



Service Manual

854 Diesel Engine Troubleshooting

DP40N1	AT12C-00011-up	DP70N	AT20D-10011-up
DP45N1	AT19E-50011-up		
DP50CN1	AT19E-80011-up		
DP50N1	AT28D-50011-up		
DP55N1	AT28D-80011-up		
DP40NB	CT12D-00011-up		
DP45NB	CT19F-50001-up		
DP50CNB	CT19F-80001-up		
DP50NB	CT28E-50001-up		
DP55NB	CT28E-80001-up		

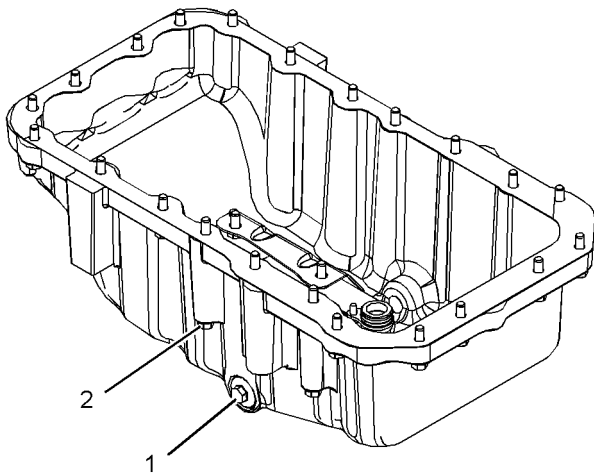


Illustration 39

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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.

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Engine Oil Relief Valve - Remove and Install

Removal Procedure

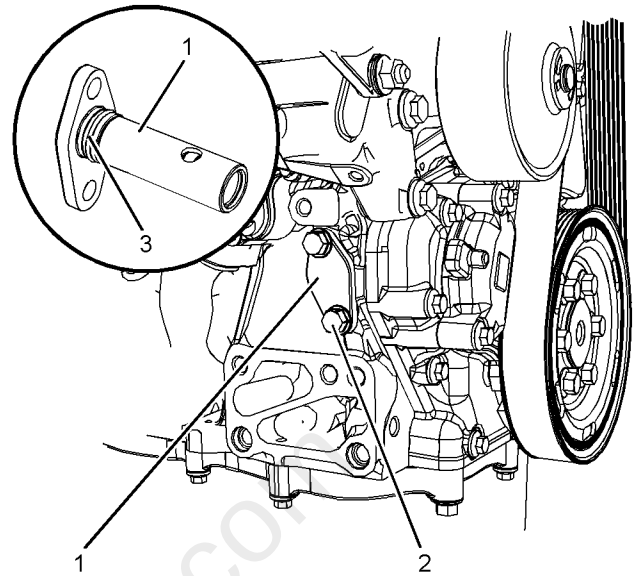


Illustration 157

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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.

