CHAPTER

79

Engine Oil

(CFM56 ENGINES (CFM56-7))

CHAPTER 79
ENGINE OIL

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CHAPTER 79
ENGINE OIL

79-CONTENTS

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ENGINE OIL - INTRODUCTION

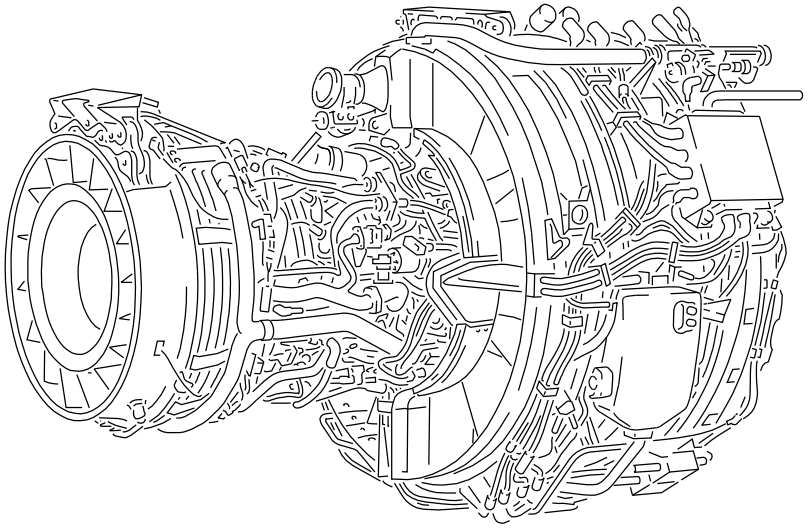
Purpose

The engine oil system supplies oil to lubricate, cool, and clean the engine bearings and gears. The engine oil system has these subsystems:

- Storage
- Distribution
- Indicating.

Abbreviations and Acronyms

- AGB - accessory gear box
- AMM - airplane maintenance manual
- CDS/DEU - common display system/ display electronic units
- EEC - electronic engine control
- psid - pound-per-square-inch differential
- TGB - transfer gear box
- T/P sensor - temperature/pressure sensor



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ENGINE OIL - INTRODUCTION

ENGINE OIL - GENERAL DESCRIPTION

General

The engine oil system has these subsystems:

- Storage
- Distribution
- Indicating.

Storage

The oil storage system keeps sufficient oil for a continuous supply to the oil distribution circuit. The oil storage system lets you do an oil level check and to fill the oil system.

The oil storage system holds oil in the oil tank.

Distribution

The oil distribution system has these circuits:

- Supply
- Scavenge
- Vent.

The supply circuit sends oil to lubricate the engine bearings and gears. Oil from the tank goes to the lubrication unit through an anti-leakage valve. The lubrication unit pressurizes and filters the oil. The oil then goes to the engine.

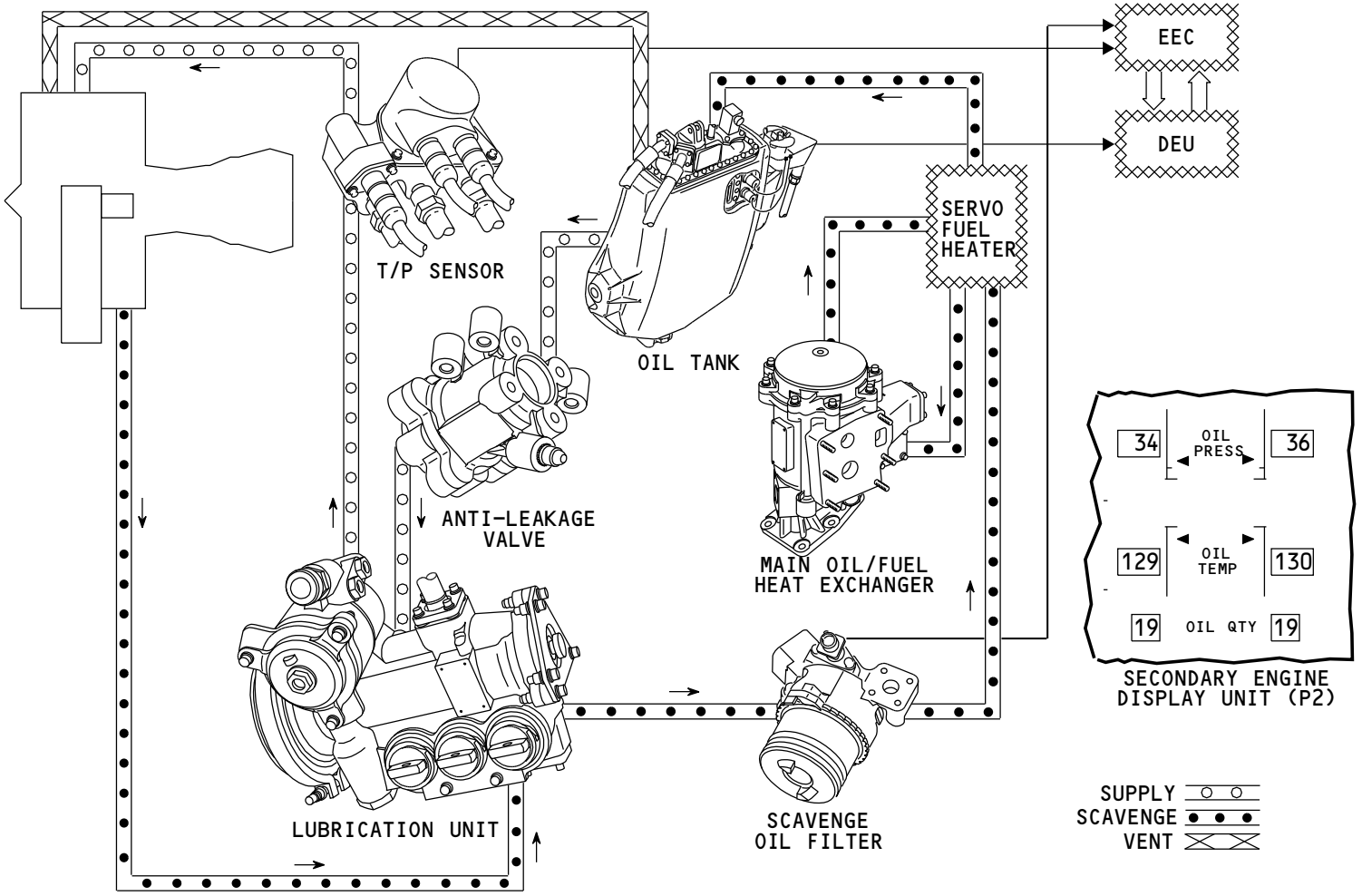
The scavenge circuit takes the oil from the engine. Oil first flows through the lubrication unit. The lubrication unit also scavenges the oil. The oil goes to the scavenge oil filter and then to the servo fuel heater. The oil goes from the servo fuel heater to the main oil/fuel heat exchanger and then back to the servo fuel heater. Then the oil flows back to the oil tank.

The vent circuit balances the internal air pressures in the oil system. Externally, a vent line connects the engine to the oil tank. Unwanted air pressure goes out of the oil tank through the vent line.

Indication

The oil quantity indicating system sends this data to the display electronic units (DEUs):

- Scavenge oil filter bypass indication
- Low oil pressure indication
- Oil pressure
- Oil temperature
- Oil quantity.



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ENGINE OIL - GENERAL DESCRIPTION

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ENGINE OIL - STORAGE - OIL TANK

General

These are the functions of the engine oil tank:

- Contains the engine oil
- Removes the air from the scavenge oil
- Lets you do an oil level check and fill the oil system.

Component location

The engine oil tank is on the fan case, at the 3:00 position. You do the oil level check and you fill the oil tank through the oil tank access door. The oil tank access door is on the side of the right fan cowl. You can also open the right fan cowl to get access to the oil tank.

Physical Description

The oil tank has a oil level sight gage, a gravity fill port, and pressure servicing fill ports.

You use the oil level sight gage on the oil tank to make a visual check of the engine oil quantity. The oil level sight gage is on the front of the oil tank.

You use the oil tank gravity fill port to fill the oil tank. The gravity fill port is on the right of the oil tank. The oil filler cap has a locking handle. The oil that falls during servicing collects into the oil scupper. The oil scupper connects to a drain line.

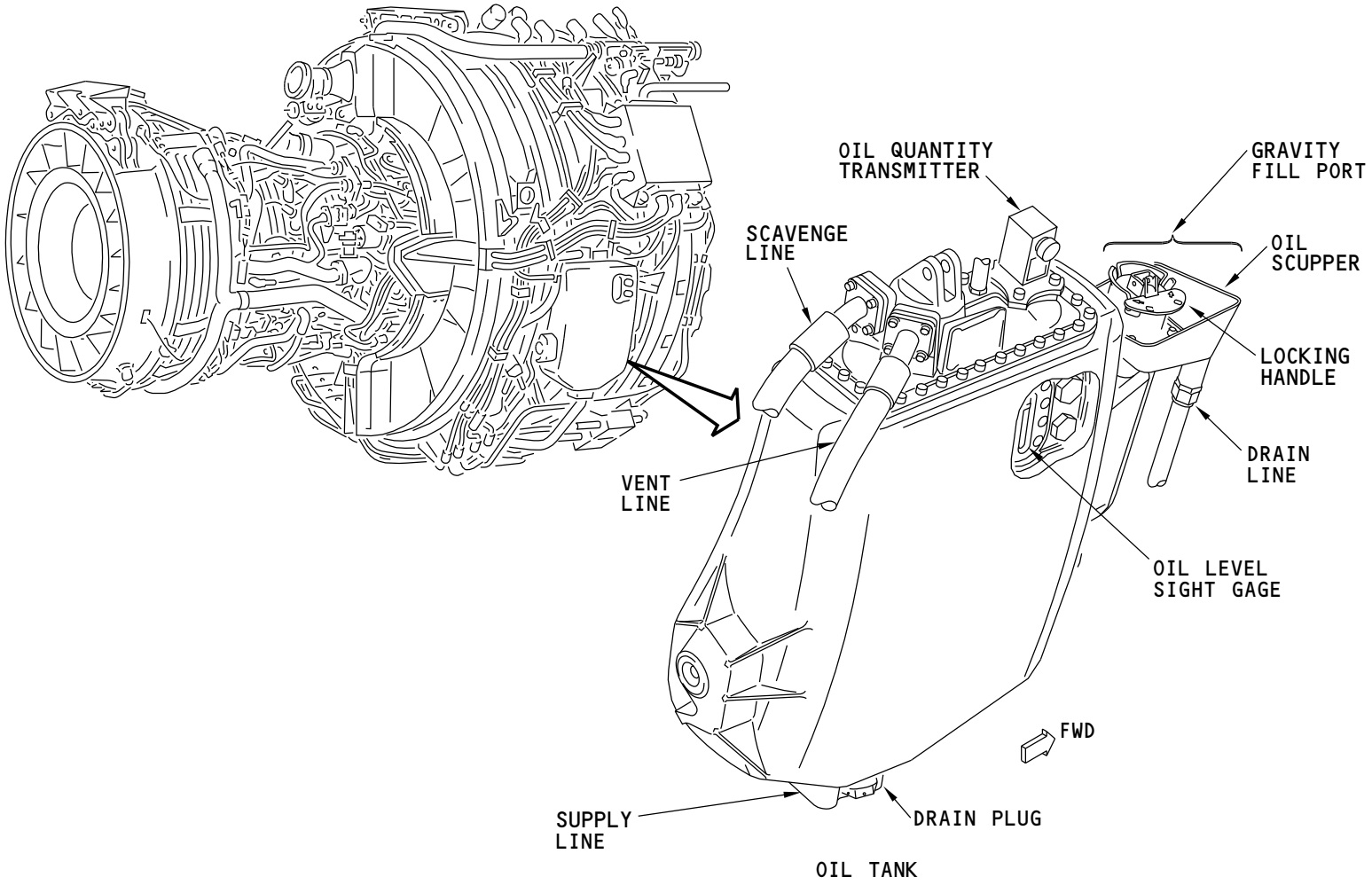
A drain plug at the bottom of the oil tank lets you drain it.

The engine oil tank holds approximately 21 US quarts (20.2 liters). The oil tank for engine 2 can hold more oil than engine 1. This is because of the dihedral of the wings.

