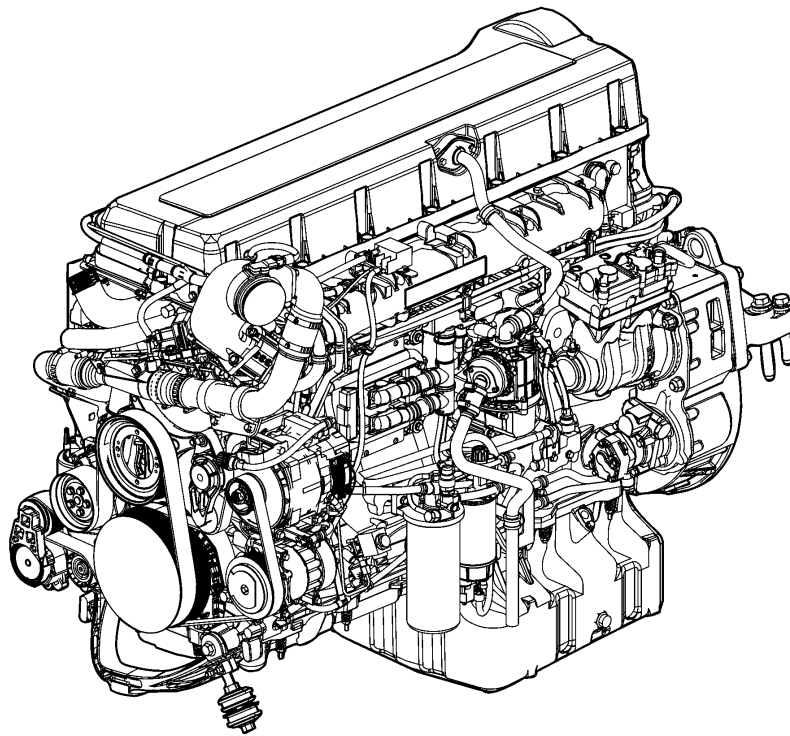


Date	Group	No.	Page
2.2007	251	39	1(14)

Intake Manifold Gasket
Replacement
D16F

Intake Manifold Gasket Replacement



W2005773

This information covers the proper procedure for replacing the intake manifold gasket on the Volvo D16F engine.

Contents

- “Gaskets, Intake Manifold, 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.

2512-03-02-01 Gaskets, Intake Manifold, Replacement

See also:

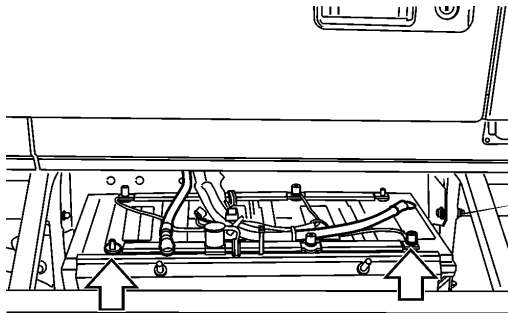
- "Intake Manifold Gasket Replacement" page 1

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.

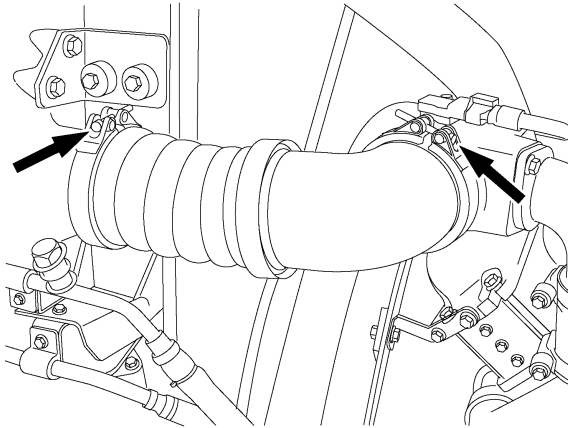
2
Remove all cables from ground (negative) battery terminals to prevent personal injury from electrical shock.



W2003815

3
Remove inner splash guard as an assembly.

Note: Some models may be equipped with fender extenders, attached to the inner splash guard. Remove these as an assembly



W2006129

4

Remove V-band clamps at the charge air cooler and the mixing chamber. Remove the hose and pipe as an assembly.

