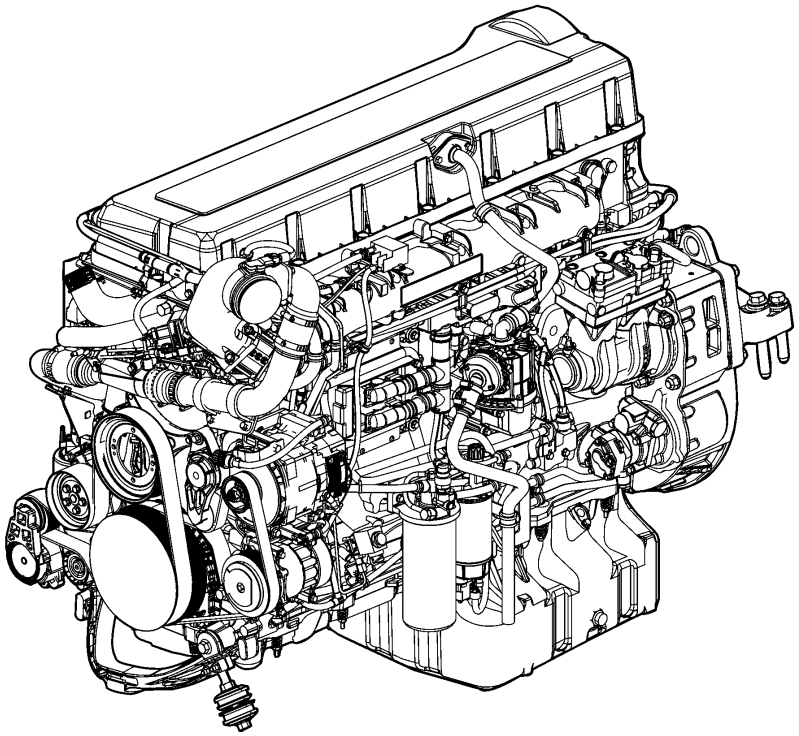
VOLVO
Volvo Trucks North America
Greensboro, NC USA

Service Bulletin Trucks

Timing Gear Cover
Replacement
D16F

Timing Gear Cover, Replacement



W2005773

This information covers procedures for replacing the timing gear cover and sealant on the Volvo D16F engine.

Contents

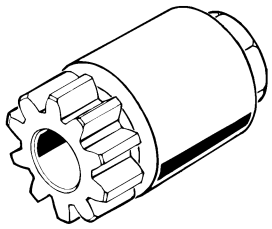
- “Special Tools” page 2
- “Timing Gear Cover, Replacement” page 3

Note: Information is subject to change without notice.
Illustrations are used for reference only and may differ slightly from the actual vehicle being serviced. However, key components addressed in this information are represented as accurately as possible.

Tools

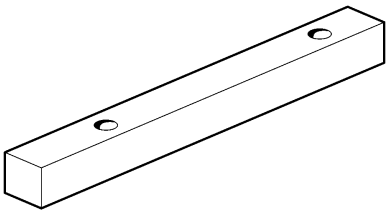
Special Tools

For special tools ordering information, refer to Tool Information, group 08.



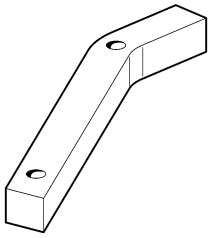
T0012612

88800014
Flywheel Turning Tool



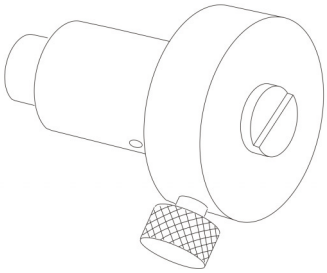
W2005150

85109033A
Timing Gear Cover Alignment Tool (Straight)



W2005151

85109033B
Timing Gear Cover Alignment Tool (Angled)



W0002268

88800031
Sensor Depth Gauge

Service Procedures

2151-03-02-02
Timing Gear Cover, Replacement

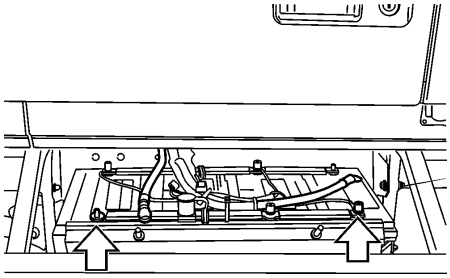
You must read and understand the precautions and guidelines in Service Information, group 20, "General Safety Practices, Engine" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.

