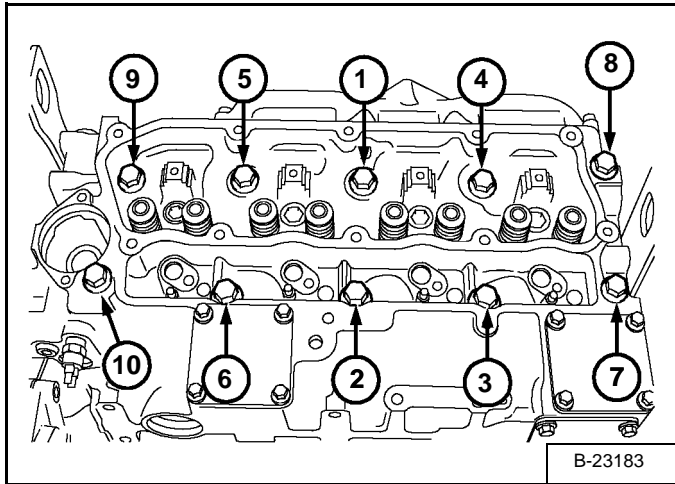


RECONDITIONING THE ENGINE (CONT'D)

Cylinder Head Removal (Cont'd)

Figure 70-100-22



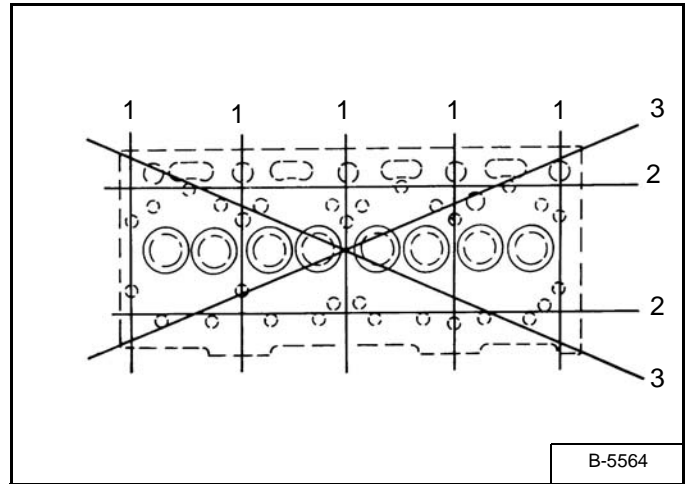
Release the cylinder head bolts evenly and gradually in the sequence shown [Figure 70-100-22].

Check the head bolts for distortion and damage. Replace as needed.

Lift off the cylinder head and clean the bottom face.

Cylinder Head Inspection

Figure 70-100-23



Put a straight edge on the cylinder head as shown in [Figure 70-100-23].

Using a feeler gauge between the straight edge and head, check for warping.

Maximum allowed (Item 1) is 0.0012 inches (0,03 mm), (Item 2) is 0.0019 inches (0,05 mm) and (Item 3) [Figure 70-100-23] is 0.0019 inches (0,05 mm).

The head may be machined removing only a minimum amount. Head thickness must not be less than 4.614 inches (117,20 mm).

Completely clean the rest of the head.

Check for cracks or other damage.

RECONDITIONING THE ENGINE (CONT'D)

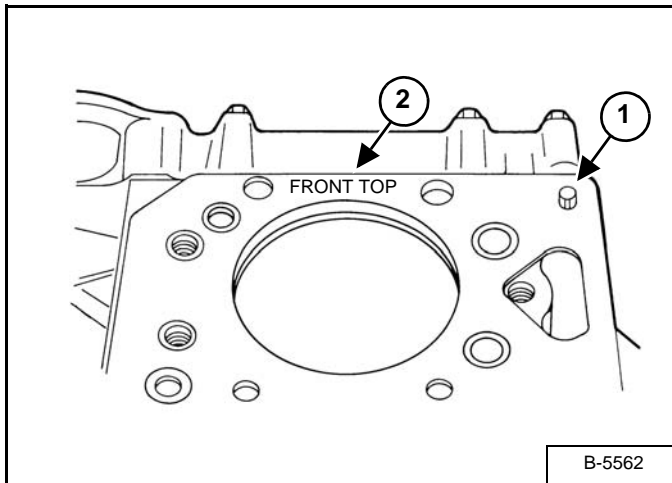
Cylinder Head Installation

Make sure the mating surfaces of the head and block are clean.

Clean the engine block bolt bores with the correct size tap to ensure correct torque for the cylinder head bolts.

Clean any debris out of the cylinder bores.