5

Loosen the clamp and mounting brackets to allow air compressor fresh air pipe to be relocated.

6

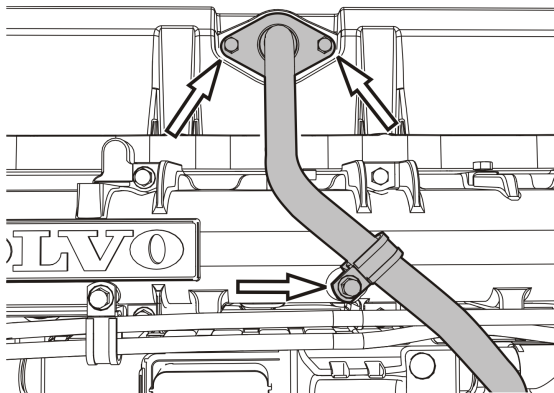
Disconnect the discharge line and mounting brackets from the air compressor and intake manifold. Move the discharge line out of the way and strap in place.

7

Remove the bracket securing the A/C suction hose to the intake manifold.

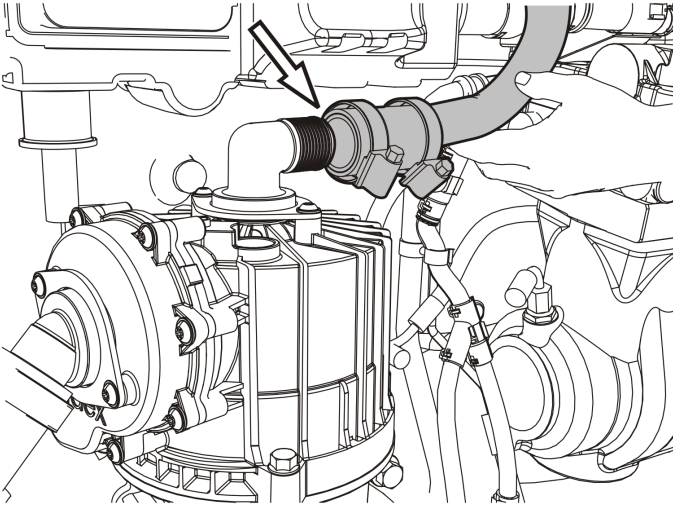
8

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



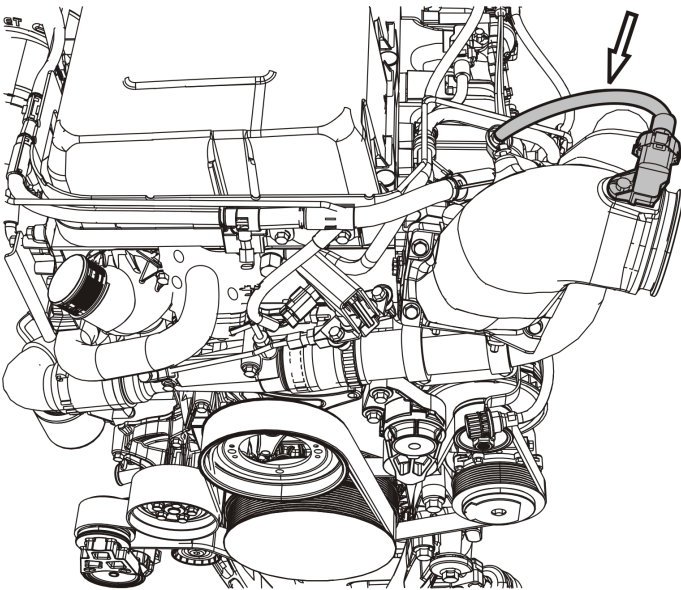
W2005747

- 9**
Remove crankcase ventilation tube from separator.

