GPA Group plc

PAGE	DATE	CODE
CHAPTER 79 TAB		
OIL		
EFFECTIVE PAGES SEE LAST PAGE OF LIST FOR NUMBER OF PAGES		
79-CONTENTS		
R 1	MAY 20/09	RGUI.1
2	JAN 28/06	RGUI
79-FAULT CODE INDEX		
1	SEP 20/08	R01
2	SEP 20/08	R01
3	SEP 20/08	R01
4	SEP 20/08	R01
79-11-00		
101	JUN 20/92	R01
102	MAR 20/94	R01
79-21-00		
101	MAR 20/94	R01
102	MAR 20/94	R01
103	MAY 28/99	R01
104	JUN 20/92	R01
79-31-00		
101	DEC 20/95	R01
102	DEC 20/95	R01
103	MAY 28/99	R01
104	MAY 28/01	R01
105	MAY 28/99	R01
106	MAY 28/99	R01
107	MAY 28/99	R01
R 108	MAY 20/09	R01.1
R 109	MAY 20/09	R01.1
R 110	MAY 20/09	R01.101
R 111	MAY 20/09	R01.101
R 112	MAY 20/09	R02.101
R 113	MAY 20/09	R01.101
R 114	MAY 20/09	R01.101
79-32-00		
101	INT BLANK	
102	JAN 28/06	R02
103	JAN 28/06	R02
104	JAN 28/06	R02
105	JAN 28/06	R02
106	JAN 28/06	R02
107	JAN 28/06	R01
108	BLANK	
79-33-00		
101	JUN 20/92	R01
102	MAY 28/06	R01
79-34-00		
101	JUN 20/92	R01
102	MAR 20/94	R01
103	JUN 20/92	R01
104	JUN 20/92	R01
105	JUN 20/92	R01
106	BLANK	
79-35-00		
101	JUN 20/92	R01
102	MAR 20/94	R01

CHAPTER 79 - OIL

TABLE OF CONTENTS

CHAPTER 79 - OIL

TABLE OF CONTENTS

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
79 21 XA --	(O1=L,O2=R) Oil filter bypass problem was encountered by the flight crew which is not covered by the fault code diagrams.	SSM 79-00-00, SSM 79-21-00, SSM 79-35-01
79 31 XA --	(O1=L,O2=R) Oil indicator problem was encountered by the flight crew which is not covered by the fault code diagrams.	SSM 79-31-01, SSM 79-32-01, SSM 79-34-01
79 31 XB --	(O1=L,O2=R) Oil quantity/ temperature problem was encountered by the flight crew which is not covered by the fault code diagrams.	SSM 79-31-01, SSM 79-34-01
79 32 XA --	(O1=L,O2=R) Oil pressure problem was encountered by the flight crew which is not covered by the fault code diagrams.	SSM 79-32-01
79 21 06 --	EICAS msg: (O1=L,O2=R) OIL FILTER displayed. Oil pressure and vibration were normal. Engine was not shut down.	FIM 79-21-00/101, Fig. 103, Block 1
79 21 07 --	EICAS msg: (O1=L,O2=R) OIL FILTER displayed. Oil pressure was normal. Vibration was high (see log book for recorded value of vibration). Engine was shut down.	FIM 79-21-00/101, Fig. 103, Block 1
79 21 08 --	EICAS msg: (O1=L,O2=R) OIL FILTER displayed. Engine oil presssure was low, _____ psi. Vibration was high (see log book for recorded value vibration). Engine was shut down.	FIM 79-21-00/101, Fig. 104, Block 1
79 21 09 --	EICAS msg: (O1=L,O2=R) OIL FILTER displayed. Oil pressure was low, _____ psi, vibration normal. Engine was shut down.	FIM 79-21-00/101, Fig. 104, Block 1

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
79 31 01 --	(01=L,02=R) Engine oil qty display intermittent. Pressure and temperature normal.	FIM 79-31-00/101, Fig. 103, Block 1
79 31 02 --	(01=L,02=R) Engine oil qty display zero. Pressure and temperature normal.	FIM 79-31-00/101, Fig. 103, Block 1
79 31 03 --	(01=L,02=R) Engine oil consumption excessive, ____ pts/hr. Oil temp and pressure normal. Vibration level increased to ____ and eng was shut down.	Replace the engine (AMM 71-00-02/401).
79 31 04 --	(01=L,02=R) Engine oil consumption excessive, ____ pts/hr. Oil temp and pressure normal. Vibration level increased to ____. Engine was not shut down.	Replace the engine (AMM 71-00-02/401).
79 31 05 --	(01=L,02=R) Engine oil consumption excessive, ____ pts/hr. Oil temp, pressure and vibration normal.	FIM 79-31-00/101, Fig. 104, Block 1
79 31 06 --	(01=L,02=R) Engine oil qty zero. Oil pressure (low, fluctuating) ____ PSI. Engine was shut down.	FIM 79-31-00/101, Fig. 104, Block 1
79 31 07 --	(01=L,02=R) Engine oil quantity indication low or falling.	FIM 79-31-00/101, Fig. 103A, Block 1
79 31 08 --	(01=L,02=R) Engine oil quantity indication high or rising.	FIM 79-31-00/101, Fig. 103B, Block 1
79 32 01 --	(01=L,02=R) Engine oil pressure display intermittent. Temp & qty normal.	FIM 79-32-00/101, Fig. 103, Block 1
79 32 02 --	(01=L,02=R) Engine oil pressure display blank. Temp & qty normal.	FIM 79-32-00/101, Fig. 103, Block 1

FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
79 32 03 --	EICAS msg: (01=L,02=R) ENG OIL PRESS displayed and eng oil pressure light on. Oil pressure was normal.	FIM 79-32-00/101, Fig. 104, Block 1
79 32 05 --	(01=L,02=R) Engine oil pressure fluctuates.	FIM 79-32-00/101, Fig. 105, Block 12
79 32 06 --	(01=L,02=R) Engine oil pressure in amber band, ____ PSI. Vibration increased to ____ PSI on (N1, N2, N3). Engine was shut down.	FIM 79-32-00/101, Fig. 105, Block 1
79 32 07 --	(01=L,02=R) Engine oil pressure in amber band, ____ PSI. Vibration did not increase.	FIM 79-32-00/101, Fig. 105, Block 1
79 32 08 --	(01=L,02=R) Engine oil pressure below 18 PSI. EICAS msg: (L,R) ENG OIL PRESS displayed. Engine was shut down.	FIM 79-32-00/101, Fig. 106, Block 1
79 32 09 --	(01=L,02=R) Engine oil pressure zero. EICAS msg: (L,R) ENG OIL PRESS displayed. Engine was shut down.	FIM 79-32-00/101, Fig. 106, Block 1
79 32 11 --	(01=L,02=R) Engine oil pressure reads _____ PSI with engine shut down.	FIM 79-32-00/101, Fig. 103, Block 1
79 33 01 --	(01=L,02=R) ENG OIL PRESS light did not come on with the engine shut down.	Replace the L(R) low oil pressure warning switch S10130 (AMM 79-33-01). If the problem continues, examine and repair the circuit between switch connector D1300, pin 2, and left EICAS computer M10181 connector D319A, pin H3 (D319D, pin K10) and right EICAS computer M10182 connector D321A, pin H3 (D321D, pin K10) (WDM 79-33-11).
79 34 01 --	(01=L,02=R) Engine oil temp display intermittent. Pressure & qty normal.	FIM 79-34-00/101, Fig. 103, Block 1

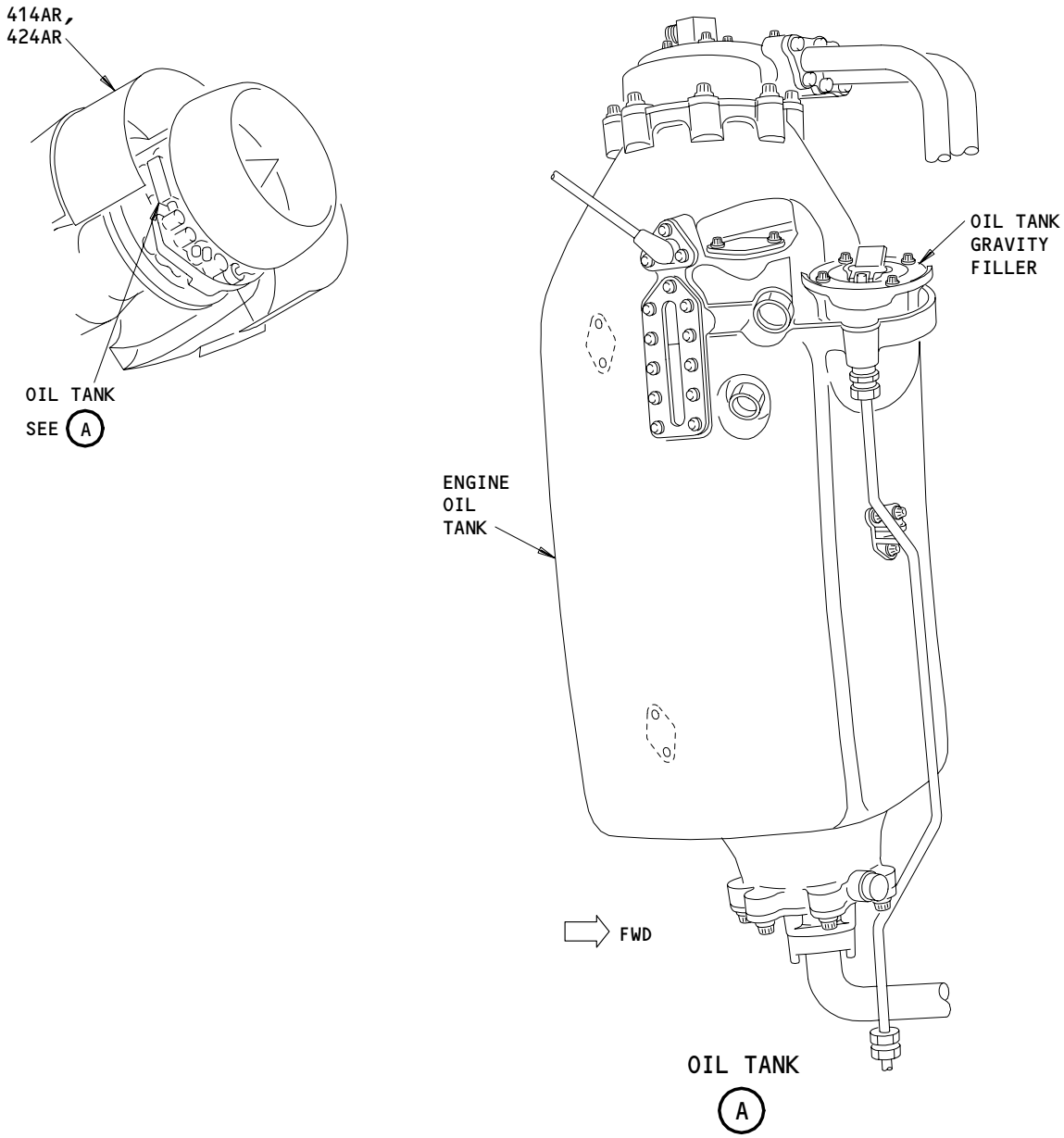
FAULT CODE	LOG BOOK REPORT	FAULT ISOLATION REFERENCE
79 34 02 --	(01=L,02=R) Engine oil temp display blank. Pressure & qty normal.	FIM 79-34-00/101, Fig. 103, Block 1
79 34 03 --	(01=L,02=R) Engine oil temp high, ____ °C. Oil pressure normal. Vibration level increased and eng was shut down.	FIM 79-34-00/101, Fig. 104, Block 1
79 34 04 --	(01=L,02=R) Engine oil temp high, _____ °C. Oil pressure normal. Vibration level did not increase. Engine was shut down.	FIM 79-34-00/101, Fig. 105, Block 1
79 34 05 --	(01=L,02=R) Engine oil temp high, ____ °C. Oil pressure normal. Vibration level did not increase.	FIM 79-34-00/101, Fig. 105, Block 1
79 34 06 --	(01=L,02=R) Engine oil temp too high/low. Temp reads L ____°, R ____ °.	FIM 79-34-00/101, Fig. 105, Block 1
79 34 07 --	(01=L,02=R) Engine oil temperature differs between L and R EICAS computers, L reads _____, R reads _____°.	FIM 79-34-00/101, Fig. 103, Block 1