Training Information Point

You remove the oil quantity transmitter separately from the oil tank.

See the oil indicating section for more information on the oil quantity transmitter. (SECTION 79-30)



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ENGINE OIL - STORAGE - OIL TANK

ENGINE OIL - STORAGE - TRAINING INFORMATION POINTS - SERVICING

General

You must do an oil level check and fill the engine oil tank for any of these conditions:

- Normal servicing
- After replacement of an oil system component
- Engine oil change.

Engine Oil Level

CAUTION: DO THE ENGINE REPLENISH PROCEDURE BEFORE THE OIL TANK BECOMES COOL (30 MINUTES FROM THE ENGINE SHUTDOWN). IF THE OIL TANK IS COOL, YOU CAN FILL IT TOO MUCH AND CAUSE AN INCORRECT INDICATION OF THE OIL CONSUMPTION RATE.

Open the oil tank access door to get access to the sight glass.

You can also monitor the engine oil level from the flight compartment. To do that, read the oil quantity indication on the center upper display unit (P2).

See the oil indicating section for more information on the oil quantity indicating system. (SECTION 79-30)

Engine Oil Servicing (Gravity Fill)

WARNING: DO NOT REMOVE THE FILLER CAP OF THE OIL TANK FOR FIVE MINUTES AFTER AN ENGINE SHUTDOWN. IF THE CHECK VALVE IS DEFECTIVE, HOT OIL CAN SPRAY FROM THE OIL TANK AND CAUSE INJURY TO PERSONS. THE OIL IN THE TANK IS HOT AND PRESSURIZED DURING ENGINE OPERATION.

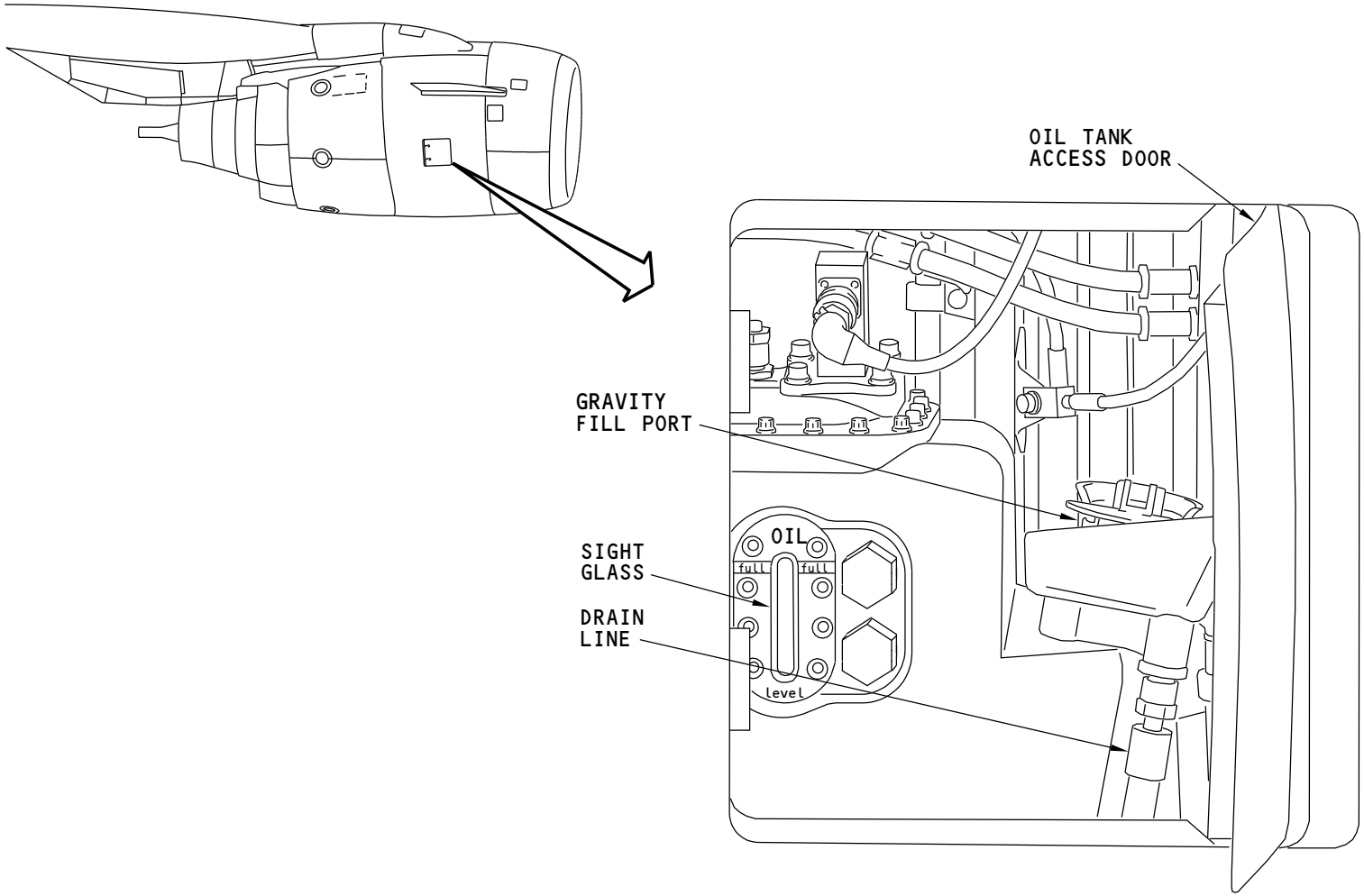
WARNING: YOU MUST FULLY CLEAN YOUR SKIN IF YOU TOUCH THE OIL. REMOVE OIL SOAKED CLOTHES IMMEDIATELY. IF THE OIL TOUCHES YOUR SKIN FOR A LONG TIME, IT COULD CAUSE DERMATITIS.

CAUTION: DO NOT SERVICE THE OIL TANK WITH OIL BRANDS THAT ARE NOT APPROVED. FLUSH AND REPLACE THE OIL IMMEDIATELY WITH THE CORRECT ENGINE OIL IF BRANDS OF OIL THAT ARE NOT APPROVED ARE USED.

CAUTION: IMMEDIATELY CLEAN THE PAINTED SURFACES ON WHICH THE OIL FALLS. THE OIL WILL PUT STAINS ON CLOTHES AND CAN MAKE PAINT SOFT.

Add the engine oil into the gravity fill port until the oil level gets to the full indication on the sight glass. When the oil level is at the full indication on the sight glass, the oil tank is full.

Refer to part II of the AMM for more information on the approved types or brands of oil.



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ENGINE OIL - STORAGE - TRAINING INFORMATION POINTS - SERVICING

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ENGINE OIL - DISTRIBUTION - GENERAL DESCRIPTION

General

The engine oil distribution system supplies oil to cool and lubricate the engine bearings and gears. The engine oil distribution system also removes oil from sumps and gearboxes and sends it to the storage system. The engine oil distribution system has these systems:

- Supply system
- Scavenge system
- Vent system.

Supply System

Oil comes from the supply system to lubricate and cool internal components in the engine.

From the oil tank, the oil flows to the lubrication unit through the anti-leakage valve. In the lubrication unit, the supply pump pressurizes the oil. The oil goes from the supply pump to the supply oil filter. The supply oil filter is part of the lubrication unit. The oil flows out of the lubrication unit in three lines to lubricate these areas:

- Forward sump and transfer gearbox (TGB)
- Rear sump
- Accessory gearbox (AGB).

Scavenge System

The scavenge system takes the oil that collects at the lowest point of these three areas:

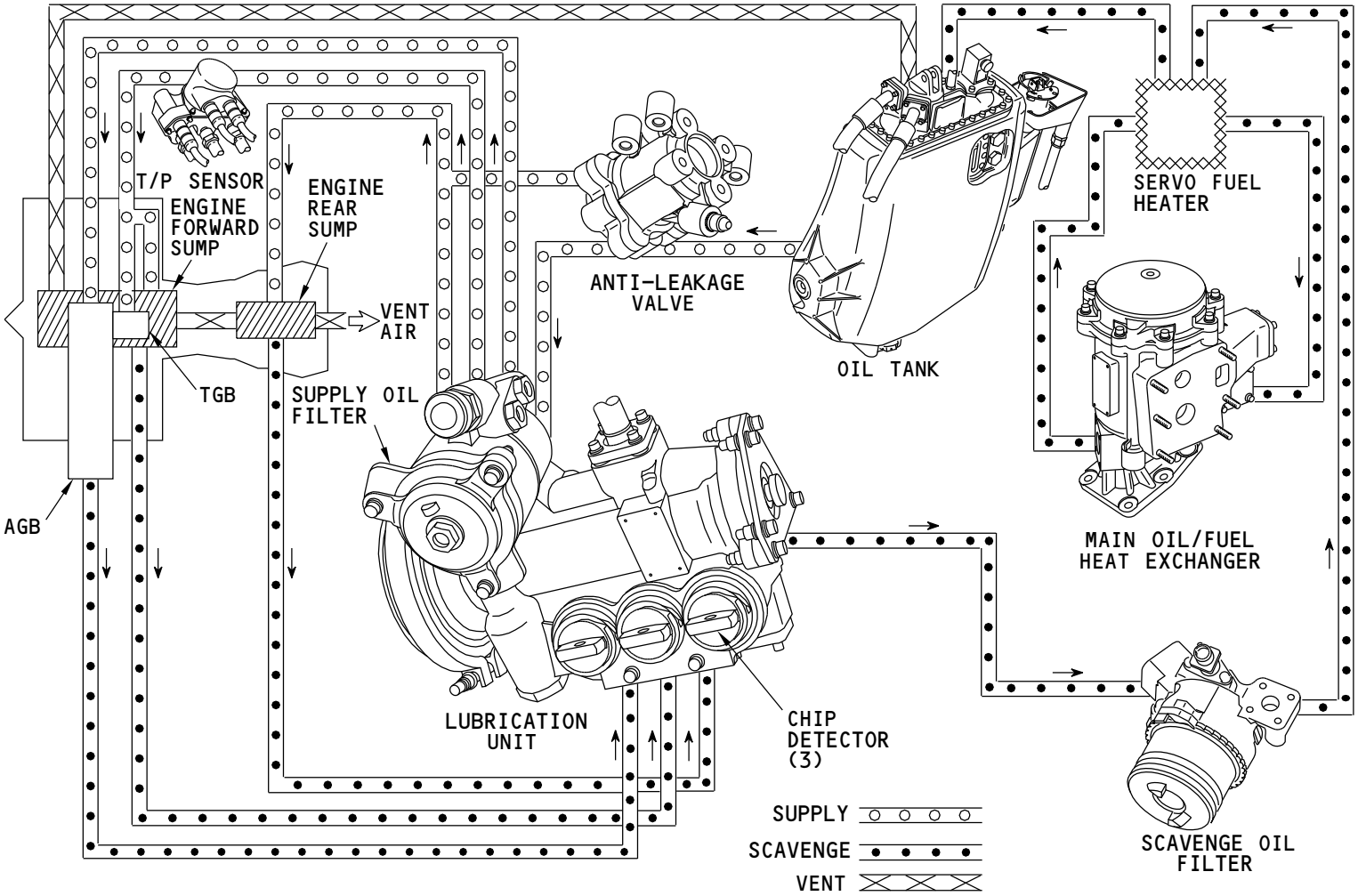
- Forward sump
- Rear sump
- AGB and TGB.

From these areas, the oil flows through three lines to three chip detectors. Three scavenge pumps move the oil in the three scavenge lines. The oil from each scavenge line goes to the scavenge oil filter and then to the servo fuel heater. The oil goes from the servo fuel heater to the main oil/fuel heat exchanger. In the exchanger, the oil cools as it heats the fuel. The oil flows back through the servo fuel heater and then to the oil tank.

The scavenge system also supplies hot oil to heat the hydromechanical unit (HMU) servo fuel supply through the servo fuel heater. See the engine fuel distribution system for more information on the servo fuel heater. (SECTION 73-11)

Vent System

The vent system connects the oil tank with the forward sump. There are also internal connections between the engine sumps and gearboxes. The vent circuit bleeds out of the exhaust plug at the rear of the engine.



