

Product: VIBRATORY COMPACTOR

Model: CS-78B VIBRATORY COMPACTOR 493

Configuration: CS78B, CS76B Vibratory compactor 49300001-UP (MACHINE) POWERED BY C4.4 Engine

Disassembly and Assembly

C4.4 Engines for Caterpillar Built Machines

Media Number -UENR4516-11

Publication Date -01/06/2015

Date Updated -29/10/2018

i05820292

Housing (Front) - Remove

SMCS - 1151-011

Removal Procedure

Start By:

- a. Remove the fan. Refer to Disassembly and Assembly, "Fan - Remove and Install" for the correct procedure.
- b. Remove the crankshaft pulley. Refer to Disassembly and Assembly, "Crankshaft Pulley - Remove and Install" for the correct procedure.
- c. Remove the engine oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove" for the correct procedure.
- d. If the engine has an accessory drive, remove the accessory drive. Refer to Disassembly and Assembly, "Accessory Drive - Remove and Install" for the correct procedure.
- e. Remove the water pump. Refer to Disassembly and Assembly, "Water Pump - Remove" for the correct procedure.
- f. Remove the timing gears. Refer to Disassembly and Assembly, "Gear Group (Front) - Remove and Install" for the correct procedure.
- g. Remove the fuel injection pump. Refer to Disassembly and Assembly, "Fuel Injection Pump - Remove" 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.

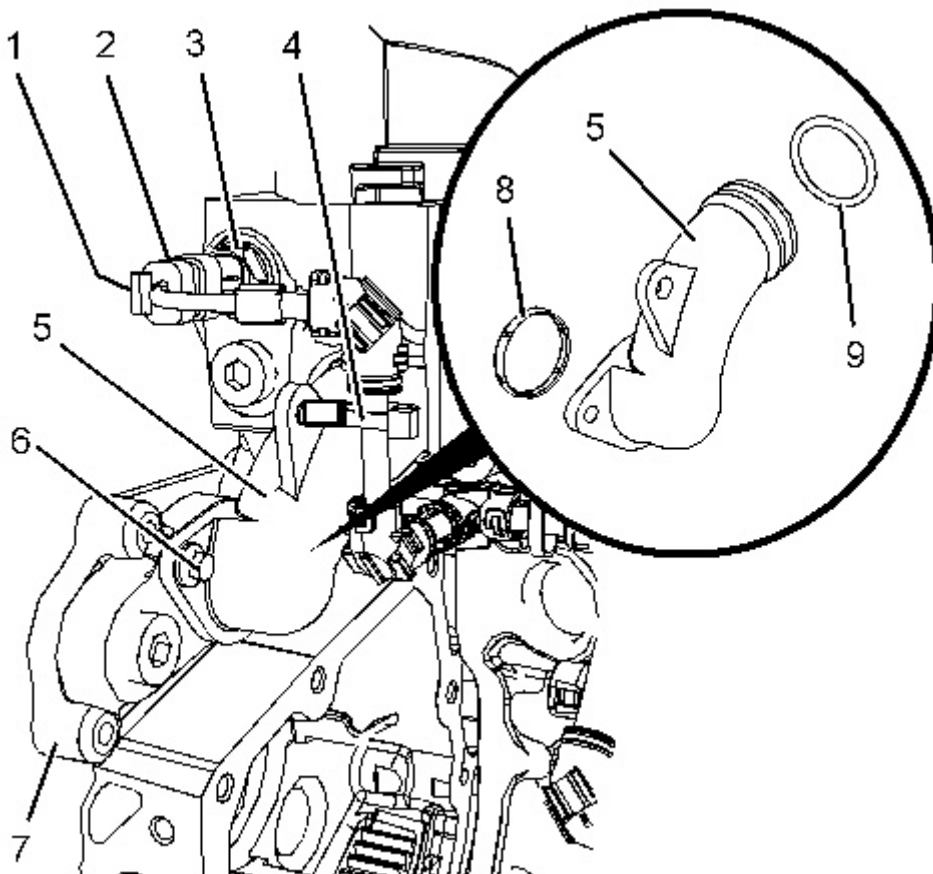


Illustration 1

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1. Slide locking tab (1) (not shown) into the unlocked position.
2. Disconnect harness assembly (2) from coolant temperature sensor (3).
3. Cut cable strap (4) and remove harness assembly (2) from bypass tube (5).
4. Remove bolts (6) that secure bypass tube (5) to front housing (7).

