

Date	Group	No.	Page
9.2000	211	006	1(6)

1-Piece Valve Cover
Removal and Installation
Detroit Diesel Series 60 Engine
VN

Valve Cover (1-Piece), Removal and Installation

(Effective from September 2000)

This information covers the recommended procedure for removal and installation of the 1-piece valve cover of a Detroit Diesel Series 60 engine in a VN.

Contents

- ["Valve Cover, Removal" page 2](#)
- ["Valve Cover, Installation" page 5](#)

2115-01-01-01 Valve Cover, Removal

(See also "Valve Cover (1-Piece), Removal and Installation" page 1.)

DANGER

Before working on a vehicle, set the parking brakes, place the transmission in neutral, and block the wheels. Failure to do so can result in unexpected vehicle movement and can cause serious personal injury or death.

Preparation

For proper removal of the single-piece valve cover on a Detroit Diesel Series 60 engine installed in a VN model, it is necessary to remove some of the engine piping and wiring to create enough room on top of the engine to swing and rotate the valve cover.

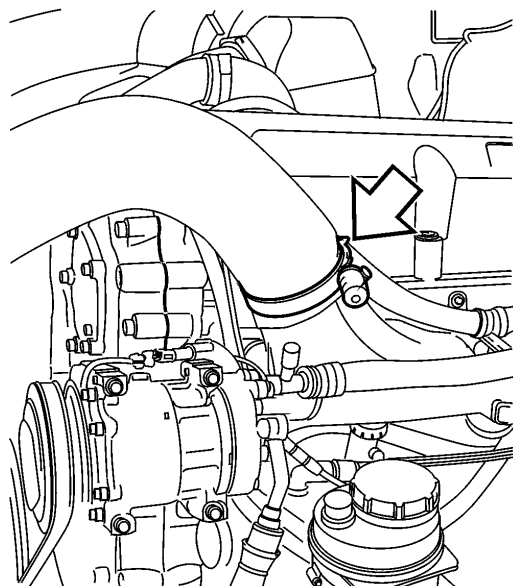
1

WARNING

HOT ENGINE! Keep yourself clear of all moving or hot engine parts. A hot engine can cause serious burns.

Drain coolant into an approved container. Remove the upper radiator pipe and connector hose on the engine coolant outlet.

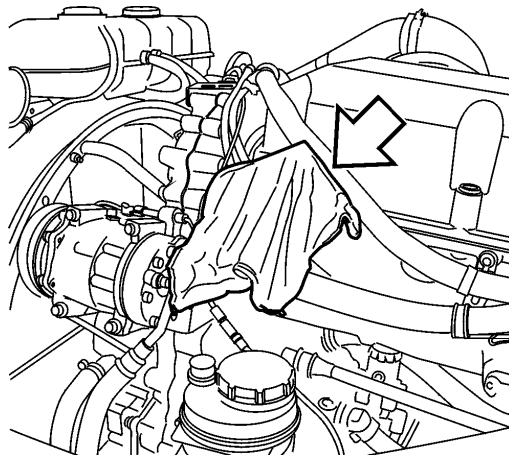
2



W2003440

Remove the black EPDM rubber cold side charge air hose.

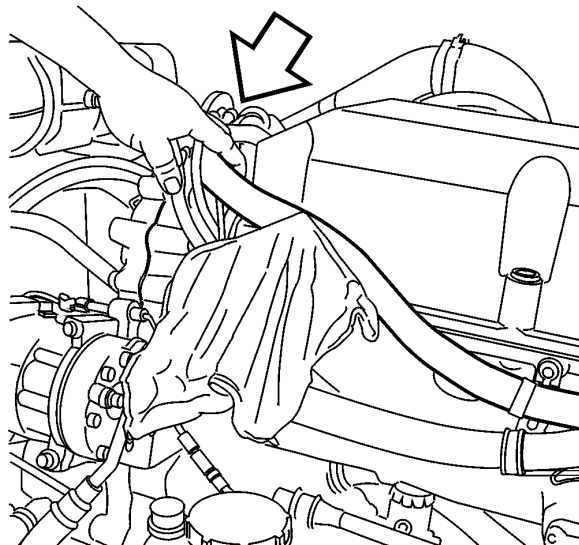
3



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Place a rag or cover over the intake to prevent objects from falling into the engine.

