

Cylinder Head LH 12.29.02

Removal

All vehicles

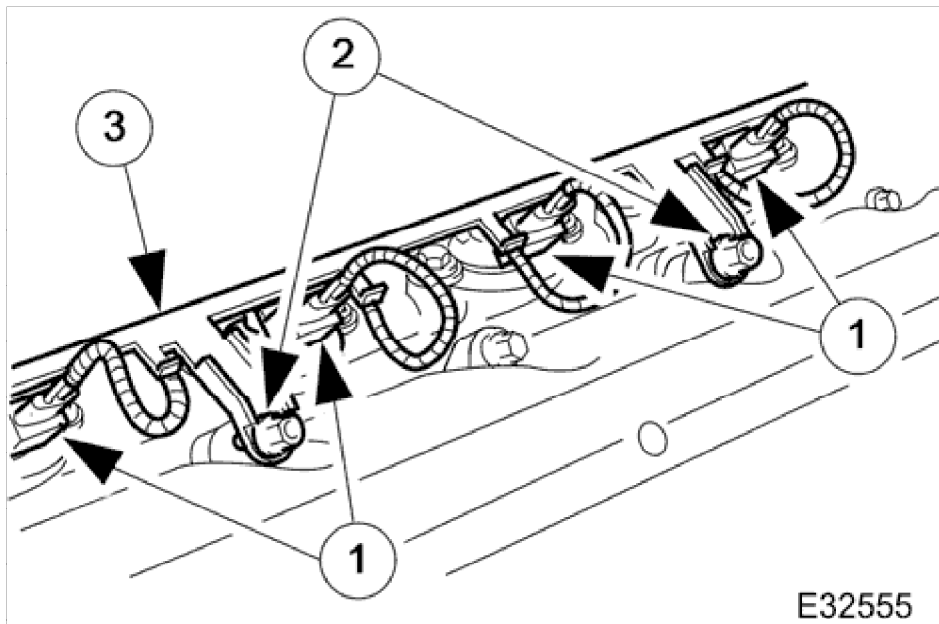
1. Remove the left-hand camshafts. <<Camshafts LH>>

Vehicles without supercharger

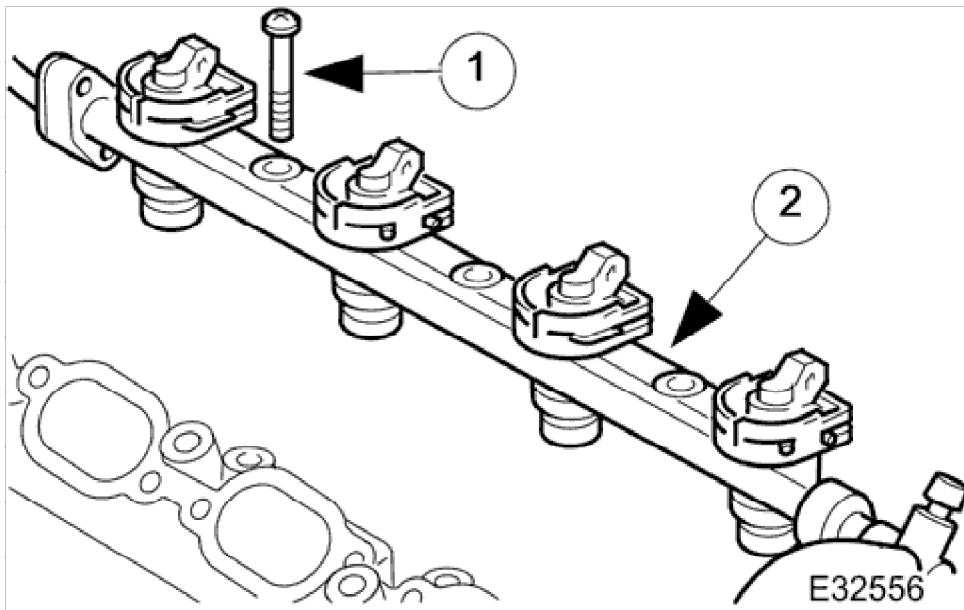
2. Remove the intake manifold. <<Intake Manifold>>

Vehicles with supercharger

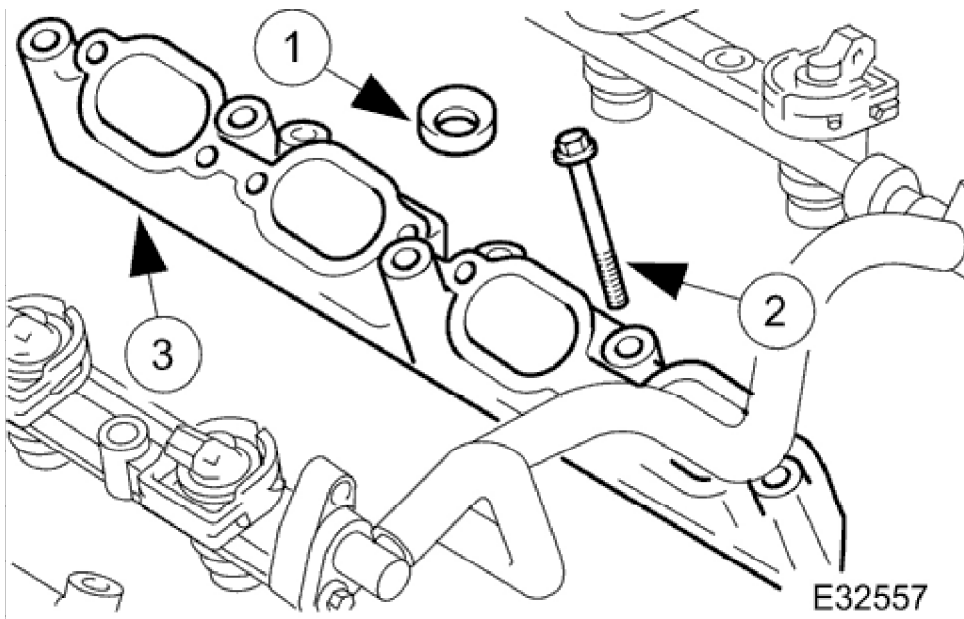
3. Release the fuel system pressure. <<310-01>>
4. Remove the left-hand charge air cooler. <<303-12>>



5. Reposition the fuel injection supply manifold wiring harness.
 1. Disconnect the fuel injector electrical connectors
 2. Detach the fuel injection supply manifold wiring harness
 3. Reposition the fuel injection supply manifold wiring harness.

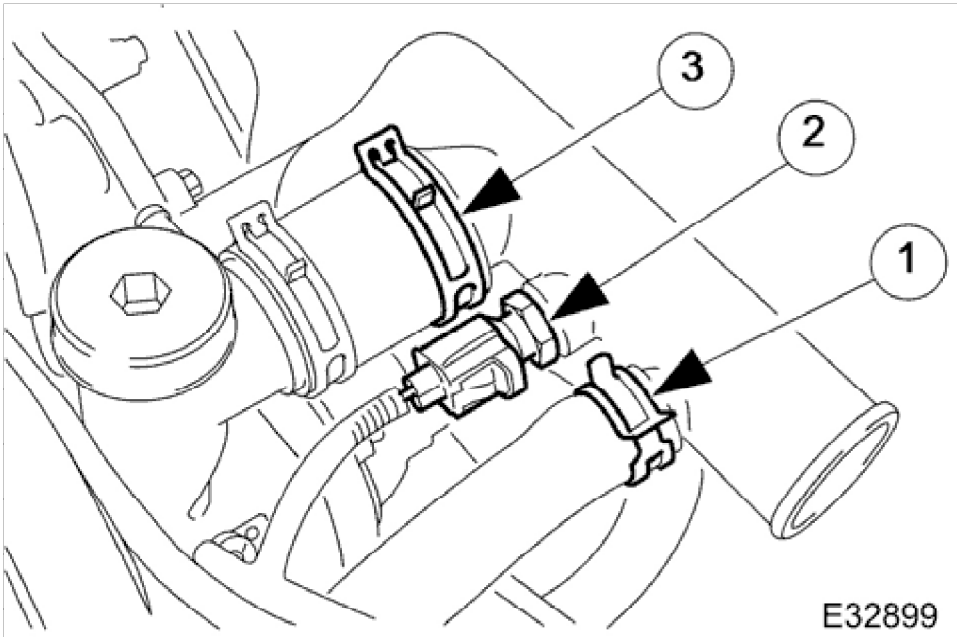


6. Detach the fuel injection supply manifold.
- 1. Remove the fuel injection supply manifold retaining bolts.
 - 2. Detach the fuel injection supply manifold.

