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## Solenoid Valve VCB, Replacement D13F

### Solenoid Valve VCB, Replacement, D13F

This information covers the procedures for replacing the VCB solenoid valve on the Volvo D13F engine.

#### Contents

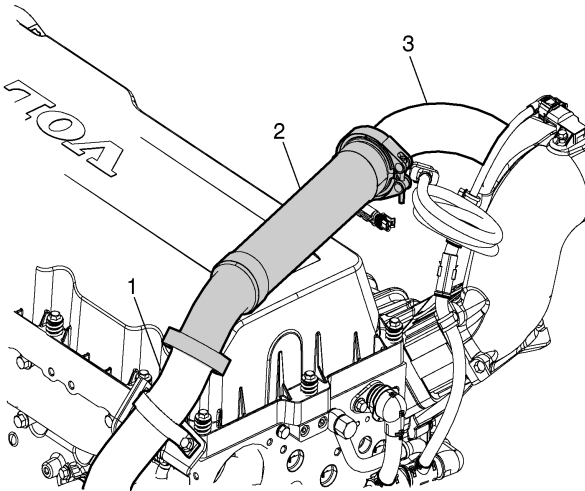
- “Solenoid Valve, Compression Brake, Replacement” page 2

<p><b>Note:</b> 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.</p>
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## 2533-03-02-03 Solenoid Valve, Compression Brake, Replacement

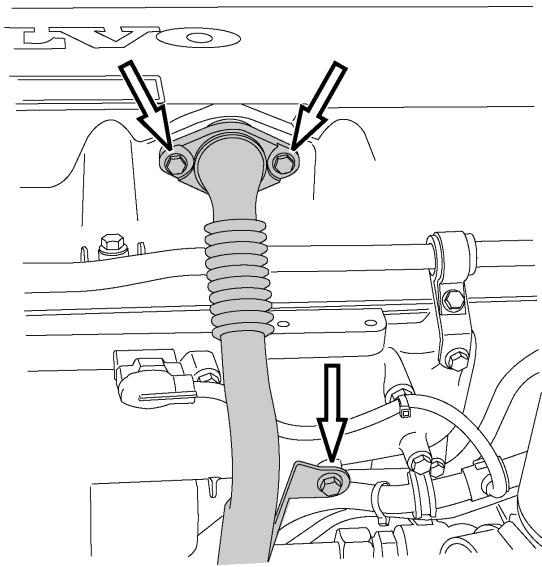
You must read and understand the precautions and guidelines in Service Information, group 20, "General Safety Practices, Engine" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform the procedure.

- 1**  
Apply the parking brake and place the shift lever in neutral.
  
- 2**  
Remove all cables from ground (negative) battery terminals.
  
- 3**  
Loosen the V-clamps and remove the EGR crossover pipe.



W2005960

- 1 Venturi Outlet Pipe
- 2 Crossover Pipe
- 3 Mixer Inlet Pipe



W2006122

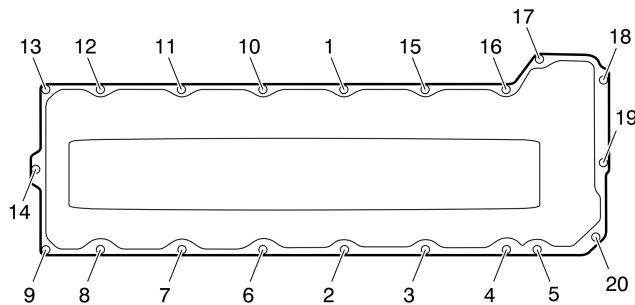
**4**  
Remove the fasteners which secure the crankcase ventilation tube and bracket to the valve cover and intake manifold. Relocate the tube away from the manifold.

**5**  
Remove the air compressor fresh air pipe.

**6**  
Remove the aftertreatment fuel injector harness clips from the valve cover.

**7**  
Disconnect the discharge line and mounting brackets from the air compressor. Move the discharge air line out of the way and strap it in place.

