

Product: VIBRATORY COMPACTOR

Model: CB46B VIBRATORY COMPACTOR JC4

Configuration: CB46B Vibratory Compactor JC400001-UP (MACHINE) POWERED BY C3.4 Engine

Disassembly and Assembly C3.4B Engines for Caterpillar Built Machines

Media Number -UENR0650-12

Publication Date -01/01/2015

Date Updated -30/04/2018

i04884980

Rocker Shaft and Pushrod - Install

SMCS - 1102-012; 1208-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	390-1131	Timing Pin (Crankshaft)	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that all components are clean and free from damage. If necessary, replace any components that are worn or damaged.
 2. If Tooling (A) is not installed, install Tooling (A). Refer to Disassembly and Assembly, "Rocker Shaft and Pushrod - Remove" for the correct procedure.
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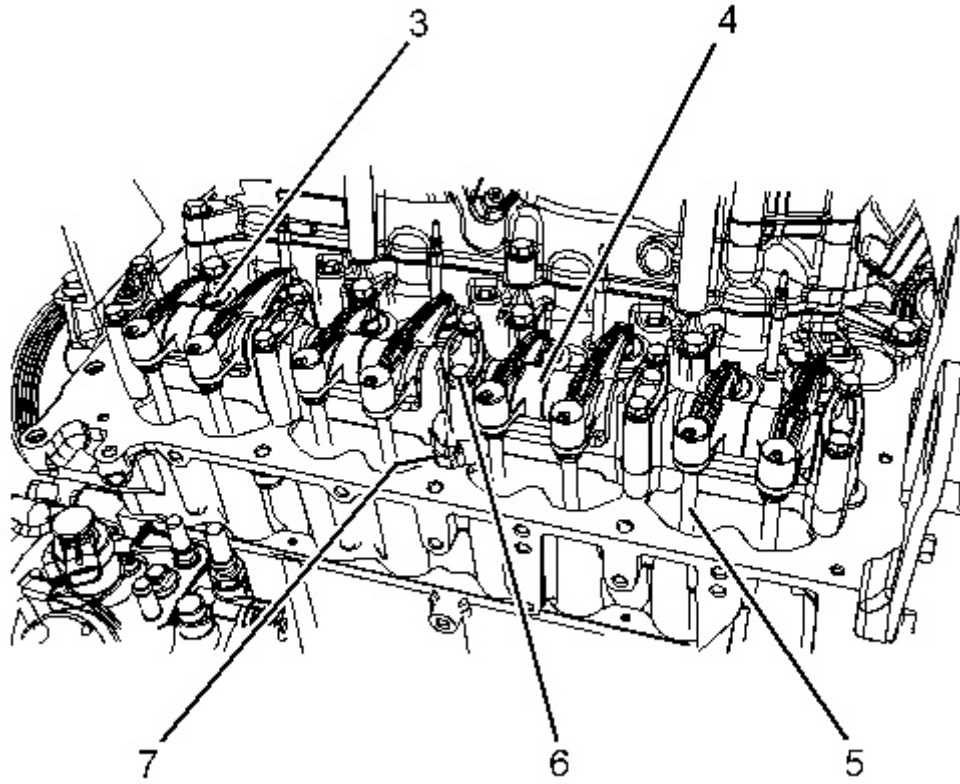


Illustration 1

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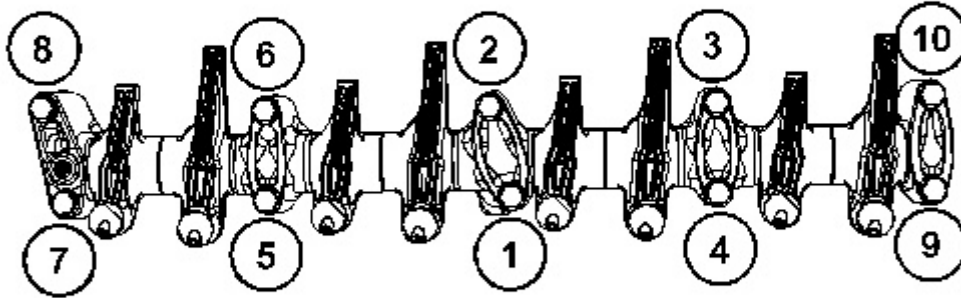


Illustration 2

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3. If necessary, install dowel (7) (not shown).
4. Apply clean engine oil to wear caps (3). Install the wear caps to the valve stems.

Note: If the wear caps were previously used, the wear caps must be installed in the original location.

5. Apply clean engine oil to both ends of push rods (5). Install the push rods into the cylinder head.

Note: If the push rods have previously been used, the push rods must be installed in the original location.

Note: Ensure that the push rods are seated in the cups of the lifters

6. Position rocker shaft assembly (4) onto the cylinder head.
7. Install bolts (6) to rocker shaft assembly (4). Tighten the bolts in the numerical sequence that is shown in Illustration 2 to a torque of 10 N·m (89 lb in).

Note: Ensure that the rocker arms are seated in the cups of the push rods.

Note: Ensure that the wear caps are not displaced from the valve stems when the rocker shaft assembly is installed.

