM 73-21-09/201). IF OK, CHECK RESISTANCE BETWEEN THE FOLLOWING PINS ON CONNECTOR D4160 (D4062)(WDM 73-21-12; WDM 73-21-22): <ul style="list-style-type: none"> <li>• PINS, 40 AND 41, RESISTANCE SHOULD BE 30-40 OHMS</li> <li>• PINS, 10 AND 11, RESISTANCE SHOULD BE 20-30 OHMS</li> <li>• PINS, 10 AND 24, RESISTANCE SHOULD BE 20-30 OHMS</li> </ul> CHECK INSULATION RESISTANCE OF EACH PIN ABOVE, TO GROUND. RESISTANCE SHOULD BE 20 MEGAOHMS MINIMUM. IF NOT OK, REPLACE THRUST LEVER ANGLE TRANSDUCER (AMM 73-21-09/401). IF OK, REPLACE EEC (AMM 73-21-07/401). IF THE PROBLEM CONTINUES, REPAIR CIRCUIT IF TLA TRANSDUCER REPLACEMENT DID NOT FIX PROBLEM.									
5A	SHORT DURATION INTERMITTENT THRUST LEVER ANGLE (TLA) OUTPUT FAULT	CHECK TIGHTNESS OF CONNECTOR D4160 (D4062). CHECK TIGHTNESS OF CONNECTORS IN ASSOCIATED AIRPLANE WIRING. IF THE PROBLEM CONTINUES, DISCONNECT CONNECTOR D4160 (D4062), AND CHECK FOR CLEANLINESS OF PINS/SOCKETS AND SECURITY OF PIN GRIP. RECONNECT PLUGS AND TIGHTEN.									
60	LEFT AIR DATA COMPUTER (ADC) SIGNAL LOST (ALL PARAMETERS)	IF FAULT CODE 60 OR 61 APPEARS ON BOTH ENGINES, REPLACE LEFT ADC (AMM 34-12-01/401). MAKE SURE ADC CIRCUIT BREAKERS ARE CLOSED. IF CIRCUIT BREAKERS ARE CLOSED, DISCONNECT EEC PLUG, D4160 (D4062)									
61	LEFT AIR DATA COMPUTER (ADC) SIGNAL FAULT (ONE OR MORE PARAMETERS)	AND DO A CONTINUITY CHECK BETWEEN EEC PLUG AND LEFT ADC PLUG, D289B, AS FOLLOWS: <table style="margin-left: 40px;"> <tr> <td><u>D4160 (D4062)</u></td> <td></td> <td><u>D289B</u></td> </tr> <tr> <td>PIN 4</td> <td>TO</td> <td>PIN A6</td> </tr> <tr> <td>PIN 12</td> <td>TO</td> <td>PIN B6</td> </tr> </table> CHECK INSULATION RESISTANCE OF EACH PIN ABOVE, TO GROUND. RESISTANCE SHOULD BE 20 MEGAOHMS MINIMUM. REPAIR AS REQUIRED. IF OK, INTERCHANGE LEFT ENGINE AND RIGHT ENGINE EEC. IF FAULT CODE IS NO LONGER DISPLAYED, REPLACE ORIGINAL EEC (AMM 73-21-07/401). IF FAULT CODE IS STILL DISPLAYED, REPLACE LEFT ADC (AMM 34-12-01/401).	<u>D4160 (D4062)</u>		<u>D289B</u>	PIN 4	TO	PIN A6	PIN 12	TO	PIN B6
<u>D4160 (D4062)</u>		<u>D289B</u>									
PIN 4	TO	PIN A6									
PIN 12	TO	PIN B6									

TABLE A

 EEC BITE Procedure  
 Figure 103 (Sheet 7)

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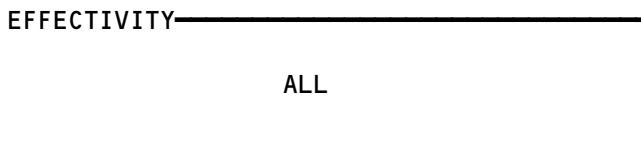
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217861

FAULT CODE	DESCRIPTION	CORRECTIVE ACTION									
64	LEFT ADC RANGE FAULT (ONE OR MORE PARAMETERS)	<p>IF FAULT CODE 64 APPEARS ON BOTH ENGINES, REPLACE LEFT ADC (AMM 34-12-01/401).</p> <p>CHECK CONTINUITY AND INSULATION RESISTANCE AS GIVEN IN CORRECTIVE ACTION FOR FAULT CODES 60 AND 61. REPAIR AS REQUIRED.</p> <p>IF OK, REPLACE EEC (AMM 73-21-07/401).</p> <p>IF THE PROBLEM CONTINUES, REPLACE LEFT ADC (AMM 34-12-01/401).</p> <p>IF THE PROBLEM CONTINUES, DO THIS PROCEDURE: ADC BITE PROCEDURE (FIM 34-12-00/101, FIG. 109).</p>									
66	LEFT AIR DATA COMPUTER (ADC) ALTITUDE FAULT	<p>IF FAULT CODE APPEARS ON BOTH EECs, DO THIS PROCEDURE: ADC BITE PROCEDURE (FIM 34-12-00/101, FIG. 109).</p> <p>IF CODE APPEARS ON ONE EEC ONLY, REPLACE EEC (AMM 73-21-07/401).</p> <p>IF THE PROBLEM CONTINUES, REPLACE LEFT ADC (AMM 34-12-01/401).</p> <p>IF THE PROBLEM CONTINUES, CHECK CONTINUITY AND INSULATION RESISTANCE OF WIRING AS GIVEN IN CORRECTIVE ACTION FOR FAULT CODES, 60 AND 61.</p>									
67	P1 FROM LEFT ADC HAS FAILED CROSS-CHECK WITH P1 FROM RIGHT ADC AND P1E OR MN FROM LEFT ADC FAULT	<p>IF FAULT CODE APPEARS ON BOTH EECs, DO THIS PROCEDURE: ADC BITE PROCEDURE (FIM 34-12-00/101, FIG. 109).</p> <p>IF THE PROBLEM CONTINUES, OR FAULT APPEARS ON ONE EEC ONLY, CHECK CIRCUIT CONTINUITY AND INSULATION RESISTANCE BETWEEN LEFT ADC AND EEC OF ENGINE DISPLAYING CODE AS FOLLOWS:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>LEFT ADC, D289B</u></td> <td style="text-align: center;"><u>LEFT EEC, D4160</u></td> <td style="text-align: center;"><u>RIGHT EEC, D4062</u></td> </tr> <tr> <td style="text-align: center;">PIN A6</td> <td style="text-align: center;">TO PIN 4</td> <td style="text-align: center;">OR PIN 4</td> </tr> <tr> <td style="text-align: center;">PIN B6</td> <td style="text-align: center;">TO PIN 12</td> <td style="text-align: center;">OR PIN 12</td> </tr> </table> <p>INSULATION RESISTANCE OF EACH PIN ABOVE, TO AIRPLANE GROUND, SHOULD BE 20 MEGAOHMS MINIMUM.</p> <p>IF NOT OK, REPLACE HI-VOLTAGE ISOLATION MODULE (M10574, FOR PINS, 6A TO 4 OR M10575, FOR PINS, 6B TO 12). REPAIR CIRCUIT AS REQUIRED.</p> <p>IF THE PROBLEM CONTINUES, REPLACE EEC (AMM 73-21-07/401).</p> <p>IF THE PROBLEM CONTINUES, REPLACE LEFT ADC (AMM 34-12-01/401).</p>	<u>LEFT ADC, D289B</u>	<u>LEFT EEC, D4160</u>	<u>RIGHT EEC, D4062</u>	PIN A6	TO PIN 4	OR PIN 4	PIN B6	TO PIN 12	OR PIN 12
<u>LEFT ADC, D289B</u>	<u>LEFT EEC, D4160</u>	<u>RIGHT EEC, D4062</u>									
PIN A6	TO PIN 4	OR PIN 4									
PIN B6	TO PIN 12	OR PIN 12									

TABLE A

EEC BITE Procedure  
Figure 103 (Sheet 8)



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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION												
68	T1 FROM LEFT ADC HAS FAILED CROSS-CHECK WITH T1 FROM RIGHT ADC AND T1E	IF FAULT CODE 68 APPEARS ON BOTH EECs, DO THIS PROCEDURE: LEFT ADC BITE PROCEDURE (FIM 34-12-00/101, FIG. 109). IF THE PROBLEM CONTINUES, OR FAULT CODE 68 APPEARS ON ONE EEC ONLY, CHECK CONTINUITY AND INSULATION RESISTANCE BETWEEN LEFT ADC AND EEC, AS GIVEN IN THE CORRECTIVE ACTION FOR FAULT CODE 67. IF THE PROBLEM CONTINUES, REPLACE EEC (AMM 73-21-07/401). IF THE PROBLEM CONTINUES, REPLACE LEFT ADC (AMM 34-12-01/401).												
70	RIGHT ADC SIGNAL LOST (ALL PARAMETERS)	IF FAULT CODE 70 OR 71 APPEARS ON BOTH EECs, REPLACE RIGHT ADC (AMM 34-12-01/401). MAKE SURE THAT ADC CIRCUIT BREAKERS ARE CLOSED.												
71	RIGHT ADC SIGNAL LOSE (ONE OR MORE PARAMETERS)	IF CIRCUIT BREAKERS ARE CLOSED, DISCONNECT EEC PLUG, D4160 (D4062) AND DO A CONTINUITY CHECK BETWEEN EEC PLUG AND RIGHT ADC PLUG, D291B, AS FOLLOWS: <table border="0" data-bbox="604 625 954 697"> <tr> <td><u>D4160 (D4062)</u></td> <td></td> <td></td> <td><u>D291B</u></td> </tr> <tr> <td>PIN 25</td> <td>TO</td> <td></td> <td>PIN A6</td> </tr> <tr> <td>PIN 26</td> <td>TO</td> <td></td> <td>PIN B6</td> </tr> </table> CHECK INSULATION RESISTANCE OF EACH PIN ABOVE, TO GROUND. INSULATION RESISTANCE SHOULD BE 20 MEGAOHMS MINIMUM. REPAIR AS REQUIRED. IF NOT OK, REPLACE HI VOLT ISOLATION MODULE (M10578, FOR PINS, 25 TO A6 OR M10579, FOR PINS, 26 TO B6). IF THE PROBLEM CONTINUES, REPAIR CIRCUIT AS REQUIRED (WDM 73-21-12; WDM 73-21-22). IF OK, INTERCHANGE LEFT ENGINE AND RIGHT ENGINE EECs. IF FAULT CODE NO LONGER APPEARS, REPLACE ORIGINAL EEC (AMM 73-21-07/401). IF FAULT CODE STILL APPEARS, REPLACE RIGHT ADC (AMM 34-12-01/401).	<u>D4160 (D4062)</u>			<u>D291B</u>	PIN 25	TO		PIN A6	PIN 26	TO		PIN B6
<u>D4160 (D4062)</u>			<u>D291B</u>											
PIN 25	TO		PIN A6											
PIN 26	TO		PIN B6											
74	RIGHT ADC RANGE FAULT (ONE OR MORE PARAMETERS)	IF FAULT CODE 74 APPEARS ON BOTH EECs, REPLACE RIGHT ADC (AMM 34-12-01/401). CHECK CIRCUIT CONTINUITY AND INSULATION RESISTANCE, AS GIVEN IN CORRECTIVE ACTION FOR FAULT CODES, 70 AND 71. IF OK, REPLACE EEC (AMM 73-21-07/401). IF THE PROBLEM CONTINUES, REPLACE RIGHT ADC (AMM 34-12-01/401). IF THE PROBLEM CONTINUES, CHECK INPUTS INTO RIGHT ADC BITE PROCEDURE (FIM 34-12-00/101, FIG. 109).												

TABLE A

 EEC BITE Procedure  
 Figure 103 (Sheet 9)

EFFECTIVITY

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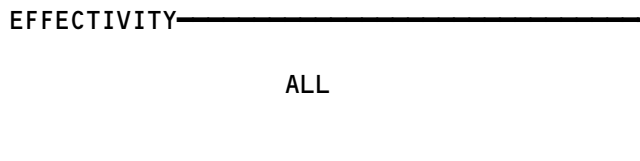
217863



FAULT CODE	DESCRIPTION	CORRECTIVE ACTION
89	TAT PROBE BLOCKAGE TEST SHOWS A TAT RISE OF MORE THAN 26°C RELATIVE TO THE EEC MODELED VALUE, OR FAULT CODE 8A HAS BEEN SET ON 5 CONSECUTIVE FLIGHTS. AN AIRPLANE TAT PROBE BLOCKAGE OR CONTAMINATION IS SUSPECTED.	<ol style="list-style-type: none"> <li>1. DO THE CORRECTIVE ACTION INDICATED IN FIG. 103B.</li> <li>2. PROCEDURE 1 OR 2 IS SELECTED BY ALIGNING THE PART NUMBER OF THE EEC INSTALLED FOR THE LEFT AND RIGHT ENGINES.</li> </ol>
8A	TAT BLOCKAGE TEST SHOWS A TAT RISE OF MORE THAN 8°C BUT LESS THAN 26°C RELATIVE TO THE EEC MODELED VALUE. THE AIRPLANE TAT PROBE MAY BE BLOCKED OR CONTAMINATED. THIS FAULT CODE COULD ALSO BE SET BY FLYING THROUGH A SEVERE TEMPERATURE INVERSION DURING TAKEOFF.	<ol style="list-style-type: none"> <li>1. IF INFORMATION IS AVAILABLE INDICATING THAT THE FAULT CODE OCCURRED ON A FLIGHT WHICH DEPARTED THROUGH A SEVERE TEMPERATURE INVERSION THEN NO ACTION IS REQUIRED.</li> <li>2. VISUALLY INSPECT THE AIRPLANE TAT PROBE FOR CONTAMINATION OR BLOCKAGE. REMOVE CONTAMINATION OR BLOCKAGE AS REQUIRED.</li> </ol>

TABLE A

EEC BITE Procedure  
Figure 103 (Sheet 11)



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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION									
94	T2 RANGE ERROR	<p>1. IF THE BLEED VALVE CONTROL UNIT (BVCU) FAULT CODE 05 IS SHOWN, DO THE CORRECTIVE ACTION FOR THAT CODE (FIM 75-32-00/101, FIG. 103) AND GO TO STEP 5.</p> <p>2. IF THE BVCU FAULT CODE 05 IS NOT SHOWN, DISCONNECT CONNECTOR D4164 (D4066), FROM THE ELECTRONIC ENGINE CONTROL (EEC). MEASURE THE RESISTANCE BETWEEN PIN 5 AND PIN 6. THE RESISTANCE MUST BE BETWEEN 45 AND 55 OHMS.</p> <p>3. IF THE RESISTANCE IS NOT CORRECT, MAKE SURE THERE IS CONTINUITY BETWEEN THE EEC ELECTRICAL CONNECTOR PINS AND THE T2, SONIC THERMOCOUPLE TERMINAL BLOCK (TB-3) POSTS THAT FOLLOW:</p> <table style="margin-left: 40px; border: none;"> <tr> <td style="text-align: center;"><u>CONNECTOR D4164 (D4066)</u></td> <td style="text-align: center;">TO</td> <td style="text-align: center;"><u>TERMINAL BLOCK, TB-3 POST</u></td> </tr> <tr> <td style="text-align: center;">PIN 5</td> <td></td> <td style="text-align: center;">SMALL DIAMETER, POSITIVE (+)(CHROMEL)</td> </tr> <tr> <td style="text-align: center;">PIN 6</td> <td></td> <td style="text-align: center;">LARGE DIAMETER, NEGATIVE (-)(ALUMEL)</td> </tr> </table> <p>EXAMINE THE CHROMEL/ALUMEL POLARITY (CHROMEL WIRE - WHITE AND NOT MAGNETIC)(ALUMEL WIRE - GREEN AND MAGNETIC).</p> <p><u>NOTE:</u> THE T2, TERMINAL BLOCK IS FOUND ON THE CORE ENGINE, FORWARD OF THE RIGHT HAND "A" FRAME.</p> <p>REPAIR THE WIRING AS NECESSARY.</p> <p>4. IF THE RESISTANCE IS CORRECT, DO THE CORRECTIVE ACTION FOR THE BVCU FAULT CODE 05 (FIM 75-32-00/101, FIG. 103).</p> <p>5. IF THE FAULT CODE COMES BACK, MOVE THE EEC FROM THE POSITION FOR THE LEFT ENGINE TO THE POSITION FOR THE RIGHT ENGINE AND FROM THE POSITION FOR THE RIGHT ENGINE TO THE LEFT ENGINE. AFTER THE NEXT FLIGHT, FIND OUT IF THE FAULT CODE COMES BACK.</p> <p>A. IF THE FAULT CODE COMES BACK ON THE SAME EEC, REPLACE THE EEC M10391 (M10392)(AMM 73-21-07/401).</p> <p style="margin-left: 20px;">(1) IF THE FAULT CODE COMES BACK ON THE SAME ENGINE, MAKE SURE THE CONNECTORS D1378, D1380, AND D1004, ARE ATTACHED CORRECTLY. MAKE SURE ALL OF THE T2 CIRCUIT ELECTRICAL CONNECTOR PINS ARE CLEAN AND THE PIN GRIPS ARE ATTACHED CORRECTLY.</p> <p style="margin-left: 20px;">(2) REPAIR THE WIRING AS NECESSARY.</p>	<u>CONNECTOR D4164 (D4066)</u>	TO	<u>TERMINAL BLOCK, TB-3 POST</u>	PIN 5		SMALL DIAMETER, POSITIVE (+)(CHROMEL)	PIN 6		LARGE DIAMETER, NEGATIVE (-)(ALUMEL)
<u>CONNECTOR D4164 (D4066)</u>	TO	<u>TERMINAL BLOCK, TB-3 POST</u>									
PIN 5		SMALL DIAMETER, POSITIVE (+)(CHROMEL)									
PIN 6		LARGE DIAMETER, NEGATIVE (-)(ALUMEL)									
98	DETECTED ERROR ON TAT DATA FROM BOTH LEFT AND RIGHT AIR DATA COMPUTERS	<p>1. IF RAIN WAS REPORTED WHEN THE EEC INOP EICAS MESSAGE WAS SET, NO ACTION IS NECESSARY. RESET EECs AND CONTINUE IN SERVICE.</p> <p>2. IF FAULT CODE 98 IS SHOWN ON BOTH EECs AND NO RAIN WAS REPORTED, DO A VISUAL INSPECTION OF THE AIRPLANE TAT PROBE FOR CONTAMINATION OR BLOCKAGE. REMOVE CONTAMINATION OR BLOCKAGE AS REQUIRED.</p> <p>3. IF NO BLOCKAGE IS FOUND, DO THIS PROCEDURE: ADC BITE PROCEDURE (FIM 34-12-00/101, FIG. 109).</p> <p>4. IF THE FAULT CONTINUES, DO THE ACTION FOR CODE 94 ON BOTH ENGINES.</p> <p>5. IF FAULT CODE 98 IS SHOWN ON ONE EEC ONLY AND THE EEC IS OPERATIONAL, NO ACTION IS NECESSARY.</p> <p style="margin-left: 20px;">A. TO DETERMINE IF THE EEC IS OPERATIONAL, RESET THE EEC, OPERATE THE ENGINE AT IDLE (AMM 71-00-00/201) AND MONITOR THE EEC INOP INDICATIONS ON THE FLIGHT DECK.</p> <p>6. IF FAULT CODE 98 IS SHOWN ON ONE EEC ONLY AND THE EEC IS NOT OPERATIONAL, DO THE ACTION FOR CODE 94.</p> <p>7. IF THE PROBLEM CONTINUES, REPLACE THE EEC, M10391 (M10392) (AMM 73-21-07/401).</p>									

TABLE A

EEC BITE Procedure  
Figure 103 (Sheet 12)