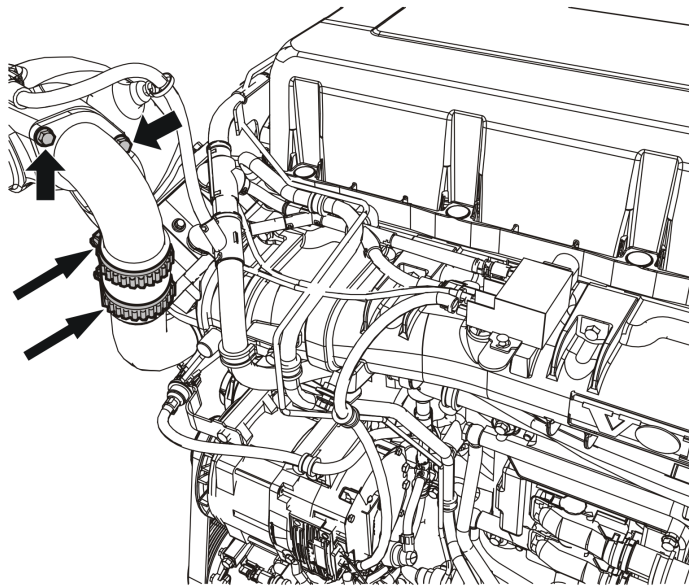


W2005748

- 10**
Disconnect the electrical connector from the charge air boost sensor located on the top of the EGR mixing chamber. Cut the tie strap securing the harness and allow the harness to hang out of the way.



W2005879

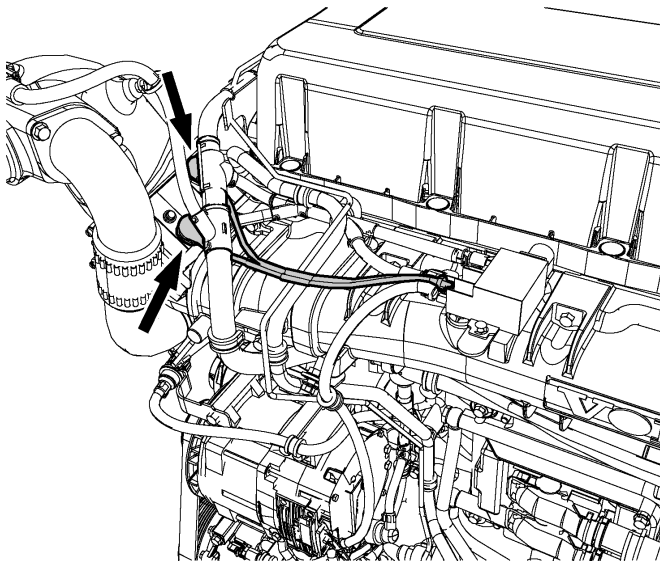


W2005880

11

Loosen both hose clamps securing the EGR inlet hose to the mixing chamber pipe. Slide the hose down to free it from the inlet pipe and discard the hose. Remove the bolts from the inlet pipe connection at the mixing chamber and remove the pipe.

Note: EGR inlet gas hose should not be reused.



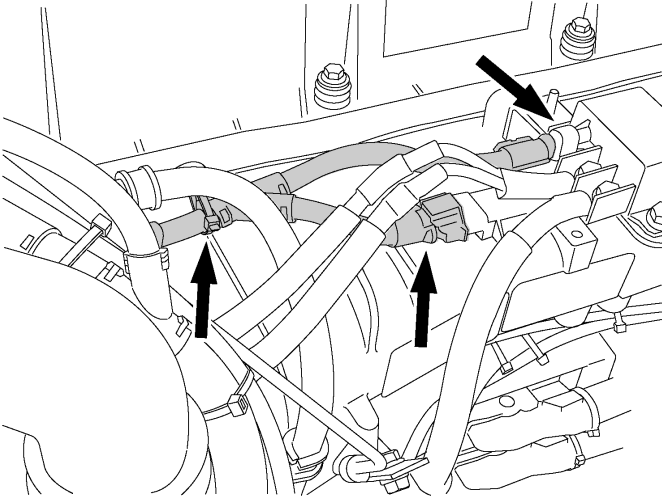
W2006125

12

If equipped, remove all power and ground wire connectors from the inlet air preheater. Mark the wire locations before removal to ensure correct wire installation at reassembly.