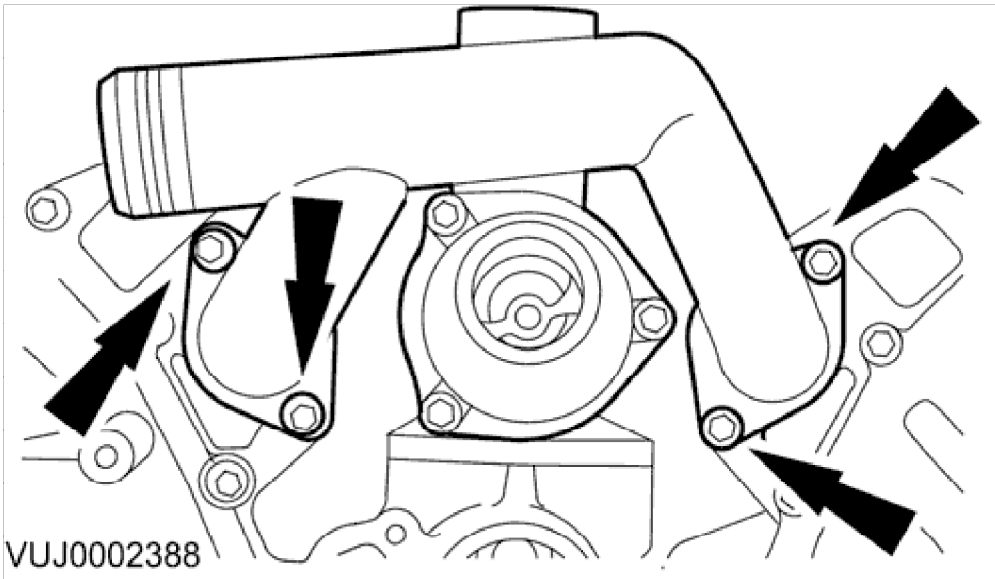


7. Remove the left-hand intake manifold.
- 1. Remove and discard the fuel injection supply manifold seals.
 - 2. Remove the left-hand intake manifold retaining bolts.
 - 3. Remove the left-hand intake manifold.
 - Remove and discard the left-hand intake manifold gasket.

Vehicles without supercharger

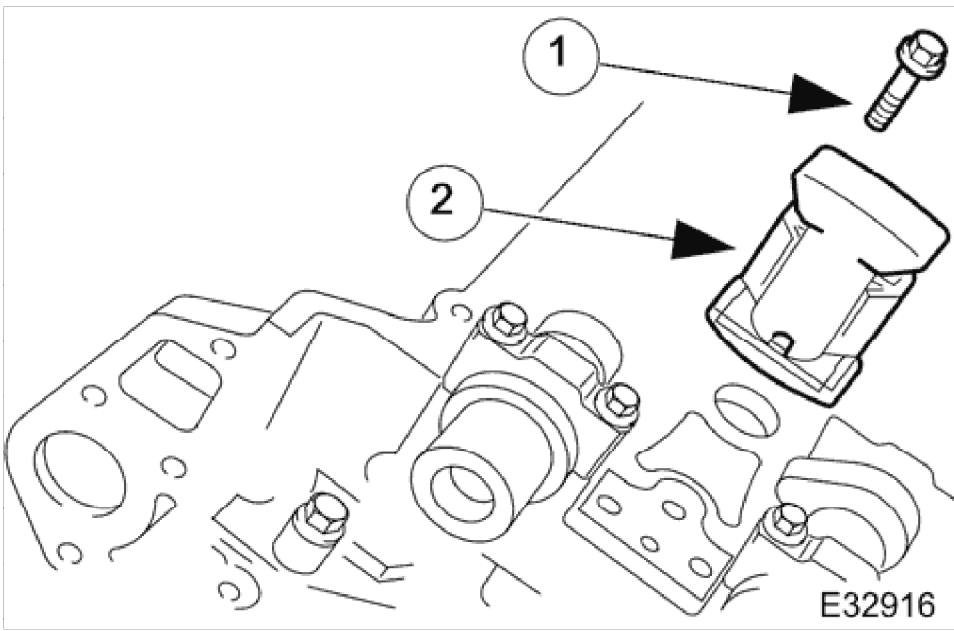


8. Disconnect the hoses and multi-plug from the coolant outlet pipe.
- 1. Disconnect the heater hose.
 - 2. Disconnect the engine coolant temperature (ECT) sensor.
 - 3. Release and reposition the hose clip along the bypass hose.

