

Product: INDUSTRIAL ENGINE
Model: C3.4 INDUSTRIAL ENGINE CJR
Configuration: C3.4 Industrial Engine CJR00001-UP

Disassembly and Assembly C3.4 Industrial Engine

Media Number -KENR6244-00

Publication Date -01/06/2007

Date Updated -11/06/2007

i02638544

Fuel Injection Pump - Remove

SMCS - 1251-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1P-2320	Combination Puller	1

Start By:

- A. Remove the fuel injection lines. Refer to Disassembly and Assembly, "Fuel Injection Lines - Remove and Install".

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.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that number one piston is at the top center position on the compression stroke. Refer to Systems Operation, Testing and Adjusting, "Finding Top Center Position for No. 1 Piston".
-

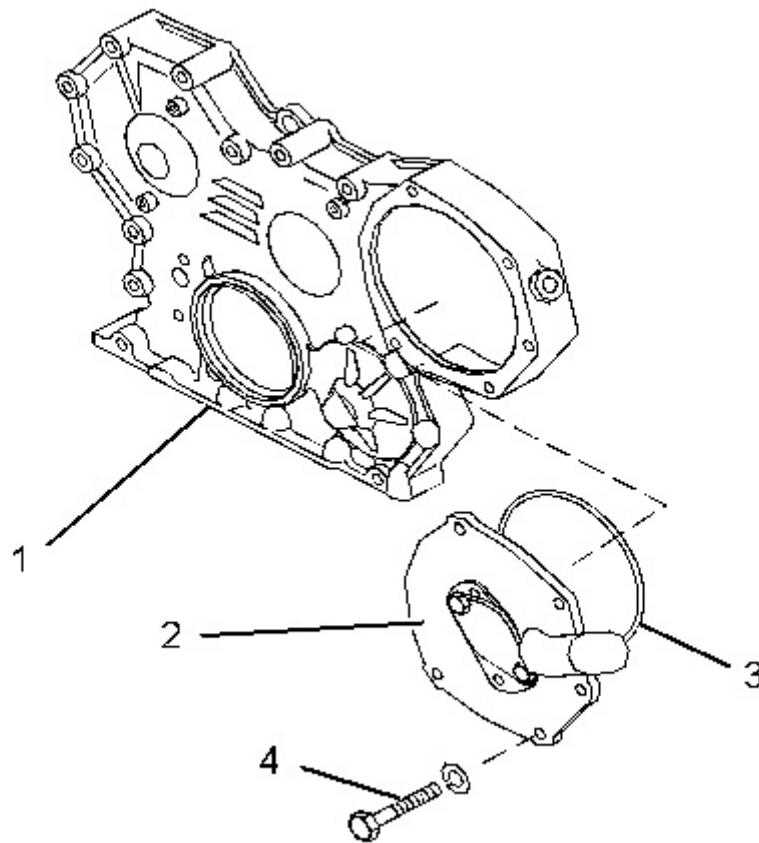


Illustration 1

g01335768

Typical example

2. Remove bolts (4) .
 3. Remove plate (2) from front housing (1) .
 4. Remove O-ring seal (3) from plate (2) .
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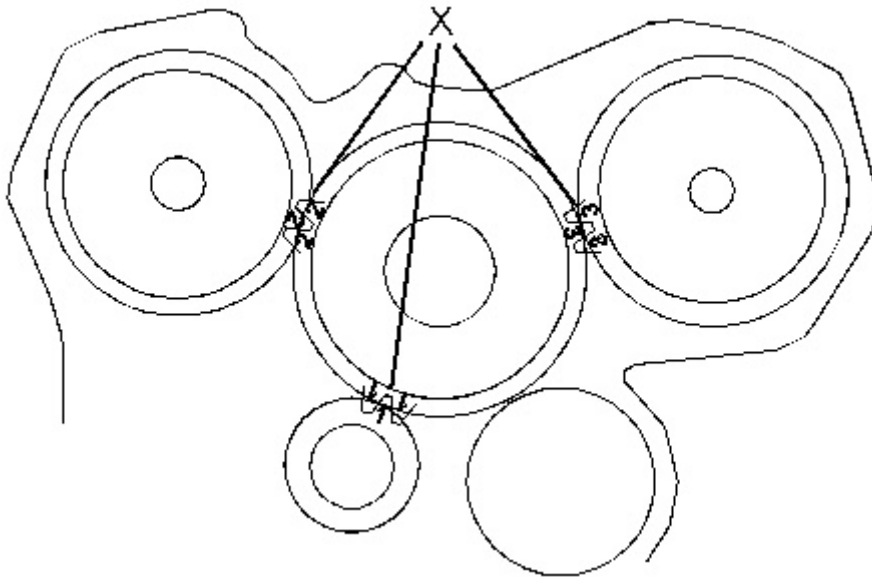
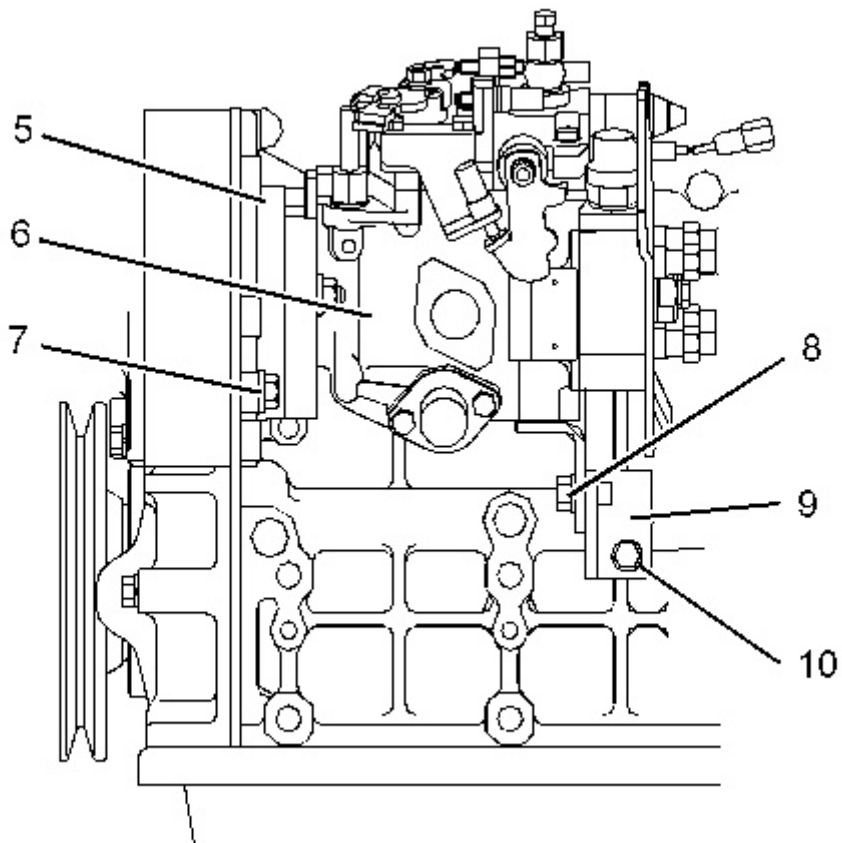


