

Product: WHEEL TRACTOR
Model: 657B WHEEL TRACTOR 68K
Configuration: 657B TRACTOR 68K00001-00892 (MACHINE)

Disassembly and Assembly 3406E and 3456 Engines for Caterpillar Built Machines

Media Number -REN1364-06

Publication Date -01/05/2008

Date Updated -20/05/2008

i01994402

Housing (Front) - Remove

SMCS - 1151-011

Removal Procedure

Start By:

- A. Remove the camshaft gear. Refer to Disassembly and Assembly, "Camshaft Gear - Remove and Install".
- B. Remove the crankshaft front seal and the wear sleeve. Refer to Disassembly and Assembly, "Crankshaft Front Seal - Remove".
- C. Remove the engine oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove and Install".
- D. Remove the fan drive. Refer to Disassembly and Assembly, "Fan Drive - Remove".
- E. Remove the fuel transfer pump. Refer to Disassembly and Assembly, "Fuel Transfer Pump - Remove".
- F. Remove the vibration damper and the pulley. Refer to Disassembly and Assembly, "Vibration Damper and Pulley - 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.

Refer to Special Publication, NENG2500, "Caterpillar Tools and Shop Products Guide" for tools and supplies suitable to collect and contain fluids on Caterpillar products.

Dispose of all fluids according to local regulations and mandates.

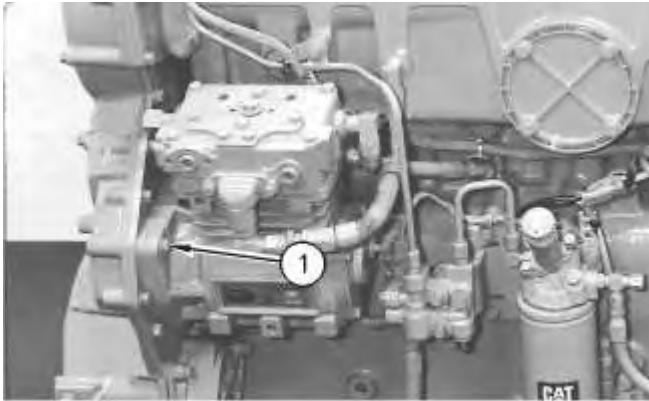


Illustration 1

g00579579

NOTICE

Do not turn the crankshaft or the camshaft while the camshaft gear is removed. If the front gear group is not correctly timed during installation, interference can occur between the pistons and the valves, resulting in damage to the engine.