EFFECTIVITY

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FAULT CODE	DESCRIPTION	CORRECTIVE ACTION
D6	ALTITUDE FROM LEFT AND RIGHT ADCs DIFFER BY MORE THAN 252 FEET	<ol style="list-style-type: none"> <li>1. IF FAULT CODE D6 APPEARS ON BOTH EECs, DO THIS PROCEDURE: ADC BITE PROCEDURE (FIM 34-12-00/101, FIG. 109).</li> <li>2. IF FAULT CODE D6 APPEARS ON ONE EEC ONLY, REPLACE EEC (AMM 73-21-07/401).</li> <li>3. IF THE PROBLEM CONTINUES, CHECK CIRCUIT CONTINUITY AND INSULATION RESISTANCE PER FAULT CODES, 67 (LEFT) AND 77 (RIGHT) CORRECTIVE ACTION. REPAIR AS REQUIRED.</li> <li>4. IF THE PROBLEM STILL CONTINUES, REPLACE LEFT AND RIGHT ADCs (AMM 34-12-01/401).</li> </ol>
D7	ONE OF THE FOLLOWING CROSS-CHECKS HAS FAILED: <ul style="list-style-type: none"> <li>• P1E VS P1R</li> <li>• P1L VS P1R</li> <li>• P1L VS P1E</li> </ul>	<ol style="list-style-type: none"> <li>1. IF FAULT CODE D7 APPEARS ON BOTH EECs, DO THIS PROCEDURE: "ADC BITE" PROCEDURE (FIM 34-12-00/101, FIG. 109).</li> <li>2. IF FAULT CODE D7 APPEARS ON ONE EEC ONLY, REPLACE EEC (AMM 73-21-07/401).</li> <li>3. IF THE PROBLEM CONTINUES, CHECK CIRCUIT CONTINUITY AND INSULATION RESISTANCE PER CORRECTIVE ACTION FOR FAULT CODES 67 AND 77. REPAIR AS REQUIRED.</li> <li>4. IF THE PROBLEM CONTINUES, REPLACE LEFT AND RIGHT ADCs (AMM 34-12-01/401).</li> <li>5. IF THE PROBLEM CONTINUES, CHECK P1 TUBES FROM P1 PROBE TO EPR TRANSMITTER FOR LEAKS.</li> <li>6. IF OK, CHECK CIRCUIT CONTINUITY AND INSULATION RESISTANCE PER CORRECTIVE ACTION FOR FAULT CODES 40 AND 43. REPAIR AS REQUIRED.</li> <li>7. IF THE PROBLEM CONTINUES, REPLACE EPR TRANSMITTER (AMM 77-11-01/401).</li> </ol>
D8	ONE OF THE FOLLOWING CROSS-CHECKS HAS FAILED: <ul style="list-style-type: none"> <li>• T1L VS T1E</li> <li>• T1L VS T1R</li> <li>• T1R VS T1E</li> </ul>	<ol style="list-style-type: none"> <li>1. IF FAULT CODE D8 IS SHOWN ON BOTH ELECTRONIC ENGINE CONTROLS (EEC), DO THIS PROCEDURE: "AIR DATA COMPUTER" (ADC) BITE PROCEDURE (FIM 34-12-00/101, FIG. 109).</li> <li>2. IF FAULT CODE D8 IS SHOWN ON ONLY ONE EEC, AND FAULT CODE 94 OR 98 IS ALSO SHOWN, DO THE CORRECTION FOR CODES, 94 AND 98.</li> <li>3. IF FAULT CODE D8 IS SHOWN ON ONLY ONE EEC, AND FAULT CODE 94 OR 98 IS NOT SHOWN, REPLACE THE EEC (AMM 73-21-07/401).</li> <li>4. IF THE FAULT COMES BACK, DO THE CORRECTIVE ACTION FOR FAULT CODES 67 AND 77 AND MAKE SURE THERE IS CONTINUITY AND MEASURE THE RESISTANCE TO GROUND TO MAKE SURE THE INSULATION IS OK.               <ol style="list-style-type: none"> <li>(a) REPAIR THE CIRCUIT AS NECESSARY.</li> <li>(b) IF THE FAULT COMES BACK, REPLACE THE LEFT AND RIGHT ADCs (AMM 34-12-01/401).</li> <li>(c) IF THE FAULT COMES BACK, DO THE CORRECTIVE ACTION FOR FAULT CODES, 94 AND 98.</li> </ol> </li> </ol>
BO THRU B9 AND BA THRU BF	EEC INTERNAL FAULT	<ol style="list-style-type: none"> <li>1. REPLACE EEC (AMM 73-21-07/401), HOWEVER IF A B3 CODE IS DISPLAYED, CARRY OUT THE FOLLOWING:               <ol style="list-style-type: none"> <li>(a) INTERCHANGE EECs BETWEEN LEFT AND RIGHT POSITIONS, AND MONITOR ON NEXT FLIGHT.</li> <li>(b) IF CODE B3 REMAINS WITH SAME EEC, REPLACE EEC (AMM 73-21-07/401).</li> <li>(c) IF CODE B3 REMAINS WITH ENGINE, REPLACE FFG (AMM 73-21-01/401).</li> </ol> </li> </ol>

TABLE A

 EEC BITE Procedure  
 Figure 103 (Sheet 13)

EFFECTIVITY

ALL

73-21-00

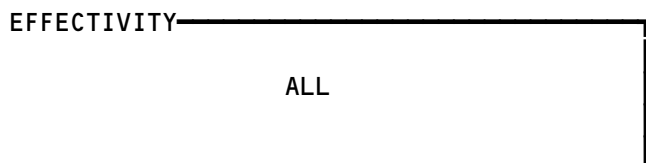
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NOT USED  
Figure 103A



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R03

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## LEFT ENGINE EEC PART NUMBERS

RIGHT ENGINE EEC PART NUMBERS	<b>RB211-535E4 EEC PART NUMBERS</b>	<b>ESC103-04C4</b>	<b>ESC103-04E4</b>	<b>356A7065G151</b>	<b>356A7066G151</b>
	ESC103-04C4	CODE NOT APPLICABLE	PROCEDURE 1	PROCEDURE 1	CODE NOT APPLICABLE
	ESC103-04E4	PROCEDURE 1	PROCEDURE 2	PROCEDURE 2	PROCEDURE 1
	356A7065G151 356A7065G152	PROCEDURE 1	PROCEDURE 2	PROCEDURE 2	PROCEDURE 1
	356A7066G151 356A7066G152	CODE NOT APPLICABLE	PROCEDURE 1	PROCEDURE 1	CODE NOT APPLICABLE

## LEFT ENGINE EEC PART NUMBERS

RIGHT ENGINE EEC PART NUMBERS	<b>RB211-535E4-B EEC PART NUMBERS</b>	<b>ESC104-01A1</b>	<b>ESC104-01B1</b>	<b>356A7065G101</b>	<b>356A7066G101</b>
	ESC1043-01A1	CODE NOT APPLICABLE	PROCEDURE 1	PROCEDURE 1	CODE NOT APPLICABLE
	ESC104-01B1	PROCEDURE 1	PROCEDURE 2	PROCEDURE 2	PROCEDURE 1
	356A7065G101 356A7065G152	PROCEDURE 1	PROCEDURE 2	PROCEDURE 2	PROCEDURE 1
	356A7066G101 356A7066G102	CODE NOT APPLICABLE	PROCEDURE 1	PROCEDURE 1	CODE NOT APPLICABLE

## PROCEDURE 1:

1. DO THE BITE PROCEDURE FOR THE ADC (FIM 34-12-00/101, FIGURE 109).
2. IF THE FAULT PERSISTS, REPLACE THE EEC (AMM 73-21-07/401).

## PROCEDURE 2:

1. IF THE FAULT CODE IS SHOWN ON 1 EEC ONLY, REPLACE THE EEC (AMM 73-21-07/401).
2. IF THE FAULT CODE IS SHOWN ON BOTH EECs, DO THE BITE PROCEDURE FOR THE ADC (FIM 34-12-00/101, FIGURE 109).
3. IF THE FAULT PERSISTS, REPLACE THE EEC THAT STILL INDICATES A FAULT (AMM 73-21-07/401).

 EEC BITE Check Fault Code 88 and 89  
 Figure 103B

EFFECTIVITY	ALL
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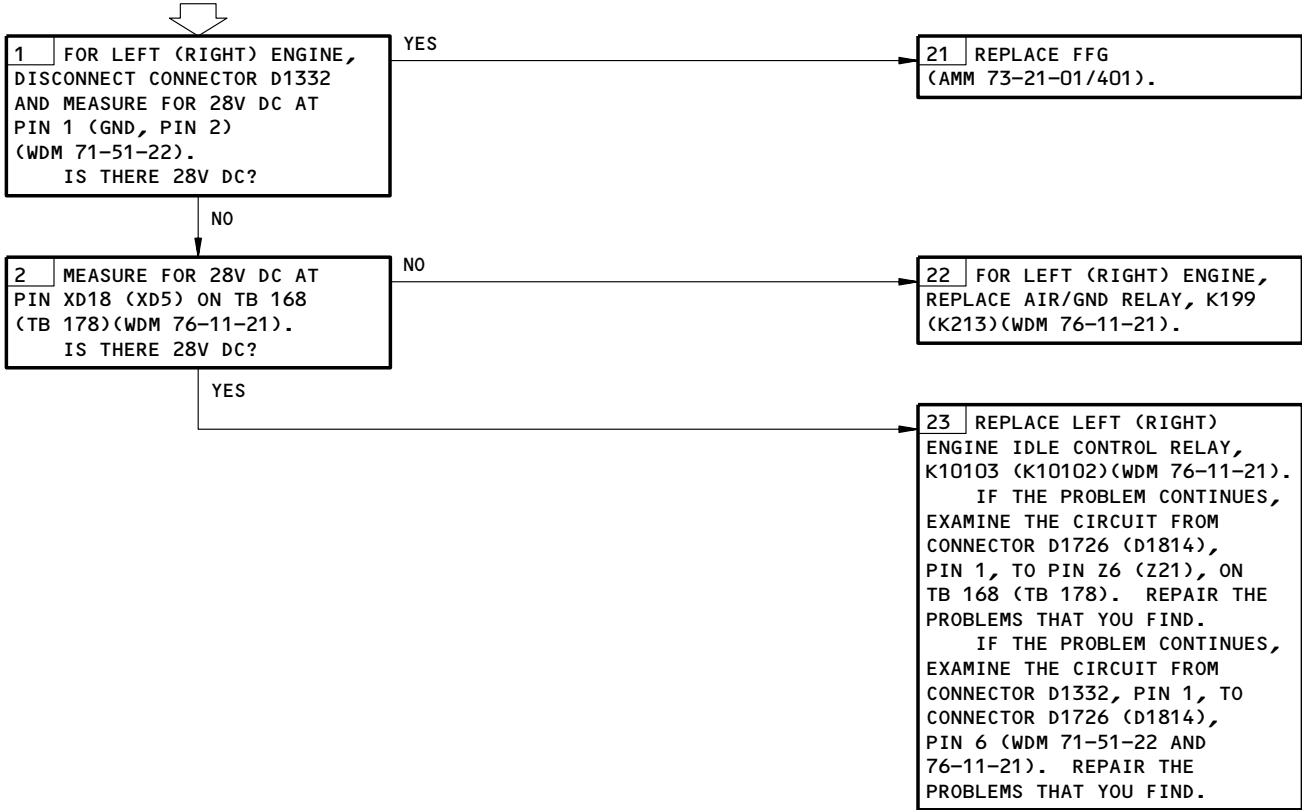
**73-21-00**

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**ENGINE REMAINED IN APPROACH IDLE AFTER LANDING**

**PREREQUISITES**  
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
11L7 (11L33)  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



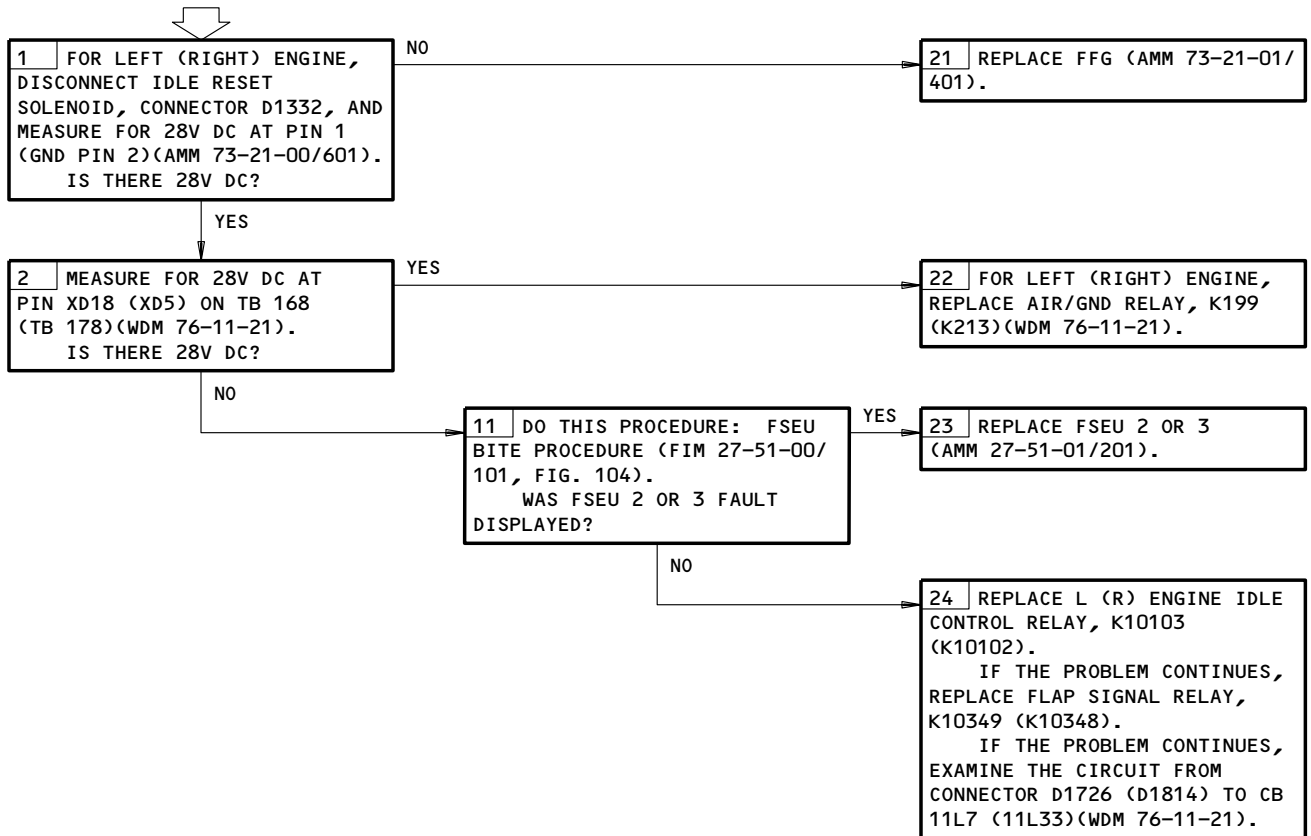
Engine Remained in Approach Idle after Landing  
Figure 104

EFFECTIVITY	ALL
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**73-21-00**

ENGINE REMAINED AT  
"MIN" IDLE RPM WITH  
NAC ANTI-ICE "ON"  
AND LANDING FLAPS  
SELECTED IN FLIGHT

**PREREQUISITES**  
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
11L7 (11L33)  
MAKE SURE THESE CIRCUIT BREAKERS ARE OPEN:  
11C19,11C30,11S23  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-00/201)  
FLAPS IN LANDING POSITION (AMM 27-51-00/201)



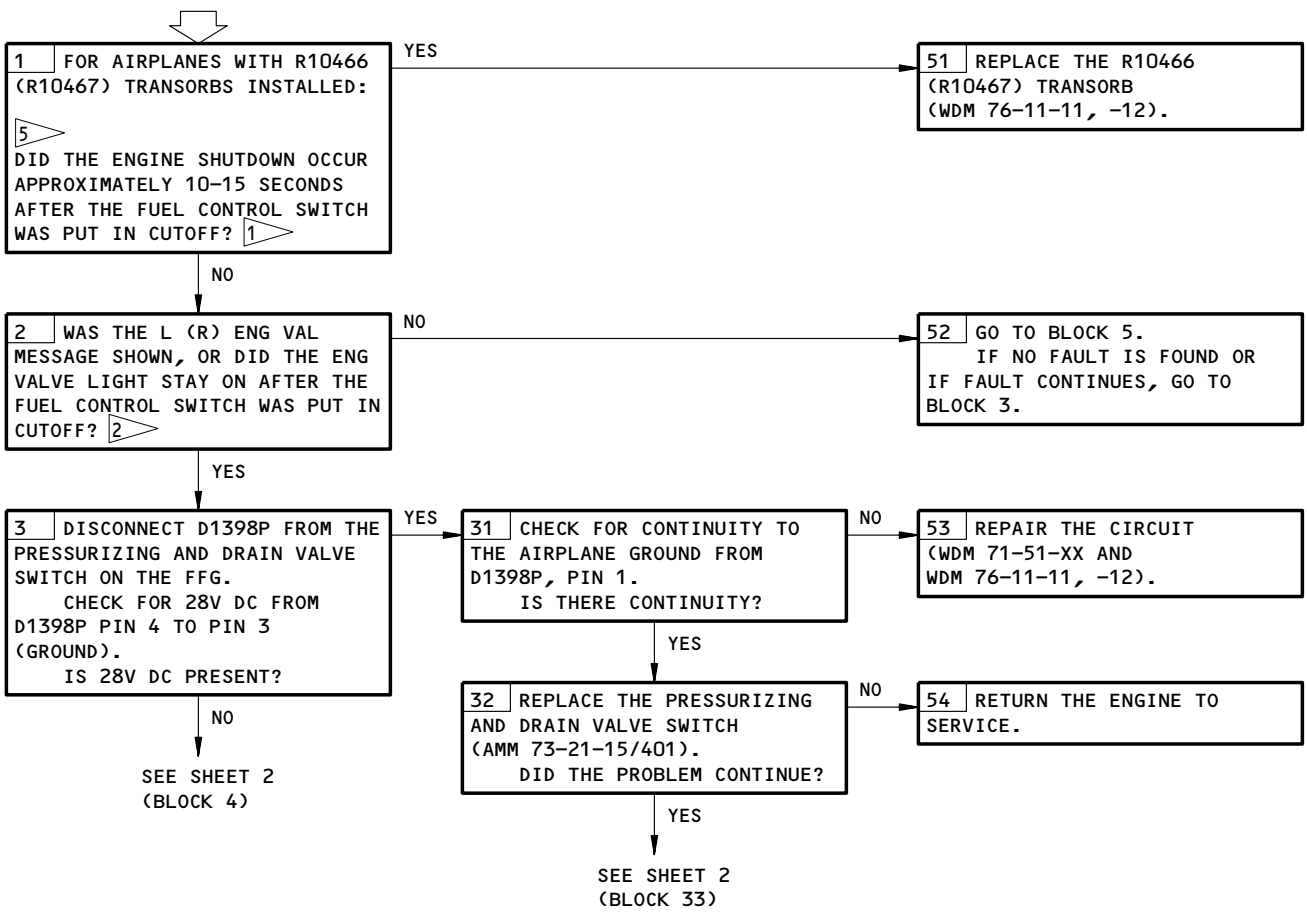
Engine Remained at MIN Idle RPM with Nac Anti-Ice ON and  
Landing Flaps Selected in Flight  
Figure 105

EFFECTIVITY  
ALL

73-21-00

**ENG DID NOT SHUT DOWN IMMEDIATELY WITH FUEL CONTROL SWITCH IN CUTOFF**

**PREREQUISITES**  
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
6C1, 6C2  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



- 1 AN ENGINE SHUTDOWN THAT OCCURS AFTER 30-60 SECONDS GIVES INDICATION THAT THE ENGINE FUEL SHUTOFF VALVE STAYED OPEN, BUT THE SPARE FUEL SHUTOFF VALVE CLOSED. FOR THIS CONDITION, CONTINUE TO BLOCK 2.
- 2 WHEN THE FUEL CONTROL SWITCH IS PUT IN CUTOFF, THE ENG VAL LIGHT SHOULD COME ON FOR APPROXIMATELY ONE HALF SECOND. THE EICAS MESSAGE L (R) ENG VAL WILL COME ON 6-7 SECONDS AFTER THE FUEL CONTROL SWITCH IS PUT IN CUTOFF, IF THE ENGINE FUEL SHUTOFF VALVE IN THE FFG IS OPEN.

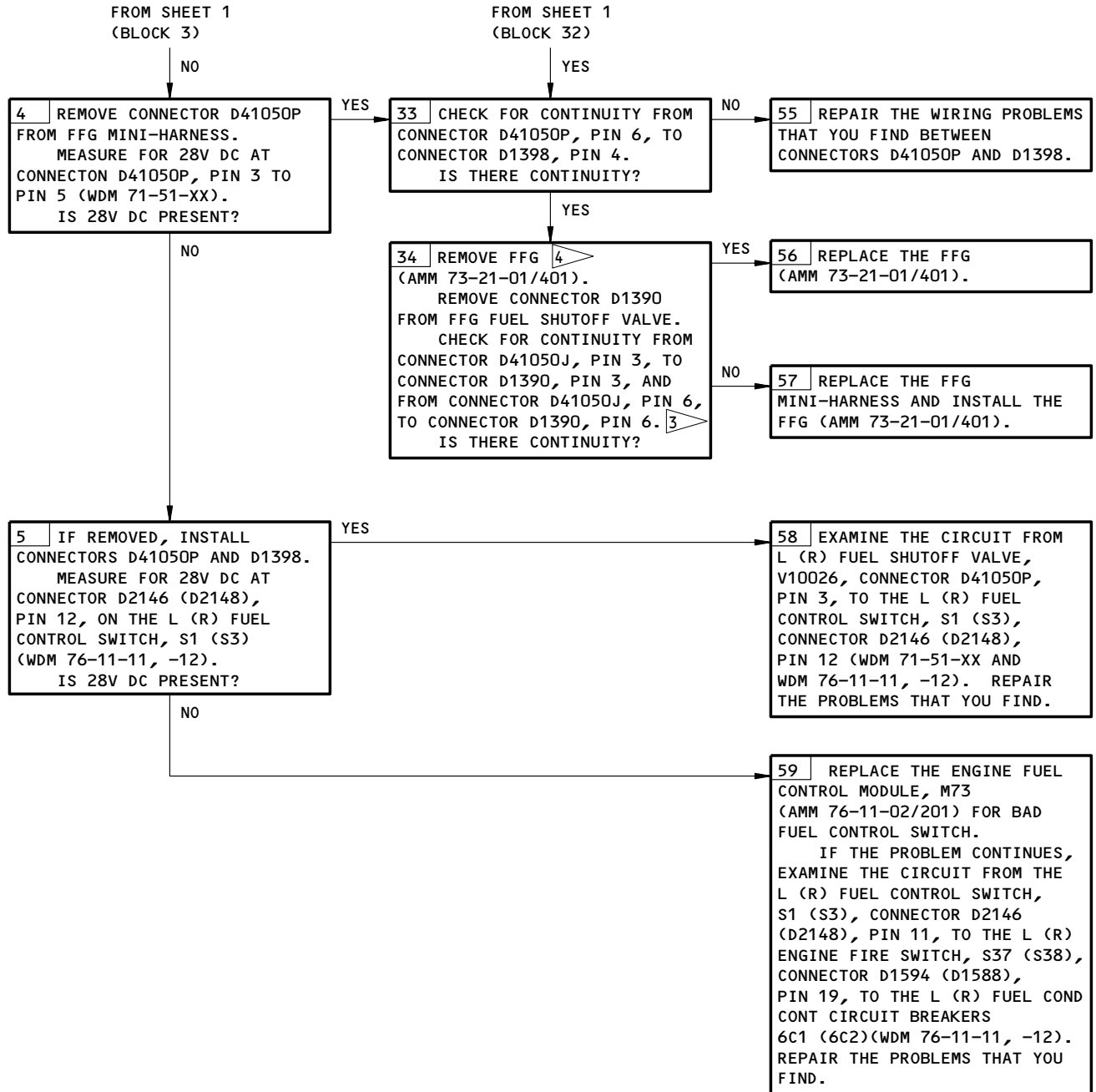
- 3 MANUALLY FLEX THE FFG MINI-HARNESS WHILE YOU DO ELECTRICAL CHECKS. ALSO CHECK ELECTRICAL CONNECTORS FOR LOOSE CONTACTS, WITH THE APPLICABLE PIN/SOCKET, WHILE YOU DO ELECTRICAL CHECKS.
- 4 THIS MAKES IT EASIER TO REMOVE CONNECTOR D1390 ON THE FFG MINI-HARNESS FROM THE FFG FUEL SHUTOFF VALVE.
- 5 AIRPLANES POST-SB 757-76-0014.