Illustration 2

g01375914

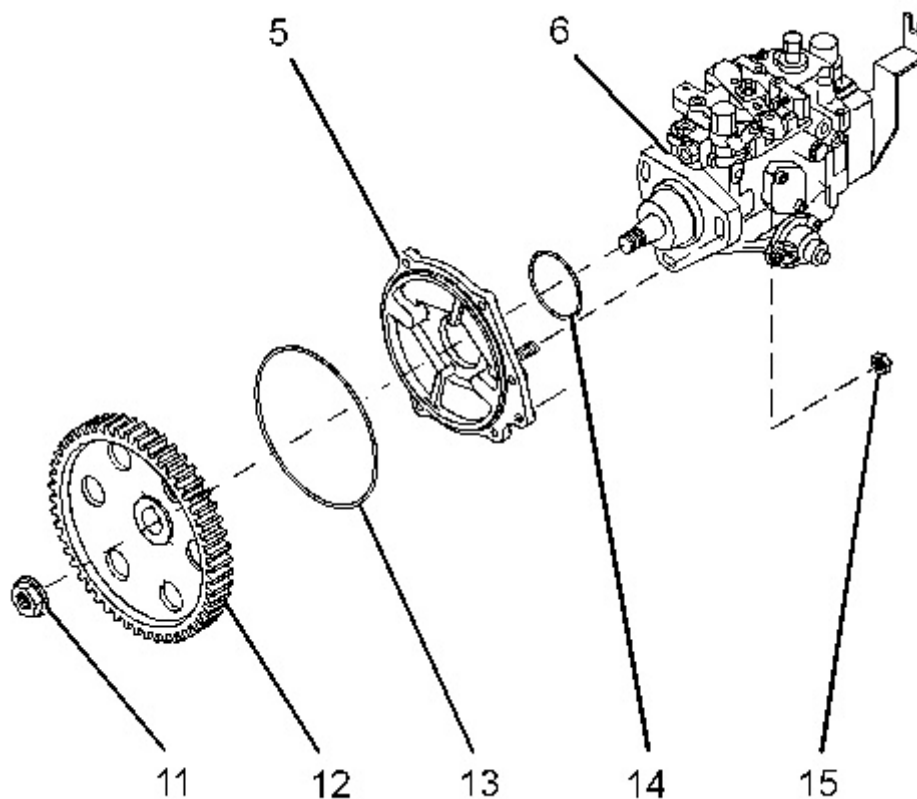
Timing marks on the gears

5. Ensure that Timing marks (X) on the teeth of the gears are aligned or make temporary marks on the gears for installation purposes.



Typical example

6. Loosen bolt (7) .
7. Remove fasteners (8), bolt (10) and bracket (9) .
8. Support fuel injection pump (6) and remove bolt (7) .
9. Remove the assembly of housing (5) and fuel injection pump (6) .



Typical example

10. Remove O-ring seal (13) from housing (5) .
11. Loosen nut (11) .

Note: Do not remove the nut at this time.

12. Use Tooling (A) to loosen gear (12). Remove nut (11) and gear (12) .

13. If the original fuel injection pump will be installed, mark the flange of fuel injection pump (6) and housing (5). Remove nuts (15) .

Note: Refer to Systems Operation, Testing and Adjusting, "Fuel Injection Timing - Check" for the correct method of setting the fuel injection pump timing after installation.

14. Remove housing (5) from fuel injection pump (6). Remove O-ring seal (14) from housing (5).
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i02719941

Fuel Injection Pump - Install

SMCS - 1251-012

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that number one piston is at the top center position on the compression stroke. Refer to Systems Operation, Testing and Adjusting, "Finding Top Center Position for No. 1 Piston".
-