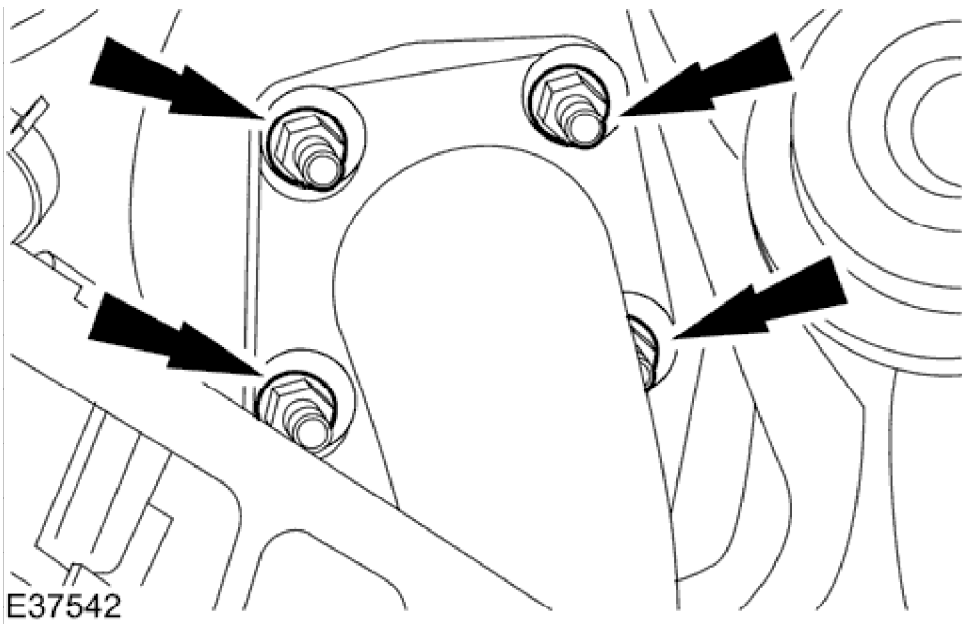


9. Remove the coolant outlet pipe.
- Remove and discard the sealing rings from the outlet pipe grooves.

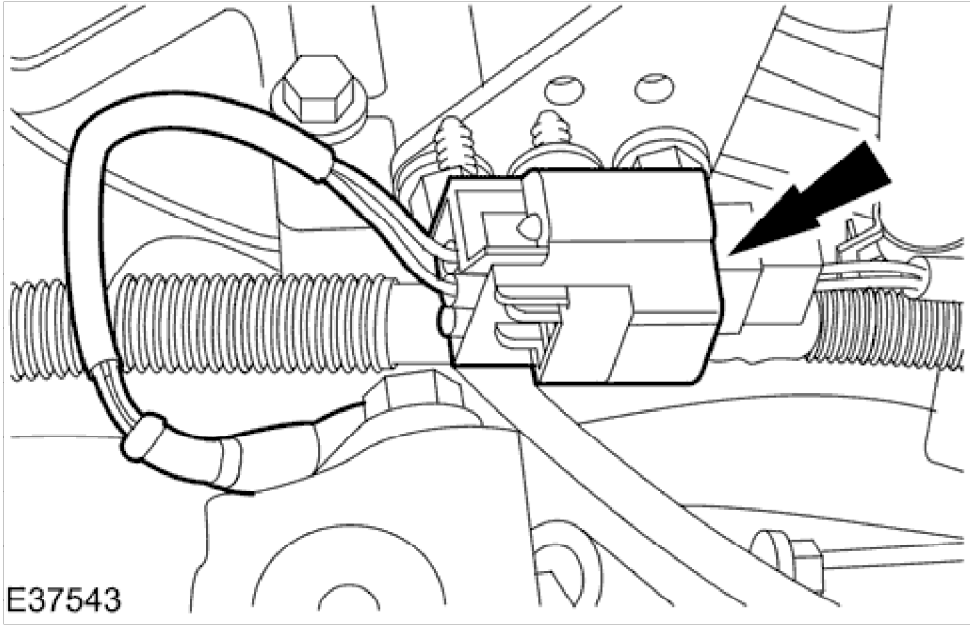
All vehicles



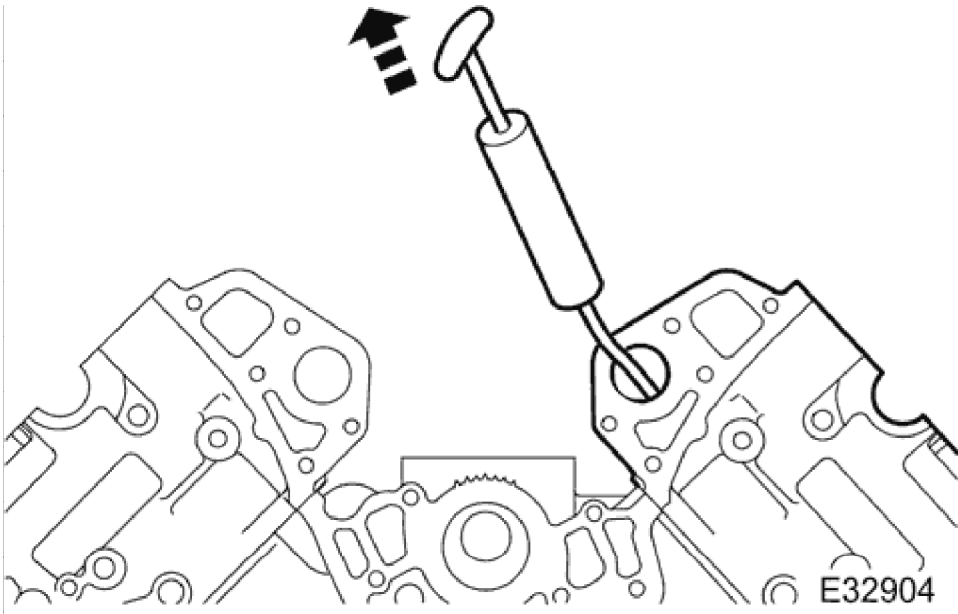
- 10. Remove the secondary chain tensioner.
 - 1. Remove the two bolts which secure the chain tensioner to the cylinder head.
 - 2. Remove the secondary chain tensioner.



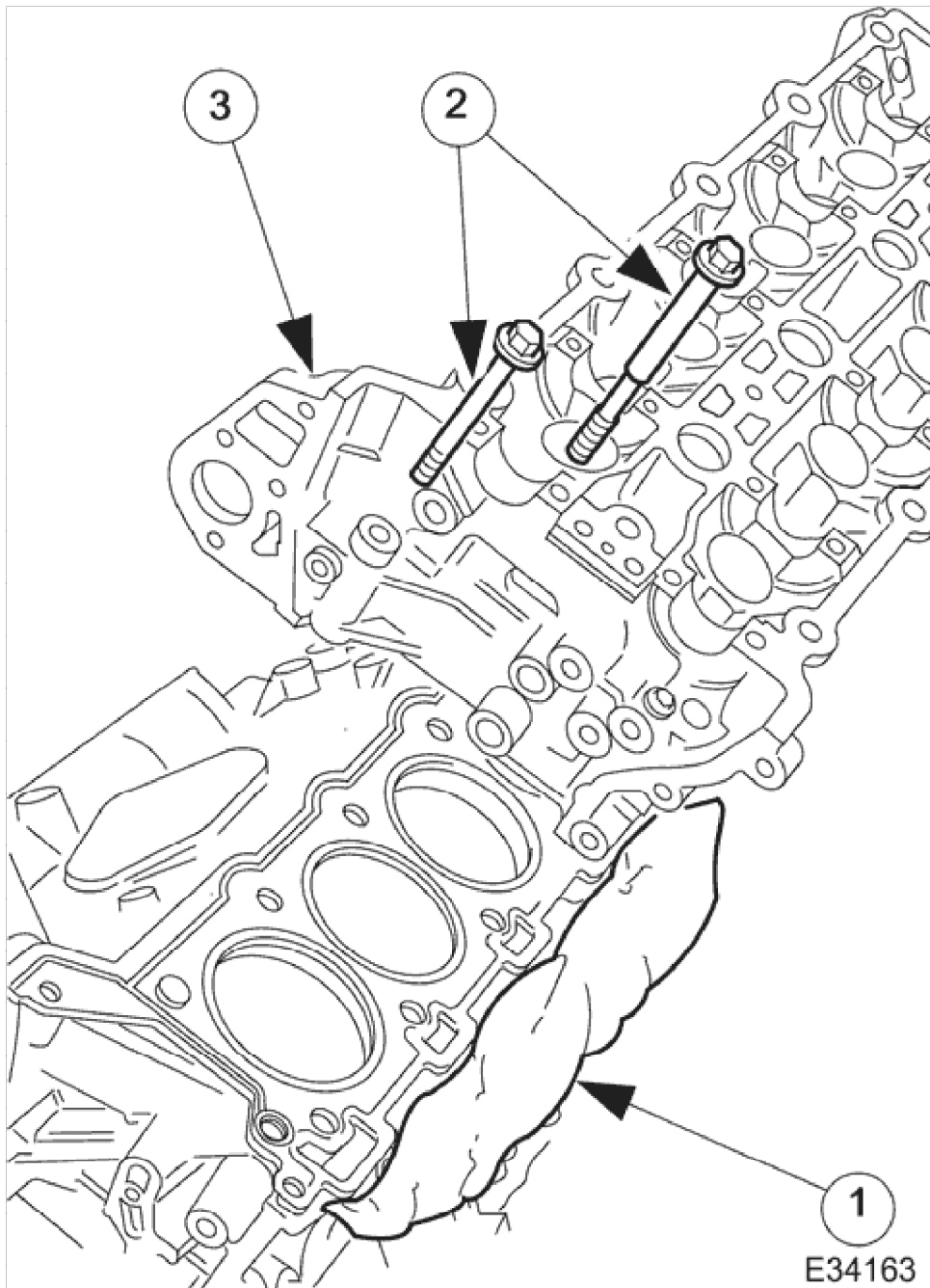
- 11. Remove the exhaust manifold to catalytic converter retaining nuts.



12. Disconnect the left-hand camshaft position (CMP) sensor.

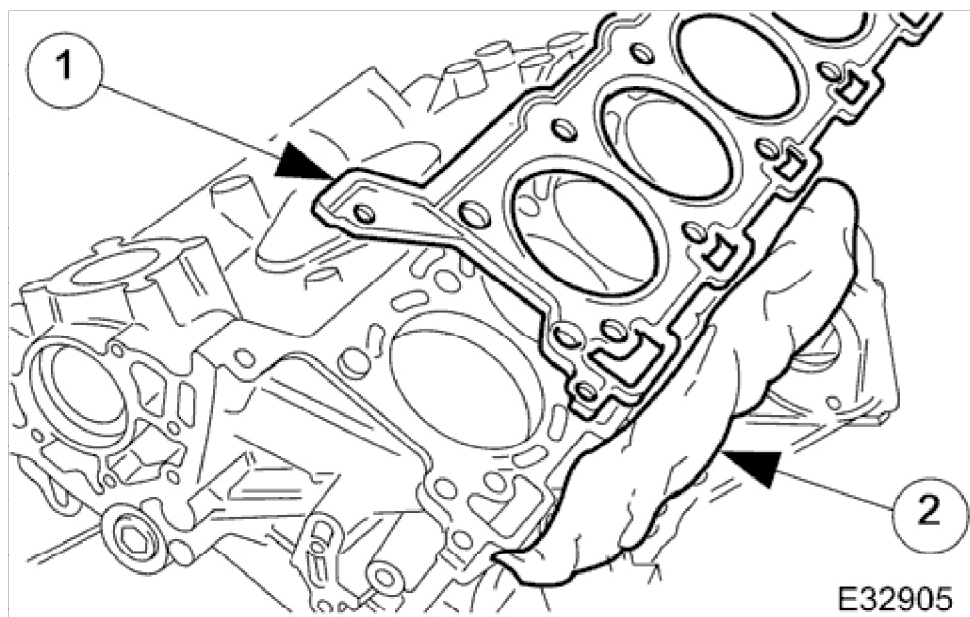


13. Remove residual coolant from the cylinder head.
1. Place a drain tray under the engine.
 2. Use a syringe with a length of thin rubber pipe connected, to drain the residual coolant from the outlet pipe water-way.
- A suitable syringe is Snap On YA 745.



14. Remove the cylinder head.

1. Place cloth around the area of the cylinder head to absorb coolant spillage, when removing the head.
2. Remove the bolts (10xM10 and 2xM8) which secure the cylinder head.
3. With assistance, remove the cylinder head.