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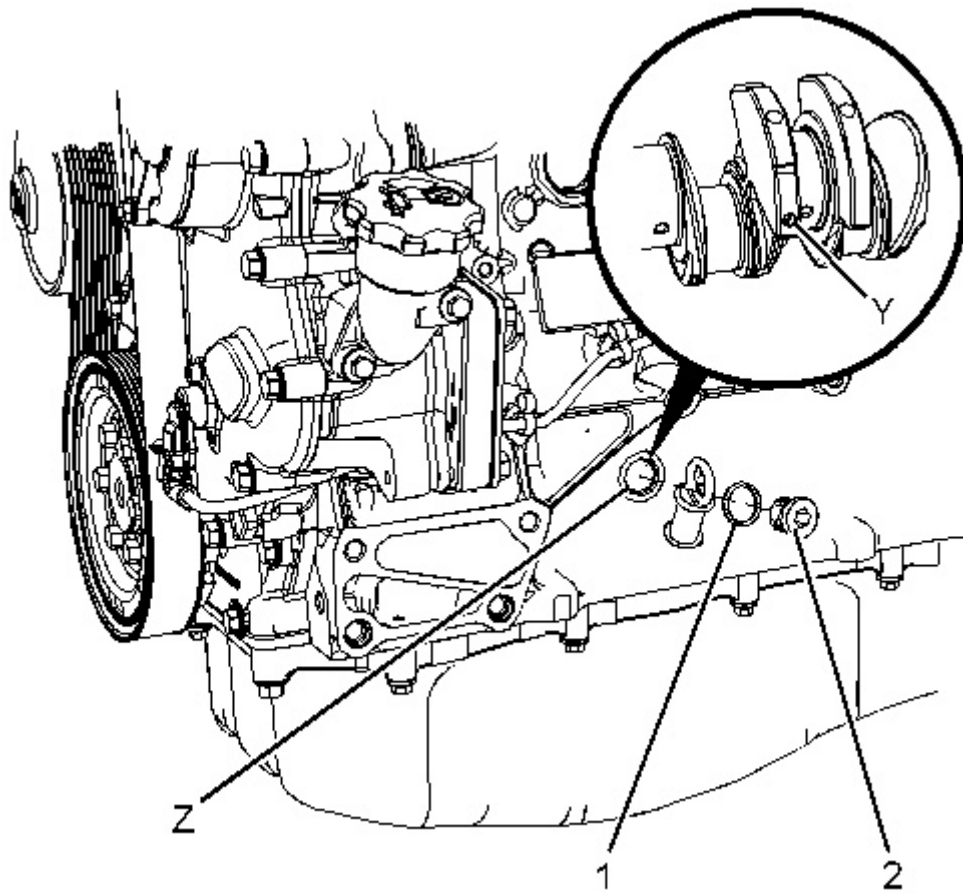


Illustration 3

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8. Remove Tooling (A) from the cylinder block.
9. Install new O-ring seal (1) onto plug (2).
10. Install plug (2) into Position (Z) in the cylinder block. Tighten the plug to a torque of 30 N·m (266 lb in).

End By:

- a. Install the valve mechanism cover. Refer to Disassembly and Assembly, "Valve Mechanism Cover - Remove and Install" for the correct procedure.
-

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i04887271

Cylinder Head - Remove

SMCS - 1100-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	-	E14 Torx 1/2 Inch Drive Socket	1
B	227-4393	E18 Torx 1/2 Inch Drive Socket	1

Start By:

- Remove the exhaust manifold. Refer to Disassembly and Assembly, "Exhaust Manifold - Remove and Install".
- Remove the injectors. Refer to Disassembly and Assembly, "Injector - Remove".
- Remove the rocker shaft assembly and the pushrods. Refer to Disassembly and Assembly Manual, "Rocker Shaft and Pushrod - Remove".
- Remove the glow plugs. Refer to Disassembly and Assembly, "Glow Plugs - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

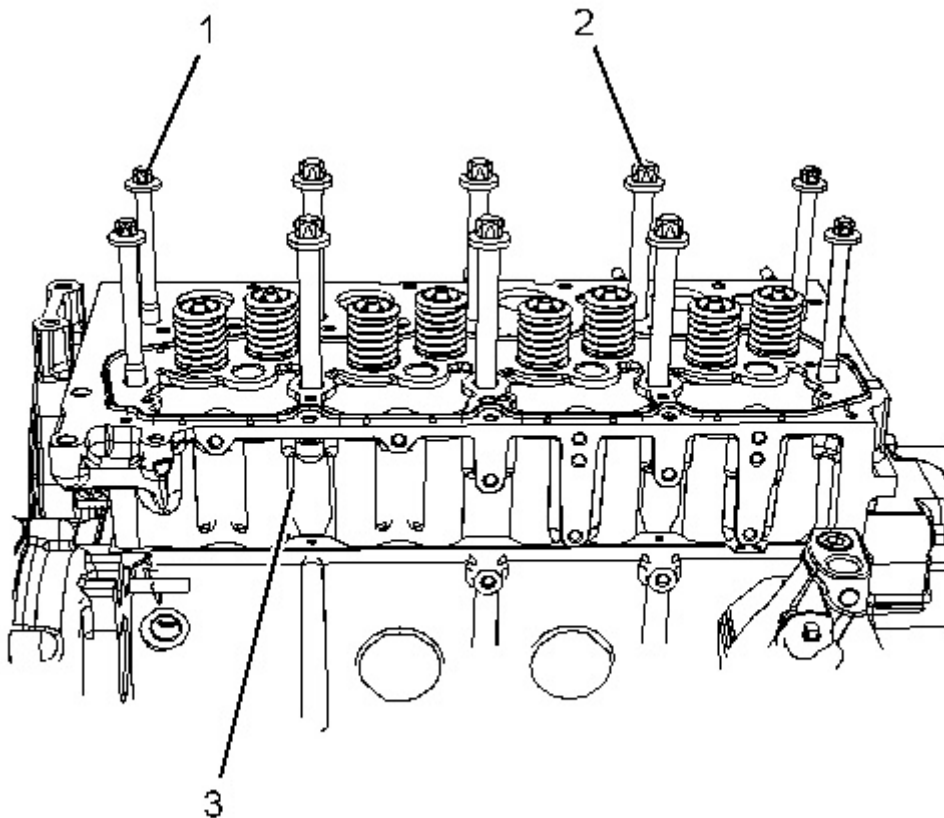
NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Dispose of all fluids according to local regulations and mandates.

Note: Put identification marks on all hoses, on all hose assemblies, on wires and on all tube assemblies for installation purposes. Plug all hose assemblies and tube assemblies. Plugging all hose assemblies helps to prevent fluid loss and helps to keep contaminants from entering the system.

1. Drain the coolant from the cooling system into a suitable container for storage or for disposal. Refer to Operation and Maintenance Manual, "Cooling System Coolant - Change" for the correct draining procedure.
 2. Disconnect the upper radiator hose from the water temperature regulator housing.
-