**8**  
Remove the spring-loaded bolts from the valve cover.

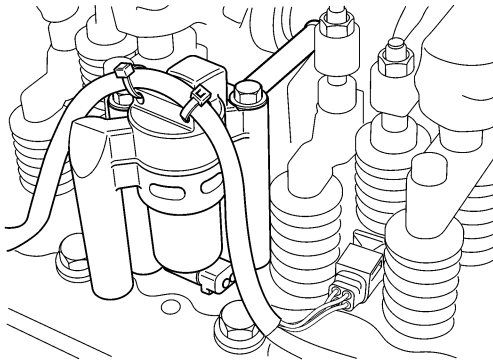


T2022732

**9**  
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.



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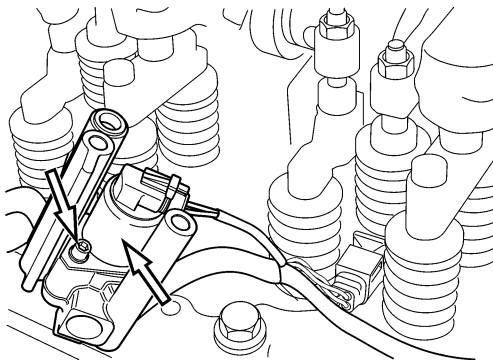
**10**  
Cut the tie straps securing the fuel injector harness and move the harness out of the way.

**11**  
Clean and dry the area around the control valve.

**12**  
Remove the electrical connection from the solenoid valve.

**13**  
Remove the control valve and the pipe between the valve and rocker arm shaft.

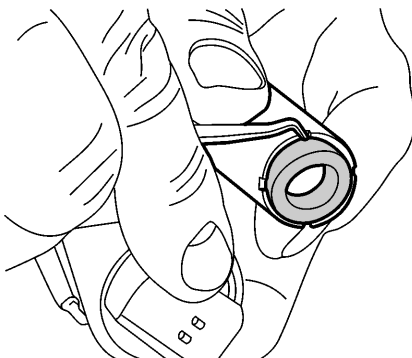
**14**  
Remove the solenoid valve.



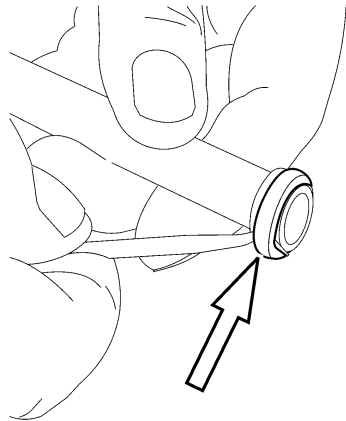
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**15**  
Install the new solenoid valve. Tighten the screws to specification.

**16**  
Replace the O-ring at the bottom of the control valve.

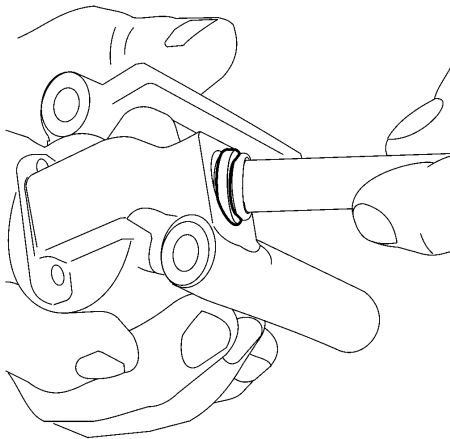


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W2004853

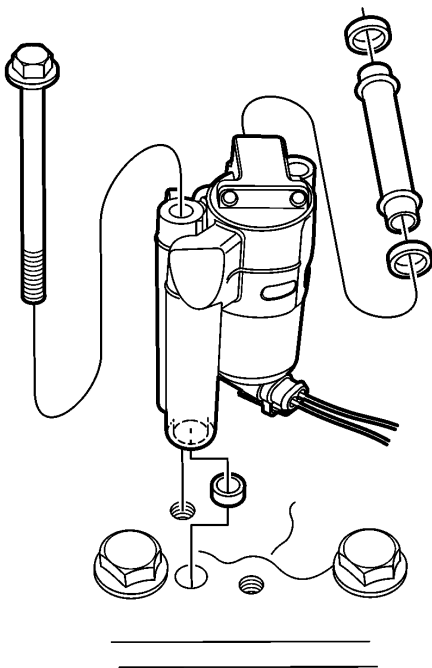
**17**  
Clean the control valve oil pipe and replace the O-rings. Lubricate the pipe hole in the rocker arm shaft and the O-rings on the pipe.