15. Remove the cylinder head gasket.

1. Note how the gasket is fitted and remove it.

2. Remove and discard the cloth, placed previously to absorb coolant spillage.

- Wipe up any leaked coolant.

16. Remove the coolant drain tray from under the engine.

17. Remove and discard the gasket from the downpipe catalyst.

- Clean the gasket faces of the catalyst and the exhaust manifold.

18. Clean cylinder head and cylinder block gasket faces.

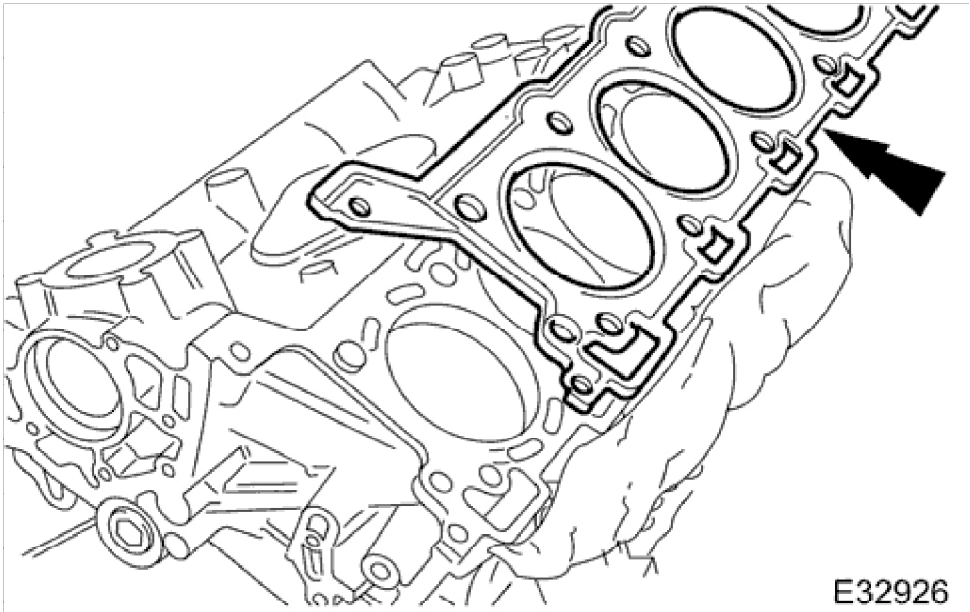
- Ensure that all threaded holes in the cylinder block face are clean and free from oil.
- Clean and inspect the cylinder head bolts. They may be re-used on two occasions. When re-used, each bolt head should be marked with one dot from an automatic centre punch.