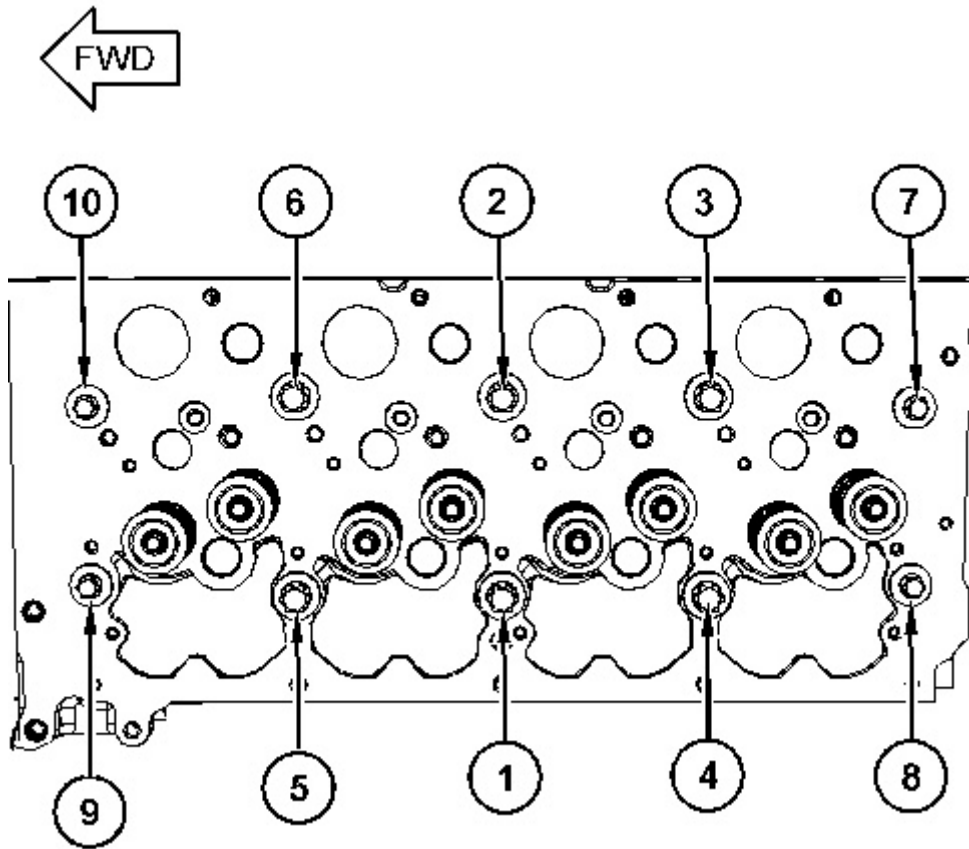


Illustration 2

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Sequence for tightening the bolts for the cylinder head

3. Use Tooling (A) and Tooling (B) in order to gradually loosen bolts (1) and bolts (2) in the reverse numerical order to the sequence that is shown in Illustration 2.

Note: Follow the correct sequence in order to help prevent distortion of the cylinder head.

4. Remove bolts (1) and bolts (2) from cylinder head (3).

Note: The bolts are two different lengths. Note the positions of the different bolts.

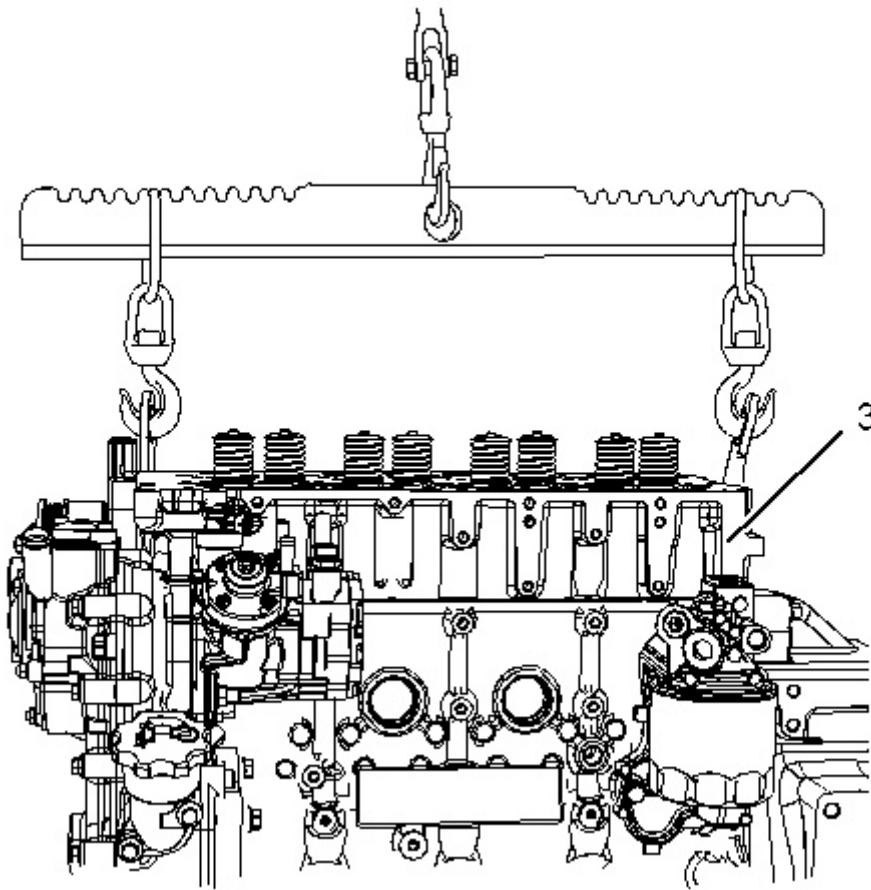


Illustration 3
Typical example

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5. Attach a suitable lifting device to cylinder head (3). Support the weight of the cylinder head. The weight of the cylinder head is approximately 30 kg (66 lb).

Note: Use a spreader bar during the lifting operation in order to distribute the weight of the cylinder head.

6. Use the lifting device to carefully lift cylinder head (3) off the cylinder block.

Note: Do not use a lever to separate the cylinder head from the cylinder block. Take care not to damage the machined surfaces of the cylinder head during the removal procedure.

NOTICE

Place the cylinder head on a surface that will not scratch the face of the cylinder head.