Figure 70-100-24



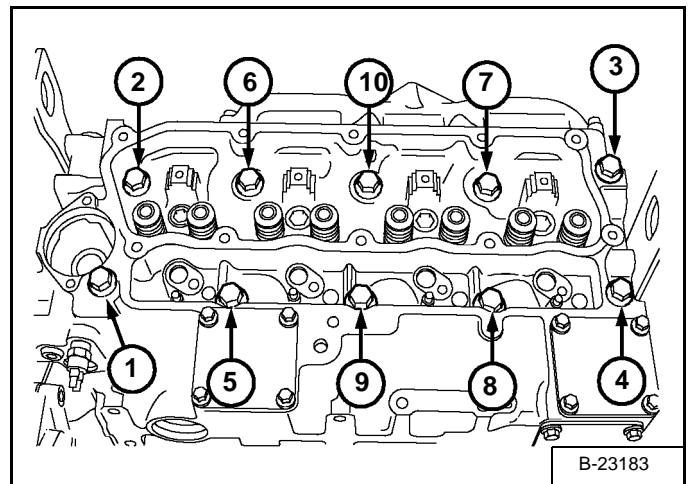
NOTE: The locating pins (Item 1) are pressed in the engine block so the head gasket (Item 2) [Figure 70-100-24] can be positioned correctly.

The head gasket is installed with no sealer.

Place the head gasket in position with the *Front Top* (Item 2) [Figure 70-100-24] marks in the correct position.

Lower the cylinder head in position.

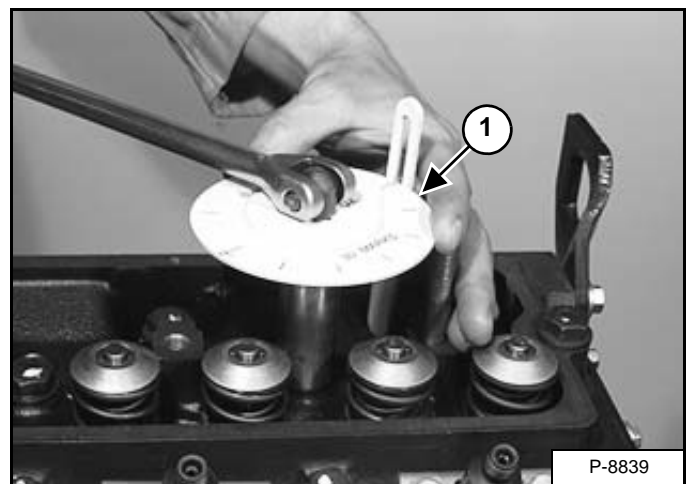
Figure 70-100-25



Tighten the head bolts to 37 ft.-lb. (50 N•m) in the sequence shown [Figure 70-100-25].

Tighten the head bolts to 74 ft.-lb. (100 N•m) in the sequence shown [Figure 70-100-25].

Figure 70-100-26

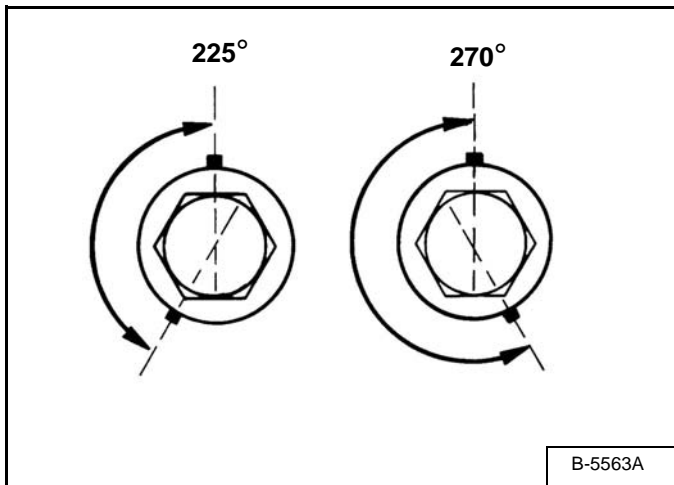


Additional tightening of the head bolts requires the use of a torque angle gauge (Item 1) [Figure 70-100-26]. Tighten the short bolts to 225° and long bolts to 270° in the same sequence as shown in [Figure 70-100-25].