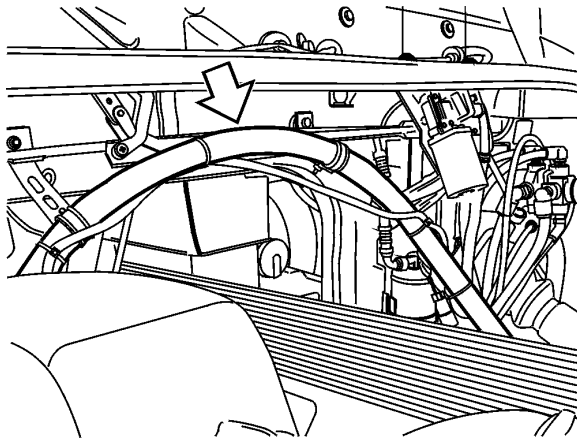
4



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Cut the cable ties supporting the main engine electrical harness on the left side of the engine. Remove the two "L" brackets supporting the harness at the top of the gear cover. Cut the cable ties supporting the harness on the right side of the gear cover and at the alternator. Lift the harness up and pull it forward over the front of the gear cover and around the outside of the intake manifold inlet.

5



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Loosen the brackets supporting the suction and pressure side air conditioning hoses at the center of the bulkhead and at the receiver/dryer. The brackets should be free to slide. Pull the hoses up as much as possible. They should be above the bulkhead.

Note: On 770 sleepers, it will be necessary to rotate the flat brackets that support the discharge hose up and away from the engine. **It is not necessary to evacuate the air conditioning system.**

6

Remove the two screws that hold the top front of the cab engine cover in place. These are located at the top center of the bulkhead above the air conditioning hoses.

Valve Cover Removal

Note: This procedure is for the 10-bolt or 4-bolt single-piece valve cover.

Note: It is strongly recommended that the engine cover be removed, so that the rear of the engine and valve cover is visible. This is especially important when reinstalling the valve cover and gaskets and verifying that they are properly seated.

1

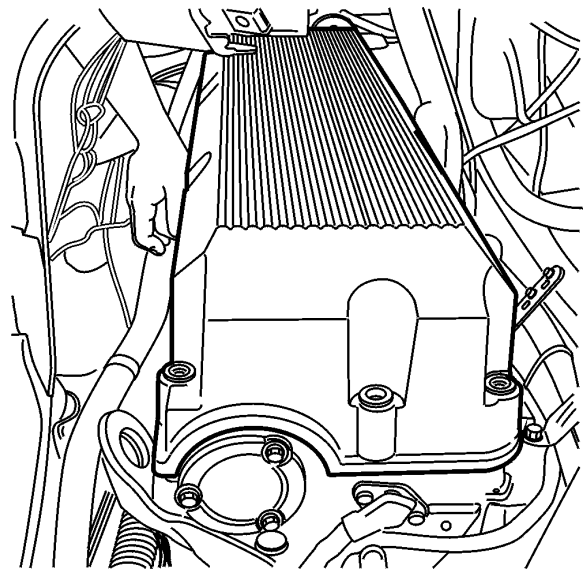
Unclamp the breather tube and elbow from the engine valve cover. Rotate the elbow away from the cover and push the breather pipe down as far as possible.

2

Remove all the bolts completely from the valve cover. These are designed as captive bolts; pull out each bolt, sleeve, and isolator as an assembly.

Note: If the bolts are not removed, they will catch on the Jake brake and make the cover more difficult to remove.