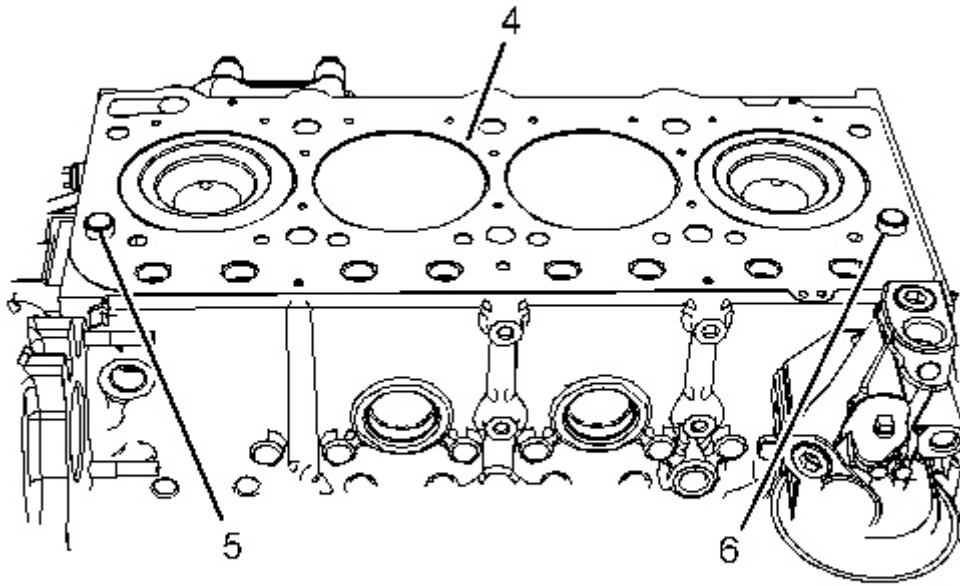


Illustration 4

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7. Remove cylinder head gasket (4).
 8. Note the position of dowel (5) and dowel (6) in the cylinder block. Do not remove the dowels unless the dowels are damaged.
 9. If necessary, remove the water temperature regulator from the cylinder head. Refer to Disassembly and Assembly, "Water Temperature Regulator - Remove and Install".
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i05344332

Cylinder Head - Install

SMCS - 1100-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	-	E14 Torx 1/2 Inch Drive Socket	1
B	227-4393	E18 Torx 1/2 Inch Drive Socket	1
C	8T-3052	Degree Wheel	1
D	-	Guide Bolt (M12 by 115mm)	1
E	-	Straight Edge	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Thoroughly clean the gasket surfaces of the cylinder head and the cylinder block. Do not damage the gasket surfaces of the cylinder head or the cylinder block. Ensure that no debris enters the cylinder bores, the coolant passages, or the lubricant passages.

2. Inspect the gasket surface of the cylinder head for distortion. Refer to Specifications, "Cylinder Head" for more information.
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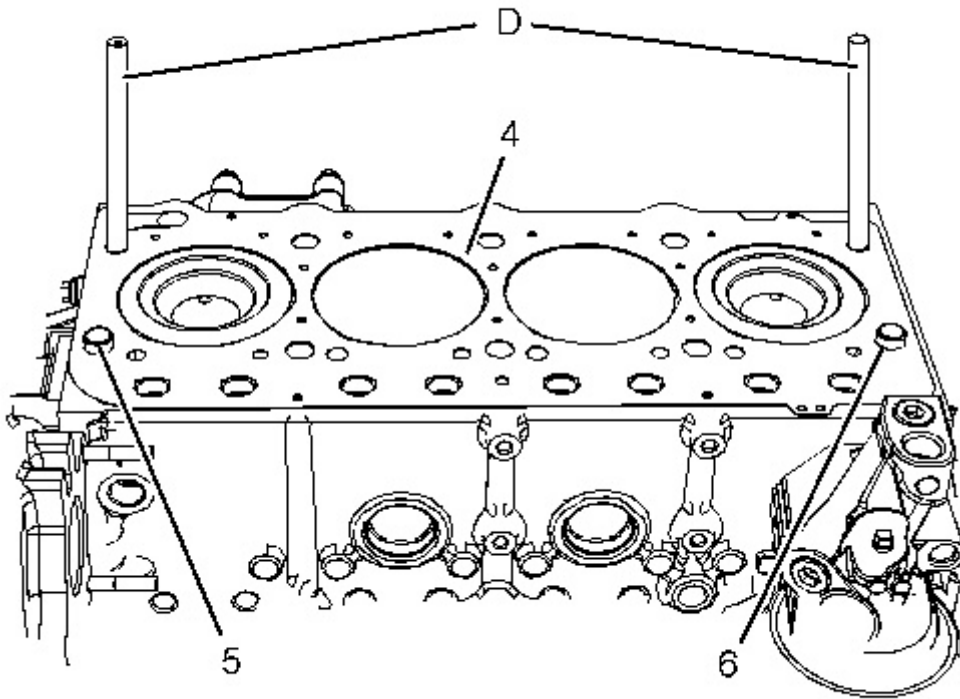


Illustration 1
Typical example

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3. Inspect dowel (5) and dowel (6) for damage. If necessary, replace the dowels in the cylinder block.
 4. Install Tooling (D) to the cylinder block. Refer to Illustration 1.
 5. Align cylinder head gasket (4) with Tooling (D) and with dowel (5) and dowel (6). Install the cylinder head gasket onto the cylinder block.
-

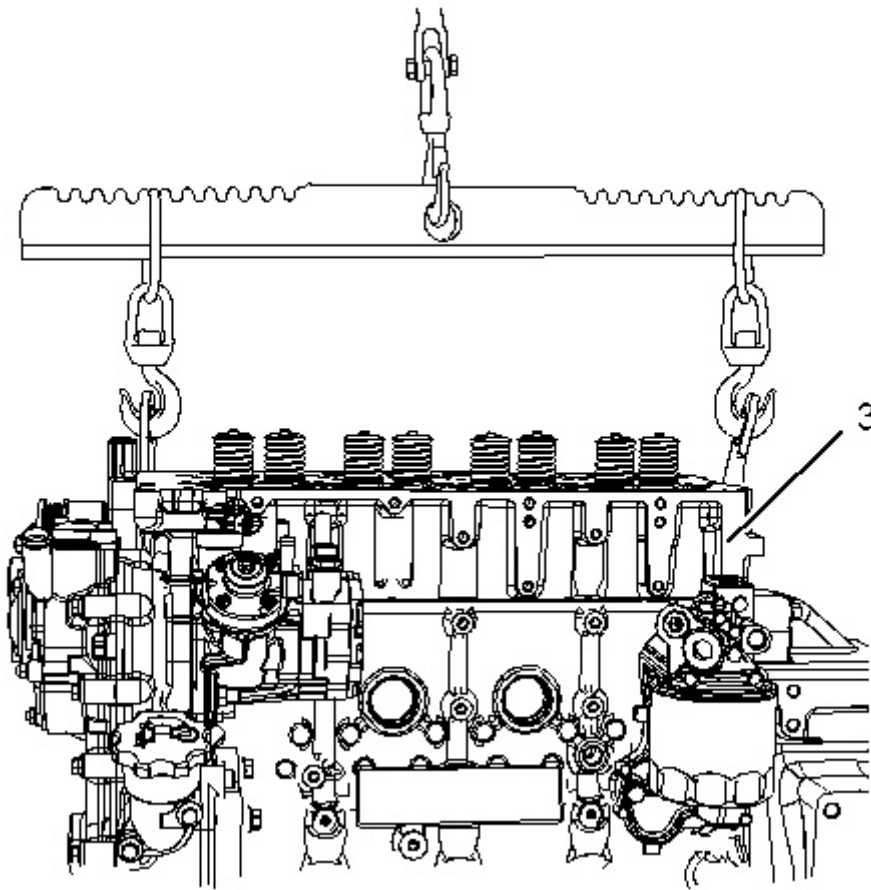


Illustration 2

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6. Use a suitable lifting device to lift the cylinder head. The weight of the cylinder head is approximately 30 kg (66 lb).

