

Product: SKID STEER LOADER

Model: 236B SKID STEER LOADER HEN

Configuration: 236B2 Skid Steer Loader HEN06750-UP (MACHINE) POWERED BY 3044C Engine

## **Disassembly and Assembly**

### **C3.4 Engines for Caterpillar Built Machines**

Media Number -KENR6941-04

Publication Date -01/03/2012

Date Updated -01/03/2012

i02639290

## **Rocker Shaft and Pushrod - Remove**

SMCS - 1102-011; 1208-011

### **Removal Procedure**

#### **Start By:**

- A. Remove the valve mechanism cover. Refer to Disassembly and Assembly, "Valve Mechanism Cover - Remove and Install".

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#### **NOTICE**

**Keep all parts clean from contaminants.**

**Contaminants may cause rapid wear and shortened component life.**

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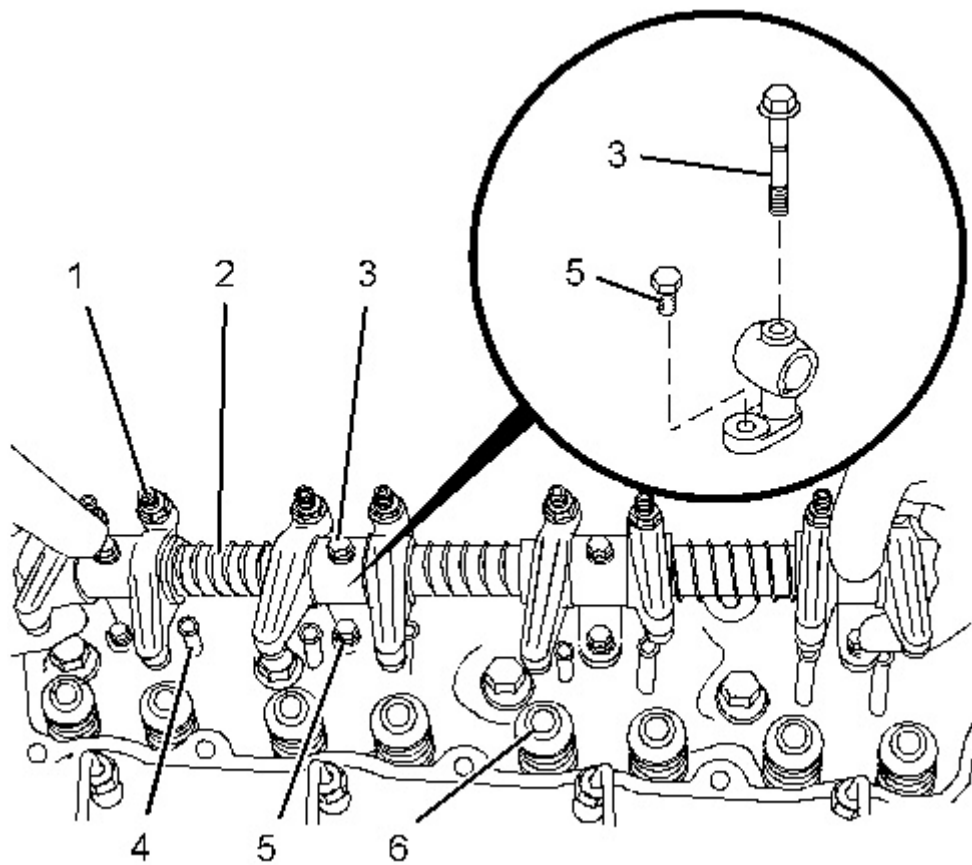


Illustration 1

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Typical example

1. Loosen the nuts and adjustment screws (1) on all rocker arms.
2. Remove bolts (5) .
3. Progressively loosen bolts (3). Begin at the ends of the rocker shaft assembly and work toward the center.

**Note:** Damage to the rocker shaft may occur if the long bolts are loosened first. To avoid distortion of the rocker shaft assembly, each bolt should be loosened by a quarter of a turn at one time. Repeat the procedure until all bolts are loosened.

4. Remove bolts (3) .
5. Remove rocker shaft assembly (2) from the cylinder head.
6. Place temporary identification marks on pushrods (4) and pads (6) .

**Note:** Identification will ensure that the pushrods and pads can be reinstalled in the correct position. Do not interchange the positions of used pushrods or pads.