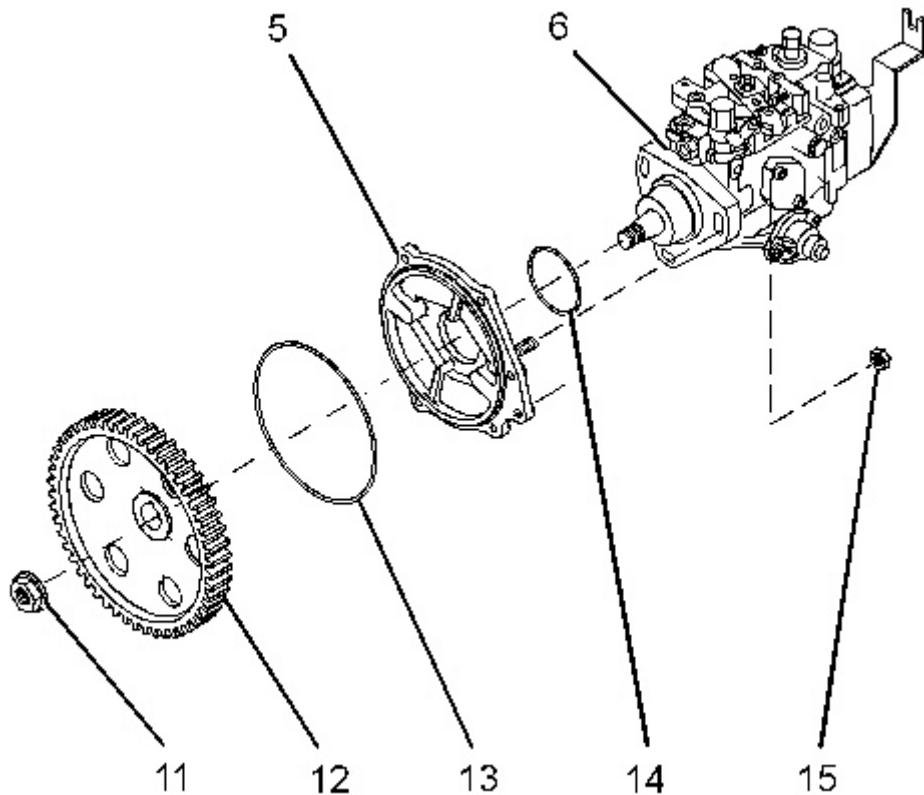


Illustration 1

g01335808

Typical example

2. Ensure that the mating surfaces of housing (5) and fuel injection pump (6) are clean and free from damage.
 3. Install a new O-ring seal (14) to housing (5) .
 4. Position housing (5) on fuel injection pump (6). If the original fuel injection pump is installed, ensure that the appropriate marks on the flange of the fuel injection pump and the housing are aligned. Install nuts (15) finger tight.
 5. Tighten nuts (15) to a torque of 18 N·m (13 lb ft).
 6. Install a new O-ring seal (13) to housing (5). Install gear (12) to fuel injection pump (6). Install nut (11) finger tight.
-

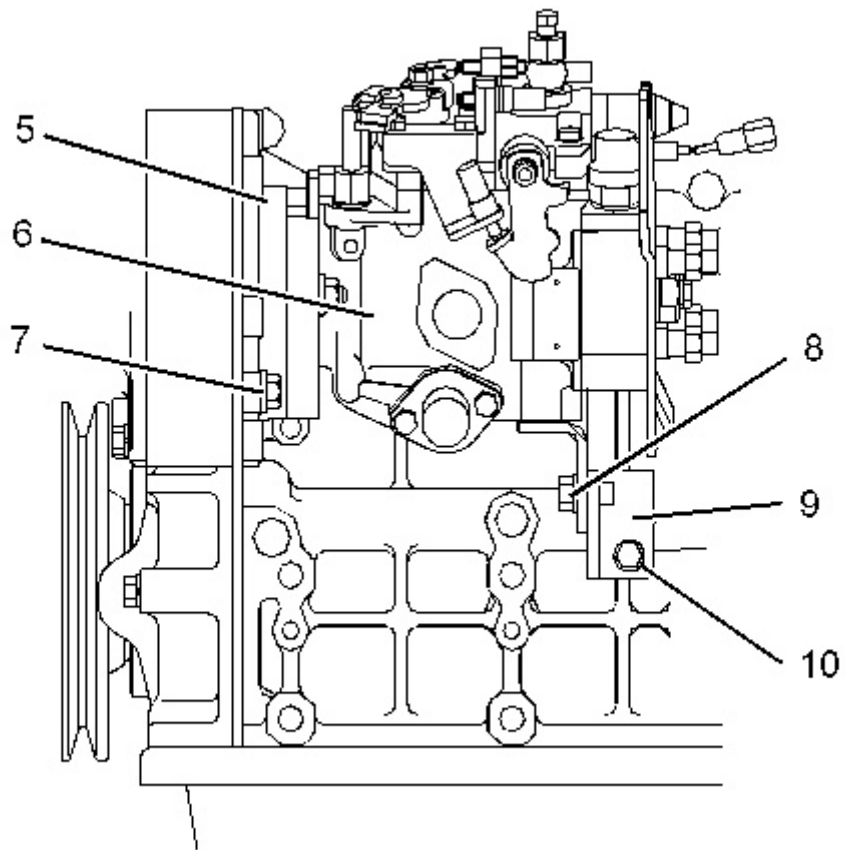


Illustration 2

g01375471

Typical example

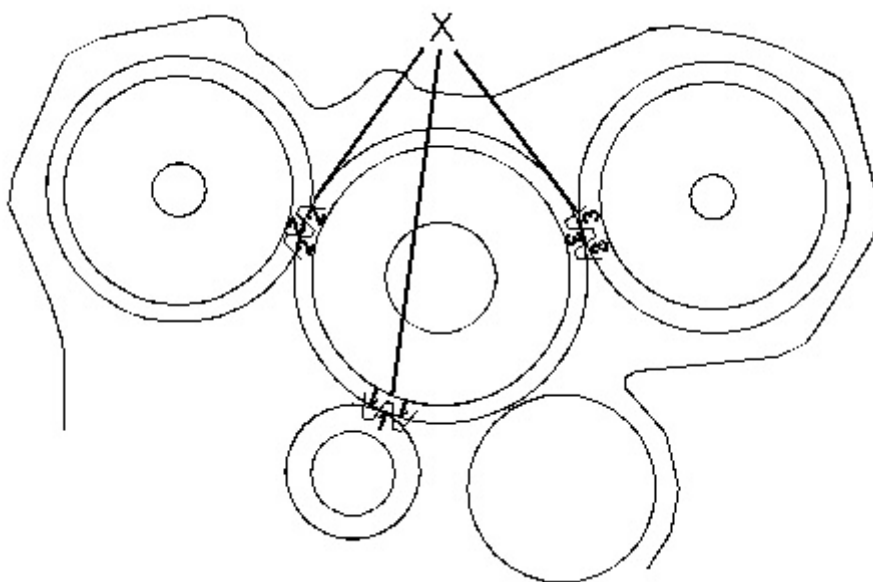


Illustration 3

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Timing marks on the gears

7. Install the assembly of housing (5) and fuel injection pump (6) to the engine. Ensure that Timing marks (X) on the teeth of the gears are in the correct position. Install bolt (7) finger tight.
8. Position bracket (9) on fuel injection pump (6). Install fasteners (8) and bolt (10) finger tight.
9. Tighten nut (11) to a torque of 90 N·m (66 lb ft). Refer to Illustration 1.