ENGINE OIL STORAGE

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
FILLER - OIL TANK GRAVITY	--	2	414AR,424AR	79-11-03
TANK ENGINE OIL	--	2	414AR,424AR	79-11-01

Engine Oil Storage - Component Index
Figure 101

A46456

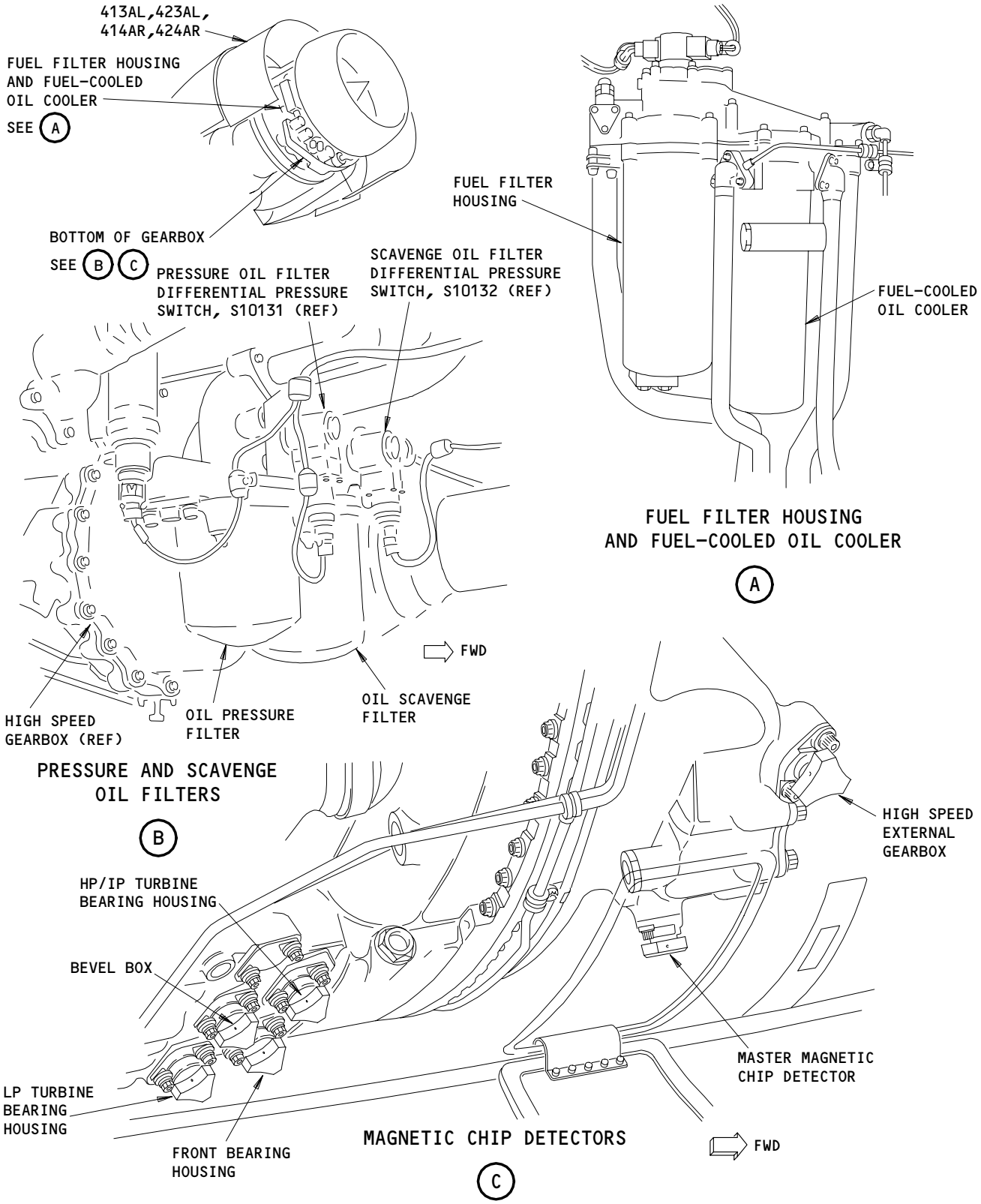


Engine Oil Storage - Component Location
Figure 102

ENGINE OIL DISTRIBUTION SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
COOLER - FUEL FILTER HOUSING AND FUEL-COOLED OIL	--	2	414AR,424AR, AFT OF OIL TANK	79-21-01
DETECTOR - MAGNETIC CHIP	--	12	413AL,423AL,414AR,424AR, MAIN GEARBOX	79-21-03
ELEMENT - PRESSURE OIL FILTER	--	2	414AR,424AR, MAIN GEARBOX FRONT SIDE	79-21-07
ELEMENT - SCAVENGE OIL FILTER	--	2	414AR,424AR, MAIN GEARBOX FRONT SIDE	79-21-08
PUMP - PRESSURE AND SCAVENGE OIL	--	2	414AR,424AR, MAIN GEARBOX FRONT SIDE	79-21-06
SWITCH - (FIM 79-35-00/101) PRESSURE OIL DIFFERENTIAL PRESSURE, S10131 SCAVENGE OIL DIFFERENTIAL PRESSURE, S10132				
VALVE - OIL COOLER BYPASS	--	2	414AR,424AR, AFT OF OIL TANK	79-21-09

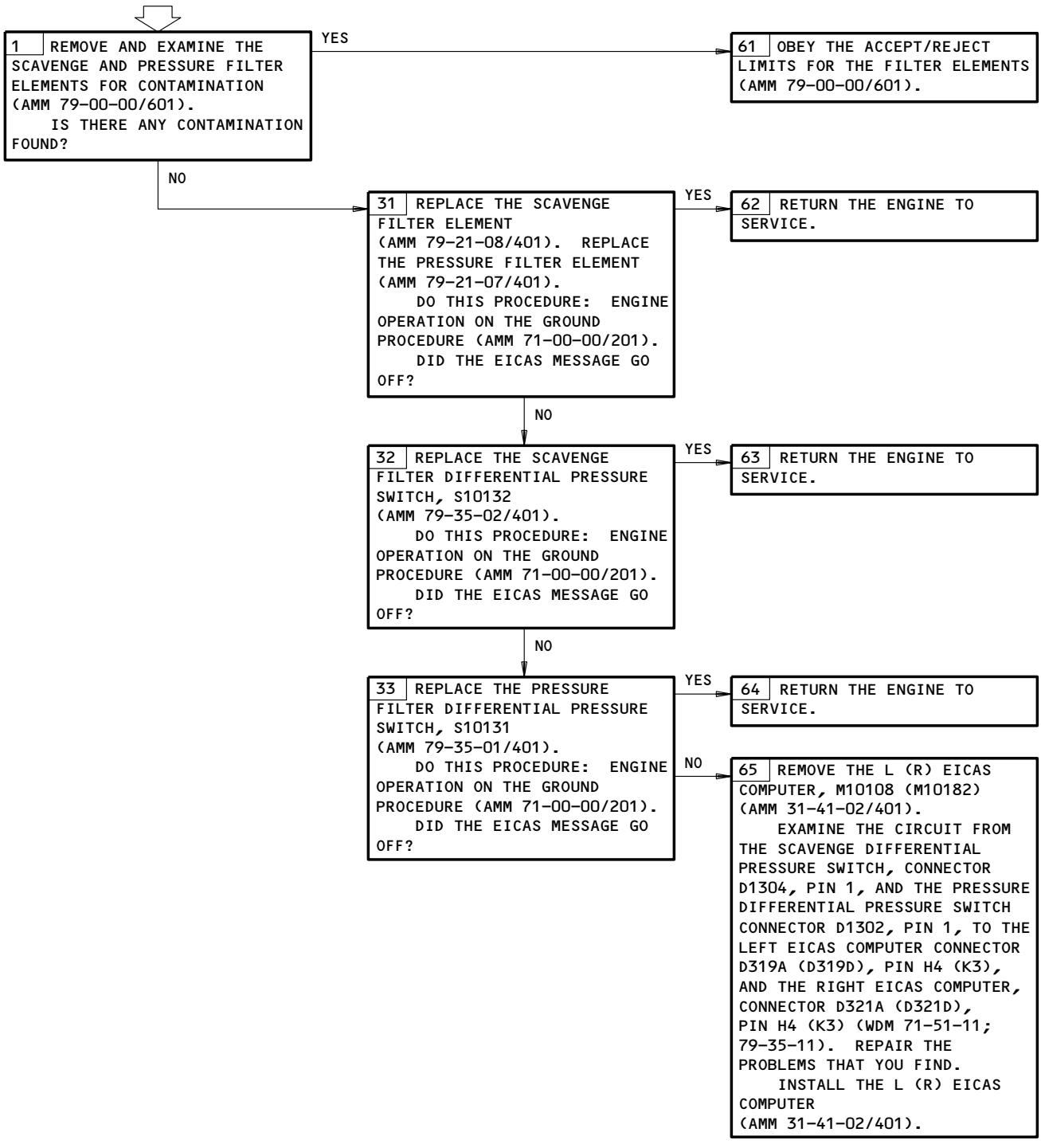
Engine Oil Distribution System - Component Index
Figure 101



