

Product: BACKHOE LOADER

Model: 450F BACKHOE LOADER HJR

Configuration: 450F Backhoe Loader HJR00001-UP (MACHINE) POWERED BY C4.4 Engine

Disassembly and Assembly C4.4 Engines for Caterpillar Built Machines

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i04048571

Gear Group (Front) - Remove and Install - Heavy Duty Gear Group (Front)

SMCS - 1206-010

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	9U-7336	Housing	1
	5P-7305	Engine Turning Tool	1
B	230-6284	Timing Pin (Camshaft)	1
C	364-9107	Timing Pin (Fuel Injection Pump)	1
D	136-4632	Timing Pin (Crankshaft)	1
	268-1966	Adapter	1
E	298-5564	T40Torx Socket	1

Start By:

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

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: Care must be taken in order to ensure that the fuel injection pump timing is not lost during the removal of the front gear group. Carefully follow the procedure in order to remove the gear group.

1. If the air compressor is equipped with a hydraulic pump, remove the hydraulic pump. Refer to Original Equipment Manufactures (OEM) for the correct procedure.
2. If the engine is equipped with an air compressor, remove the air compressor. Refer to Disassembly and Assembly, "Air Compressor - Remove" for the correct procedure.
3. If the engine is equipped with only a hydraulic pump, remove the hydraulic pump. Refer to OEM for the correct procedure.
4. Use Tooling (A) in order to rotate the crankshaft so that number one piston is at top dead center on the compression stroke. Refer to System Operation, Testing and Adjusting, "Finding Top Center Position for No.1 Piston" for the correct procedure.

Note: Do not use excessive force to install Tooling (D). Do not use Tooling (D) to hold the crankshaft during repairs.

