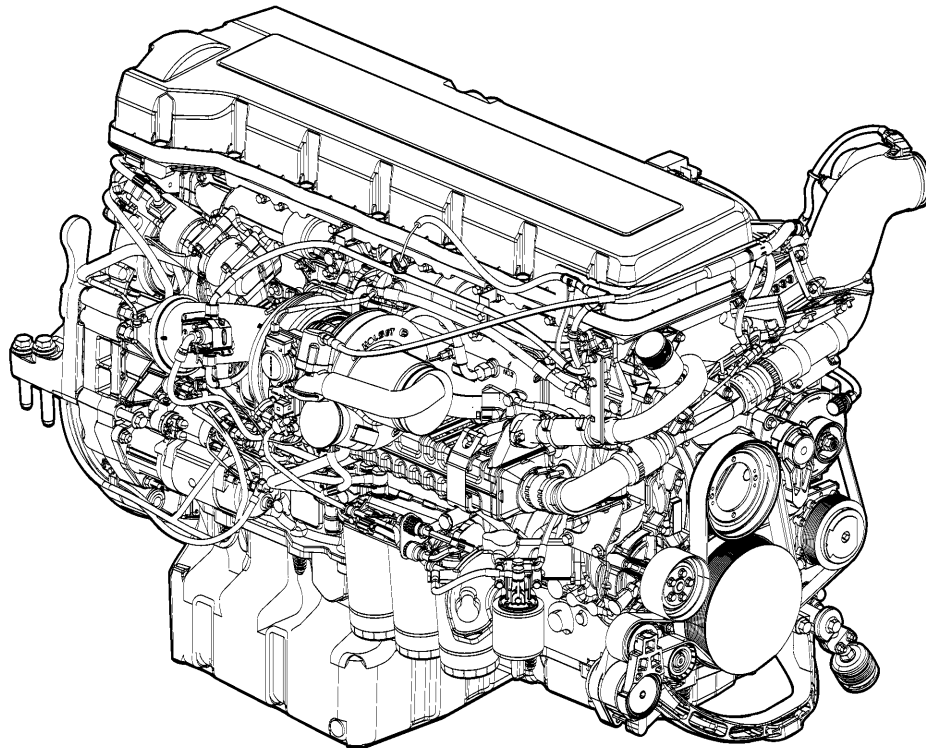


Date	Group	No.	Page
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## Valve Cover Replacement D16F

### Valve Cover, Replacement



W2005772

This information covers the proper replacement procedure for the valve cover on a Volvo D16F engine.

### Contents

- “Valve Cover, Replacement” page 2

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

# Service Procedures

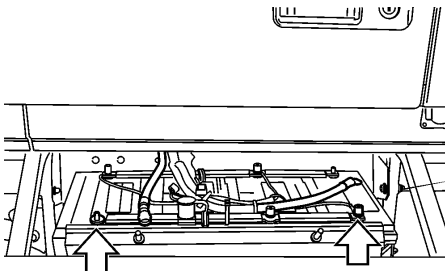
## 2115-03-02-02

### Valve 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.

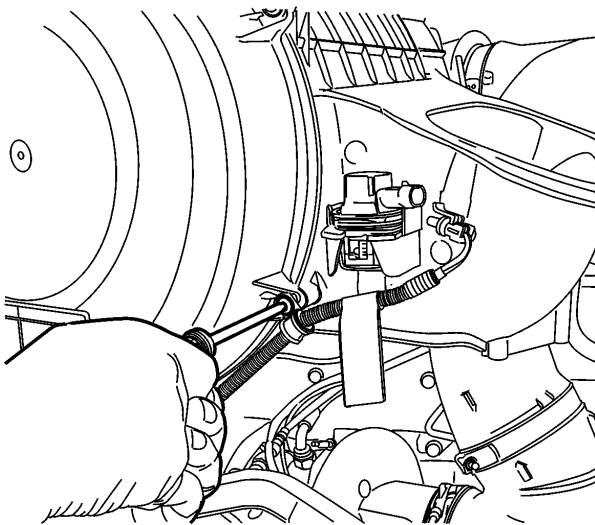
### Removal

- 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.