7. Remove pushrods (4) from the cylinder head. Remove pads (6) from the valve stems.

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i02639287

# Rocker Shaft - Disassemble

SMCS - 1102-015

## Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-1855	Retaining Ring Pliers	1

### Start By:

- A. Remove the rocker shaft and pushrods. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrod - Remove".



**Personal injury can result from being struck by parts propelled by a released spring force.**

**Make sure to wear all necessary protective equipment.**

**Follow the recommended procedure and use all recommended tooling to release the spring force.**

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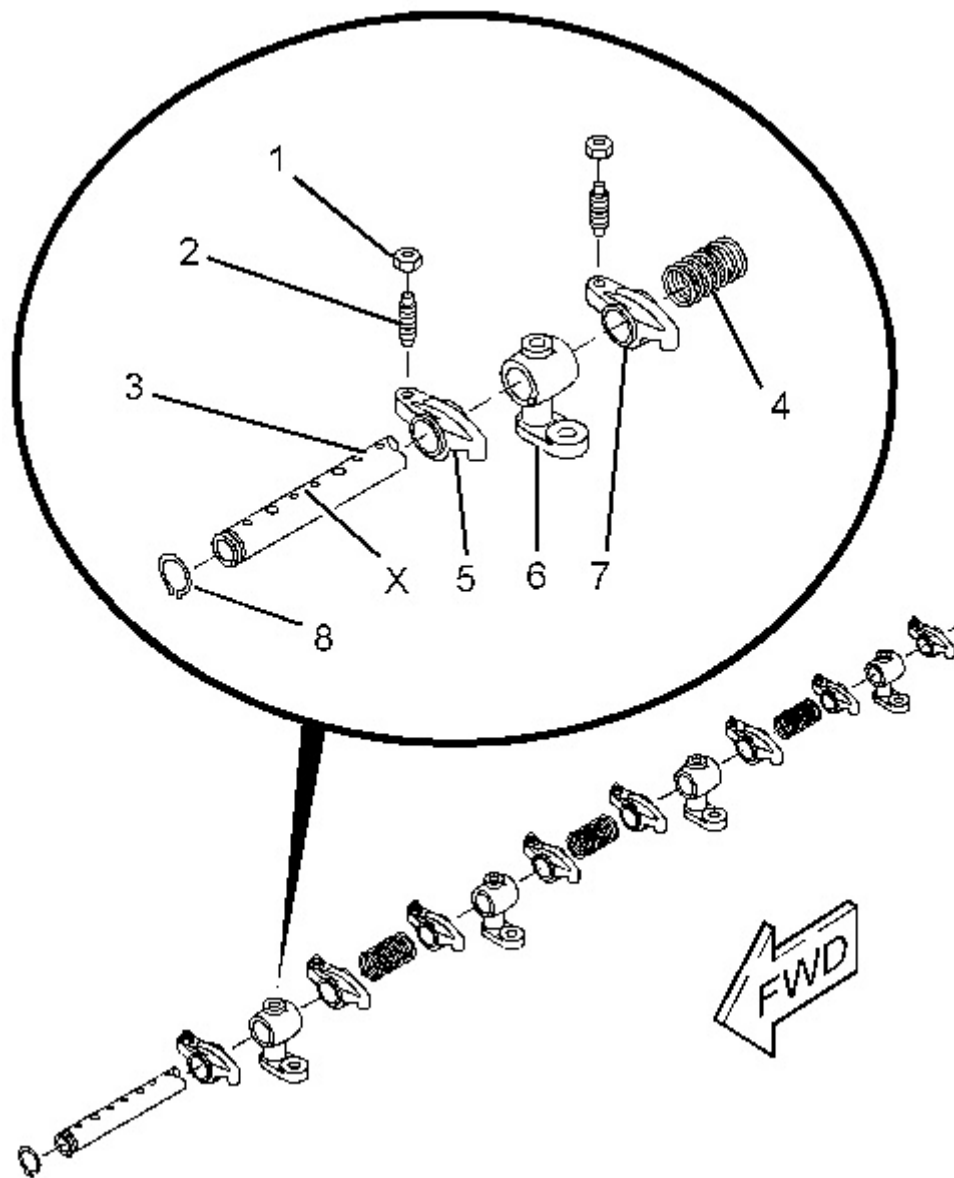
**NOTICE**

**Keep all parts clean from contaminants.**

**Contaminants may cause rapid wear and shortened component life.**

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Illustration 1

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1. Make an identification mark on each rocker arm assembly in order to show the location. Note the mark at position (X) for installation purposes.