Engine Oil Distribution System - Component Location
Figure 102

EICAS "(L, R) OIL FILTER" MESSAGE DISPLAYED

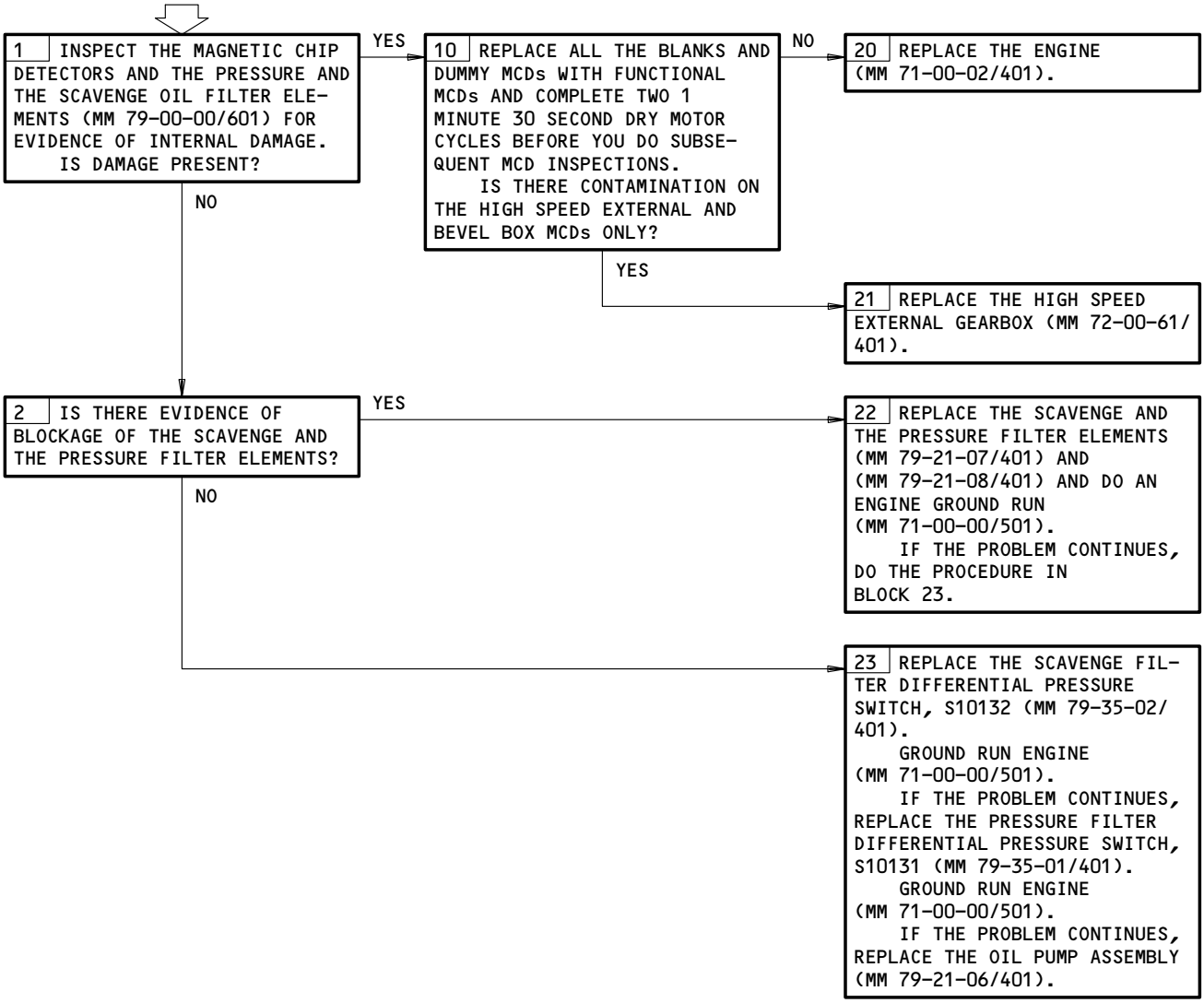
PREREQUISITES
NONE



EICAS (L, R) OIL FILTER Message Displayed
Figure 103

EICAS MESSAGE "(L,R) OIL FILTER" DISPLAYED - OIL PRESSURE LOW

PREREQUISITES
NONE

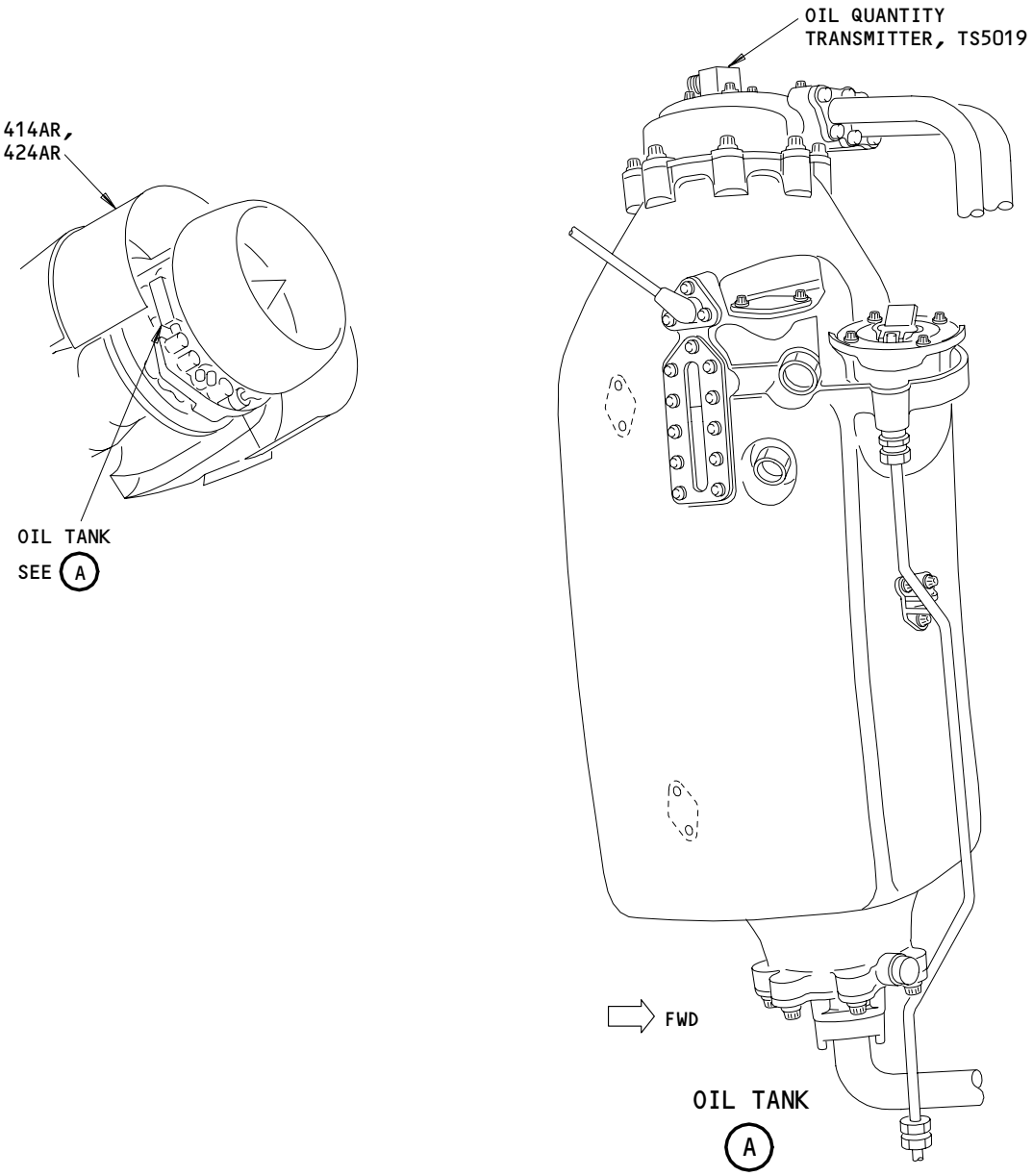


EICAS Message (L,R) OIL FILTER Displayed - Oil Pressure Low
Figure 104

OIL QUANTITY INDICATING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
COMPUTERS - (31-41-00/101) EICAS L, M10181 EICAS R, M10182 TRANSMITTER - OIL QUANTITY, TS5019	--	2	414AR,424AR	79-31-01

Oil Quantity Indicating System - Component Index
Figure 101



Oil Quantity Indicating System - Component Location
Figure 102

OIL QUANTITY INDICATING SYSTEM

1. General
   A. The Oil Consumption

      CAUTION: MAKE SURE THE CALCULATED OIL CONSUMPTION IS NOT MORE THAN THE OIL AVAILABLE IN THE ENGINE FOR THE SUBSEQUENT FLIGHT. THIS WILL MAKE SURE THE ENGINE CAN COMPLETE THE FLIGHT WITH SUFFICIENT OIL.

      (1) When the oil consumption is compared to the oil consumption limit, the operation time of the engine must be sufficiently large to calculate the oil consumption correctly.
      (2) The oil consumption for the engine must be calculated after the engine has completed more than one flight. This can be done as follows:
          (a) Monitor the oil consumption to identify an increase in oil consumption from the usual conditions.
          (b) Calculate the average of the high oil consumption during the last 25 hours.
          (c) Calculate the average of the high oil consumption during the last 2 flight cycles if this is more time than the last 25 hours.
      (3) If a large amount of oil is necessary to make the oil quantity correct, do the fault isolation procedure for the high oil consumption (Fig. 104).

          NOTE: An engine vibration increase can occur at the same time as the oil quantity decreases. If this occurs, it is possible that oil has gone into an engine component that turns. The engine must be removed to make an inspection.

      (4) The temporary operation of an engine with a high oil consumption is permitted, but must be approved by the operators' Airworthiness Authority. The temporary operation must agree with the items that follow:
          (a) A stable oil consumption.
          (b) No other engine indications that are unsatisfactory.
          (c) Make sure the calculated oil consumption is not more than the oil available in the engine for the subsequent flight.
      (5) If the symptoms that follow occur at engine shutdown, they are not causes for engine removal:
          - Blue smoke from the exhaust
          - Oil wetness on the L.P. Turbine blades
          - Oil puddles in the tailcone area

          These are usually symptoms of the escape of small amounts of oil from the HP/IP turbine bearing chamber when the sealing air pressure decreases at engine shutdown.

(6) The RB211-535E4 series engines can show symptoms of high oil consumption over short sectors where the proportion of low power operation is higher. This is caused by leakage from the HP/IP turbine bearing chamber at low power. If troubleshooting (Fig. 104) confirms that the engine shows this symptom, the engine can stay in service with oil consumption up to 4.0 U.S. Pints (3.4 Imperial Pints, 1.9 Liter), for stage lengths up to 2 hours. During continual operation to the increased limit, close examination of the quantity of oil put in over the next 25 flight hours is necessary. This is to make sure any deterioration is identified. More troubleshooting is necessary only if the oil consumption increases again.

OIL QUANTITY INDICATION ZERO/ INTERMITTENT

PREREQUISITES
NONE

1 REPLACE THE OIL QUANTITY TRANSMITTER (MM 79-31-01/401).
IF THE PROBLEM CONTINUES, REMOVE THE L (R) EICAS COMPUTER, M10181 (M10182)(MM 31-41-02/401).
EXAMINE AND REPAIR THE CIRCUITS THAT FOLLOW:

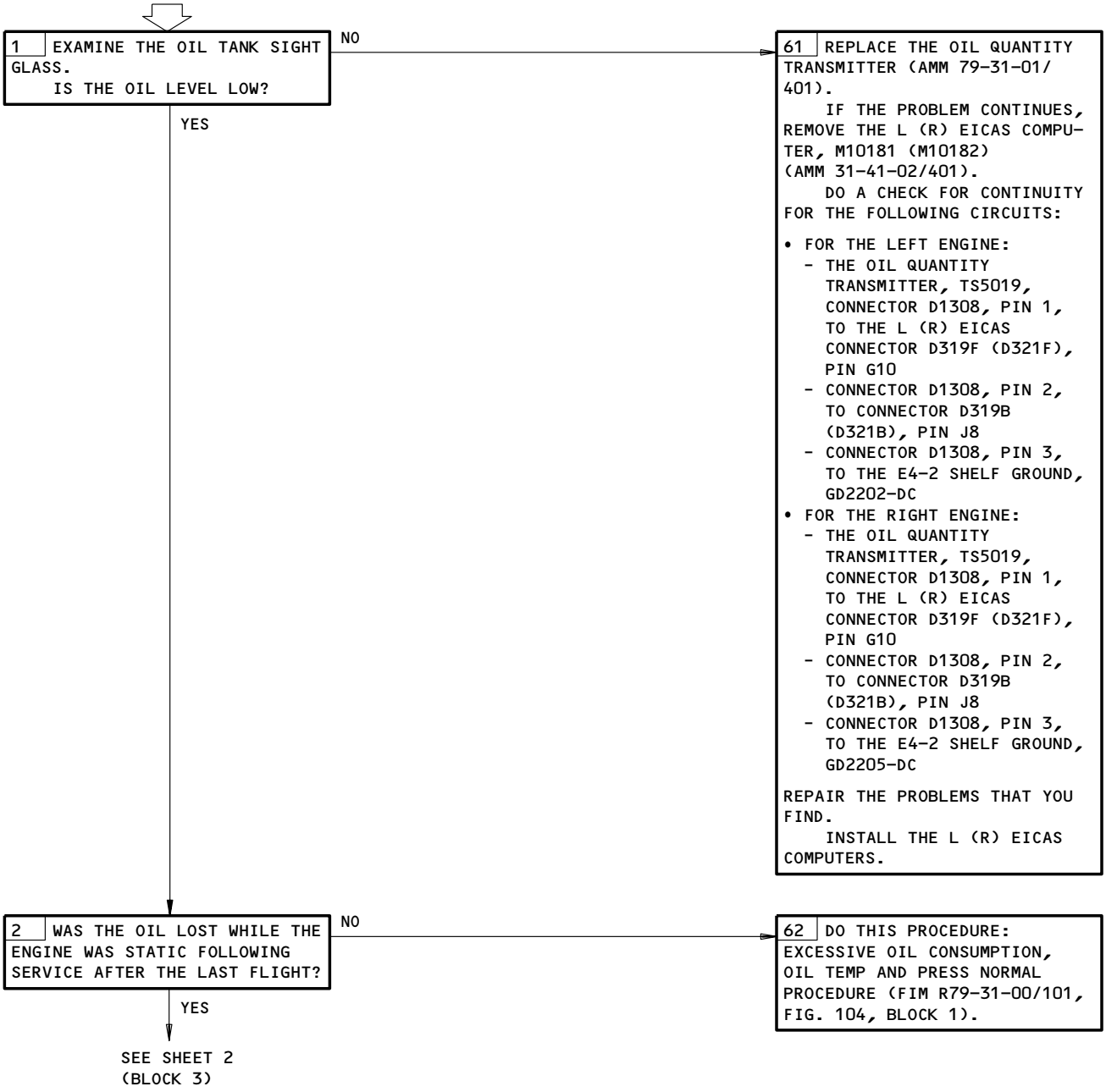
- FOR THE LEFT ENGINE,
  - BETWEEN THE OIL QUANTITY TRANSMITTER, TS5019, CONNECTOR D1308, PIN 1, AND THE L (R) EICAS, CONNECTOR D319F (D321F), PIN G10, BETWEEN D1308, PIN 2, AND D319B (D321B), PIN J8, AND BETWEEN D1308, PIN 3, AND THE E4-2 SHELF GROUND GD2202-DC.
- FOR THE RIGHT ENGINE,
  - BETWEEN THE OIL QUANTITY TRANSMITTER, TS5019, CONNECTOR D1308, PIN 1, AND THE L (R) EICAS, CONNECTOR D319E (D321E), PIN E4, BETWEEN D1308, PIN 2, AND D319E (D321E), PIN G13, AND BETWEEN D1308, PIN 3, AND THE E4-2 SHELF GROUND GD2205-DC.