1. Remove nut (1) from the stud.
-

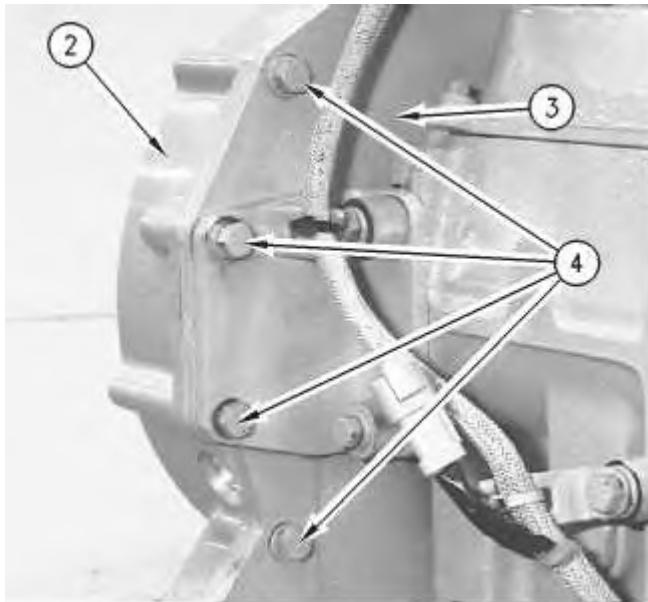


Illustration 2

g00579581

2. Remove bolts (4) that fasten front plate (3) to front housing (2) .

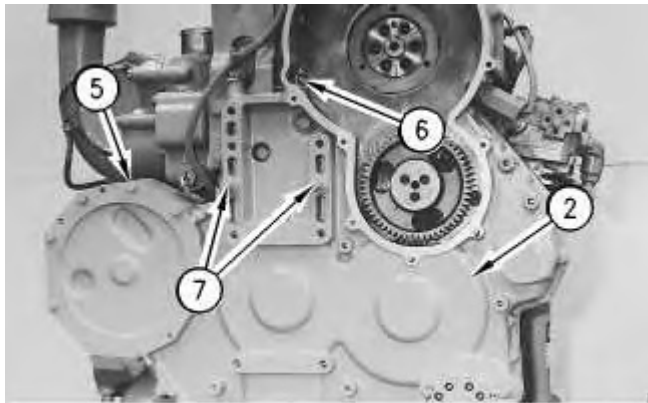


Illustration 3

g00579582

3. Remove bolts (5), nut (6), and nuts (7) from front housing (2) .

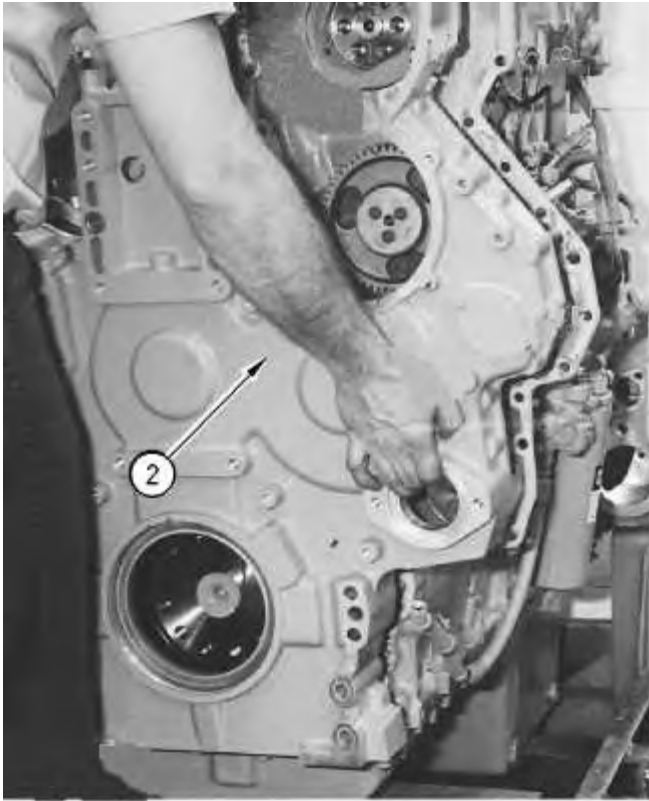


Illustration 4

g00579584

4. Remove front housing (2) .

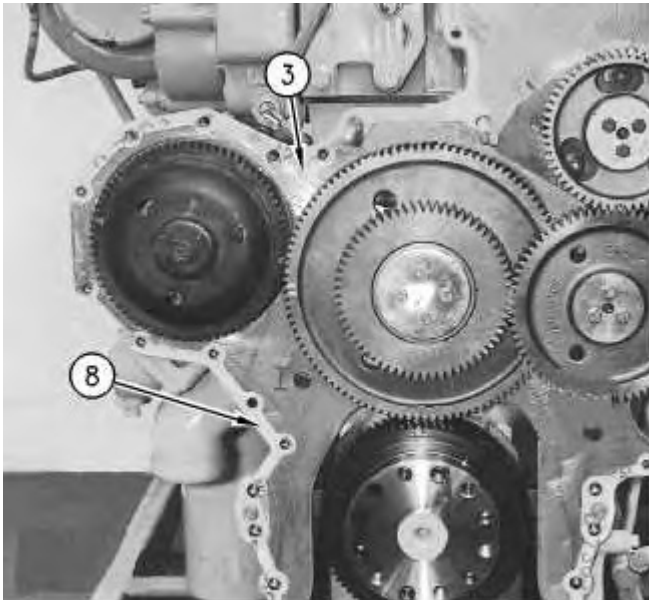


Illustration 5

g00579585

5. Remove gasket (8) from front plate (3) .

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i01994404

Housing (Front) - Install

SMCS - 1151-012

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Do not turn the crankshaft or the camshaft while the camshaft gear is removed. If the front gear group is not correctly timed during installation, interference can occur between the pistons and the valves, resulting in damage to the engine.