5. Remove bypass tube (5) from the cylinder head. Remove O-ring seal (8) and O-ring seal (9) from bypass tube (5).
-

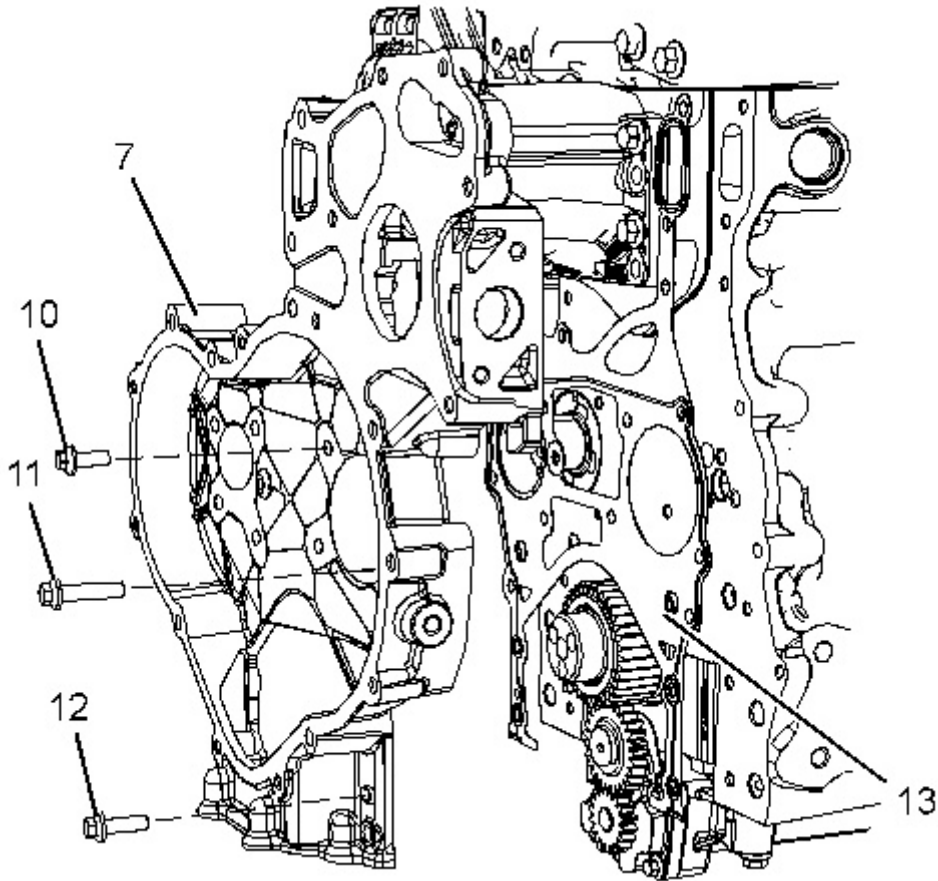


Illustration 2

g02488341

6. Remove bolts (10), bolts (11) and bolts (12) from front housing (7).

Note: The bolts are three different lengths. Note the positions of the different bolts.