INSTALL THE L (R) EICAS COMPUTER.

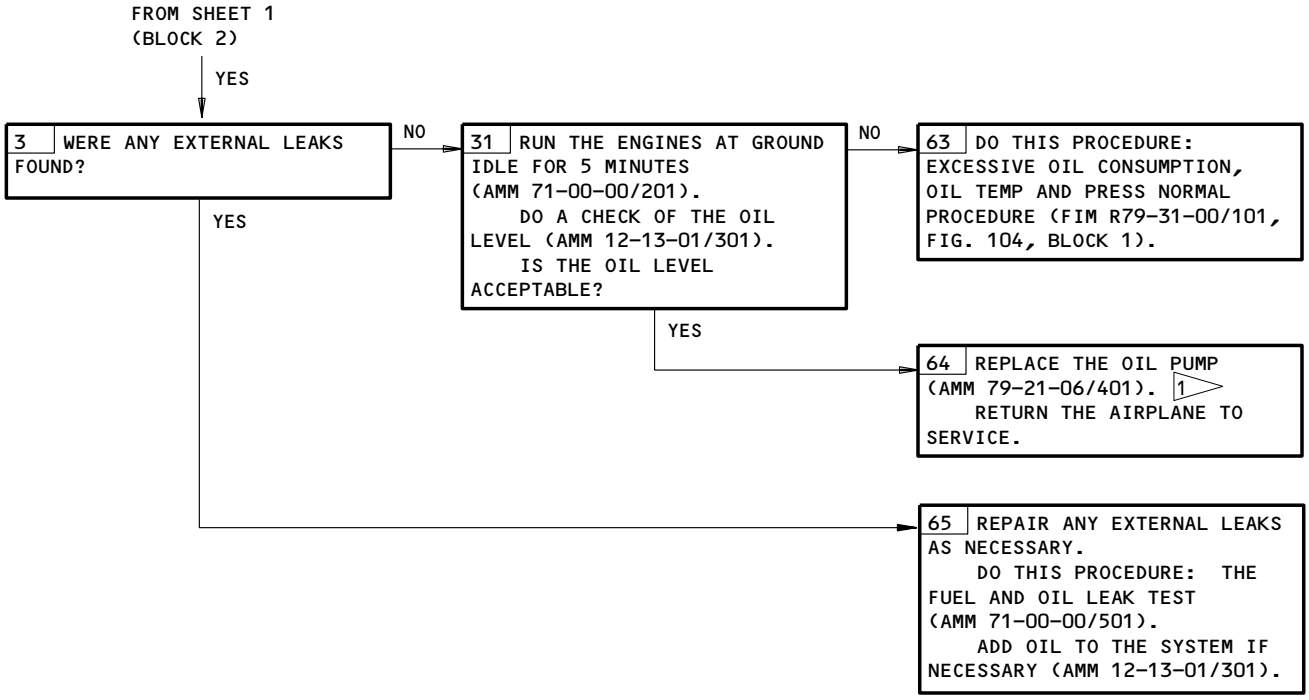
Oil Quantity Indication Zero/Intermittent
Figure 103

OIL QUANTITY INDICATION LOW OR FALLING

PREREQUISITES
NONE



Oil Quantity Indication Low or Falling
Figure 103A (Sheet 1)



1 STATIC DRAIN DOWN FROM THE OIL TANK IS USUALLY ASSOCIATED WITH A FAULTY OIL PUMP CARBON SEAL

Oil Quantity Indication Low or Falling
Figure 103A (Sheet 2)

OIL QUANTITY INDICATION HIGH OR RISING

PREREQUISITES

NONE

1 REMOVE THE OIL TANK FILLING CAP.
ARE THE FUEL FUMES PRESENT? 2 3

NO → 21 REPLACE THE OIL QUANTITY TRANSMITTER (AMM 79-31-01/401).
IF THE PROBLEM CONTINUES, REMOVE THE L (R) EICAS COMPUTER, M10181 (M10182) (AMM 31-41-02/401).
EXAMINE THE CIRCUITS THAT FOLLOW:

- FOR THE LEFT ENGINE: BETWEEN THE OIL QUANTITY TRANSMITTER, TS5019, CONNECTOR D1308, PIN 1, AND THE L (R) EICAS, CONNECTOR D319F (D321F), PIN G10, BETWEEN D1308, PIN 2, AND D319B (D321B), PIN J8, AND BETWEEN D1308, PIN 3, AND THE E4-2 SHELF GROUND GD2202-DC.
- FOR THE RIGHT ENGINE: BETWEEN THE OIL QUANTITY TRANSMITTER, TS5019, CONNECTOR D1308, PIN 1, AND THE L (R) EICAS, CONNECTOR D319E (D321E), PIN E4, BETWEEN D1308, PIN 2, AND D319E (D321E), PIN G13, AND BETWEEN D1308, PIN 3, AND THE E4-2 SHELF GROUND GD2205-DC.

REPAIR THE PROBLEMS THAT YOU FIND.
INSTALL THE L (R) EICAS COMPUTERS.

YES → SEE SHEET 2 (BLOCK 22)

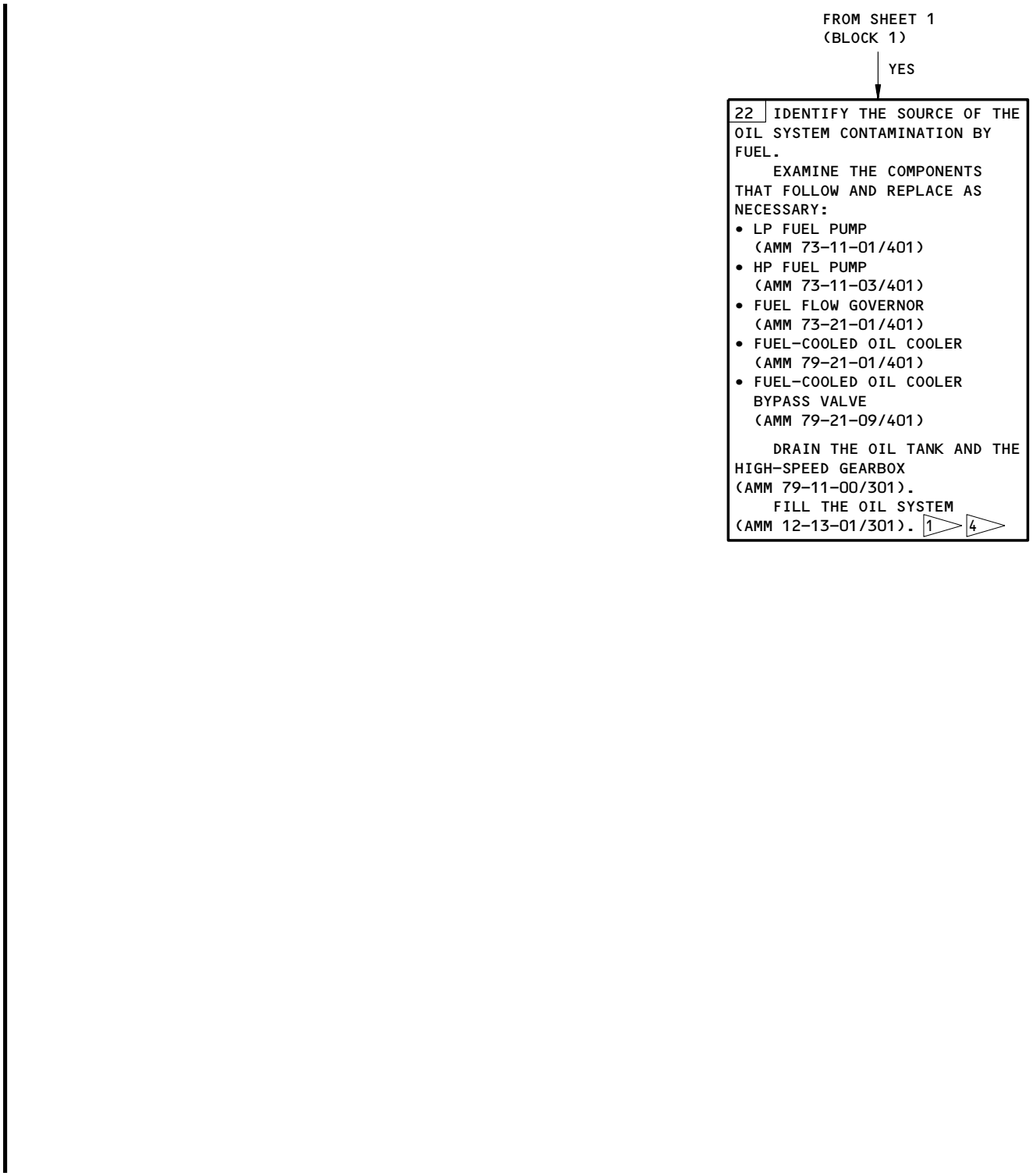
1 EXAMINE THE CONDITION OF THE MAGNETIC CHIP DETECTORS BEFORE AND AFTER THE NEXT FLIGHT.

2 RR TOOLS 1013832 AND 1013833 SHOULD BE USED TO MEASURE FOR FUEL FUMES.

3 ALTERNATIVELY, A COMBUSTABLE GAS DETECTOR, RR PART NO. 1018157 CAN BE USED (AMM 12-13-01/301).

4 IF SOURCE OF FUEL IS FROM THE FUEL FLOW GOVERNOR, HP FUEL PUMP, OR LP FUEL PUMP, REMOVE AND INSPECT THE APPLICABLE UNIT DRAIN TUBE FOR BLOCKAGE (AMM 71-71-02/601).