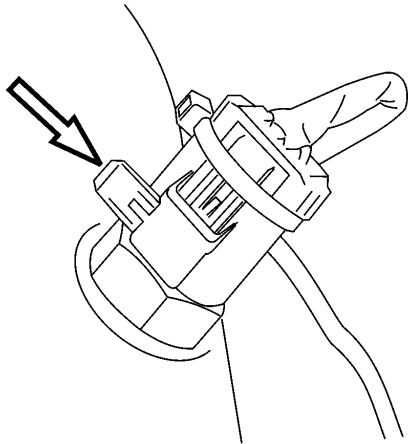


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- 3  
Disconnect and remove the air filter restriction gauge wiring harness from air filter housing.



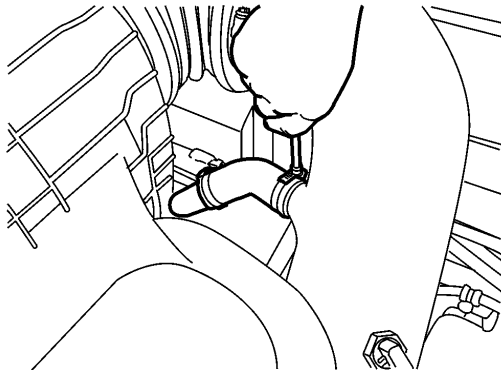
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**4**

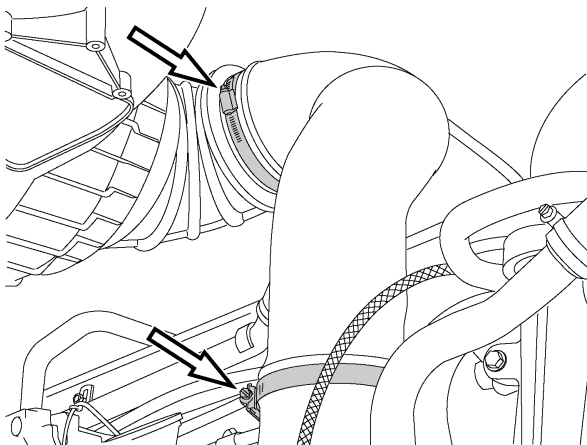
Unplug the air temperature sensor wiring harness connector. Remove the lock tab and separate the connector from the sensor. Remove the sensor harness clamp from the main fresh air pipe.



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**5**

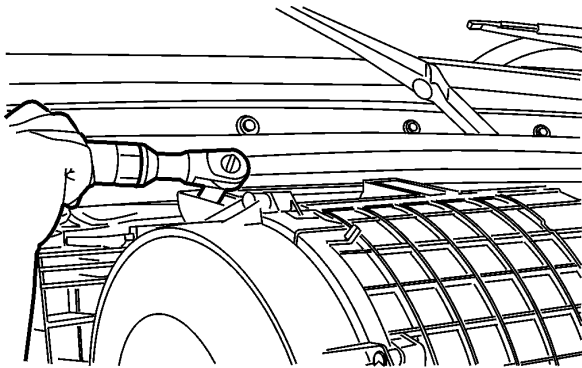
Loosen and reposition the clamp of the air compressor fresh air hose at the main fresh air pipe.



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**6**

Loosen the clamps and remove the main fresh air pipe from the air compressor fresh air hose, the air filter housing and the turbocharger air inlet elbow.



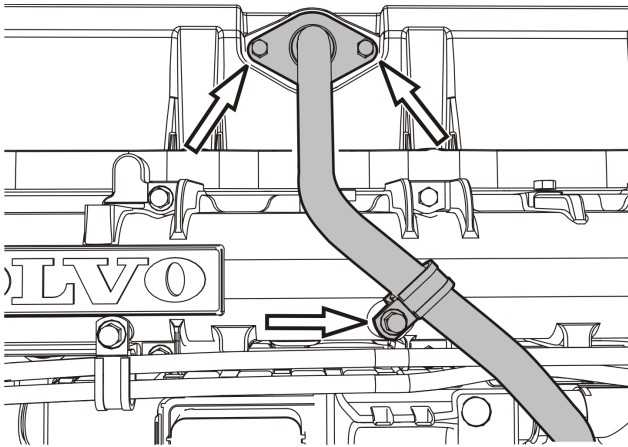
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**7**  
Remove the fasteners and lift the air filter housing away from the cab.

