

Product: BACKHOE LOADER

Model: 432D BACKHOE LOADER WEP

Configuration: 432D Backhoe Loader WEP00001-UP (MACHINE) POWERED BY 3054C Engine

Disassembly and Assembly 3054C Engines for Caterpillar Built Machines

Media Number -SEN5069-18

Publication Date -01/05/2015

Date Updated -19/09/2018

i02293092

Engine Oil Cooler - Remove

SMCS - 1378-011

Removal 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.

Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

1. Drain the coolant from the engine oil cooler into a suitable container. Drain the engine oil from the engine oil cooler into a suitable container. Refer to Operation and Maintenance Manual for the procedure on draining the engine coolant and the engine oil.

Note: Refer to Operation and Maintenance Manual, "Refill Capacities" for the coolant capacity and the engine oil capacity of the engine.

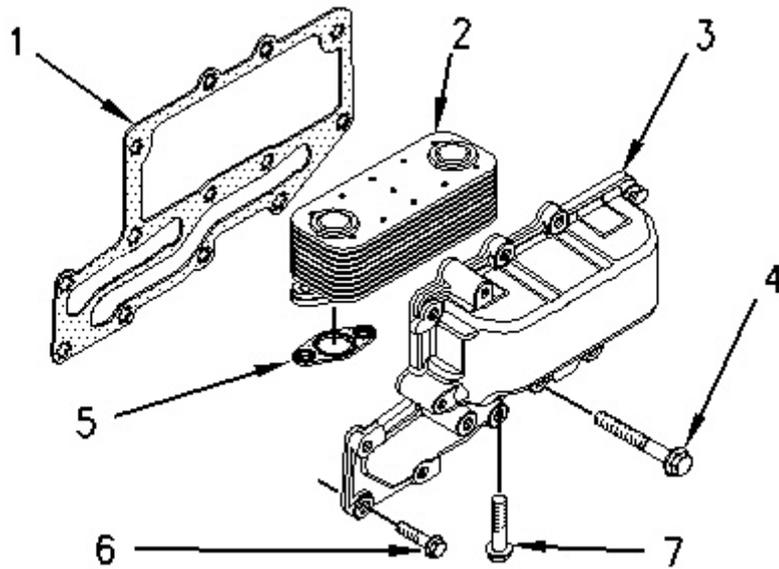


Illustration 1

g00952614

2. Remove the setscrews (6). Remove the setscrews (4).

Note: Do not remove the setscrews (7) at this time.

3. Remove the housing for the engine oil cooler (3) from the cylinder block.

4. Remove the setscrews (7). Remove the engine oil cooler (2) and the seals (5) from the housing for the engine oil cooler (3). Discard the seals (5).

5. Remove the gasket (1) from the housing for the engine oil cooler and the cylinder block. Discard the gasket (1).

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Engine Oil Cooler - Install

SMCS - 1378-012

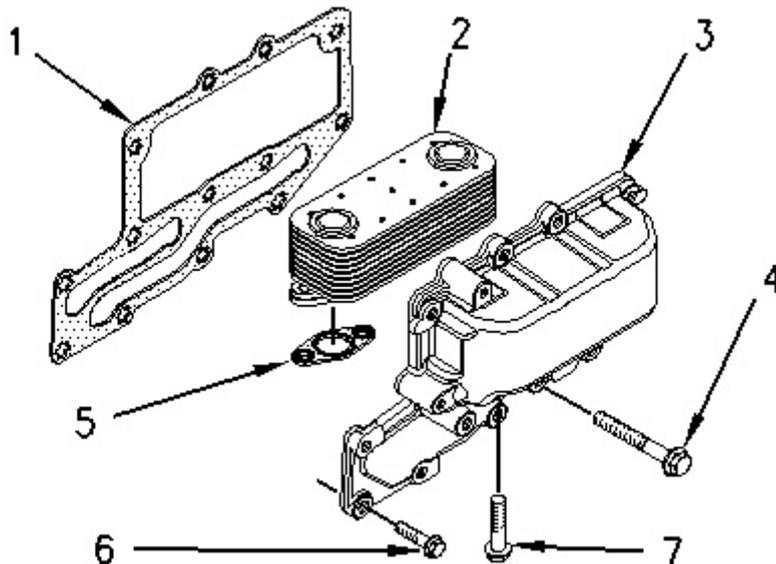
Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Clean the mating surfaces of the housing for the engine oil cooler and the cylinder block.