19. Clean and inspect all relevant components and mating faces.

Installation

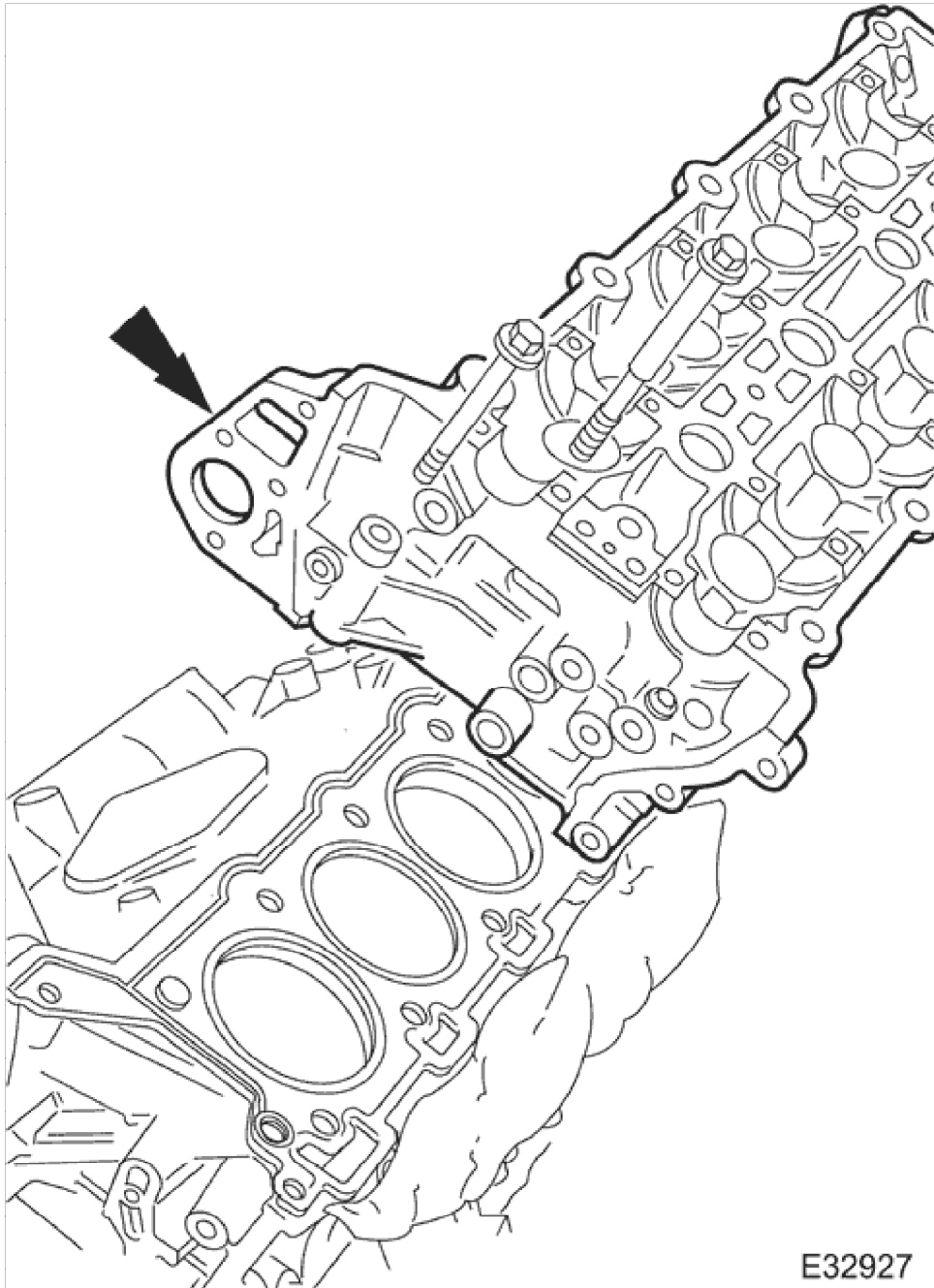
All vehicles

1. Install a new gasket to the downpipe catalyst flange.



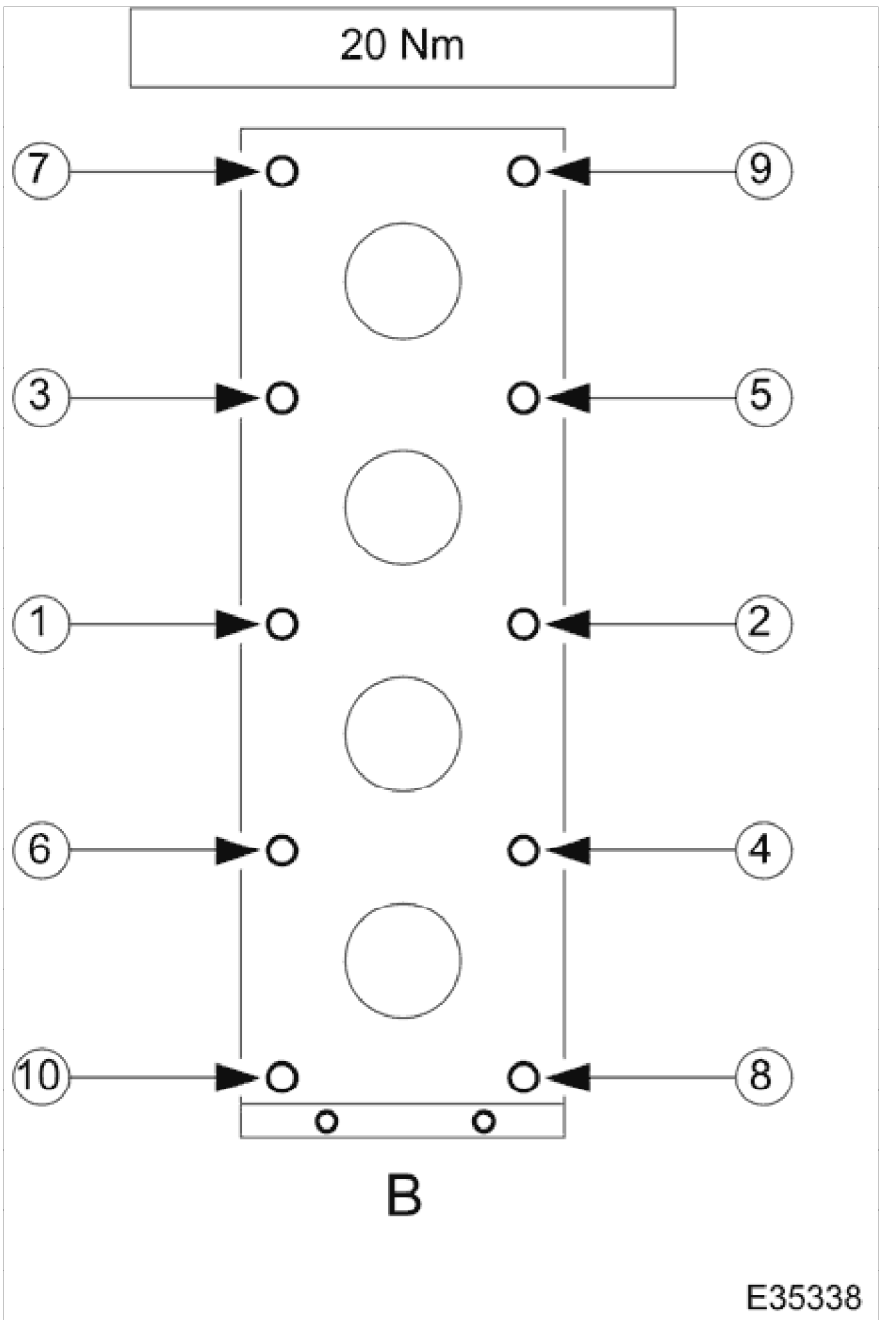
2. Install a new cylinder head gasket.

E32926

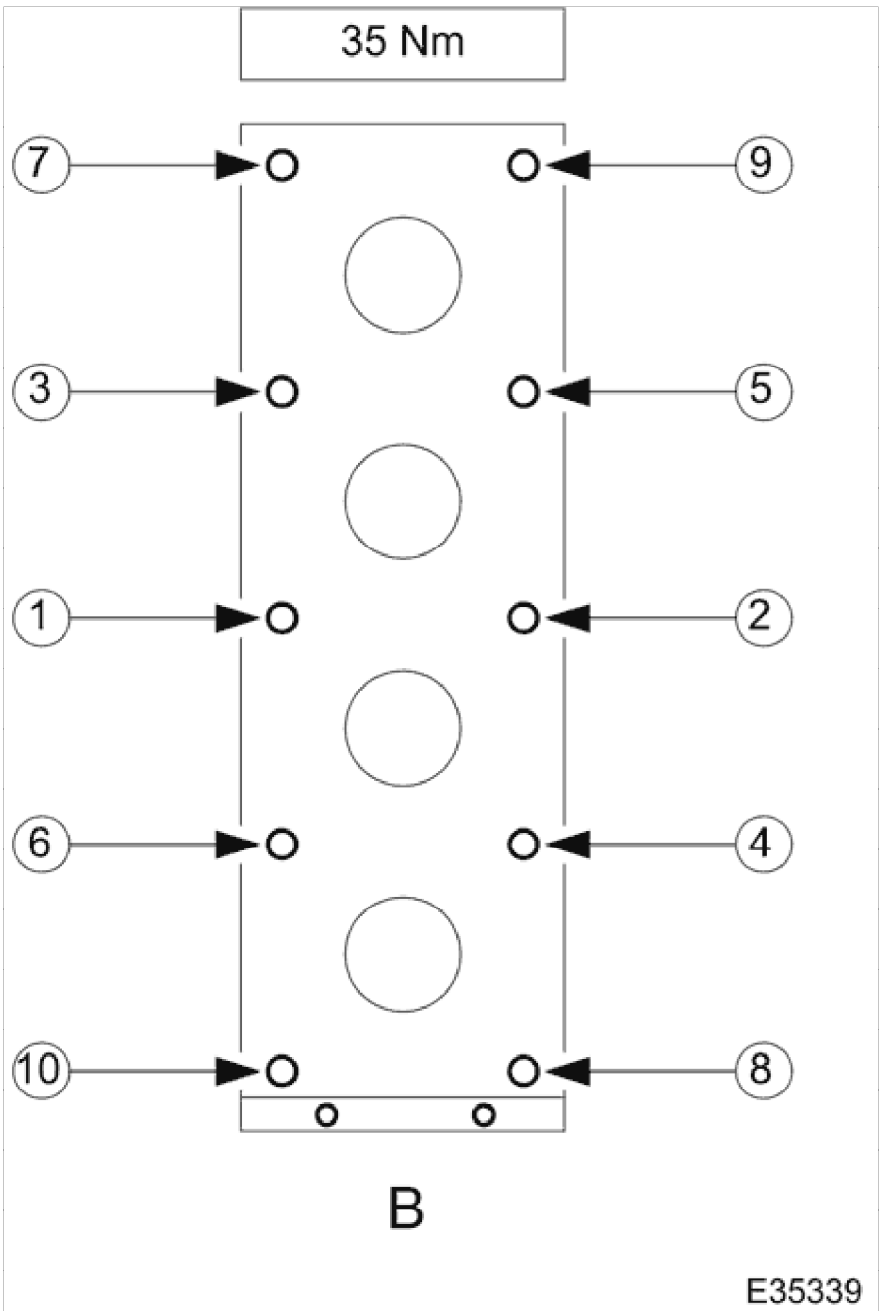


3. With assistance install the cylinder head.
 - Engage the cylinder head with the dowels on the block face, and the exhaust manifold flange with the studs on the downpipe catalyst.

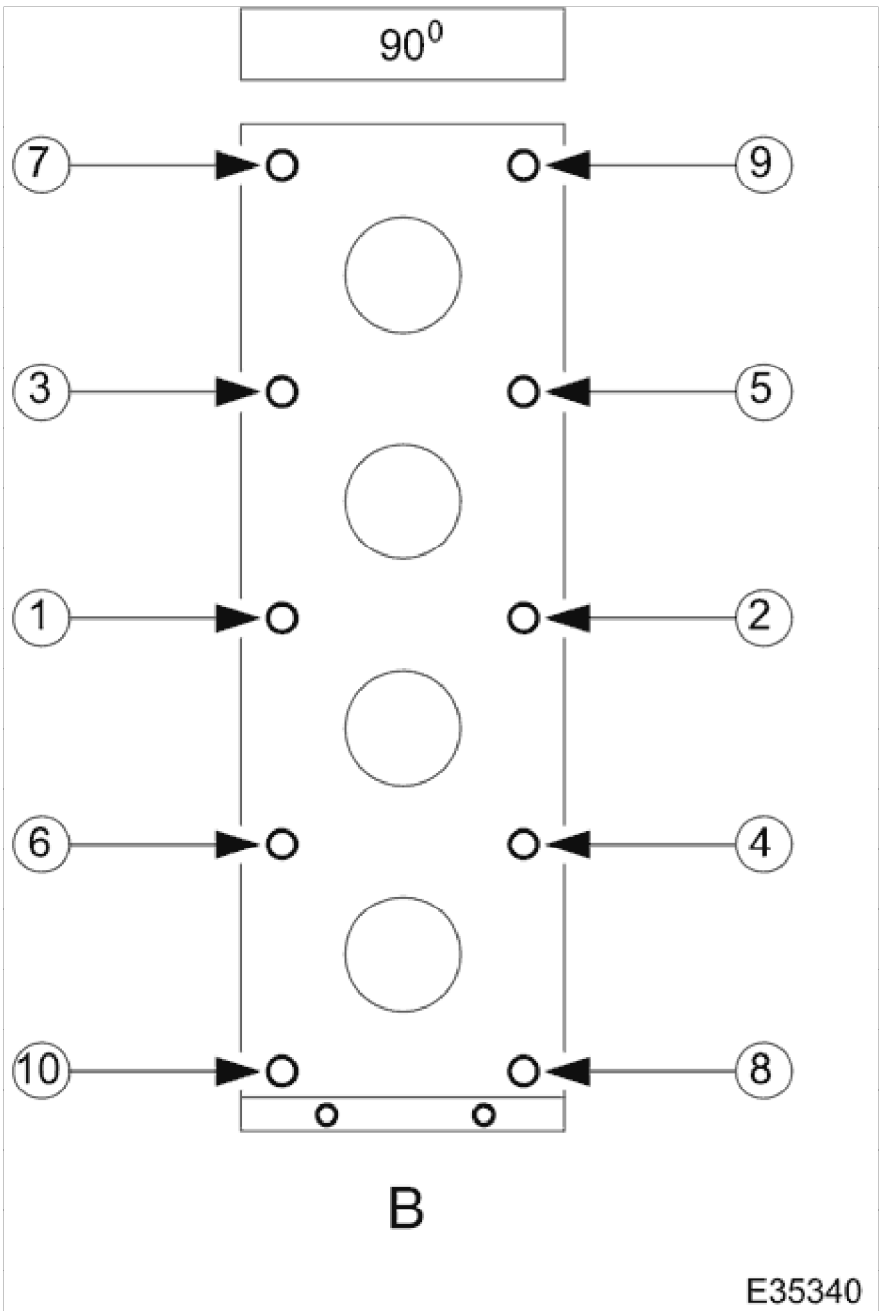
4. Install the cylinder head bolts, hand tight only.