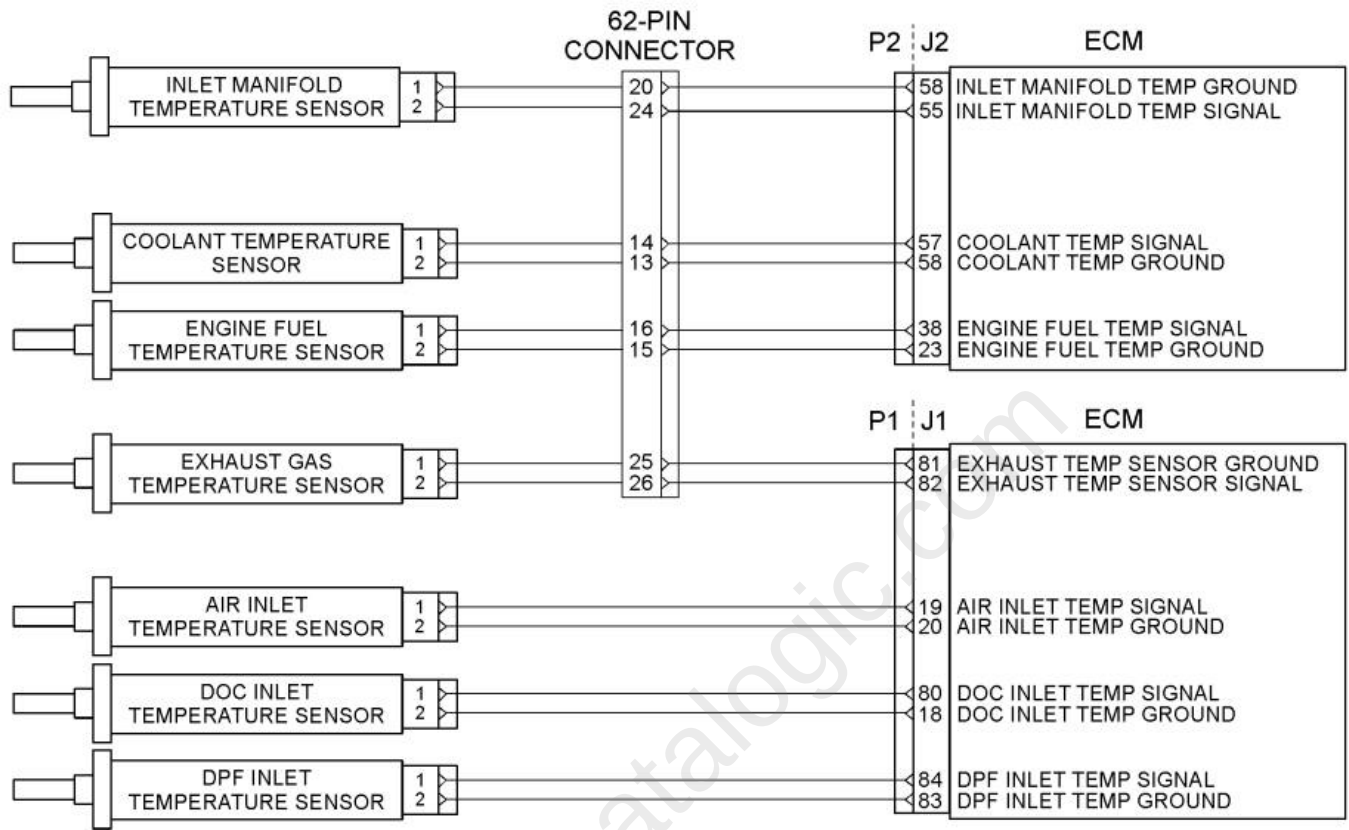


Illustration 39

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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.

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Power Sources

Introduction

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

Table 4

Indicator Operation					
During passive regeneration no indicator will be illuminated					
Aftertreatment Indicator	Aftertreatment Indicator State	Warning Indicator	Warning Indicator State	Description	Action Required
Regeneration Active indicator	On Solid	None	None	Regeneration is activated. The indicator will stay illuminated during regeneration.	None
-					
DPF Indicator	On Solid	None	None	The indicator provides a general indication of the soot load. The indicator is off when the soot load is normal.	A regeneration is required. In automatic mode the ECM will decide when to allow the active regeneration. If the DPF indicator stays illuminated allow a manual regeneration without interruption. An uninterrupted active regeneration will reset the DPF indicator.
-					
DPF Indicator	On Solid	Amber indicator	Flashing	The indicator indicates that the soot load has increased. The engine will derate.	A manual regeneration is required. Perform a manual regeneration, or a service regeneration will be required.
-					
DPF Indicator	On Solid	Amber indicator	Flashing	The flashing warning indicator and red stop indicator indicates that the engine has continued to be operated while a regeneration is required. The engine will be derated and the engine should be shut down immediately.	Once the engine enters into shutdown mode, you must contact your authorized Cat® lift truck dealer. Your authorized Cat® lift truck dealer will need to perform a service level regeneration. The DPF may need to be replaced.
-	-	Red indicator (STOP)	On Solid		

Note: Amber or yellow warning indicator can be used as a diagnostic lamp. For more information refer to this Operation and Maintenance Manual, "Diagnostic Lamp".