2. Position the engine oil cooler (2) and new seals (5) on the housing for the engine oil cooler. Install the setscrews (7) in order to secure the engine oil cooler to the housing.

Note: Do not use sealants on the gasket (1).

3. Position the housing for the engine oil cooler (3) and a new gasket (1) on the cylinder block. Install the setscrews (4) and the setscrews (6) in order to secure the housing for the engine oil cooler to the cylinder block.
4. Tighten all of the setscrews (4, 6 and 7) to the correct torque. Refer to the Torque specifications Manual, "Standard Torques for Metric Fasteners" for further information.

Note: Refer to Operation and Maintenance Manual, "Refill Capacities" for the cooling system capacity and the lubrication system capacity of the engine.

5. Fill the cooling system with coolant. Fill the lubrication system with engine oil.
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i02317428

Engine Oil Relief Valve - Remove and Install - Engine without Balancer Group

SMCS - 1315-010

Removal Procedure

Start By:

- a. Remove the engine oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

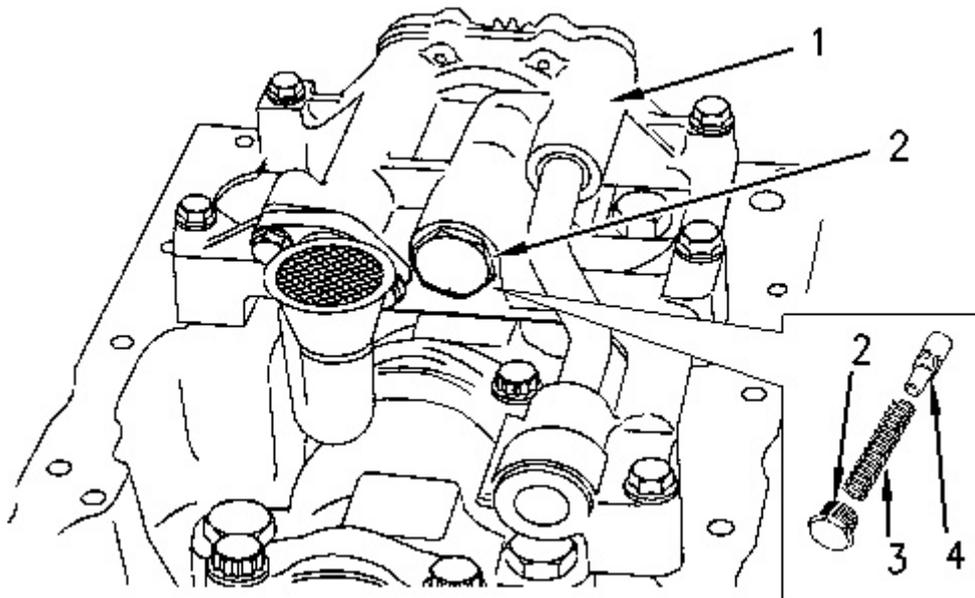


Illustration 1

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WARNING

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.

1. Remove plug (2). Remove spring (3) and plunger (4) from engine oil pump assembly (1).
2. Check the spring and the plunger for wear or for other damage. The plunger (4) must slide easily in the engine oil pump assembly.

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Clean the spring and the plunger of the engine oil relief valve. Lubricate the spring and the plunger with clean engine oil.

