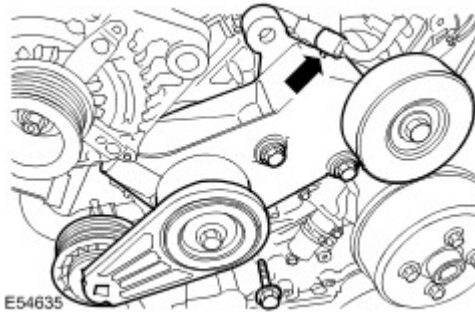




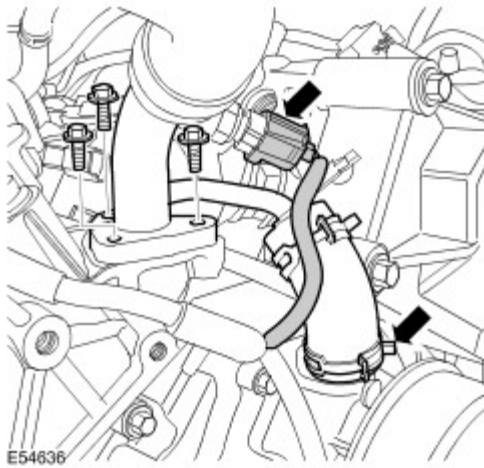
Cylinder Head RH (12.29.05)

Removal

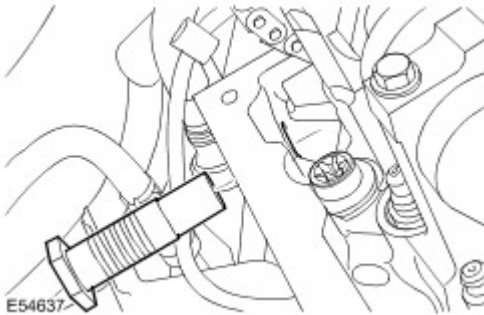
- 1 . Disconnect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
- 2 . Drain the coolant. For additional information, refer to [Cooling System Draining, Filling and Bleeding \(26.10.01\)](#) (Section 303-03)
- 3 . Refer to camshaft timing. For additional information, refer to (Section 303-01)
- 4 . Remove the exhaust manifold. For additional information, refer to [Exhaust Manifold RH \(30.15.11\)](#) (Section 303-01)
- 5 . Position the generator mounting bracket aside.
 - Remove the 3 bolts.
 - Release the wiring harness clip.
 - Disconnect the engine coolant temperature (ECT) sensor electrical connector.



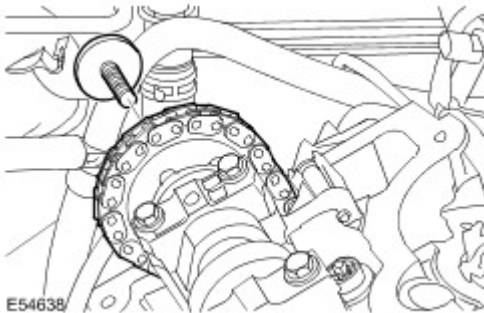
- 6 . Remove the cylinder block coolant outlet elbow.
 - Disconnect the engine coolant temperature (ECT) sensor electrical connector.
 - Release the clip securing the coolant pump hose.
 - Remove the 3 bolts.




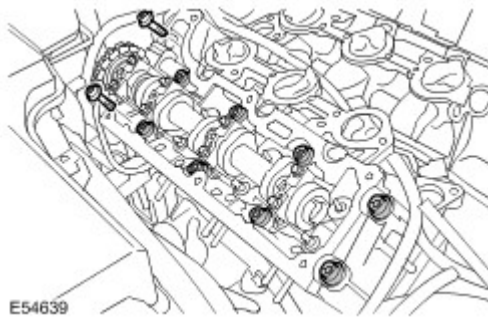
7. Remove the RH hydraulic timing chain tensioner.



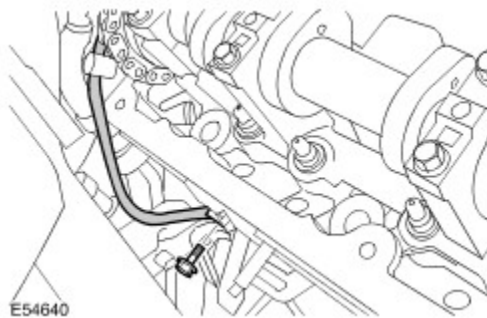
8. Remove the camshaft sprocket bolt.
- Remove the camshaft sprocket.
 - Secure the chain to the guide with a cable tie.