Regeneration Operation

Regeneration will require the following conditions:

Automatic Regeneration

In order for an automatic regeneration to take place the engine must be at operating temperature.

Turning the keyswitch to the OFF position during a regeneration will stop the regeneration. An interrupted regeneration will not remove the soot from the DPF and will waste fuel.

(3) Tighten the clamp to the following torque.
.....55 N·m (41 lb ft)

(5) Tighten the ball clamp to the following torque.
.....35 N·m (26 lb ft)

(7) Tighten the V-band clamp to the following torque.
.....12 N·m (106 lb in)

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Diesel Particulate Filter (Through Flow Diesel Particulate Filter (DPF))

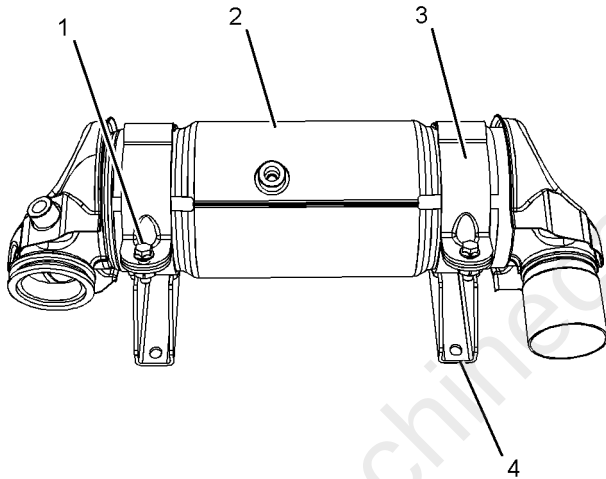


Illustration 29

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Typical example

- (2) Diesel Particulate Filter (DPF)
- (3) Clamps
- (4) Mounting bracket

(1) Tighten the bolts to an initial torque.....8 N·m
(71 lb in)

(1) Tighten the bolts to a second torque.....16 N·m
(12 lb ft)

(1) Tighten the bolts to a final torque.....25 N·m
(18 lb ft)

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Diesel Particulate Filter (Wall Flow Diesel Particulate Filter (DPF))

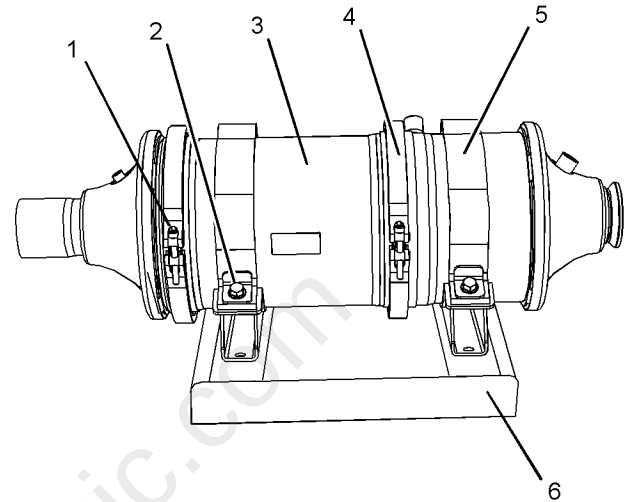


Illustration 30

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Typical example

- (3) Diesel Particulate Filter (DPF)
- (4) Clamps
- (5) Clamps
- (6) Mounting bracket

(1) Tighten the bolts to the following torque.....9 N·m
(80 lb in)

(2) Tighten the bolts to an initial torque.....8 N·m
(71 lb in)

(2) Tighten the bolts to a second torque.....16 N·m
(12 lb ft)

(2) Tighten the bolts to a final torque.....25 N·m
(18 lb ft)