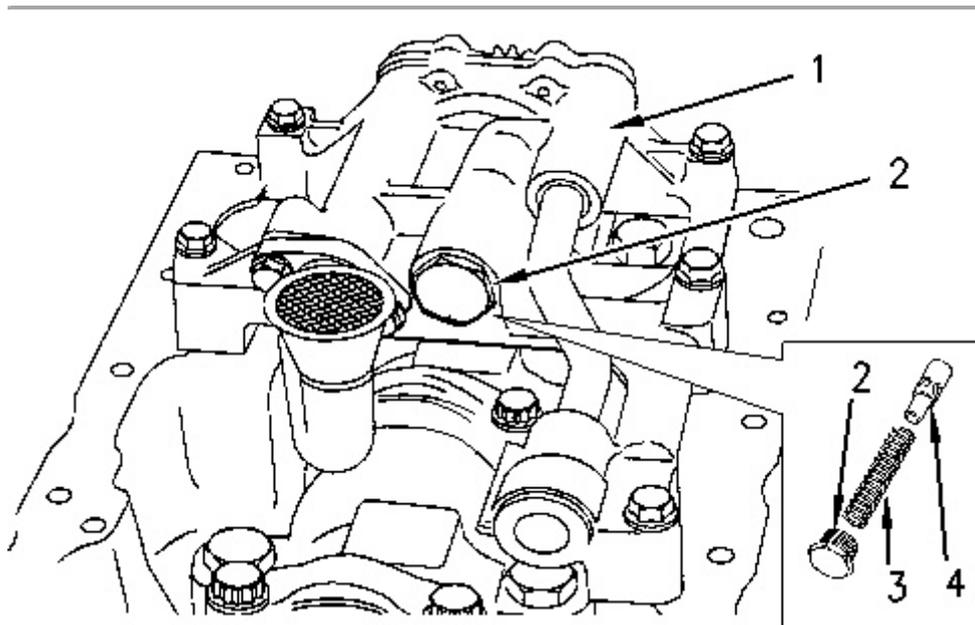


Illustration 2

g00959674

! 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.

2. Install plunger (4) and spring (3) in engine oil pump assembly (1).
3. Install plug (2). Tighten the plug to a torque of 22 N·m (16 lb ft).

End By:

- a. Install the engine oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove and Install".
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i02293101

Engine Oil Pump - Remove - Engines Without a Balancer

SMCS - 1304-011

Removal Procedure

Start By:

- a. Remove the oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove and Install".

Note: This procedure is for the removal of the engine oil pump on engines that are not equipped with a balancer. Refer to this Disassembly and Assembly Manual, "Balancer Group - Remove" for information on the removal of the engine oil pump on engines that are equipped with a balancer.

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, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

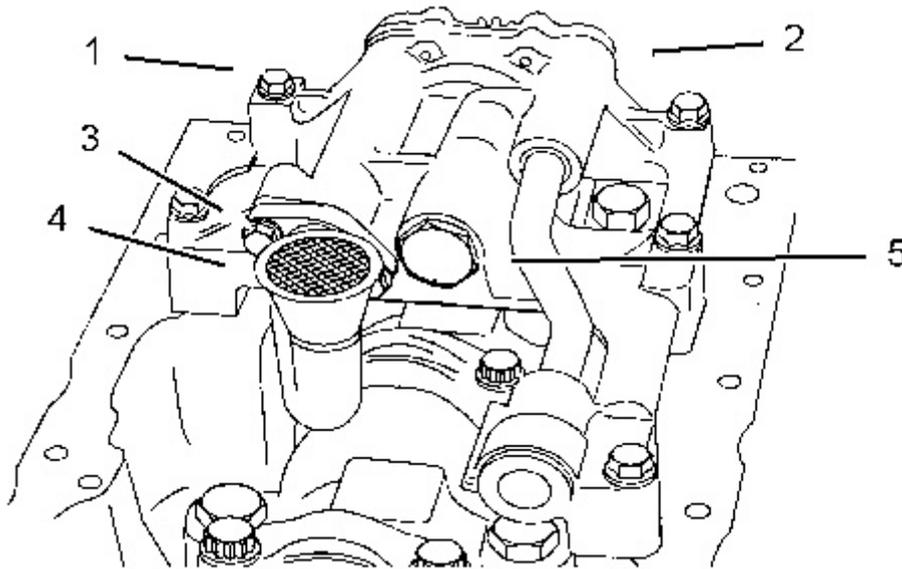


Illustration 1

g01147907

1. Remove the setscrews (3) and the suction pipe (4).
2. Remove the setscrews (1). Remove the assembly of the engine oil pump (2) from the cylinder block.

! WARNING

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.