7. Remove front housing (7) from the cylinder block.

8. Remove gasket (13).
-

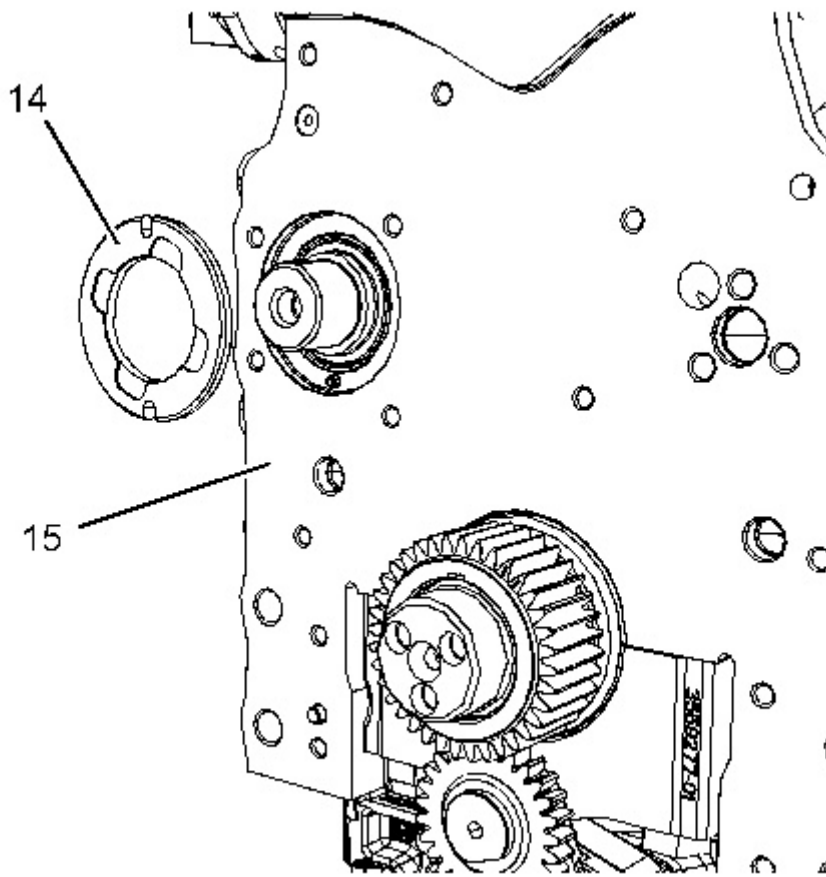


Illustration 3

g02488356

9. Remove thrust washer (14) from cylinder block (15).

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C4.4 Engines for Caterpillar Built Machines

Media Number -UENR4516-11

Publication Date -01/06/2015

Date Updated -29/10/2018

i05820293

Housing (Front) - Remove - Heavy Duty Housing (Front)

SMCS - 1151-011

Removal Procedure

Start By:

- a. Remove the fan. Refer to Disassembly and Assembly, "Fan - Remove and Install" for the correct procedure.
- b. Remove the crankshaft pulley. Refer to Disassembly and Assembly, "Crankshaft Pulley - Remove" for the correct procedure.
- c. Remove the engine oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove" for the correct procedure.
- d. If the engine has an accessory drive, remove the accessory drive. Refer to Disassembly and Assembly, "Accessory Drive - Remove and Install" for the correct procedure.
- e. Remove the water pump. Refer to Disassembly and Assembly, "Water Pump - Remove" for the correct procedure.
- f. Remove the timing gears. Refer to Disassembly and Assembly, "Gear Group (Front) - Remove and Install" for the correct procedure.
- g. Remove the fuel injection pump. Refer to Disassembly and Assembly, "Fuel Injection Pump - Remove" 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.