**Note:** The components must be reinstalled in the original location. Do not interchange components.

2. Use Tooling (A) to remove retaining rings (8) .

3. Remove rocker arm assembly (5) .
4. Remove pedestal (6) from rocker shaft (3) .
5. Remove rocker arm assembly (7) .
6. Remove spring (4) .
7. Repeat Steps 3 through 6 in order to remove the remaining rocker arm assemblies from rocker shaft (3) .
8. If necessary, remove nuts (1) and adjusters (2) from the rocker arms. Make a temporary identification mark on each adjuster in order to show the location.

**Note:** The components must be reinstalled in the original location. Do not interchange components.

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## Rocker Shaft - Assemble

SMCS - 1102-016

### Assembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-1855	Retaining Ring Pliers	1

1. Ensure that all components are clean and free from wear or damage. Refer to Specifications, "Rocker Shaft" for more information. If necessary, replace any components that are worn or damaged.

**Note:** Ensure that all oil holes are free from blockages.

2. Lubricate all of the components with clean engine oil before assembly.
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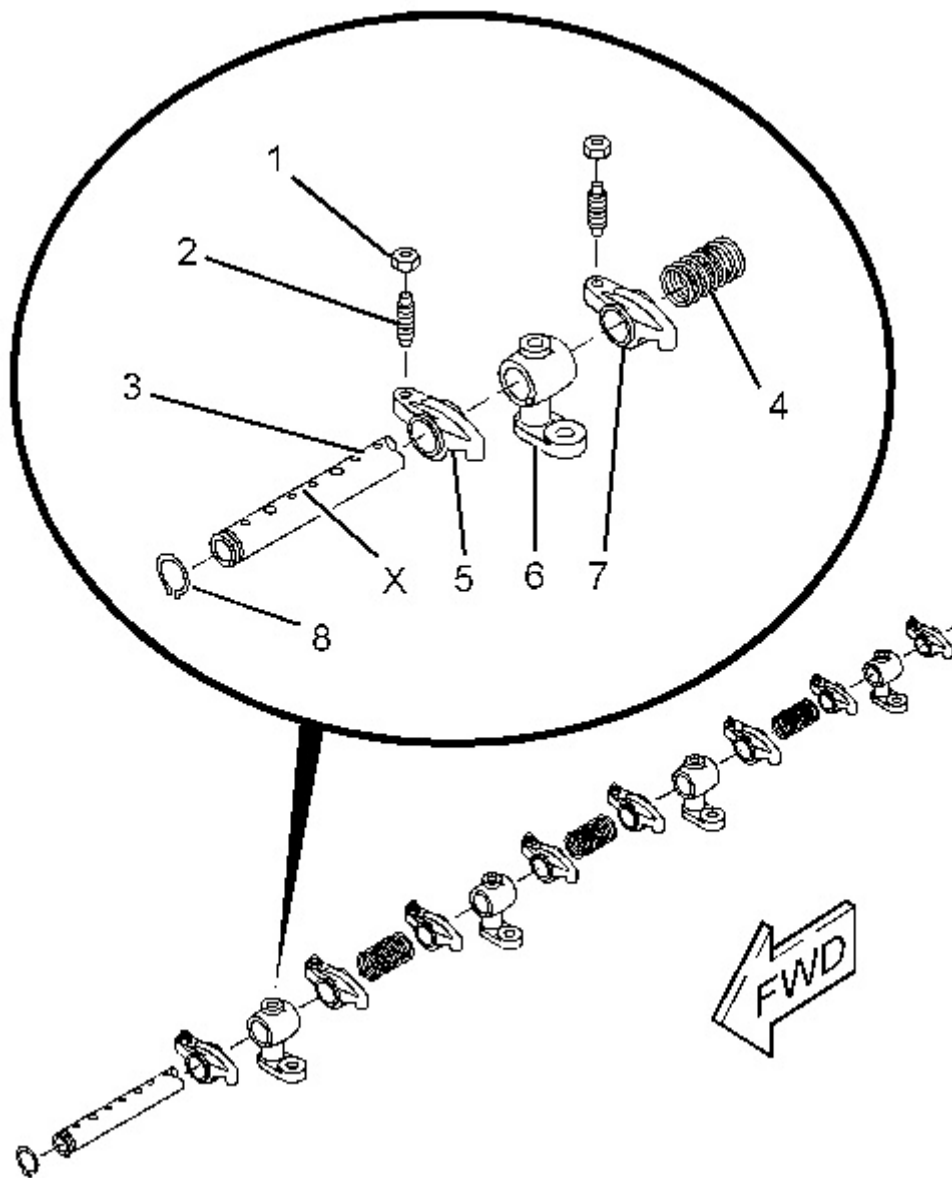