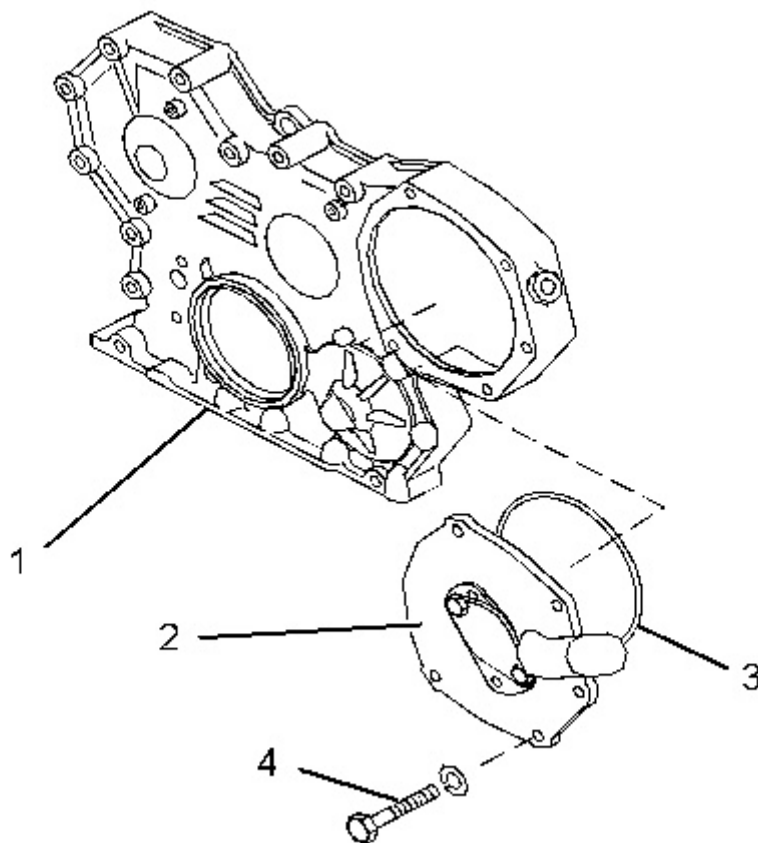


Illustration 4

g01335768

Typical example

10. Install a new O-ring seal (3) to plate (2) .
11. Position plate (2) on front housing (1). Install bolts (4). Tighten the bolts to a torque of 18 N·m (13 lb ft).
12. Tighten bolt (7) to a torque of 18 N·m (13 lb ft). Tighten bolt (10) to a torque of 18 N·m (13 lb ft). Tighten fasteners (8) to a torque of 35 N·m (26 lb ft). Refer to Illustration 2.
13. Adjust the fuel injection pump timing. Refer to Systems Operation, Testing and Adjusting, "Fuel Injection Timing - Check".

End By: Install the fuel injection lines. Refer to Disassembly and Assembly, "Fuel Injection Lines - Remove and Install".

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i02638546

Fuel Injection Pump - Install - Fuel Injection Pumps With a Water Heated Cold Start Device

SMCS - 1251-012

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that number one piston is at the top center position on the compression stroke. Refer to Systems Operation, Testing and Adjusting, "Finding Top Center Position for No. 1 Piston".
-