Special tools: 85109033A, 85109033B, 88800014, 88800031

Removal

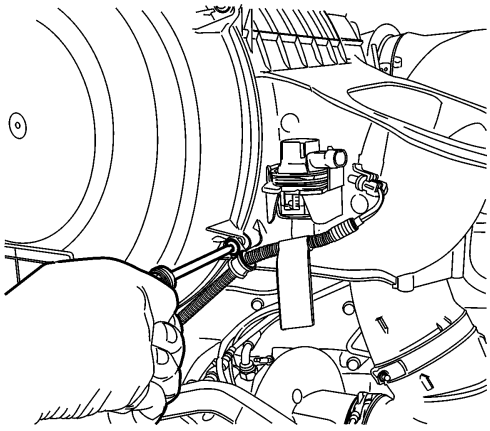
1
Apply the parking brake and place the shift lever in neutral.

2
Remove all cables from ground (negative) battery terminals to prevent personal injury from electrical shock.

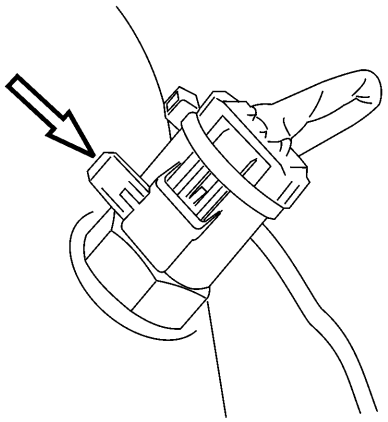


W2003815

3
Disconnect and remove the air filter restriction gauge wiring harness from air filter housing.

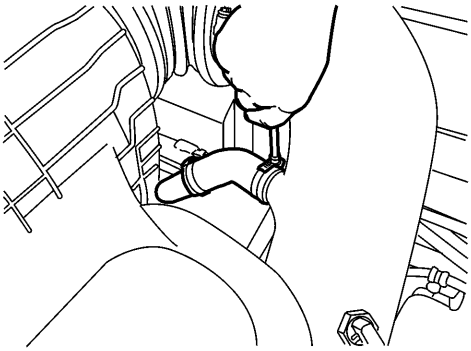


W2003861



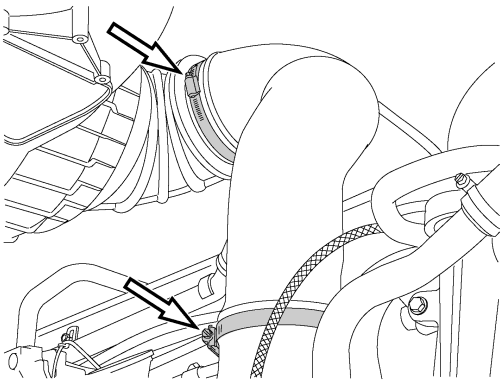
W2004720

4
Unplug the air temperature sensor wiring harness connector. Remove the lock tab and separate the connector from the sensor. Remove the sensor harness clamp from the main fresh air pipe.



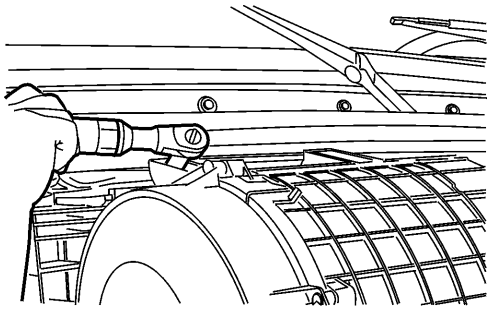
W2004719

5
Loosen the hose clamp and disconnect the air compressor air inlet pipe from the main fresh air pipe.



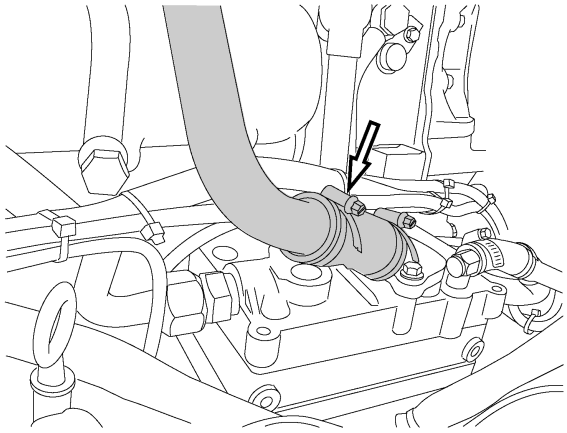
W2006005

6
Loosen the clamps securing the main fresh air pipe at the air filter housing and the turbocharger air inlet elbow. Remove the pipe from the engine.