Illustration 1

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3. If necessary, install nuts (1) and adjusters (2) to rocker arm assemblies (5) and (7). If the original adjusters are reused, ensure that the adjusters are installed in the original positions.
4. Use Tooling (A) to install retaining ring (8) to the front end of rocker shaft (3). The front end of the rockershaft is identified by the mark at Position (X). Ensure that the mark at position (X) is upward.
5. Install rocker arm assembly (5) to rocker shaft (3) .
6. Install bracket (6) to rocker shaft (3) .  
**Note:** Ensure correct orientation of the bracket. Refer to Illustration 1.
7. Install rocker arm assembly (7) to rocker shaft (3) .



## WARNING

**Improper assembly of parts that are spring loaded can cause bodily injury.**

**To prevent possible injury, follow the established assembly procedure and wear protective equipment.**

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8. Install spring (4) to rocker shaft (3) .
9. Repeat Steps 5 through 8 in order to assemble the remaining components of the rocker shaft assembly.
10. Use Tooling (A) to install retaining ring (8) to the rear end of rocker shaft (3) .

**End By:** Install the rocker shaft and pushrods. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrod - Install".

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## **Disassembly and Assembly**

### **C3.4 Engines for Caterpillar Built Machines**

Media Number -KENR6941-04

Publication Date -01/03/2012

Date Updated -01/03/2012

i02639286

## **Rocker Shaft and Pushrod - Install**

SMCS - 1102-012; 1208-012

### **Installation Procedure**

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#### **NOTICE**

**Keep all parts clean from contaminants.**

**Contaminants may cause rapid wear and shortened component life.**

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1. Ensure that all components are clean and free from wear or damage. Refer to Specifications, "Rocker Shaft" for more information. Replace any components that are worn or damaged.
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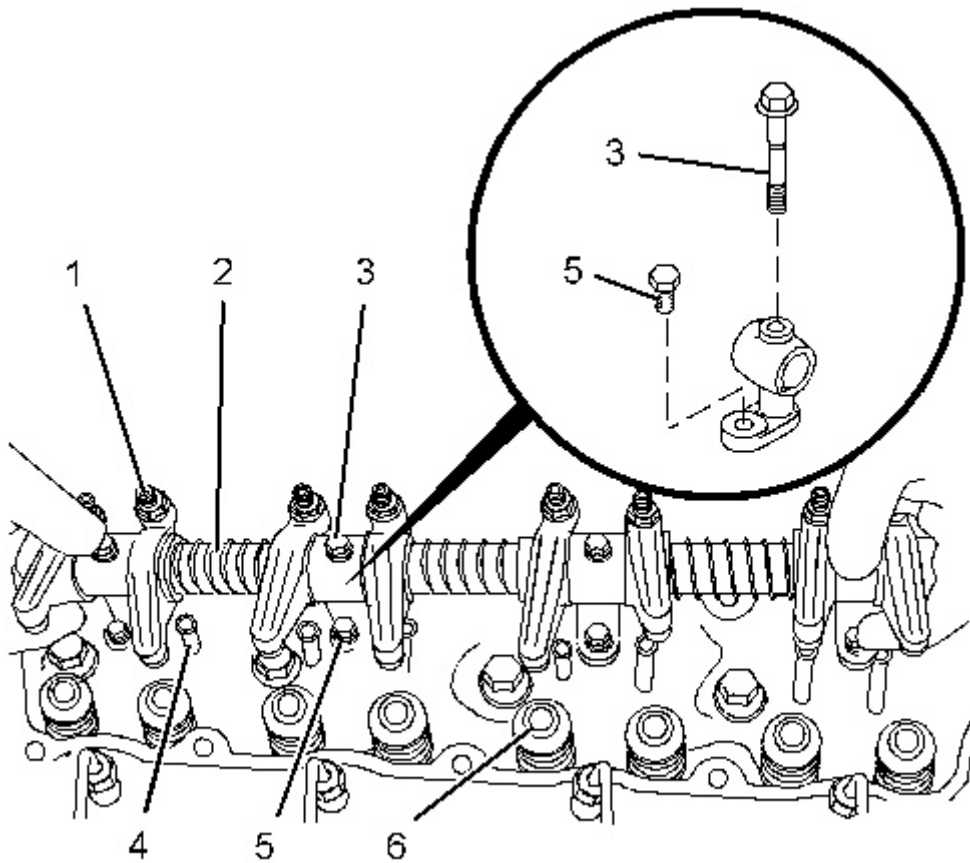