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Camshaft

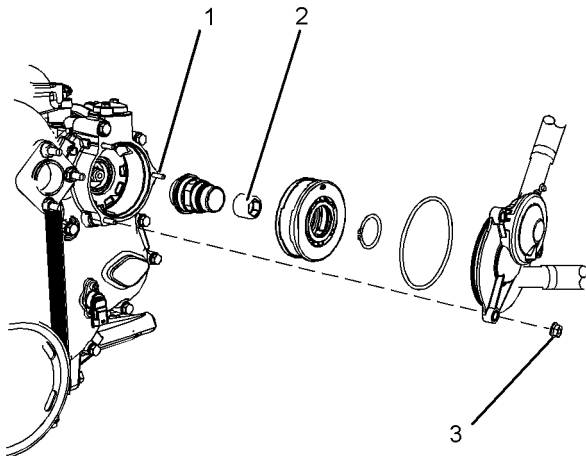


Illustration 43 g02721003

Typical example

- (1) Tighten the studs to the following torque.....8 N·m
(71 lb in)
- (2) Tighten the insert to the following torque.
.....85 N·m (63 lb ft)
- (3) Tighten the nuts to the following torque.10 N·m
(89 lb in)

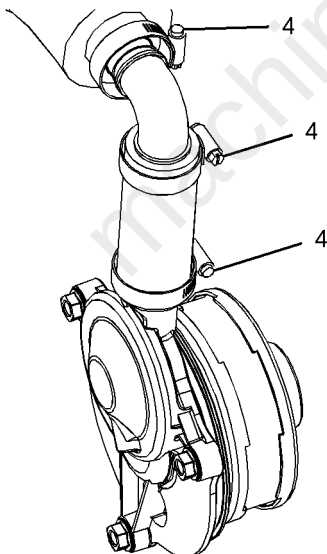


Illustration 44 g02621860

Typical example

- (4) Tighten the clamps to the following torque.
.....5 N·m (44 lb in)

Water Temperature Regulator and Housing

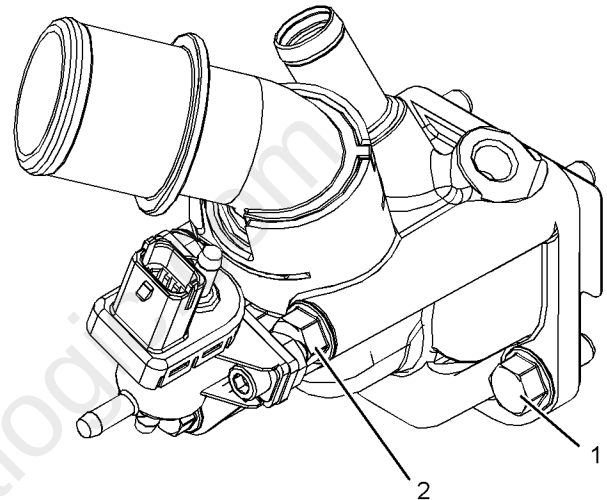


Illustration 45 g02842121

Typical example

- Torque for the vent plug40 N·m (30 lb ft)
- Torque for the bolts (1) and (2) that fasten the housing
to the cylinder head25 N·m (18 lb ft)