Note: Use a spreader bar during the lifting operation in order to distribute the weight of the cylinder head.

7. Use Tooling (D) to align cylinder head (3) with the cylinder block. Install the cylinder head to the cylinder block.

Note: Ensure that the cylinder head is correctly positioned onto dowels.

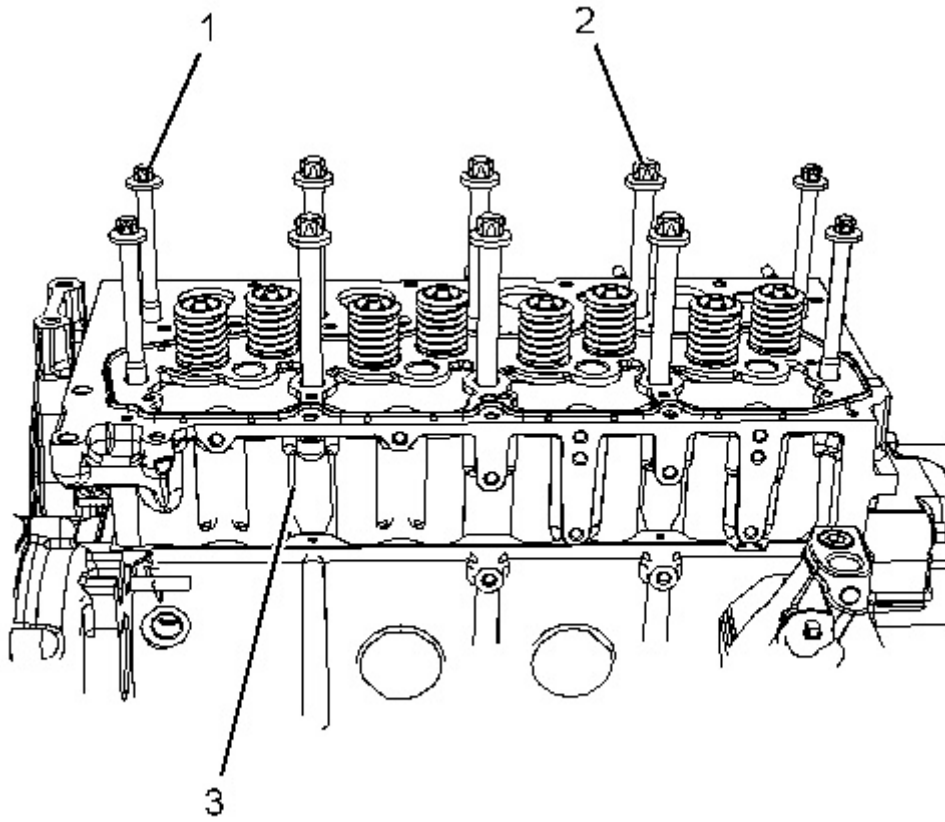


Illustration 3

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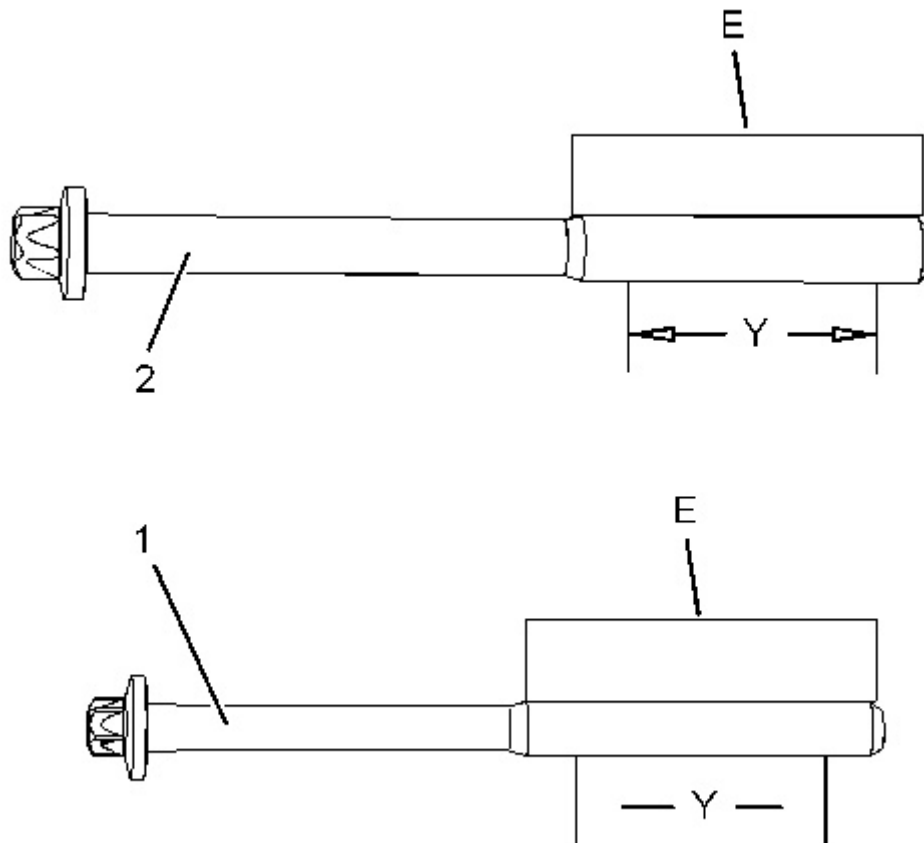


Illustration 4

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8. Clean Torx bolts (1) and Torx bolts (2). Follow Steps 8.a and 8.b for the procedure to inspect the Torx bolts.
 - a. Check the length of the Torx bolts (1) and Torx bolts (2).
 - b. Use Tooling (E) in order to check the threads of the Torx bolts. Refer to Illustration 4. Replace any Torx bolts that show visual reduction in the diameter of the thread over length (Y).
 9. Lubricate the threads and the shoulder of Torx bolts (1) and Torx bolts (2) with clean engine oil.
 10. Install Torx bolts (1) and Torx bolts (2) to cylinder head (3).
 11. Remove Tooling (D).
 12. Install remaining Torx bolts (1) to cylinder head (3).
-