RECONDITIONING THE ENGINE (CONT'D)

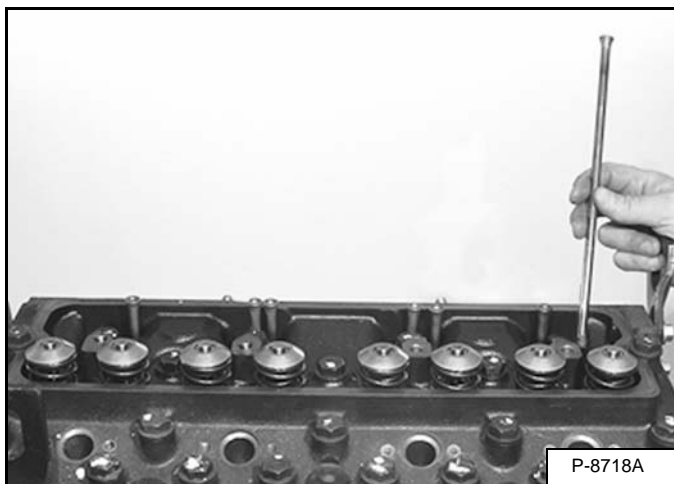
Cylinder Head Installation (Cont'd)

Figure 70-100-27



If no angle gauge is available make a suitable mark on the head bolt corner. Make another mark on the cylinder head the correct number of flats away [Figure 70-100-27]. Turn the head bolt until the lines match.

Figure 70-100-28



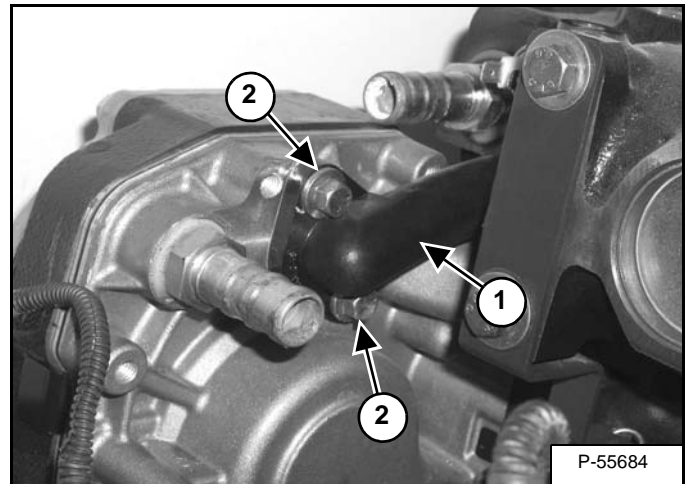
Install the push rods [Figure 70-100-28].

Make sure the push rods seat in the tappet sockets.

Install the rocker shaft assembly. (See "Rocker Shaft Disassembly And Assembly" on page 70-100-12)

Install the rocker cover. (See "Rocker Cover Removal And Installation" on page 70-100-5)

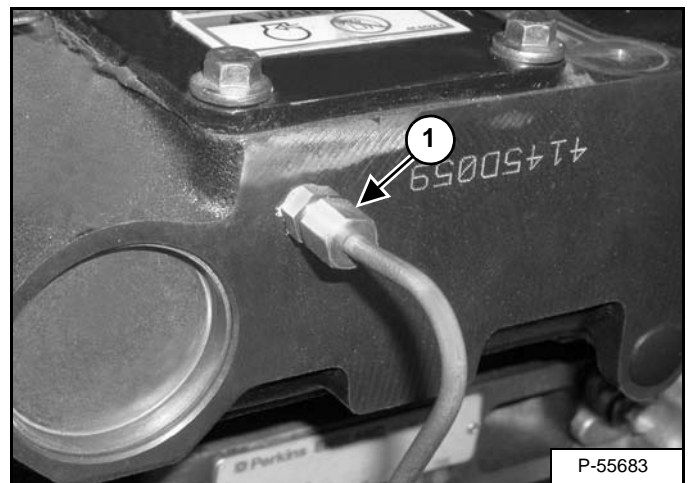
Figure 70-100-29



Install the coolant by-pass pipe (Item 1) and two screws (Item 2) [Figure 70-100-29].

Tighten the screws to 16 ft.-lb. (22 N•m) torque.

Figure 70-100-30

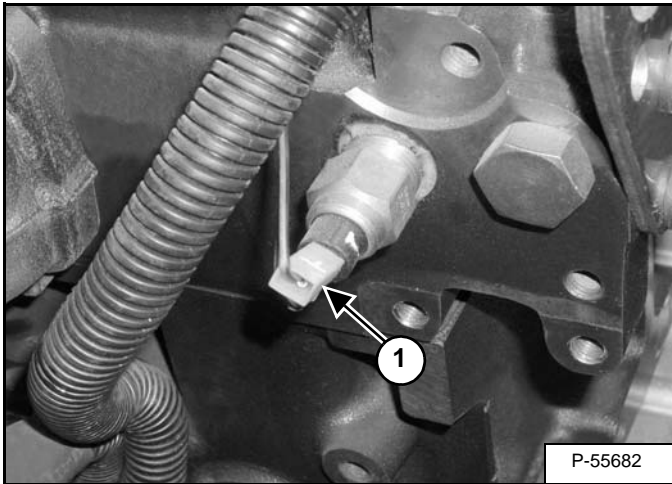


Install the tubeline (Item 1) [Figure 70-100-30].