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ENGINE OIL - DISTRIBUTION - GENERAL DESCRIPTION

ENGINE OIL - DISTRIBUTION - COMPONENT LOCATIONS

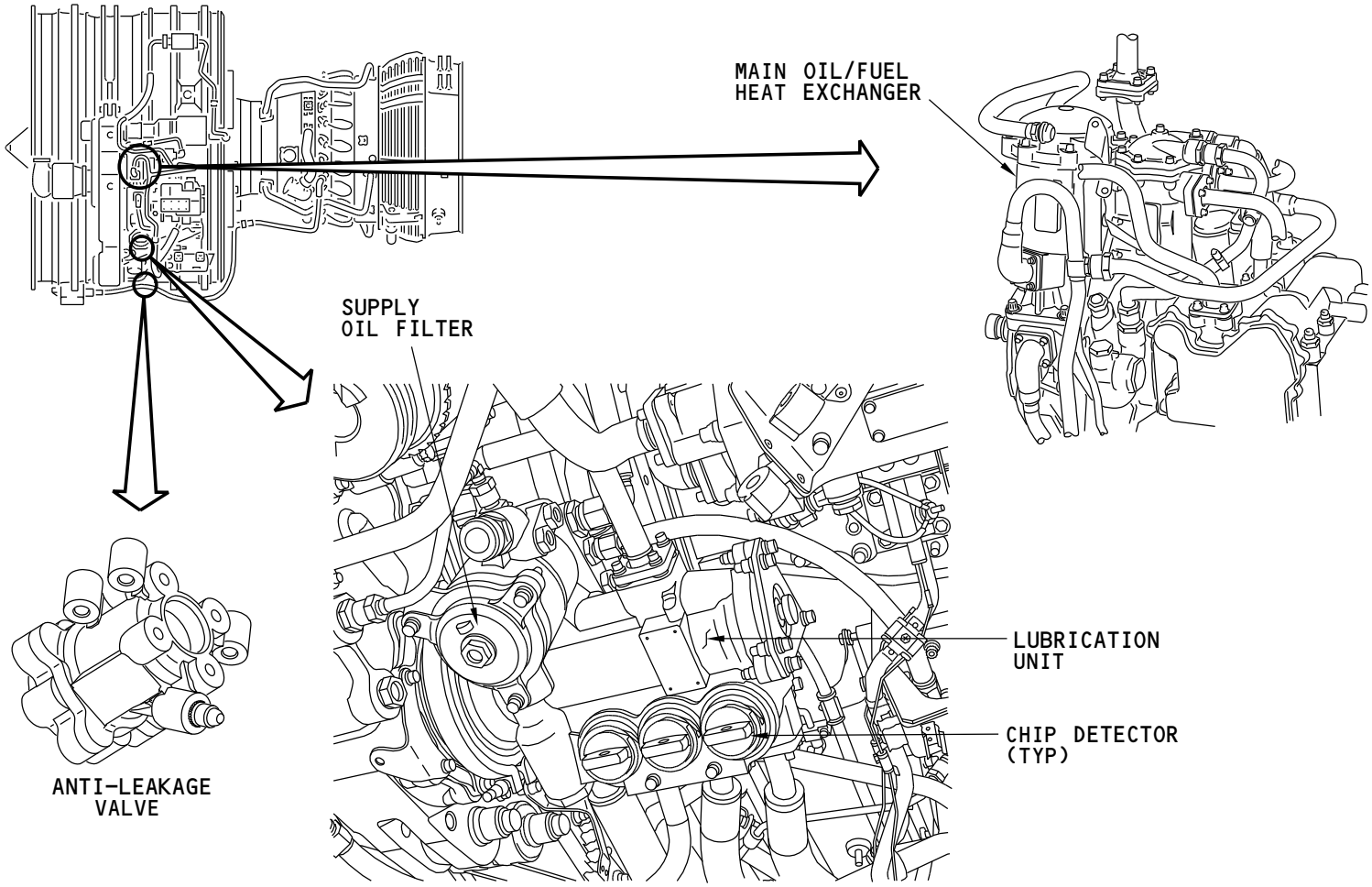
Component Locations

These components of the engine oil distribution system are on the left side, and at the bottom of the fan case:

- Lubrication unit (7:00 position)
- Main oil/fuel heat exchanger (9:00 position)
- Oil scavenge filter assembly (8:00 position)
- Anti-leakage valve (6:00 position).

The oil supply filter and the three chip detectors are in the lubrication unit.

You open the left fan cowl to get access to the components of the engine oil distribution system.



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ENGINE OIL - DISTRIBUTION - COMPONENT LOCATIONS

ENGINE OIL - DISTRIBUTION - LUBRICATION UNIT

Purpose

The lubrication unit supplies pressurized oil to lubricate the engine bearings and gears. It also takes the oil that collects in the sumps and the gearboxes and sends it back to the oil tank.

Location

The lubrication unit is on the rear face of the accessory gearbox at the 6:00 position. You open the left fan cowl to get access to the lubrication unit.

Physical description

The lubrication unit contains these parts:

- Oil supply pump (not shown)
- Supply oil filter
- Supply oil filter bypass valve
- Pop-out indicator
- Pressure relief valve
- Oil scavenge pump (3) (not shown)
- Chip detector (3).

A V-band clamp attaches the lubrication unit to the accessory gearbox.

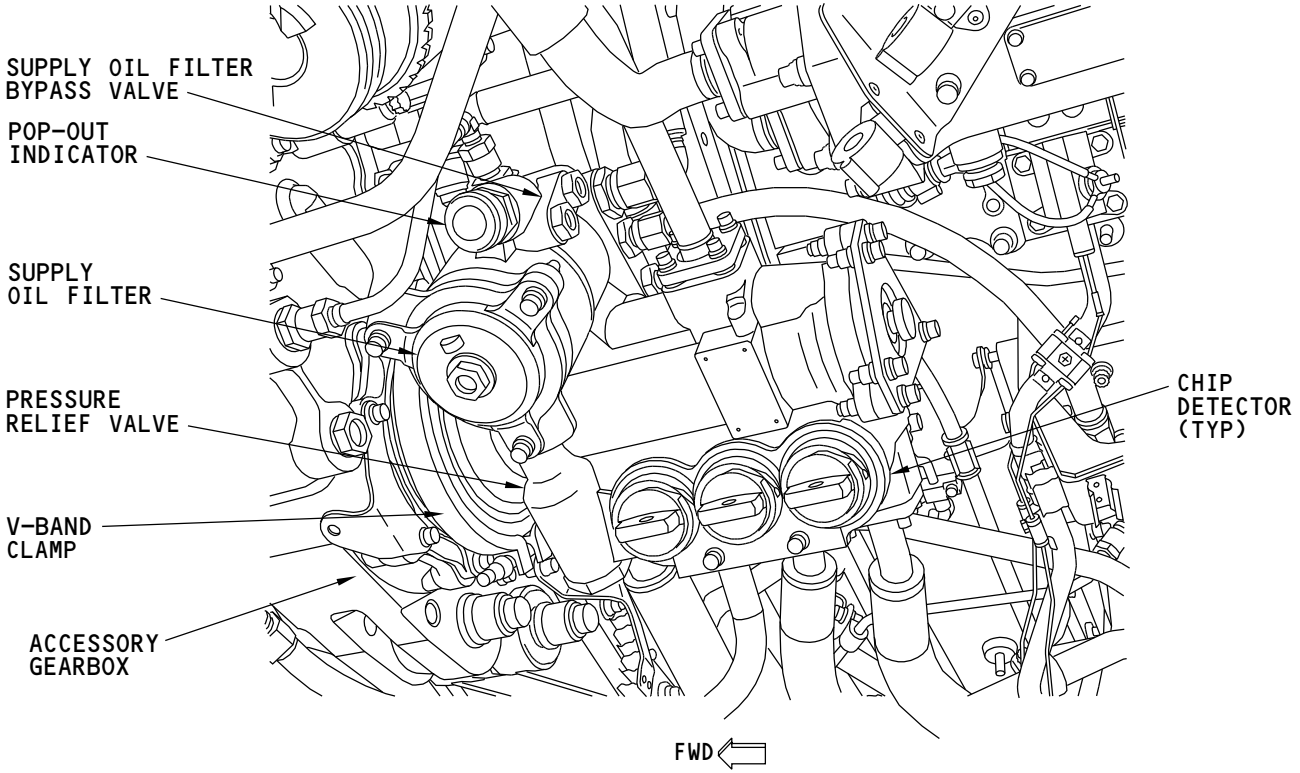
Functional Description

The accessory gearbox turns the oil supply pump and the three scavenge pumps in the lubrication unit. The pumps are on a common shaft.

The oil supply pump does not control the output pressure. When the engine speed changes, the oil pressure changes.

Training Information Point

When you remove the lubrication unit from the accessory gearbox, be careful to avoid damage to the hollow drive shaft and splines. The hollow drive shaft will separate from the lubrication unit when it is removed from the accessory gearbox.



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ENGINE OIL - DISTRIBUTION - LUBRICATION UNIT

ENGINE OIL - DISTRIBUTION - OIL SUPPLY FILTER

Purpose

The supply oil filter removes and holds unwanted material from the supply oil. The supply oil filter prevents the contamination of the downstream oil circuit.

Location

The supply oil filter is in the lubrication unit. The lubrication unit is on the rear face of the accessory gearbox at the 6:00 position. You open the left fan cowl to get access to the supply oil filter.

Physical Description

The supply oil filter is a paper filter cartridge. You discard the filter after use.

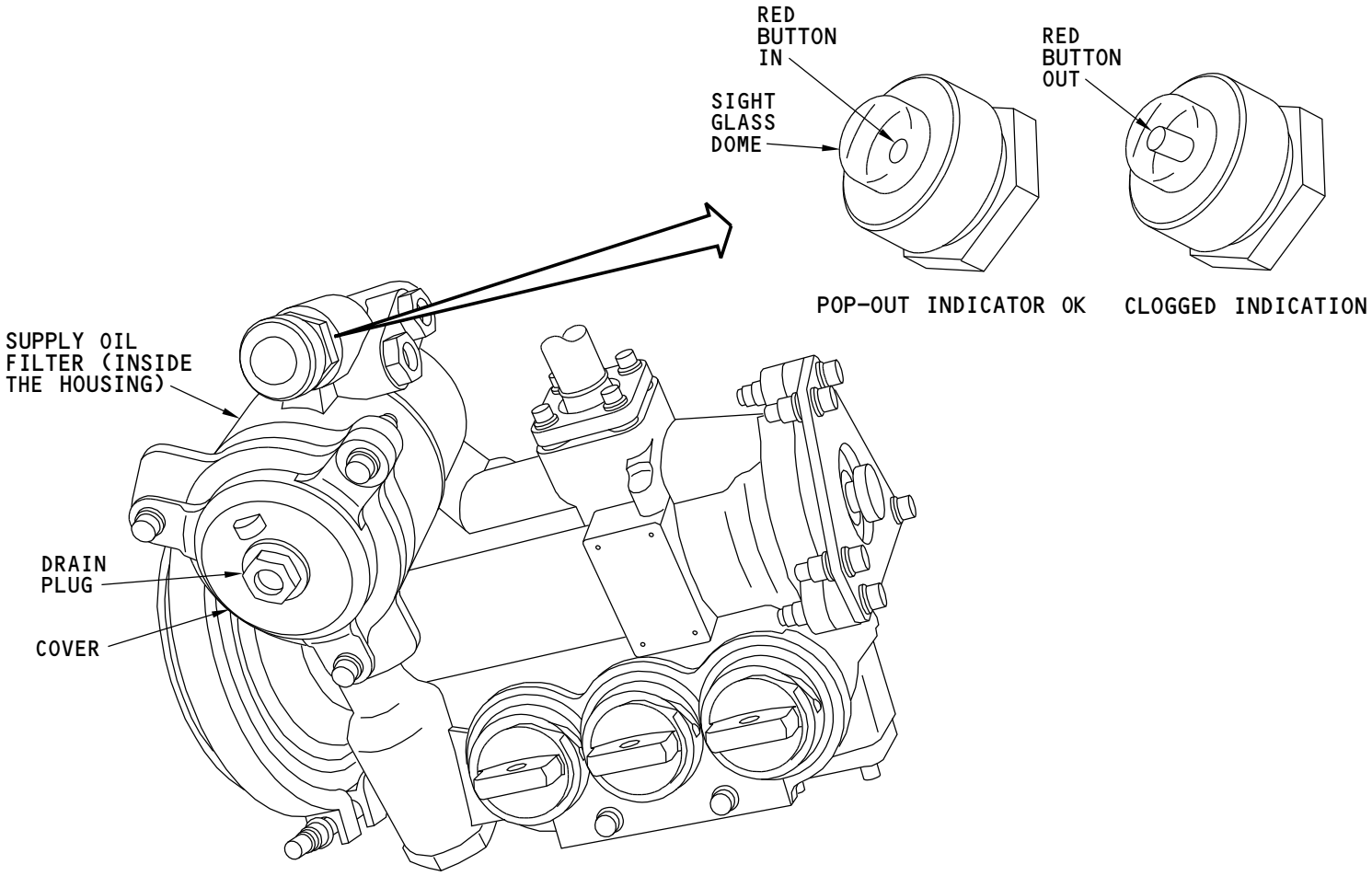
The lubrication unit housing holds the supply oil filter. The cover keeps the supply oil filter in the housing. The oil filter housing cover has a drain plug.

