



Service Repair Manual

Models

312B and 312B L Excavator

Product: EXCAVATOR

Model: 312B L EXCAVATOR 9FS

Configuration: 312B & 312B L Excavators 9FS00001-UP (MACHINE) POWERED BY 3054 Engine

Disassembly and Assembly 3054 Engine for Caterpillar Built Machines

Media Number -SEN6241-13

Publication Date -01/08/2008

Date Updated -04/08/2008

i01645901

Cylinder Head - Install

SMCS - 1100-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	9U-6238	Guide Bolt	2
B	8T-3052	Degree Wheel	1

1. Thoroughly clean the top of the cylinder block and the bottom of the cylinder head. Ensure that there is no debris in the cylinder bores.

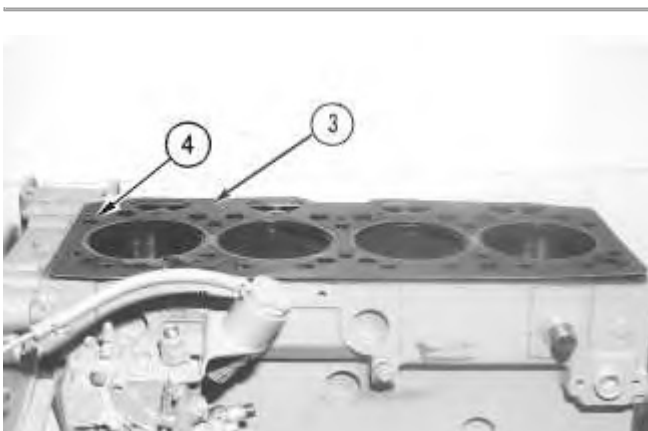


Illustration 1

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2. Place cylinder head gasket (3) on dowels (4) on top of the cylinder block. The cylinder head gasket (3) is stamped "FRONT TOP". Do not use any sealant or compound on the cylinder head gasket.
3. Install Tool (A) in positions 15 and 20 in the cylinder block. Refer to Illustration 4.

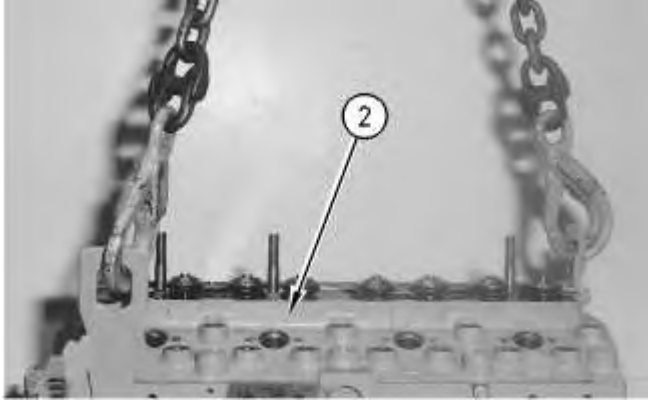


Illustration 2

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Typical example

4. Attach a suitable lifting device to cylinder head (2) .
5. Place cylinder head (2) on the cylinder block. Ensure that the cylinder head is positioned on dowels (4) and that cylinder head gasket (3) is positioned correctly.
6. Remove Tool (A) .