13

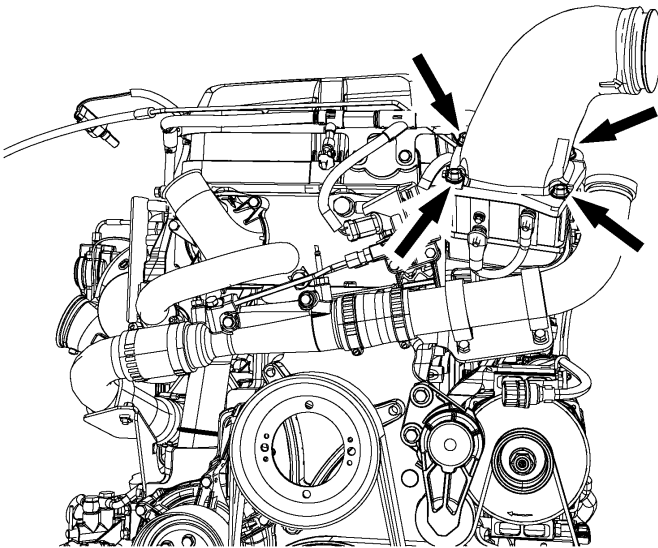
If equipped, disconnect the inlet air preheater electrical harness connector from the preheater relay. Also, disconnect the charge air temperature sensor connector and cut the tie strap securing the harness at the intake manifold.



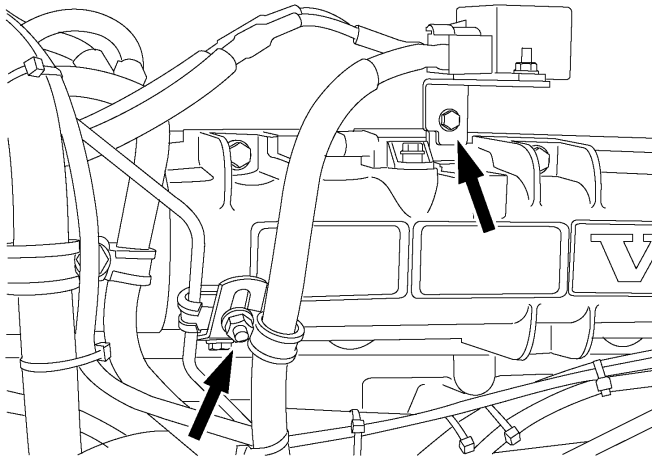
W2006174

14

Remove the EGR mixer mounting bolts, then remove the EGR mixer and preheater (if equipped) or spacer block off the intake manifold.



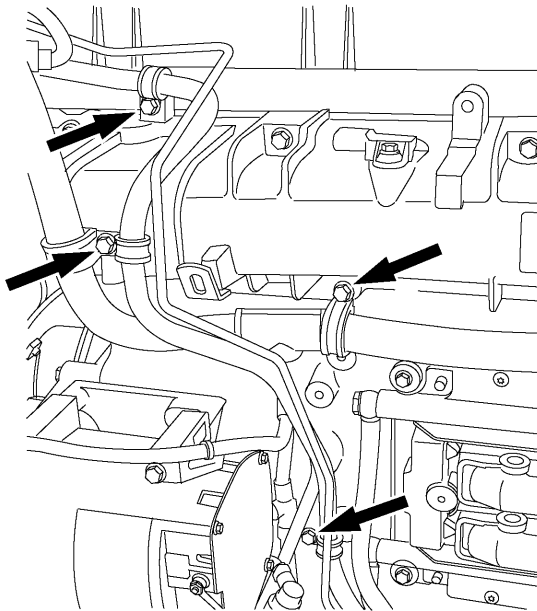
W2006126



W2006128

15

If equipped, remove the fastener securing the preheater relay supporting bracket to the intake manifold. Also, remove the fastener securing the P-clamps for the DRV air line and preheater control harness. This will allow the preheater relay (with wires and mounting bracket attached) to hang free.