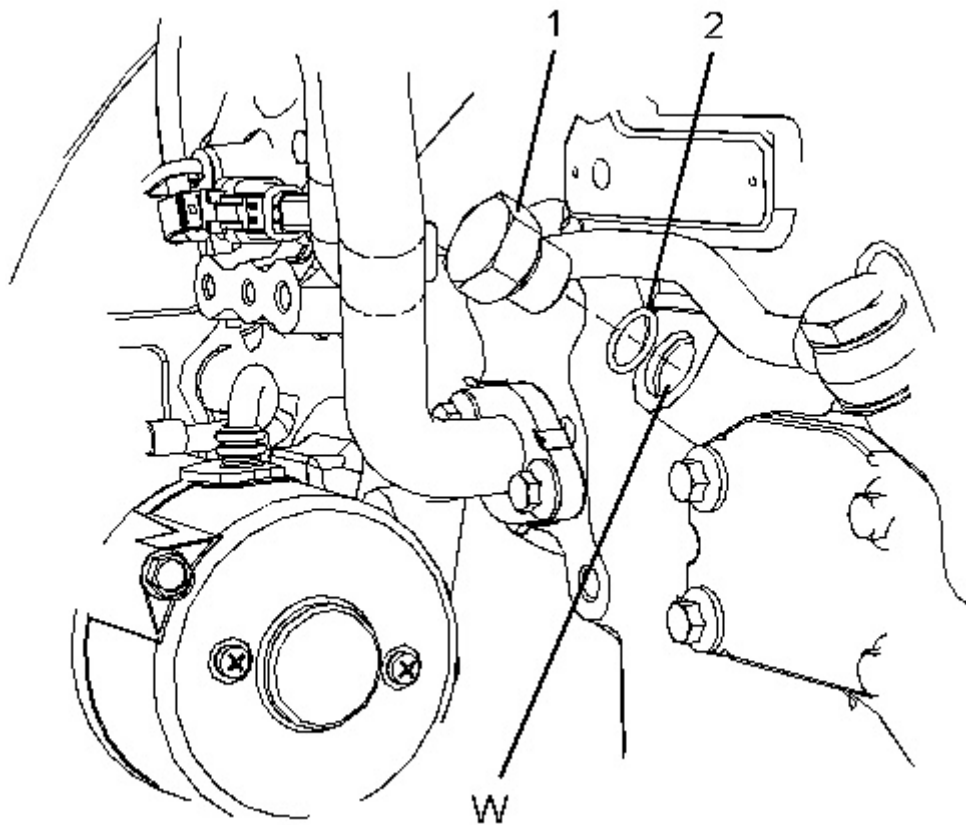


Illustration 1

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5. Remove plug (1) from the cylinder block. Remove O-ring seal (2) from the plug.
 6. Use Tooling (A) in order to rotate the crankshaft so that number one piston is at top dead center on the compression stroke. Refer to System Operation, Testing and Adjusting, "Finding Top Center Position for No.1 Piston" for the correct procedure. Install Tooling (D) through Hole (W) in order to lock the crankshaft so that number one piston is at top dead center on the compression stroke.
 7. Remove Tooling (D).
 8. Use Tooling (A) in order to rotate the crankshaft in a clockwise direction and position the crankshaft at the safe position. Refer to System Operation, Testing and Adjusting, "Position the Valve Mechanism Before Maintenance Procedures" for the correct procedure.
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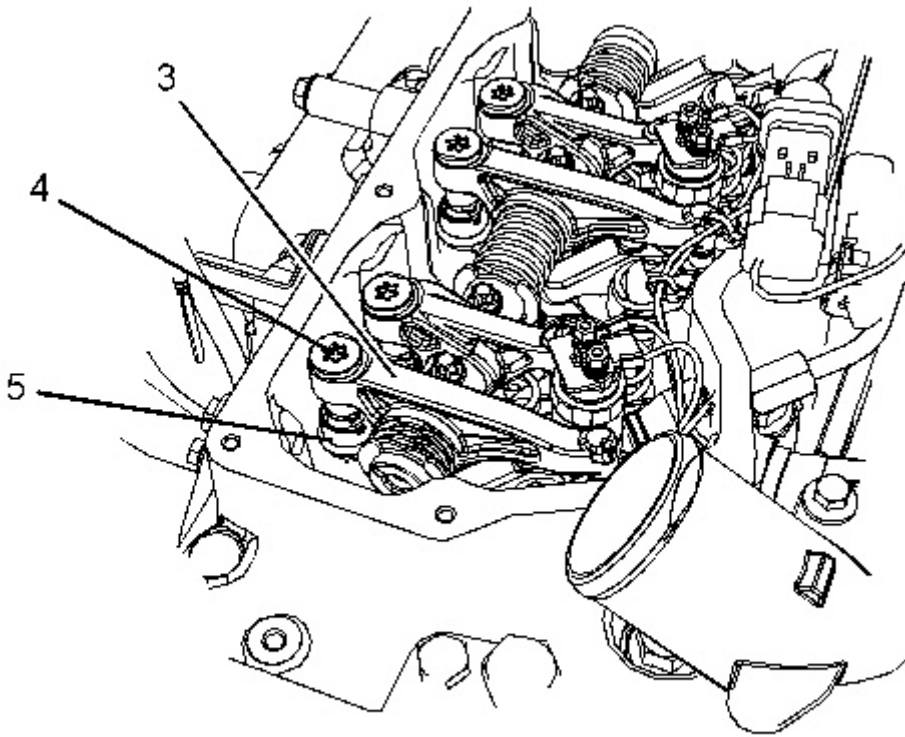


Illustration 2

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9. Use Tooling (E) in order to loosen threaded inserts (4) on all rocker arms (3). Unscrew threaded inserts (4) on all rocker arms (3) until all valves are fully closed. Ensure that the guides (5) for the pushrods are left in position on the threaded inserts (4).

Note: Ensure that ALL threaded inserts are fully unscrewed.

10. Use Tooling (A) in order to rotate the crankshaft so that number one piston is at top dead center on the compression stroke. Refer to System Operation, Testing and Adjusting, "Finding Top Center Position for No.1 Piston" for the correct procedure. Install Tooling (D) through Hole (W) in order to lock the crankshaft so that number one piston is at top dead center on the compression stroke. Refer to Illustration 1.
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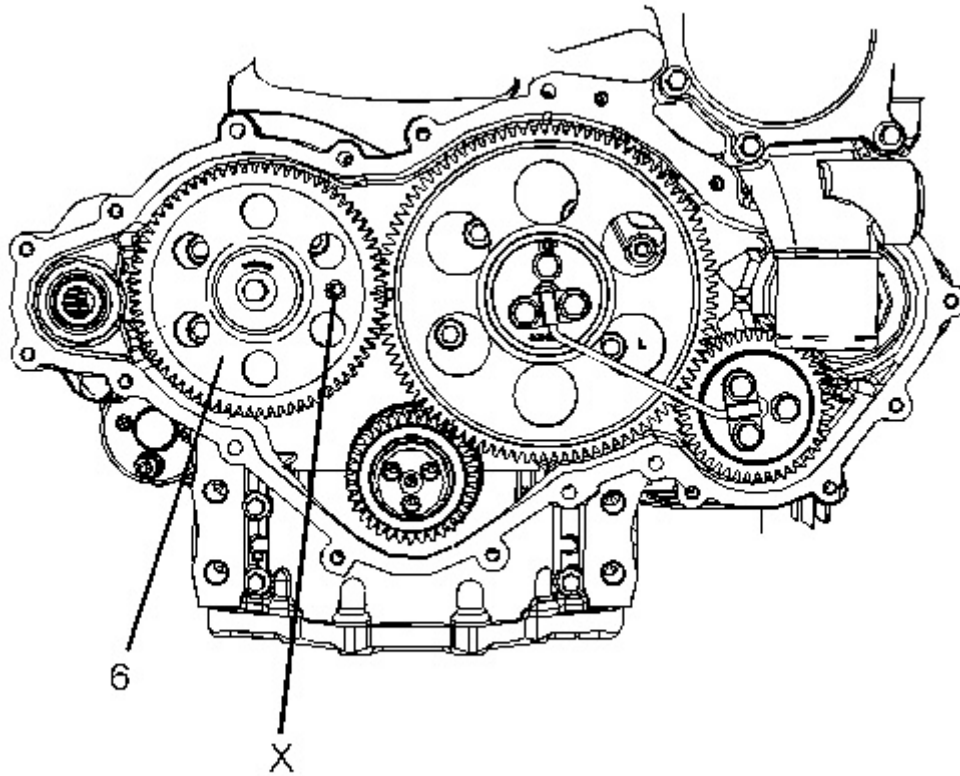