Training Information Point

When the filter clogs, the supply oil filter bypass valve opens. The bypass valve is in the lubrication unit housing. The pop-out indicator comes out before the bypass valve opens. You see a red button in the sight glass dome when the pop-out indicator comes out. This tells you there is a clogged condition and to change the filter. This can prevent contamination of the downstream oil circuit.

Training Information Point

Remove the drain plug, and drain the oil filter housing before you remove the cover to remove the filter. Use the correct container to hold the oil you drain from the housing.



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ENGINE OIL - DISTRIBUTION - OIL SUPPLY FILTER

ENGINE OIL - DISTRIBUTION - CHIP DETECTOR

Purpose

The chip detectors collect and keep the unwanted materials from the scavenge oil. This tells if there is mechanical failure of an engine bearing or gear. The chip detectors keep all the ferrous material or non-ferrous material pieces larger than 800 microns.

There are three chip detectors, one for each of these three scavenge circuits:

- Forward sump
- Rear sump
- AGB and TGB.

Refer to the AMM for more information on the procedure if you find material in a chip detector.

Location

The lubrication unit housing holds the chip detectors. They are at the inlet of the scavenge pumps. The lubrication unit is on the rear of the accessory gearbox at the 6:00 position. You open the chip detectors/pressure relief door to get access to the chip detectors.

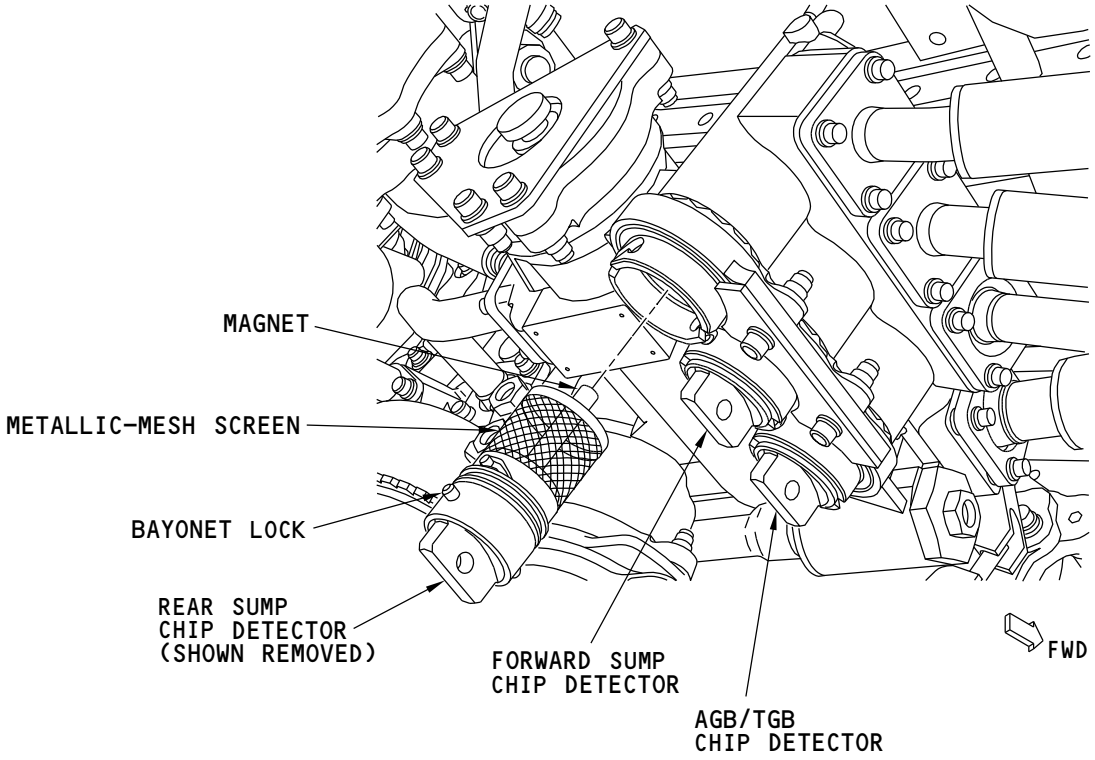
See the engine cowling section for more information on the chip detectors/pressure relief door. (SECTION 71-11)

Physical Description

A chip detector has a magnet and a metallic-mesh screen. Each chip detector attaches to the lubrication unit housing through a bayonet lock. A check-valve in the lubrication unit housing prevents an oil leakage when you remove a chip detector.

Training Information Point

Read the name of the scavenge line on the lubrication unit body, near each chip detector. This lets you find the area of the failure. But you must inspect the chip detectors one at a time. The three chip detectors are interchangeable. There is no mark to identify a chip detector.



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ENGINE OIL - DISTRIBUTION - CHIP DETECTOR

ENGINE OIL - DISTRIBUTION - MAIN OIL/FUEL HEAT EXCHANGER

Purpose

The main oil/fuel heat exchanger uses fuel from the low pressure fuel pump to decrease the temperature of the scavenge oil.

See the fuel distribution system section for more information on the fuel system. (SECTION 73-11)

Location

The main oil/fuel heat exchanger attaches to the fuel pump assembly. The fuel pump assembly is at the 8:00 position. You open the left fan cowl to get access to the main oil/fuel heat exchanger.

Physical Description

The main oil/fuel heat exchanger has these parts:

- Exchanger core (inside the housing)
- Housing
- Cover.

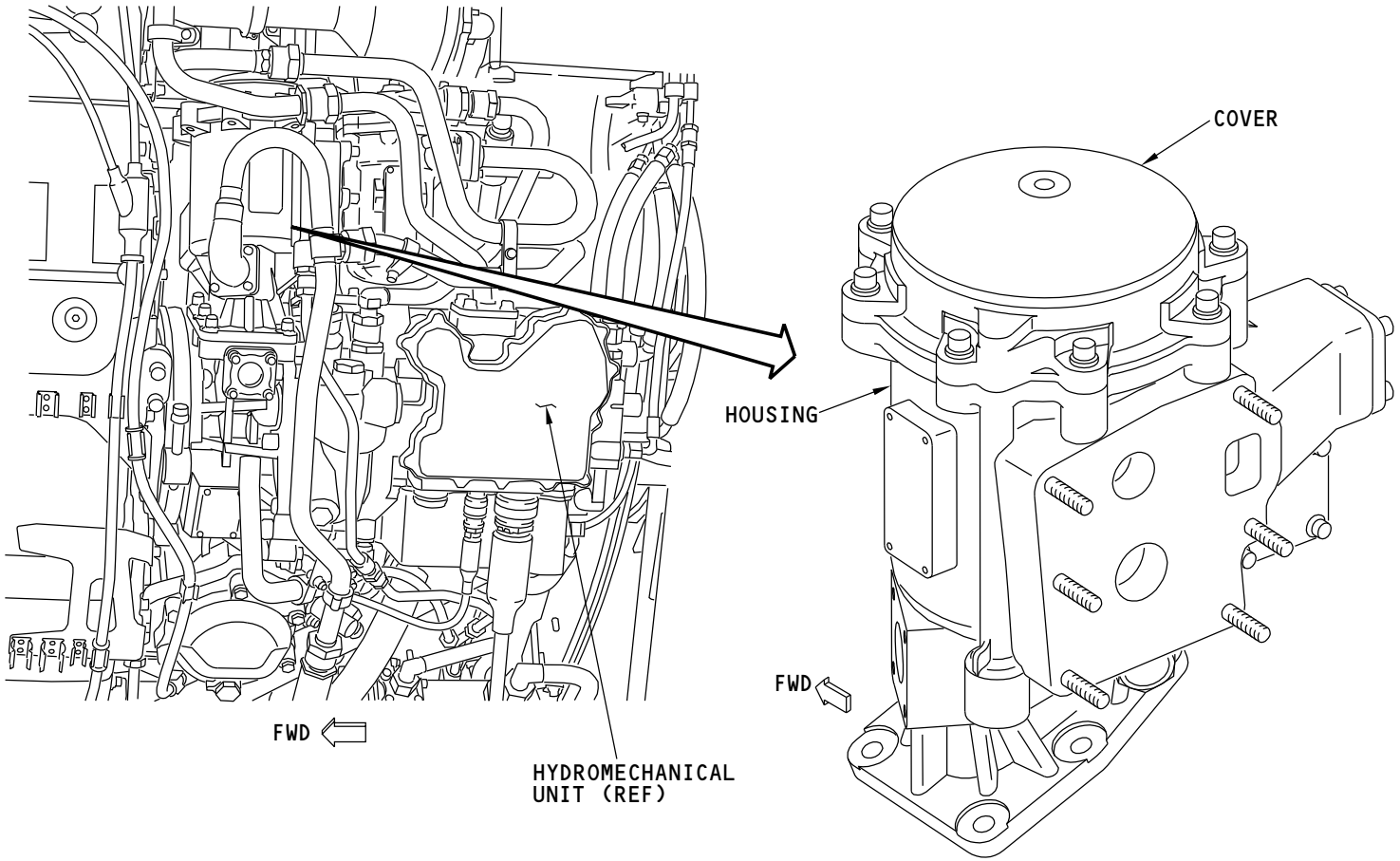
The exchanger core is where the oil temperature decreases as the oil heats the fuel. The cover holds the exchanger core in the housing.

The main oil/fuel heat exchanger has an oil bypass valve. The oil bypass valve opens when the exchanger core is clogged. This permits the oil to flow around the core exchanger. Thus, the oil temperature increases when the oil bypass valve opens. But the oil continues to flow.

Training Information Point

You replace the main oil/fuel heat exchanger as an assembly.

When the main oil/fuel heat exchanger has a leak, the fuel goes into the oil circuit. This occurs because the fuel pressure is higher than the oil pressure. If you smell fuel in the oil tank or if the oil quantity increases, refer to the AMM for more information.



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ENGINE OIL - DISTRIBUTION - MAIN OIL/FUEL HEAT EXCHANGER

ENGINE OIL - DISTRIBUTION - OIL SCAVENGE FILTER ASSEMBLY

Purpose

The scavenge oil filter assembly contains the scavenge oil filter and the scavenge oil filter clogging transmitter.

Location

The scavenge oil filter assembly is on the rear face of the accessory gearbox at the 7:00 position. You open the left fan cowl to get access to the scavenge oil filter assembly.

Scavenge Oil Filter Assembly

The scavenge oil filter assembly has a filter bowl and a body. The filter bowl holds the scavenge oil filter cartridge. A locking ratchet lever prevents rotation in the direction to loosen the filter bowl. In the body, an oil filter bypass valve opens when debris causes the scavenge oil filter to clog. The body also holds the scavenge oil filter clogging transmitter.