Illustration 1

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Typical example

2. Apply clean engine lubricating oil to both ends of pushrods (4). Install the pushrods to the engine with the cup upward. Ensure that the pushrods are installed correctly in the socket of the valve lifters.

**Note:** If the pushrods have been used, ensure that the pushrods are installed in original positions.

3. Lubricate the top of the valve stems with clean engine oil. Install caps (6) to the valve stems.

**Note:** If the caps have been used, ensure that the caps are installed in original positions.

4. Install rocker shaft (2) to the cylinder head.

**Note:** Ensure that the ends of adjustment screws (1) are correctly seated in ends of pushrods (4). Also ensure that valve caps (6) are in position under the rocker arms.

5. Install bolts (3) to the rocker shaft. Tighten the bolts to a torque of 15 N·m (11 lb ft). Begin at the center of the rocker shaft assembly and work outward.

**Note:** Damage to the rockershaft may occur if the short bolts are tightened first.

6. Install bolts (5) to the rocker shaft. Tighten the bolts to a torque of 15 N·m (11 lb ft).

7. Adjust the valve lash. Refer to Systems Operation, Testing and Adjusting, "Engine Valve Lash - Inspect/Adjust" for the correct procedure.

**End By:** Install the valve mechanism cover. Refer to Disassembly and Assembly, "Valve Mechanism Cover - Remove and Install".

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i02639291

## Cylinder Head - Remove

SMCS - 1100-011

### Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7575	Link Bracket	2
	8T-4189	Bolt	2
	8T-4121	Hard Washer	2

#### Start By:

- A. Remove the exhaust manifold. Refer to Disassembly and Assembly, "Exhaust Manifold - Remove and Install".
- B. Remove the fuel injectors. Refer to Disassembly and Assembly, "Fuel Injectors - Remove and Install".
- C. Remove the glow plugs. Refer to Disassembly and Assembly, "Glow Plugs - Remove and Install".
- D. Remove the rocker shaft and pushrods. Refer to Disassembly and Assembly, "Rocker Shaft and Pushrod - Remove".

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### NOTICE

**Keep all parts clean from contaminants.**

**Contaminants may cause rapid wear and shortened component life.**

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## 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.

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1. Drain the coolant from the cooling system into a suitable container for storage or disposal. Refer to Operation and Maintenance Manual, "Cooling System Coolant - Change" for the correct procedure.
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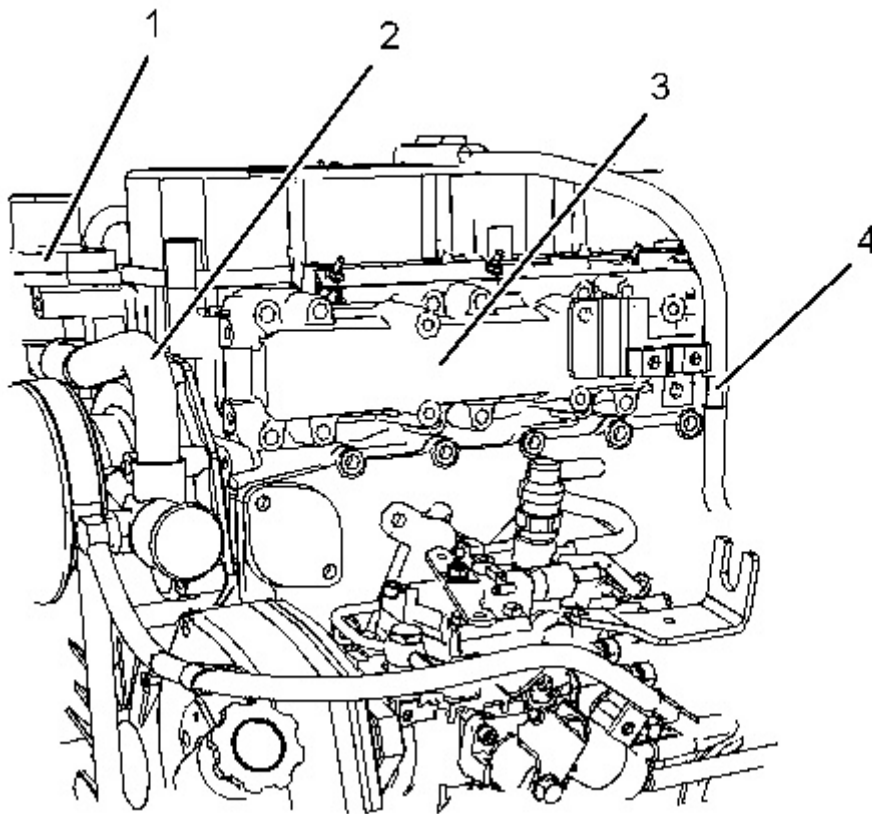