Oil Quantity Indication High or Rising
Figure 103B (Sheet 1)



Oil Quantity Indication High or Rising
Figure 103B (Sheet 2)

EXCESSIVE OIL CONSUMPTION OR OIL QUANTITY READS ZERO [3] [5]

PREREQUISITES
NONE

1 WAS THERE HIGH VIBRATION INDICATED?
- YES → 51 REPLACE THE ENGINE (AMM 71-00-02/401). [1] [2]
- NO ↓

2 EXAMINE THE DRAIN TUBES AND VENTS FOR SIGNS OF OIL LEAKAGE.
IS LEAKAGE PRESENT? [4]
- YES → 52 EXAMINE THE ENGINE FOR LEAKAGE (AMM 71-71-00/601) AND CORRECT AS NECESSARY. [2]
- NO ↓

3 EXAMINE THE CENTRIFUGAL BREATHER OUTLET DUCT TO THE EXTERNAL GEARBOX FOR TOO MUCH OIL DISCHARGE.
IS EXCESSIVE DISCHARGE PRESENT? [4]
- YES → 31 EXAMINE THE BREATHER AIRSEAL FOR SIGNS OF LEAKAGE OR HOUSING/SEAL WEAR.
ARE HOUSING/SEAL OK?
  - NO → 53 REPLACE THE HIGH SPEED EXTERNAL GEARBOX (AMM 72-00-61/401).
  - YES ↓

32 DOES ENGINE INCORPORATE RR SB 72-9406?
- YES → 54 REPLACE THE EXTERNAL GEARBOX (AMM 72-00-61/401). [2]
- NO ↓

33 EXAMINE THE P3 AIR TUBES THAT GO TO THE GEARBOX FOR CRACKS (AMM 72-02-01/601).
ARE THE TUBES OK?
- NO → 55 REPAIR OR REPLACE THE P3 TUBES AS NECESSARY (AMM 72-02-01/601). [2]
- YES → 56 REPLACE THE EXTERNAL GEARBOX (AMM 72-00-61/401). [2]

- NO → SEE SHEET 2 (BLOCK 4)

[1] AN INCREASE IN THE LEVEL OF INDICATED VIBRATION ACCOMPANYING LOSS OF OIL CONTENT CAN INDICATE OF A SUDDEN INGRESS OF OIL INTO THE HP AND LP COMPRESSOR DRUM. THE ENGINE MUST BE REJECTED FOR FURTHER INVESTIGATION.

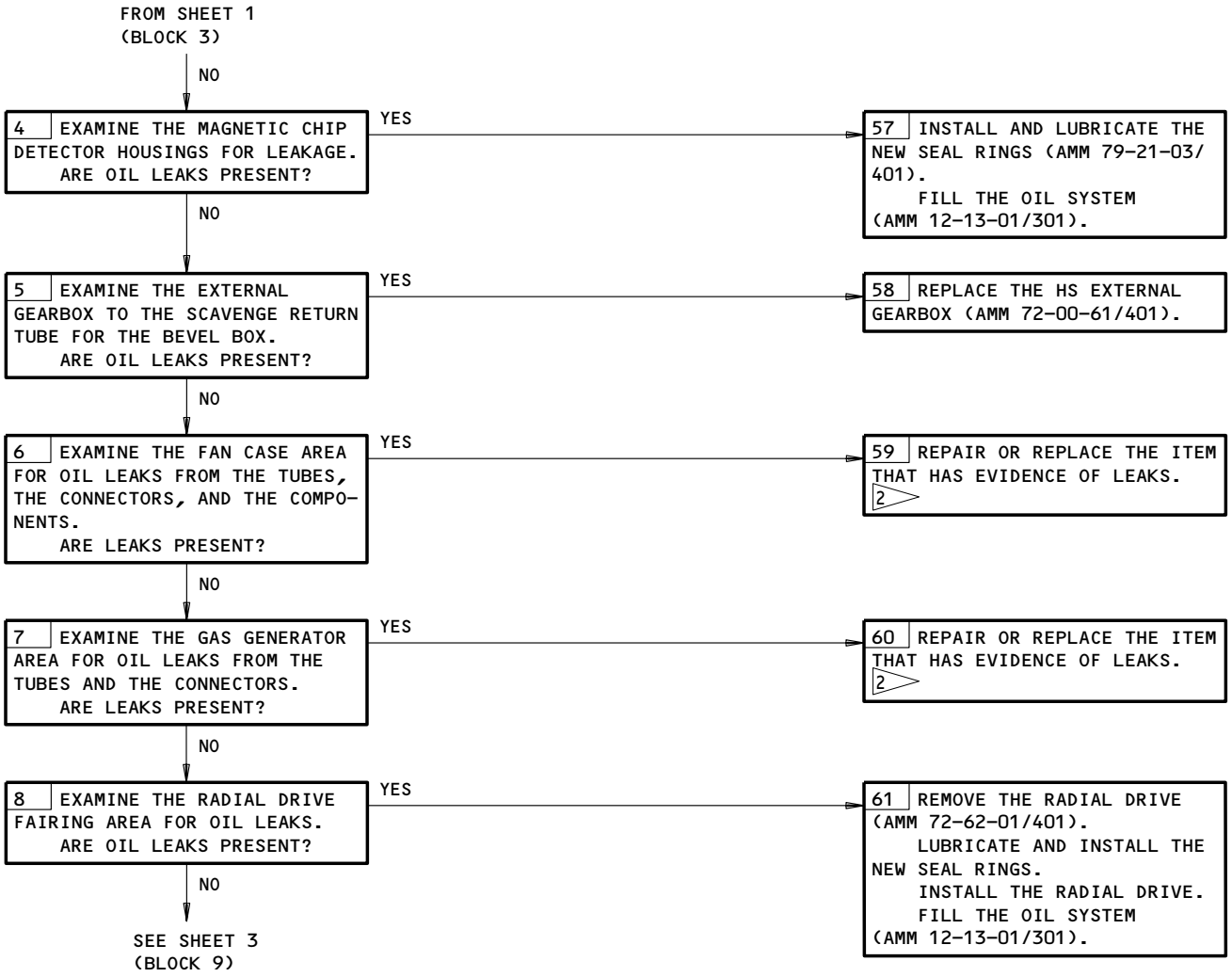
[2] DO THIS PROCEDURE: EICAS AUTO EVENT MESSAGE VERIFICATION/ERASE PROCEDURE (FIM 71-05-00/101, FIG. 111).

[3] BEFORE YOU EXAMINE THE CAUSE OF THE EXCESSIVE OIL CONSUMPTION CONDITION, REFER TO THE GENERAL PARAGRAPH 1.

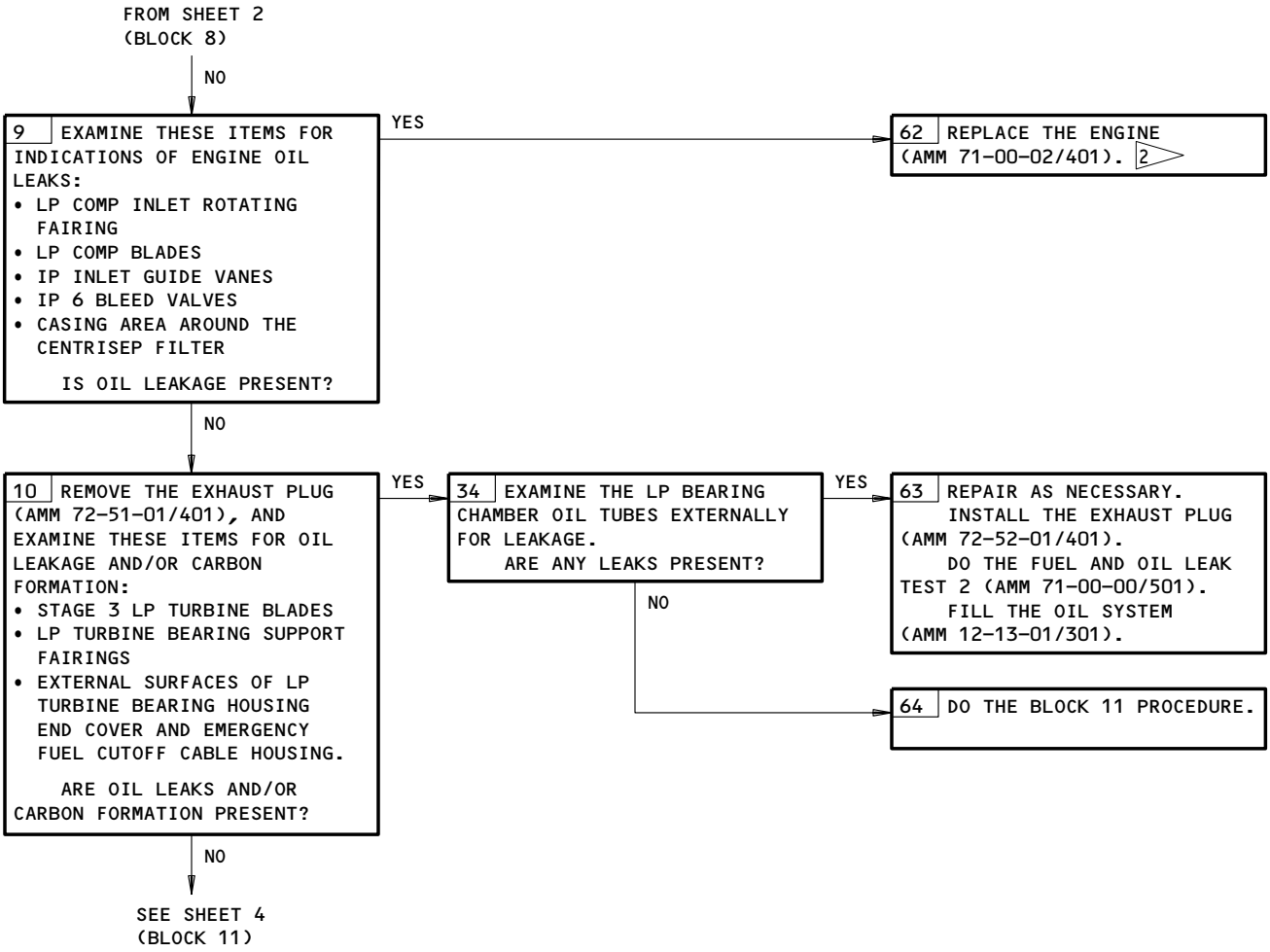
[4] IT MAY BE NECESSARY TO OPERATE THE ENGINE AT DIFFERENT POWER SETTINGS TO DETERMINE IF THERE IS A LEAKAGE PROBLEM.

[5] IF OIL LOSS OCCURED DURING AN EXTENDED TAXI PERIOD OF LOW POWER OPERATION AND OIL CONSUMPTION WAS STABLE BEFORE OIL LOSS, YOU CAN GO TO SHEET 5, BLOCK 40.