**Engine Did Not Shut Down Immediately with Fuel Control Switch in Cutoff  
Figure 106 (Sheet 1)**

**EFFECTIVITY**  
RB211-535E4 AND RB211-535E4-B ENGINES  
POST-RR-SB 72-C230 (PHASE V COMBUSTOR)  
AND RB211-535E4-C ENGINES

**73-21-00**

71167



Engine Did Not Shut Down Immediately with Fuel Control Switch in Cutoff  
Figure 106 (Sheet 2)

EFFECTIVITY  
RB211-535E4 AND RB211-535E4-B ENGINES  
POST-RR-SB 72-C230 (PHASE V COMBUSTOR)  
AND RB211-535E4-C ENGINES

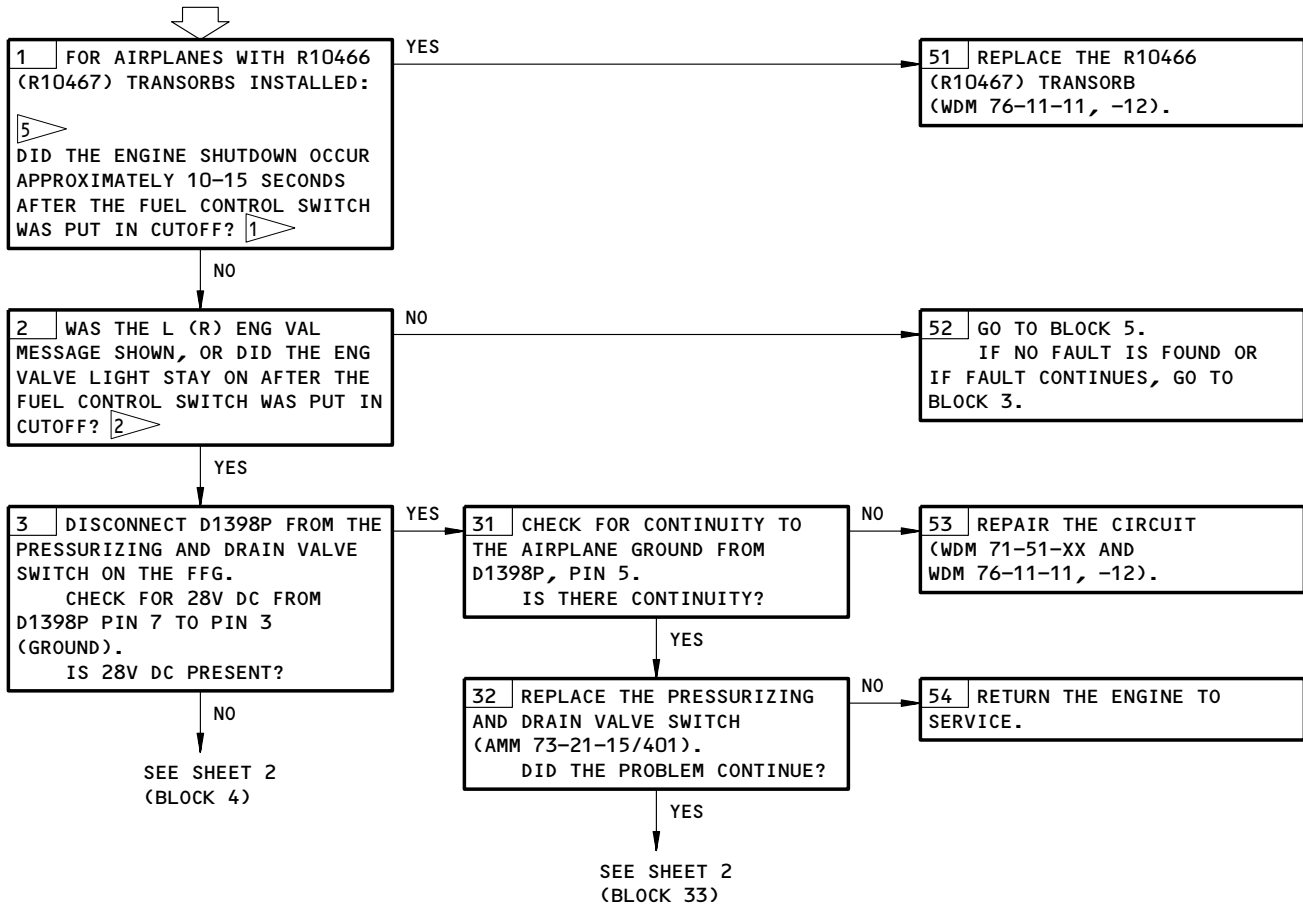
**73-21-00**

**ENG DID NOT SHUT DOWN IMMEDIATELY WITH FUEL CONTROL SWITCH IN CUTOFF**

**PREREQUISITES**

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
6C1, 6C2

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



1 AN ENGINE SHUTDOWN THAT OCCURS AFTER 30-60 SECONDS GIVES INDICATION THAT THE ENGINE FUEL SHUTOFF VALVE STAYED OPEN, BUT THE SPARE FUEL SHUTOFF VALVE CLOSED. FOR THIS CONDITION, CONTINUE TO BLOCK 2.

2 WHEN THE FUEL CONTROL SWITCH IS PUT IN CUTOFF, THE ENG VAL LIGHT SHOULD COME ON FOR APPROXIMATELY ONE HALF SECOND. THE EICAS MESSAGE L (R) ENG VAL WILL COME ON 6-7 SECONDS AFTER THE FUEL CONTROL SWITCH IS PUT IN CUTOFF, IF THE ENGINE FUEL SHUTOFF VALVE IN THE FFG IS OPEN.

3 MANUALLY FLEX THE FFG MINI-HARNESS WHILE YOU DO ELECTRICAL CHECKS. ALSO CHECK ELECTRICAL CONNECTORS FOR LOOSE CONTACTS, WITH THE APPLICABLE PIN/SOCKET, WHILE YOU DO ELECTRICAL CHECKS.

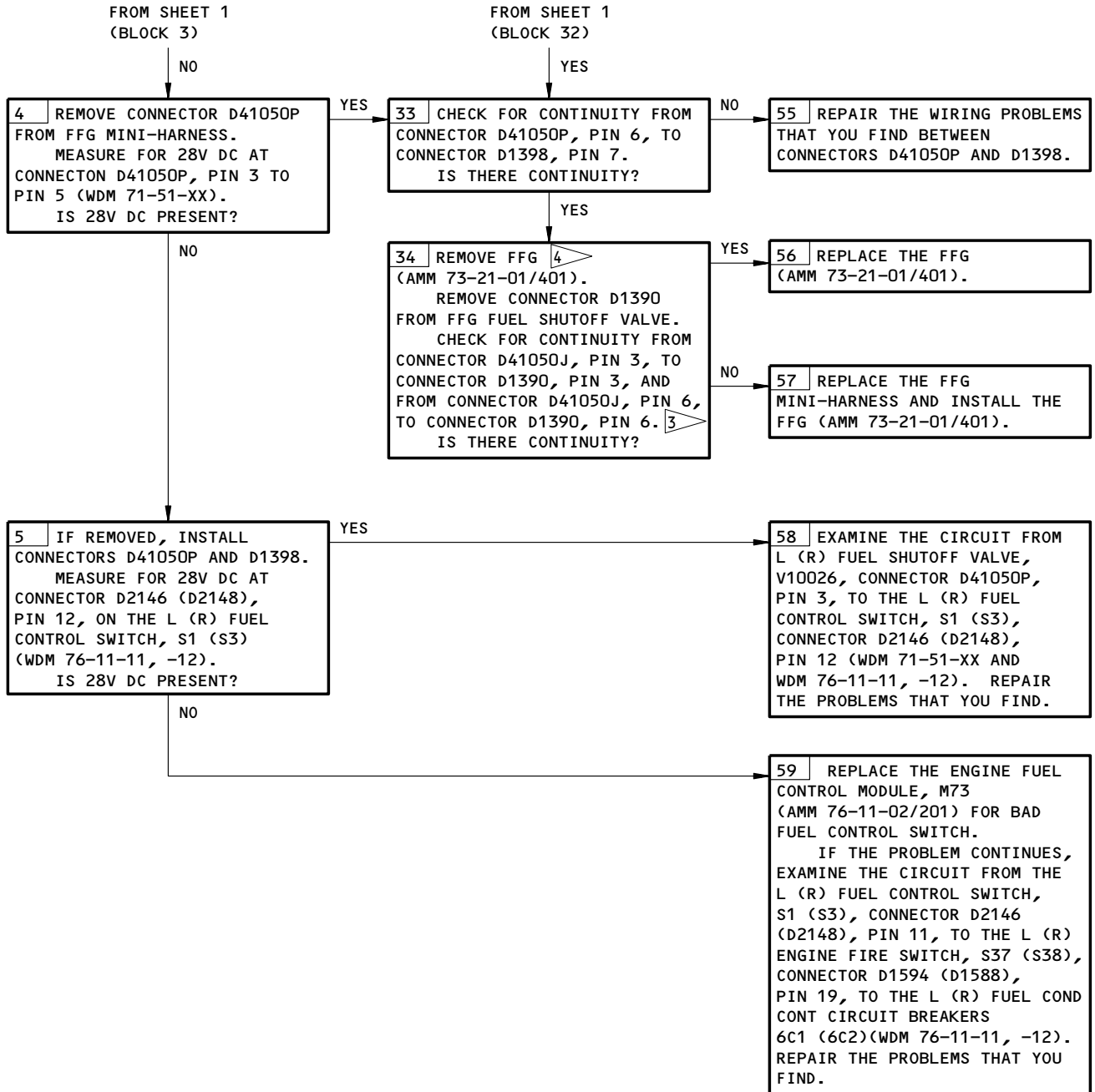
4 THIS MAKES IT EASIER TO REMOVE CONNECTOR D1390 ON THE FFG MINI-HARNESS FROM THE FFG FUEL SHUTOFF VALVE.

5 AIRPLANES POST-SB 757-76-0014.

Engine Did Not Shut Down Immediately with Fuel Control Switch in Cutoff  
Figure 106A (Sheet 1)

EFFECTIVITY  
RB211-535E4 AND RB211-535E4-B ENGINES  
PRE-RR-SB 72-C230 (PHASE II COMBUSTOR)

**73-21-00**



Engine Did Not Shut Down Immediately with Fuel Control Switch in Cutoff  
Figure 106A (Sheet 2)

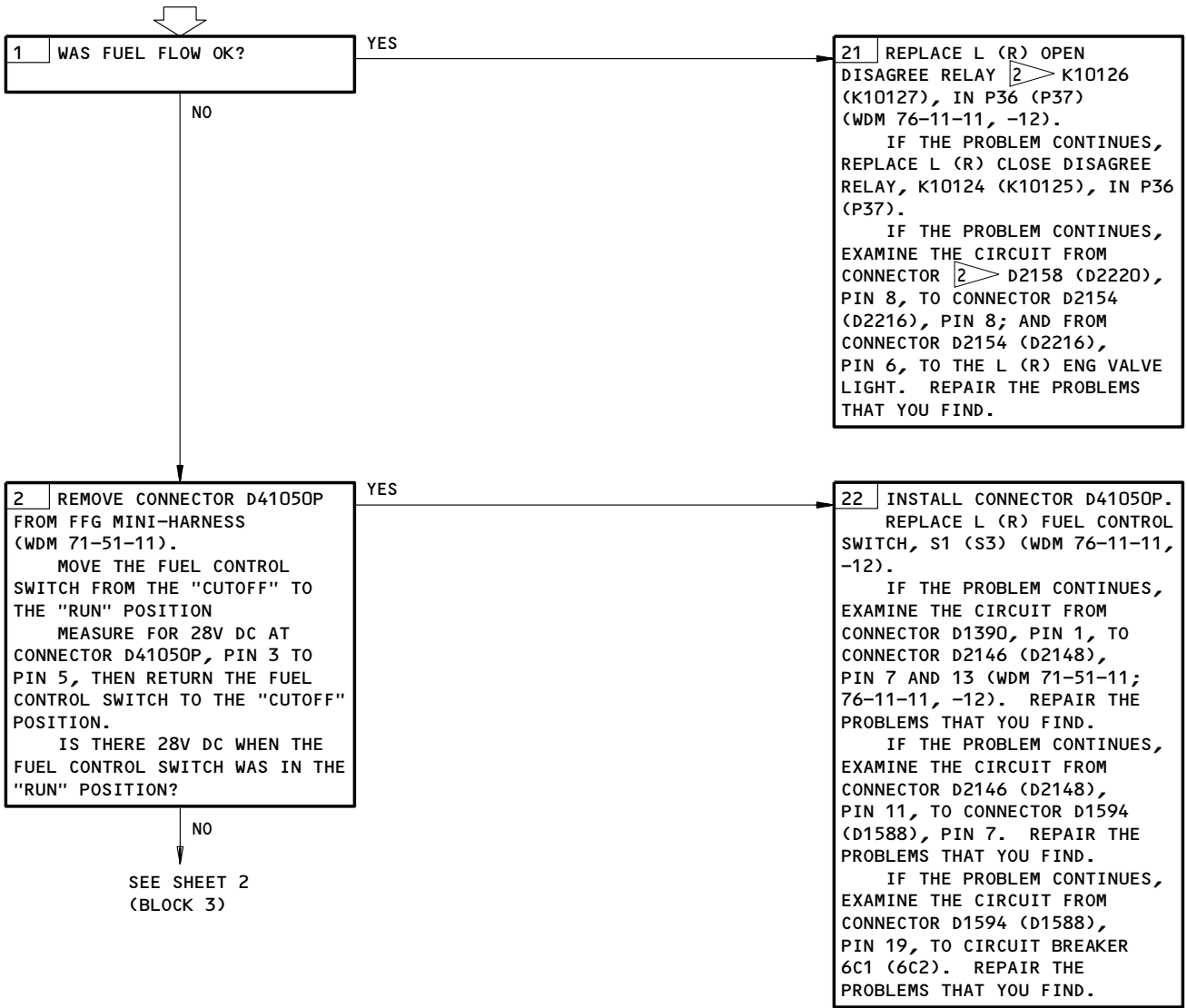
EFFECTIVITY  
RB211-535E4 AND RB211-535E4-B ENGINES  
PRE-RR-SB 72-C230 (PHASE II COMBUSTOR)

73-21-00



**FUEL CONTROL SWITCH  
IN RUN, ENG VALVE  
LIGHT ON**

**PREREQUISITES**  
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
6C1 (6C2)  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



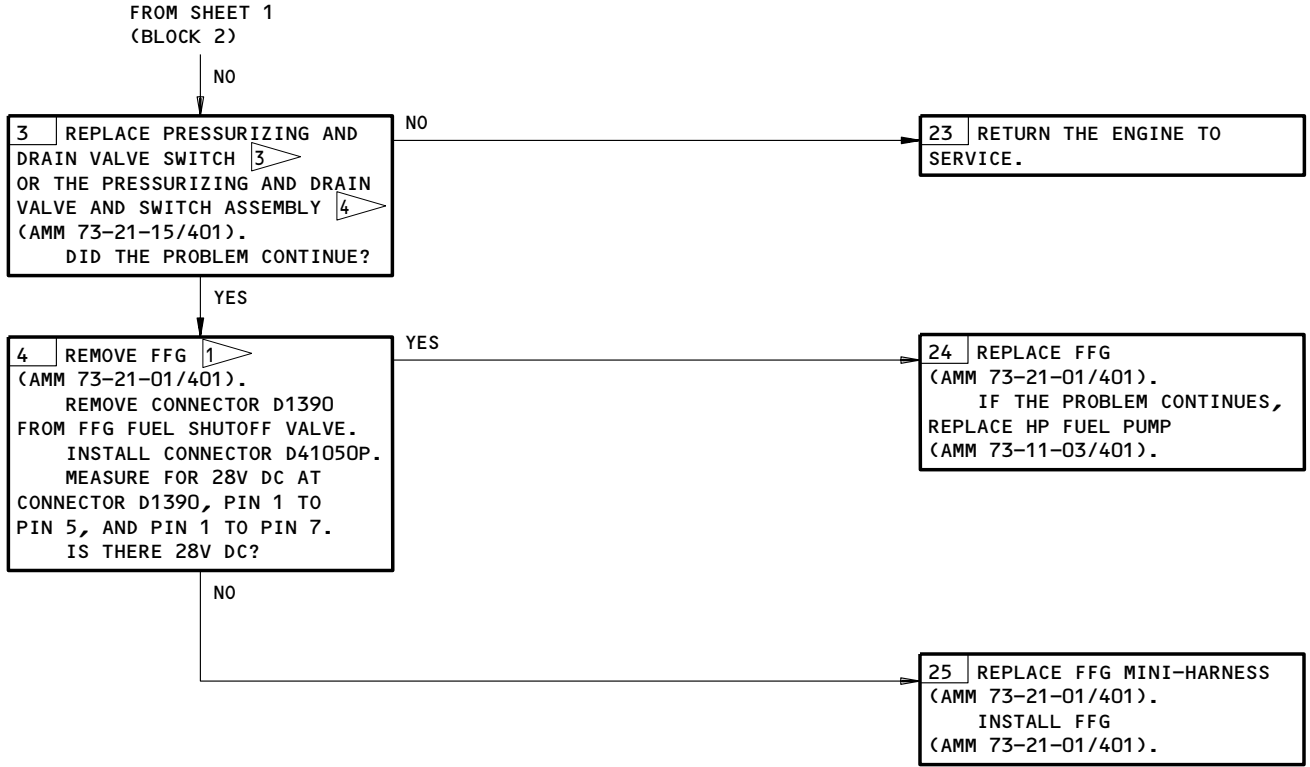
2 AIRPLANES PRE-SB 76-0011

Fuel Control Switch in Run, Eng VALVE Light On  
Figure 107 (Sheet 1)

EFFECTIVITY  
ALL

**73-21-00**

E84287



- 1 TO MAKE EASIER THE REMOVAL OF CONNECTOR D1390 FROM FFG FUEL SHUTOFF VALVE.
- 3 ENGINES POST-RR-SB 73-C332
- 4 ENGINES PRE-RR-SB 73-C332

Fuel Control Switch in Run, Eng VALVE Light On  
Figure 107 (Sheet 2)