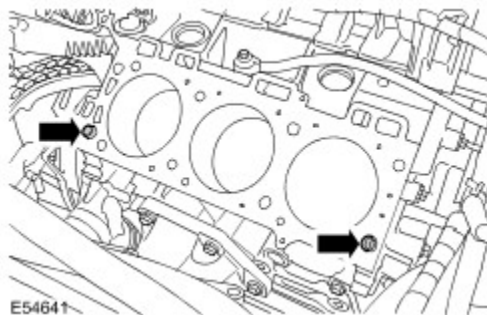
9.  **CAUTION: Working in a diagonal sequence, progressively loosen the bolts.**
- Remove the 10 cylinder head bolts.
- Discard the bolts.



- 10 . Remove the RH cylinder head assembly.
- Disconnect the cylinder head earth connector.
 - Remove the bolt.



- 11 . Remove and discard the cylinder head gasket.
- Clean the cylinder head locating dowels.
 - Clean and inspect the cylinder head and cylinder block.

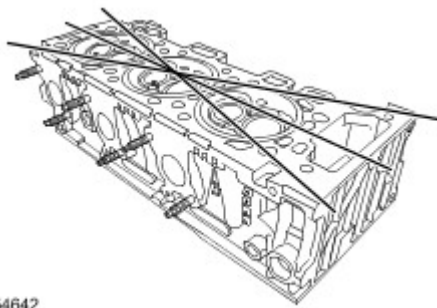


- 12 .
- NOTE :**
Remove the camshaft bearing caps evenly and in stages.
- NOTE :**
Note the fitted position.
- NOTE :**
Do not disassemble further if the component is removed for access only.
- Remove the camshaft bearing caps.
- Remove the 8 bolts.
 - Collect the camshaft oil supply line.

13. Remove the camshaft.

Installation

1. Install the camshaft.
- Clean the component mating faces.
 - Lubricate the components with clean engine oil.
2. **NOTE :**
Note the fitted position.
Install the camshaft bearing caps.
- Clean the component mating faces.
 - Lubricate the components with clean engine oil.
3. **NOTE :**
After installing the bolts check the camshaft is free to rotate.
Install the camshaft oil supply line.
- Thoroughly clean and inspect the oil supply line.
 - Prime the oil supply line with clean engine oil.
 - Tighten the bolts evenly in 2 stages to the sequence shown.
 - Tighten the bolts to 6 Nm (4 lb.ft).
 - Tighten the bolts to 16 Nm (12 lb.ft).
4. Clean the component mating faces.
5. Check cylinder head face for distortion, across the center and from corner to corner. For additional information, refer to [Specifications](#) (Section 303-01)



E54642

6.  **CAUTION: The head gasket must be installed over the cylinder block dowels.**

Install a new cylinder head gasket.

7. **NOTE :**
Care must be taken when installing the ground connections. The engine will fail to start on either or both banks if the ground is poor.

Install the cylinder head RH assembly.

- Connect the cylinder head earth ground connector.
- Tighten the bolt to 10 Nm (7 lb.ft).

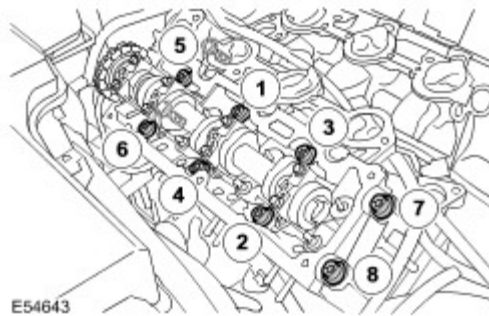
8 .

NOTE :

Tighten the bolts 1 to 8 in the sequence shown. The M12 bolts are tightened in 3 stages.

Install the cylinder head bolts.

- Lubricate the new cylinder head bolt threads with clean engine oil.
- Tighten the M12 bolts to 30 Nm (22 lb.ft), then a further 80 degrees.
- Tighten the M12 bolts a further 80 degrees.
- Tighten the M8 bolts to 35 Nm (26 lb.ft).



9 .

Install the exhaust manifold. For additional information, refer to [Exhaust Manifold RH \(30.15.11\)](#) (Section 303-01)

10 .

NOTE :

The thread is left handed.

Install the camshaft sprocket bolt.

- Remove and discard the cable tie.
- Clean the component mating faces.
- Install and lightly tighten the camshaft sprocket bolt.

11 .

Install the RH hydraulic timing chain tensioner.

- Tighten the tensioner to 45 Nm (33 lb.ft).

12 .



Install the cylinder head coolant flange.

- Clean the component mating faces.
- Tighten the bolts to 10 Nm (7 lb.ft).
- Secure the hose with the clip.
- Connect the ECT sensor electrical connector.

13 .

Install the generator mounting bracket.

- Clean the component mating faces.
- Tighten the bolts to 45 Nm (33 lb.ft).

-  Secure the wiring harness.
-  Connect the ECT sensor electrical connector.

- 14 . Adjust the valve timing. For additional information, refer to (Section 303-01)
- 15 . Connect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
- 16 . Refill and bleed the cooling system. For additional information, refer to [Cooling System Draining, Filling and Bleeding \(26.10.01\)](#) (Section 303-03)