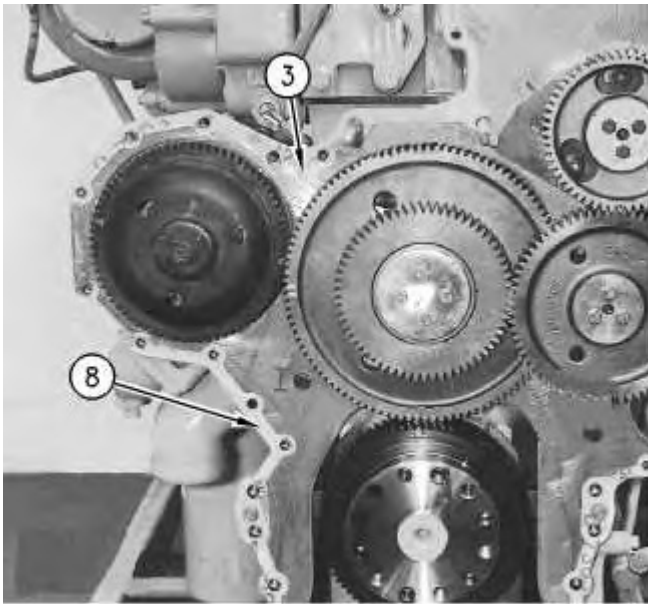


Illustration 1

g00579585

1. Thoroughly clean the old gasket material from front plate (3). Install a new gasket (8) on front plate (3) .

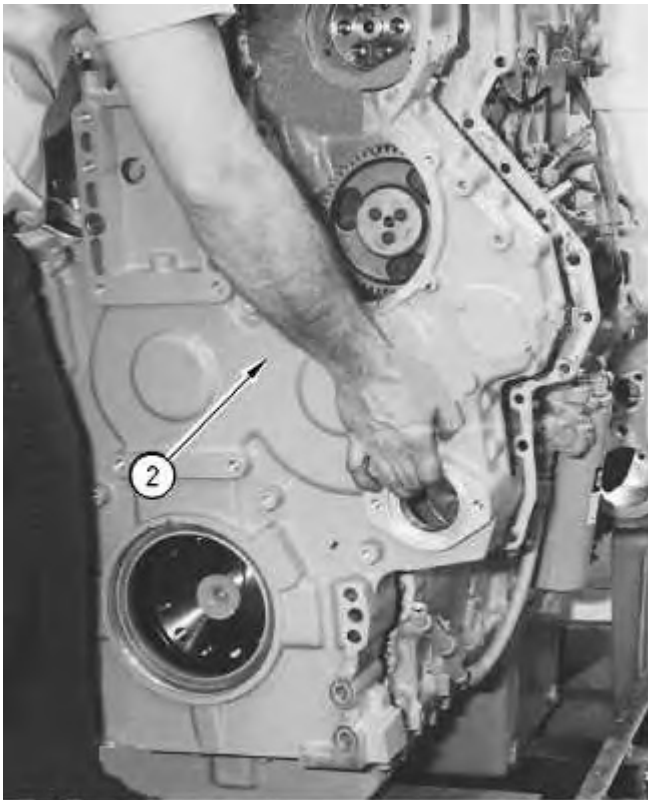


Illustration 2

g00579584

2. Thoroughly clean the old gasket material from front housing (2) and install front housing (2) on the two dowel pins.

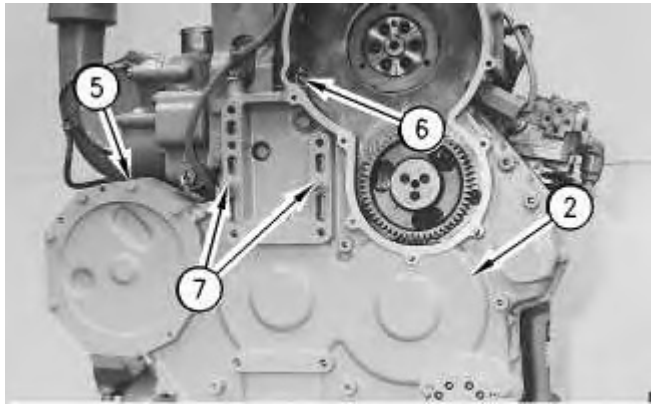


Illustration 3

g00579582

3. Install bolts (5), nut (6), and nuts (7) on front housing (2) .

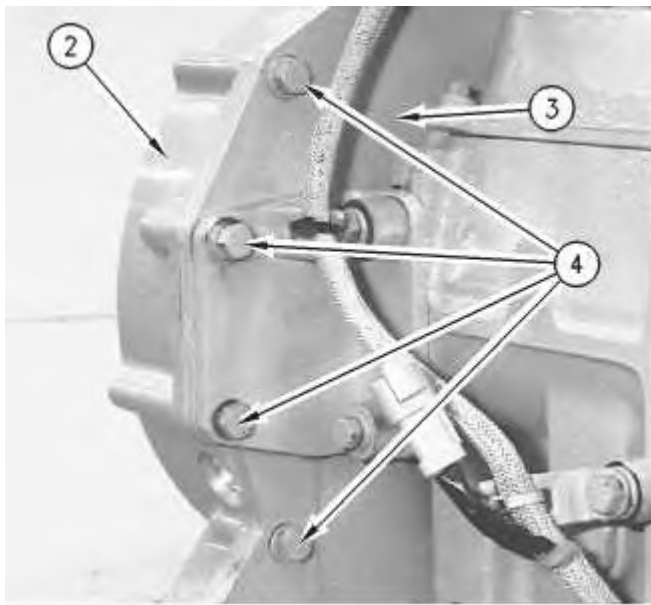


Illustration 4

g00579581

4. Install bolts (4) that fasten front plate (3) to front housing (2) .
-

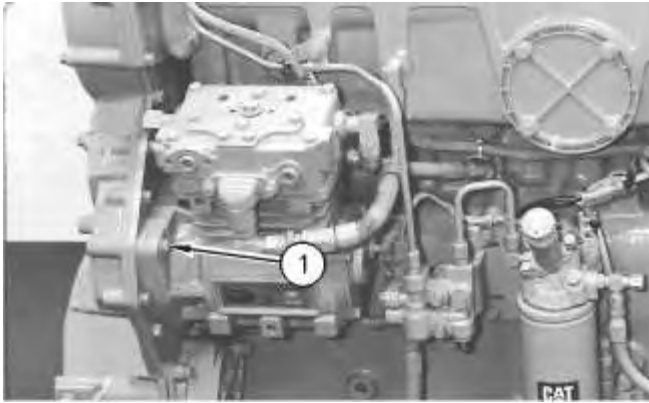


Illustration 5

g00579579

5. Install nut (1) on the stud.

End By:

- a. Install the vibration damper and the pulley. Refer to Disassembly and Assembly, "Vibration Damper and Pulley - Remove and Install".
 - b. Install the fuel transfer pump. Refer to Disassembly and Assembly, "Fuel Transfer Pump - Install".
 - c. Install the fan drive. Refer to Disassembly and Assembly, "Fan Drive - Install".
 - d. Install the engine oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove and Install".
 - e. Install the crankshaft front seal and the wear sleeve. Refer to Disassembly and Assembly, "Crankshaft Front Seal - Install".
 - f. Install the camshaft gear. Refer to Disassembly and Assembly, "Camshaft Gear - Remove and Install".
-

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i01994409

Valve Mechanism Cover - Remove and Install

SMCS - 1107-010

Removal Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

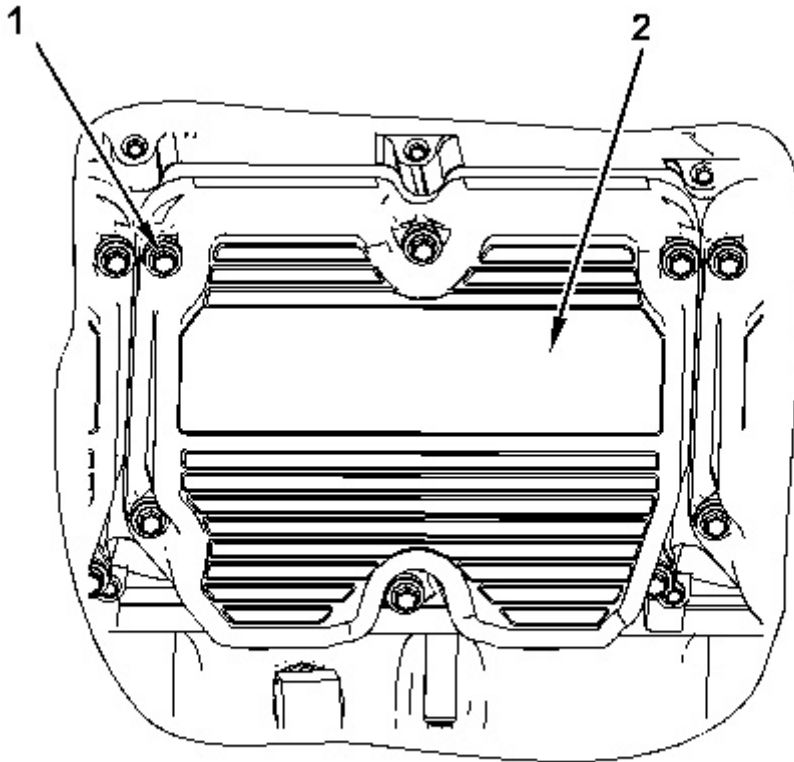


Illustration 1

g01033224

1. Remove bolts (1).
2. Remove valve mechanism cover (2).

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