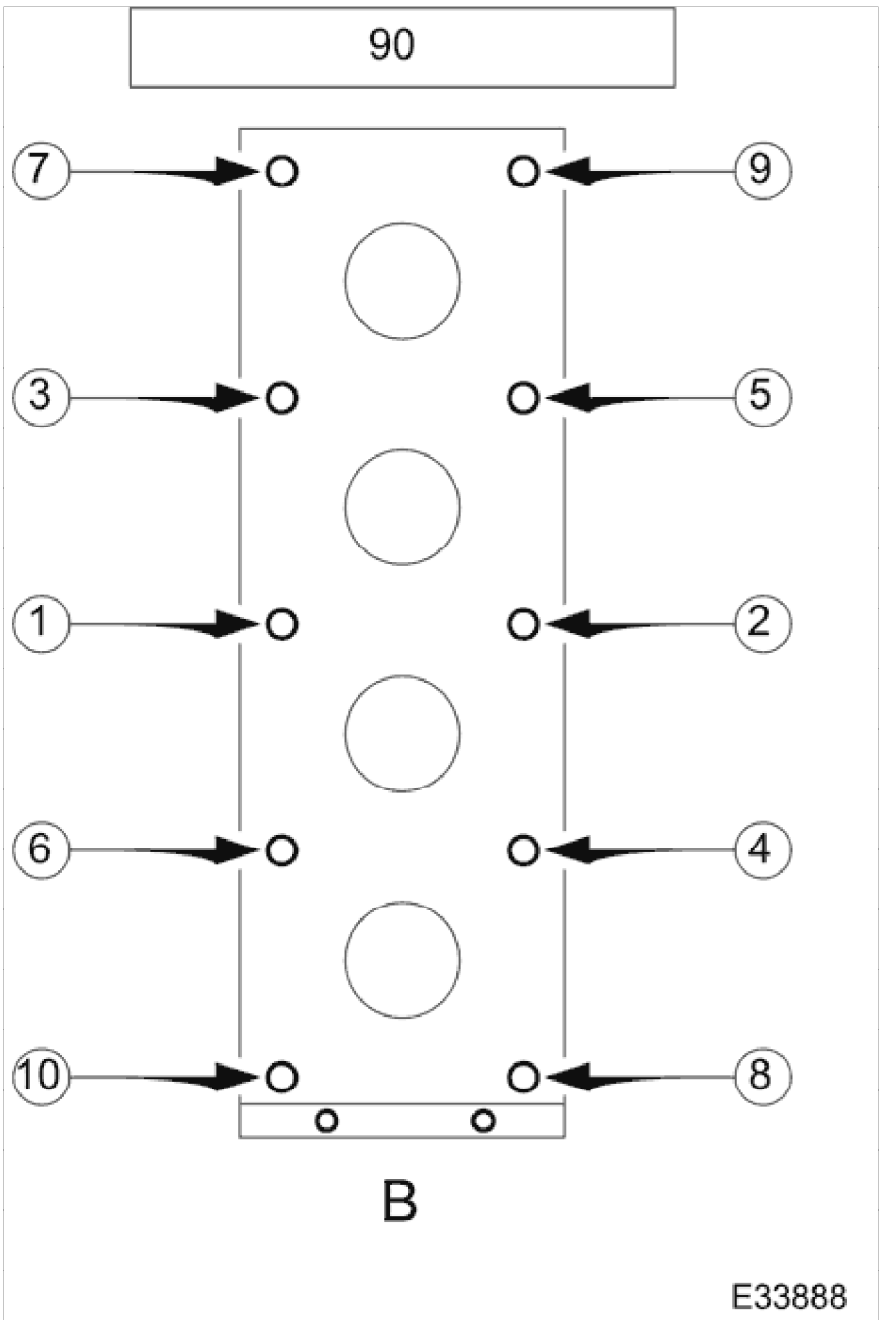
- 5. Tighten the cylinder head bolts in stages, in the sequence shown, using the following procedure:
 - Stage 1 - tighten all M10 bolts in sequence, to 20 Nm.



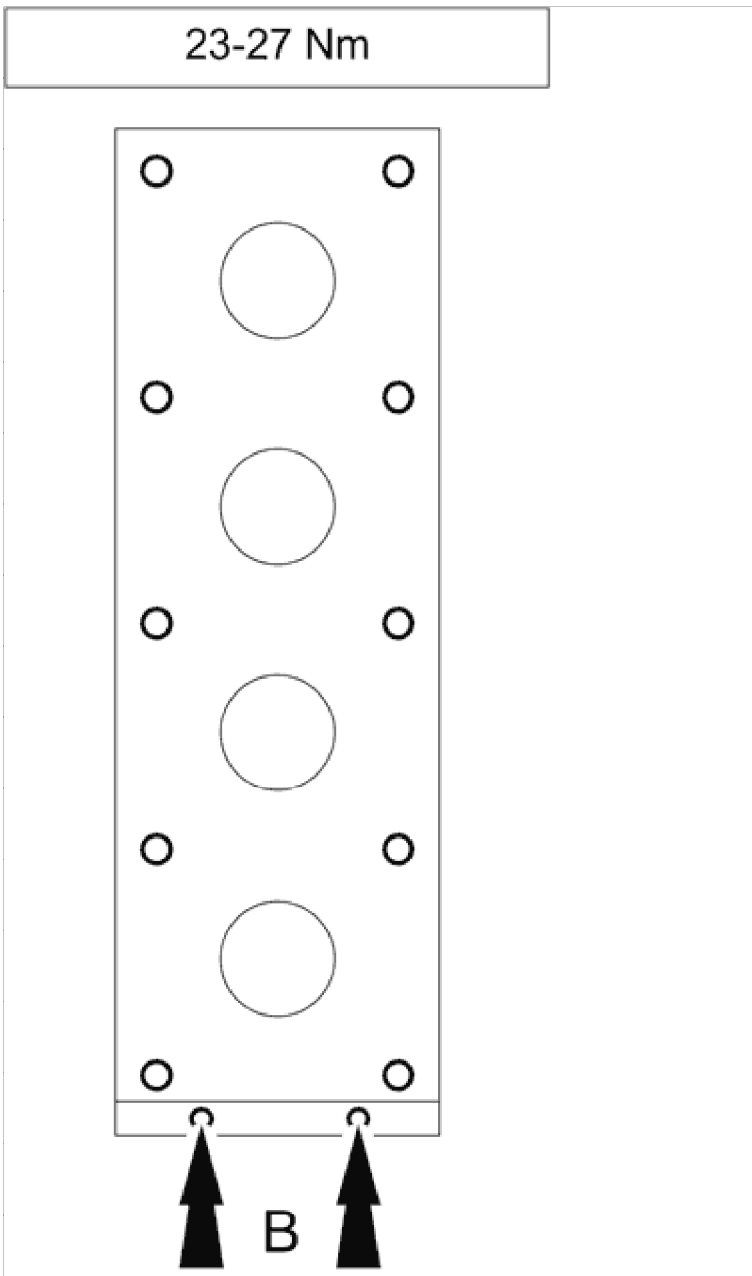
6. Stage 2 - tighten all M10 bolts in sequence, to 35 Nm.