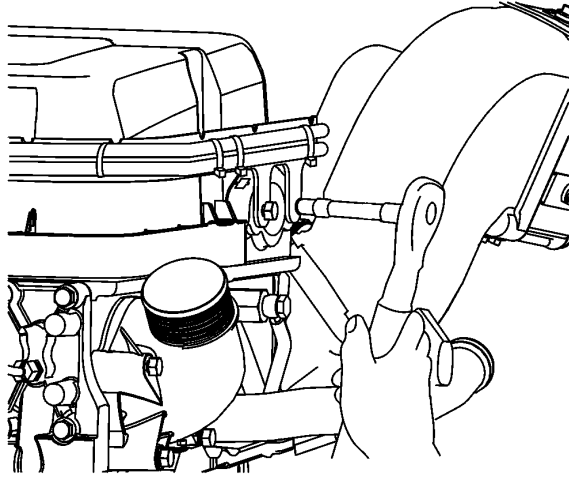
**8**  
Loosen the clamp and mounting brackets to allow air compressor fresh air pipe to be removed.

**9**  
Disconnect the discharge line and mounting brackets from the air compressor and intake manifold. Move the discharge line out of the way and strap in place.

**10**  
Remove crankcase ventilation tube from valve cover and P-clamp at the intake manifold.



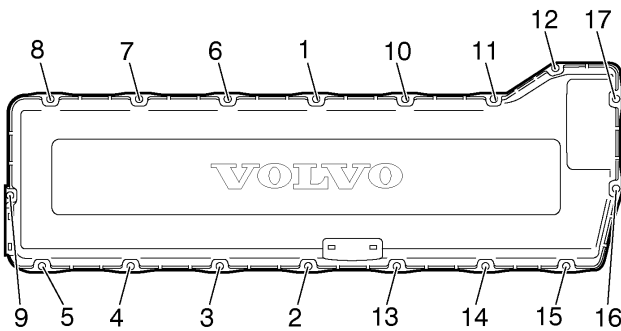
W2005747



W2004679

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

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



W2005984

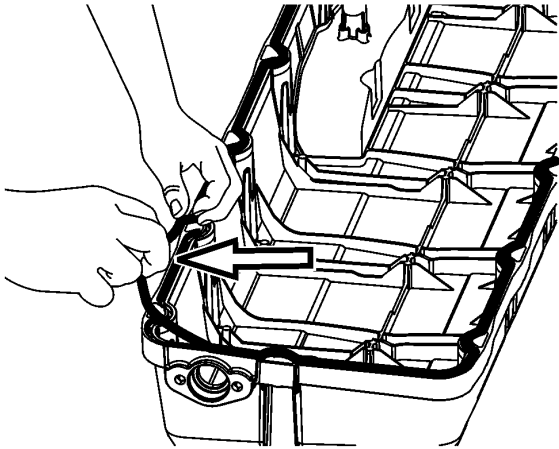
- 13**  
Lift and remove the valve cover.

**Note:** Rotate the valve cover as needed, to clear the camshaft gear and damper.

**Note:** Dependent upon chassis, engine cover may need to be removed for clearance to remove valve cover.

## Installation

- 1**  
Clean the gasket channel in the valve cover. The channel should be clear of any dirt or debris and free of grease and oil.

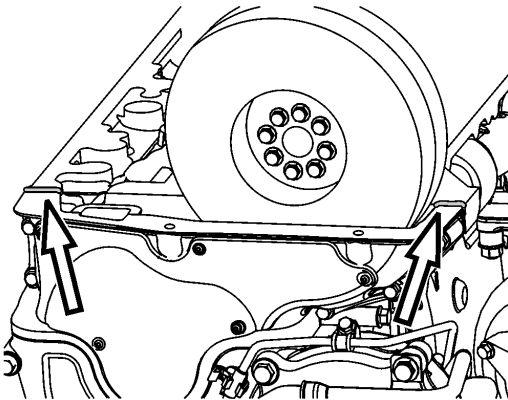


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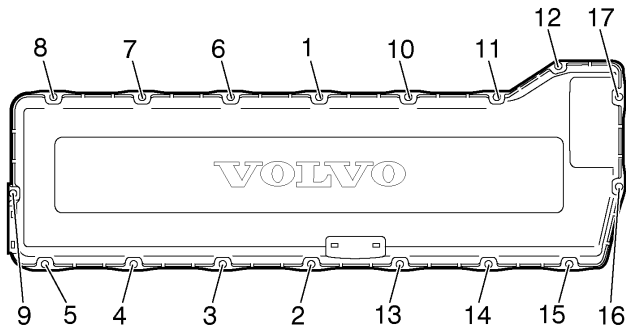
**2**  
Carefully inspect the valve cover gasket for damage and replace with a new gasket if necessary. Make sure that the gasket is properly seated and follows the contour of the channel.

