MITSUBISHI FORKLIFT TRUCKS

Service Manual

854 Diesel Engine

Operation and Maintenance Manual

FD40N1	AF12C-00011-up
FD45N1	AF19E-50011-up
FD50CN1	AF19E-80011-up
FD50N1	AF28D-50011-up
FD55N1	AF28D-80011-up
FD40NB	CF12D-00011-up
FD45NB	CF19F-50001-up
FD50CNB	CF19F-80001-up
FD50NB	CF28E-50001-up
FD55NB	CF28E-80001-up
FD70N	AF20D-10011-up

99739-59105

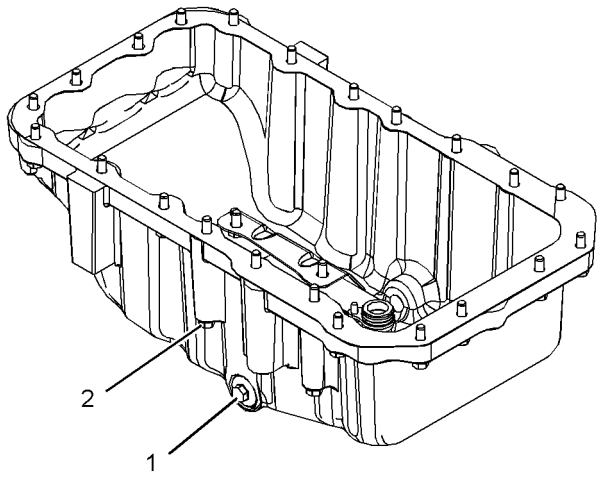

Illustration 39 g02906220

Typical example

(1) Tighten the drain plug to the following torque.
.....50 N·m (37 lb ft)

Tighten the fasteners (2) in sequence that is shown in illustration 40. Tighten the M8 fasteners to an initial torque of 7.5 N·m (66 lb in). Tighten the M10 fasteners to an initial torque of 13.5 N·m (10 lb ft).

Tighten the fasteners (2) in sequence that is shown in illustration 40. Tighten the M8 fasteners to a final torque of 25 N·m (18 lb ft). Tighten the M10 fasteners to a final torque of 45 N·m (33 lb ft).

7. Position bracket (9) onto engine oil cooler (3). Install bolt (8) to bracket (9). Tighten the bolt to a torque of 15 N·m (133 lb in).

8. Install boost pressure chamber cover (4). Refer to Disassembly and Assembly, “Turbocharger - Install” for the correct procedure.

9. If necessary, install the turbo charger oil drain tube assembly. Refer to Disassembly and Assembly, “Turbocharger - Install” for the correct procedure.

10. Install a new O-ring seal (7) (not shown) to tube assembly (5).

11. Install tube assembly (5) to engine oil cooler (3).

12. Install bolts (6) to tube assembly (5). Tighten the bolts to a torque of 25 N·m (221 lb in).

13. Connect the coolant hoses to tube assembly (5).

14. Install the Alternator. Refer to Disassembly and Assembly, “Alternator - Install” for the correct procedure.

15. Fill the cooling system to the correct level. Refer to Operation and Maintenance Manual, “Cooling System Coolant - Change” for the correct procedure.

16. If the engine oil was drained during the engine oil cooler removal procedure, refill the lubrication system. Refer to Operation and Maintenance Manual, “Engine Oil and Filter - Change” for the correct procedure.