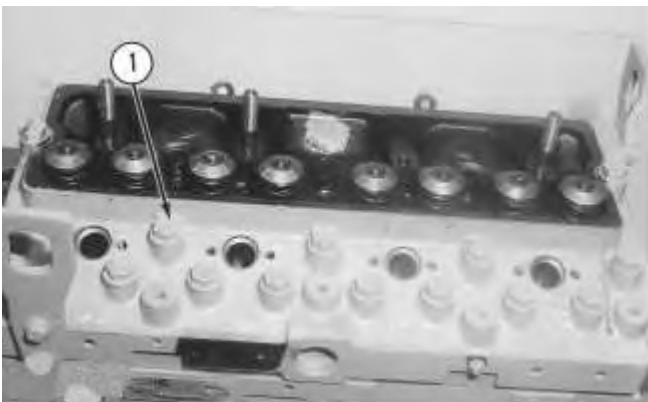


Illustration 3

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Typical example

7. Lubricate cylinder head bolts (1) with clean engine oil.

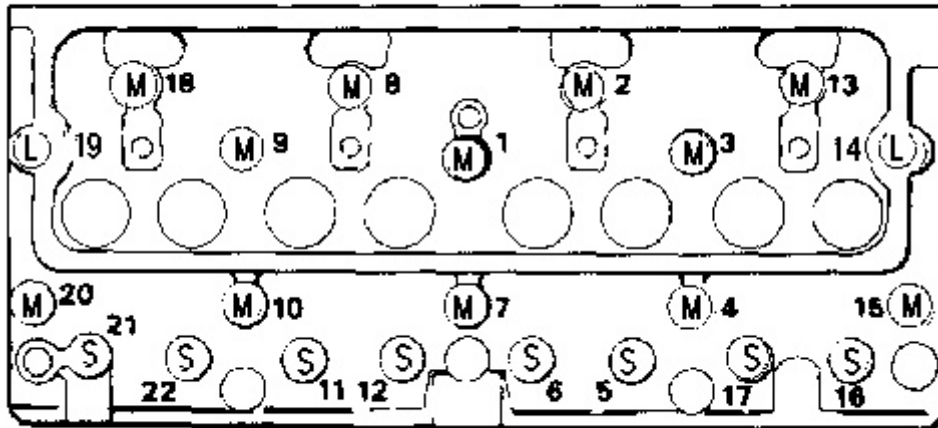


Illustration 4

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8. Gradually tighten all of the bolts (1 through 22) in a numerical sequence to a torque of 110 N·m (80 lb ft).
9. Tighten all of the bolts (1 through 22) again in a numerical sequence to a torque of 110 N·m (80 lb ft).
10. Place an index mark on the bolts and use Tool (B) in order to further tighten the bolts. Refer to illustration 4.
 - a. Turn the short bolts that are marked with an "S" for an additional 150 degrees (2.5 flats).
 - b. Turn the medium length bolts that are marked with an "M" for an additional 180 degrees (3.0 flats).
 - c. Turn the long bolts that are marked with an "L" for an additional 210 degrees (3.5 flats).

End By:

- a. Install the rocker shaft assembly. Refer to Disassembly and Assembly, "Rocker Arm and Shaft - Install".
- b. Install the water outlet manifold. Refer to Disassembly and Assembly, "Water Outlet Manifold - Install".
- c. Install the fuel filter base. Refer to Disassembly and Assembly, "Fuel Filter Base - Remove and Install".
- d. Install the fuel injection nozzles. Refer to Disassembly and Assembly, "Fuel Injection Nozzles - Install".
- e. Install the exhaust manifold. Refer to Disassembly and Assembly, "Exhaust Manifold - Remove and Install".
- f. Install the inlet manifold. Refer to Disassembly and Assembly, "Air inlet Manifold -Install".

- g. Fill the coolant system. If the engine uses Extended Life Coolant (ELC), refer to Operation and Maintenance Manual, "Cooling System Coolant (ELC) - Change". If the engine uses Diesel Engine Antifreeze/Coolant (DEAC), refer to Operation and Maintenance Manual, "Cooling System Coolant (DEAC) - Change".
- h. Connect the electrical connections at the battery.

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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".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

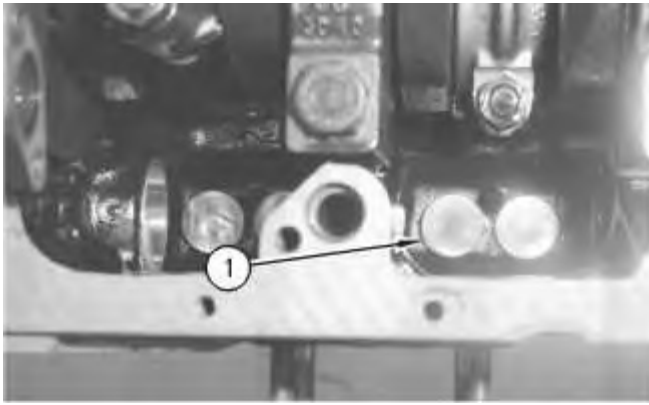


Illustration 1

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1. Use Tooling (A) to remove lifters (1).

Note: Ensure that the lifters are marked with the appropriate cylinder number for installation purposes.

Installation Procedure

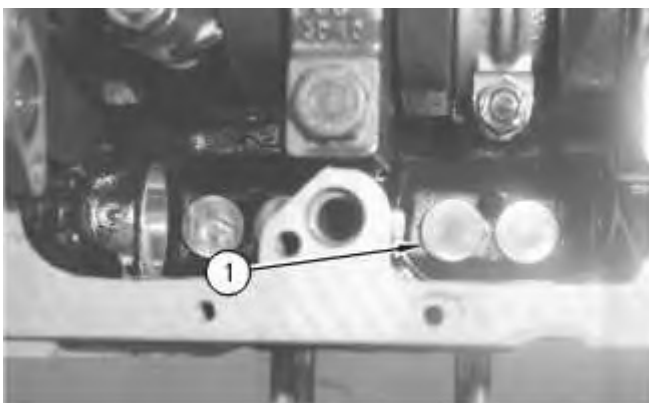
Table 2

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

NOTICE

Keep all parts clean from contaminants.

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