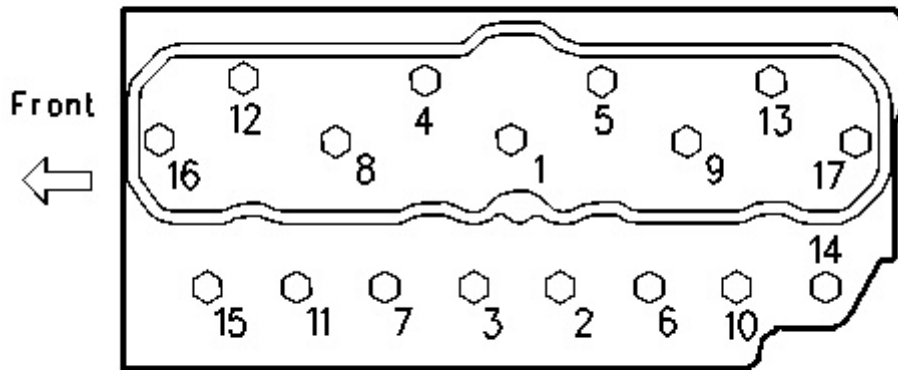
Illustration 1

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Typical example

2. Disconnect hose (2) from water temperature regulator housing (1) .

3. Remove breather hose (4) .
4. If necessary, remove inlet manifold (3). Refer to Disassembly and Assembly, "Inlet Manifold - Remove and Install".



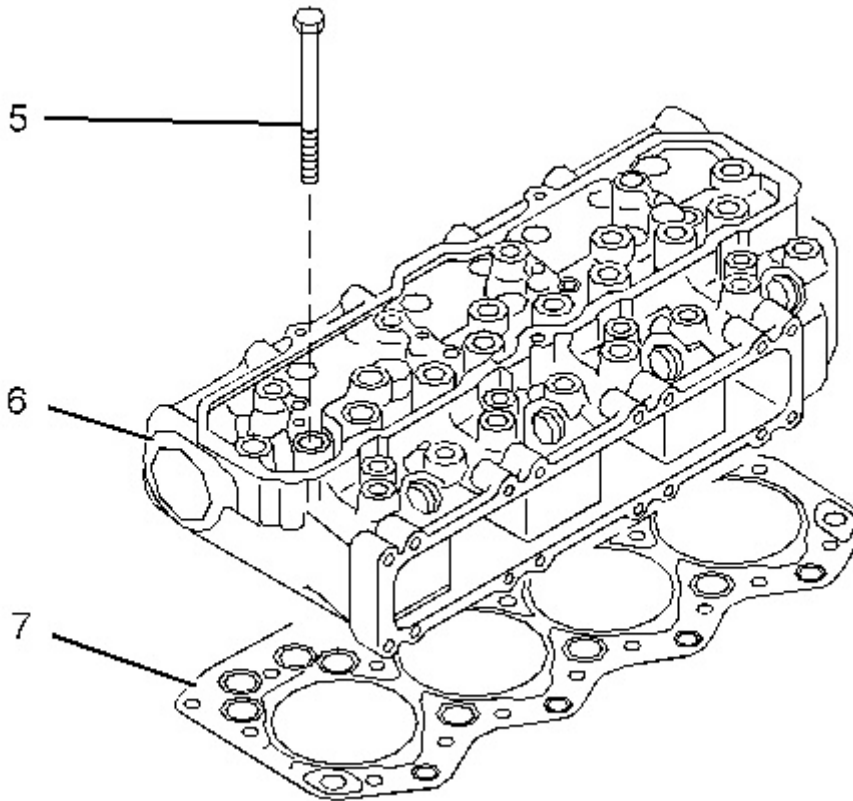
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Illustration 2

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The cylinder head tightening sequence

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Illustration 3

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5. Gradually loosen cylinder head bolts (5) in reverse numerical order to the sequence that is shown in Illustration 2. This will prevent distortion of the cylinder head.
6. Remove cylinder head bolts (5) from cylinder head (6) .
7. Attach Tooling (A) and a suitable lifting device to cylinder head (6). Carefully lift the cylinder head off the cylinder block. The weight of the cylinder head is approximately 34 kg (75 lb).