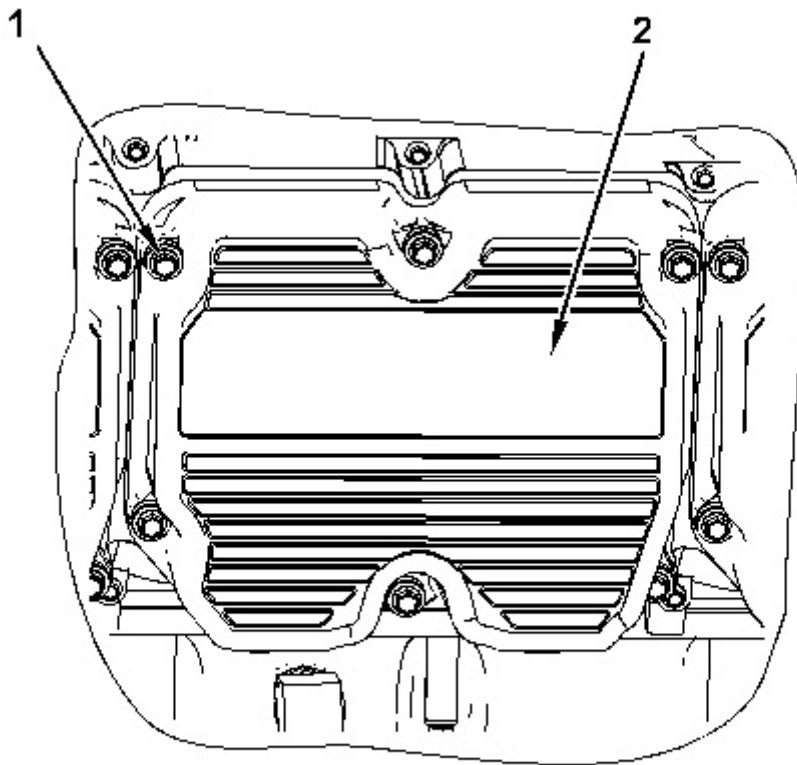


Illustration 2

g01033224

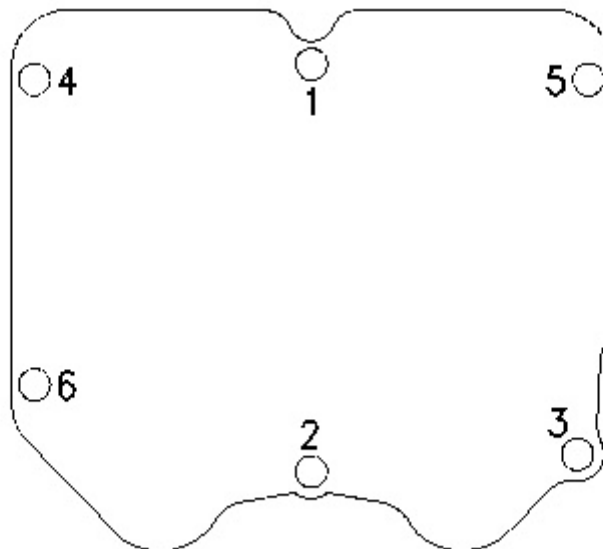


Illustration 3

g00579295

1. Position valve mechanism cover (2) on the valve cover base. Tighten bolts (1) to a torque of $18 \pm 3 \text{ N}\cdot\text{m}$ ($13 \pm 2 \text{ lb ft}$) in the numerical sequence that is shown in Illustration 3.
-

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i01985327

Valve Mechanism Cover Base - Remove and Install

SMCS - 1120-010

Removal Procedure

Start By:

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

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

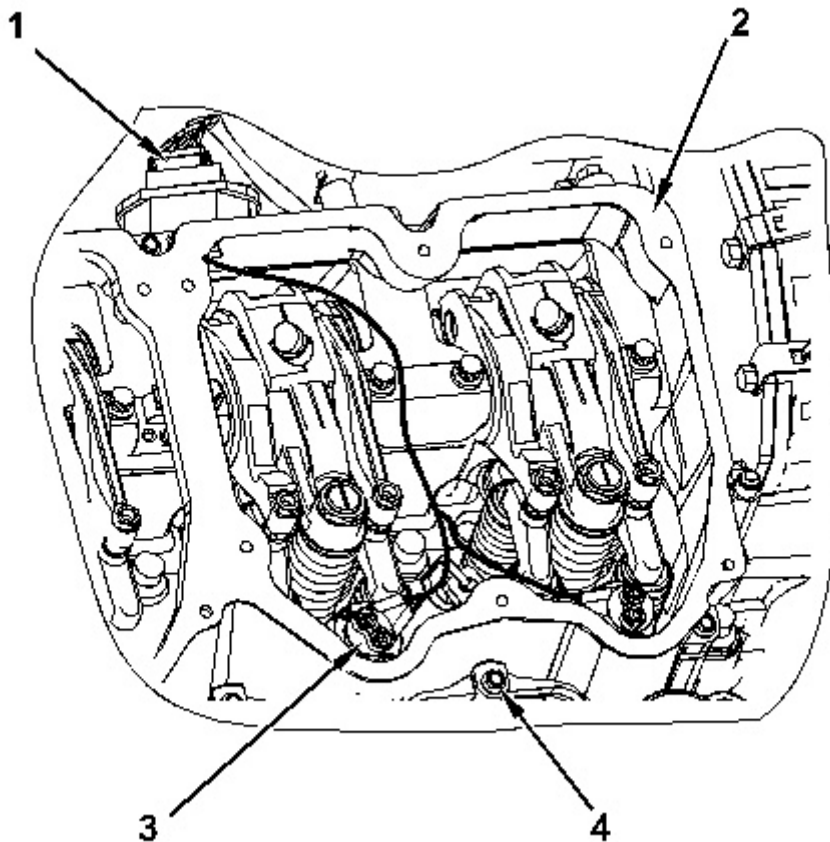


Illustration 1

g01028794

1. Disconnect harness assembly (3) from the electronic unit injector.
2. Disconnect harness assembly (1) from valve cover base (2).
3. Remove bolts (4).
4. Remove valve cover base (2).

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: Before assembly, check the condition of the seal. If the seal is worn or damaged, use a new part for replacement.