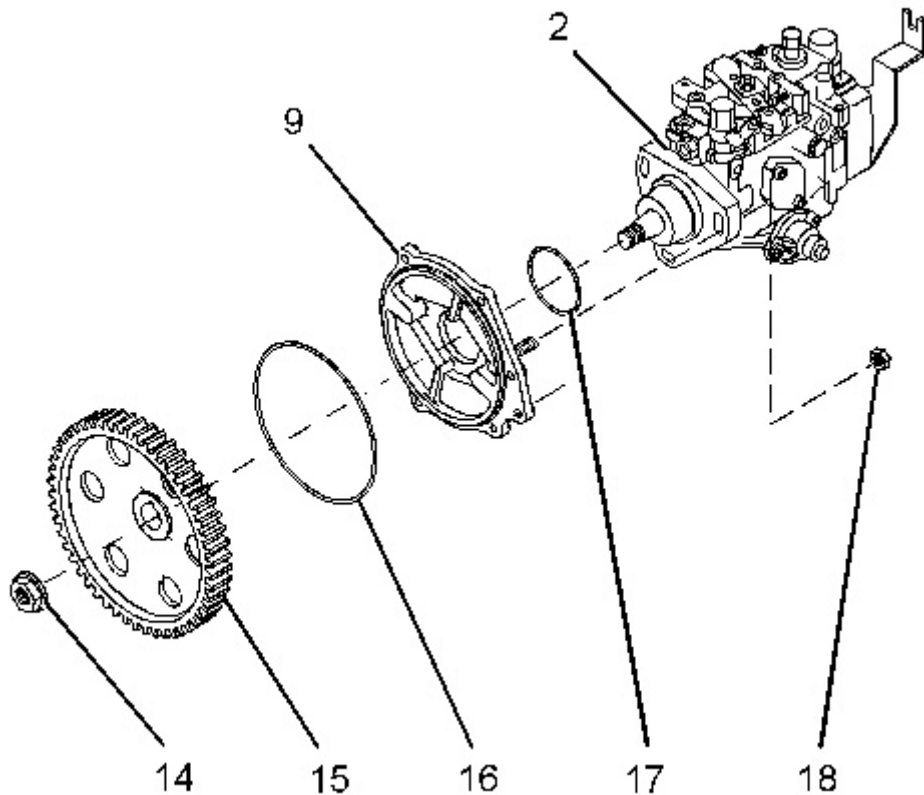


Illustration 1

g01375949

Typical example

2. Ensure that the mating surfaces of housing (9) and fuel injection pump (2) are clean and free from damage.
 3. Install a new O-ring seal (17) to housing (9) .
 4. Position housing (9) on fuel injection pump (2). If the original fuel injection pump is installed, ensure that the appropriate marks on the flange of the fuel injection pump and the housing are aligned. Install nuts (18) finger tight.
 5. Tighten nuts (18) to a torque of 18 N·m (13 lb ft).
 6. Install a new O-ring seal (16) to housing (9). Install gear (15) to fuel injection pump (2). Install nut (14) finger tight.
-

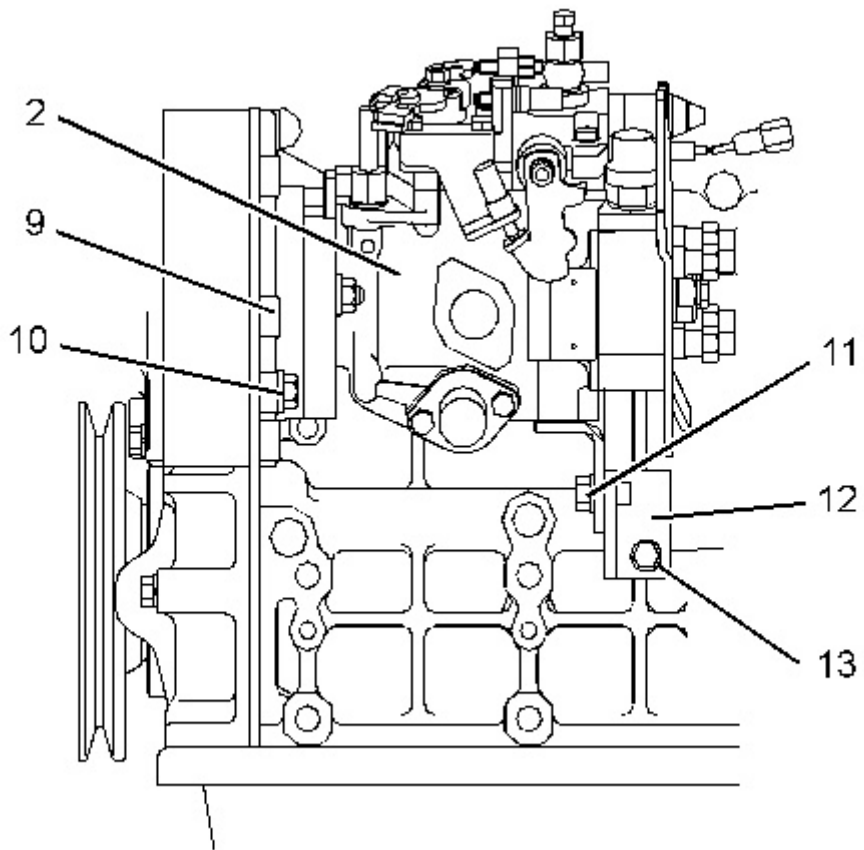


Illustration 2

g01375476

Typical example

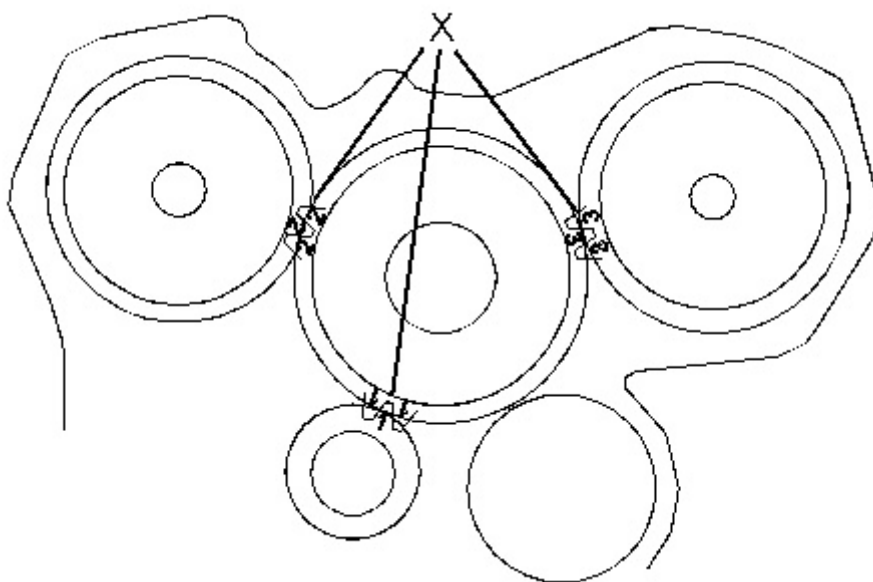


Illustration 3

g01375914

Timing marks on the gears

7. Install the assembly of housing (9) and fuel injection pump (2) to the engine. Ensure that Timing marks (X) on the teeth of the gears are in the correct position. Install bolt (10) finger tight.
8. Position bracket (12) on fuel injection pump (2). Install fasteners (11) and bolt (13) finger tight.
9. Tighten nut (14) to a torque of 90 N·m (66 lb ft). Refer to Illustration 1.