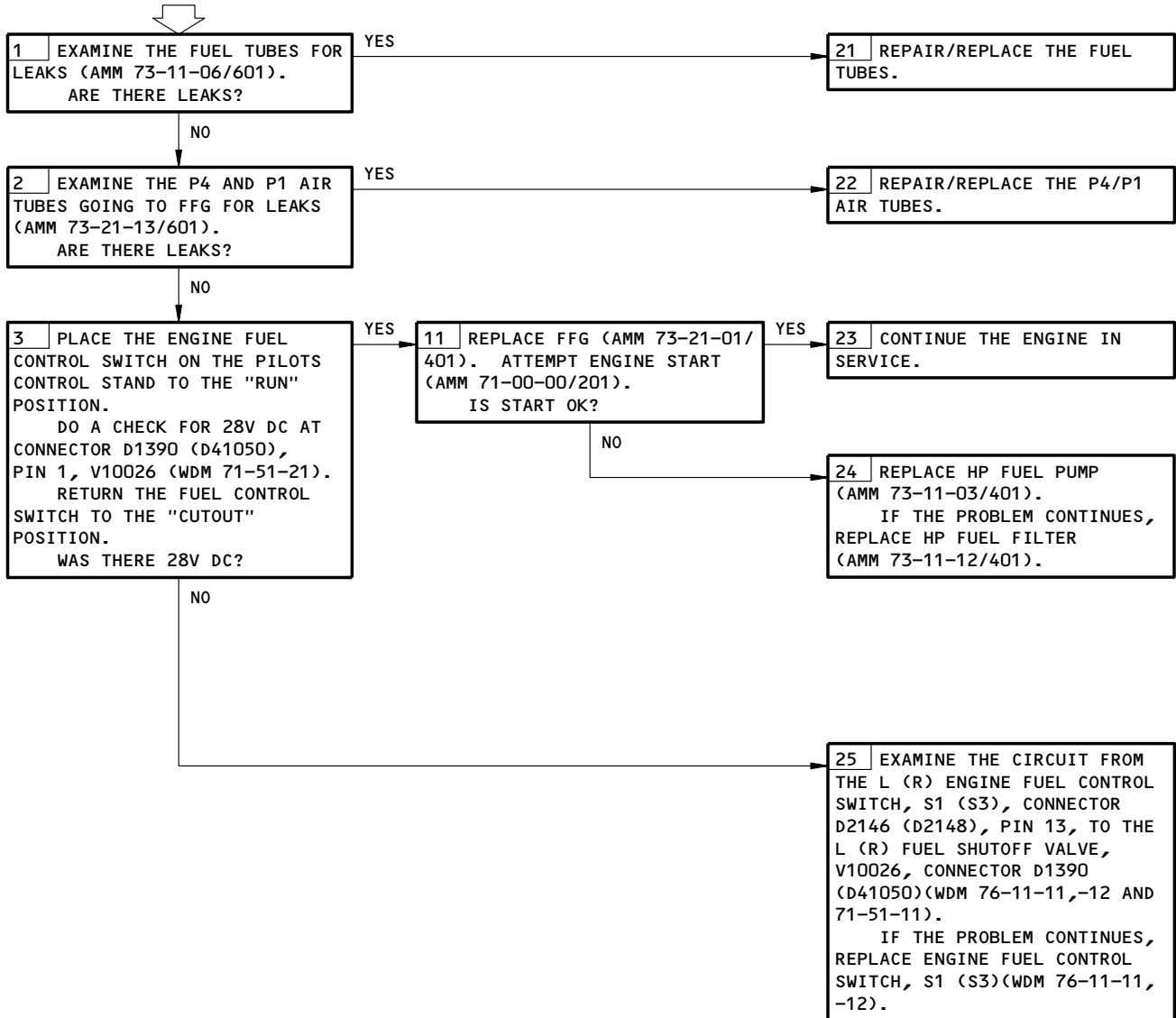
EFFECTIVITY \_\_\_\_\_  
ALL

**73-21-00**

E84290

**PREREQUISITES**  
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
6C1 (6C2)  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

**FUEL FLOW PROBLEMS**



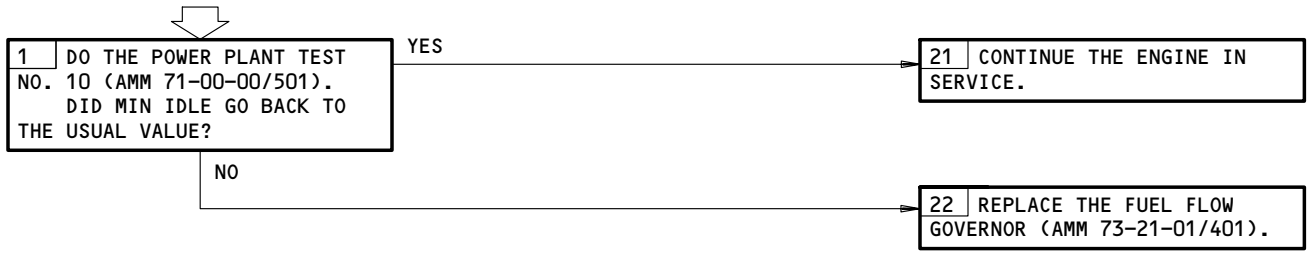
Fuel Flow Problems  
Figure 108

EFFECTIVITY  
ALL

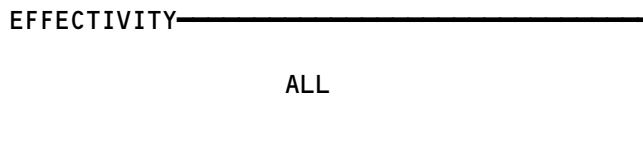
**73-21-00**

**PREREQUISITES**  
NONE

**MIN IDLE RPM LOW**



Min Idle RPM Low  
Figure 109



**73-21-00**

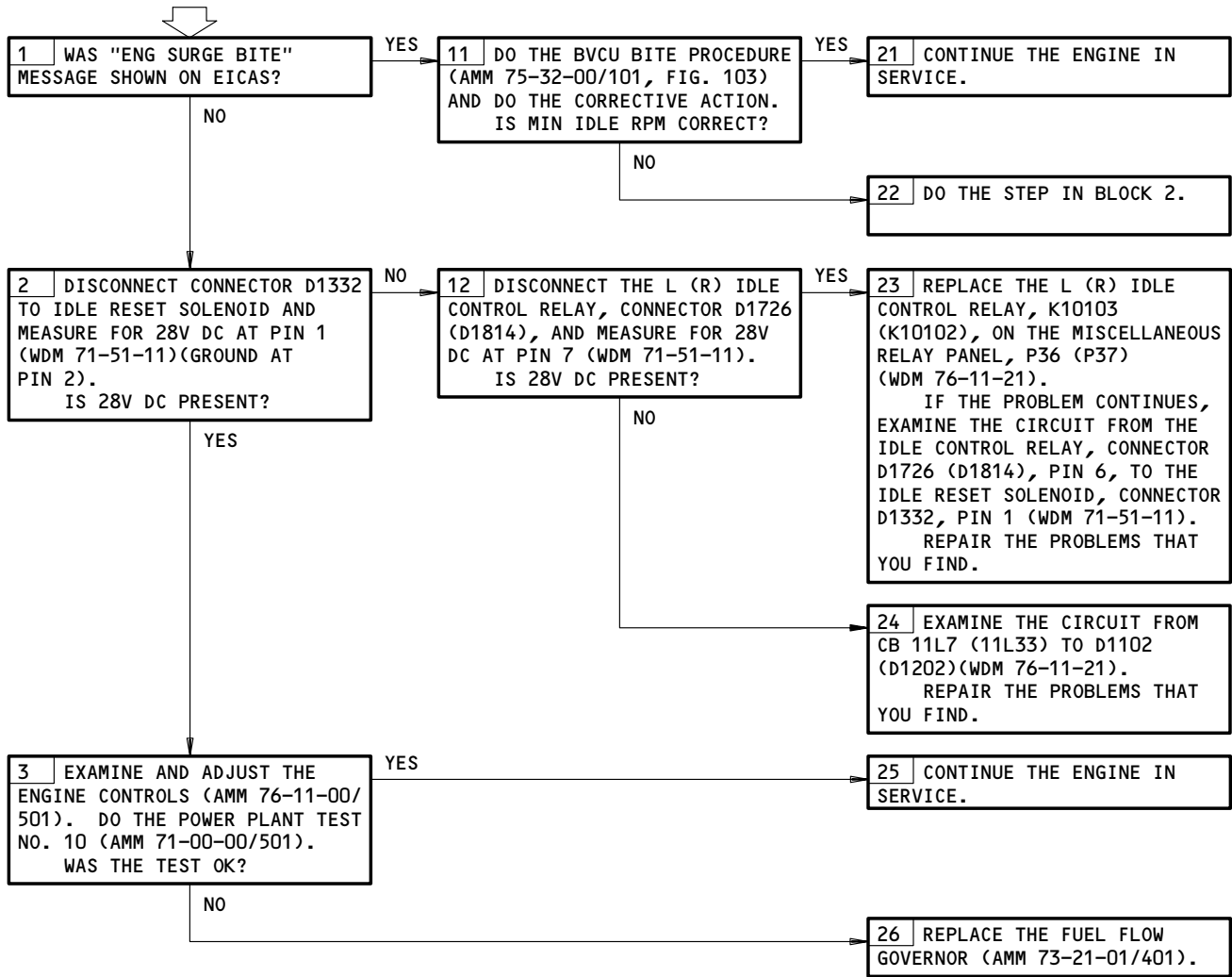
R02

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C24306

**PREREQUISITES**  
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
11L7,11L33,11S19,11S23  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

**MIN IDLE RPM  
INCORRECT**



Min Idle RPM Incorrect  
Figure 109A

EFFECTIVITY

ALL
-----

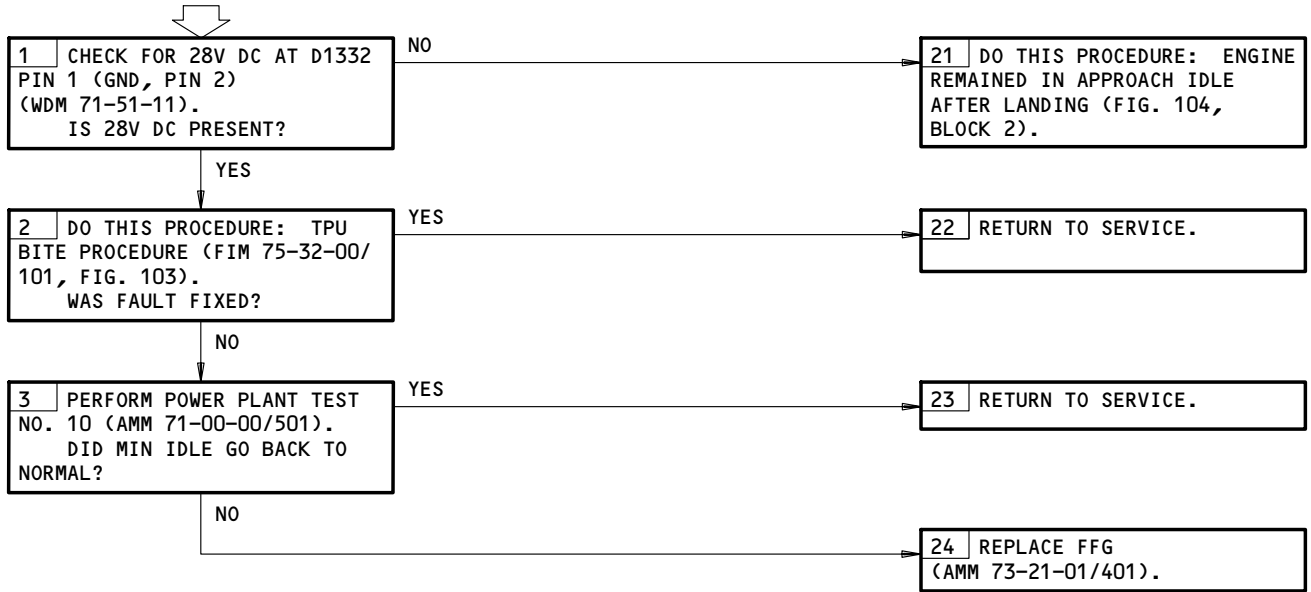
**73-21-00**

**PREREQUISITES**

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
11L7 (11L33), 11S19, 11S23

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

**MIN IDLE RPM HIGH**



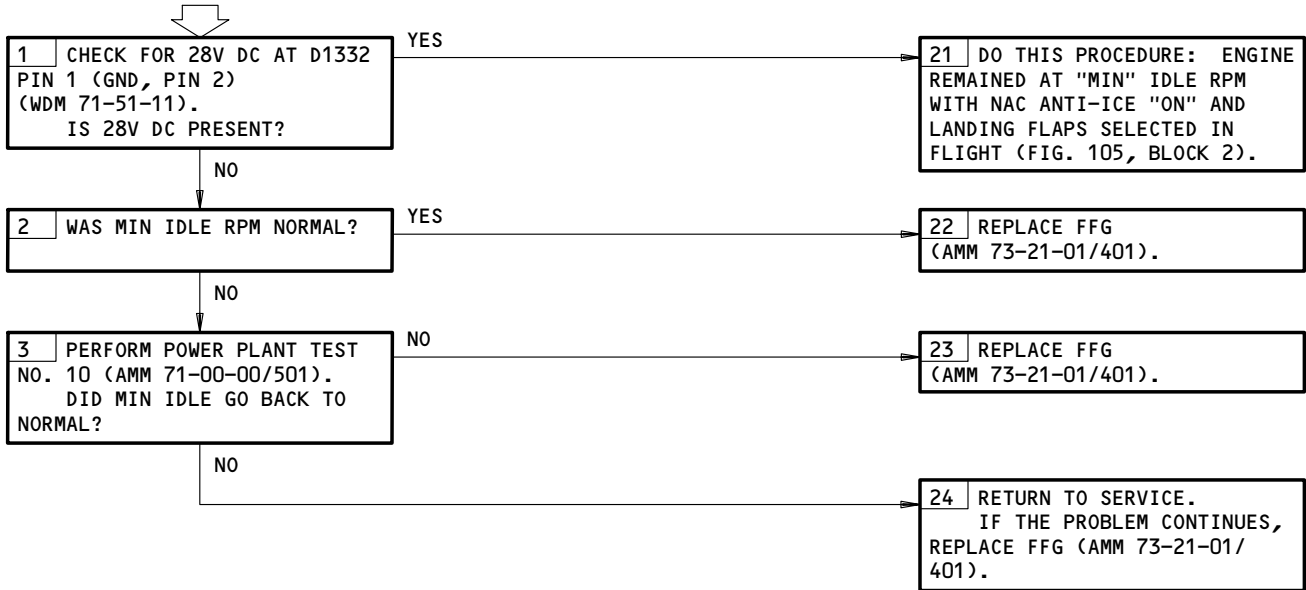
Min Idle RPM High  
Figure 110

EFFECTIVITY	ALL
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**73-21-00**

**PREREQUISITES**  
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
11L7 (11L33), 11S19, 11S23  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-00/201)  
FLAPS IN LANDING POSITION (AMM 27-51-00/201)

**APPR IDLE RPM LOW**



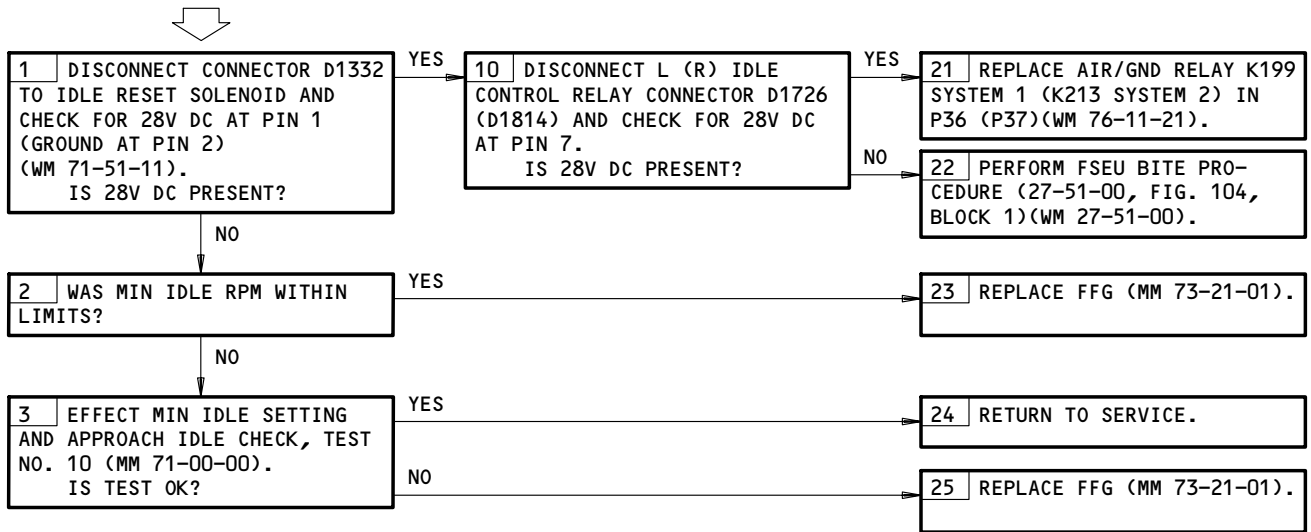
Appr Idle RPM Low  
Figure 111

EFFECTIVITY	ALL
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**73-21-00**

**APPROACH IDLE RPM INCORRECT**

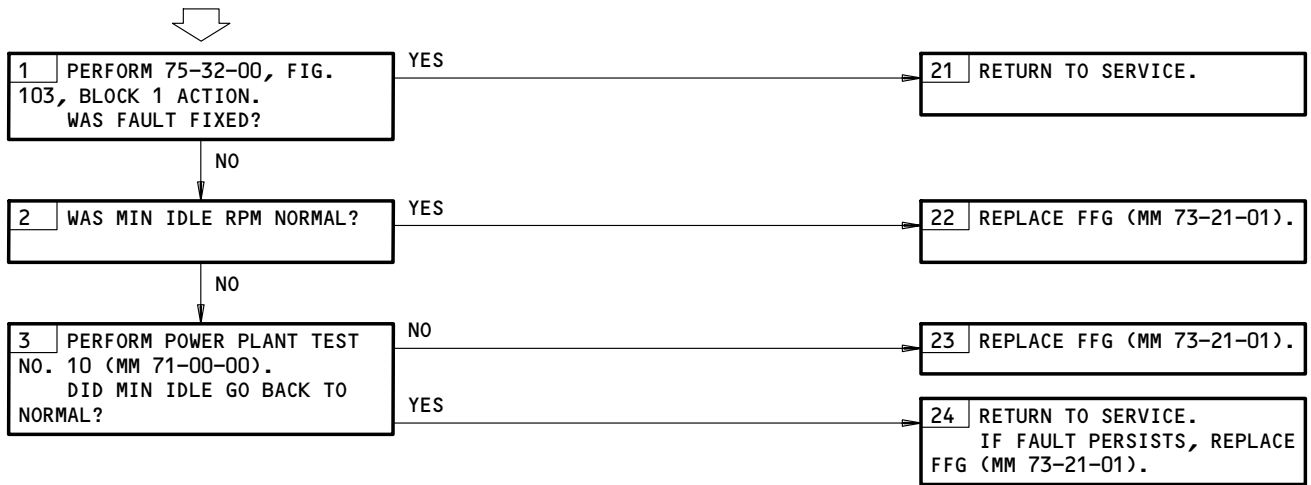
**PREREQUISITES**  
ELECTRICAL POWER (MM 24-22-00)  
CB'S: 11(L)7,11(L)33,11(S)19,11(S)23



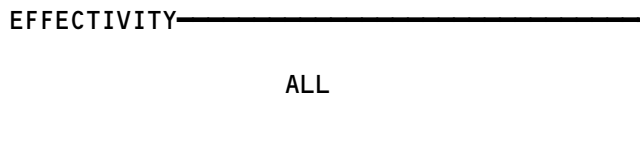
Approach Idle RPM Incorrect  
Figure 111A

**APPR IDLE RPM HIGH**

**PREREQUISITES**  
NONE



Appr Idle RPM High  
Figure 112

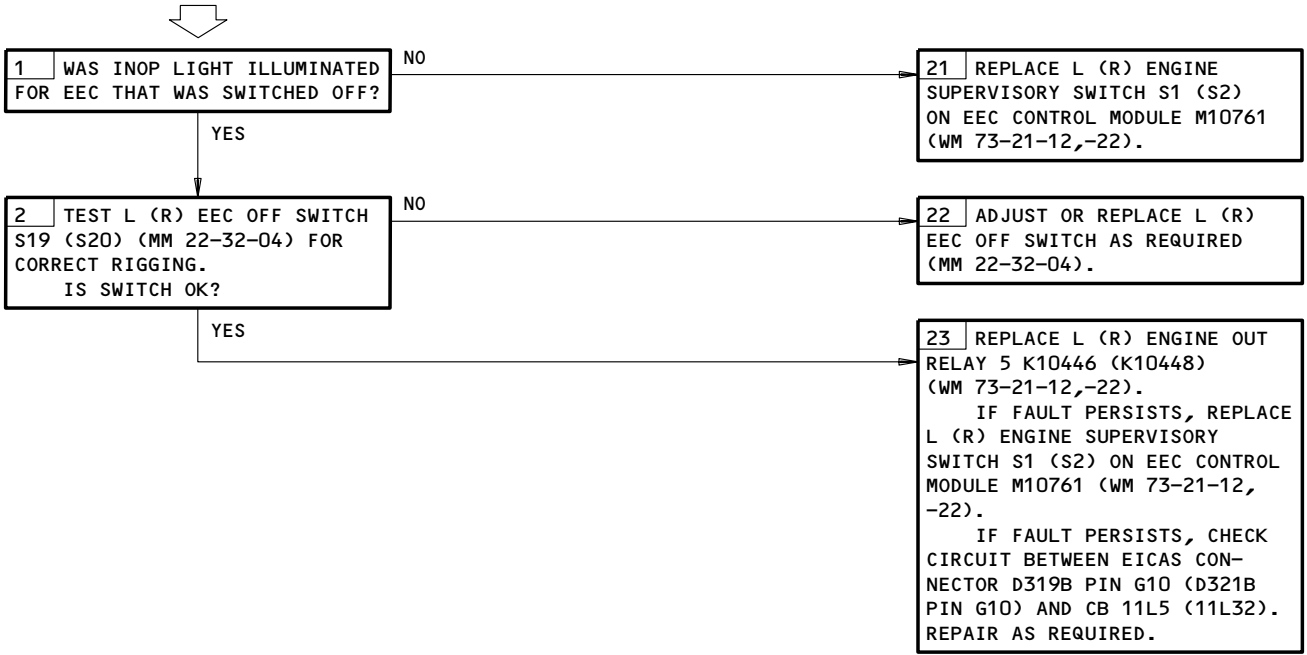


**73-21-00**



T.O. POWER SELECTED  
WITH EEC SW OFF AND  
EICAS "L (R) EEC  
OFF" MESSAGE NOT  
DISPLAYED

**PREREQUISITES**  
ELECTRICAL POWER (MM 24-22-00)  
CB'S IN: 11L5 (11L32)  
CB'S OUT: 11D17 (11D18)



T.O. Power Selected with EEC Sw Off and EICAS  
L (R) EEC OFF Message Not Displayed  
Figure 113