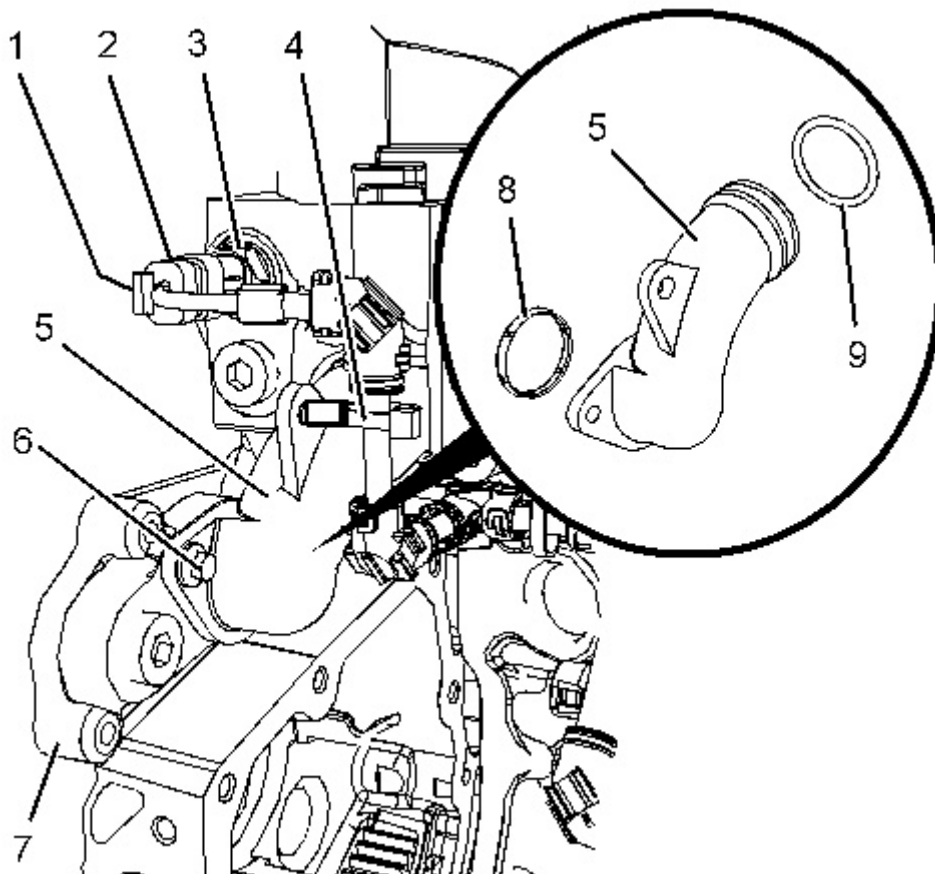


Illustration 1

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1. Slide locking tab (1) (not shown) into the unlocked position.
2. Disconnect harness assembly (2) from coolant temperature sensor (3).
3. Cut cable strap (4) and remove harness assembly (2) from bypass tube (5).
4. Remove bolts (6) that secure bypass tube (5) to front housing (7).

5. Remove bypass tube (5) from the cylinder head. Remove O-ring seal (8) and O-ring seal (9) from bypass tube (5).
-

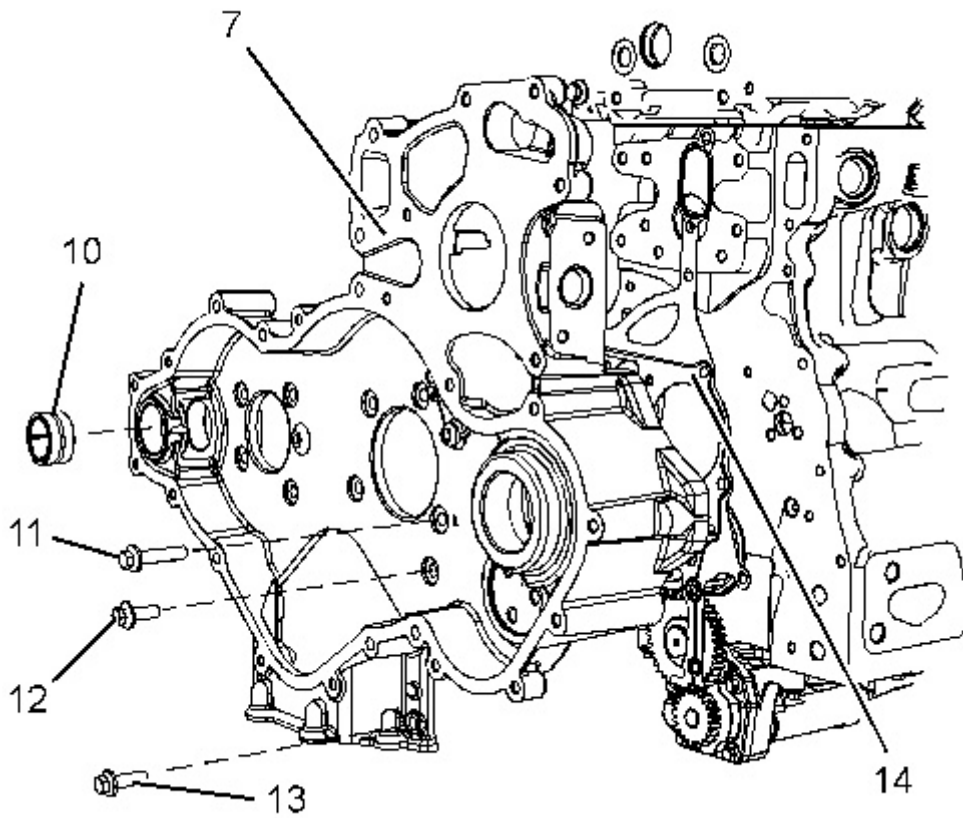


Illustration 2

g02490357

6. Remove bolts (11), bolts (12) and bolts (13) from front housing (7).

Note: The bolts are three different lengths. Note the positions of the bolts of different length.