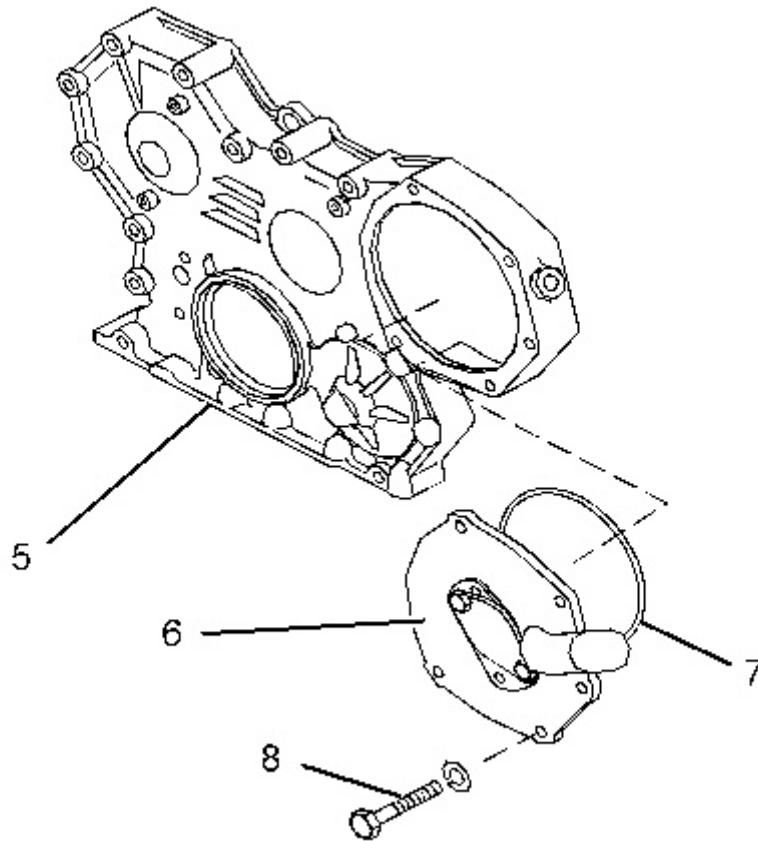


Illustration 4

g01366190

Typical example

10. Install a new O-ring seal (7) to plate (6) .
 11. Position plate (6) on front housing (5). Install bolts (8). Tighten the bolts to a torque of 18 N·m (13 lb ft).
 12. Tighten bolt (10) to a torque of 18 N·m (13 lb ft). Tighten bolt (13) to a torque of 18 N·m (13 lb ft). Tighten fasteners (11) to a torque of 35 N·m (26 lb ft). Refer to Illustration 2.
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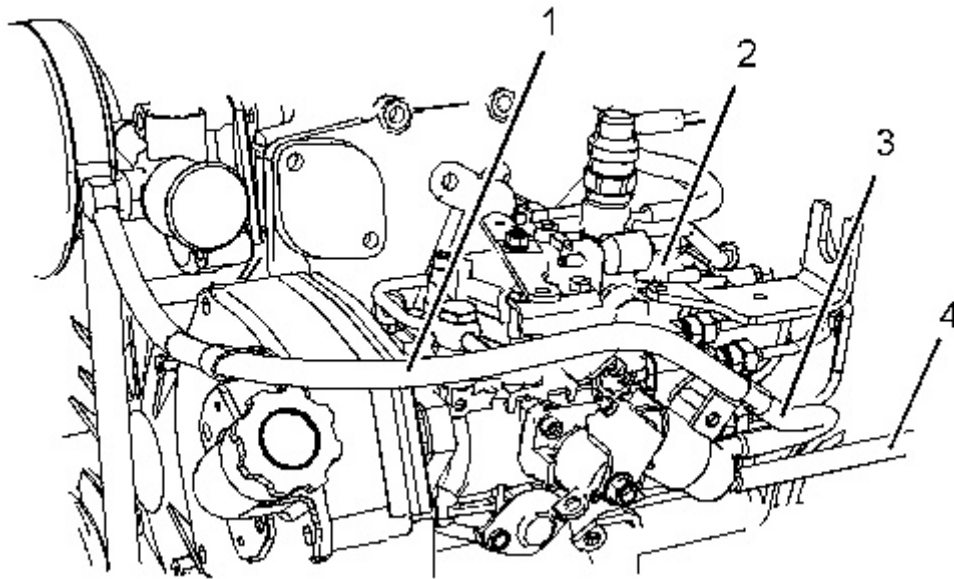


Illustration 5

g01366198

Typical example

13. Install hose (3) to fuel injection pump (2). Tighten the hose clamps securely.
14. Connect hoses (1) and (4) to fuel injection pump (2). Tighten the hose clamps securely.
15. Fill the cooling system with coolant. Refer to Operation and Maintenance Manual, "Cooling System Coolant - Change" for the correct procedure.
16. Adjust the fuel injection pump timing. Refer to Systems Operation, Testing and Adjusting, "Fuel Injection Timing - Check".

End By: Install the fuel injection lines. Refer to Disassembly and Assembly, "Fuel Injection Lines - Remove and Install".

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i02638605

Fuel Injector - Remove and Install - Naturally Aspirated Engines

SMCS - 1290-010

Removal Procedure

Start By:

- A. Remove the fuel injection lines. Refer to Disassembly and Assembly, "Fuel Injection Lines - 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.

Dispose of all fluids according to local regulations and mandates.