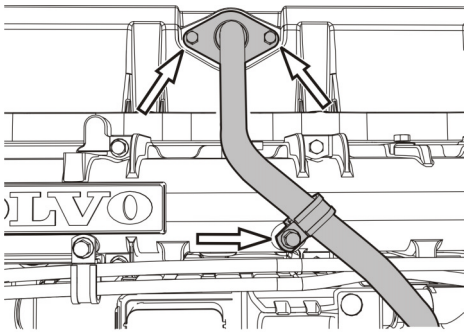
W2003858

7
Remove the fasteners at the top of the air filter housing and remove the housing from the cab.



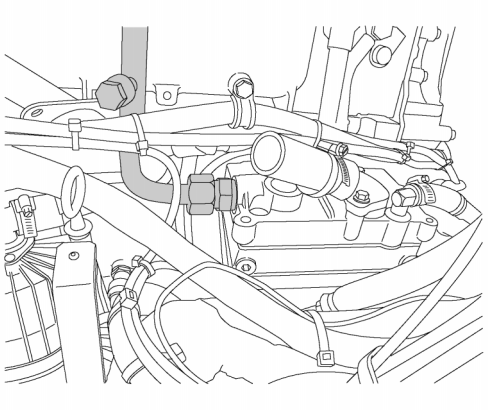
W5001571

8
Remove the coupling hose clamp securing the air inlet pipe at the air compressor. Remove the clamp bracket bolts at the cylinder head and remove the air compressor air inlet pipe from the engine.



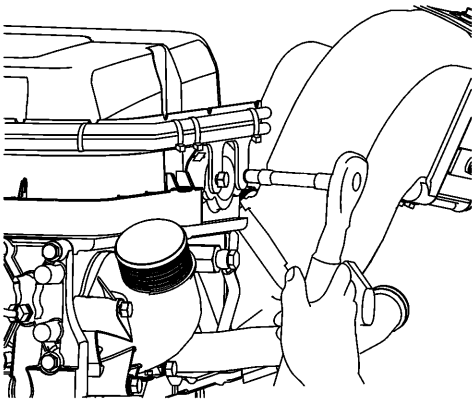
W2005747

9
Disconnect the crankcase ventilation tube from the side of the valve cover. Remove the P–clamp securing the tube to the intake manifold and position the tube out of way.



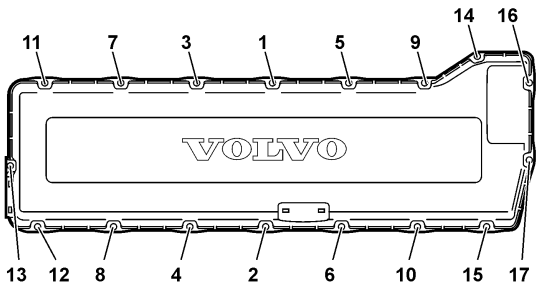
W5001572

10
Disconnect the air discharge pipe at the air compressor and remove the clamp bracket securing the pipe to the intake manifold. Position the pipe out of way.