See the oil indicating section for more information on the scavenge oil filter clogging transmitter. (SECTION 79-30)

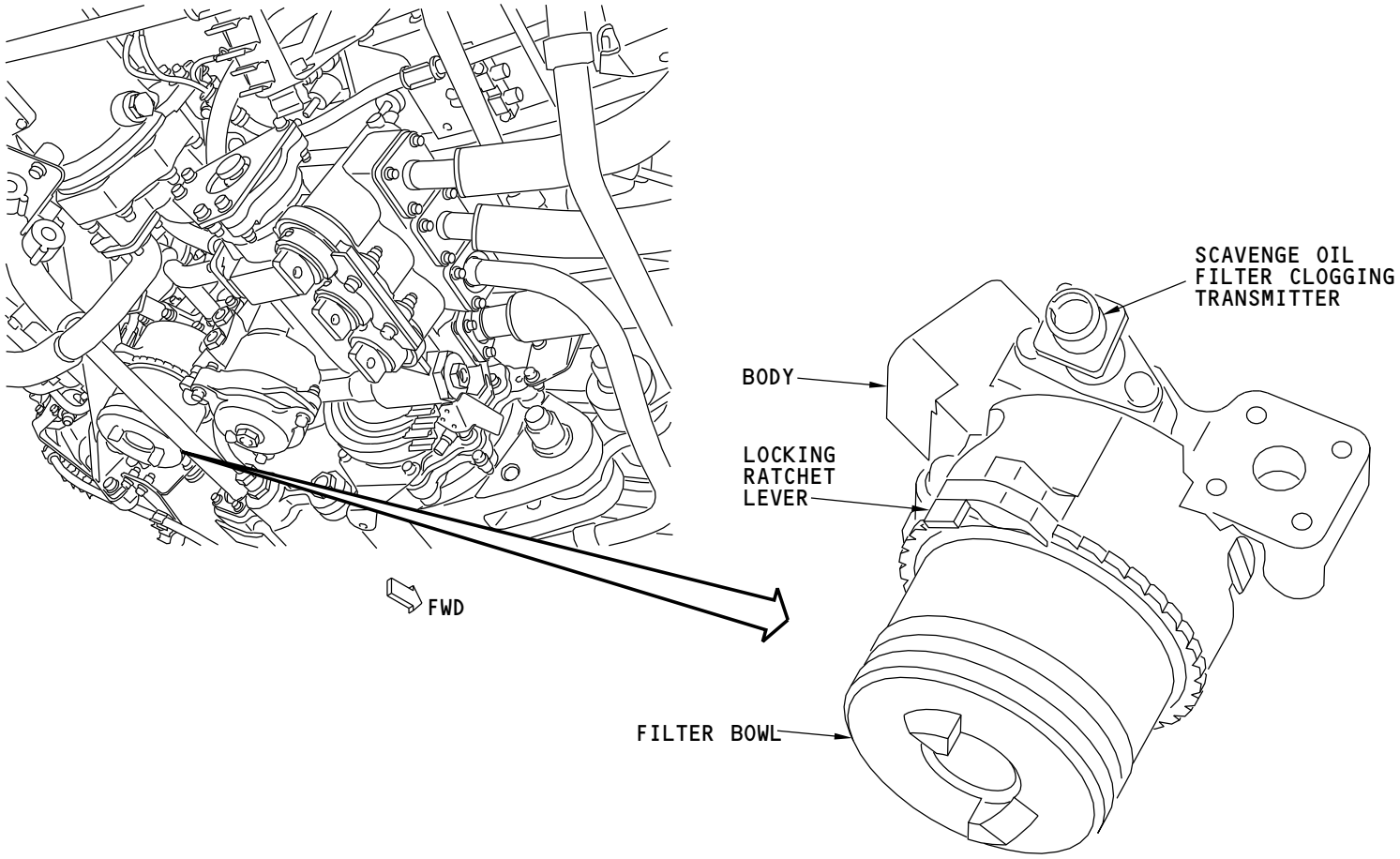
Scavenge Oil Filter

The scavenge oil filter removes debris from the three scavenge circuits. The scavenge oil filter prevents contamination of the oil circuit from one of these components if it becomes defective:

- Main engine bearing
- Gear
- Gear bearing
- Scavenge pump.

Training Information Point

The scavenge oil filter is a paper filter cartridge. Discard the filter after removal and inspection.



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ENGINE OIL - DISTRIBUTION - OIL SCAVENGE FILTER ASSEMBLY

ENGINE OIL - DISTRIBUTION - ANTI-LEAKAGE VALVE

Purpose

The anti-leakage valve prevents oil leakage when you disconnect the oil tube from the anti-leakage valve to the lubrication unit.

The oil tank is higher on the engine than the other parts of the oil system. After engine shutdown, this may cause the oil quantity to decrease. The anti-leakage valve prevents this.

Location

The anti-leakage valve is on the fan frame at the 6:00 position. The anti-leakage valve is on the oil tube from the oil tank to the lubrication unit. You open the fan cowls to get access to the anti-leakage valve.

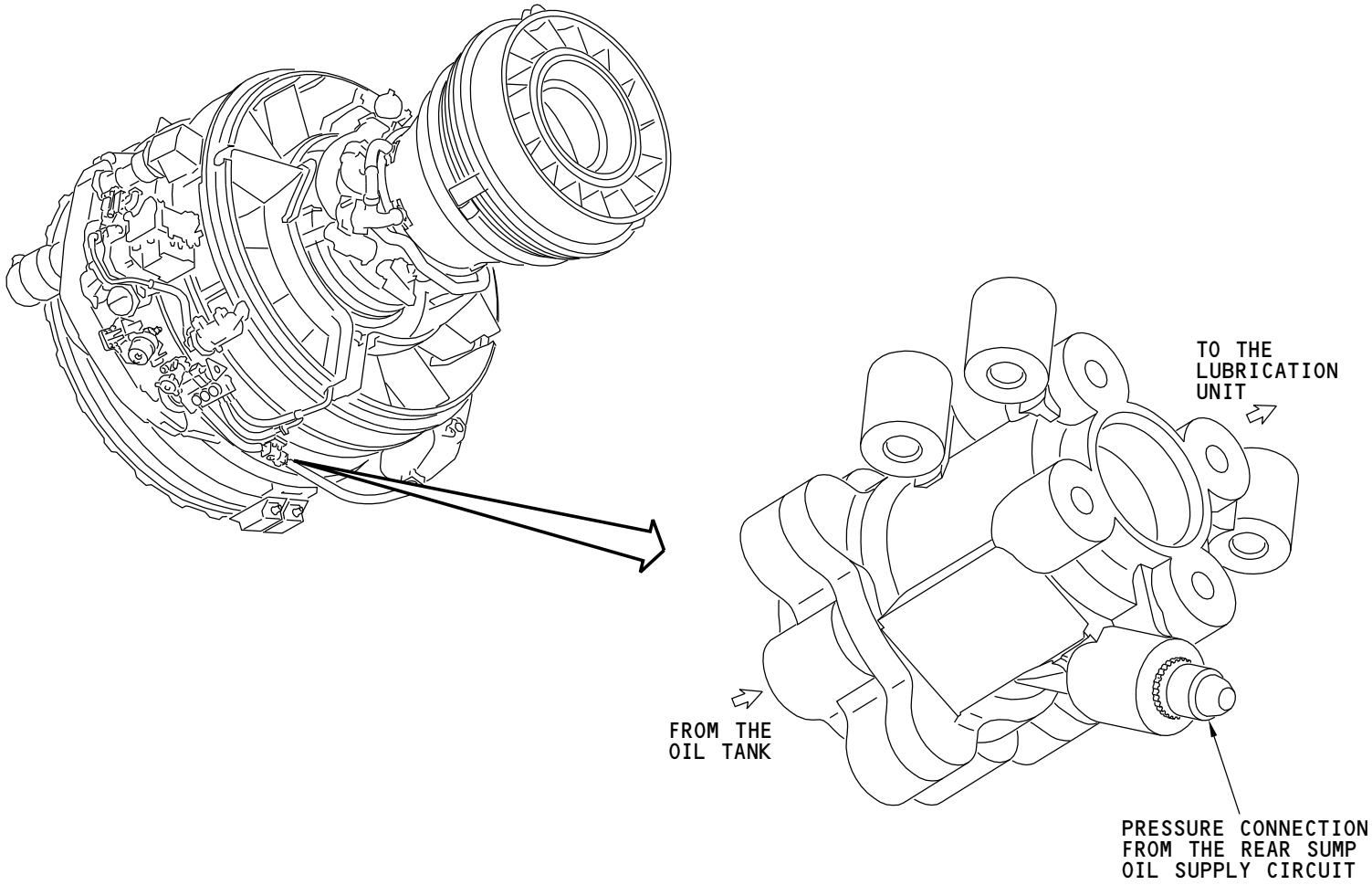
Functional Description

The anti-leakage valve is a pressure-actuated valve. When the engine does not operate, a spring closes the valve. This prevents oil leakage during removal of a component of the oil distribution system. This also prevents the oil flow from the oil tank to other oil system components.

When the engine operates, the oil pressure from the rear sump supply line holds the valve open.

Training Information Point

You must drain the oil tank before you replace the anti-leakage valve.



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ENGINE OIL - DISTRIBUTION - ANTI-LEAKAGE VALVE

ENGINE OIL - DISTRIBUTION - FUNCTIONAL DESCRIPTION

Supply Circuit

Oil from the oil tank goes through the anti-leakage valve to the lubrication unit. The oil supply pump pressurizes the oil.

The pressure relief valve sends oil to the inlet of the AGB/TGB scavenge pump when the supply pressure is too high.

The oil goes to the supply oil filter. The supply oil filter bypass valve monitors the pressure difference across the supply oil filter. If the filter clogs, the valve opens. The pop-out indicator shows a red button before the supply oil filter bypass valve opens.

The oil flows through these supply lines:

- Rear sump
- Accessory gearbox (AGB)
- Transfer gearbox (TGB) and forward sump.

An oil pressure line from the rear sump supply line sends pressurized oil to the anti-leakage valve. That keeps the valve open.

Scavenge Circuit

From the engine sumps and gearboxes, the scavenge oil flows through chip detectors. There is one chip detector for each of these scavenge lines:

- Rear sump
- AGB and TGB
- Forward sump.

The check valves prevent leakage when you remove a detector.

The oil goes to the three scavenge pumps. Each pump moves the oil in one scavenge line.

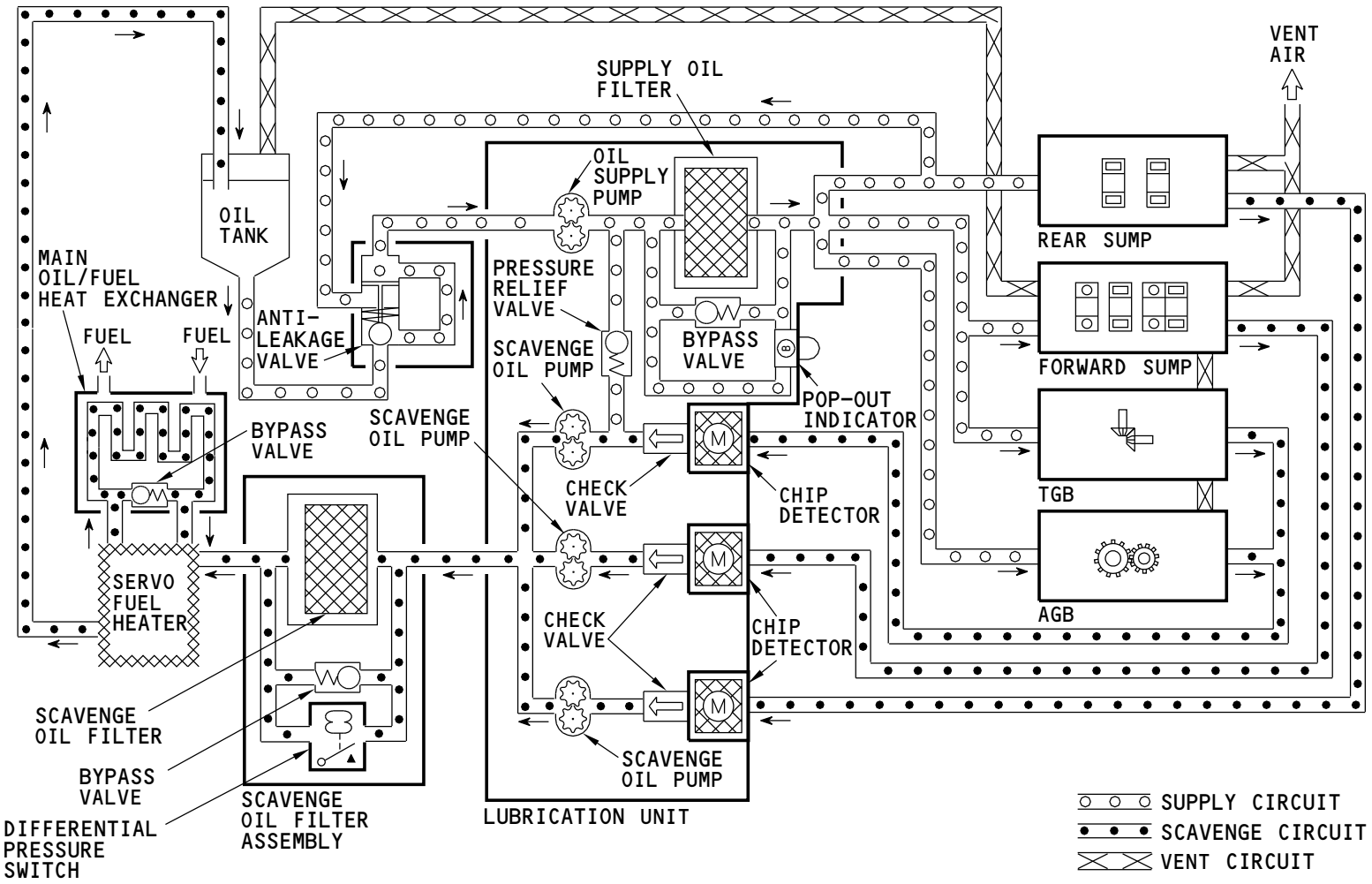
The oil from the three scavenge lines goes to the scavenge oil filter. The scavenge oil filter bypass valve opens if the pressure difference across the scavenge oil filter is above limits.

