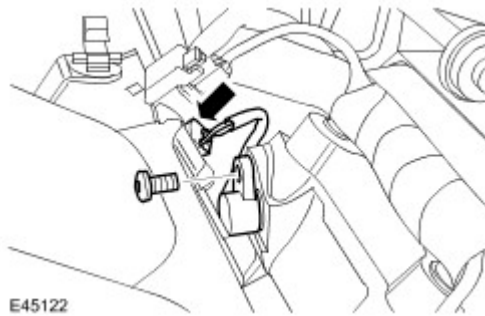


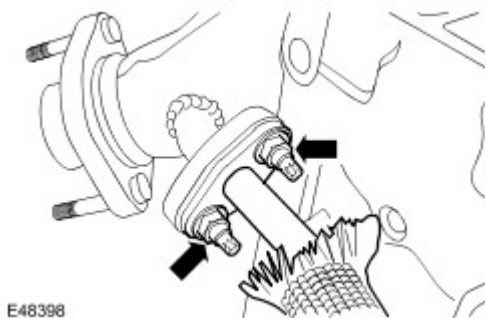
## Cylinder Head LH (12.29.04)


### Removal

1. Disconnect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
2. Remove the intake manifold. For additional information, refer to [Intake Manifold Assembly \(30.15.02\)](#) (Section 303-04)
3. Remove the LH bank camshafts. For additional information, refer to [Camshafts LH \(12.13.21\)](#) (Section 303-01)
4. Remove the camshaft position (CMP) sensor.
  - ▶ Remove the Torx screw.
  - ▶ Disconnect the electrical connector.



5. Disconnect the exhaust manifold EGR pipe flange.
  - ▶ Remove the 2 nuts.

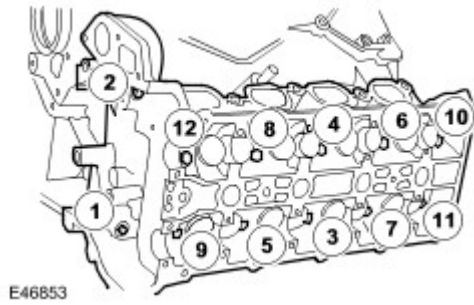


6.  **CAUTION:** The bolts can only be used twice, mark the bolts with a center punch. If two punch marks are visible, discard the bolts.

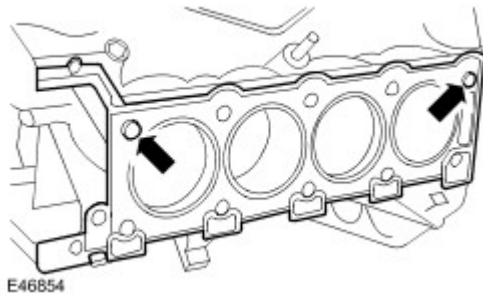
**NOTE :**

Remove the bolts in the indicated sequence.

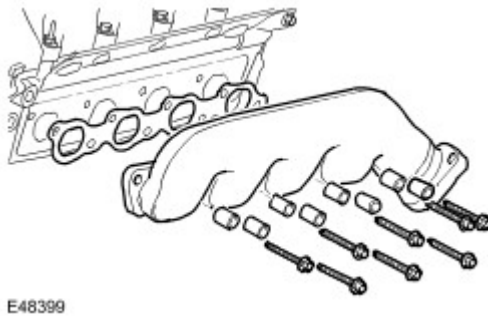
Remove the 12 cylinder head bolts.



7. Remove the LH cylinder head assembly.  
 ➤ With assistance remove the cylinder head.
8. Remove and discard the cylinder head gasket.  
 ➤ Clean the cylinder head locating dowels.

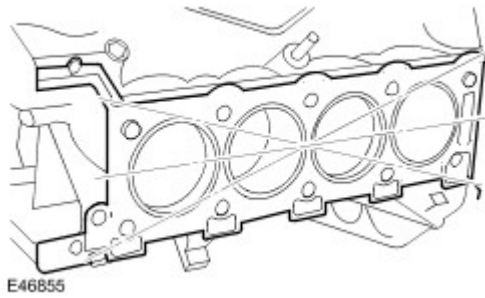


9. **NOTE :**  
 Do not disassemble further if the component is removed for access only.  
 Remove the exhaust manifold.  
 ➤ Remove the 8 bolts.  
 ➤ Discard the gasket and the bolts.

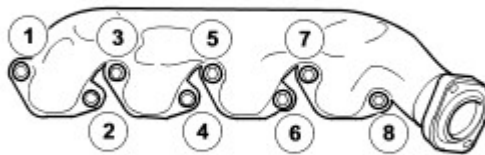


## Installation

1. Clean the component mating faces.
2. Check cylinder head face for distortion, across the center and from corner to corner.



3. Install the exhaust manifold.
  - Clean the component mating faces.
  - Install the gasket/heat shield.
  - Tighten the heat shield bolt to 25 Nm (18 lb.ft).
  - Evenly and progressively, tighten the bolts in the sequence shown to 20 Nm (15 lb.ft).



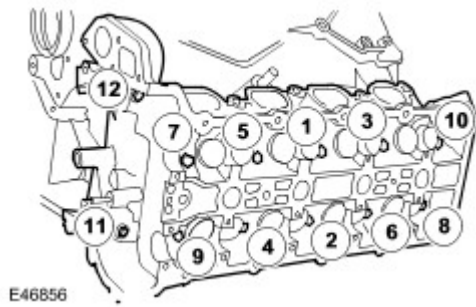
4.  **CAUTION: The head gasket must be installed over the cylinder block dowels.**

Install a new cylinder head gasket.

5. With assistance install the cylinder head.

6. **NOTE :**  
Tighten the bolts 1 to 10 in the sequence shown.  
Install the cylinder head bolts.

- Lubricate the new cylinder head bolt threads with clean engine oil.
- Tighten the bolts to 20 Nm (15 lb.ft).
- Tighten the bolts to 35 Nm (26 lb.ft).
- Tighten the bolts 1 to 10, a further 90 degrees.
- Tighten the bolts 1 to 10, a further 90 degrees.
- Tighten the M8 bolts 11 and 12, to 25 Nm (18 lb.ft).



- 7 . Connect the EGR pipe and exhaust manifold flanges.
  - Tighten the nuts to 25 Nm (18 lb.ft).
- 8 . Install the CMP sensor.
  - Tighten the Torx screw to 7 Nm (5 lb.ft).
  - Connect the electrical connector.
- 9 . Install the LH bank camshafts. For additional information, refer to [Camshafts LH \(12.13.21\)](#) (Section 303-01)
- 10 . Install the intake manifold. For additional information, refer to [Intake Manifold Assembly \(30.15.02\)](#) (Section 303-04)
- 11 . Connect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)