RECONDITIONING THE ENGINE (CONT'D)

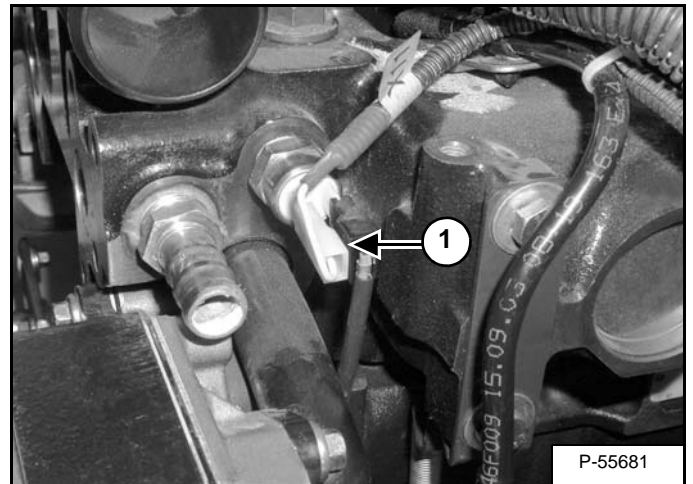
Cylinder Head Installation (Cont'd)

Figure 70-100-31



Connect the intake manifold pressure sensor (Item 1) [Figure 70-100-31].

Figure 70-100-32



Connect the engine cooling temperature sensor (Item 1) [Figure 70-100-32].

Install the glow plugs. (See "Glow Plugs Removal And Installation" on page 70-70-12)

Install the fuel injectors. (See "Fuel Injectors Removal And Installation" on page 70-70-7)

Install the fuel lift pump. (See "Fuel Lift Pump Removal And Installation" on page 70-70-10)

Install the alternator. (See "Removal And Installation" on page 60-30-1)

Install the exhaust manifold. (See "Exhaust Manifold Removal And Installation" on page 70-100-4)

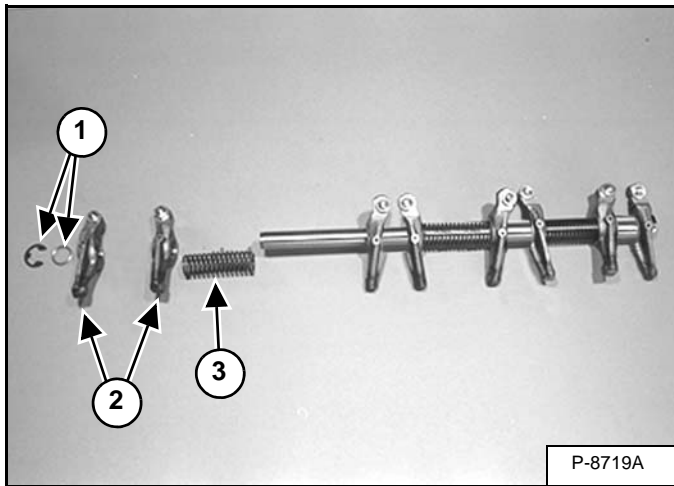
Install the turbo charger. (See "Turbo Charger Removal And Installation" on page 70-100-2)

RECONDITIONING THE ENGINE (CONT'D)

Rocker Shaft Disassembly And Assembly

NOTE: Make an identification mark on each rocker arm assembly in order to show the location.

Figure 70-100-33



Remove the clips (Item 1) [Figure 70-100-33] from both ends of the shaft.

Remove the rocker arm (Item 2) and spring (Item 3) [Figure 70-100-33].

Continue to disassemble the rocker shaft.

Clean and inspect all components for damage and wear.

Check the clearance between the rocker arms and shaft.

Using a press and adapter, remove the old bushing and press in the new one making sure the oil holes line up.