17. Check the level of the engine lubricating oil. Refer to Operation and Maintenance Manual, “Engine Oil Level - Check” for the correct procedure.

i05270776

Engine Oil Relief Valve - Remove and Install

Removal Procedure

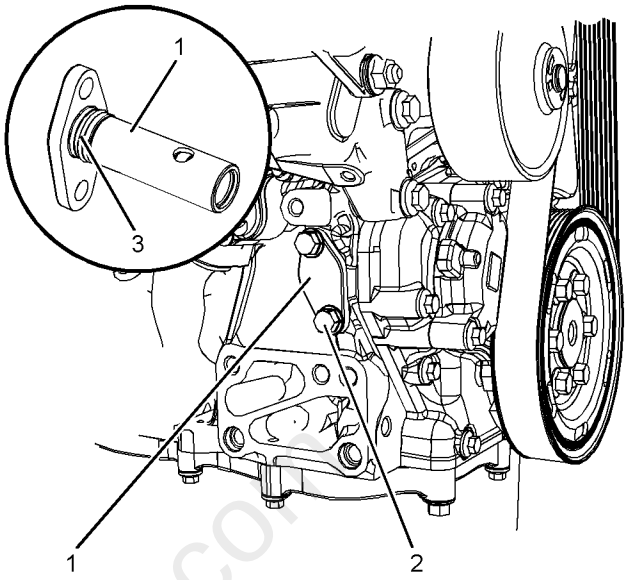

Illustration 157 g02953956

1. Remove bolts (2) from engine oil relief valve (1).

2. Remove engine oil relief valve (1) from the cylinder block.

3. Remove O-ring seal (3) from engine oil relief valve (1).

Installation Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Check all components for wear and damage. If necessary, replace any components that are worn or damaged.