**3**  
Clean the valve cover contact surface of the cylinder head and the timing cover. All surfaces should be completely free of grease and oil.

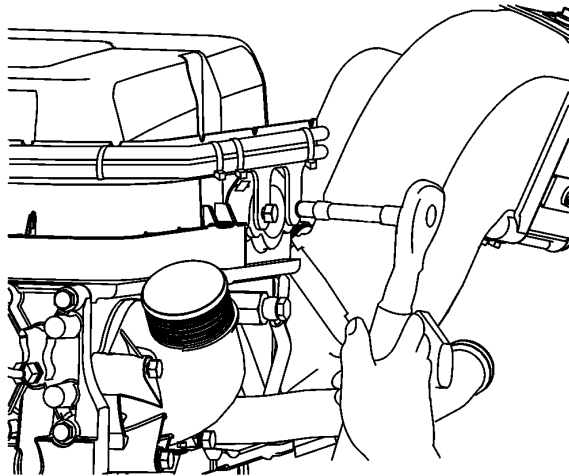
**4**  
Apply a 2 mm (0.079 inch) bead of Volvo sealant to the area where the timing cover and the cylinder head meet. This parting line is on both sides of the cylinder head. Carefully position the valve cover on the cylinder head and make sure that the seal remains properly seated.



W2005157



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W2004679

**5**

Install the spring-loaded bolts in the valve cover. Torque-tighten the valve cover bolts to  $24 \pm 4$  Nm ( $18 \pm 3$  ft-lb) in the sequence shown.

**Note:** The bolt springs provide even tension on the valve cover gasket.

**Note:** Install the engine cover, if removed for clearance.

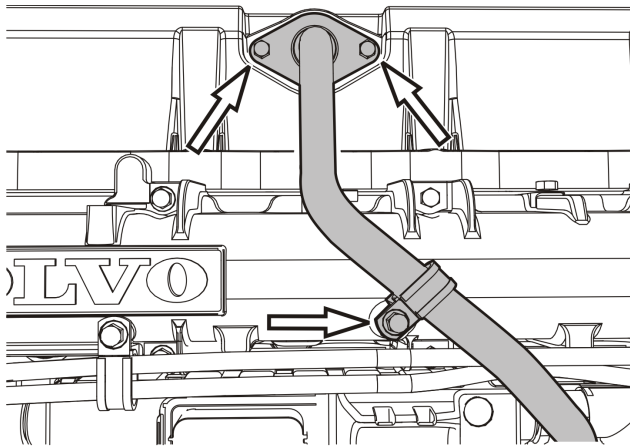
$24 \pm 4$  Nm  
( $18 \pm 3$  ft-lb)

**6**

Install the engine electrical wiring harness support bracket to the front of the valve cover. Securely tighten the bolts.

**7**

Connect the air compressor discharge line and mounting brackets to the air compressor and intake manifold.



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**8**

Install the fasteners securing crankcase ventilation tube to valve cover and intake manifold. Torque-tighten fasteners to  $24 \pm 4$  Nm ( $18 \pm 3$  ft-lb).

**Note:** Inspect the crankcase ventilation tube O-ring and replace if necessary.

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

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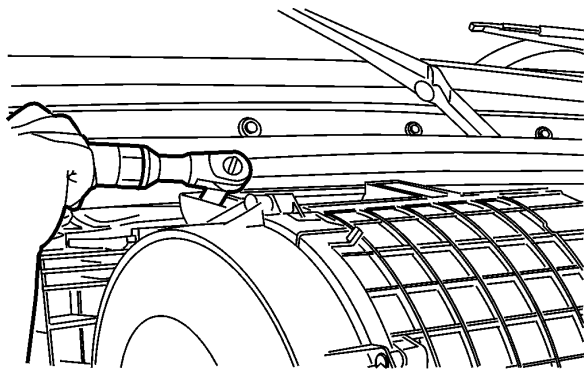
$24 \pm 4$  Nm  
( $18 \pm 3$  ft-lb)

**9**

Position and secure air compressor fresh air inlet pipe.