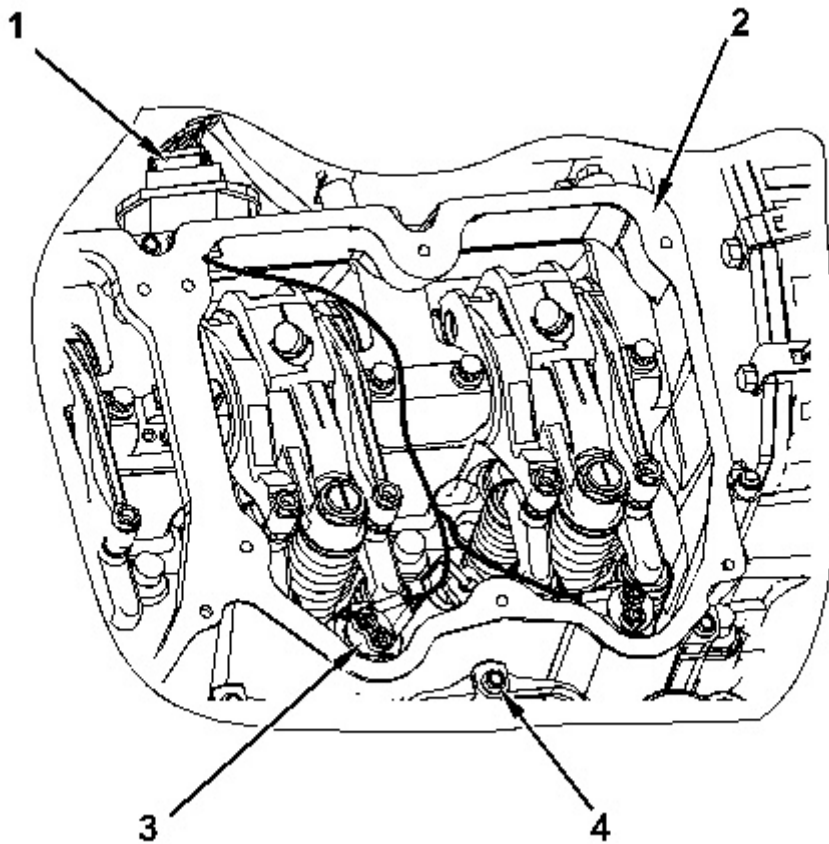


Illustration 2

g01028794

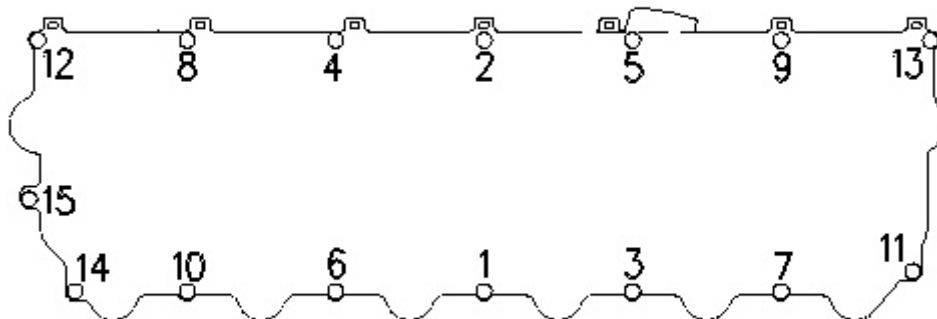


Illustration 3

g00579307

1. Position valve cover base (2) on the cylinder head and install bolts (4). Tighten bolts (4) to a torque of 18 ± 3 N·m (13 ± 2 lb ft) in the numerical sequence that is shown in Illustration 3.
2. Connect harness assembly (1).

3. Position harness assembly (3) on the electronic unit injector. Tighten the cap nuts to a torque of $2.5 \pm 0.25 \text{ N}\cdot\text{m}$ ($22 \pm 2 \text{ lb in}$).

End By:

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

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i01994416

Compression Brake - Remove - If Equipped

SMCS - 1119-011

Removal Procedure

Start By:

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

NOTICE

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NOTICE

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Dispose of all fluids according to local regulations and mandates.

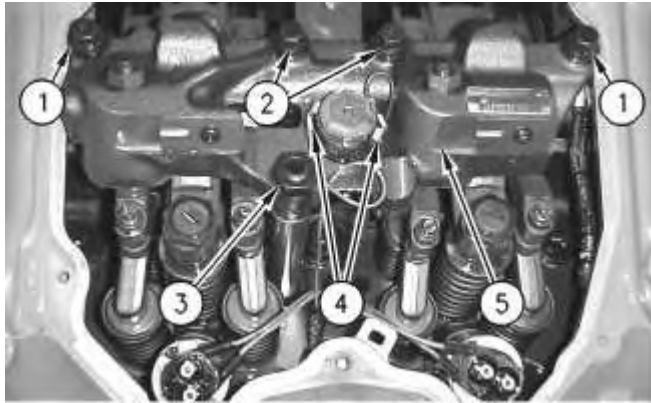


Illustration 1

g00619974

Note: The removal procedure is identical for all three compression brake housings.

1. Disconnect wires (4) .
2. Remove bolts (1) and bolts (2) .
3. Remove nut (3) .

Note: Some of the early 340, 340A, and 340B compression brakes utilized two mounting studs that are located in the front of the brake housing.