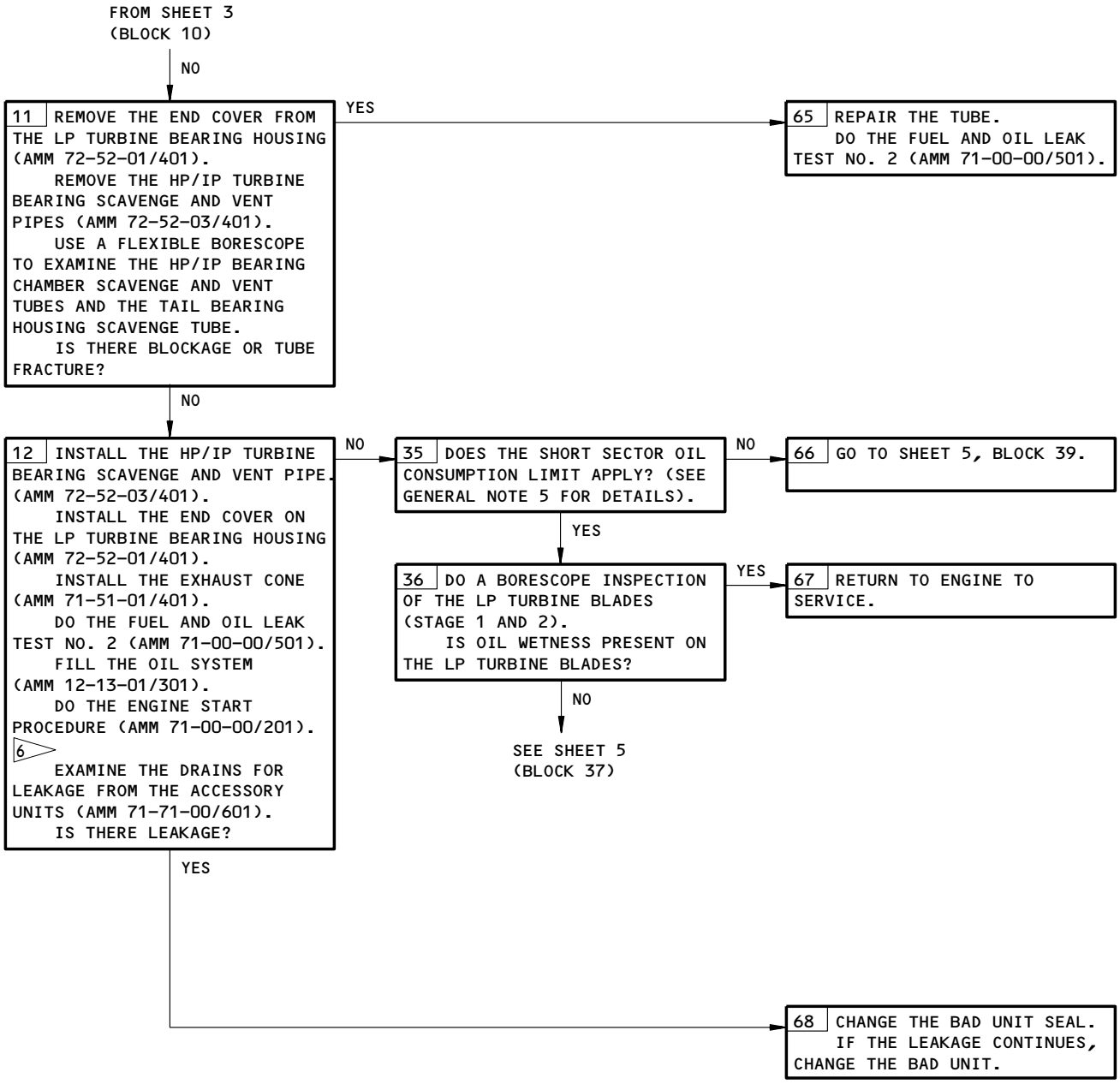
Excessive Oil Consumption or Oil Quantity Reads Zero
Figure 104 (Sheet 1)



Excessive Oil Consumption or Oil Quantity Reads Zero
Figure 104 (Sheet 2)

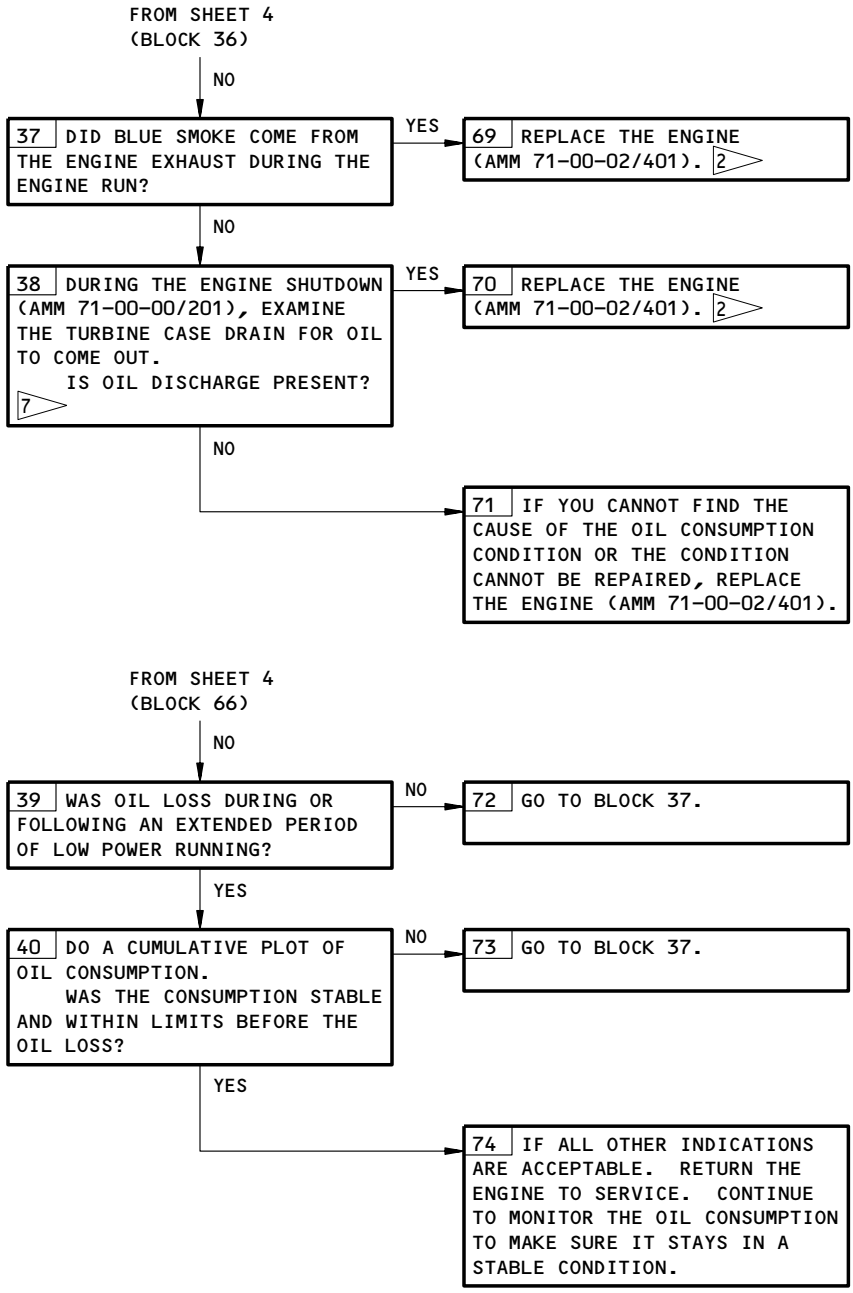


Excessive Oil Consumption or Oil Quantity Reads Zero
Figure 104 (Sheet 3)



6 WHILE YOU OPERATE THE ENGINE, CHANGE THE ENGINE SPEED FREQUENTLY AND INCLUDE A HIGH-POWER CONDITION.

Excessive Oil Consumption or Oil Quantity Reads Zero
Figure 104 (Sheet 4)



7 BLUE SMOKE FROM THE ENGINE EXHAUST AFTER A SHUTDOWN IS NOT CAUSE FOR ENGINE REMOVAL. BLUE SMOKE IS A RESULT OF SMALL AMOUNTS OF OIL THAT COMES OUT OF THE HP/IP TURBINE BEARING CHAMBER WHEN THE SEALING AIR PRESSURE DECREASES ON SHUTDOWN.

Excessive Oil Consumption or Oil Quantity Reads Zero
Figure 104 (Sheet 5)

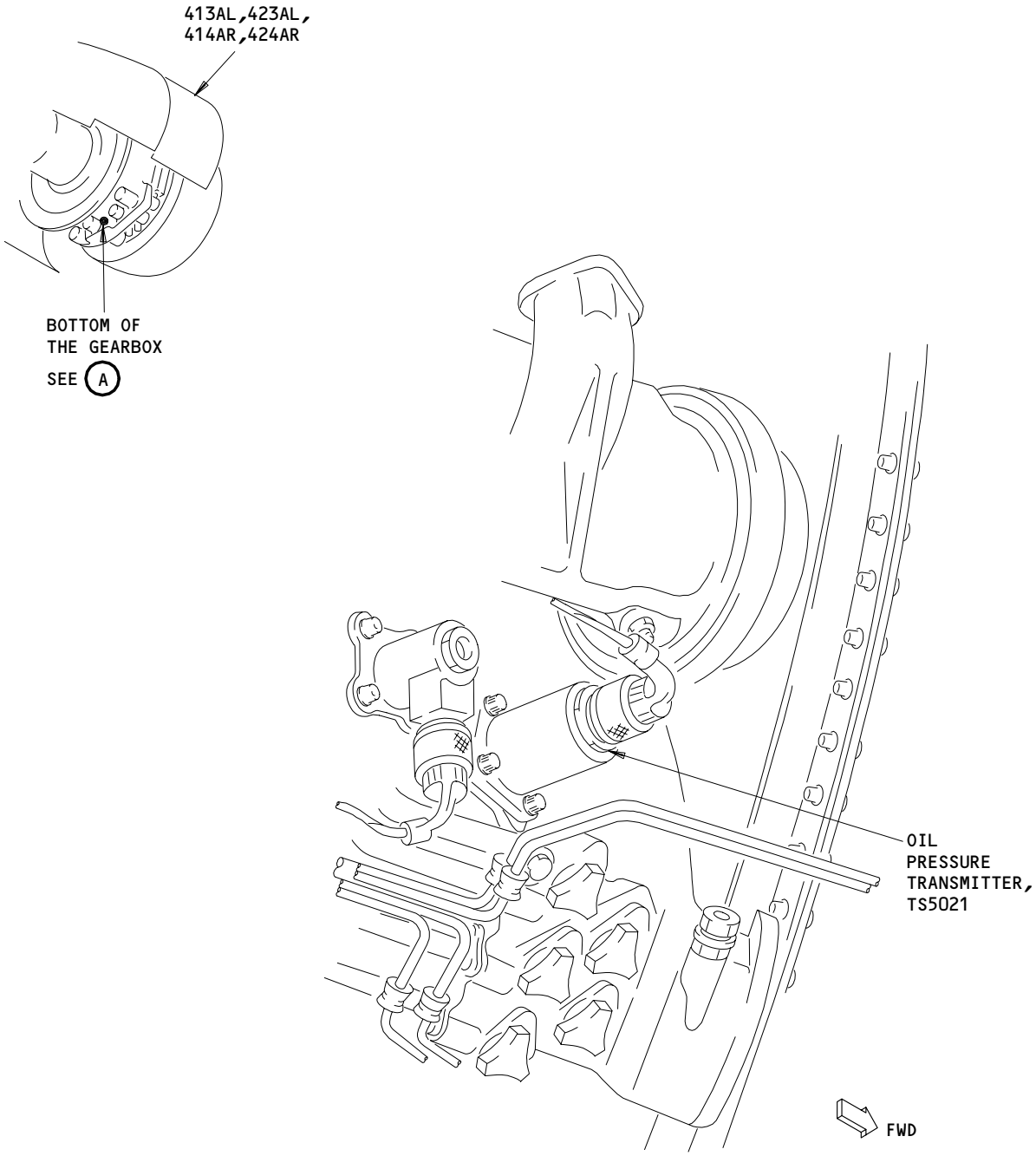
THIS PAGE INTENTIONALLY LEFT BLANK

OIL PRESSURE INDICATING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS -	--		FLT COMPT, P11	
LEFT ENGINE OIL PRESS, C1498		1	11K9	*
RIGHT ENGINE OIL PRESS, C1499		1	11K35	*
COMPUTERS - (31-41-00/101)				
EICAS L, M10181				
EICAS R, M10182				
TRANSMITTER - OIL PRESSURE, TS5021	--	2	413AL,423AL,414AR,424AR	79-32-01

* SEE THE WDM EQUIPMENT LIST

Oil Pressure Indicating System - Component Index
Figure 101



BOTTOM OF THE GEARBOX
A

Oil Pressure Indicating System – Component Location
Figure 102

OIL PRESSURE INDICATION PROBLEMS

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE OPEN AND ATTACH DO-NOT-CLOSE TAGS:
11K9,11K35

1 DISCONNECT THE HARNESS PLUG, D1324, FROM THE OIL PRESSURE TRANSMITTER.
EXAMINE THE PLUG FOR LOOSE CONTACT SOCKETS.
WILL THE SOCKETS PUSH BACK?