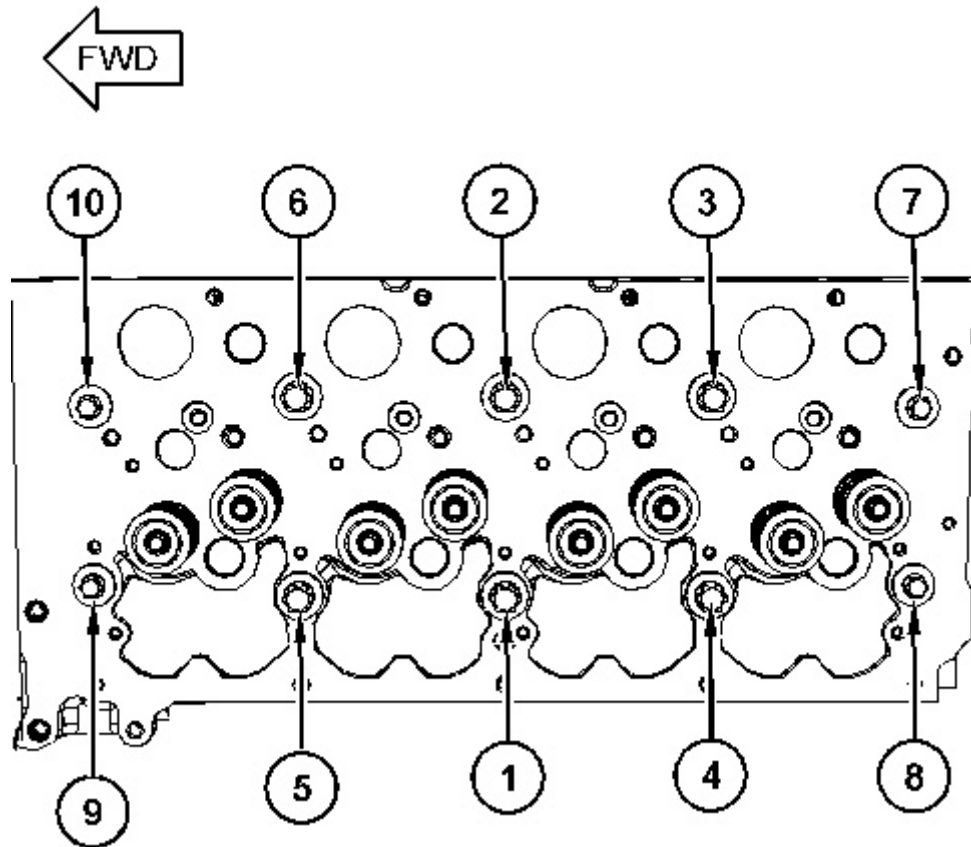


Illustration 5

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Sequence for tightening the bolts for the cylinder head

13. Use Tooling (A) in order to tighten Torx bolts (2) to a torque of 130 N·m (96 lb ft) in the sequence that is shown in Illustration 5.
14. Use Tooling (B) in order to tighten Torx bolt (1) to a torque of 65 N·m (48 lb ft) in the sequence that is shown in Illustration 5.

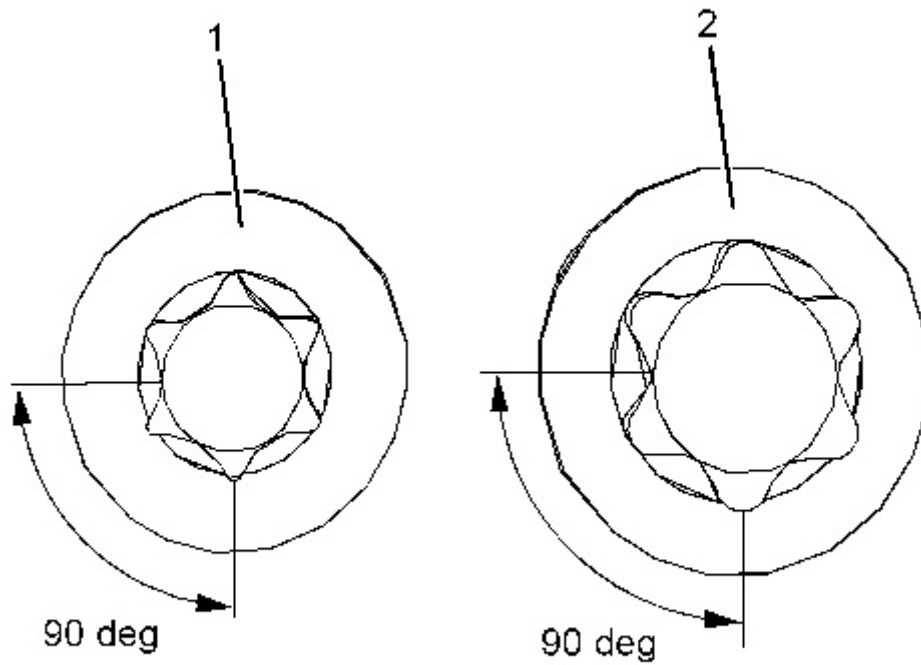


Illustration 6

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15. Use Tooling (A), Tooling (B), and Tooling (C) in order to turn Torx bolts (1) and Torx bolts (2) through an additional angle in the sequence that is shown in Illustration 5.

Turn Torx bolts (2) through 90 degrees.

Turn Torx bolts (1) through 90 degrees.