W2006168

16

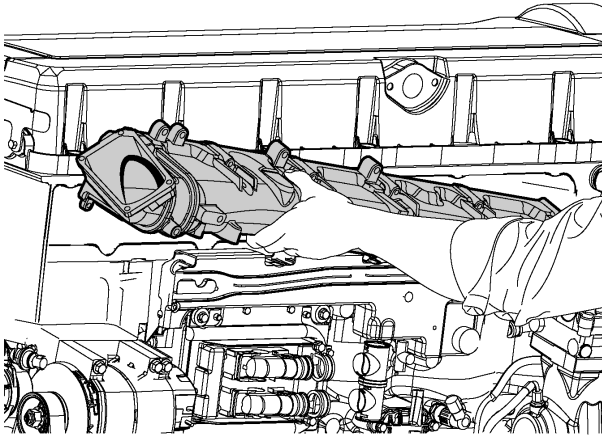
Remove the P-clamps securing the fuel line and engine harness.

17

Remove two top intake manifold mounting bolts and install two alignment pins to support the manifold.

18

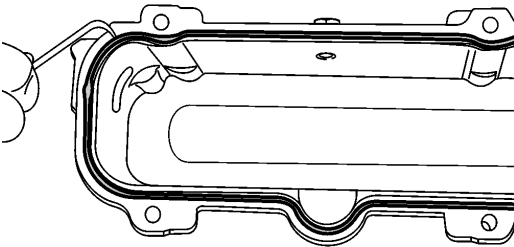
Remove the remaining intake manifold mounting bolts. Using a plastic mallet, carefully tap the manifold loose and remove.



W2006117

19

Using a sharp pick, carefully remove the rubber seal (molded gasket) from the groove in the intake manifold. Also, remove all gasket material from the forward sealing surface.



W2004848

20

Clean manifold of any dirt, adhesives and inspect for any damage to the sealing surface. Also, inspect the cylinder head and ensure the sealing surface is clean and undamaged.

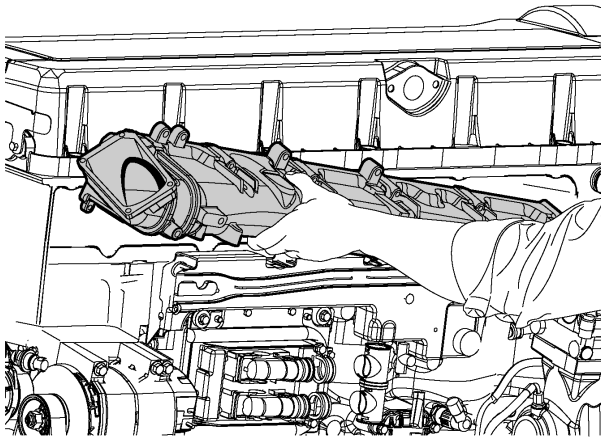
Installation

1

Install a new rubber seal (molded gasket) into the groove of the intake manifold.

2

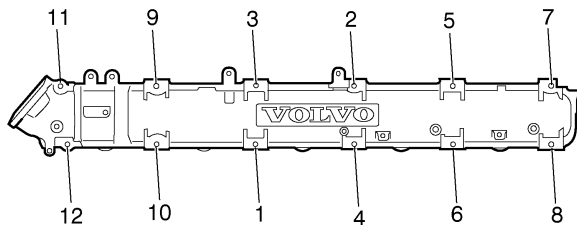
Position the intake manifold onto the two previously installed alignment pins. Start two mounting bolts to hold the manifold in place, then remove the alignment pins and install the remaining manifold bolts.



W2006117

3

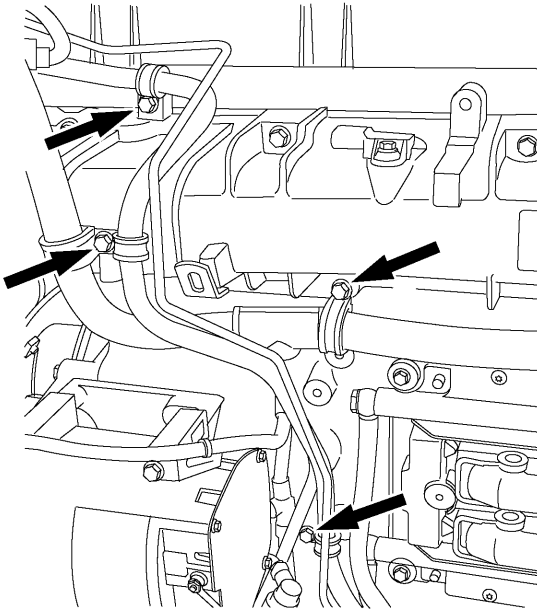
Torque-tighten the intake manifold bolts to specification in the sequence shown.