7. Stage 3 - tighten all M10 bolts in sequence by 90°.

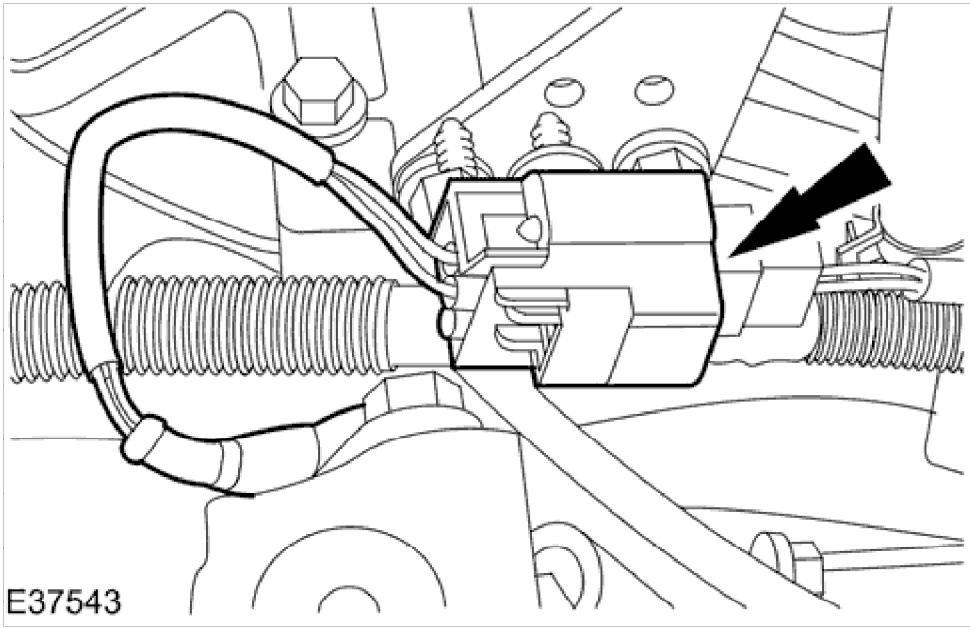


8. Stage 4 - tighten all M10 bolts in sequence by 90°.



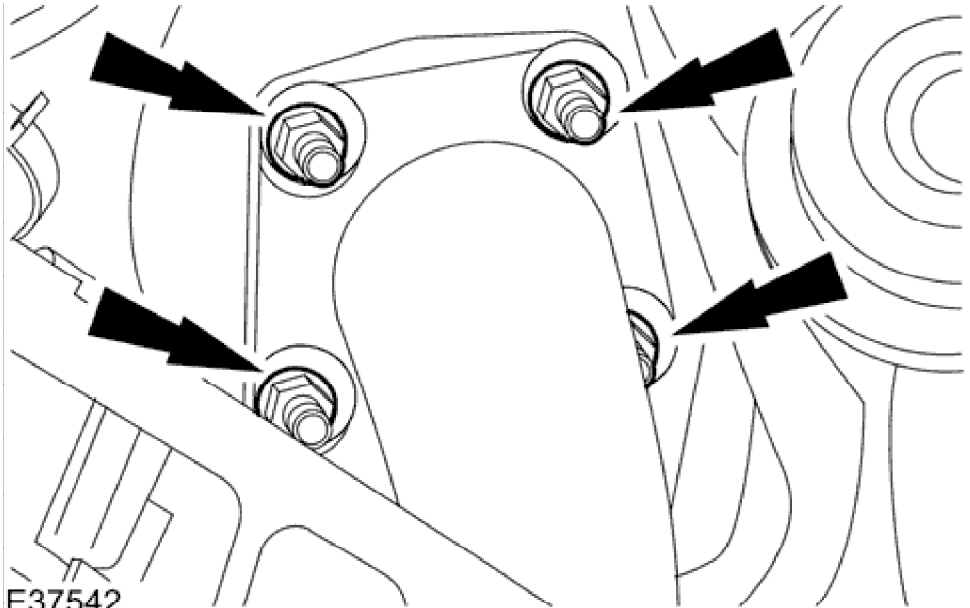
E35341

9. Stage 5 - tighten the two M8 bolts at the front of the cylinder head to 23-27 Nm.



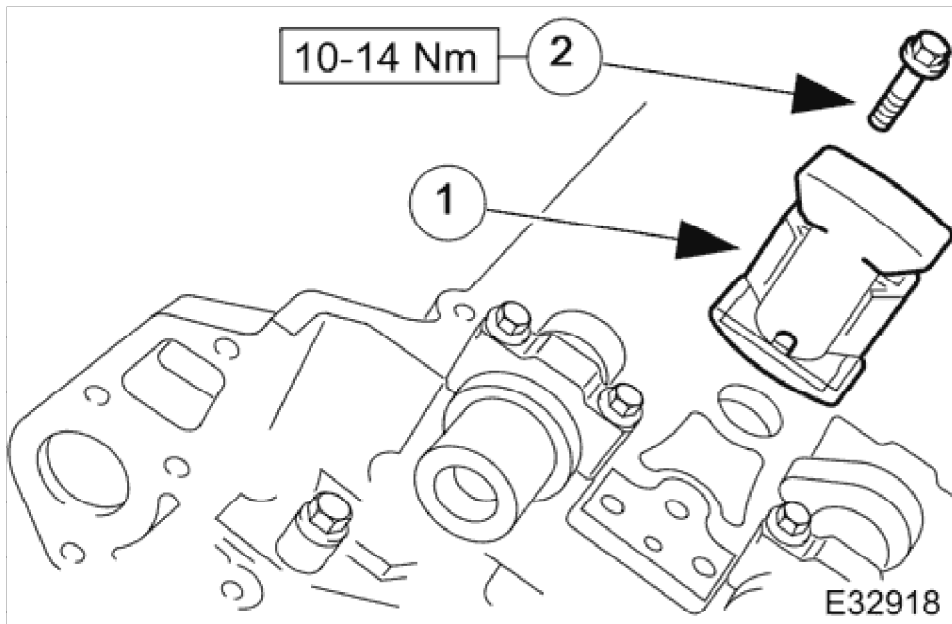
E37543

10. Connect the left-hand CMP sensor electrical connector.



E37542

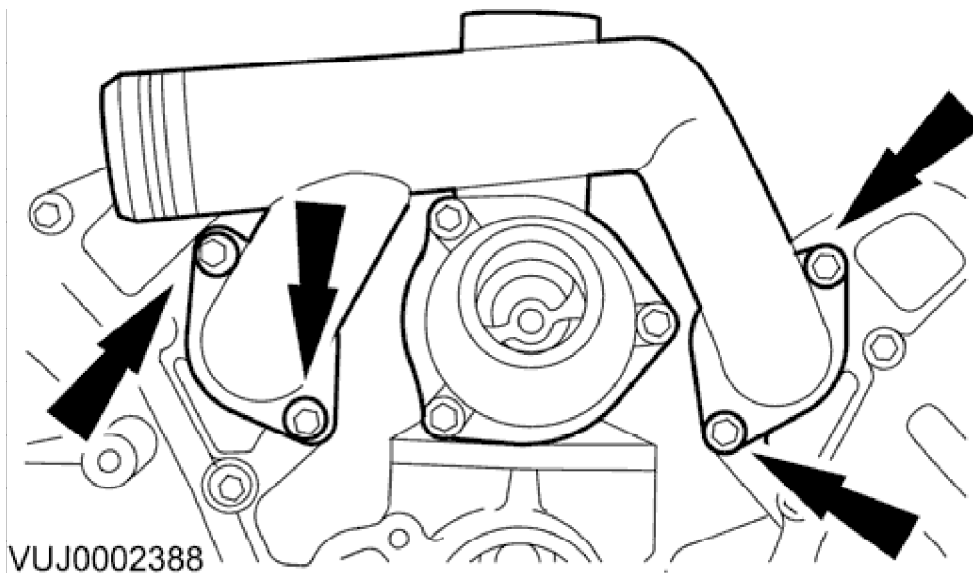
11. Install the exhaust manifold to catalytic converter retaining nuts.
• Tighten to 20 Nm.