The filtered oil flows through the servo fuel heater then through the main oil/fuel heat exchanger. A bypass valve is in the main oil/fuel heat exchanger. If the heat exchanger clogs, the bypass valve opens and the servo fuel heater and the main oil/fuel heat exchanger are bypassed. The oil goes back to the servo fuel heater then to the oil tank.

Vent Circuit

A vent line connects the oil tank with the forward sump. Internally, the AGB and the TGB also connect with the forward sump. The forward sump and the rear sump vent out through the turbine exhaust plug at the rear of the engine.

See the turbine exhaust system chapter for more information on the turbine exhaust plug. (SECTION 78-11)



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ENGINE OIL - DISTRIBUTION - FUNCTIONAL DESCRIPTION

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ENGINE OIL - INDICATING - GENERAL DESCRIPTION

General

The engine oil indicating system supplies oil system data to the display electronic units (DEUs). The primary and secondary engine displays on the P2 center instrument panel show this data:

- Oil quantity
- Oil pressure
- Oil temperature
- Oil scavenge filter condition.

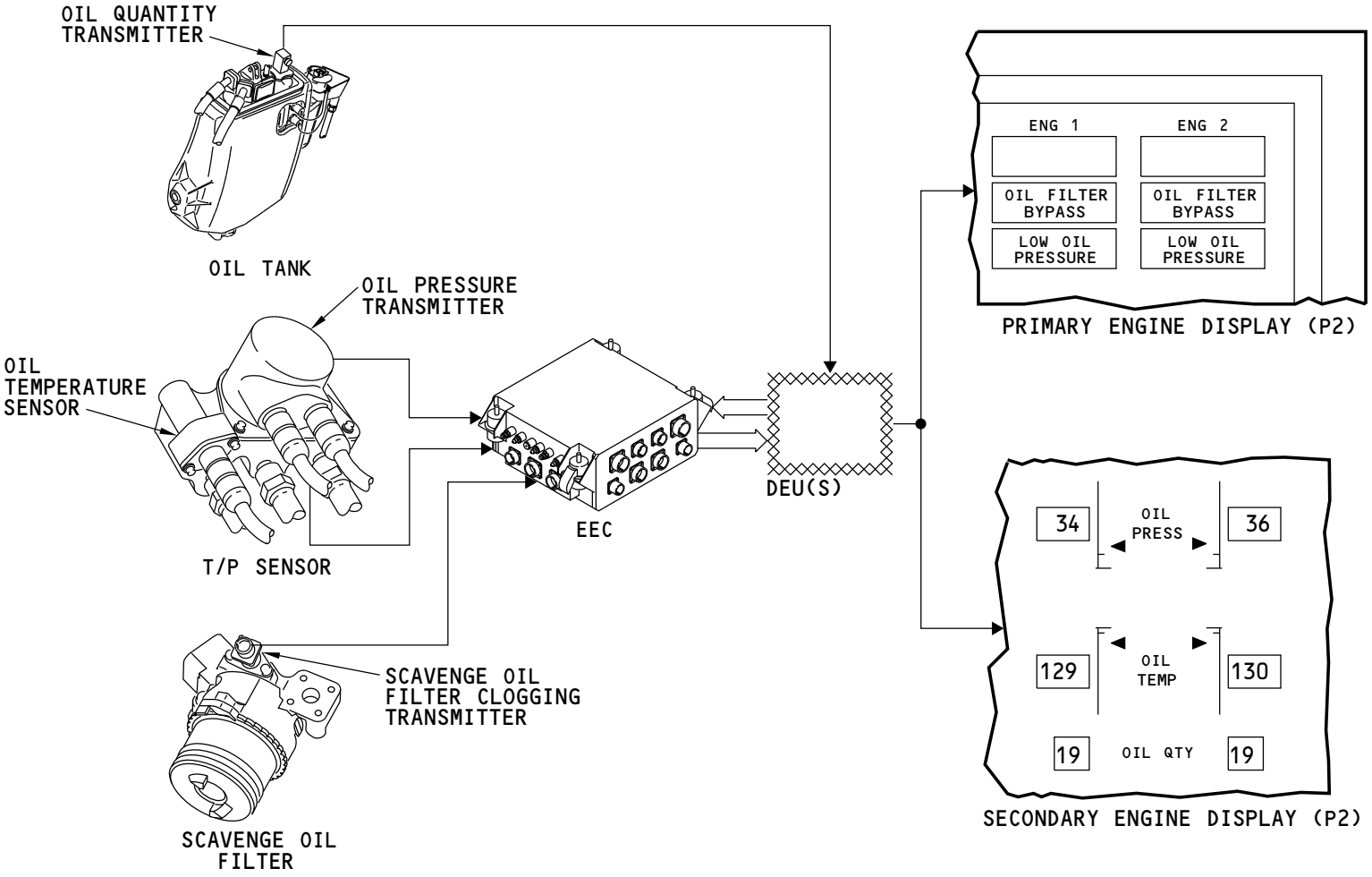
These components monitor the oil system:

- Oil quantity transmitter
- Oil pressure transmitter
- Oil temperature sensor
- Scavenge oil filter clogging transmitter.

The oil quantity transmitter sends the oil quantity data directly to the CDS/DEUs.

The three other components send data to the DEU through the EEC.

The temperature/pressure (T/P) sensor assembly contains the oil pressure transmitter and the oil temperature sensor.



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ENGINE OIL - INDICATING - GENERAL DESCRIPTION

ENGINE OIL - INDICATING - COMPONENT LOCATIONS

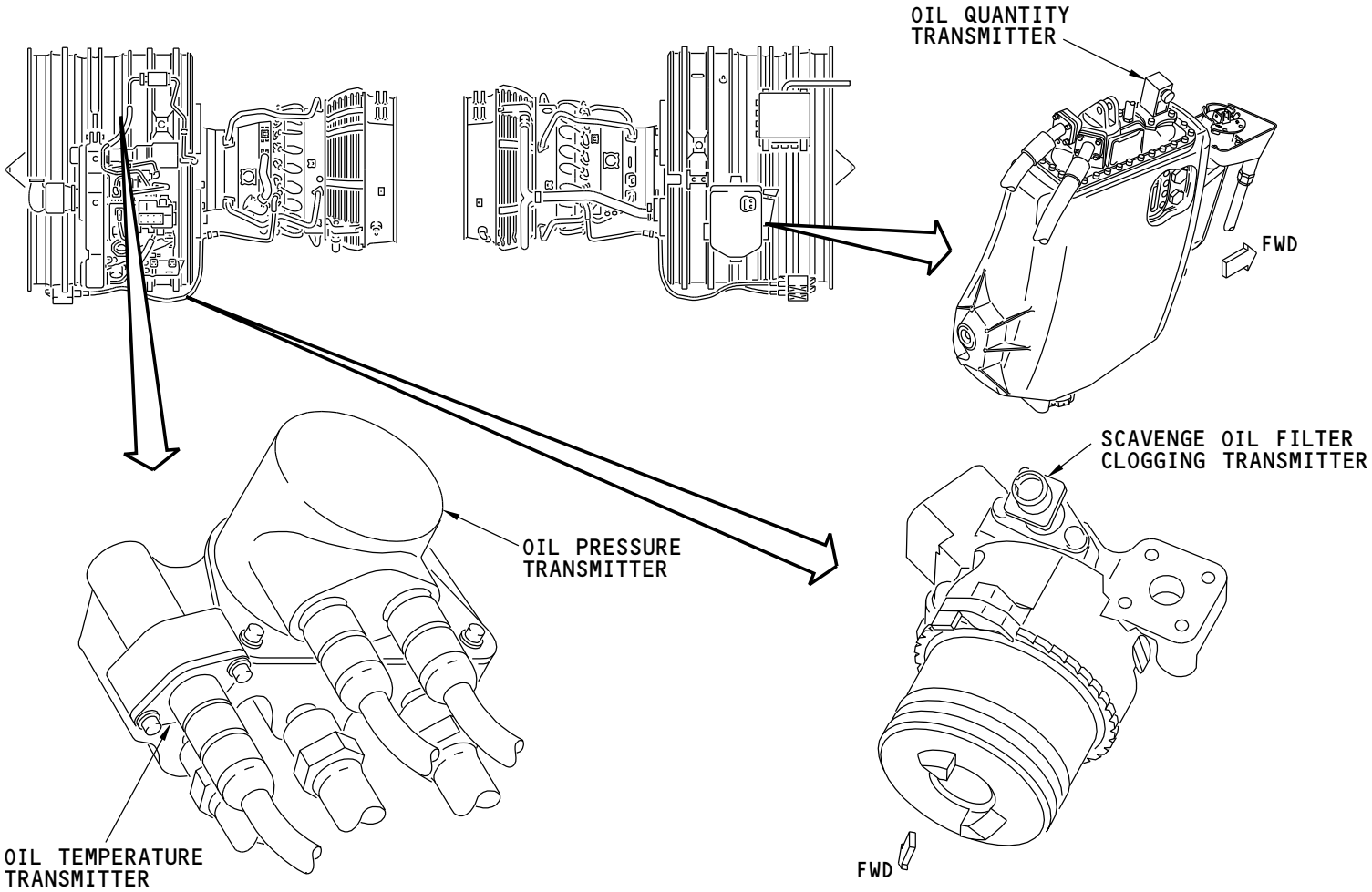
Component Locations

These components of the engine oil indicating system are on the left side of the fan case:

- Oil pressure transmitter, on the T/P sensor assembly (10:00 position)
- Oil temperature sensor, on the T/P sensor assembly (10:00 position)
- Scavenge oil filter clogging transmitter, on the oil scavenge filter assembly (8:00 position)

The oil quantity transmitter is on the oil tank (2:00 position), on the right side of the fan case.

Open the fan cowls to get access to these components.



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ENGINE OIL - INDICATING - COMPONENT LOCATIONS

ENGINE OIL - INDICATING - OIL QUANTITY INDICATING SYSTEM

General

The oil quantity indicating system shows the engine oil quantity data on the secondary engine display. The oil quantity indicating system uses an oil quantity transmitter to measure the oil quantity in the oil tank. The oil quantity transmitter sends the oil quantity data directly to the display electronic units (DEUs).

Physical Description

The oil quantity transmitter is an electrical resistance sensor. It uses a floating magnet and reed switches to give the oil level information. The oil quantity transmitter has one connector to transmit data to the DEUs.