W2005980

4

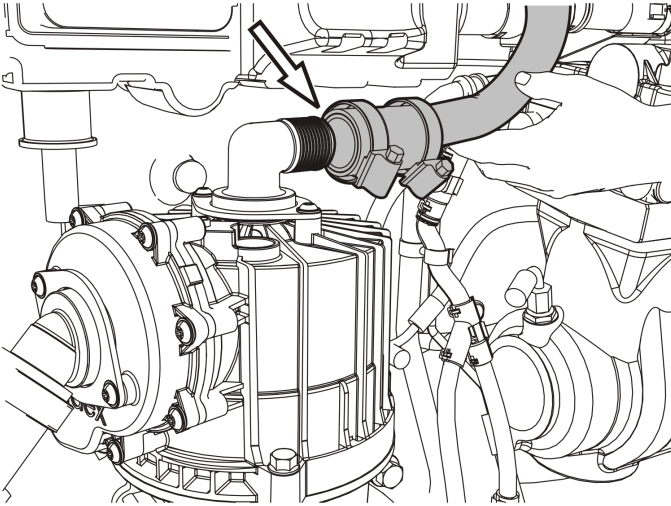
Install the P-clamps securing the fuel line and engine harness.



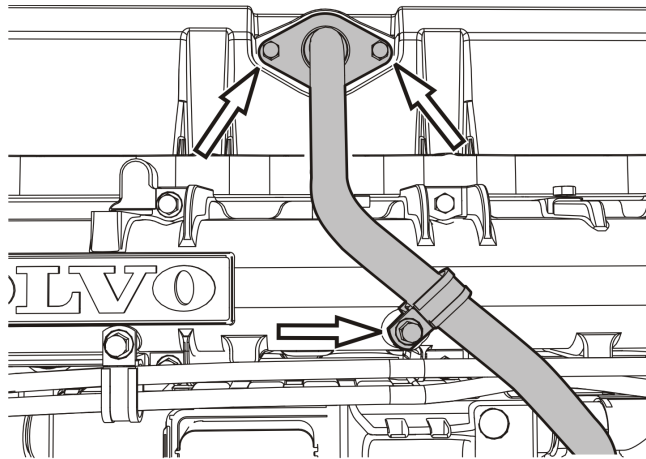
W2006168

5

Install crankcase ventilation tube to separator.



W2005748



W2005747

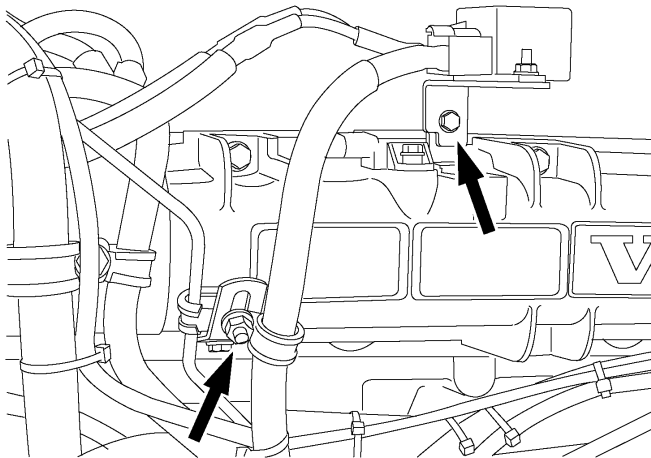
6

Install the fasteners securing crankcase ventilation tube to valve cover and intake manifold. Torque-tighten fasteners to 24 ± 4 Nm (18 ± 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.