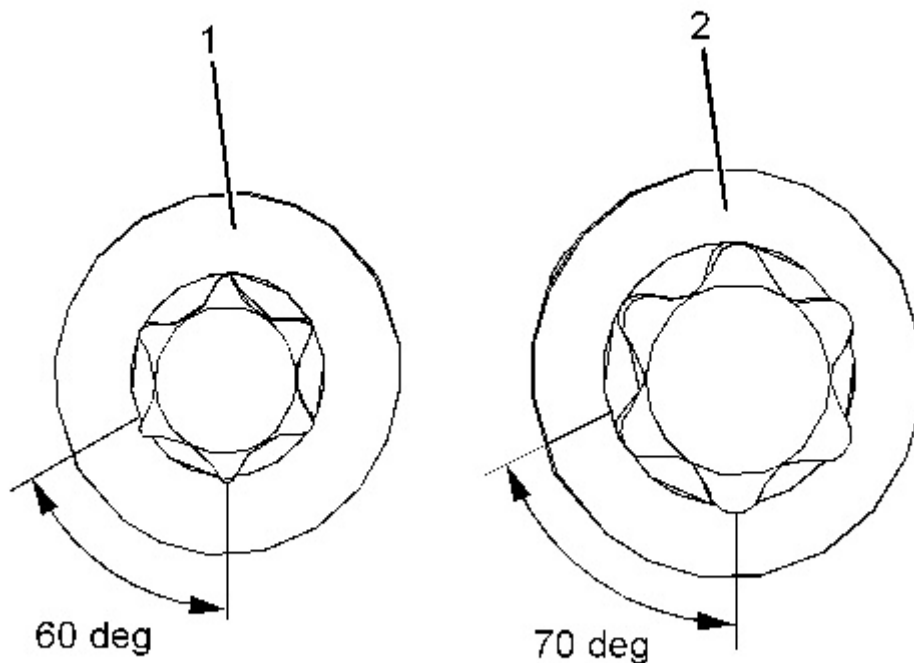


Illustration 7

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16. Use Tooling (A), Tooling (B), and Tooling (C) in order to turn Torx bolts (1) and Torx bolts (2) through an additional angle in the sequence that is shown in Illustration 5.

Turn Torx bolts (2) through 70 degrees.

Turn Torx bolts (1) through 60 degrees.

17. Install the injectors. Refer to Disassembly and Assembly, "Injector - Install" for the correct procedure.
18. Install the glow plugs. Refer to Disassembly and Assembly, "Glow Plugs - Remove and Install" for the correct procedure.
19. Install the rocker shaft assembly and the pushrods. Refer to Disassembly and Assembly Manual, "Rocker Shaft and Pushrod - Remove" for the correct procedure.
20. Install the exhaust manifold. Refer to Disassembly and Assembly, "Exhaust Manifold - Remove and Install" for the correct procedure.
21. If necessary, install the water temperature regulator housing to the cylinder head. Refer to Disassembly and Assembly, "Water Temperature Regulator Housing - Remove and Install" for the correct procedure.
22. Connect the upper radiator hose to the water temperature regulator housing .

23. Fill the cooling system with coolant. Refer to Operation and Maintenance Manual, "Cooling System Coolant - Change" for the correct filling procedure.
 24. If necessary, fill the engine oil pan to the correct level. Refer to Operation and Maintenance Manual, "Engine Oil Level - Check".
-

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i04884972

Lifter Group - Remove and Install

SMCS - 1209-010

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-7262	Telescoping Magnet	1

Start By:

- Remove the camshaft. Refer to Disassembly and Assembly, "Camshaft - Remove and Install" for the correct procedure.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

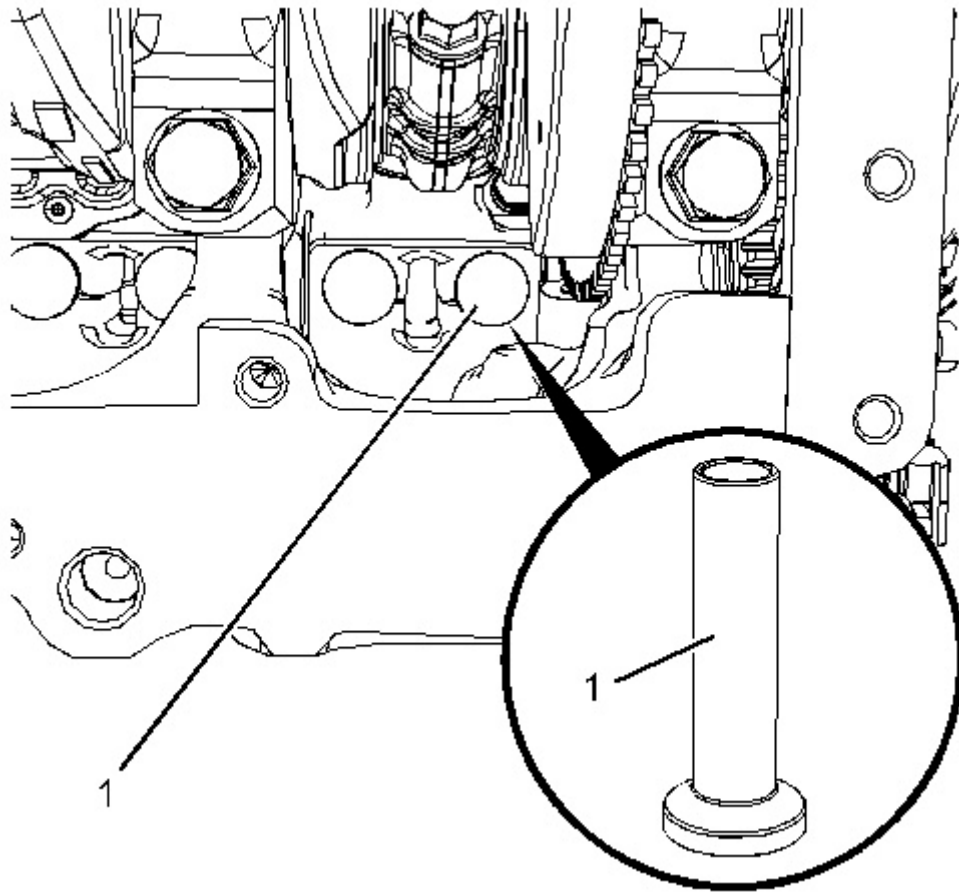


Illustration 1

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1. If the crankshaft is installed, rotate the crankshaft in order to gain access to the appropriate lifters.
2. Use Tooling (A) in order to remove lifters (1) from the cylinder block.

Note: Place a temporary identification mark on each lifter in order to identify the correct location.

Installation Procedure

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-7262	Telescoping Magnet	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Replace all lifters when a new camshaft is installed.

1. Ensure that all components are clean and free from wear and damage. If necessary, replace any components that are worn or damaged.
2. Clean the lifters. Follow Step 2.a through Step 2.c in order to inspect the lifters. Replace any worn lifters or damaged lifters.
 - a. Inspect the seat of the pushrod in the lifter for visual wear and damage.
 - b. Inspect the shank of the lifter for wear and damage. Refer to Specifications, "Lifter Group" for more information.
 - c. Inspect the face of the lifter that runs on the camshaft for visual wear and damage.

