

2.3L 4-CYL & 2.3L 4-CYL TURBO

1990 Volvo 740

CYLINDER HEAD R & I

CAUTION: DO NOT rotate crankshaft or camshaft when timing belt is removed or valves may contact the pistons.

Removal

1) Drain cooling system at radiator and cylinder block. Disconnect negative battery cable. Remove intake manifold and exhaust manifold. Refer to INTAKE MANIFOLD R & I and also refer to EXHAUST MANIFOLD R & I in this article.

2) Remove all drive belts and water pump pulley. Remove fan, preheater hose (below fan shroud) and fan shroud. Remove timing belt cover.

3) Using center bolt on crankshaft, rotate crankshaft so mark on camshaft pulley aligns with timing mark on inner timing belt cover, and crankshaft pulley mark aligns with TDC mark on timing belt cover.

4) Loosen belt tensioner nut one turn. Pull on timing belt to compress belt tensioner spring. Tighten belt tensioner nut. Install a 3-mm drill bit through hole of belt tensioner bolt to lock tensioner spring in place.

5) Note location of timing belt on camshaft sprocket. Remove timing belt from camshaft sprocket.

CAUTION: DO NOT allow timing belt to come off of crankshaft sprocket. DO NOT rotate crankshaft or camshaft when timing belt is removed or valves may contact the pistons. See TIMING BELT R & I in this article.

6) If removing camshaft sprocket, use Holder (5034) and remove sprocket retaining bolt. Remove sprocket and spacer washer. Note direction of spacer washer installation.

7) Remove spark plug wires and remove distributor cap. Remove cylinder head bolts in proper sequence and remove cylinder head. See Fig. 3.

Inspection

Inspect cylinder head for warpage at deck surface. Resurface cylinder head if warpage exceeds specification. Cylinder head height must be within specification. See CYLINDER HEAD SPECIFICATIONS TABLE at end of article.

CAUTION: Replace cylinder head bolts if stretched or used more than 5 times. When in doubt, replace cylinder head bolts.

Installation

1) Ensure camshaft is positioned so valves are closed on No. 1 cylinder and No. 1 piston is at TDC. Install new head gasket with TOP mark upward. Ensure "O" ring for water pump sits correctly in groove. Install cylinder head.

2) Apply light coat of engine oil on cylinder head bolts before installation. Install and tighten retaining bolts in sequence to specification using 3 stages. See Fig. 3. Refer to the TORQUE SPECIFICATIONS table at end of article.

3) Install remaining components. Install timing belt on camshaft sprocket in original location. Ensure all timing marks align. Adjust timing belt. See TIMING BELT R & I in this article. To install remaining components, reverse removal procedure.

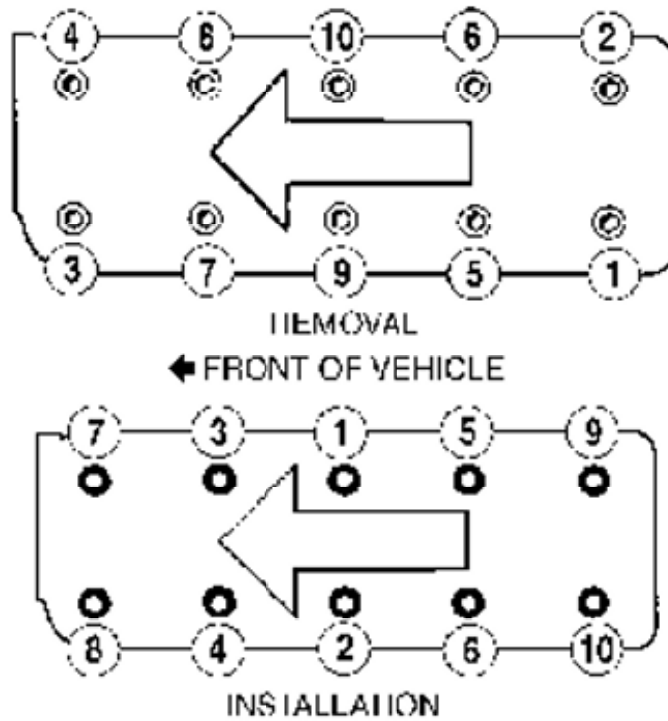


Fig. 3: Cylinder Head Bolt Removal & Installation Sequence
Courtesy of Volvo Cars of North America.

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INTAKE MANIFOLD R & I

Removal

1) Disconnect negative battery cable. Remove air intake hoses at throttle body. Disconnect necessary electrical connections, control cables and vacuum hoses.

2) Remove fuel tank cap to relieve fuel tank pressure. See FUEL PRESSURE RELEASE in this article. Remove fuel lines. Remove intake manifold retaining nuts and intake manifold.

Installation

To install, reverse removal procedure using new gaskets. If fuel rail and injectors were removed, install components using new "O" rings. Coat "O" rings with petroleum jelly before installation.

EXHAUST MANIFOLD R & I

NOTE: Remove turbo before removing exhaust manifold (if necessary).

Removal

1) Disconnect negative battery cable. On turbo models, remove air delivery and intake hoses from turbo. Drain cooling system. Remove coolant lines, oil lines and vacuum hoses at turbo.

2) On all models, disconnect exhaust pipe. Remove manifold retaining nuts and exhaust manifold.

Installation

1) To install, reverse removal procedure using new gaskets. If gaskets are marked with letters UT, this side must face away from cylinder head.

2) On turbo models, if turbo was removed, apply Thread Sealant (1161078-9) to turbo retaining bolts and install using new lock plates. Tighten in a crisscross pattern.

3) Pour clean engine oil into turbo before installing oil supply line. When installing exhaust pipe on turbo, if studs were removed from turbo, apply Thread Sealant (1161035-9) to studs before installing into turbo housing.