4. Remove compression brake housing (5) .
-

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i01933918

Compression Brake - Disassemble - If Equipped

SMCS - 1119-015

Disassembly Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	134-2837	Piston Compressor	1

Start By:

- A. Remove the compression brake. Refer to Disassembly and Assembly, "Compression Brake - Remove".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

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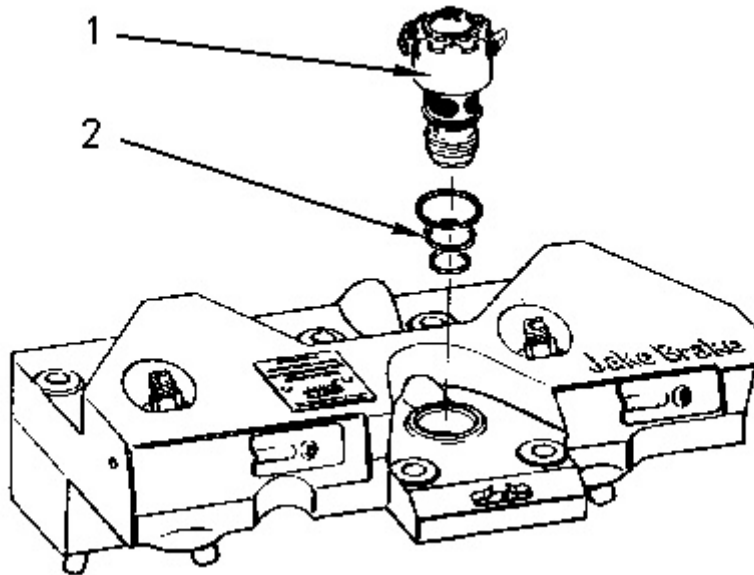


Illustration 1

g00512487

Typical example

NOTICE

Do not disassemble or tamper with the solenoid valve. Engine damage could result.

1. Remove solenoid valve (1) .
 2. Remove seals (2) from the solenoid valve. Remove seal (2) from the bottom of the bore for the solenoid valve. Discard the seals.
 3. Wash solenoid valve (1) with approved cleaning solvent. Use a brush to clean the oil screen. Dry solenoid valve (1) with 103 to 138 kPa (15 to 20 psi) of compressed air.
-

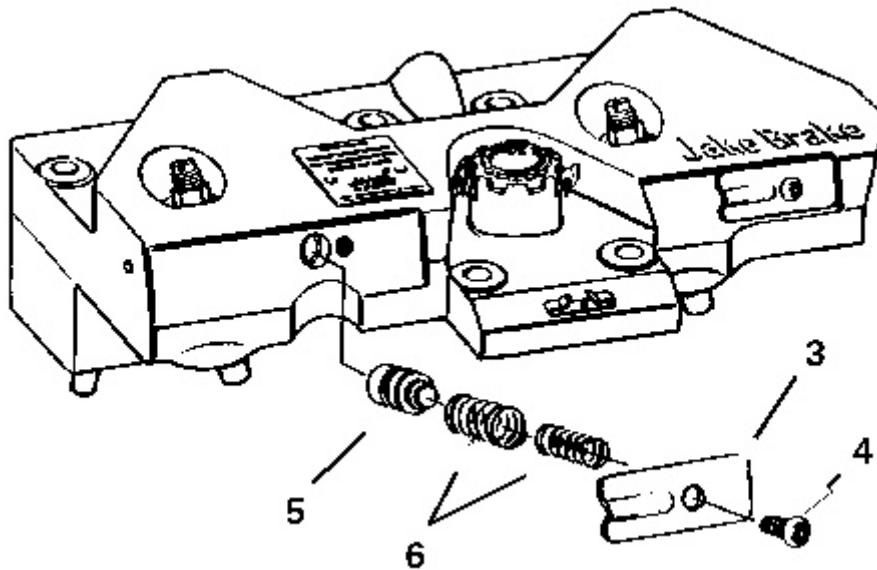


Illustration 2

g01009776

Typical example

WARNING

Remove control valve covers carefully. Control valve spring covers are under load from the control valve springs. Remove with care to avoid personal injury.

WARNING

Personal injury can result from parts and/or covers under spring pressure.

Spring force will be released when covers are removed.

Be prepared to hold spring loaded covers as the bolts are loosened.

4. Compress control valve cover (3) in order to relieve any spring pressure when allen head screw (4) is removed.
5. Remove allen head screw (4) .
6. Slowly remove control valve cover (3) in order to relieve spring tension force. Then remove control springs (6) .