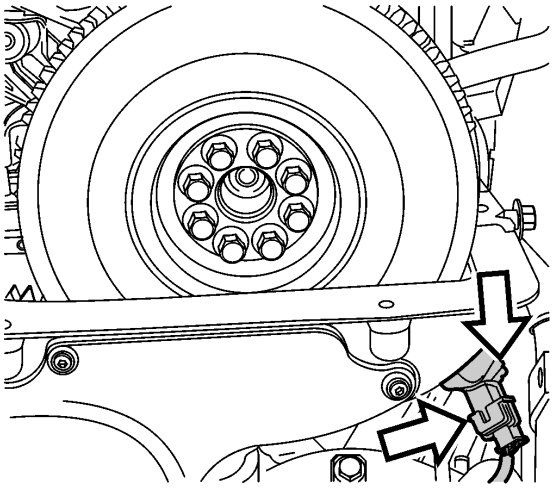
W2004679

11
Remove the engine wiring harness support bracket from the front of the valve cover.



T2020552

12
Remove the spring-loaded attaching bolts from the valve cover.



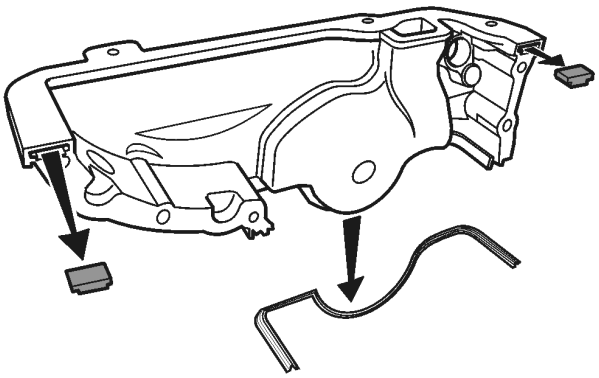
W2005104

13
Disconnect the camshaft position sensor harness connector, remove the bolt and pull out the sensor.

14
Remove the screws attaching the timing gear cover to the cylinder head.

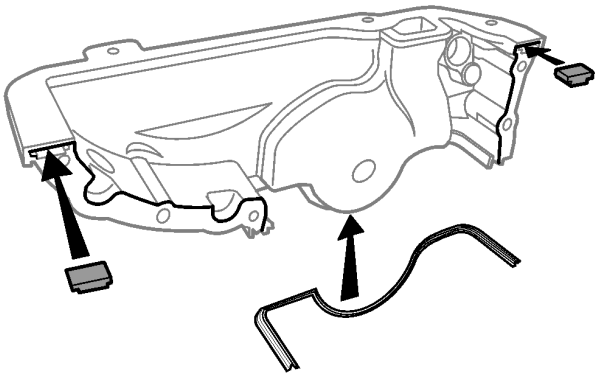
15
Remove the timing gear cover.

16
Remove and discard the timing gear cover seals.



T2019081

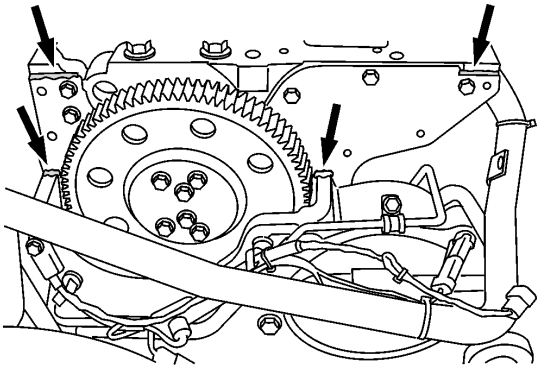
Installation



T2019475

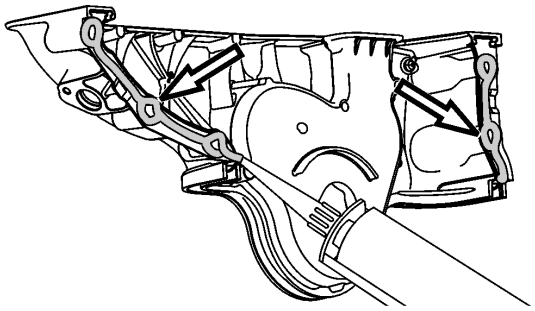
1
Clean the timing gear cover sealing surfaces of the timing gear mounting plate and the flywheel housing.

2
Clean the sealing surfaces of the timing gear cover and replace the cover seals.



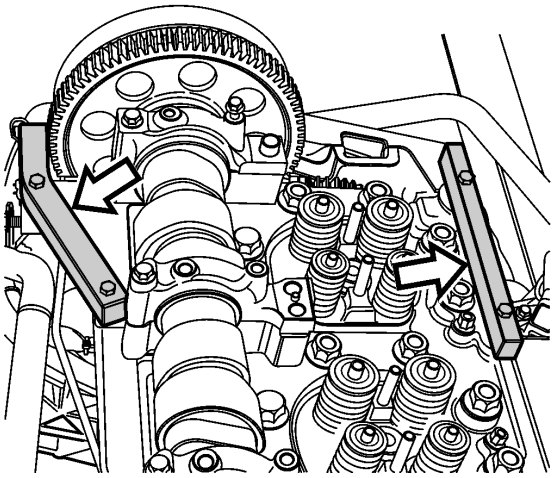
W2005102

3
Apply sealant in the bottom corners where the timing gear plate and the flywheel housing meet. Also apply sealant at the top of the timing gear plate in the corner next to the cylinder head.