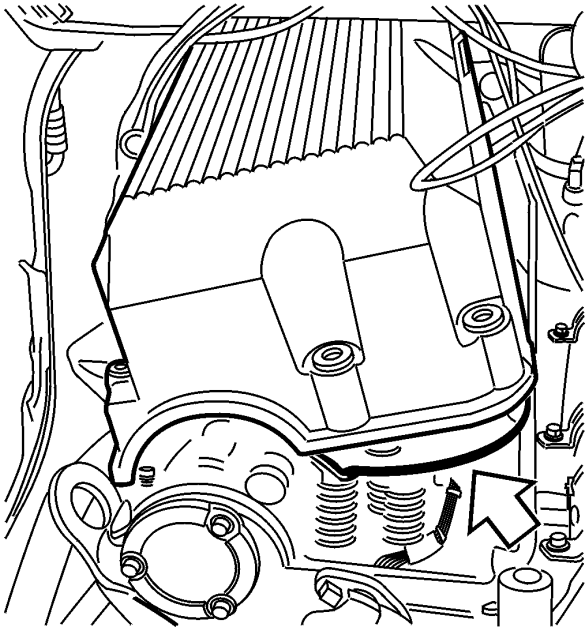
3



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Lift the cover from the valve head.

4

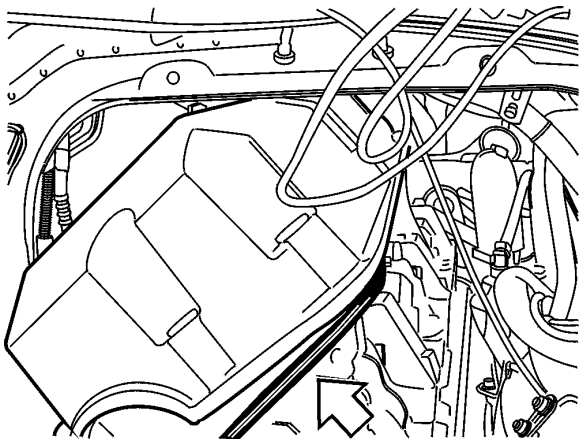


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Rotate the front of the cover toward the left side of the truck.

Note: Be careful not to hook the cover on the solenoid wires. This could pull the connections loose.

5



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Continue to rotate the cover to the left while also twisting the cover clockwise once the left edge of the cover is clear of the rear Jake head.

6

Push the cover straight back. It is best to have help from inside the cab to lift the cover until it clears the adjustment stud.

7

Pull the cover straight forward until the back end of the cover is past the adjustment stud. Then twist the cover clockwise to clear the gear cover.

Note: At this stage, the valve cover seal almost always will pull loose, since the cover will catch on the adjustment stud. Visually inspect the seal and the rear of the engine to make sure that no pieces of the seal have fallen into the engine.

8

Pull the cover forward until the rear of the cover is in front of the bulkhead.

9

Lift the cover off the engine.

2115-02-01-01 Valve Cover, Installation

(See also "Valve Cover (1-Piece), Removal and Installation" page 1.)

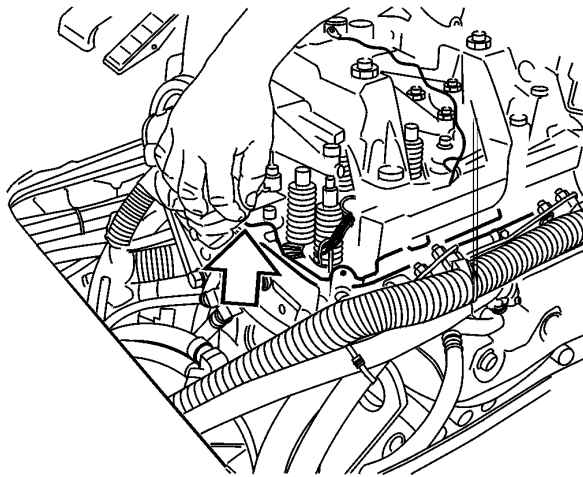


DANGER

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Valve Cover Installation

1



W2003446

Clean the valve cover sealing surfaces using brake cleaner and cloth.