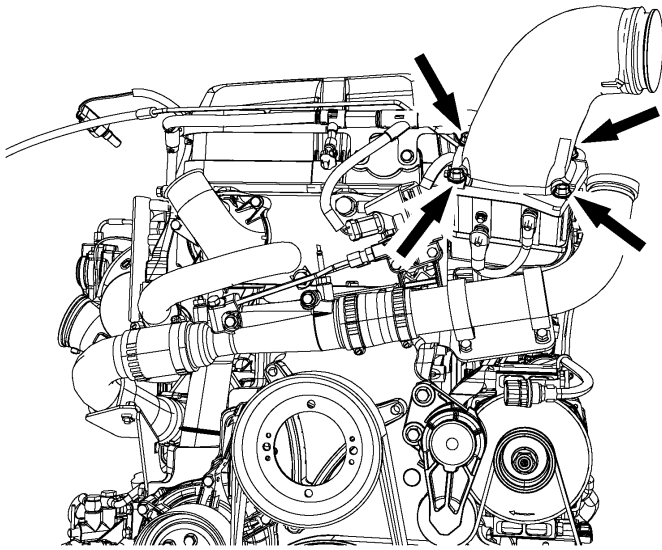
24 ± 4 Nm
(18 ± 3 ft-lb)



W2006128

7

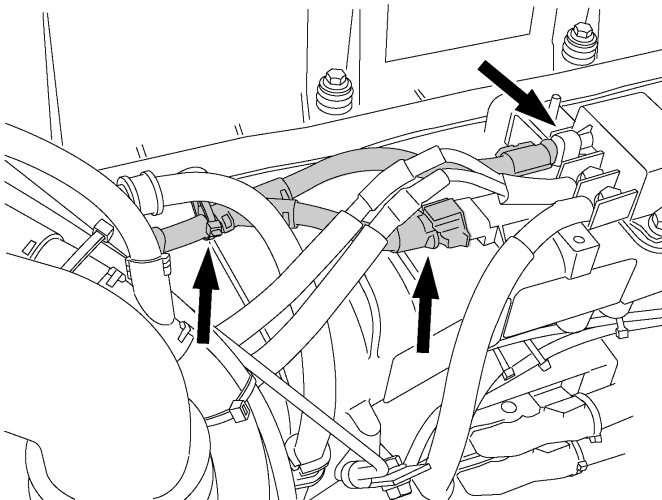
If equipped, position and secure the preheater relay supporting bracket to the intake manifold. Also, install the fastener securing the P-clamps for the DRV air line and preheater control harness.



W2006126

8

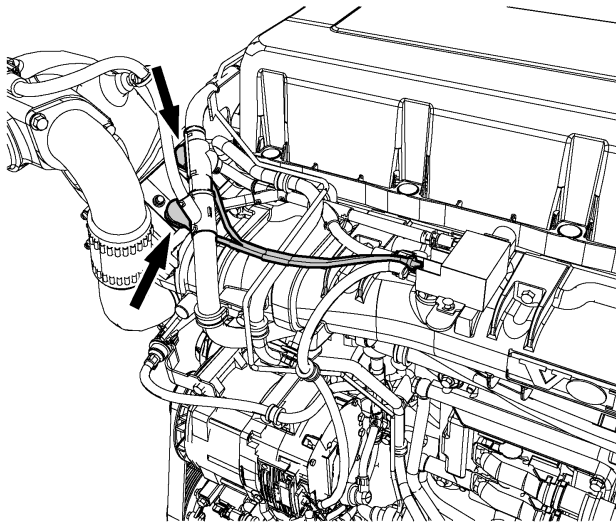
Position the EGR mixing chamber and inlet air preheater (if equipped), or spacer block with new gaskets onto the intake manifold. Next, start the bolts to hold the assembly to the intake manifold. Tighten all mixing chamber fasteners to specification.



W2006174

9

If equipped, connect the inlet air preheater electrical harness connector to the preheater relay. Also, connect the charge air temperature sensor connector and install the tie strap securing the harness to the intake manifold.



W2006125

10

If equipped, install all power and ground wire connectors to the inlet air preheater at the previously marked locations.

11

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

12

Position and secure air compressor fresh air inlet pipe.