W2005137

4
Apply sealant to the mating surfaces of the timing gear cover.



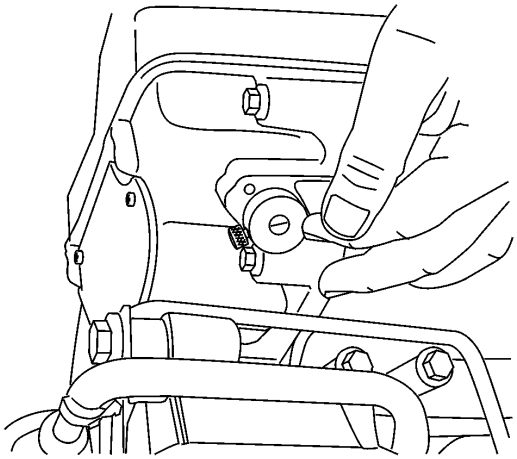
W2005138

5

Position the timing gear cover on the flywheel housing and timing gear plate, install the fasteners and loosely tighten.

- Install the timing gear cover alignment tools and screw down the tools so that the timing gear cover surface is flush with the seal surface on the cylinder head.
- Tighten the timing gear cover screws to specification.
- Remove the timing gear cover alignment tools.

85109033A, 85109033B



W2005068

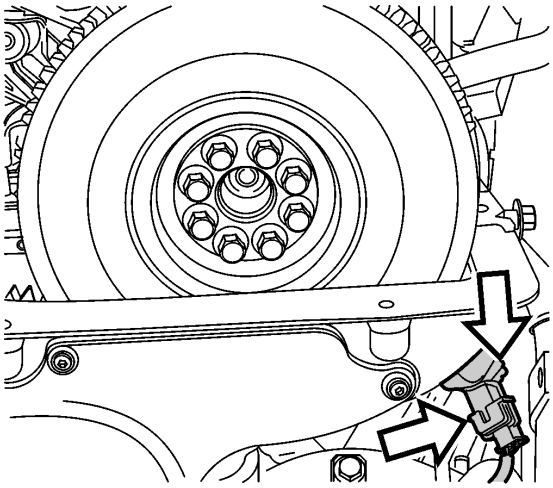
6

Check for proper camshaft position sensor clearance using the sensor depth gauge to determine if shims are required for proper sensor depth. The camshaft position sensor clearance specification is 0.3–1.0 mm (0.011–0.039 inch).

1 Rotate the engine using the flywheel turning tool until a tooth of the camshaft toothed wheel is aligned with the sensor bore.
2 Insert the sensor depth gauge into the sensor bore until the outer part of the gauge is fully seated against the timing gear cover.
3 Loosen the thumb screw of the depth gauge and push the inner part of the gauge in until it contacts the camshaft gear tooth.
4 Tighten the thumb screw to secure the inner part of the depth gauge.
5 Carefully remove the depth gauge from the camshaft sensor bore and observe the location of the steps between the inner and outer portions of the gauge:

- Both steps below the surface of the tool = no shims required.
- One step below the surface of the tool = one shim required.
- Both steps above the surface of the tool = two shims required.