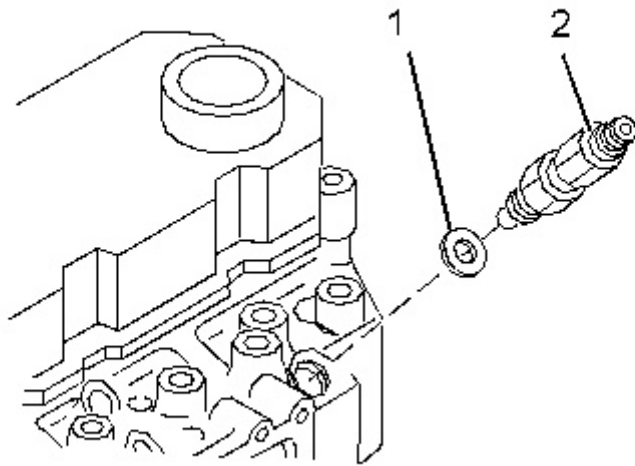


Illustration 1

g01325773

Typical example

1. Use a deep socket to remove fuel injectors (2) from the cylinder head.
2. Remove seat washers (1) .

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Clean the bore for the fuel injector in the cylinder head. Ensure that no debris enters the cylinder. Clean the threads on the body of the fuel injector.
-

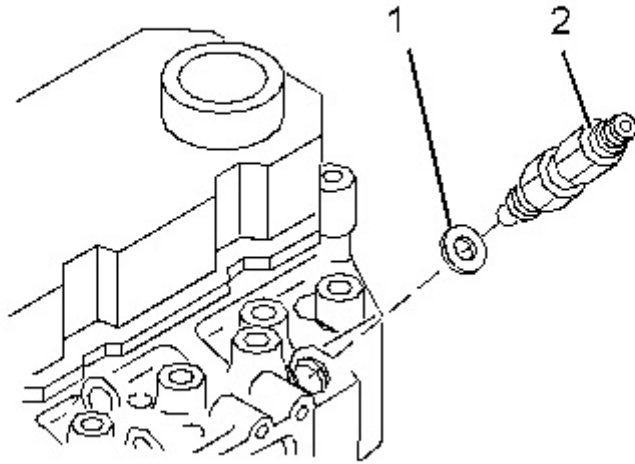


Illustration 2

g01325773

Typical example

2. Install new seat washers (1) into the bore for the fuel injector in the cylinder head.
3. Install fuel injectors (2) into the cylinder head. Use a deep socket to tighten fuel injectors (2) to a torque of 59 N·m (44 lb ft).

End By: Install the fuel injection lines. Refer to Disassembly and Assembly, "Fuel Injection Lines - Remove and Install".

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i02638630

Fuel Injector - Remove and Install - Turbocharged Engines

SMCS - 1290-010

Removal Procedure

Start By:

- A. Remove the fuel injection lines. Refer to Disassembly and Assembly, "Fuel Injection Lines - 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.

Dispose of all fluids according to local regulations and mandates.

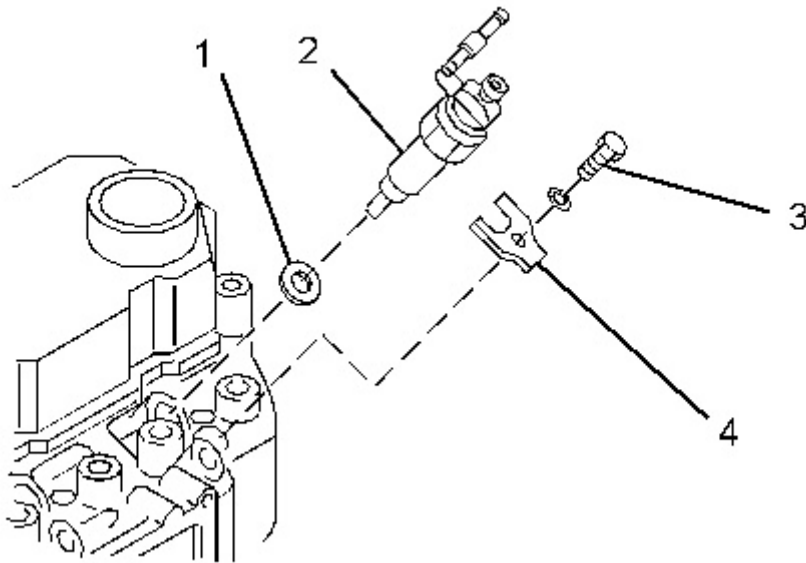


Illustration 1

g01325781

1. Remove bolts (3) and clamps (4) from fuel injectors (2) .
2. Remove fuel injectors (2) from the cylinder head.
3. Remove seat washers (1) .

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Clean the bores for the fuel injectors in the cylinder head. Ensure that no debris enters the cylinders. Clean the fuel injectors.
-

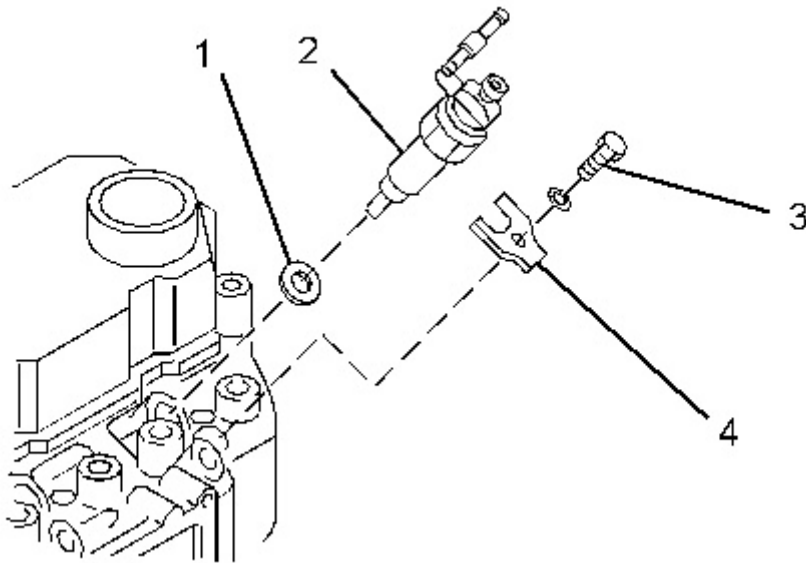


Illustration 2

g01325781

Typical example

2. Install new seat washers (1) to the bores for the fuel injectors in the cylinder head.
3. Install fuel injectors (2) into the cylinder head.
4. Position clamps (4) onto fuel injectors (2) and install bolts (3). Tighten bolts (3) to a torque of 22 N·m (16 lb ft).