7. Remove control valve (5) .

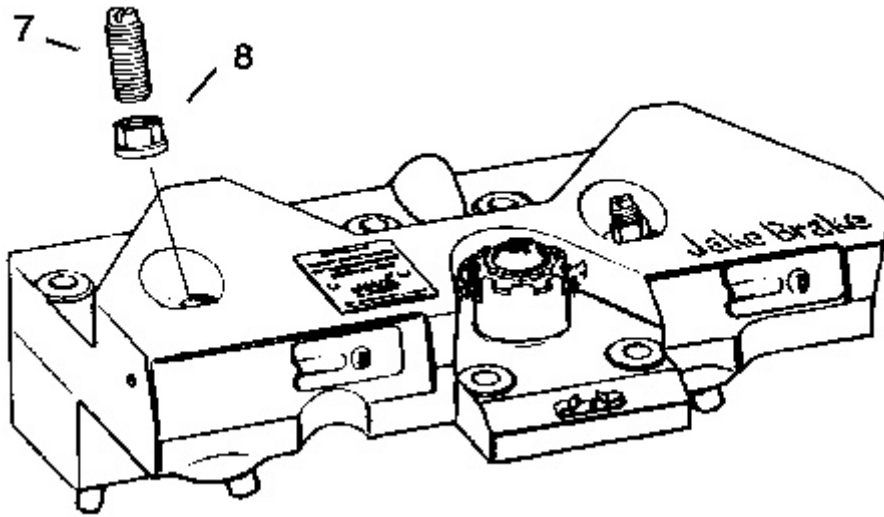


Illustration 3

g01009783

Typical example

NOTICE

Do not disassemble or tamper with slave piston adjusting screw. Engine damage could result.

8. Loosen slave piston adjustment screw locknut (8) and loosen slave piston adjustment screw (7) until the slave piston is fully retracted. Slave piston adjusting screw (7) should be loose.

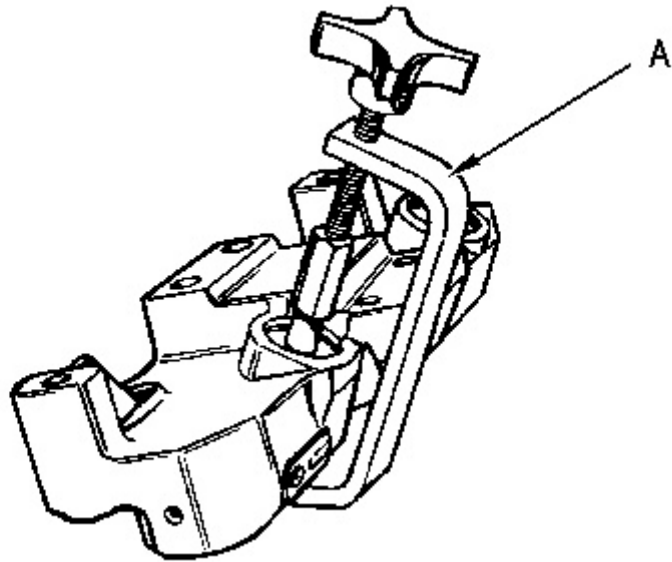
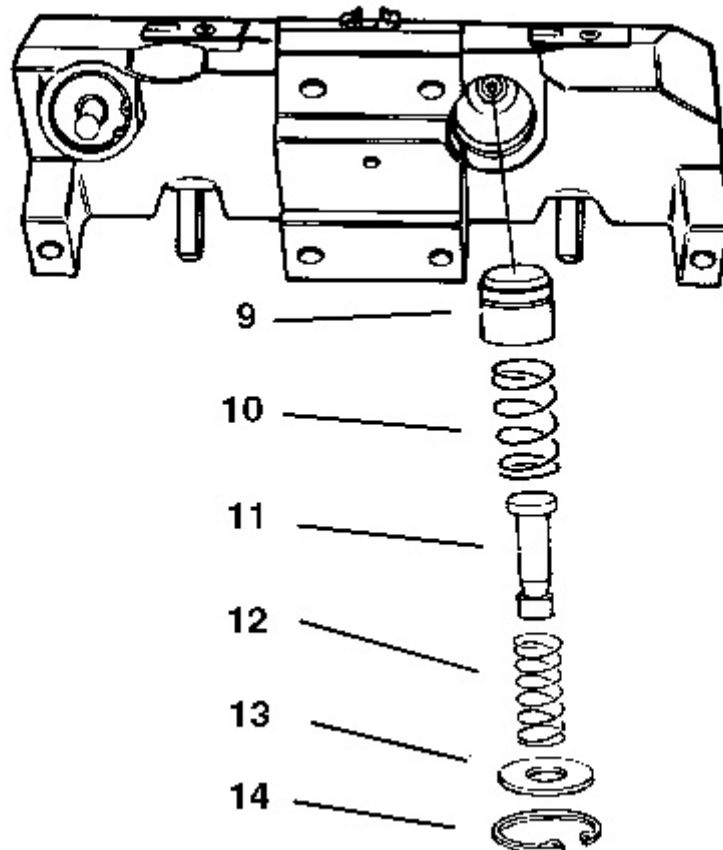


Illustration 4

g00512594

Typical example

9. Place Tooling (A) over slave piston adjusting screw (7) .



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