Note: The valve cover will not seal if it is oily.

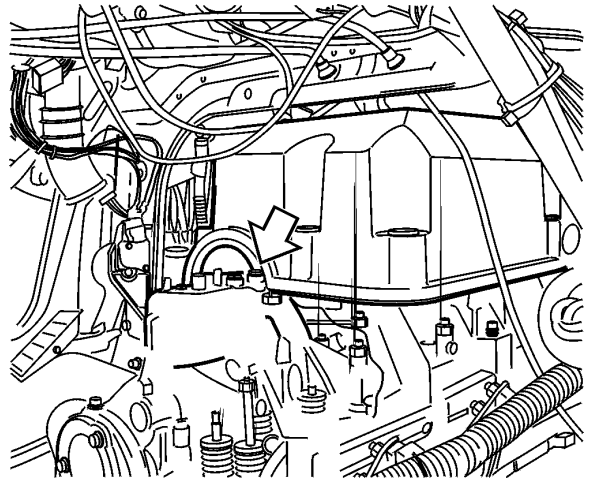
2

Reinstall the valve cover seal. Replace it if it pulled loose or was damaged during removal.

3

Set the cover on the engine. Align the recess for the cam bearing with the adjustment stud and push the cover back. When the rear edge of the cover is clear of the stud, twist the cover counterclockwise.

4



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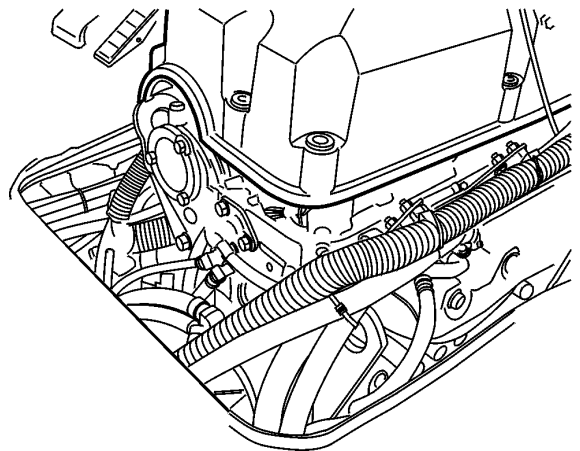
Continue to push the valve cover back until its rear edge is past the rear of the Jake head.

5

Push the front of the valve cover toward the right side of the vehicle. At the same time, pull the rear of the cover towards the left. Twist the cover clockwise.

Note: It is recommended to have help from inside the cab to lift the valve cover over the adjustment stud and position the cover into place.

6



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Once the front and rear edges of the cover are clear of the Jake heads, the cover will drop into place.

7

Thoroughly check to make sure that the valve cover seal is in place and is firmly seated in the groove all the way around the cover.

Note: It is much easier to visually inspect the valve cover seal at the rear of the engine from inside the cab with the engine cover removed.

8

Reinstall the captive bolts, sleeves, and isolator assemblies. Refer to the Detroit Diesel Series 60 service information for proper torque and tightening sequence.

9

Pull the breather pipe back up to its original position and clamp the elbow to the outlet on the cover.

Completion

1

Reinstall the engine cover according to the approved procedure.

2

Realign the brackets and tighten the screws for the air conditioning hose supports at the center of the bulkhead and at the receiver/dryer.

3

Reinstall the main engine electrical harness to its original location. Install Volvo-approved cable ties to support the harness on the right side of the gear cover and at the alternator.

4

Reinstall the two "L" brackets supporting the harness at the top of the gear cover. Install Volvo-approved cable ties to support the main engine electrical harness on the left side of the engine.

5

Reinstall the upper radiator pipe and connector hose on the engine coolant outlet. Replace the coolant that was drained. Check for leaks.

6

Reinstall the black EPDM rubber cold side charge air hose.