EFFECTIVITY	ALL
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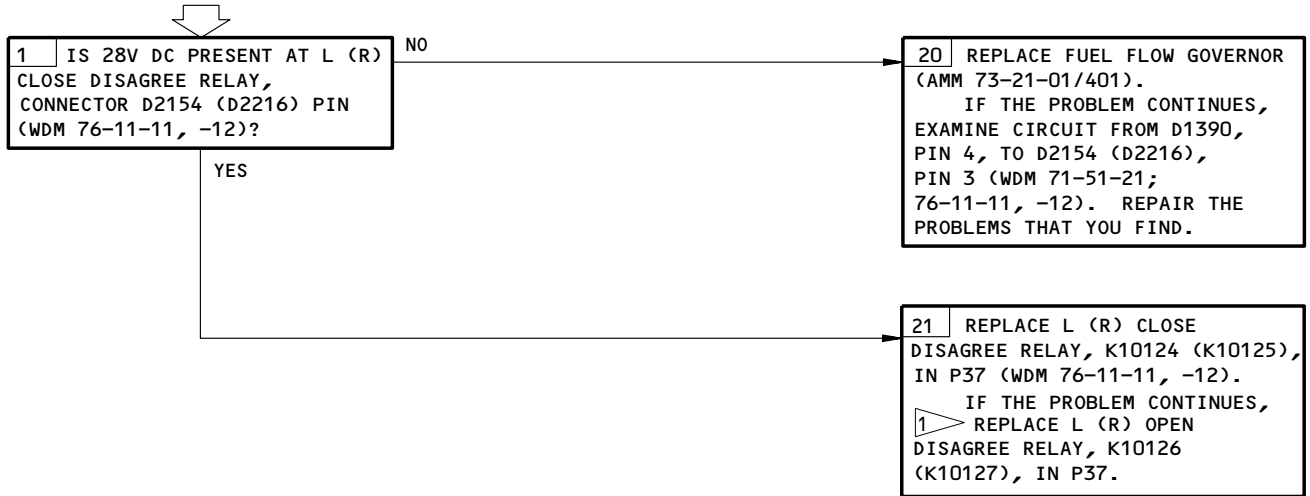
**73-21-00**

R08

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EICAS MSG "ENG FUEL VAL" DISPLAYED,  
"ENG VALVE" LGT ON,  
FUEL CONTROL SWITCH  
IN "CUTOFF" AND ENG  
SHUTDOWN IMMEDIATELY

**PREREQUISITES**  
MAKE SURE THIS CIRCUIT BREAKER IS CLOSED:  
11K1 (11K2)  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-201)



**1** AIRPLANES PRE-SB 76-0011

EICAS Msg ENG FUEL VAL Displayed, ENG VALVE Lgt On, Fuel Control Switch in CUTOFF and Eng Shutdown Immediately  
Figure 114

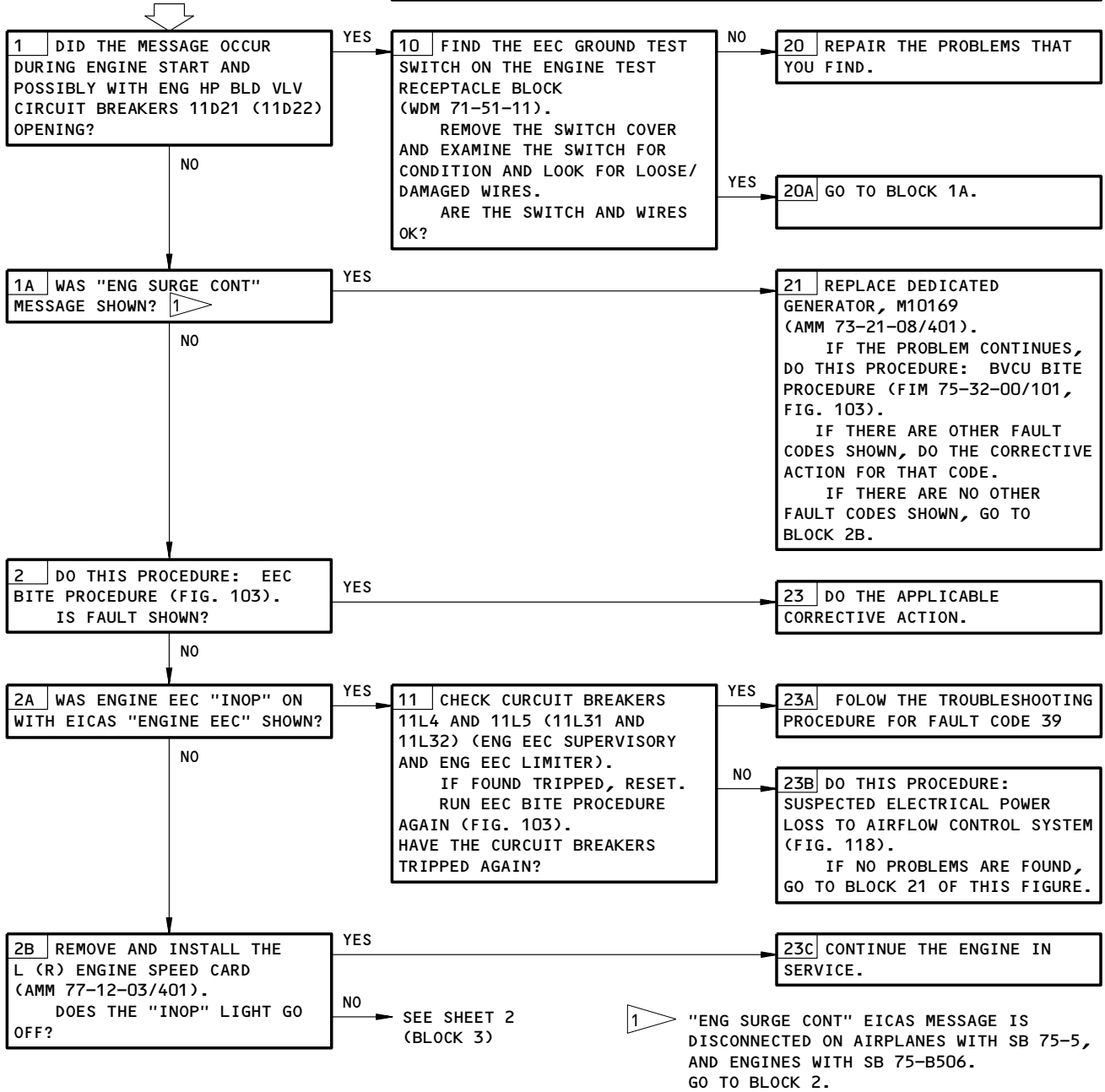
EFFECTIVITY

ALL
-----

**73-21-00**

**ENGINE LIMITER  
"INOP" ON WITH  
EICAS "ENGINE  
LIMITER" MESSAGE  
SHOWN**

**PREREQUISITES**  
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
(LEFT ENGINE) 11B31, 11D21, 11L4, 11L5  
(RIGHT ENGINE) 11B32, 11D22, 11L31, 11L32  
MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:  
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



Engine Limiter INOP On with EICAS ENGINE LIMITER Message Shown  
Figure 115 (Sheet 1)

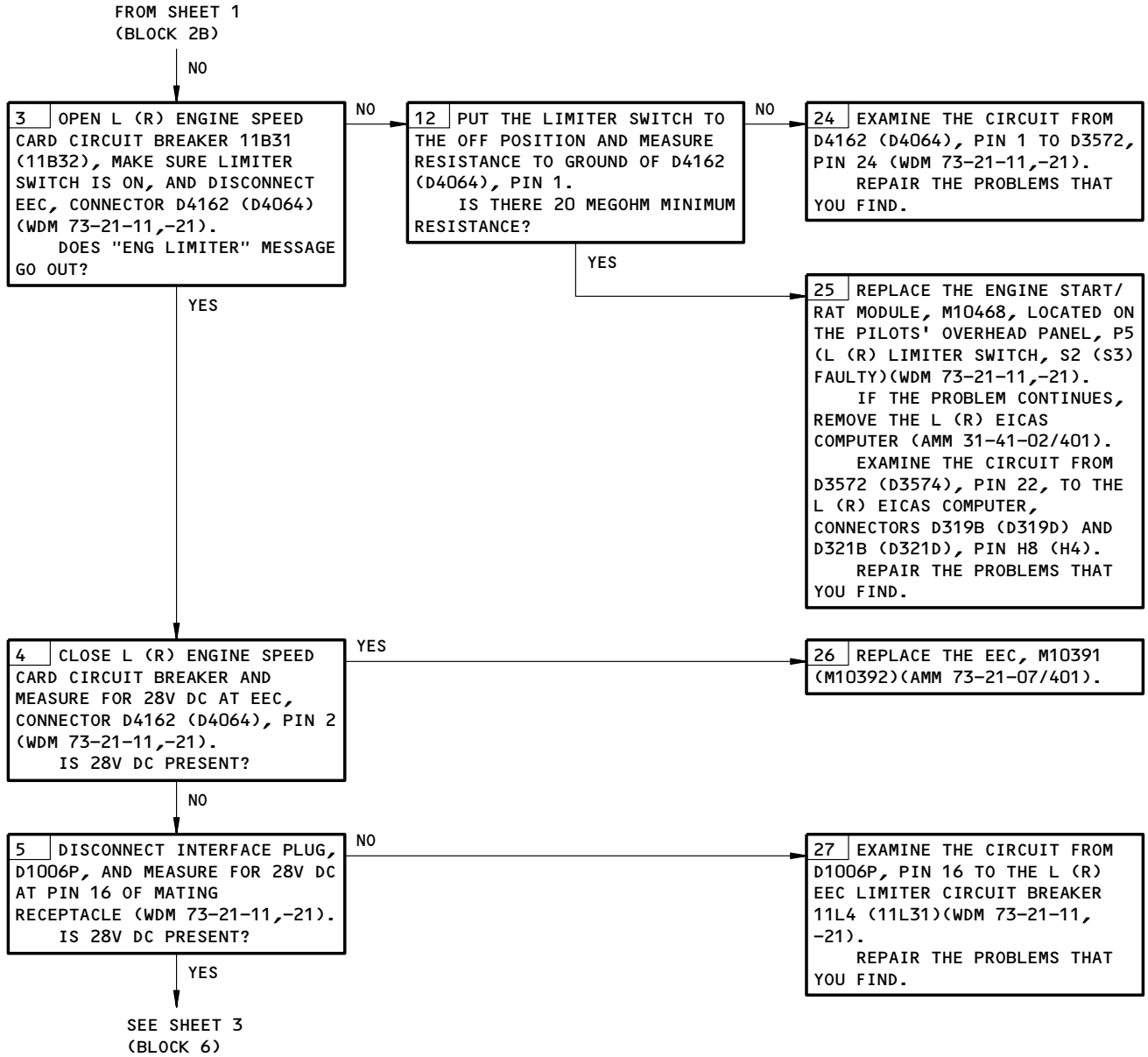
EFFECTIVITY

ALL

**73-21-00**

R10

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Engine Limiter INOP On with EICAS ENGINE LIMITER Message Shown  
Figure 115 (Sheet 2)

EFFECTIVITY

ALL

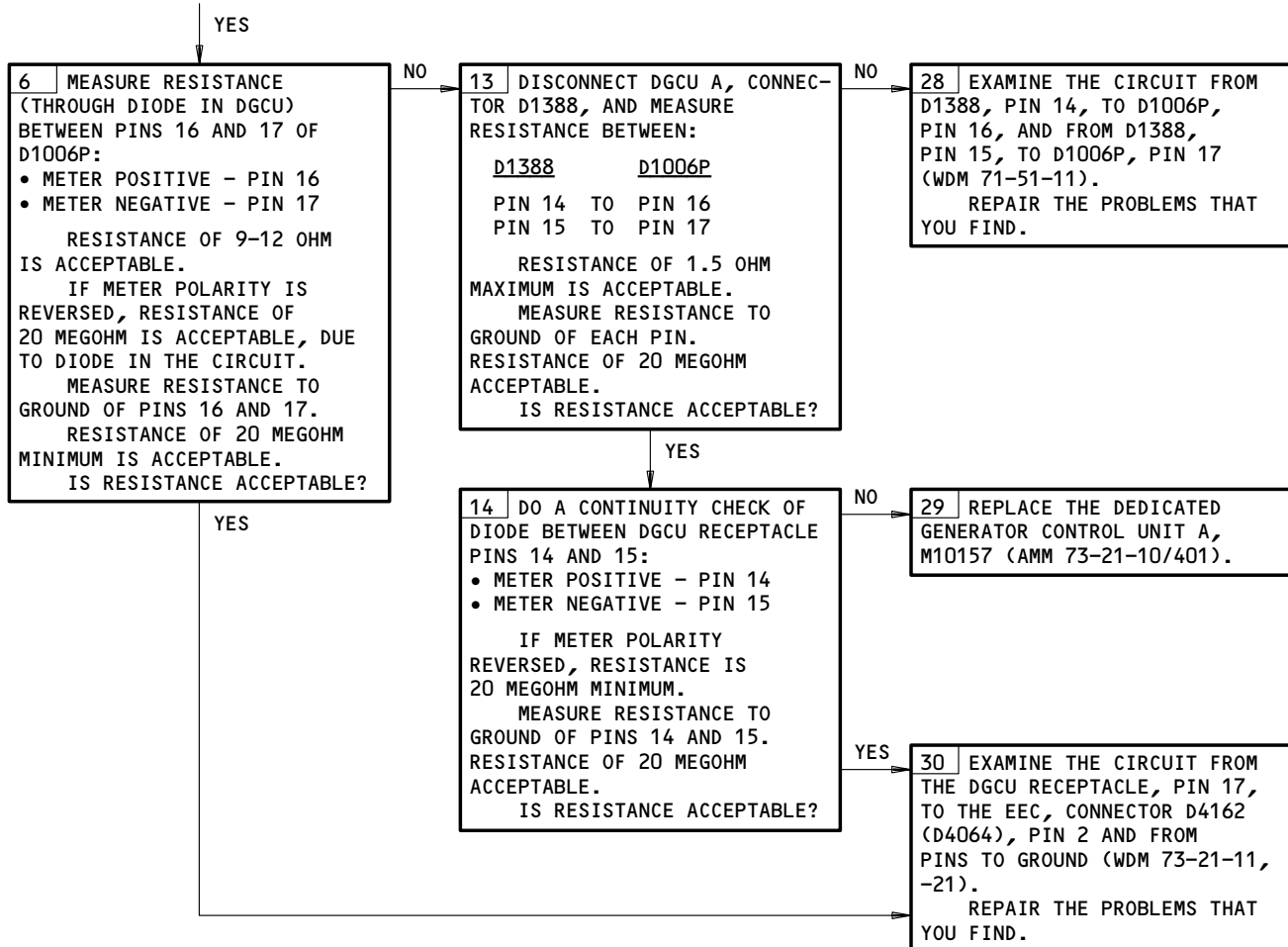
**73-21-00**

R08

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E33800

FROM SHEET 2  
(BLOCK 5)



Engine Limiter INOP On with EICAS ENGINE LIMITER Message Shown  
Figure 115 (Sheet 3)

EFFECTIVITY	ALL
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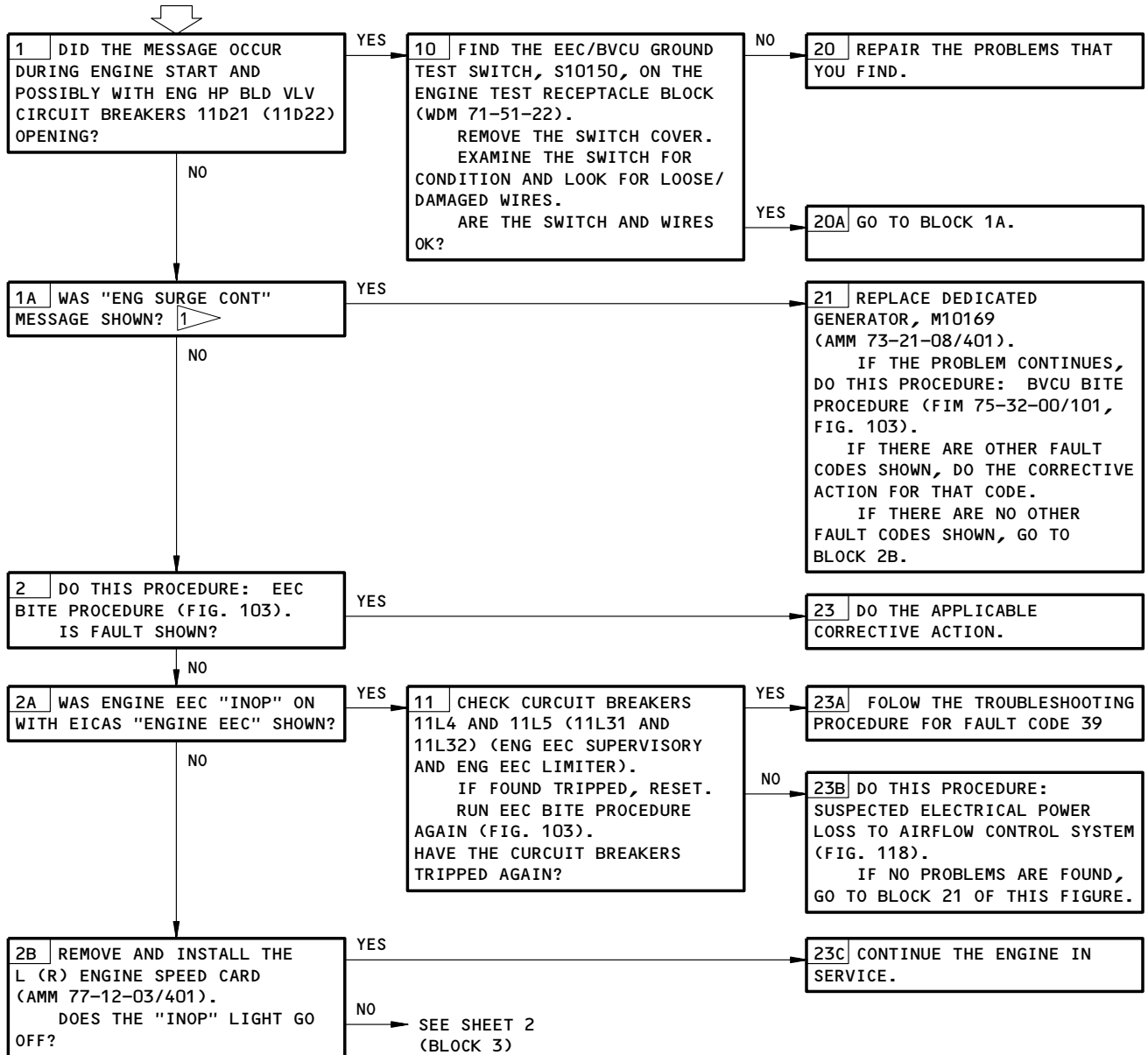
73-21-00

**ENGINE EEC "INOP"  
ON WITH EICAS  
"ENGINE EEC"  
MESSAGE SHOWN**

**PREREQUISITES**

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:  
(LEFT ENGINE) 11B31, 11D21, 11L4, 11L5  
(RIGHT ENGINE) 11B32, 11D22, 11L31, 11L32

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



1 "ENG SURGE CONT" EICAS MESSAGE IS DISCONNECTED ON AIRPLANES WITH SB 75-5 AND ENGINES WITH SB 75-B506. GO TO BLOCK 2.