End By: Install the fuel injection lines. Refer to Disassembly and Assembly, "Fuel Injection Lines - Remove and Install".

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i02638723

Turbocharger - Remove

SMCS - 1052-011

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.

Dispose of all fluids according to local regulations and mandates.

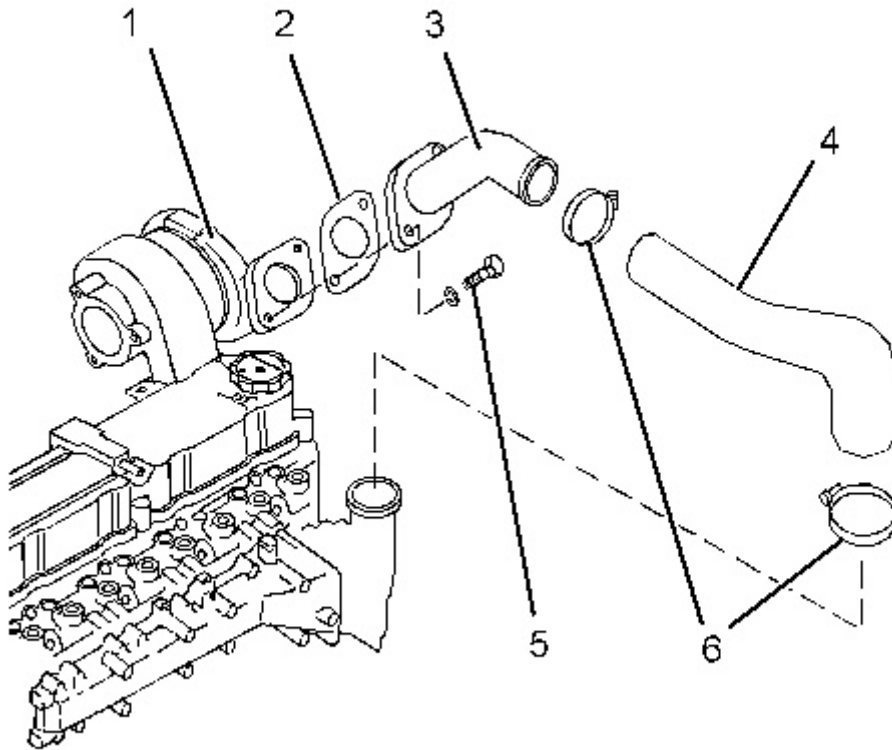


Illustration 1

g01336694

Typical example

1. Loosen hose clamps (6) and remove hose (4). Plug the connection on the inlet manifold with a suitable plug.
 2. Remove bolts (5) and remove air pipe (3) from turbocharger (1). Remove gasket (2) .
 3. Plug the opening in the inlet manifold and the opening in the turbocharger with suitable plugs.
-

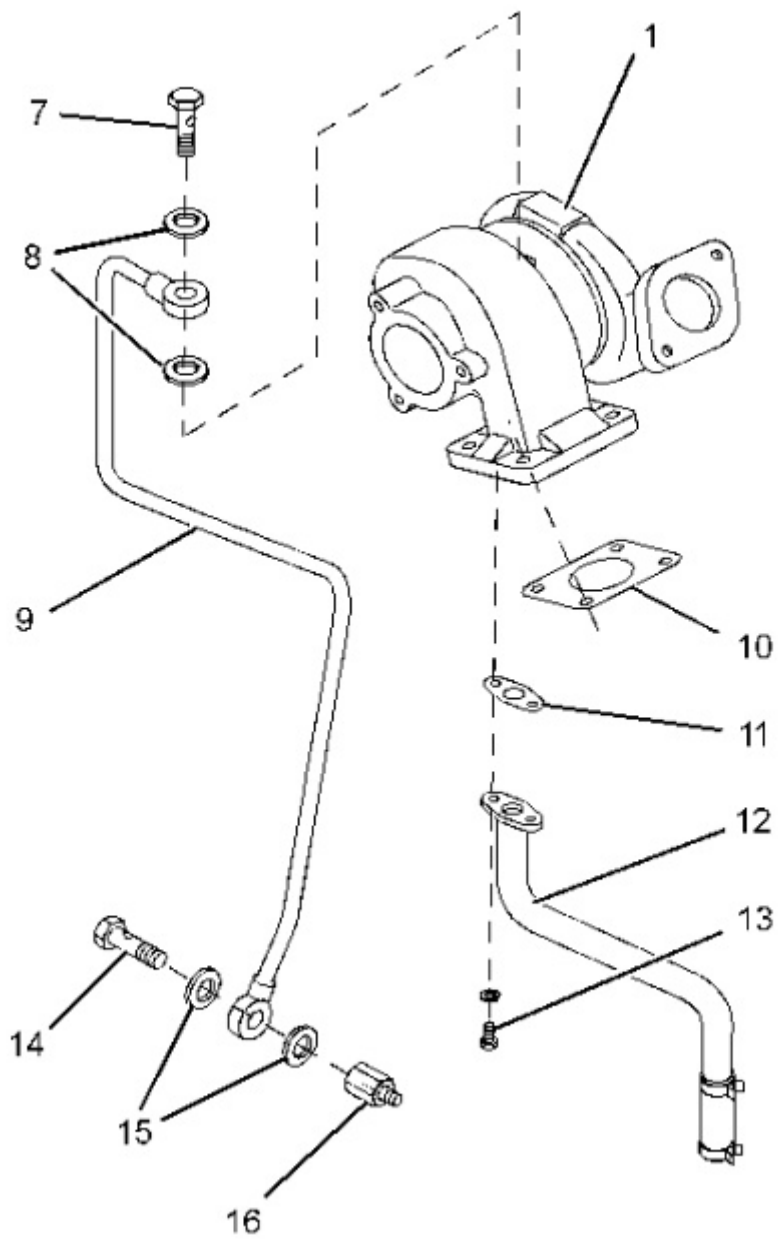


Illustration 2

g01336699

Typical example

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