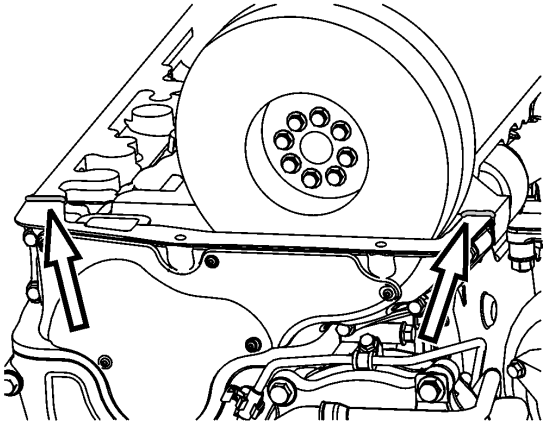
88800014, 88800031



W2005104

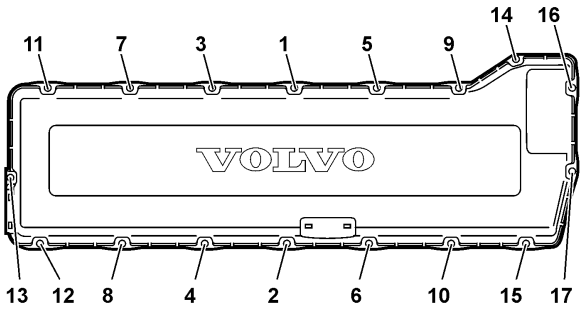
7
Install the camshaft position sensor with appropriate shim(s) and new O-ring. Secure the sensor with the bolt and plug in the harness connector.

Note: The camshaft position sensor shim part number is 20556179.



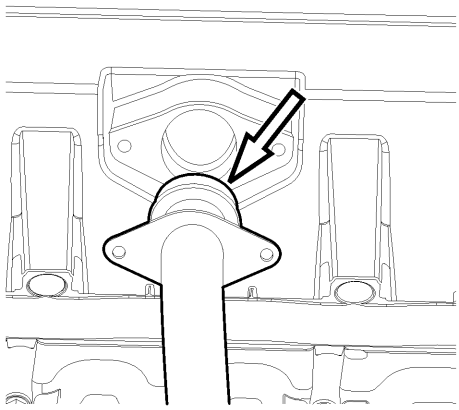
W2005157

8
Apply a 2 mm (0.078 inch) bead of sealant across the parting line on the valve cover sealing surface between the timing gear cover and the cylinder head.



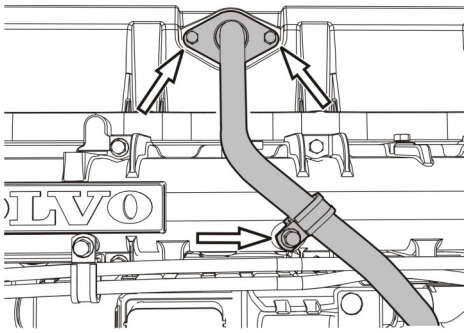
T2020552

9
Position the valve cover on the cylinder head, install the fasteners and tighten to 24 ± 3 Nm (18 ± 2 ft-lb) following the sequence shown.



W2004681

10
Inspect the crankcase ventilation tube O-ring and replace if necessary. Lubricate the O-ring.

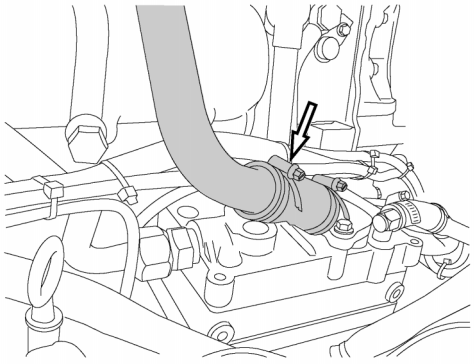


W2005747

11
Place the ventilation tube in position at the side of the valve cover and install the mounting bolts in the tube flange. Tighten the bolts to 24 ± 3 Nm (18 ± 2 ft-lb). Install the P-clamp to secure the tube to the intake manifold.

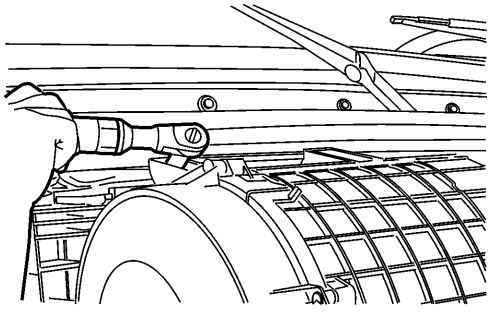
Note: Ensure that the bolts removed at disassembly are reinstalled in the same location. Damage to the valve cover will result if the bolts installed are too long.