**10**

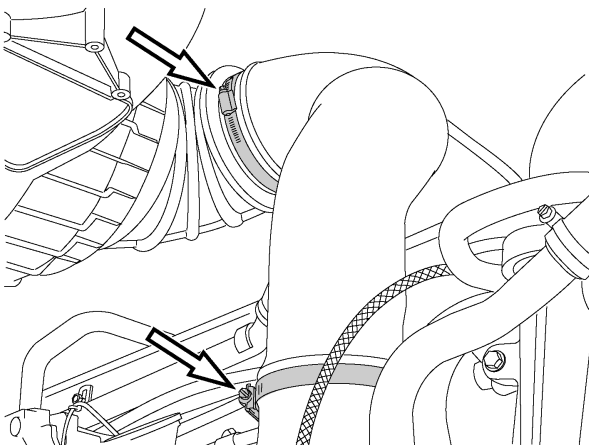
Position the air filter housing against the cab and install fasteners to secure.



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**11**

Install the main fresh air pipe between the air filter housing and the turbocharger air inlet elbow. Position the clamps and tighten to secure.

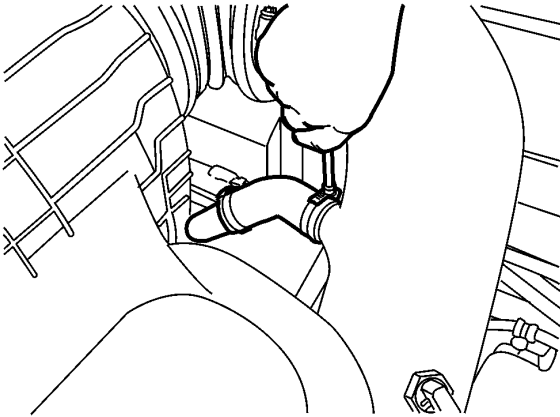


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**12**

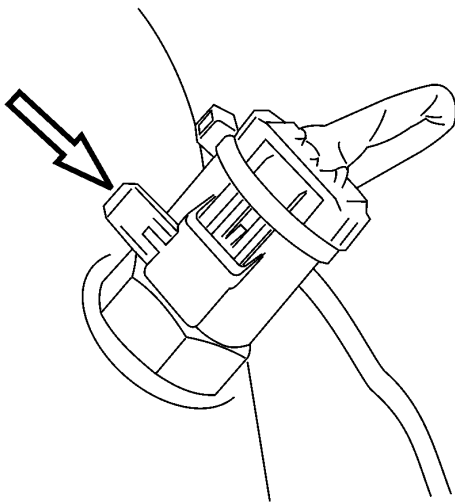
Install the air compressor fresh air hose to the main fresh air pipe, reposition the clamp and tighten to secure.



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**13**

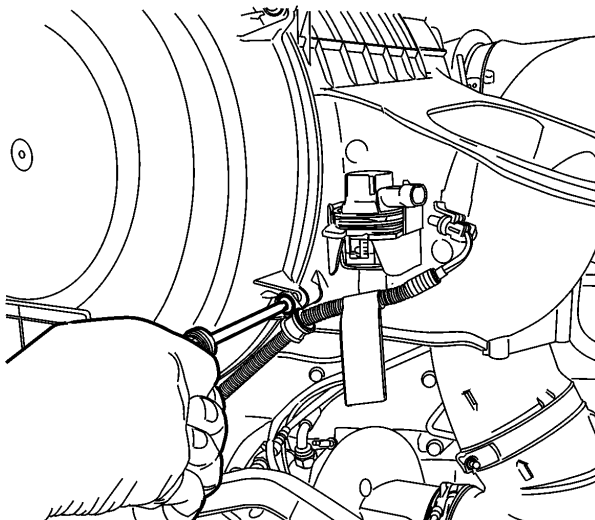
Install the air temperature sensor connector to the sensor. Insert and secure the connector lock tab. Install the sensor harness clamp to the main fresh air pipe.



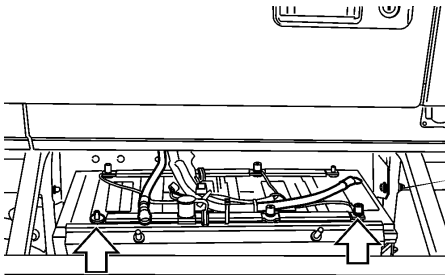
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**14**

Connect and secure the air filter restriction gauge wiring harness to air filter housing.



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**15**

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

**16**

Start the engine, check for leaks and proper operation.

**17**

Print a new Engine Certification Label and attach it to the cover.