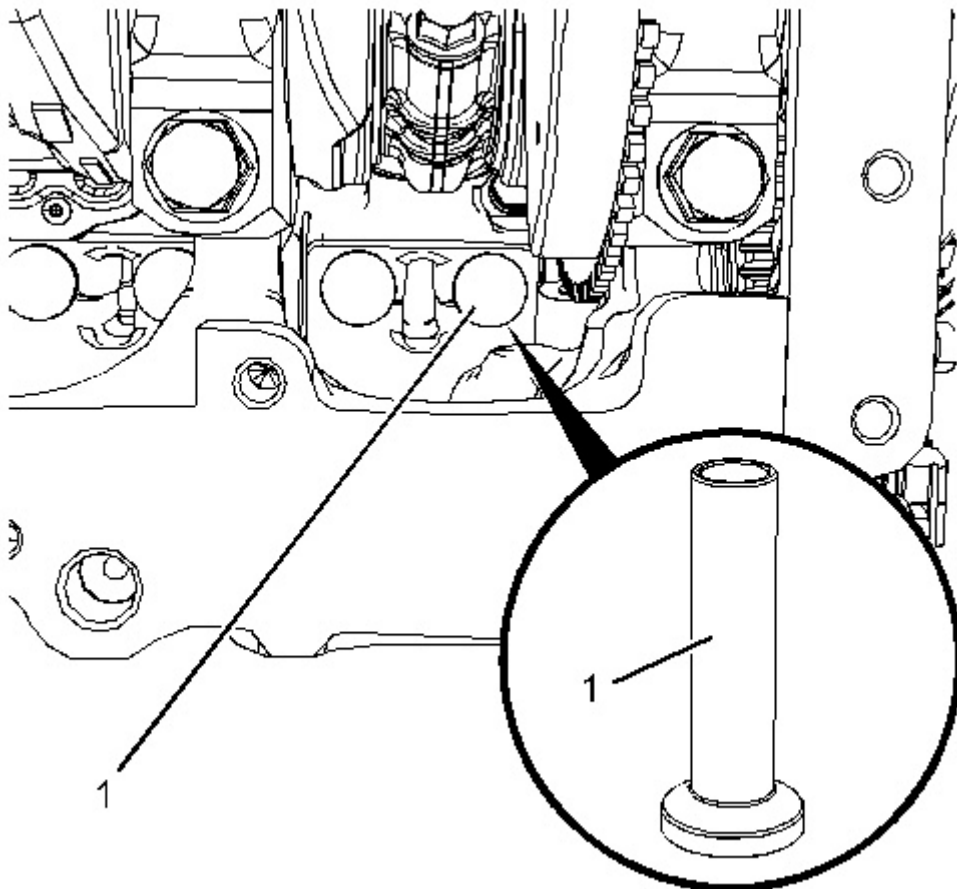


Illustration 2

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3. If the crankshaft is installed, rotate the crankshaft in order to allow access for the installation of appropriate lifters (1).

4. Lubricate lifters (1) with clean engine oil.
5. Use Tooling (A) to install lifters (1) to the cylinder block. Ensure that used lifters are installed in the original location.

Note: The lifters should be free to rotate.

End By:

- a. Install the camshaft. Refer to Disassembly and Assembly, "Camshaft - Remove and Install" for the correct procedure.
-



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i04878890

Camshaft - Remove and Install

SMCS - 1210-010

Removal Procedure

Start By:

- a. Remove the camshaft gear. Refer to Disassembly and Assembly, "Camshaft Gear - Remove and Install" for the correct procedure.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. The engine should be mounted on a suitable stand and placed in the inverted position.
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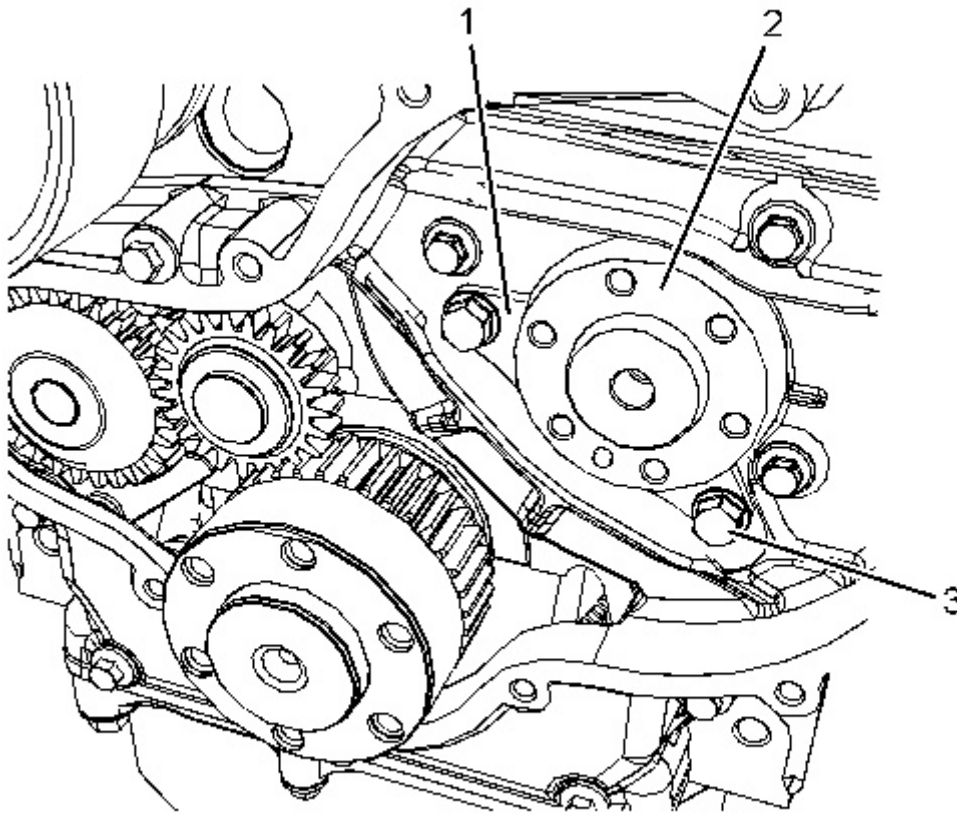


Illustration 1

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2. Remove bolts (3) from thrust plate (1).
3. Make a temporary mark in order to identify the orientation of thrust plate (1). Slide the camshaft towards the front of the engine in order to allow removal of the thrust plate. Remove the thrust plate.

NOTICE

Do not damage the lobes or the bearings when the camshaft is removed or installed.

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4. Carefully remove camshaft (3) from the cylinder block.

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

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