24 ± 3 Nm
(18 ± 2 ft-lb)



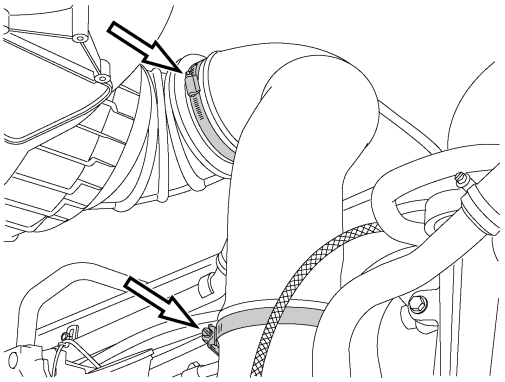
W5001571

12
Place the air compressor fresh air inlet pipe in position over the valve cover and connect the pipe to the coupling hose at the compressor. Tighten the coupling hose clamp and install the clamp brackets to secure the pipe.



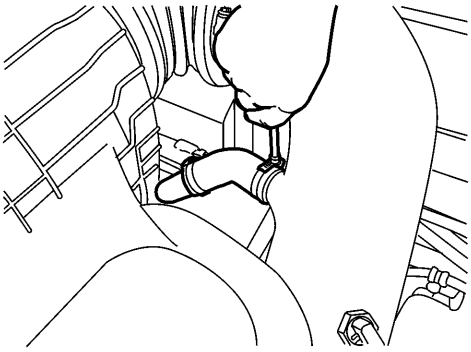
W2003858

13
Place the air filter housing in position against the cab and install the two mounting bolts at the top of the housing.



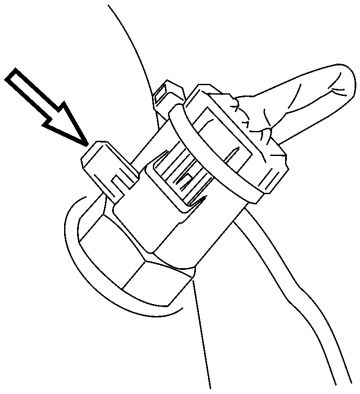
W2006005

14
Install the main fresh air pipe between the air filter housing and the turbocharger air inlet elbow. Position the clamps and tighten them securely.



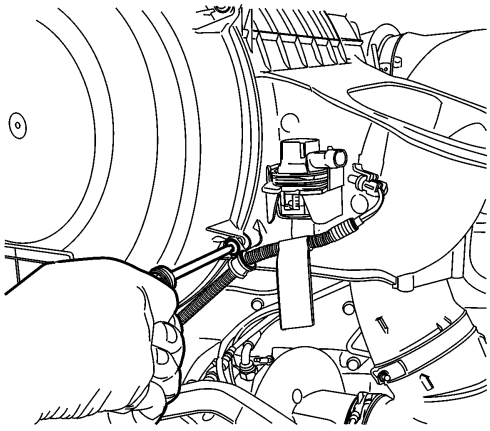
W2004719

15
Connect the air compressor air inlet pipe to the main fresh air pipe and tighten the hose clamp securely.



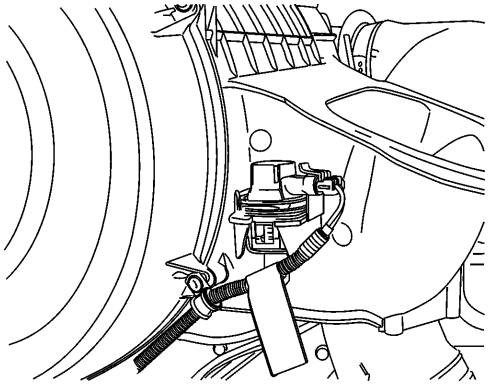
W2004720

16
Reattach the air temperature sensor harness connector to the sensor (located on the fresh air pipe). Push in the lock tab and install a new strap to secure the connector. Install the bolt and clamp to secure the sensor harness to the fresh air pipe.



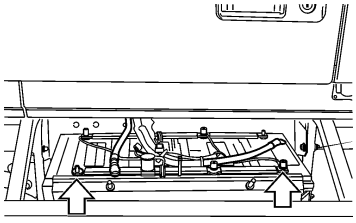
W2003861

17
Install the clamps to secure the restriction gauge wiring harness to the air filter housing.



W2004249

18
Connect the wiring harness to the air restriction gauge.



W2003815

19
Install all previously removed cables to the ground (negative) battery terminals.

20
Start the engine, check for leaks and proper operation. After shutdown, replenish fluids as necessary.