YES → 21 REPLACE THE HARNESS PLUG, D1324 (MM 70-50-02/201).

NO

2 REPLACE THE OIL PRESSURE TRANSMITTER (MM 79-32-01/401).
EXAMINE THE PRESSURE TRANSMITTER SUPPLY/RETURN LINES FOR A BLOCKAGE; REMOVE AS IT IS NECESSARY.
MAKE SURE THE OIL PRESSURE IS IN THE LIMITS DURING A GROUND RUN (MM 71-00-00/501).
IS THE OIL PRESSURE IN THE LIMITS?

YES → 22 RETURN THE ENGINE TO SERVICE.

NO

3 IF THE PROBLEM CONTINUES, REMOVE THE L (R) EICAS COMPUTER, M10181 (M10182)(MM 31-41-02/401).
EXAMINE AND REPAIR THE CIRCUIT BETWEEN THE CONNECTOR D1324, THE CIRCUIT BREAKER 11K9 (11K35) AND THE EICAS, CONNECTORS D319B, PIN H2, (D321E, PIN H11), AND D321B, PIN H2 (D319E, PIN H11) (WDM 71-51-11; 79-32-11).
INSTALL THE EICAS COMPUTER.
DO 71-05-00, FIG. 111.
IS THE OIL PRESSURE IN THE LIMITS?

YES → 23 RETURN THE ENGINE TO SERVICE.

NO

4 REPLACE THE OIL PUMP (MM 79-21-06/401).
IS THE OIL PRESSURE IN THE LIMITS?

YES → 24 RETURN THE ENGINE TO SERVICE.

NO

5 REPLACE THE EXTERNAL GEARBOX (MM 72-00-61/401).
IS THE OIL PRESSURE IN THE LIMITS?

YES → 25 RETURN THE ENGINE TO SERVICE.

NO → 26 REPLACE THE ENGINE (MM 71-00-02/401).

Oil Pressure Indication Problems
Figure 103

EICAS "(L,R) ENG OIL PRESS" MESSAGE DISPLAYED. "ENG OIL PRESS" LIGHT ON, OIL PRESS INDICATION NORMAL

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE OPEN AND ATTACH DO-NOT-CLOSE TAGS:
11K9,11K35

1 WAS THE THRUST REVERSER INOPERATIVE DURING THE LANDING?

YES → 21 REPLACE THE WARNING SWITCH FOR LOW OIL PRESSURE (MM 79-33-01/401), AND DO A ENGINE GROUND RUN (MM 71-00-00/501).
IF THE TEST IS UNSATISFACTORY, DO BLOCK 22 ACTION.

NO → 22 EXAMINE AND REPAIR THE CIRCUIT BETWEEN THE CONNECTOR D1300, PIN 2 AND PIN YC11 (YA11), ON TB207 (WDM 71-51-11; 79-31-11).

EICAS (L,R) ENG OIL PRESS Message Displayed, ENG OIL PRESS Light On, Oil Press Indication Normal
Figure 104

LOW OIL PRESS INDICATION (AMBER RANGE)

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE OPEN AND ATTACH DO-NOT-CLOSE TAGS:
11K9,11K35

1 EXAMINE THE MAGNETIC CHIP DETECTORS, THE FINE SCAVENGE AND THE PRESSURE FILTERS FOR SIGNS OF INTERNAL DAMAGE (AMM 79-00-00/701).
IS DAMAGE FOUND?

YES → 21 FOLLOW THE ACCEPTANCE STANDARDS DETAILED IN AMM 79-00-00/701. 1

NO → 11 DISCONNECT THE HARNESS PLUG, D1324, FROM THE OIL PRESSURE TRANSMITTER. EXAMINE THE PLUG FOR LOOSE CONTACT SOCKETS.
WILL THE SOCKETS PUSH BACK?

YES → 22 REPLACE THE HARNESS PLUG, D1324 (AMM 70-50-02/201).

NO → 12 CHANGE THE OIL PRESSURE TRANSMITTER (AMM 79-32-01/401) AND EXAMINE THE PRESSURE DURING THE GROUND RUN (AMM 71-00-00/501).
IS THE PRESSURE NORMAL?

YES → 23 RETURN THE ENGINE TO SERVICE. 1

NO → 24 REPLACE THE PRESSURE AND SCAVENGE OIL PUMPS AND THE OIL PRESSURE RELIEF VALVE (AMM 79-21-06/401).
IF THE PROBLEM CONTINUES, REPLACE THE ENGINE (AMM 71-00-02/401). 1

1 DO THIS PROCEDURE: EICAS AUTO EVENT MESSAGE VERIFICATION/ERASE PROCEDURE (FIM 71-05-00, FIG. 111).

Low Oil Press Indication (Amber Range)
Figure 105

EICAS "(L,R) ENG OIL PRESS" MESSAGE DISPLAYED, "ENG OIL PRESS" LIGHT ON, OIL PRESSURE LOW

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE OPEN AND ATTACH DO-NOT-CLOSE TAGS:
11K9,11K35

1 DID THE ENGINE FLAMEOUT OR RUNDOWN TO BELOW SUB-IDLE POWER?
- YES → 21 CARRY OUT TROUBLESHOOTING FOR FLAMEOUT - FAULT CODES WITHIN 71-FAULT CODE DIAGRAM.
- NO →

2 DISCONNECT THE HARNESS PLUG, D1324, FROM THE OIL PRESSURE TRANSMITTER. EXAMINE THE PLUG FOR LOOSE CONTACT SOCKETS.
WILL THE SOCKETS PUSH BACK?
- YES → 22 REPLACE THE HARNESS PLUG, D1324 (AMM 70-50-02/201).
- NO →

3 EXAMINE THE MAGNETIC CHIP DETECTORS AND THE SCAVENGE AND THE PRESSURE FILTERS (AMM 79-00-00/601).
IS A SIGN OF DAMAGE FOUND?
- YES → 23 REPLACE THE ENGINE (AMM 71-00-02/501).
- NO →

4 REMOVE THE OIL TANK FILLER CAP.
ARE FUEL FUMES PRESENT? 2 3
- NO → 24 REPLACE THE PRESSURE AND THE SCAVENGE OIL PUMPS (AMM 79-21-06/401).
IF THE PROBLEM CONTINUES, REPLACE THE ENGINE (AMM 71-00-02/501).
- YES →

25 IDENTIFY THE SOURCE OF THE OIL SYSTEM CONTAMINATION BY FUEL.
EXAMINE THE COMPONENTS THAT FOLLOW AND REPLACE WHEN IT IS NECESSARY:
- LP FUEL PUMP (AMM 73-11-01/401)
- HP FUEL PUMP (AMM 73-11-03/401)
- FUEL FLOW GOVERNOR (AMM 73-21-01/401)
- FUEL-COOLED OIL COOLER (AMM 79-21-01/401).

DRAIN THE OIL TANK AND THE HIGH-SPEED GEARBOX (AMM 79-11-00/301).
FILL THE OIL SYSTEM (AMM 12-13-01/301). 1

1 EXAMINE THE CONDITION OF THE MAGNETIC CHIP DETECTORS BEFORE AND AFTER THE NEXT FLIGHT.

2 RR TOOLS 1013832 AND 1013833 SHOULD BE USED TO EXAMINE FOR FUEL FUMES (AMM 12-13-01/301).

3 ALTERNATELY, USE A COMBUSTIBLE GAS DETECTOR (RRTOOL 1018157) (AMM 12-13-01/301).

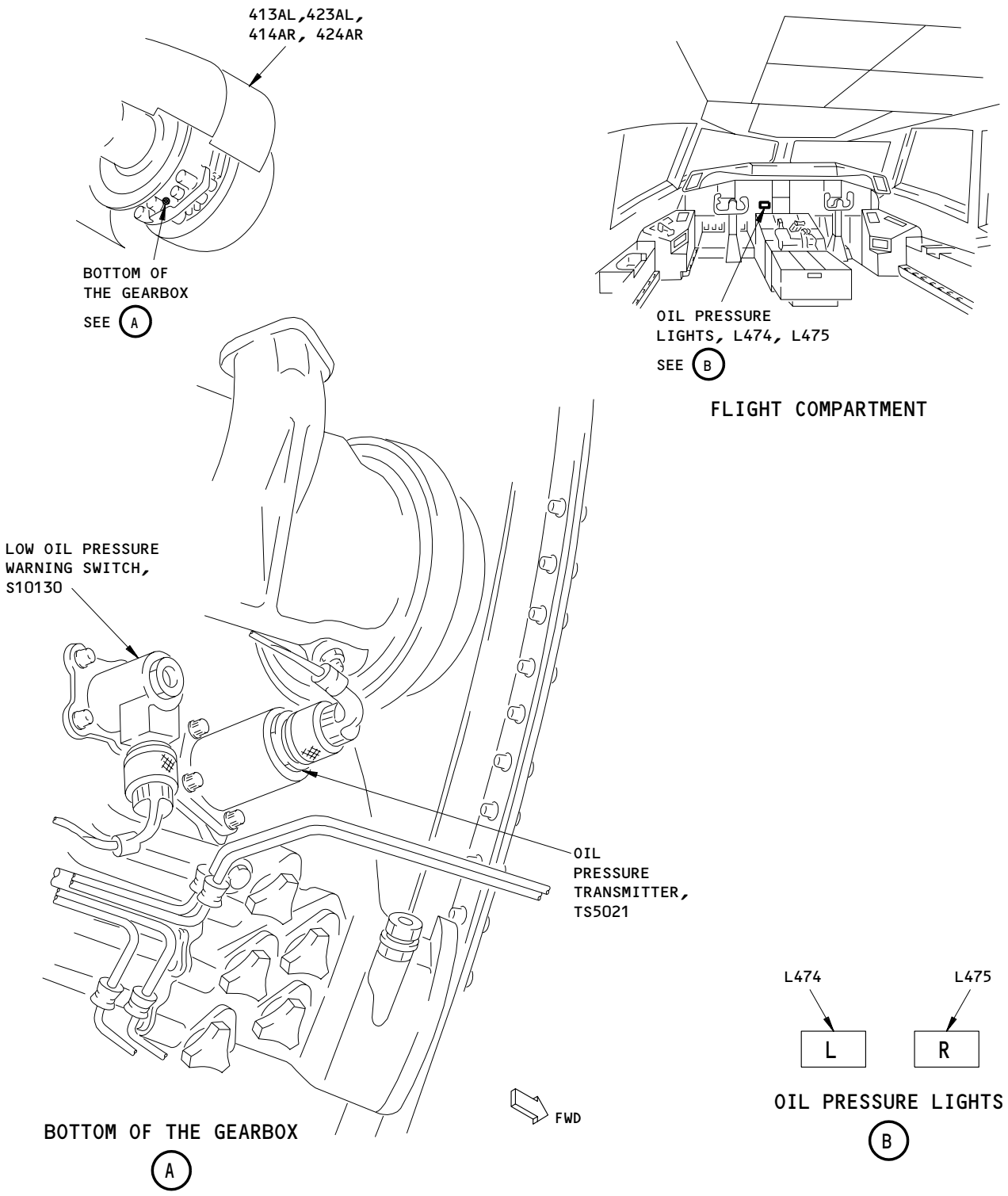
EICAS (L,R) ENG OIL PRESS Message Displayed,
ENG OIL PRESS Light On, Oil Pressure Low
Figure 106