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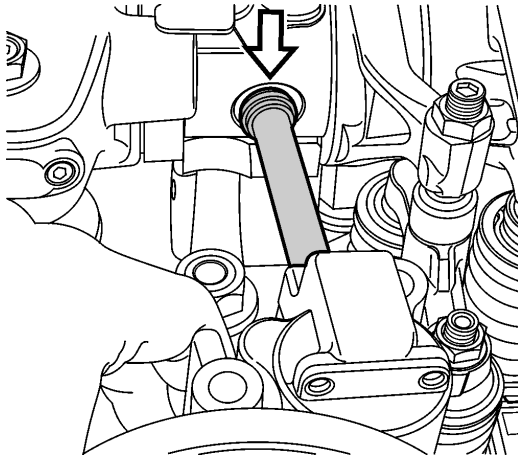
**18**  
Insert the oil pipe into the oil hole of the control valve.

**Note:** Make sure that the O-ring is seated fully in the valve.



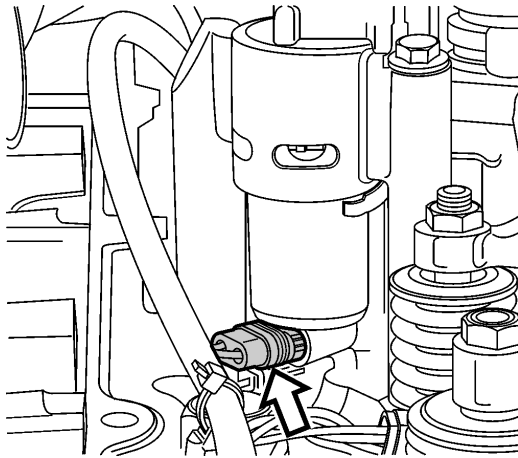
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**19**  
Position the control valve on the cylinder head.



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**20**  
Align the oil pipe and O-ring with the hole in the rocker shaft.



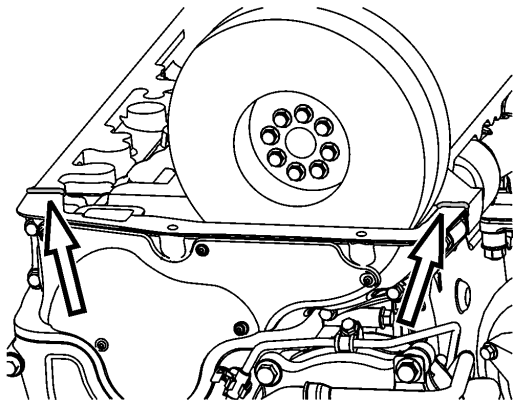
W2004837

**21**  
Install the control valve bolts and tighten to specification.

**22**  
Plug-in the control valve harness connector.

**23**  
Reposition the fuel injector harness over the control valve and secure with tie straps.

**24**  
Clean and inspect the valve cover seal and sealing surface on the cylinder head. Replace the seal, if necessary.

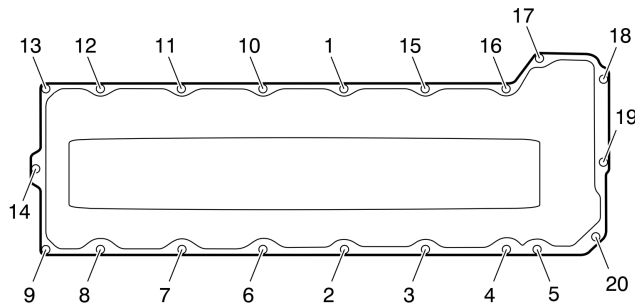


W2005157

**25**

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.