Illustration 3

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11. Install Tooling (B) through Hole (X) in camshaft gear (6) into the front housing. Use Tooling (B) in order to lock the camshaft in the correct position. Refer to System Operation, Testing and Adjusting, "Finding Top Center Position for No.1 Piston" for the correct procedure.
 12. Use Tooling (C) in order to lock the fuel injection pump gear in the correct position. Refer to Disassembly and Assembly, "Fuel Injection Pump - Remove" for the correct procedure.
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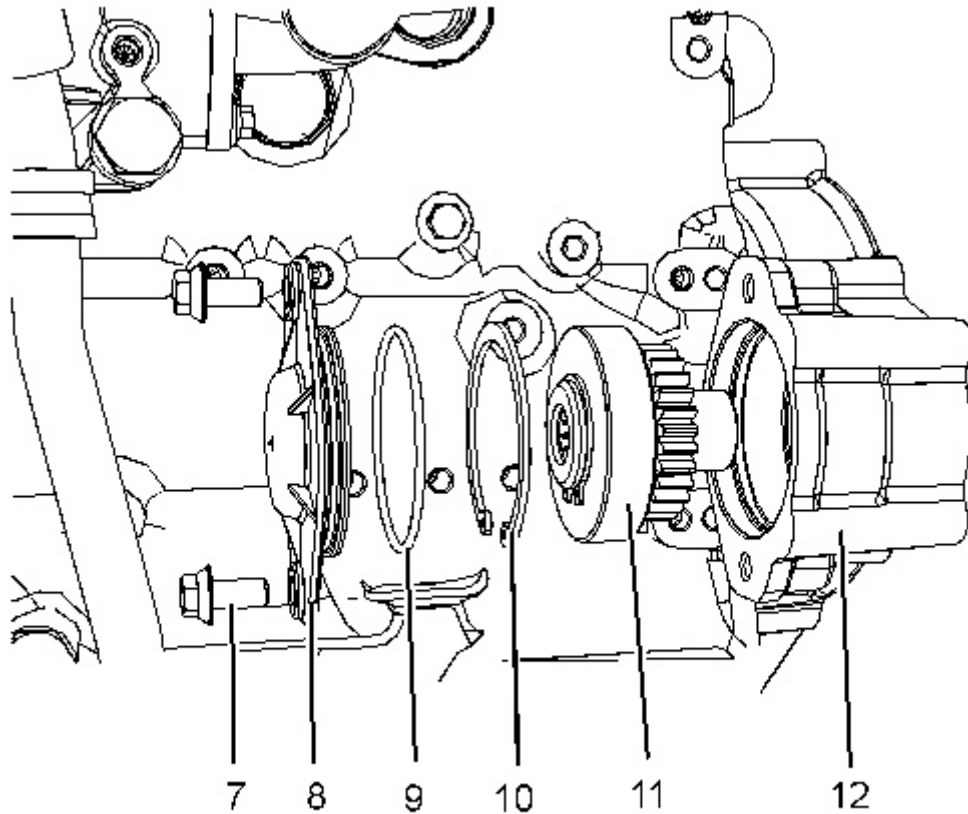


Illustration 4

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13. If the right-hand side of the engine is equipped with a hydraulic pump, remove the hydraulic pump. Refer to OEM for the correct procedure.
 14. If necessary, remove bolts (7) from plate (8). Remove plate (8) and remove O-ring seal (9).
 15. Remove circlip (10) and remove gear assembly (11) from front housing (12).
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