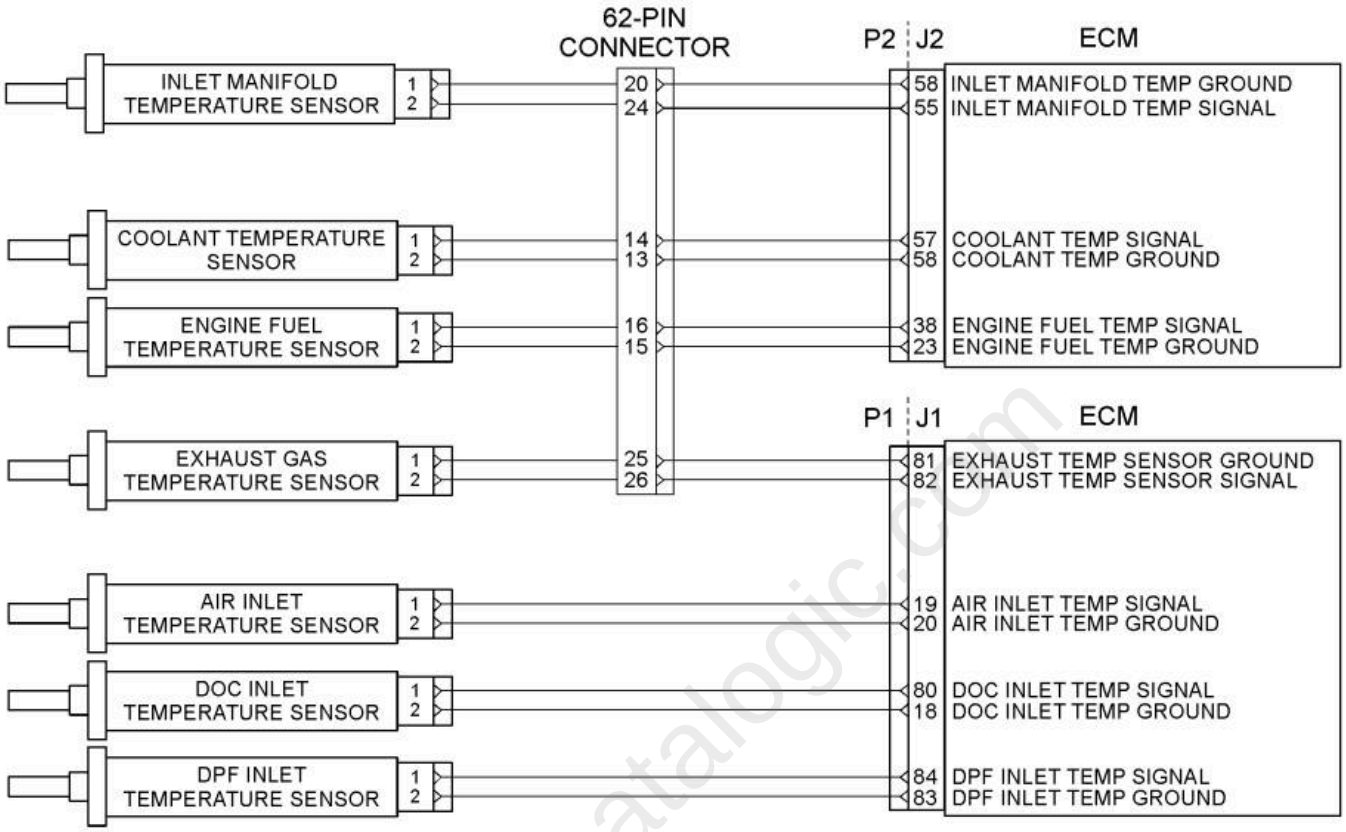

Illustration 39 g03360457

Schematic for the temperature sensors for the 854F-E34T (model JS) engine and 854F-E34T (model JT) engine

The air inlet temperature sensor and the coolant temperature sensor are passive sensors. Each sensor provides a temperature input to the ECM. The ECM controls following operations:

- Fuel delivery
- Injection timing

The sensors are also used for engine monitoring.

- All sensors
- The control valve for the fuel injection pump
- The solenoid for the wastegate
- Diagnostic connector
- Electronic unit injectors

The glow plugs are powered directly from the battery.

i05292810

Power Sources

Introduction

The engine supplies power to the ECM. The ECM powers the following components:

Table 72

Diagnostic Trouble Codes for the Analog Throttle Position Sensor Circuit		
J1939 Code	**Description**	**Notes**
91-3	Accelerator Pedal Position 1 : Voltage Above Normal	The Electronic Control Module (ECM) detects that the signal from the throttle position sensor is greater than the upper diagnostic limit for at least 0.2 seconds. If equipped, the warning lamp will come on.
29-3	Accelerator Pedal Position 2: Voltage Above Normal	
91-4	Accelerator Pedal Position 1 : Voltage Below Normal	The ECM detects that the signal from the throttle position sensor is less than the lower diagnostic limit for at least 0.2 seconds. If equipped, the warning lamp will come on.
29-4	Accelerator Pedal Position 2: Voltage Below Normal	

If a fault occurs with the primary throttle and a secondary throttle is installed, the engine will use the secondary throttle until the fault is repaired.

If a fault occurs with the secondary throttle, the engine will use the primary throttle until the fault is repaired.

If a functional throttle is not available, the following conditions will occur:

- The engine will default to the limp home speed.
- If the engine speed is higher than the limp home speed, the engine will decelerate to the limp home speed.
- If the engine speed is lower than the limp home speed, the engine speed will remain at the current speed.
- The engine will remain at this speed while the diagnostic code remains active.
- All inputs from the faulty throttle are ignored by the ECM until the fault is repaired.
- All inputs from the repaired throttle will be ignored by the ECM until the keyswitch has been cycled.

The diagnostic codes above relate to an analog sensor. Use this procedure only if the analog sensor uses an output from a variable resistor.

The sensor is most likely to be mounted on a throttle pedal. The sensor is attached directly to the throttle assembly. The sensor provides an output voltage to the ECM. The sensor output voltage will vary with the position of the throttle. Foot operated or hand operated throttle assemblies are available.

The sensor receives +5 VDC power from the ECM. The sensor will produce a raw signal voltage that will alter between low idle and high idle.

The sensor senses the speed requirement from the throttle position. A second sensor may override this speed requirement from the first sensor. This override will be subject to an input from a secondary throttle or from the SAE J1939 (CAN) data link or from a PTO control.

Use the electronic service tool in order to check the input status.