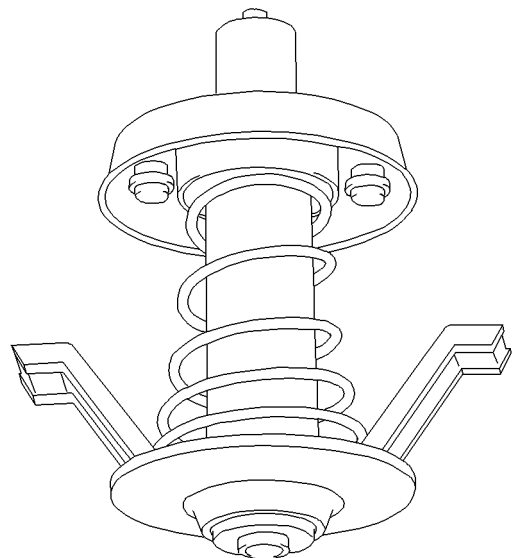


Illustration 46 g00906121

Typical example

Water temperature regulator

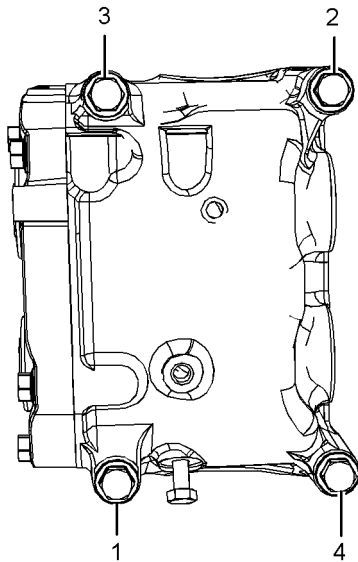


Illustration 58

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Typical example

Tighten the bolts in the sequence that is shown in illustration 58 to the following torque.70 N·m (52 lb ft)

Backlash values

Backlash between the balancer gears
.....0.075 to 0.165 mm (0.00295 to 0.00650 inch)

Backlash between the balancer gear and the
crankshaft gear0.110 to 0.210 mm
(0.00433 to 0.00827 inch)

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Front Housing and Covers

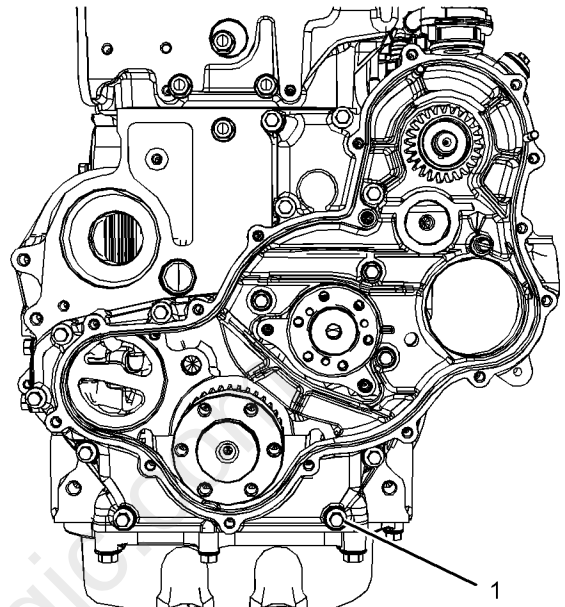


Illustration 59

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Typical example

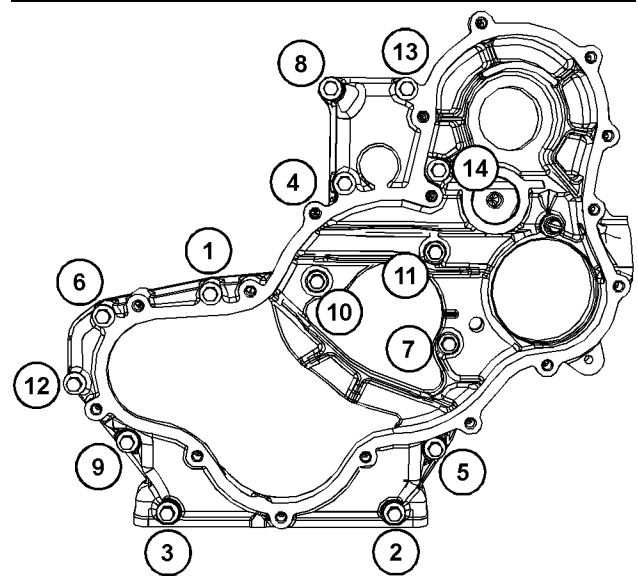


Illustration 60

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Typical example

(1) Tighten the setscrews in the sequence that is shown in illustration 60 to the following torque.
.....25 N·m (18 lb ft)

(1) Tighten the positive terminal nut to the following torque..... 15 N·m (11 lb ft)

(2) Tighten the solenoid terminal to the following torque..... 15 N·m (11 lb ft)