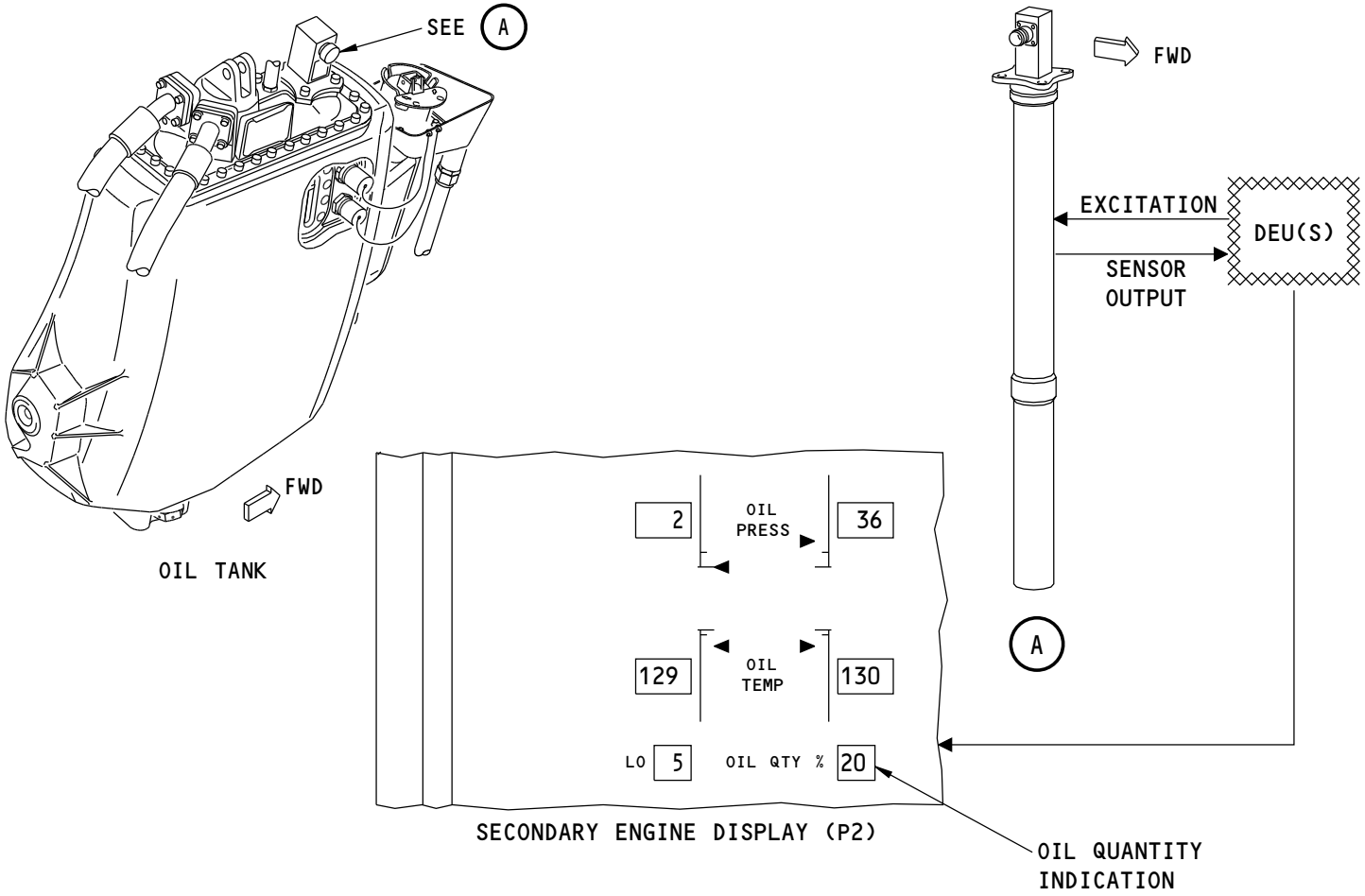
Functional Description

The DEUs supply an excitation signal to the sensing circuit of the oil quantity transmitter. As the floating magnet moves up or down with the oil level, the reed switches open or close different resistor circuits. A sensor output signal in proportion to the oil level goes to the DEUs. The DEUs show the oil quantity on the secondary engine display.

Indication

The secondary engine display shows usable oil quantities in quarts or liters. The display range is 0 to approximately 18 liters. A quantity more than 18 liters can show thru 19 liters. The wing dihedral causes the oil tank for engine 2 to hold more oil than engine 1.

A LO message shows when the oil quantity is less than 4 liters for 35 seconds. The oil quantity shows in reverse video when the low quantity exceedance is active.



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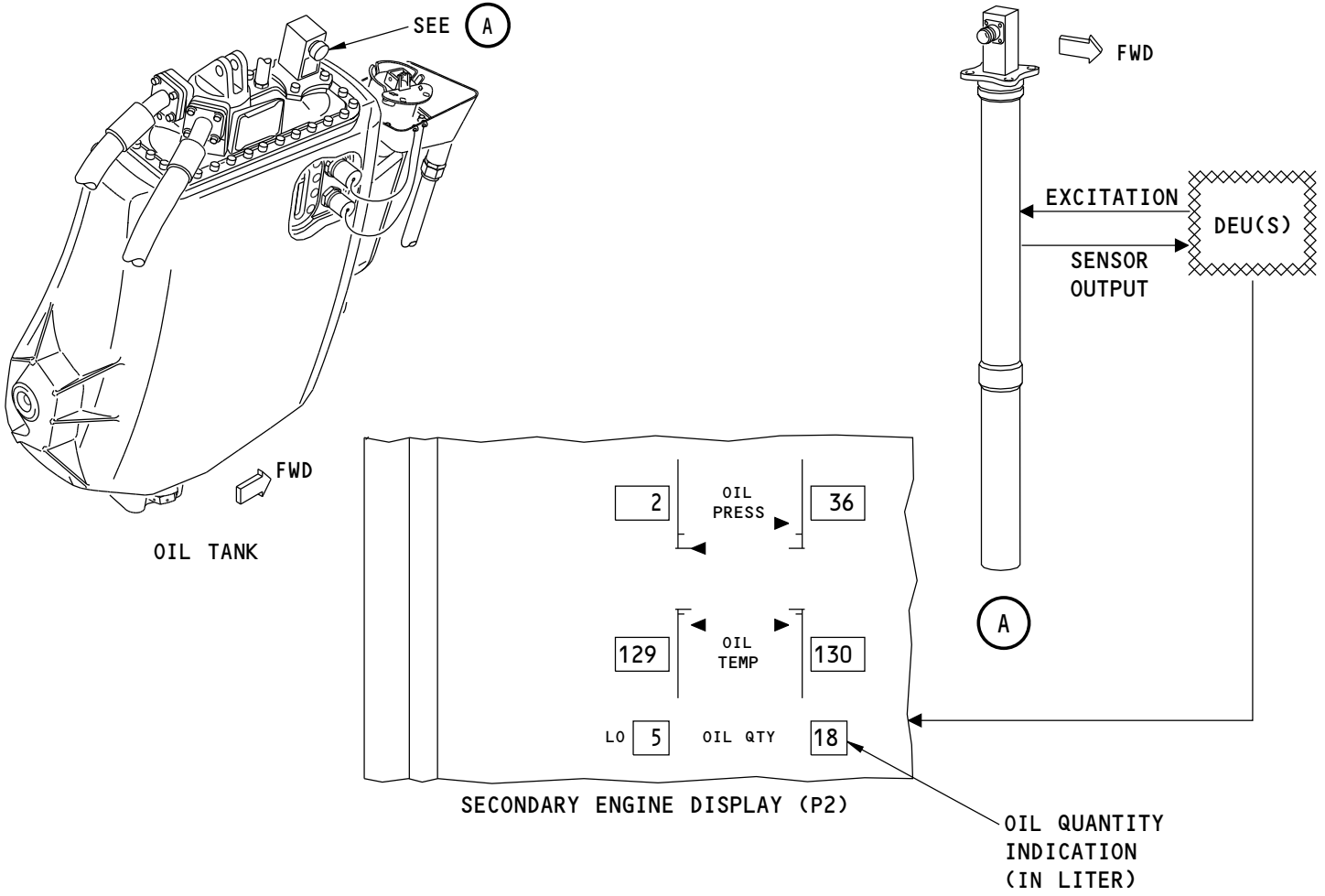
ENGINE OIL - INDICATING - OIL QUANTITY INDICATING SYSTEM



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ENGINE OIL - INDICATING - OIL QUANTITY INDICATING SYSTEM

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ENGINE OIL - INDICATING - OIL PRESSURE INDICATING SYSTEM

General

The oil pressure indicating system shows the engine oil pressure data on a display unit (DU). An oil pressure transmitter measures the oil pressure at the outlet of the lubrication unit. The oil pressure transmitter sends the oil pressure data to the display electronic units (DEUs) through the EEC.

Physical Description

The oil pressure transmitter has two sense elements. Each element connects with one channel of the EEC through a connector. The T/P sensor contains the oil pressure transmitter.

Functional Description

The oil pressure transmitter measures the differential pressure between the oil supply pump outlet (forward sump/TGB oil supply line) and the TGB cavity. The oil pressure transmitter sends an electric signal to the EEC. The EEC changes this signal into an ARINC 429 signal and sends it to the DEUs. The DEUs show the oil pressure on the secondary engine display.

Indication

Oil pressure shows on two vertical indicators and two digital displays. A pointer shows the oil pressure in psi differential (psid) on each vertical indicator. The indicator has two index markers. The amber index marker shows the oil pressure amber limit. The red index marker shows the oil pressure redline limit. If the oil pressure shows between the amber limit and the redline limit, the digital display and the box around the digital display are amber. This is the caution range. If the oil pressure shows under the redline limit, the digital display and box around the digital display are red. This is the out-of-limit range.

The low oil pressure amber limit set pressure increases based with an increase in engine speed.

Refer to the AMM for more information on the procedure when the oil pressure is in the caution range or in the out-of-limit range.

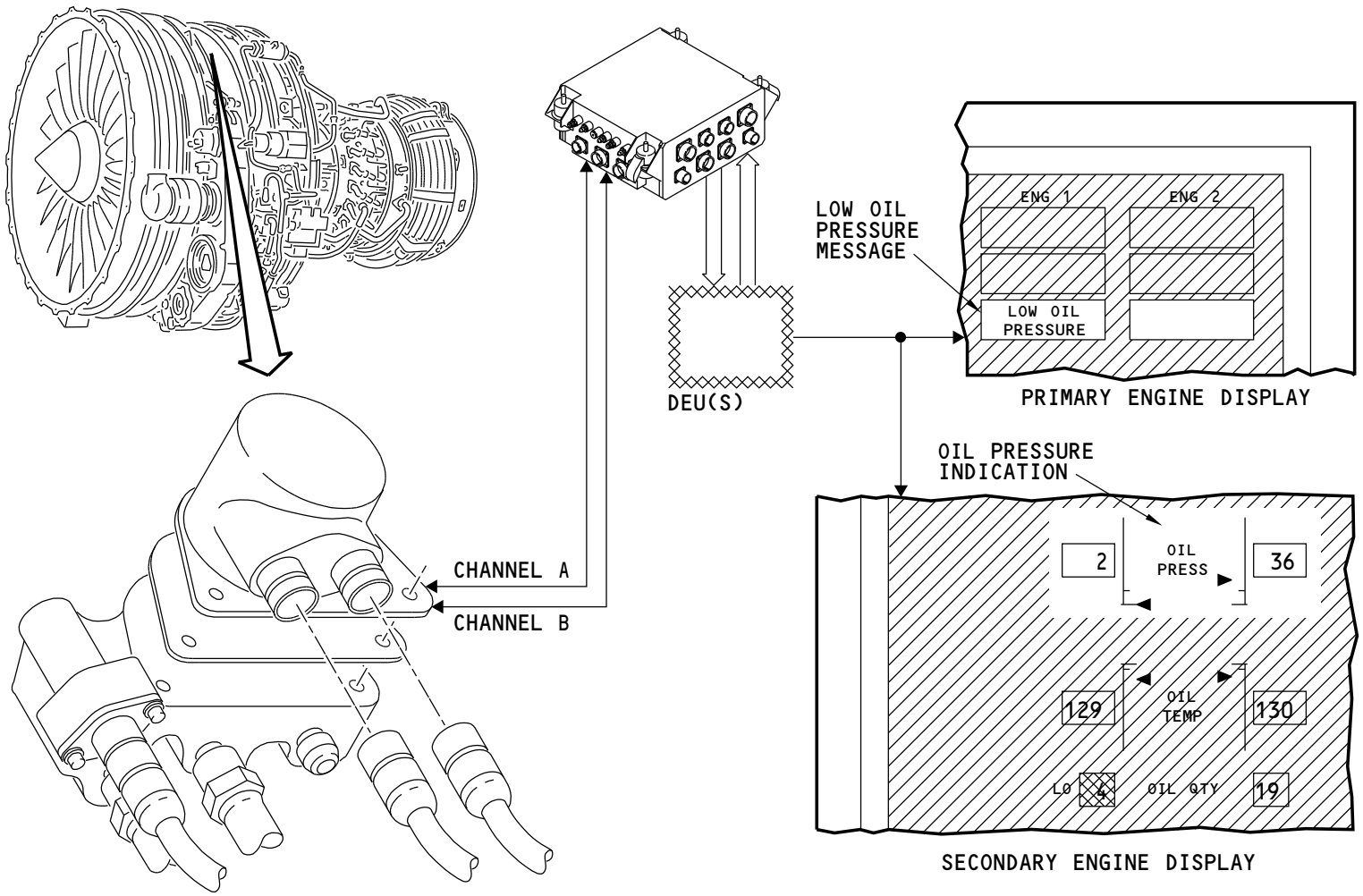
LOW OIL PRESSURE Message

When the oil pressure is less than the red line limit, the EEC sends a signal to the DEUs. This causes the DU to show the amber LOW OIL PRESSURE message. There is one LOW OIL PRESSURE message for each engine. The LOW OIL PRESSURE message shows on the primary engine display.