Engine EEC INOP On with EICAS ENGINE EEC Message Shown  
Figure 116 (Sheet 1)

EFFECTIVITY

ALL

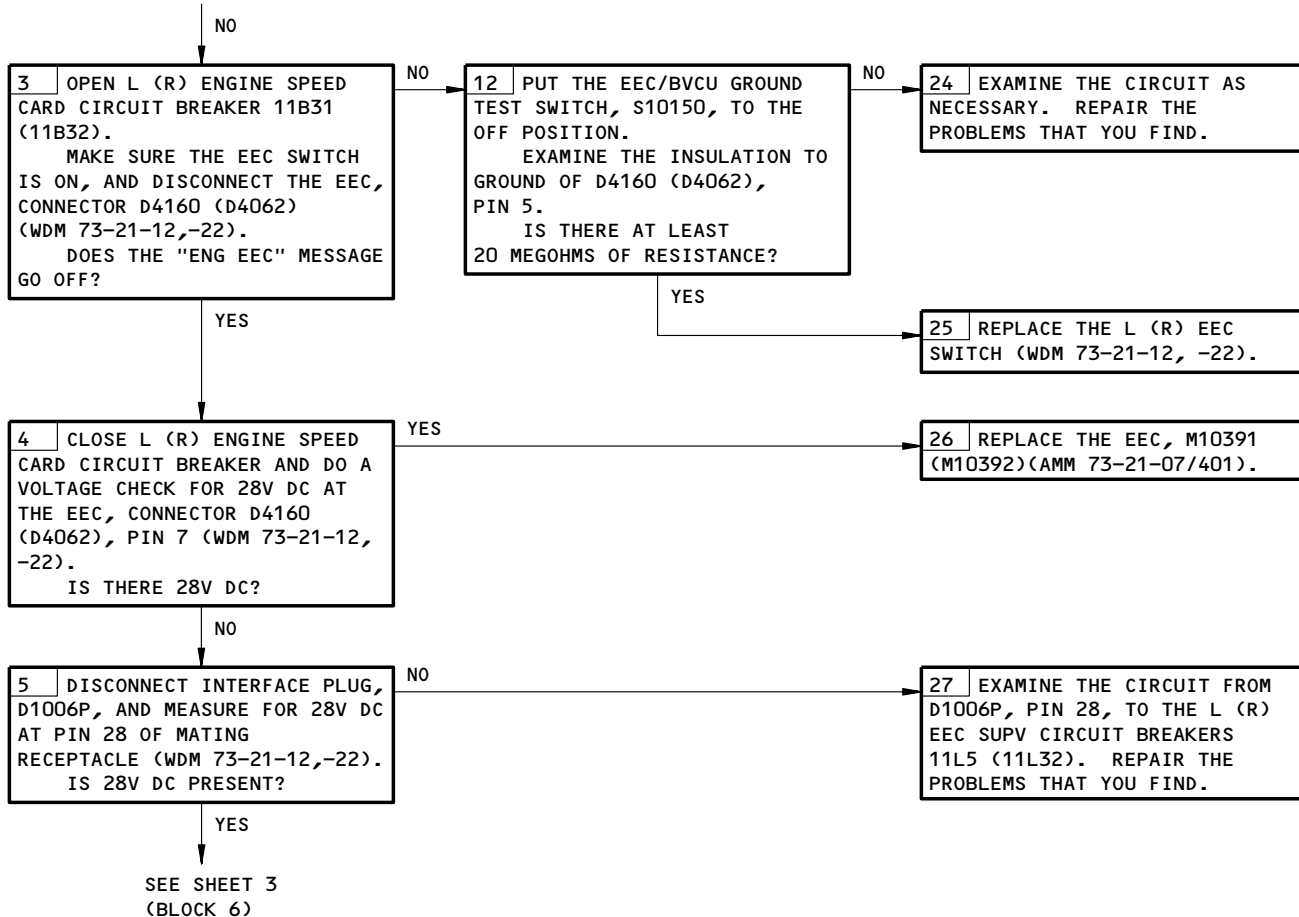
73-21-00

R12

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E33924

FROM SHEET 1  
(BLOCK 2B)

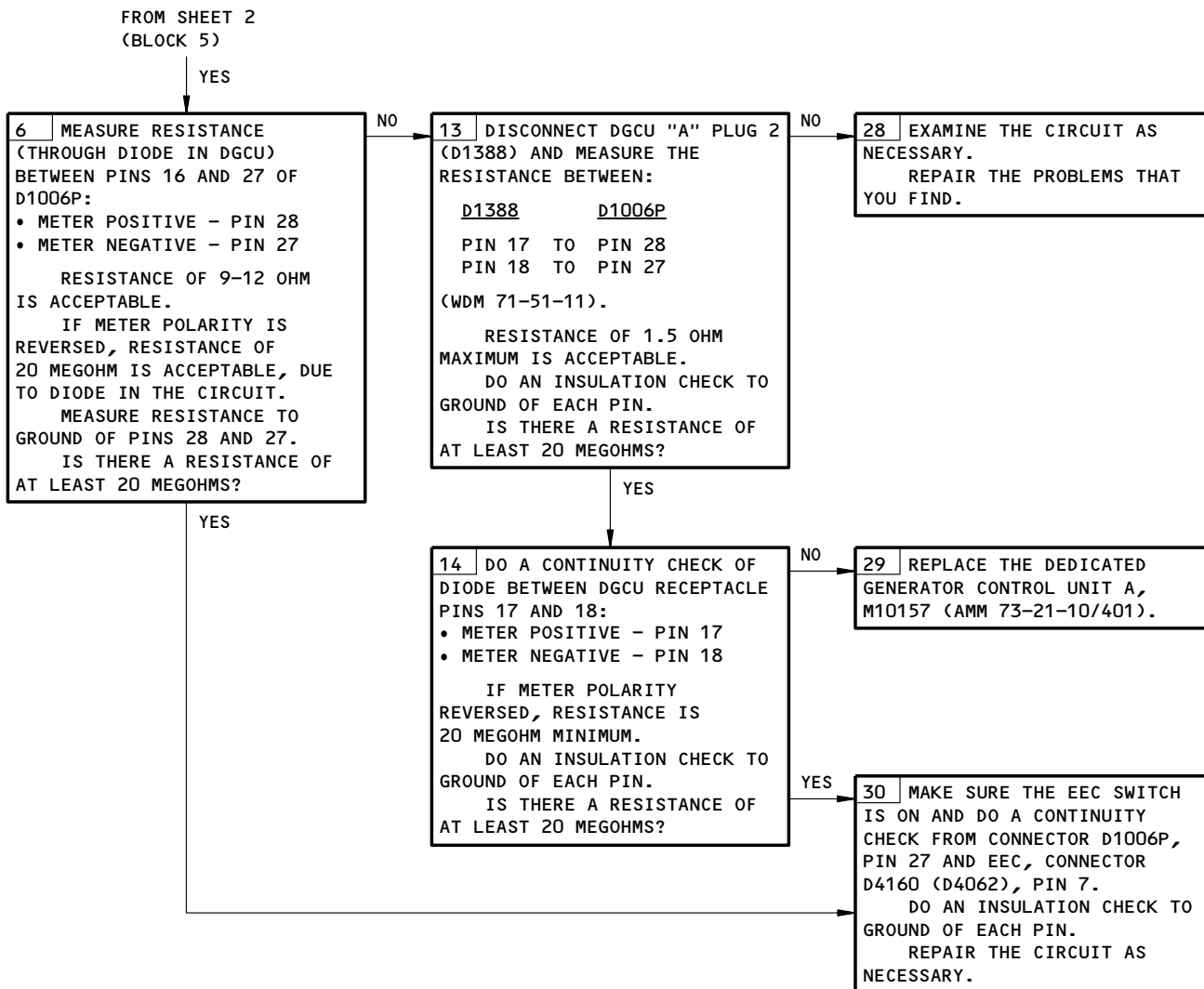


Engine EEC INOP On with EICAS ENGINE EEC Message Shown  
Figure 116 (Sheet 2)

EFFECTIVITY

ALL
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73-21-00



Engine EEC INOP On with EICAS ENGINE EEC Message Shown  
Figure 116 (Sheet 3)

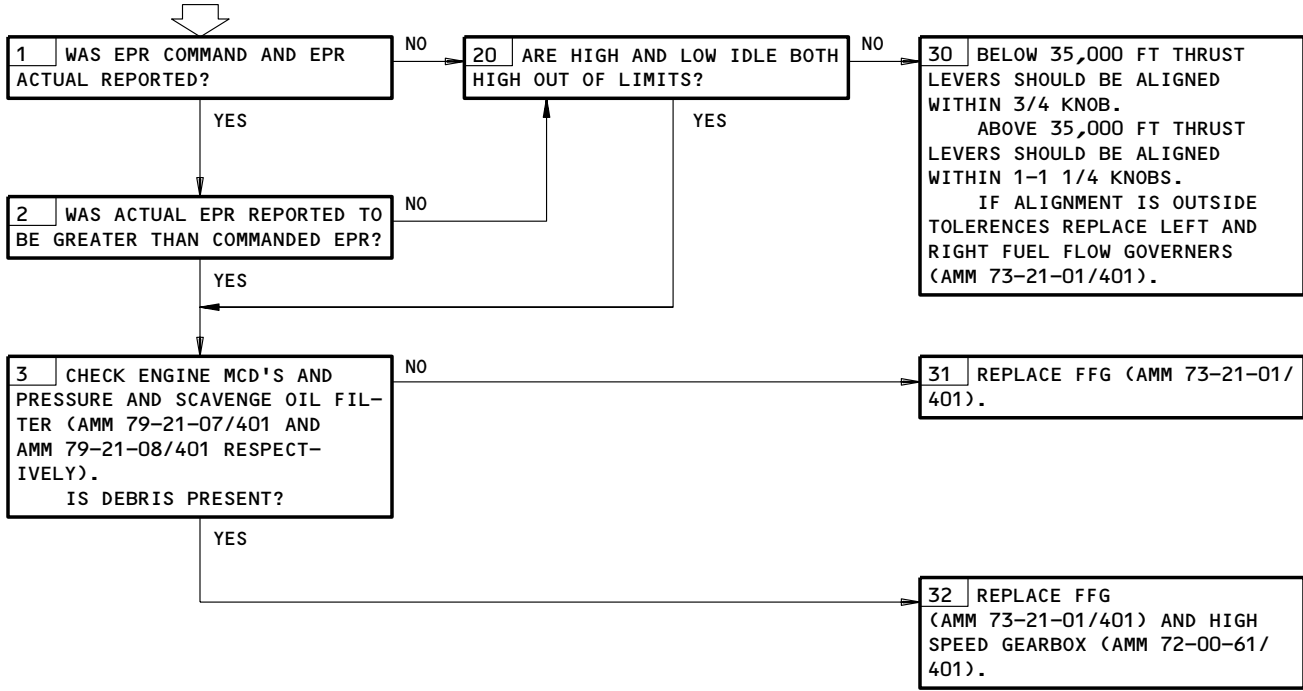
EFFECTIVITY	ALL
-------------	-----

73-21-00



**ENGINE THRUST  
LEVERS MISALIGNED  
INCREASING WITH  
ALTITUDE**

**PREREQUISITES**  
NONE



Engine Thrust Levers Misaligned Increasing with Altitude  
Figure 117

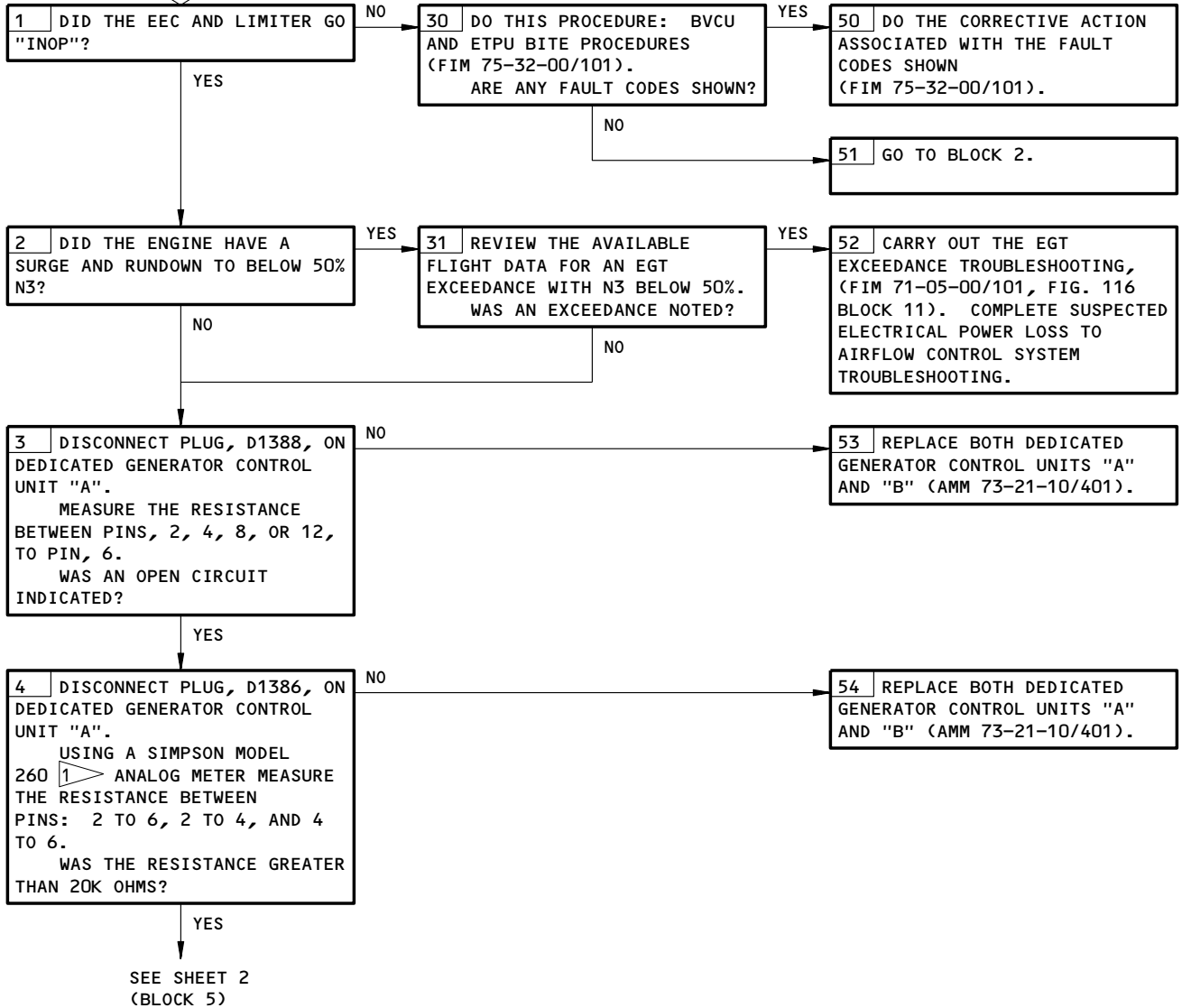
EFFECTIVITY

ALL
-----

73-21-00

**SUSPECTED ELECTRICAL  
POWER LOSS TO AIRFLOW  
CONTROL SYSTEM**

**PREREQUISITES**  
NONE



1 ALTERNATIVE METERS CAN BE USED TO CHECK THE INTEGRITY OF THE UNIT. HOWEVER, DATUM READINGS MUST BE TAKEN FROM A KNOWN SERVICEABLE UNIT. IN THE CASE OF DIGITAL METERS, ONLY THOSE THAT HAVE DIODE CHECKING CAPABILITY CAN BE USED (THESE READINGS WILL BE A VOLTAGE LEVEL AND NOT RESISTANCE). FOR DIGITAL METERS THE VOLTAGE MEASURED WILL BE 1.2 VOLTS RISING TO 2 VOLTS FOR A GOOD UNIT AND 0.8 VOLTS RISING TO 1.8 VOLTS FOR A FAULTY UNIT.

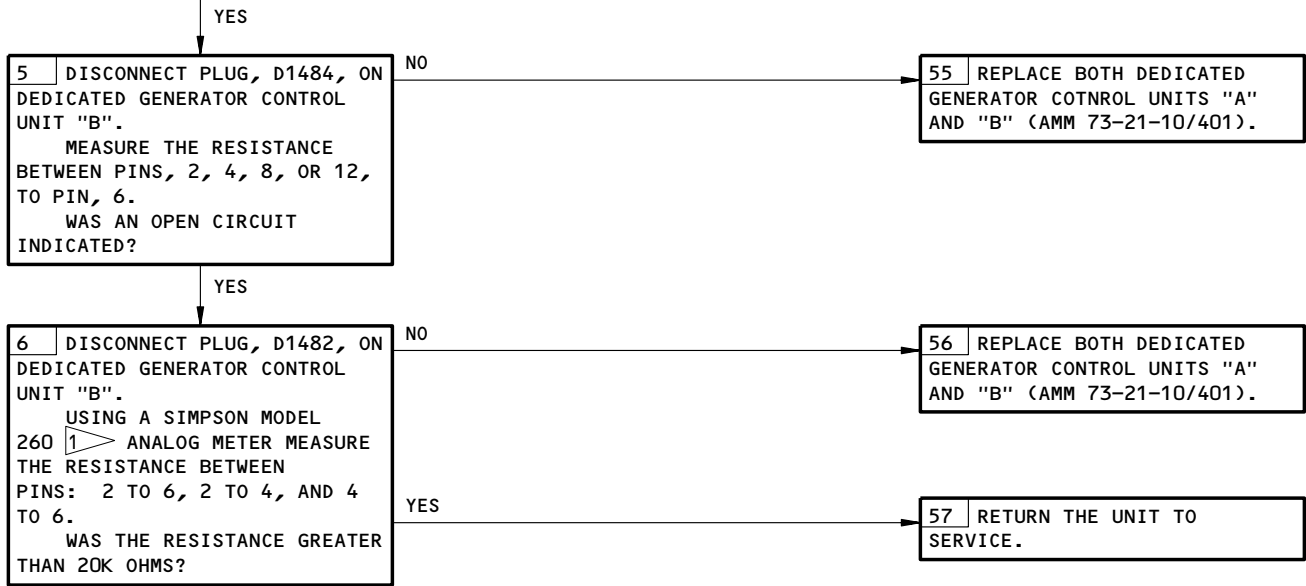
Suspected Electrical Power Loss to Airflow Control System  
Figure 118 (Sheet 1)

EFFECTIVITY	ALL
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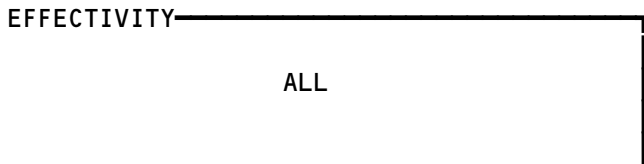
**73-21-00**

L18034

FROM SHEET 1  
(BLOCK 4)



Suspected Electrical Power Loss to Airflow Control System  
Figure 118 (Sheet 2)



**73-21-00**

**LEFT (RIGHT) EEC  
BLEED SYSTEM  
DISCRETE CIRCUIT  
TEST**

**PREREQUISITES**

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:

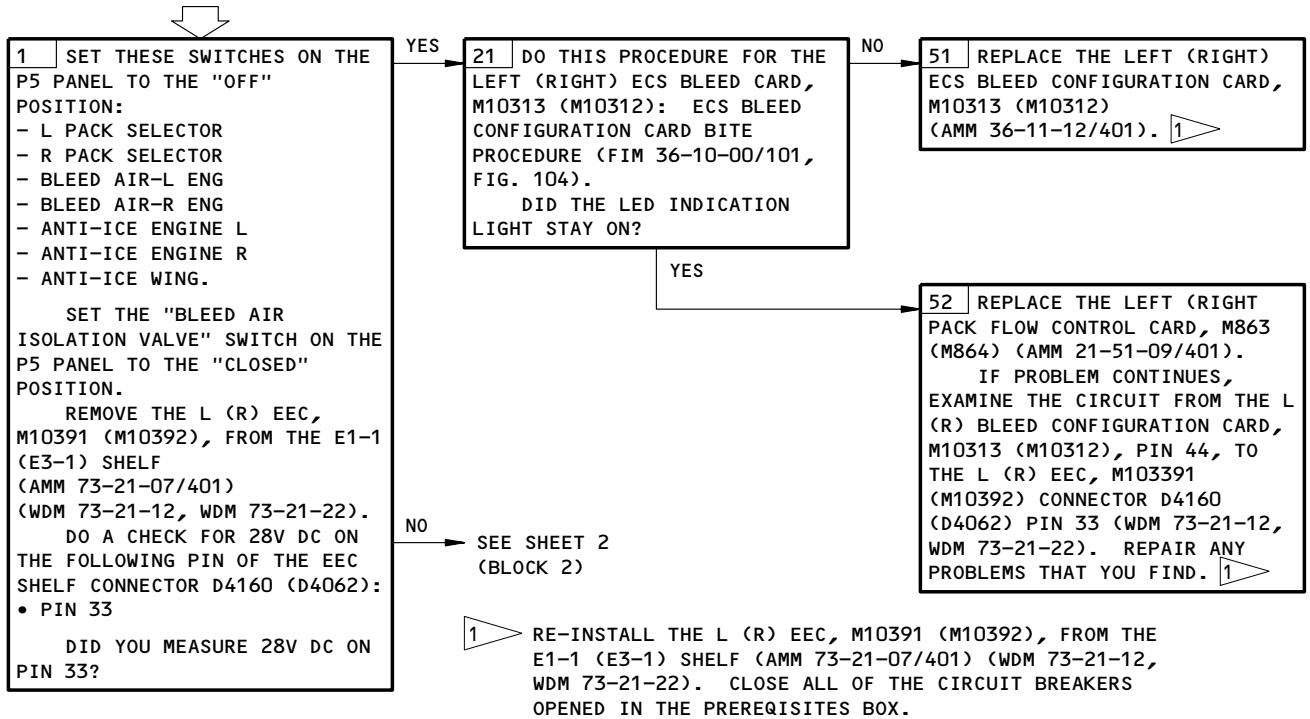
- 11B2 (C1338, ISOL VALVE CONT),
- 11B3 (C1337, ISOL VALVE CONT),
- 11Q10 (C1339, ENG BLD L),
- 11Q19 (C1340, ENG BLD R),
- 11M13 (C653, AIR COND PACK LEFT FLOW CONT),
- 11M22 (C704, AIR COND PACK RIGHT FLOW CONT),
- 11C27 (C1147, ANTI-ICE ENG L),
- 11C28 (C1148, ANTI-ICE ENG R),
- 11R20 (C1132, ANTI-ICE WING)