(3) Tighten the negative terminal nut to the following torque..... 18 N·m (13 lb ft)

24 V Starting Motor 4.5 kW

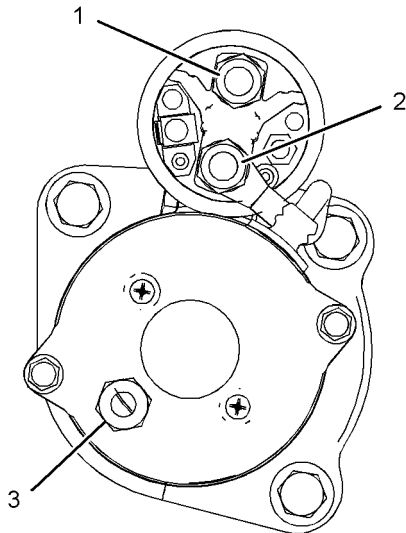


Illustration 78

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Typical example

(1) Tighten the positive terminal nut to the following torque..... 15 N·m (11 lb ft)

(2) Tighten the solenoid terminal to the following torque..... 5.8 N·m (51 lb in)

(3) Tighten the negative terminal nut to the following torque..... 18 N·m (13 lb ft)

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Coolant Temperature Sensor

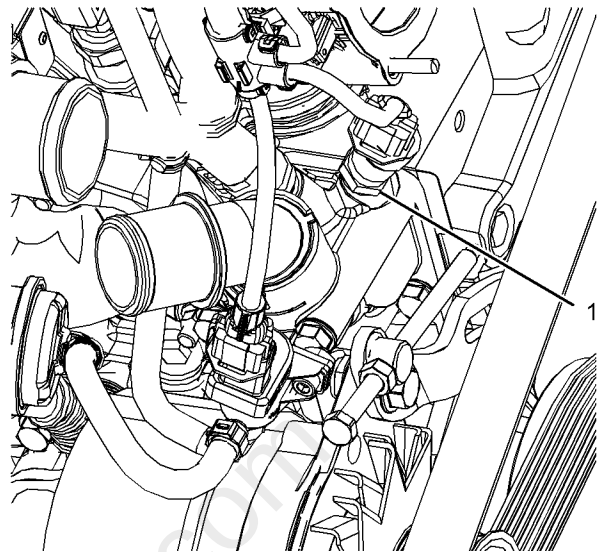


Illustration 79

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Typical example

(1) Tighten the coolant temperature sensor to the following torque..... 25 N·m (18 lb ft)

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Boost Pressure Sensor (If equipped)

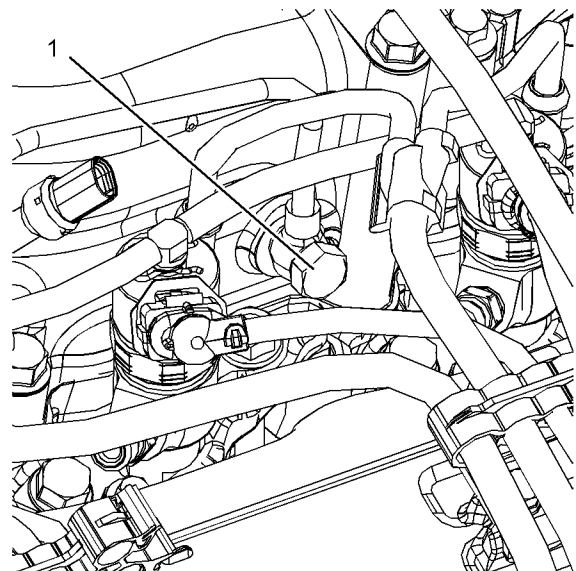


Illustration 80

g03344803

Typical example

Full Version Available

Caterpillar DP50CN1 Forklift Service and Operator Manual (99739-69104)

Caterpillar DP50CN1 Forklift service manual, covers hydraulics, mast, drive unit, wiring, and engine service. Downloadable PDF format.

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