7. Remove front housing (7) from the cylinder block.
8. Remove gasket (14).
9. If necessary, follow Step 9.a through Step 9.b in order to remove bearing (10) from housing (7).
- Place housing (7) onto a suitable support.
 - Use a suitable tool in order to press bearing (10) out of housing (7).
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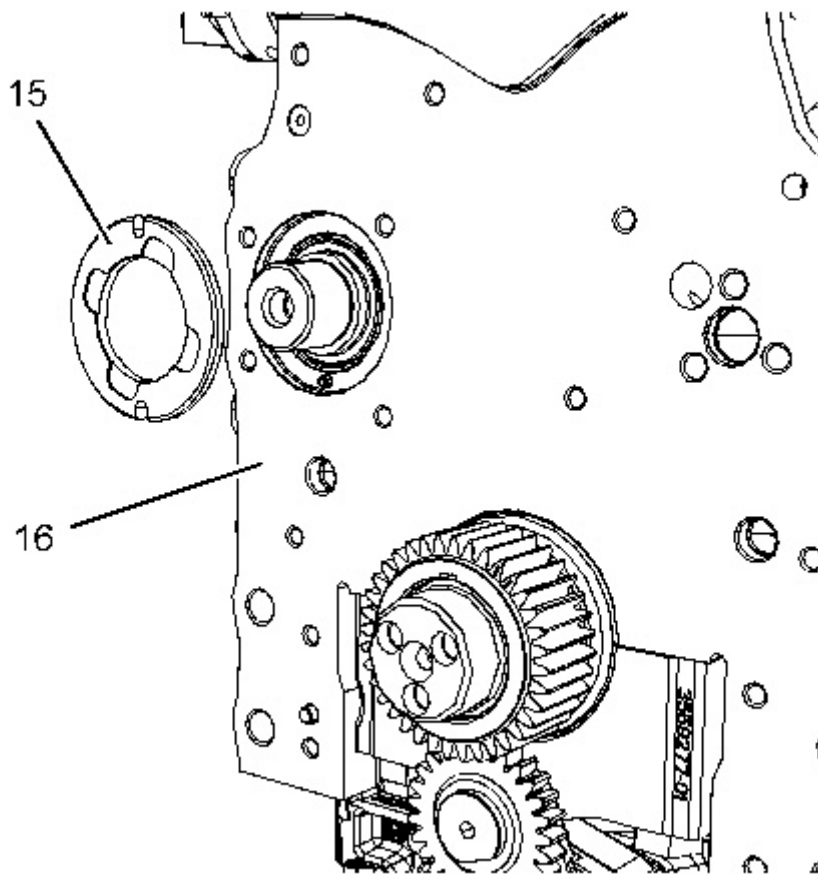


Illustration 3

g02490358

10. Remove thrust washer (15) from cylinder block (16).
-

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Disassembly and Assembly C4.4 Engines for Caterpillar Built Machines

Media Number -UENR4516-11

Publication Date -01/06/2015

Date Updated -29/10/2018

i05820294

Housing (Front) - Install - Heavy Duty Housing (Front)

SMCS - 1151-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	6V-6640	Sealant	1
B	-	Guide Studs M8 by 80 mm	2
C	319-6486	Alignment Tool	1
	-	Bolts M10 by 50 mm	3
D	1U-6396	O-Ring Assembly Compound	1
E	7M-7456	Bearing Mount Compound	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Ensure that the wiring harness assembly is correctly routed and the cable straps are not over tightened. Over tightening of the cable straps will damage the wiring harness and the convoluting.

1. Ensure that the front housing is clean and free from damage. If necessary, replace the front housing.

If necessary, install blanking plugs to a new front housing. Use Tooling (A) in order to seal all D-plugs.