3. If necessary, remove the pressure relief valve (5) from the assembly of the engine oil pump (4). Refer to this Disassembly and Assembly Manual, "Engine Oil Relief Valve - Remove and Install".
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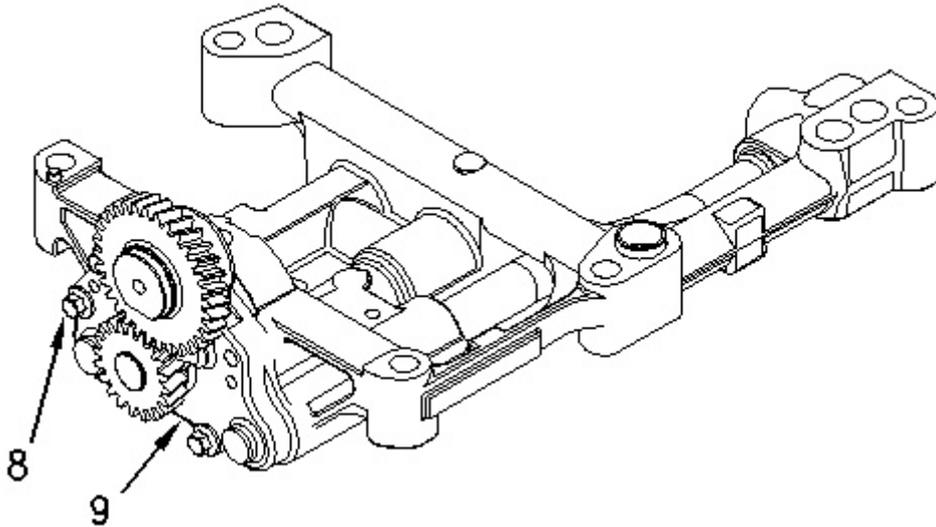


Illustration 2

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4. Remove the setscrews (8). Remove engine oil pump (9).
 5. If necessary, remove the setscrews and remove the front cover assembly from the engine oil pump (7) in order to inspect the components within the engine oil pump.
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i02293102

Engine Oil Pump - Install - Engines Without a Balancer

SMCS - 1304-012

Installation Procedure

Note: This procedure is for the installation of the engine oil pump on engines that are not equipped with a balancer. Refer to this Disassembly and Assembly Manual, "Balancer Group - Install" for information on the installation of the engine oil pump on engines that are equipped with a balancer.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

If any of the parts on the engine oil pump are worn or damaged, the entire pump must be replaced.

1. Clean all of the internal components of the oil pump if the front cover of the oil pump was previously removed in order to inspect the internal components. Check the internal components for wear and for other damage. Check the clearance between the outer rotor of the oil pump and the oil pump body. Check the clearance between the outer rotor and the inner rotor. Check the end play movement of the rotor. Refer to the Systems Operation/Testing and Adjusting Manual, "Engine Oil Pump - Inspect". Replace the engine oil pump if any of the components are worn or damaged.

2. Lubricate the inner rotor and the outer rotor of the engine oil pump with clean engine lubricating oil. Install the front cover of the engine oil pump onto the body of the oil pump. Install the setscrews and tighten the setscrews in order to secure the front cover to the body.