LOW OIL PRESSURE WARNING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
COMPUTERS - (31-41-00/101) EICAS L, M10181 EICAS R, M10182				
LIGHT - L OIL PRESS, L474	--	1	FLT COMPT, P1-3, CAPTAIN MAIN INSTR PANEL	*
LIGHT - R OIL PRESS, L475	--	1	FLT COMPT, P1-3, CAPTAIN MAIN INSTR PANEL	*
SWITCH - LOW OIL PRESSURE WARNING, S10130	--	2	413AL, 423AL, 414AR, 424AR	79-33-01

*SEE THE WDM EQUIPMENT LIST

Low Oil Pressure Warning System - Component Index
Figure 101



Low Oil Pressure Warning System - Component Location
Figure 102

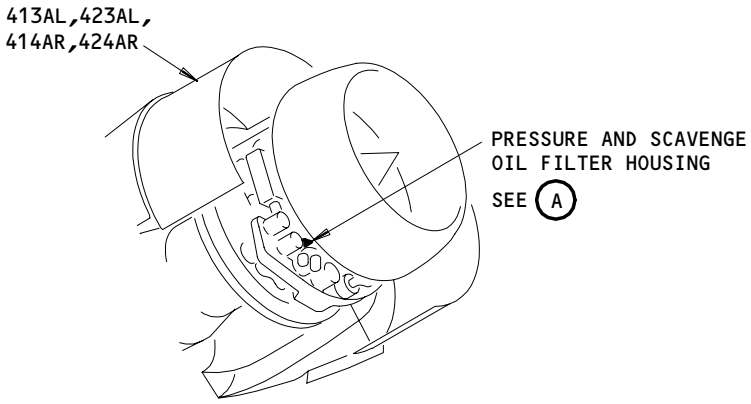
A44953

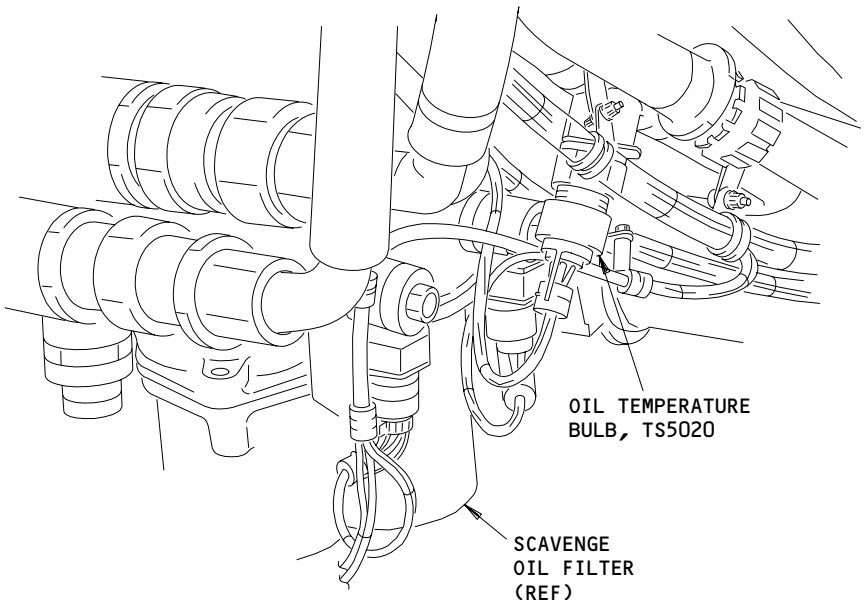
OIL TEMPERATURE INDICATION SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
COMPUTERS - (31-41-00/101) EICAS L, M10181 EICAS R, M10182 BULB - OIL TEMPERATURE, TS5020	--	2	413AL, 423AL, 414AR, 424AR	79-34-01

Oil Temperature Indication System - Component Index
Figure 101

A47444





PRESSURE AND SCAVENGE
OIL FILTER HOUSING
A

Oil Temperature Indication System - Component Location
Figure 102

OIL TEMPERATURE INDICATION PROBLEM

PREREQUISITES
NONE

1	REPLACE THE OIL TEMPERATURE BULB (MM 79-34-01/401) AND THE GROUND RUN FOR THE ENGINE (MM 71-00-00/501). IF THE PROBLEM CONTINUES, REMOVE THE L (R) EICAS COMPUTER, M10181 (M10182)(MM 31-41-02/401). EXAMINE AND REPAIR THE CIRCUIT BETWEEN THE CONNECTOR D1322 AND THE EICAS, CONNECTORS D319A, PIN H11 AND H10 (D321D, PIN H9 AND H10), AND D321A, PIN H11 AND H10 (D319D, PIN H9 AND H10)(WDM 71-51-11; 79-34-11). INSTALL THE EICAS COMPUTER. DO THE PROCEDURE IN 71-05-00, FIG. 111.

Oil Temperature Indication Problem
Figure 103

OIL TEMP HIGH WITH A VIBRATION INCREASE

PREREQUISITES
NONE

1 EXAMINE THE MAGNETIC CHIP DETECTORS, THE SCAVENGE AND THE PRESSURE FILTERS FOR SIGNS OF ENGINE INTERNAL DAMAGE (MM 79-00-00/601).
IS DAMAGE FOUND?

YES → 21 FOLLOW THE ACCEPTANCE STANDARDS DETAILED IN MM 79-00-00/601. 1

NO → 22 RETURN THE ENGINE TO SERVICE AND MONITOR THE ENGINE OPERATION FOR ORIGINAL PROBLEMS. 1

1 DO THE PROCEDURE IN 71-05-00, FIG. 111

Oil Temp High with Vibration Increase
Figure 104

A47448

OIL TEMP IS HIGH

PREREQUISITES
NONE

1 DISCONNECT THE OIL TEMPERATURE BULB ELECTRICAL CONNECTOR D1322.
DID YOU FIND ANY DAMAGE OR CONTAMINATION?

YES

21 REPAIR THE CONNECTOR OR REPLACE THE OIL TEMPERATURE BULB AS NECESSARY (MM 79-34-00/401).
IF THE PROBLEM CONTINUES, DO BLOCK 22. 1

NO

22 CONNECT THE CONNECTOR D1322.
REPLACE THE OIL BYPASS VALVE (MM 79-21-09/401). 2
IF THE PROBLEM CONTINUES, REPLACE THE OIL TEMPERATURE BULB (MM 79-34-01/401).
IF THE PROBLEM CONTINUES, REPLACE THE FUEL-FILTER-HOUSING-AND-FUEL-COOLED-OIL-COOLER-(FCOC)(MM 79-21-01/401).
IF THE PROBLEM CONTINUES, REMOVE THE L (R) EICAS COMPUTER, M10181 (M10182) (MM 31-41-02/401).
EXAMINE AND REPAIR THE CIRCUIT BETWEEN CONNECTOR D1322 AND THE EICAS, CONNECTORS D321D AND D319D, PINS H9 AND H10 (D319A AND D321A, PINS H10 AND H11) (WDM 71-51-11; 79-34-11).
INSTALL THE EICAS COMPUTER.
IF THE PROBLEM CONTINUES, REPLACE THE ENGINE (MM 71-00-02/501). 1

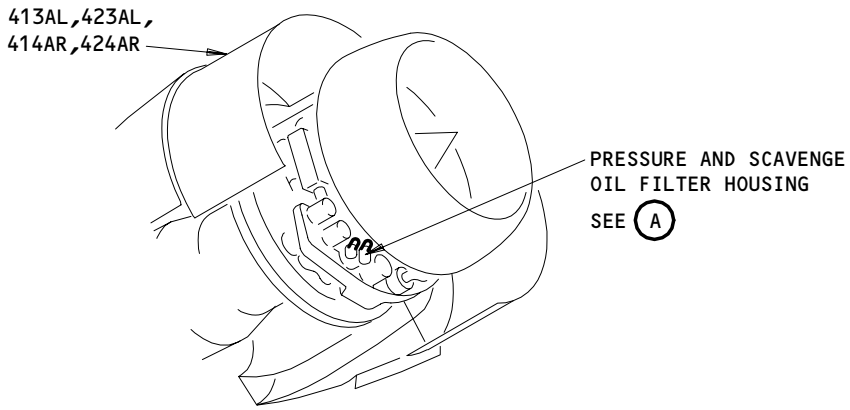
1 DO THE PROCEDURE IN 71-05-00, FIG. 111.
2 ENGINES WITHOUT RR SB 79-9387

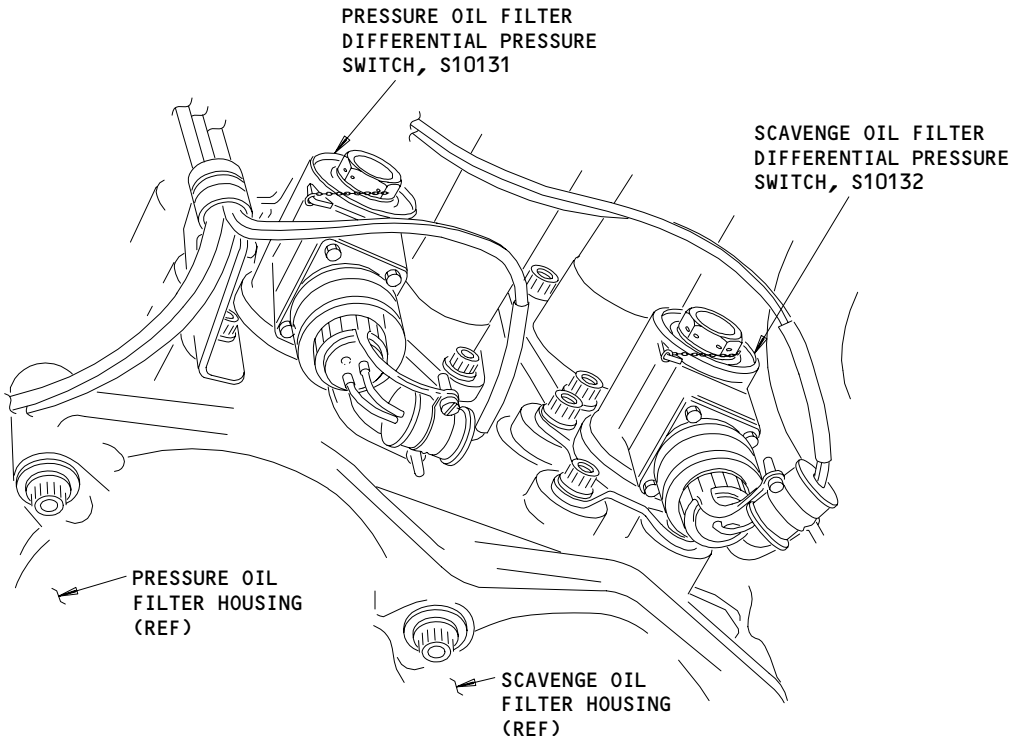
Oil Temp is High
Figure 105

OIL FILTER BYPASS WARNING SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
COMPUTERS - (31-41-00/101) EICAS L, M10181 EICAS R, M10182				
SWITCH - PRESSURE OIL FILTER DIFFERENTIAL PRESSURE, S10131	--	2	413AL,423AL,414AR,424AR	79-35-01
SWITCH - SCAVENGE OIL FILTER DIFFERENTIAL PRESSURE, S10132	--	2	413AL,423AL,414AR,424AR	79-35-02

Oil Filter Bypass Warning System - Component Index
Figure 101





PRESSURE AND SCAVENGE
OIL FILTER HOUSING
A

Oil Filter Bypass Warning System - Component Location
Figure 102