2. Clean all the gasket surfaces of the cylinder block.
-

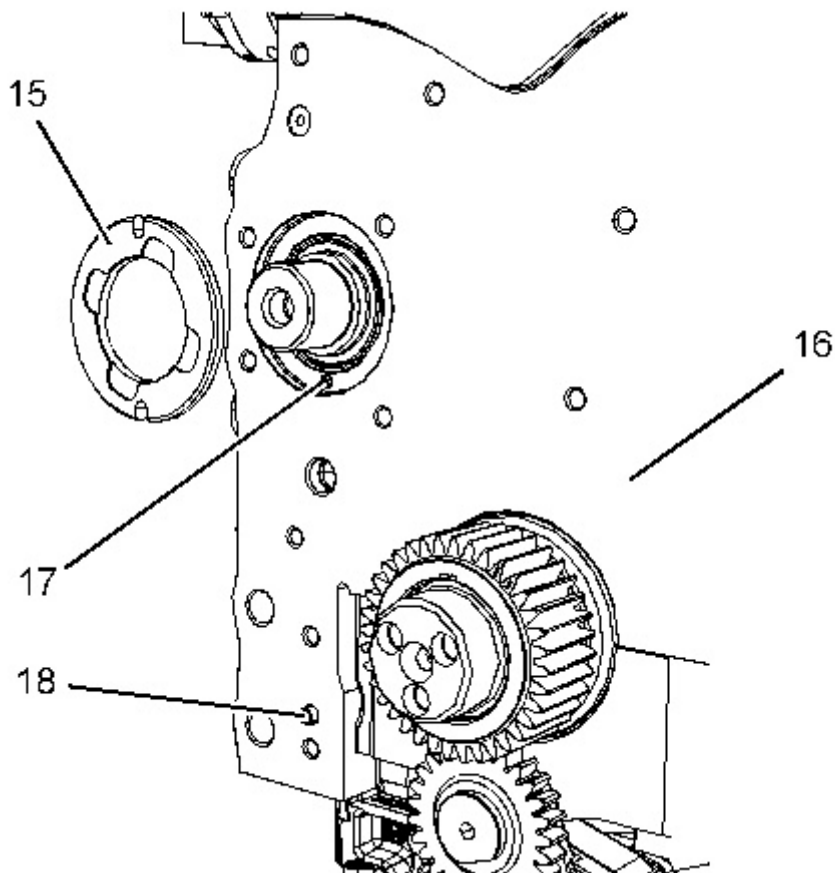


Illustration 1

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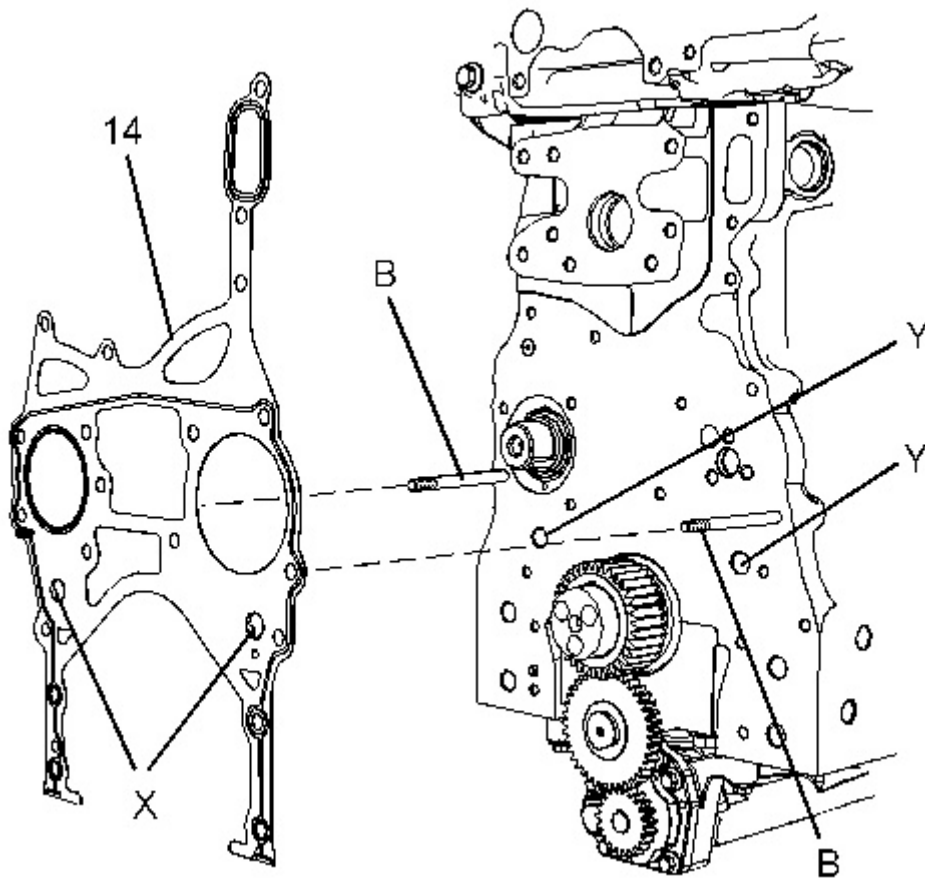


Illustration 2

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3. Inspect dowel (17) and dowel (18) for damage. If necessary, replace the dowels in the cylinder block.
4. Install thrust washer (15) into the recess in cylinder block (16). Refer to Disassembly and Assembly, "Camshaft - Install" for more information.
5. Install Tooling (B) to cylinder block (16). Refer to Illustration 2.
6. Align a new gasket (10) with Tooling (B). Install the gasket to (16) cylinder block.

Note: Ensure that two circular Tabs (X) on the gasket are engaged in two Holes (Y) in cylinder block (16). Ensure that dowel (18) in cylinder block (16) is engaged on the gasket.