**Note:** This step is very critical to ensure no oil leaks occur.



T2022732

**26**

Install the spring-loaded bolts in the valve cover. Tighten the valve cover bolts to specification in the sequence shown.

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

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

**27**

Install the air compressor fresh air pipe.

**28**

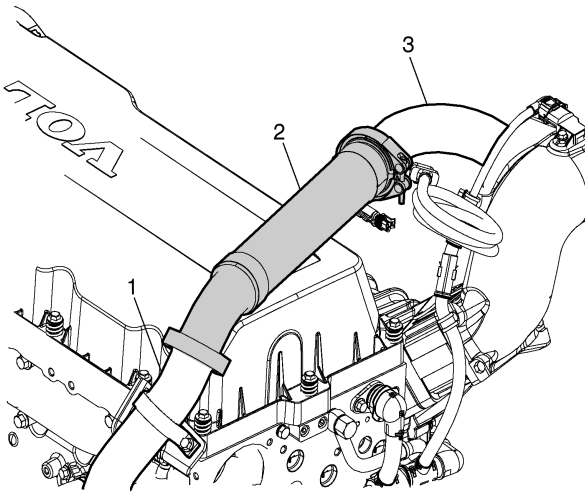
Connect the discharge line and mounting brackets for the main air line to the air compressor.

**29**

Install the aftertreatment fuel injector harness clips to the valve cover.

**30**

Inspect the crossover pipe V-clamps for wear or damage; replace as necessary. Lubricate the clamp screw threads and the "V" inserts of the clamp.

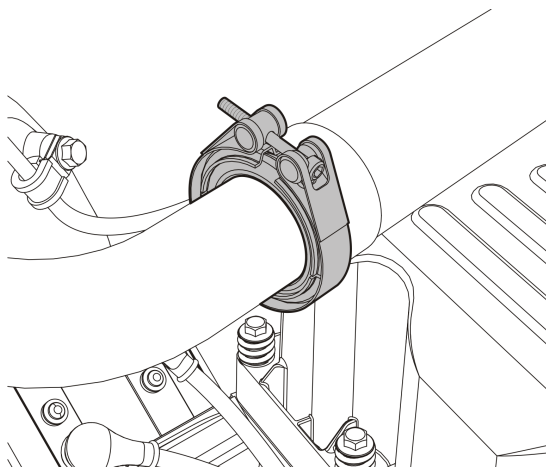


W2005960

- 1 Venturi Outlet Pipe
- 2 Crossover Pipe
- 3 Mixer Inlet Pipe

**31**

Place the V-clamps and crossover pipe (with new O-rings) in position between the venturi outlet pipe and the mixer inlet pipe.



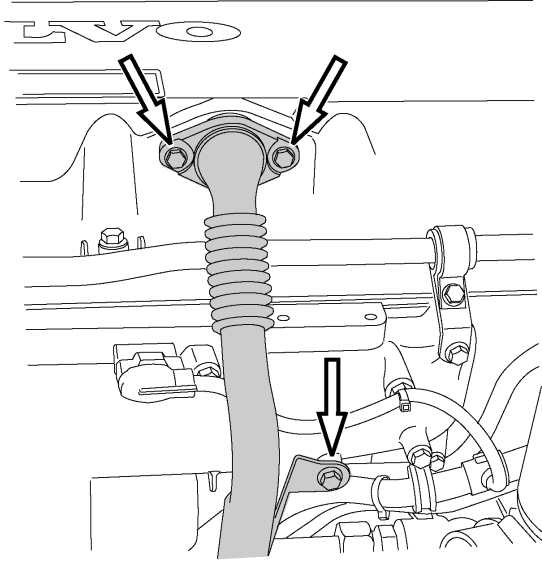
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**32**

Install a V-clamp at each end of the crossover pipe and tighten the clamps to secure the pipe.

**Note:** Make sure the O-rings remain in place while positioning the pipe.





W2006122

**33**

Install the fasteners securing crankcase ventilation tube and bracket to valve cover and intake manifold. Tighten the fasteners to specification.

**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 too long of bolts are installed.

**34**

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

**35**

Start the engine. Check for oil leaks and proper operation.