MAKE SURE THESE CIRCUIT BREAKERS ARE OPEN:

- 11L4 (C4119, LEFT ENGINE ELECTRONIC ENGINE CONTROL LIMITER),
- 11L5 (C4129, LEFT ENGINE ELECTRONIC ENGINE CONTROL SUPV),
- 1131 (C4127, RIGHT ENGINE ELECTRONIC ENGINE CONTROL LIMITER),
- 11L32 (C4130, RIGHT ENGINE ELECTRONIC ENGINE CONTROL SUPV)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:

- ELECTRICAL POWER IS ON (AMM 24-22-00/201)
- PNEUMATIC POWER IS OFF (AMM 36-00-00/201)



Left (Right) EEC Bleed System Discrete Circuit Test  
Figure 119 (Sheet 1)

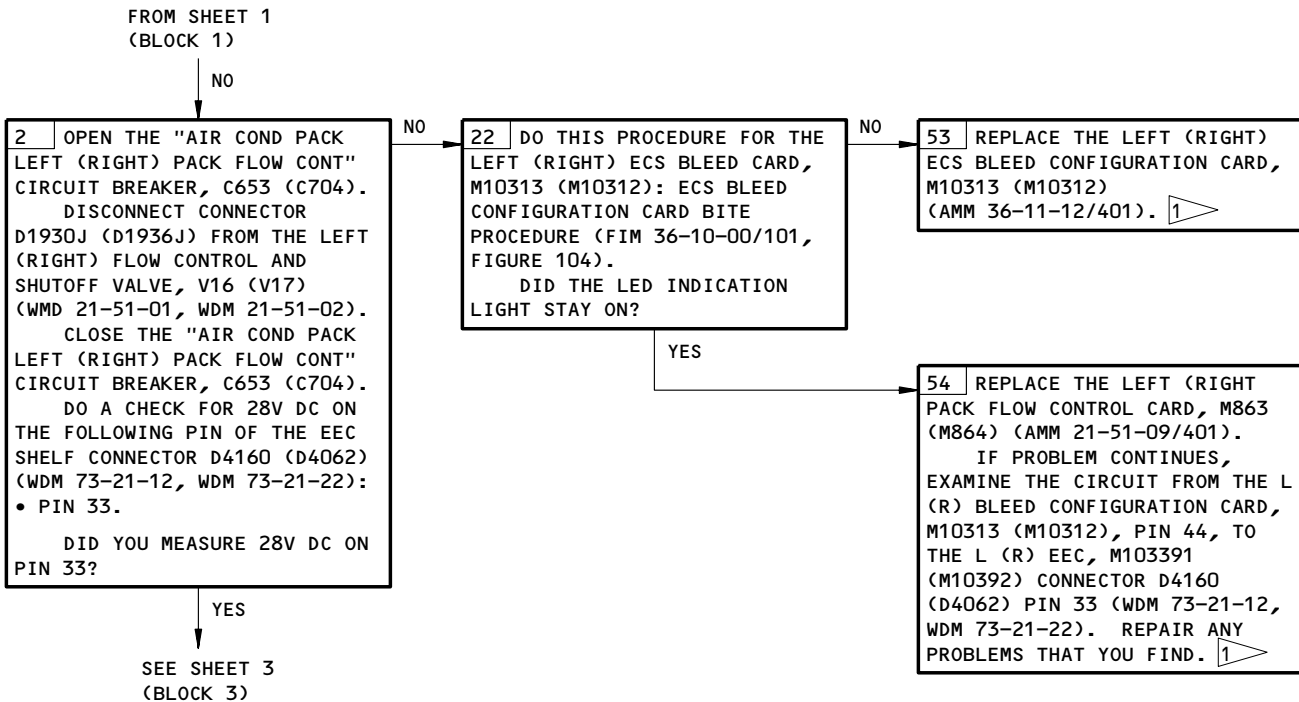
EFFECTIVITY

ALL

**73-21-00**

R03

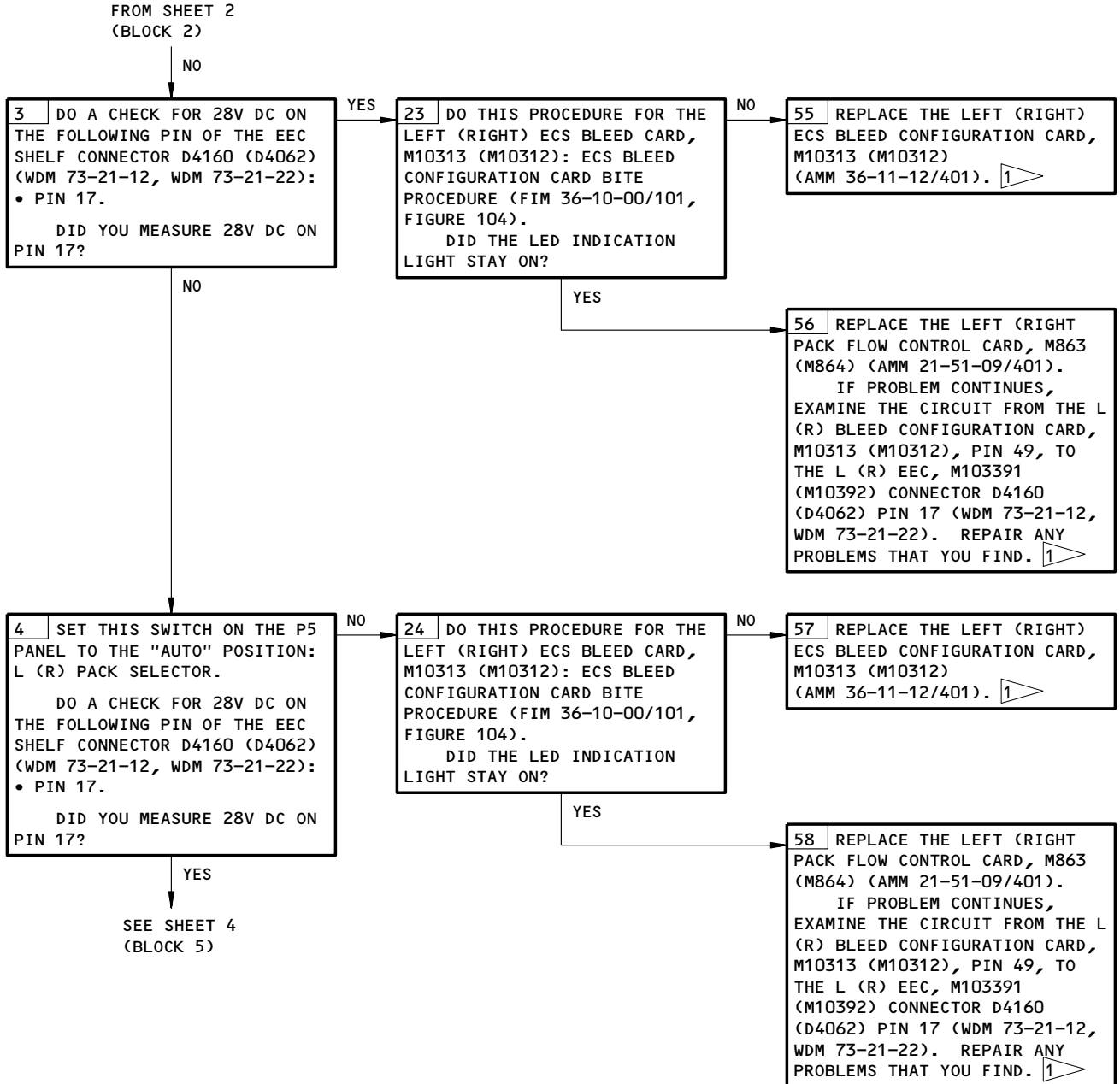
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Left (Right) EEC Bleed System Discrete Circuit Test  
Figure 119 (Sheet 2)

EFFECTIVITY	ALL
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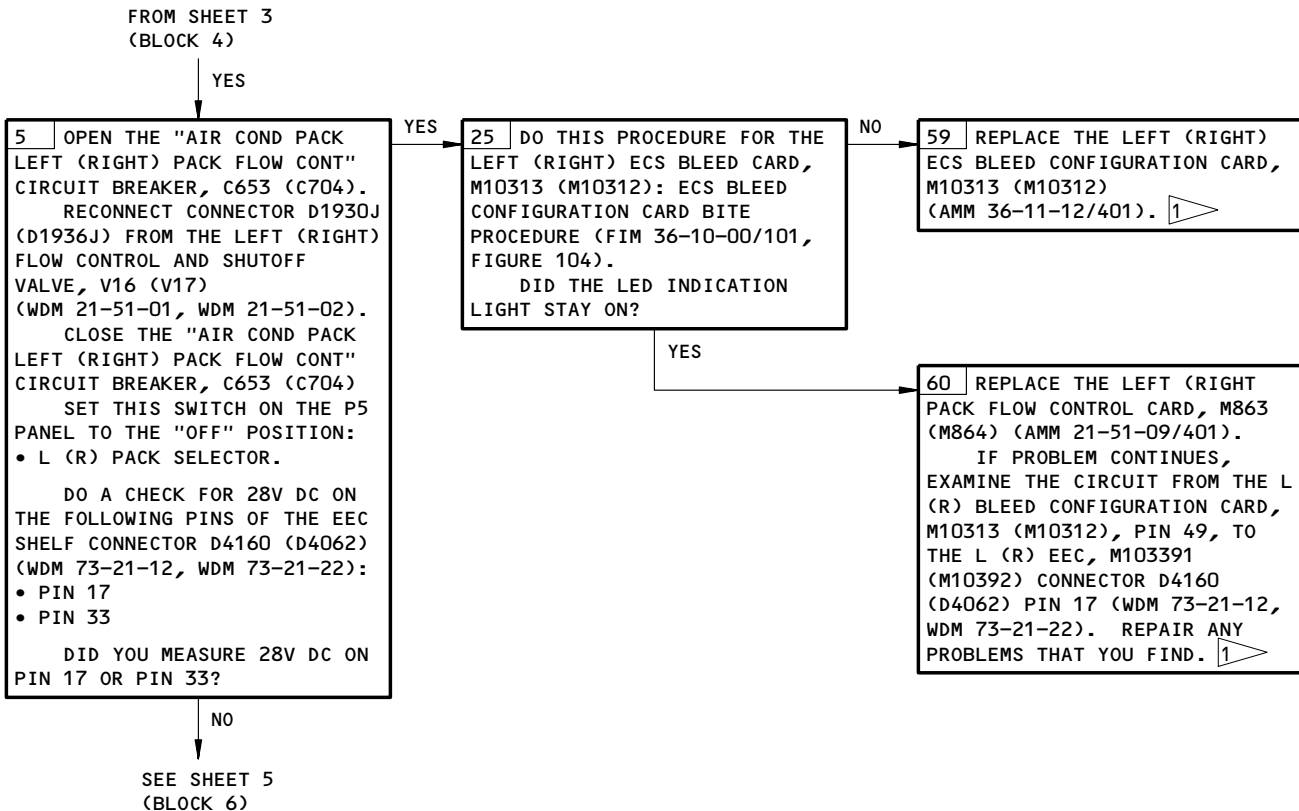
**73-21-00**



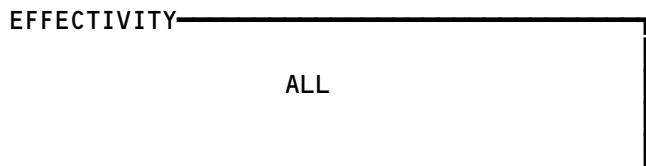
Left (Right) EEC Bleed System Discrete Circuit Test  
Figure 119 (Sheet 3)

EFFECTIVITY	ALL
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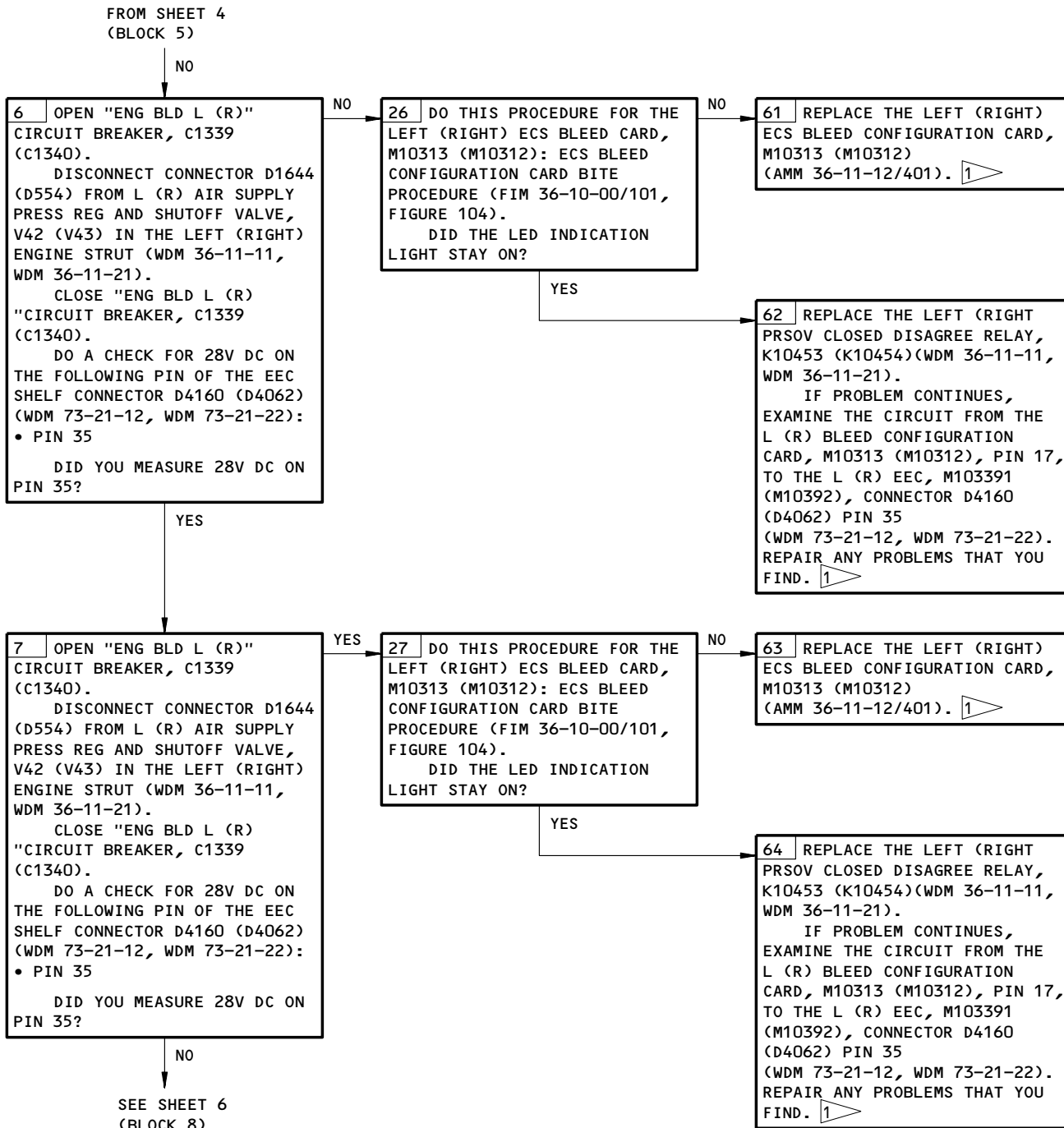
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Left (Right) EEC Bleed System Discrete Circuit Test  
Figure 119 (Sheet 4)



73-21-00



Left (Right) EEC Bleed System Discrete Circuit Test  
Figure 119 (Sheet 5)

EFFECTIVITY

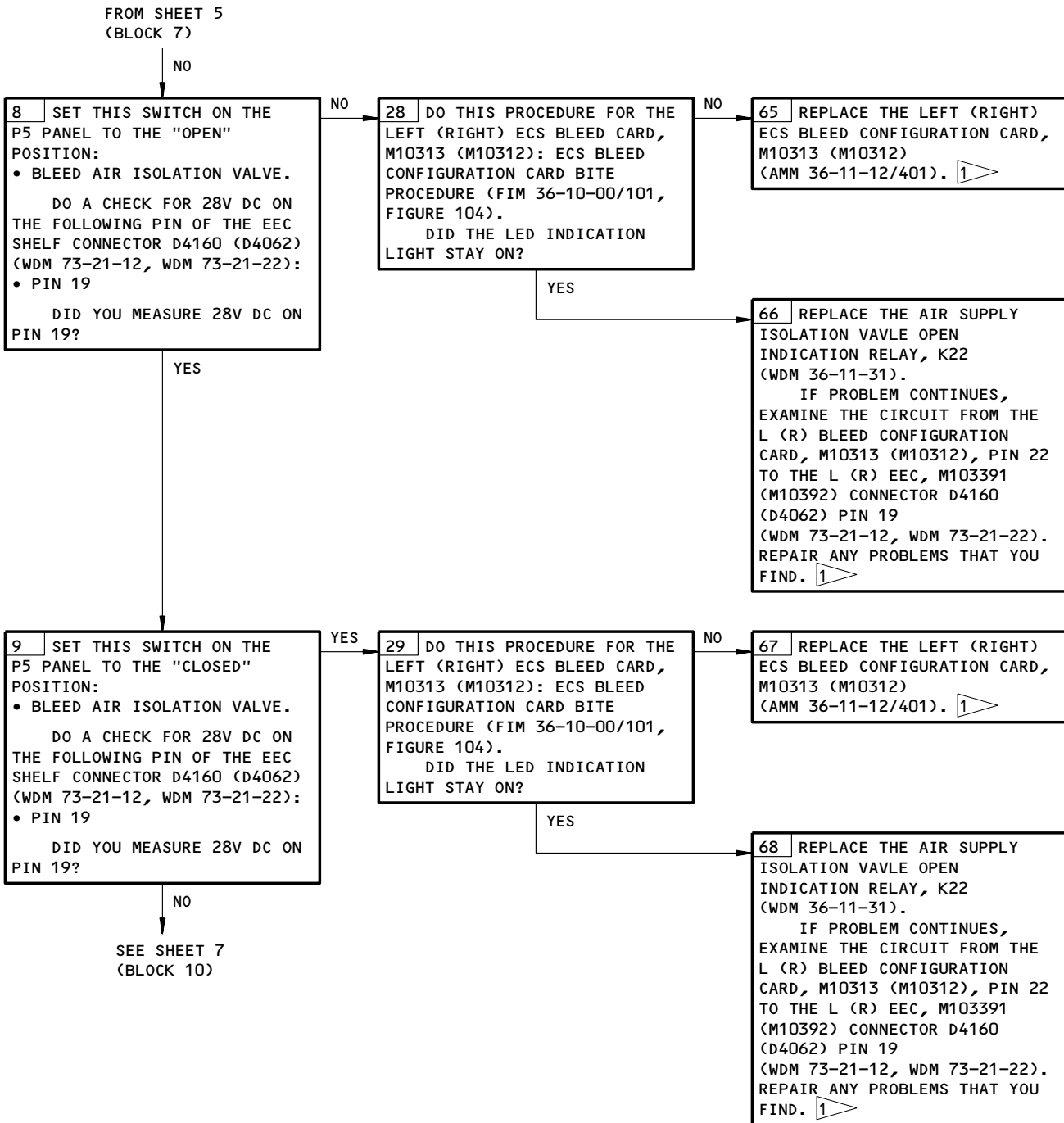
ALL

**73-21-00**

R02

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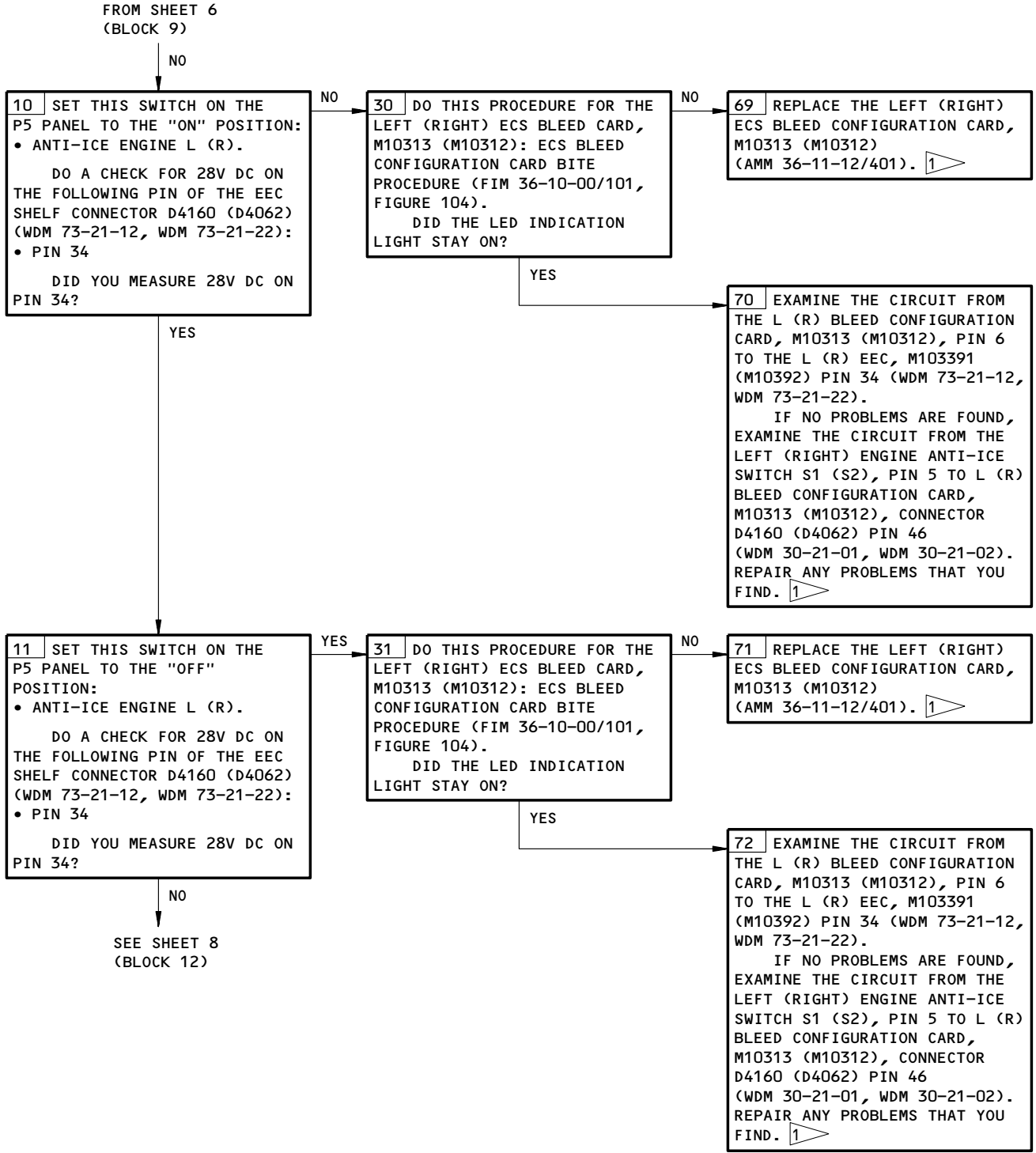