**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. Avoid contamination of the cylinder bores with coolant or with debris.

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### NOTICE

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

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8. Remove gasket (7) .
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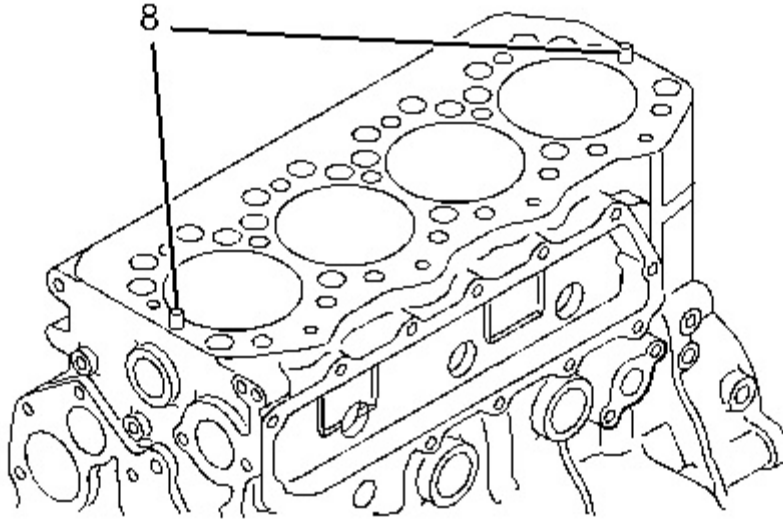


Illustration 4

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9. Note the position of dowels (8) in the cylinder block. Do not remove the dowels unless the dowels are damaged.

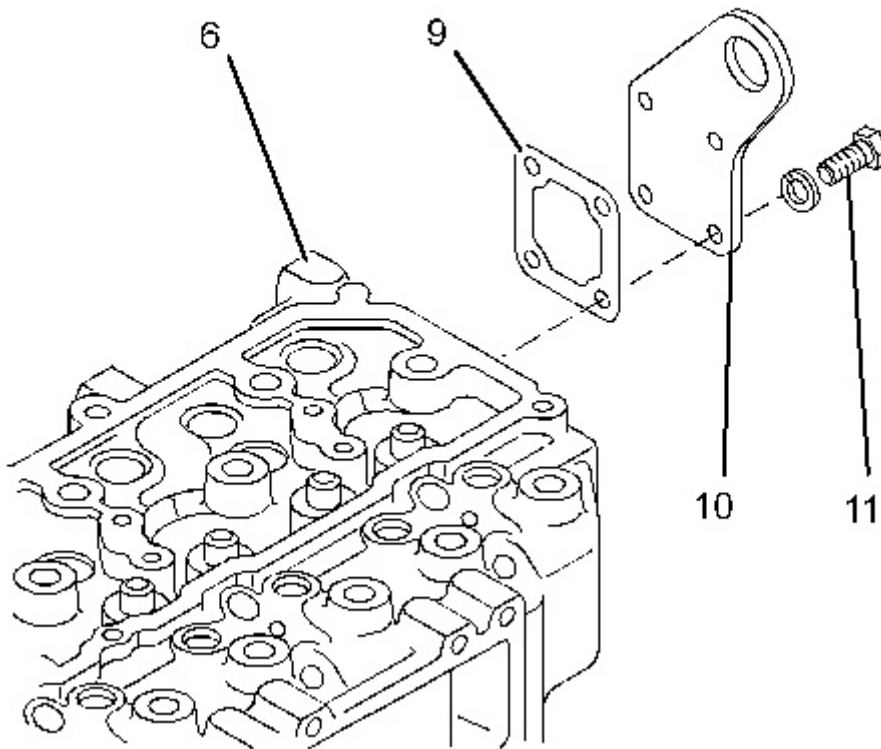


Illustration 5

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