7. Install Tooling (C) to cylinder block (16).
-

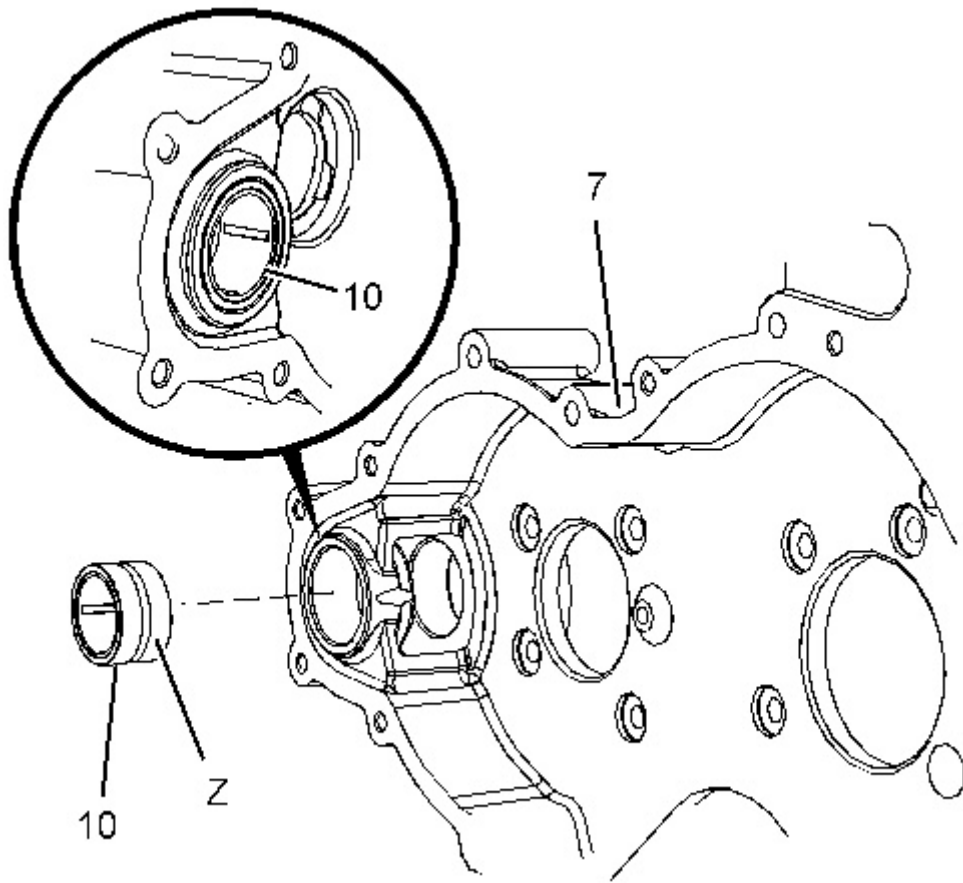


Illustration 3

g02490399

8. If necessary, follow Step 8.a through Step 8.c in order to install bearing (10) to housing (7).
 - a. Apply a small continuous bead of Tooling (E) to outer Surface (Z) of bearing (10).
 - b. Place housing (7) onto a suitable support.
 - c. Use a suitable tool in order to press bearing (10) into housing (7) until the bearing is in the correct position within the housing. Remove any excess bearing mount compound.
 9. Install the front housing over Tooling (B) and Tooling (C) onto cylinder block (16).
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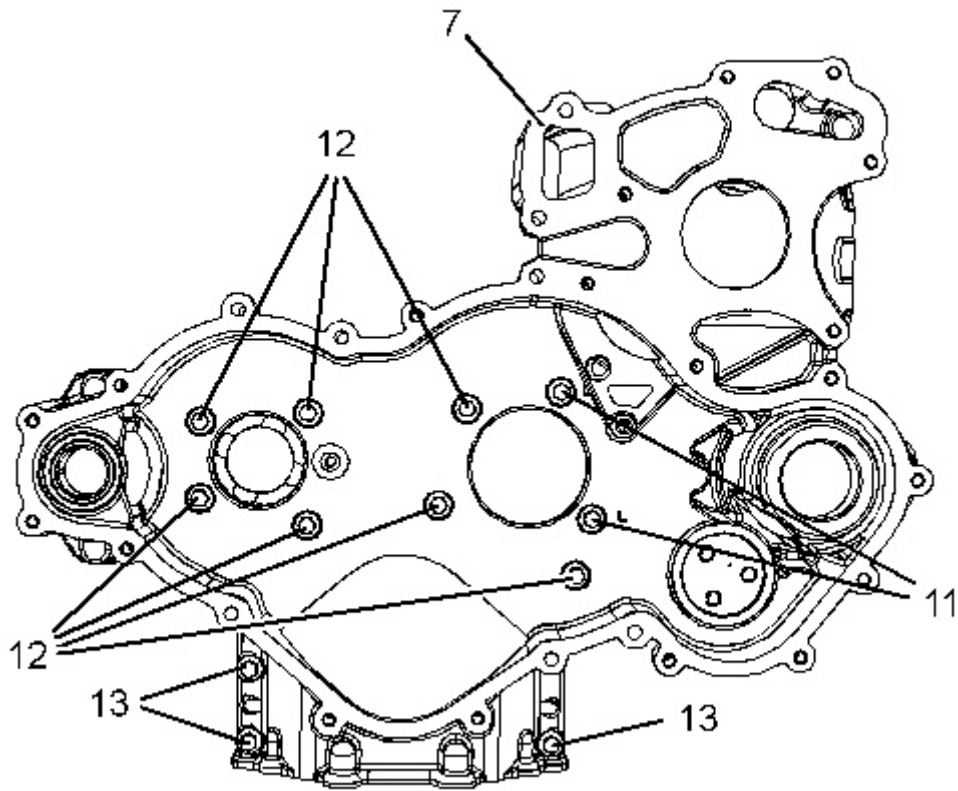