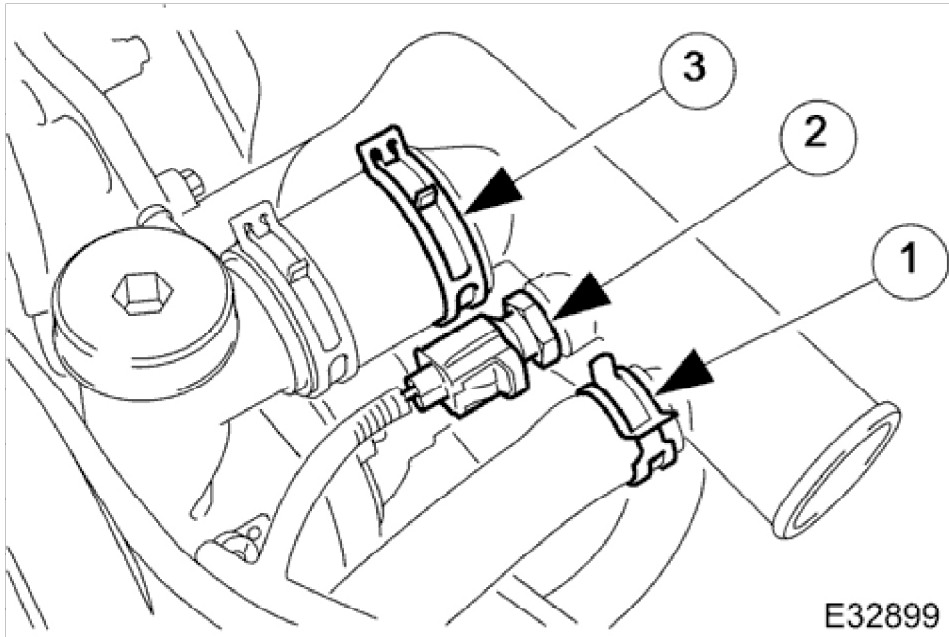
12. Install the secondary chain tensioner to the engine.
1. Fully seat the tensioner to the cylinder head.
 2. Install the two bolts which secure the tensioner and tighten to 10-14 Nm.

Vehicles without supercharger

13. Install new sealing rings to the coolant outlet pipe grooves.



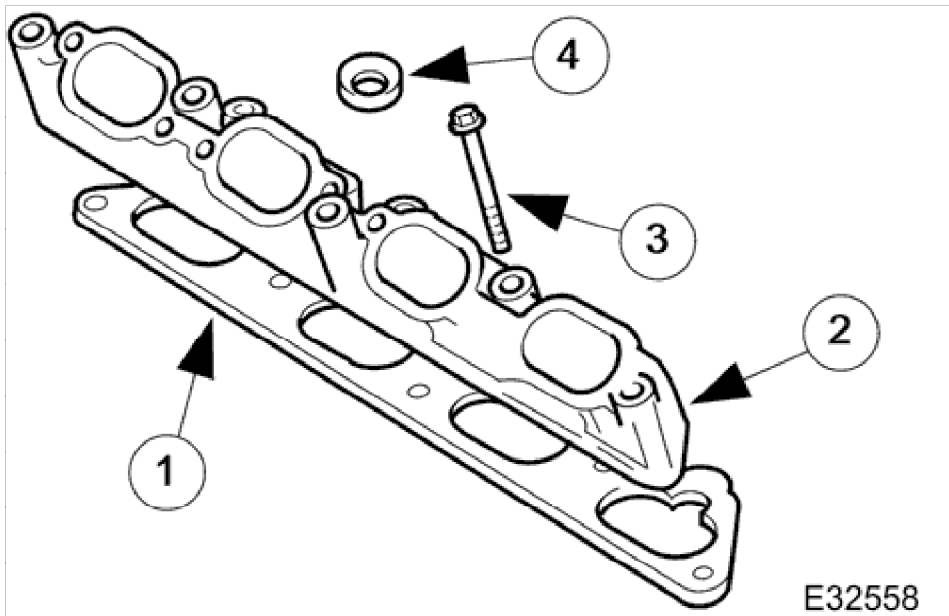
14. Install the coolant outlet pipe.
- Install the outlet pipe to the bypass hose and to the cylinder heads.
 - Install the four bolts which secure the outlet pipe.



15. Connect the hoses and multi-plug to the coolant outlet pipe.

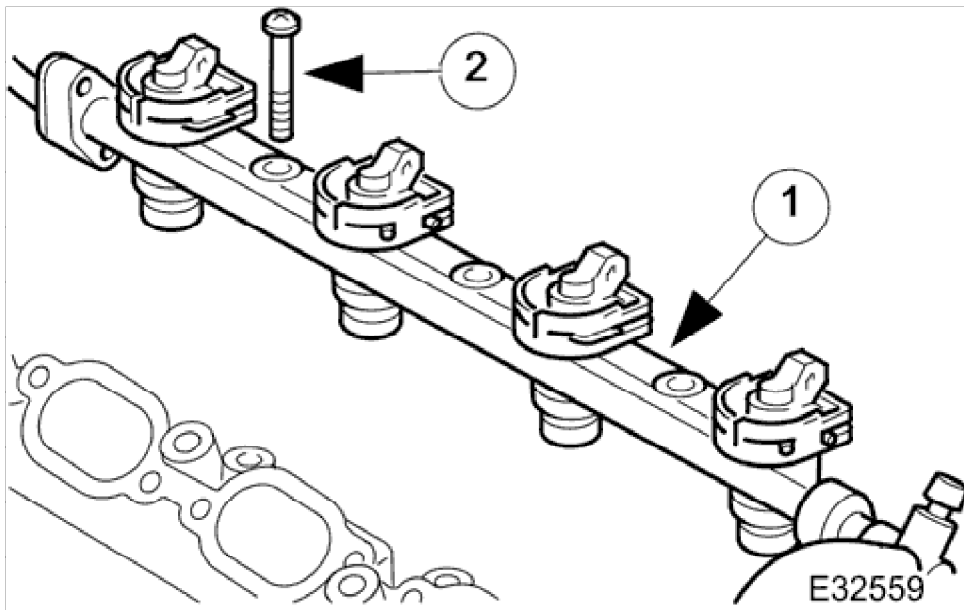
1. Connect the heater hose.
2. Connect the ECT sensor.
3. Expand and reposition the hose clip along the bypass hose.

Vehicles with supercharger



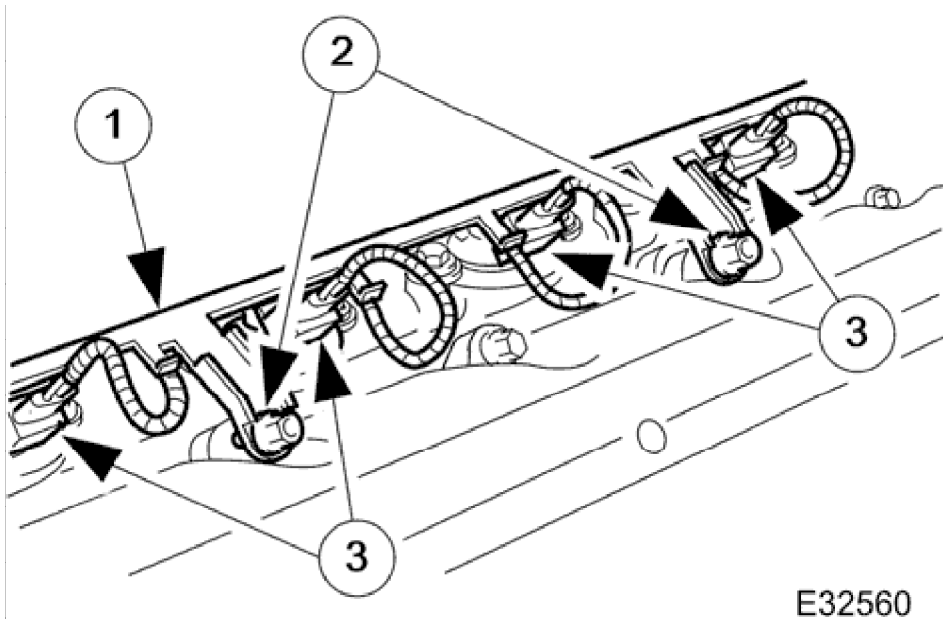
16. Install the left-hand intake manifold.

1. Install a new left-hand intake manifold gasket.
2. Install the left-hand intake manifold.
3. Install the left-hand intake manifold retaining bolts.
4. Install new fuel injector supply manifold seals.



17. Install the fuel injector supply manifold.

1. Position the fuel injection supply manifold to the left-hand intake manifold aligning the fuel injector to the ports.
2. Install the fuel injector supply manifold.
 - Tighten to 21 Nm.



18. Connect the fuel injector electrical connectors.

1. Reposition the fuel injection supply manifold wiring harness.
2. Attach the fuel injection supply manifold wiring harness.
3. Connect the fuel injector electrical connectors.

19. Install the left-hand charge air cooler. <<303-12>>

Vehicles without supercharger

2001 XK RANGE - Engine - 303-01

20. Install the intake manifold. <<Intake Manifold>>

All vehicles

21. Install the left-hand camshafts. <<Camshafts LH>>