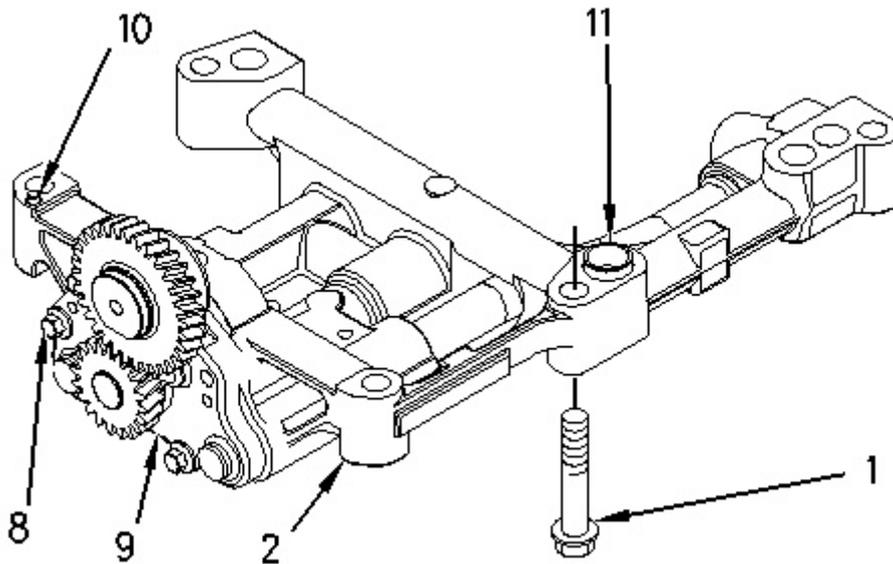


Illustration 1

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3. Install the engine oil pump (9) into the assembly of the engine oil pump (2). Install the setscrews (8). Tighten the setscrews to a torque of 9 N·m (80 lb in).
 4. Fill engine oil pump (9) with clean engine oil.
 5. Position the assembly of the engine oil pump (2) against the cylinder block. Ensure that dowel pin (10) and hollow dowel (11) are correctly located in the cylinder block.
 6. Install the setscrews (1). Tighten the setscrews to a torque of 44 N·m (32 lb ft).
 7. Check the backlash between the idler gear of the oil pump and the crankshaft gear. Refer to the Specifications Manual, "Gear Group - Front" for further information.
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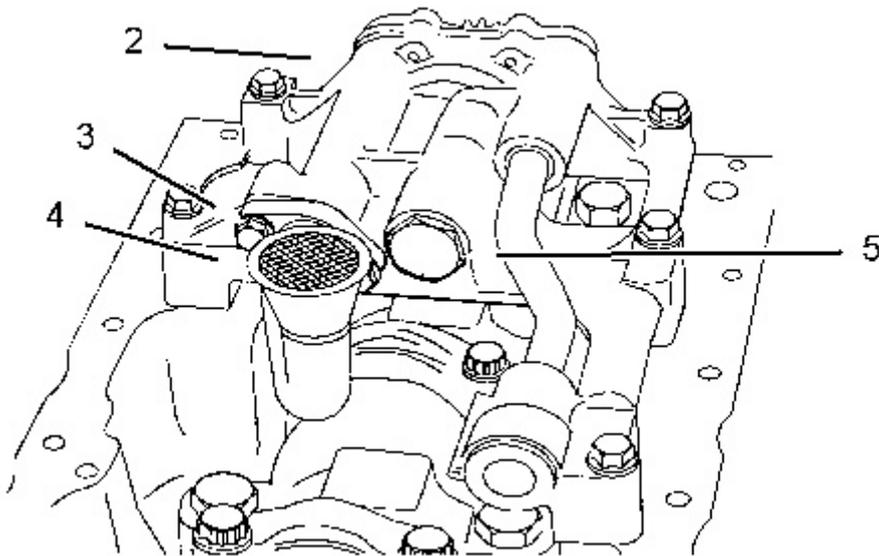


Illustration 2

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⚠ 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.

8. If the pressure relief valve (5) was removed, install the pressure relief valve. Refer to this Disassembly and Assembly Manual, "Engine Oil Relief Valve - Remove and Install" for further information.
9. Position the suction pipe (4) and install the setscrews (3).

End By:

- a. Install the oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove and Install".
-

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i02293115

Water Pump - Remove and Install

SMCS - 1361-011; 1361-012

Removal Procedure

Start By:

- a. Remove the fan. Refer to Disassembly and Assembly, "Fan - 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, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

1. Drain the coolant from the cooling system into a suitable container for storage or disposal.

Note: Refer to Operation and Maintenance Manual, "Refill Capacities" for the coolant capacity of the engine.

2. Loosen the clamps and remove the hose from the water pump inlet.

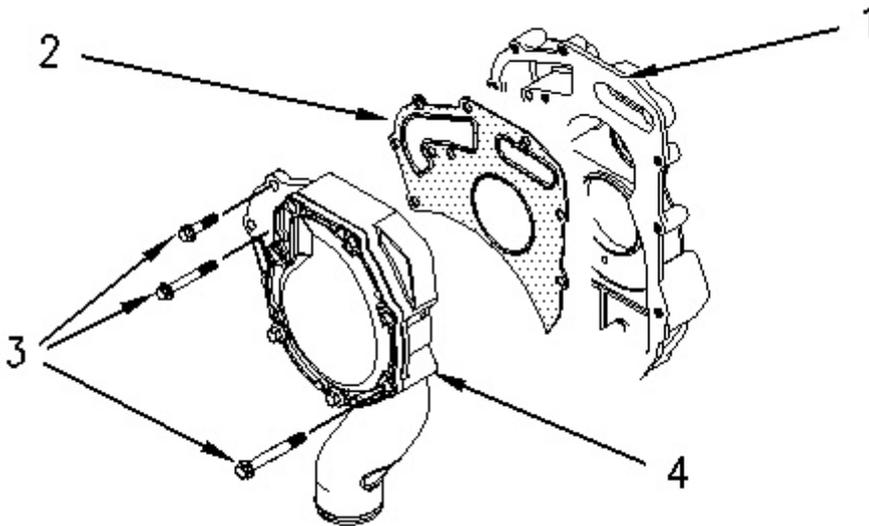


Illustration 1

g00952695

3. Remove the setscrews (3) that fasten the water pump (4) to the front housing (1).
4. If necessary, tap the water pump with a soft hammer in order to loosen the water pump.
5. Remove water pump (4). Remove the gasket (2) from the front housing and the water pump. Discard the gasket (2).