The amber LOW OIL PRESSURE message flashes for 10 seconds then shows continuously when the oil pressure is less than the red line limit. The DEUs inhibit the flash mode for takeoff and landings.

All three crew alert boxes flash for 10 seconds and the applicable alert message then shows continuously.

During start, the EEC prevents the indicator and pointer from a change to amber or red.



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ENGINE OIL - INDICATING - OIL PRESSURE INDICATING SYSTEM

ENGINE OIL - INDICATING - OIL TEMPERATURE INDICATING SYSTEM

General

The oil temperature indicating system shows the engine oil temperature data on a CDS display unit (DU). The oil temperature indicating system uses an oil temperature sensor to measure the oil temperature at the outlet of the lubrication unit. The oil temperature sensor transmits the oil temperature data to the display electronic units (DEUs) through the EEC.

Physical Description

The oil temperature sensor has two sense elements. Each element connects with one channel of the EEC. There is only one connector for the two channels. The T/P sensor contains the oil temperature sensor.

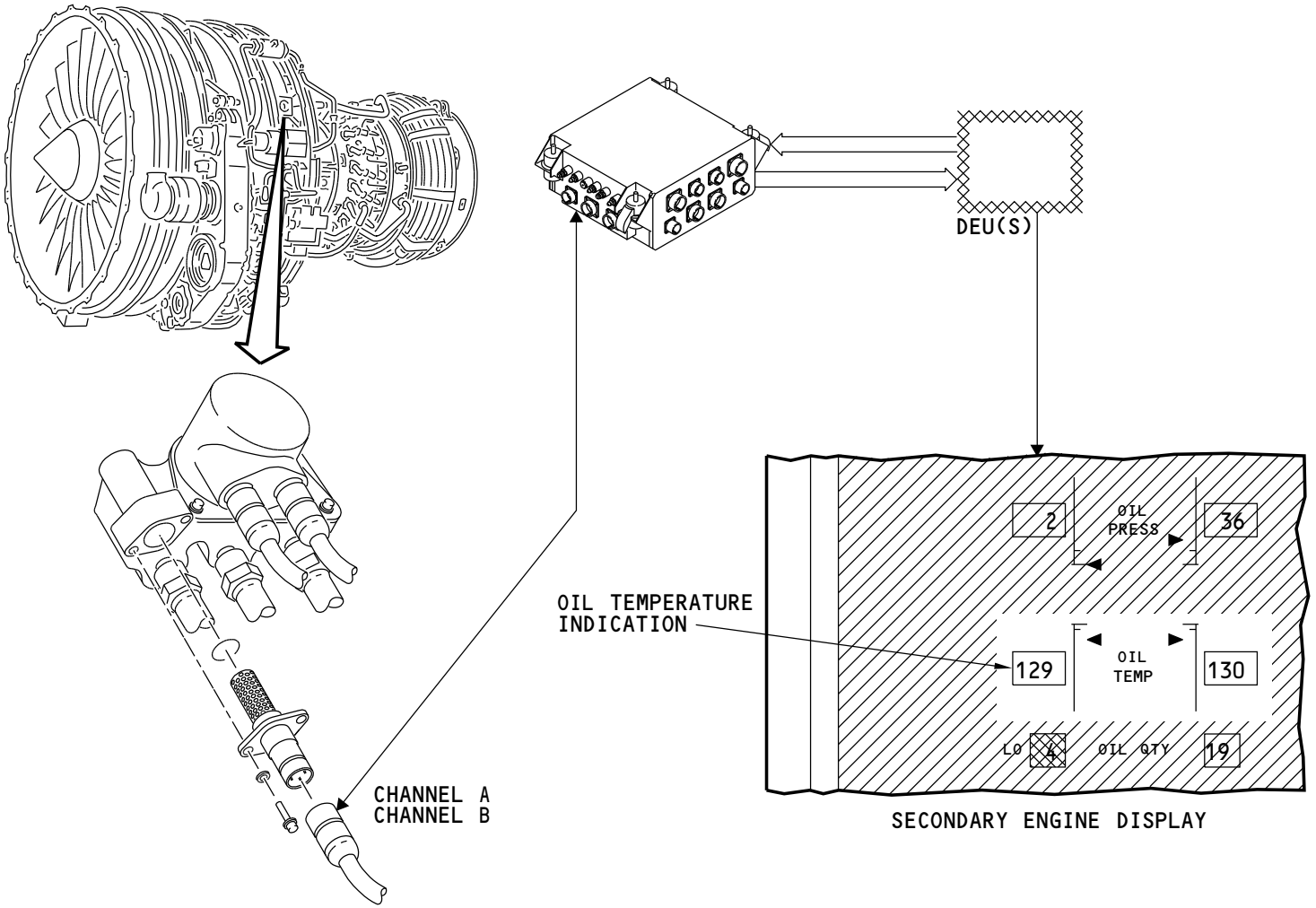
Functional Description

The oil temperature sensor gets the oil temperature data on the forward sump and TGB oil supply line. The oil temperature sensor sends an electric signal to the EEC. The EEC changes this signal to an ARINC 429 signal and sends it to the DEUs. The DEUs show the oil temperature on the secondary engine display.

Indication

The oil temperature shows on two vertical indicators and two digital displays. A pointer shows the oil temperature in degrees celsius on each indicator. The vertical indicator has two index markers. The amber index marker shows the oil temperature amber limit. The red index marker shows the oil temperature redline limit.

If the oil temperature is between the amber limit and the redline limit, the digital display and the box around the digital display are amber. This is the caution range. If the oil temperature is more than the redline limit, the digital display and the box around the digital display are red. This is the out-of-limit range.



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ENGINE OIL - INDICATING - OIL TEMPERATURE INDICATING SYSTEM

ENGINE OIL - INDICATING - OIL FILTER BYPASS WARNING SYSTEM

General

The oil filter bypass warning system shows the scavenge oil filter condition data on a common display system display unit (DU). The oil filter bypass indicating system uses a scavenge oil filter clogging transmitter. The scavenge oil filter clogging transmitter closes before the oil filter bypass valve opens. The scavenge oil filter clogging transmitter sends the scavenge oil filter bypass data to the display electronic units (DEUs) through the EEC.

Physical Description

The scavenge oil filter clogging transmitter connects with the EEC through a single connector. The scavenge oil filter has the scavenge oil filter clogging transmitter.

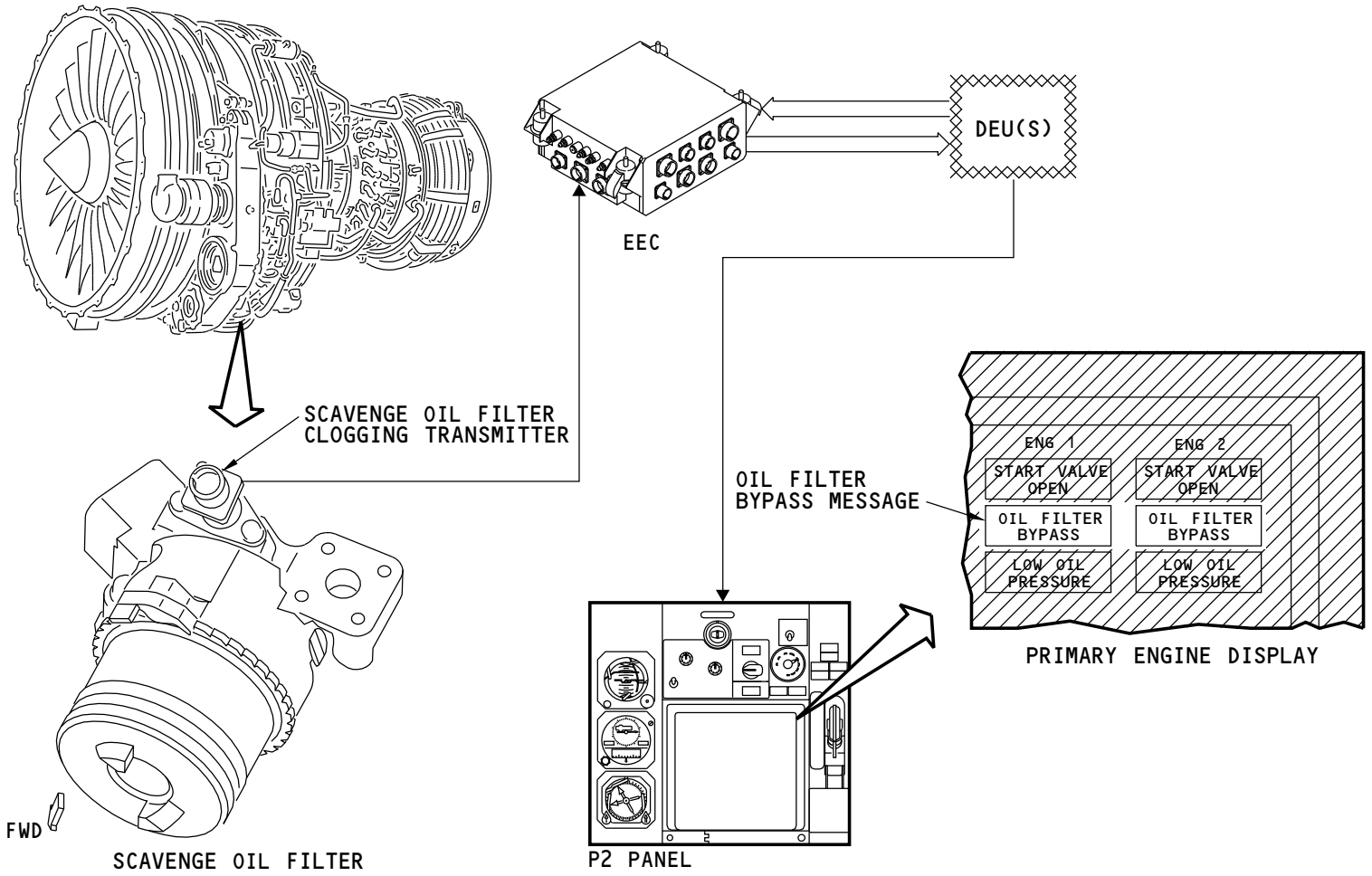
Functional Description

The scavenge oil filter clogging transmitter monitors the oil pressure difference between the inlet and the outlet of the scavenge oil filter. When the scavenge oil filter clogging transmitter closes, it sends an electric signal to the EEC. The EEC changes this signal to an ARINC 429 signal and sends it to the DEUs. The DEUs usually shows the oil filter bypass message on the upper center display unit (DU).

Oil Filter Bypass Message

When the scavenge oil filter clogging transmitter closes, the EEC sends a signal to the DEUs. The DEUS create a message to show on the DU. The DUs shows the message OIL FILTER BYP. The oil filter bypass message flashes for 10 seconds, and then shows continuously.

All three crew alert boxes flash for 10 seconds and the applicable alert message then shows continuously.



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ENGINE OIL - INDICATING - OIL FILTER BYPASS WARNING SYSTEM