Left (Right) EEC Bleed System Discrete Circuit Test  
Figure 119 (Sheet 6)

EFFECTIVITY	ALL
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73-21-00



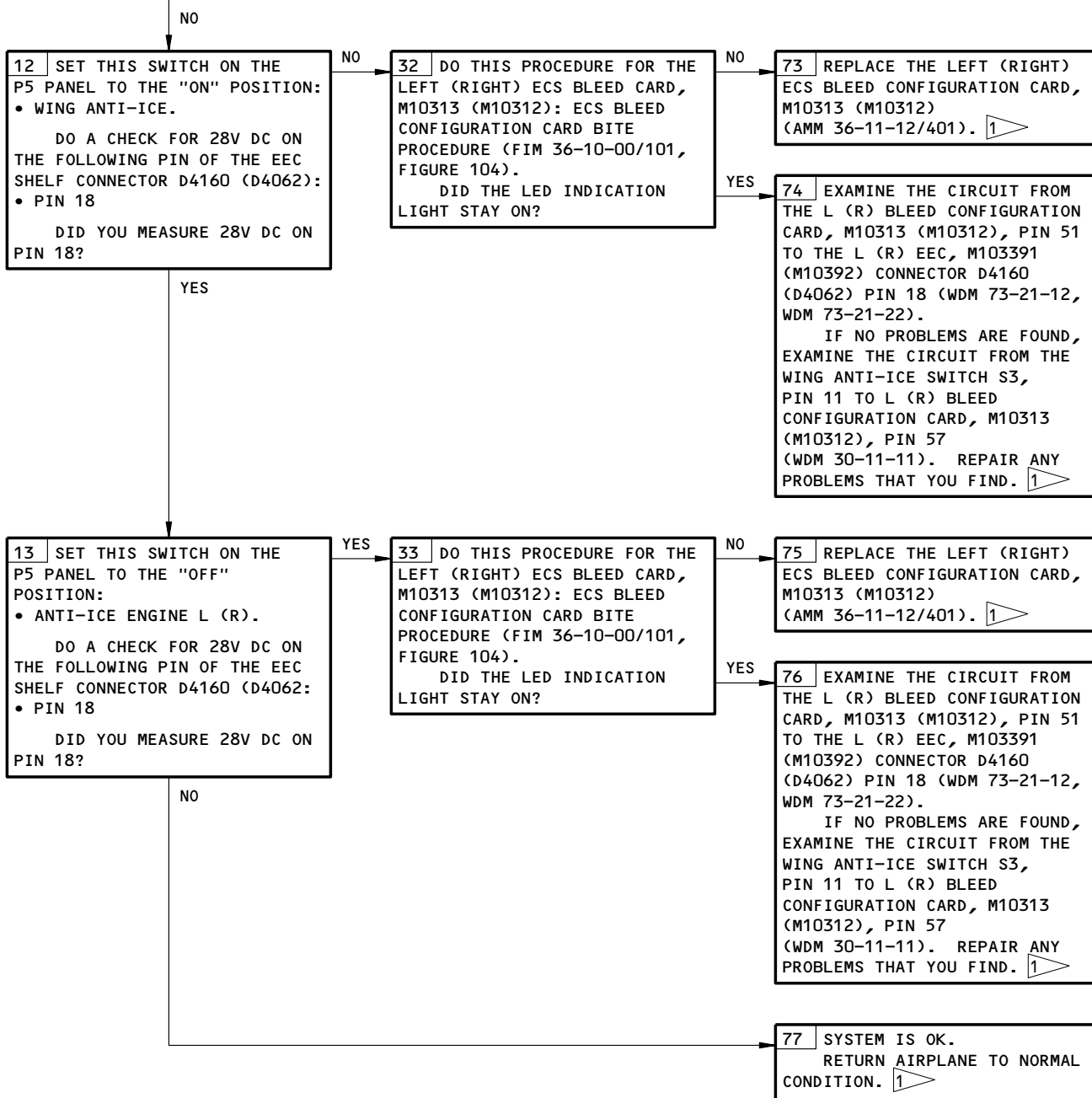
Left (Right) EEC Bleed System Discrete Circuit Test  
Figure 119 (Sheet 7)

EFFECTIVITY	ALL
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73-21-00

437737

FROM SHEET 7  
(BLOCK 11)



Left (Right) EEC Bleed System Discrete Circuit Test  
Figure 119 (Sheet 8)

EFFECTIVITY

ALL
-----

73-21-00

1. ARINC 429 Data Bus

## A. General

**CAUTION:** DO NOT PROBE CONNECTORS. USE A BREAKOUT BOX; CONNECTORS MAY BE DAMAGED.

- (1) ARINC 429 data bus charts provide information needed to analyze ARINC 429 transmitters, receivers, and data buses. Testing is accomplished at available terminal blocks or at LRU connectors using a breakout box.

## B. Equipment

- (1) Standard multi-meter
- (2) Interface Technology Model 429-2 Data Bus Analyzer or ARINC 429 Data Bus Analyzer, JC Air Model 429EB
- (3) Breakout box A34011-1 (preferred)  
A34011-112 (optional)

EEC							
DIGITAL OUTPUT BUS CHART							
BUS NAME			CON	PINS	BUS FORMAT	BIT RATE	DATA BUS
SOURCE	TYPE	BUS					
EEC-RR ( L R )	A	1	---	13 14	429	LO	TMC/EICAS DATA
EEC-RR ( L R )	B	2	---	29 30	429	LO	AIDS DATA

EFFECTIVITY

ALL

**73-21-00**

R03

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EEC ID=1A								
OCTAL LABELS CHART								
SIGNAL	TYPE	LABEL	FORMAT	MIN UPDATE RATE	SDI	BINARY RANGE	POSITIVE SENSE	UNITS
EEC DISCRETES	A	270	DIS	2	00	N/A	N/A	N/A
EPR COMMAND	A	341	BNR	20	00	4	ALWAYS POS	RATIO
EPR IDLG	A	301	BNR	2	00	4	ALWAYS POS	RATIO
EPR MAX	A	342	BNR	2	00	4	ALWAYS POS	RATIO
EEC DISCRETES	B	270	DIS	2	00	N/A	N/A	N/A
EPR COMMAND	B	341	BNR	20	00	4	ALWAYS POS	RATIO
EPR IDLE	B	301	BNR	2	00	4	ALWAYS POS	RATIO
EPR MAX	B	342	BNR	2	00	4	ALWAYS POS	RATIO
FAN INLET TOT TEMP	B	130	BNR	2	00	128	POS/NEG	DEGS C
TRIM FDBK (LVDT)	B	325	BNR	2	00	128	ALWAYS POS	IN./1000
EQUIV PLA	B	133	BNR	2	00	150	ALWAYS POS	DEGS

EFFECTIVITY

ALL
-----

73-21-00

EEC				
DISCRETE OCTAL LABELS/BIT CHART				
SIGNAL	OCTAL LABEL	BIT	ONE-STATE	ZERO-STATE
MOD STANDARD	270	11		0
MOD STANDARD	270	12		0
MOD STANDARD	270	13		0
MAINTENANCE	270	14	REQ'D	NOT REQ'D
ENGINE DESIGNATION	270	15	1	
ENGINE DESIGNATION	270	16		0
ENGINE DESIGNATION	270	17		0
ENGINE DESIGNATION	270	18		0
ENGINE DESIGNATION	270	19		0
SUPERVIS REVERTED	270	20	REVERTED	OK
COWL ANTI-ICE	270	22	ON	OFF
AIR COND BLEED	270	23	ON	OFF
AIR COND MOD	270	24	ON	OFF
SUPERV FAIL-FIXED	270	25	FAILED	OK
WING ANTI-ICE	270	26	ON	OFF
PRSOV	270	27	OPEN	CLOSED
ENGINE OUT	270	28	OUT	OK
ISOL VALVE	270	29	OPEN	CLOSED

EFFECTIVITY

ALL

**73-21-00**

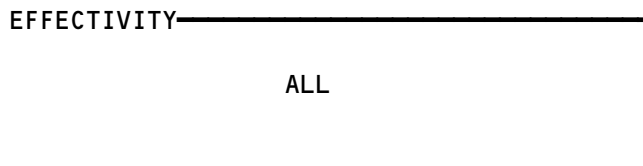
R02

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FUEL FLOW INDICATING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
TRANSMITTER - FUEL FLOW		2	414AR,424AR	73-31-01

Fuel Flow Indicating System - Component Index  
Figure 101



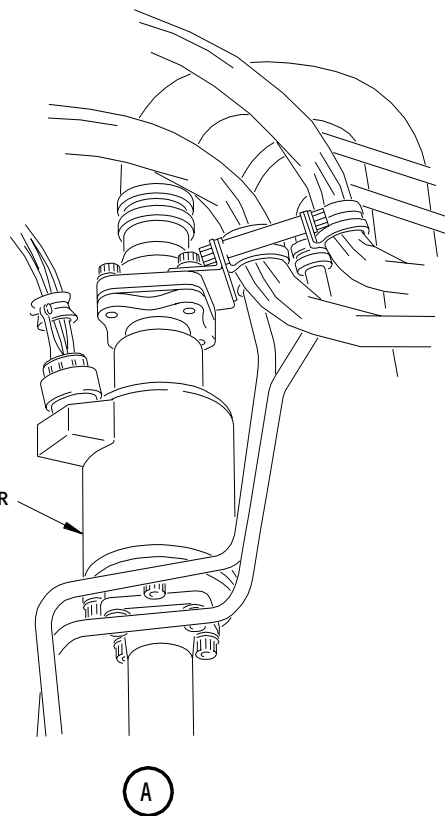
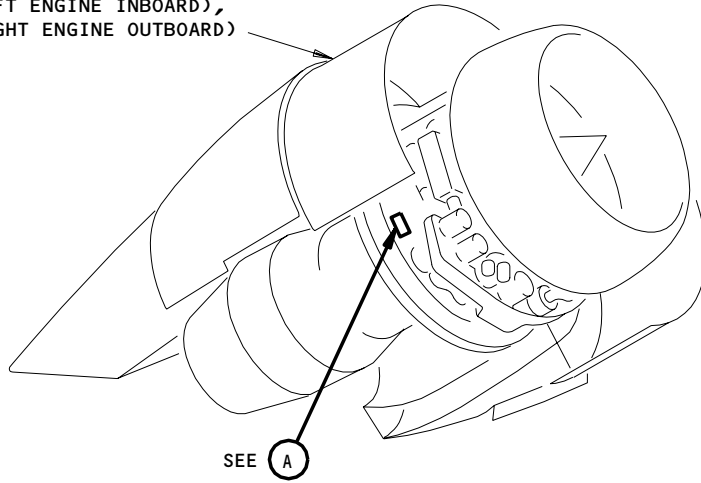
E46822

73-31-00

R01

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FAN COWL,  
414AL (LEFT ENGINE INBOARD),  
424AR (RIGHT ENGINE OUTBOARD)



Fuel Flow Indicating System - Component Location  
Figure 102

EFFECTIVITY	
	ALL

**73-31-00**

R01

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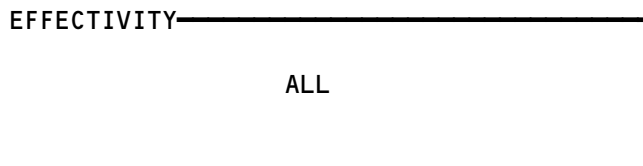
FUEL FLOW INDICATION  
PROBLEM

PREREQUISITES  
NONE



1	REPLACE FUEL FLOW TRANSMITTER (MM 73-31-01). IF FAULT PERSISTS, CHECK CIRCUIT BETWEEN CONNECTOR D1328 PIN 1, 2, AND 3 AND L(R) EICAS CONNECTOR D319A AND D321A PIN J8, J9 AND J7 (D321A AND D321D PIN J1, K1 AND H1) (WM 71-51-11 AND 73-31-11).
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Fuel Flow Indication Problem  
Figure 103



73-31-00

R01

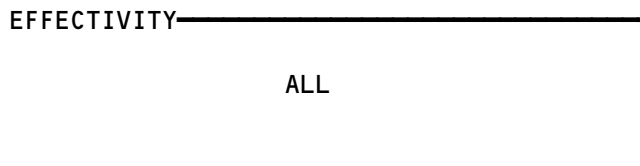
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71170

FUEL FILTER BYPASS WARNING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
SWITCH - DIFFERENTIAL PRESSURE, S10133	--	2	414AR,424AR, FAN COWL	73-34-01

Fuel Filter Bypass Warning System - Component Index  
Figure 101



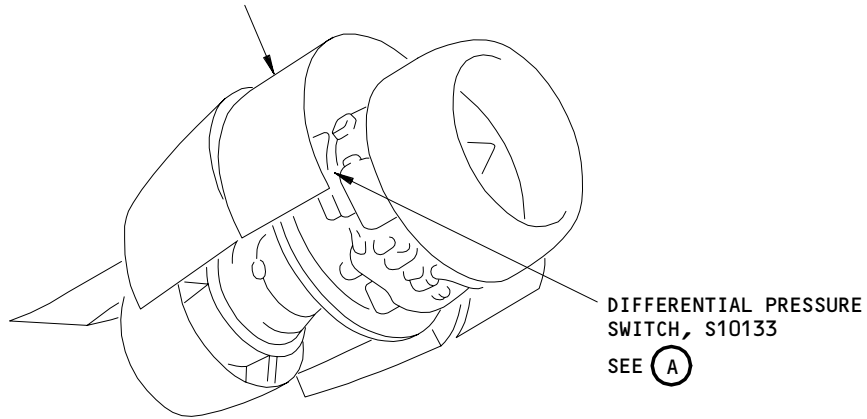
E46823

**73-34-00**

R01

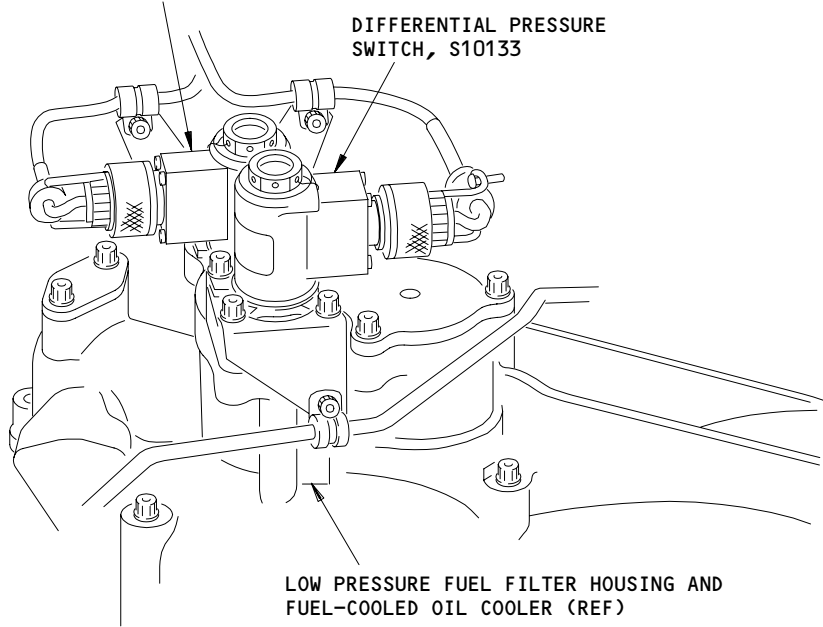
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FAN COWL,  
414AR (LEFT ENGINE INBOARD),  
424AR (RIGHT ENGINE OUTBOARD)



FUEL LOW PRESSURE WARNING SWITCH (REF)

DIFFERENTIAL PRESSURE SWITCH, S10133



(A)

51164

Fuel Filter Bypass Warning System - Component Location  
Figure 102

EFFECTIVITY	
	ALL

**73-34-00**

R01

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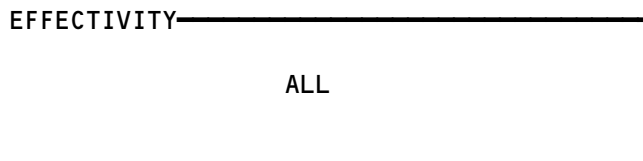
218037



FUEL LOW PRESSURE WARNING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
SWITCH - FUEL LOW PRESSURE WARNING, S10134	--	2	414AR,424AR, FAN COWL	73-35-01

Fuel Low Pressure Warning System - Component Index  
 Figure 101



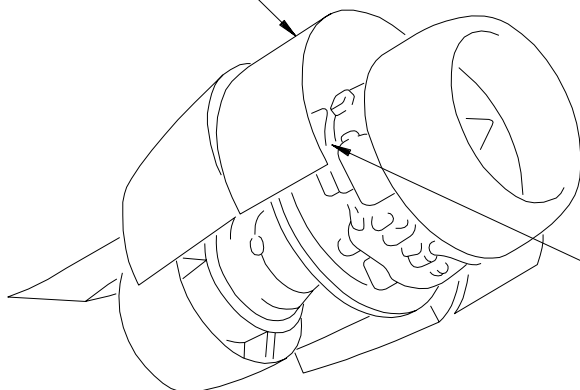
E46828

**73-35-00**

R01

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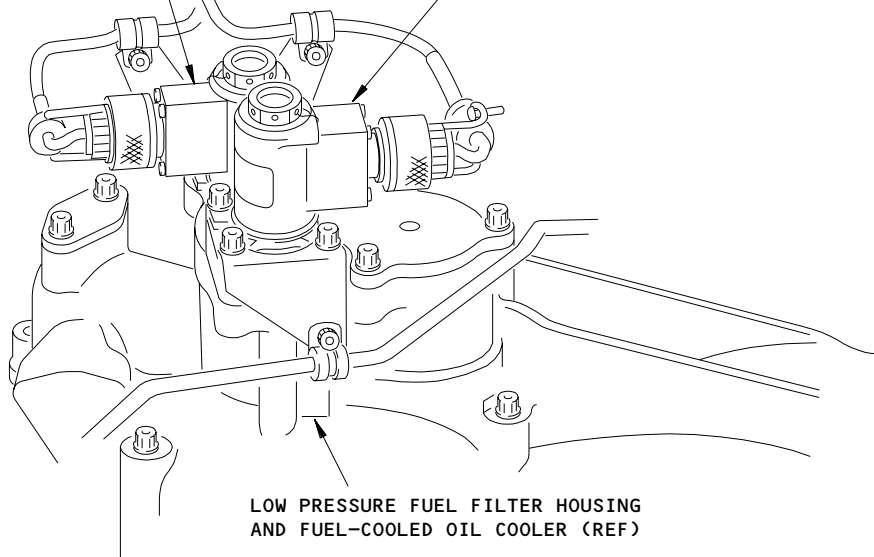
FAN COWL,  
414AR (LEFT ENGINE INBOARD),  
424AR (RIGHT ENGINE OUTBOARD)



FUEL LOW PRESSURE  
WARNING SWITCH,  
S10134  
SEE (A)

FUEL LOW PRESSURE  
WARNING SWITCH,  
S10134

DIFFERENTIAL  
PRESSURE SWITCH (REF)



LOW PRESSURE FUEL FILTER HOUSING  
AND FUEL-COOLED OIL COOLER (REF)

(A)

Fuel Low Pressure Warning System - Component Location  
Figure 102

EFFECTIVITY	
	ALL

73-35-00

R01

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