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	9S-3263	Thread Lock	-
B	-	Guide Bolt (M8 X 1.25 by 70 mm)	2

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

-
1. Inspect the drive gear for the water pump for wear or other damage. If necessary, replace the drive gear.
 2. Clean the joint faces of the water pump and the front housing.

Note: Do not use sealant on the gasket for the water pump.

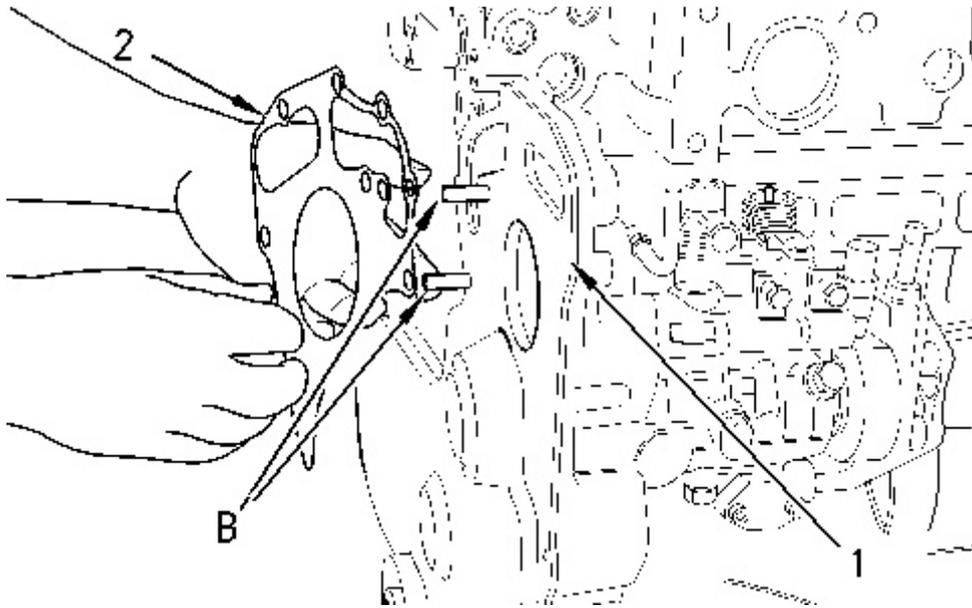
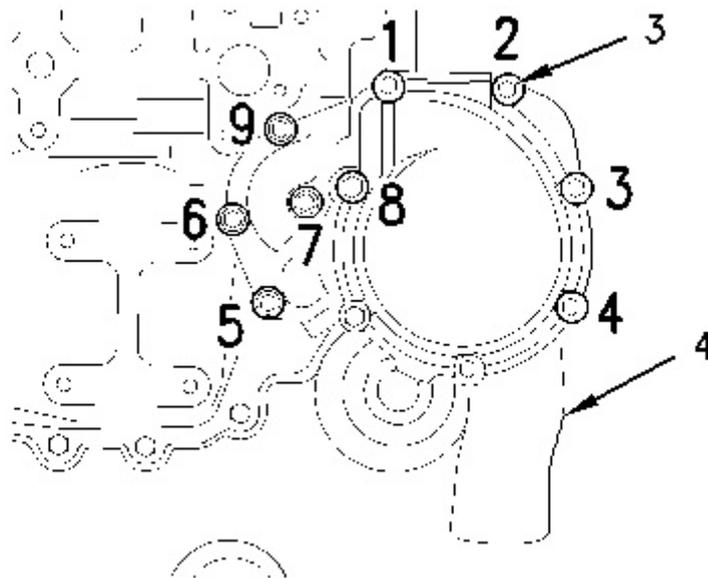


Illustration 2

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3. Install Tooling (B) in the front housing (1).
4. Install a new gasket (2) on the front housing.





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