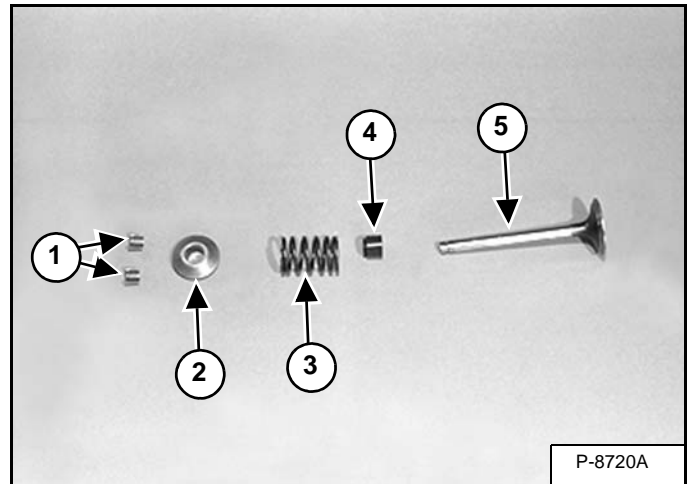
Shaft O.D.	0.9828-0.9837 inch (24,962-24,987 mm)
Rocker Arm Bore Dia.	0.9848-09.863 inch (25,013-25,051 mm)
Clearance Between Rocker Arm and Shaft	0.0010-0.0035 inch (0,026-0,089 mm)

If the clearance is more than 0.005 inch (0,13 mm) replace the bushing(s).

Valve Removal

NOTE: Mark all components so they can be returned to the same position.

Figure 70-100-34



Using a valve spring compressor compress the springs and remove the retainers (Item 1) [Figure 70-100-34].

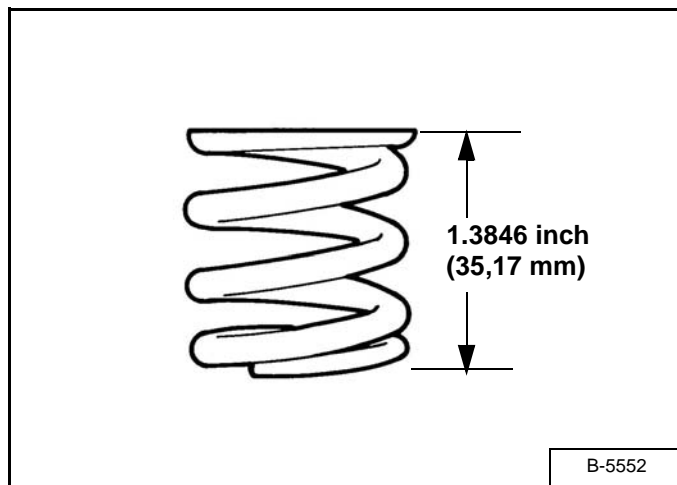
Release the compressor and remove the valve spring cap (Item 2), spring (Item 3), valve seal/spring seat washer (Item 4) and valve (Item 5) [Figure 70-100-34].

Clean and inspect all components.

RECONDITIONING THE ENGINE (CONT'D)

Valve Springs Checking

Figure 70-100-35

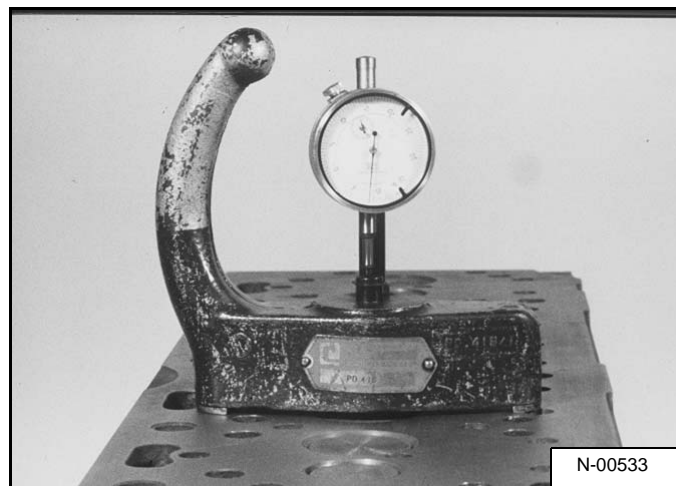


Use the following chart [Figure 70-100-35].

Valve Springs	
Compressed Height	1.3846 inch (38,17 mm)
Installed Pressure	75 lb. (335 N)

Valve Depth Checking

Figure 70-100-36



Check the valve depth as shown in [Figure 70-100-36].

The maximum depth is 0.0811 inch (2,06 mm) for both intake and exhaust valves.

If the valve is below the limits, install a new valve and recheck the valve depth. If it is still below limits a new valve seat insert must be installed.

When the depth is less than 0.060-0.071 inch (1,53-1,81 mm) the seat may be ground to lower the valve depth.