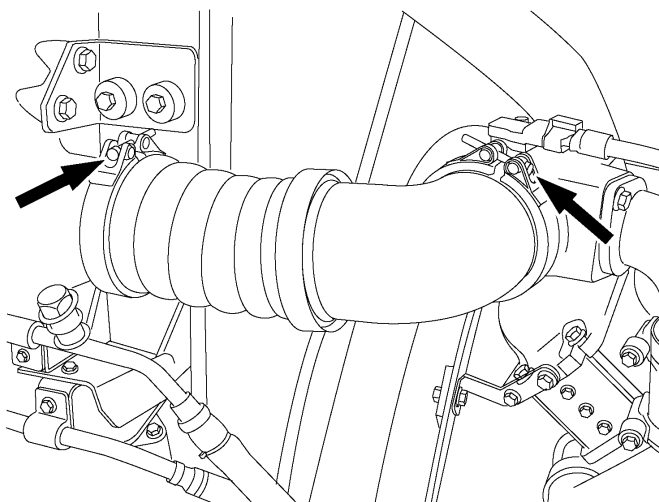
13

Install the bracket securing the A/C suction hose to the intake manifold.

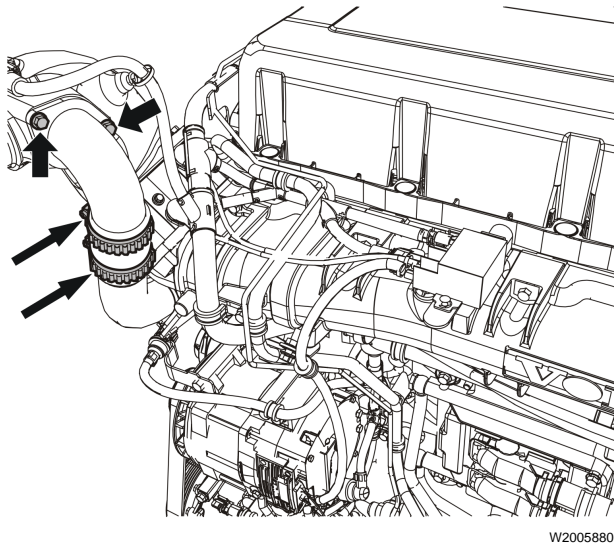
14

Position and secure charge air cooler outlet hose and pipe assembly located between the charge air cooler and EGR mixing chamber.

Note: Check V-band clamp for galled threads and deformation. V-band clamps must be lubricated before installation.



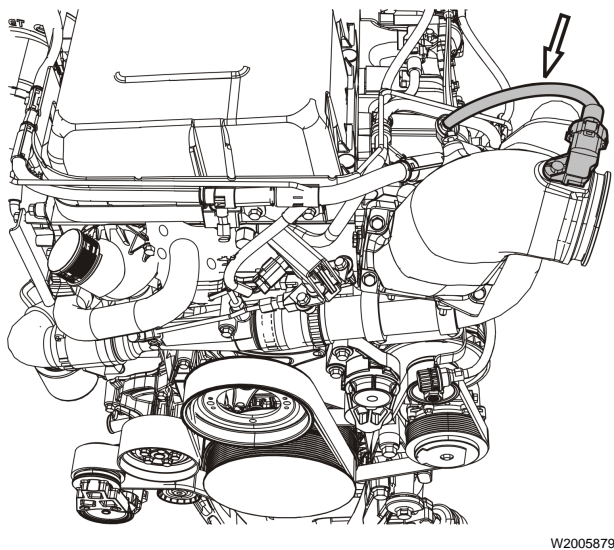
W2006129



15

Install a new O-ring in the EGR inlet pipe. Then, position the pipe onto the mixing chamber of the intake manifold and install the bolts securing the EGR inlet pipe to the mixing chamber. Next, position a new EGR gas inlet hose between the inlet pipe and venturi pipe and secure with two clamps.

Note: EGR inlet gas hose should not be reused.



16

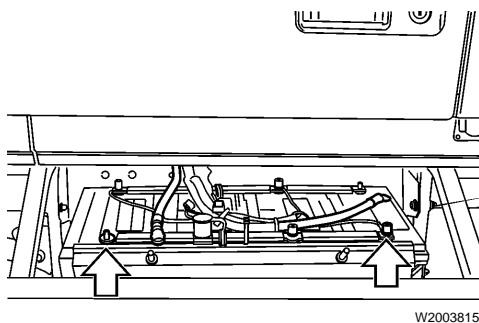
Reconnect the electrical connector to the charge air boost sensor located on the top of the EGR mixing chamber. Connect the tie strap securing the sensor harness.

17

Install the inner splash guard assembly.

18

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



19

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