Illustration 4

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- (11) M8 by 35 mm
 - (12) M8 by 20 mm
 - (13) M8 by 25 mm
-

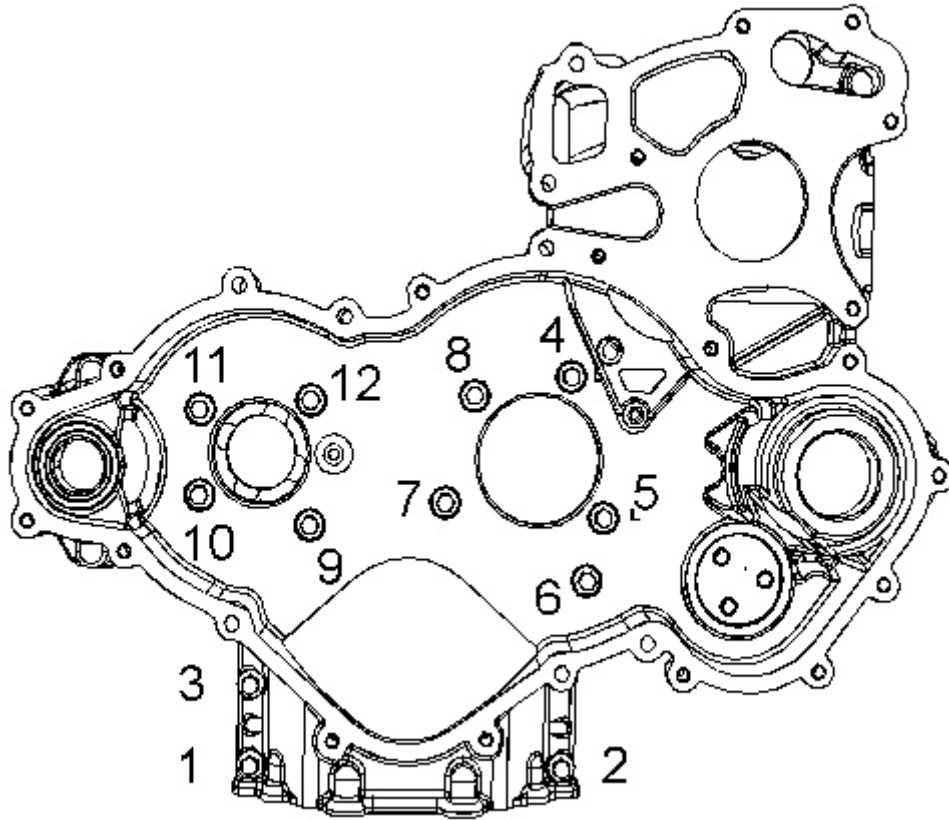


Illustration 5

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10. Install bolts (13) to front housing (7) finger tight.
 11. Remove Tooling (B).
 12. Loosely install bolts (11) and bolts (12). Refer to Illustration 4 for the correct position of the bolts.
 13. Tighten bolts (11), bolts (12) and bolts (13) in the sequence that is shown in Illustration 5 to a torque of 28 N·m (248 lb in).
 14. Remove Tooling (C) from the cylinder block.
-

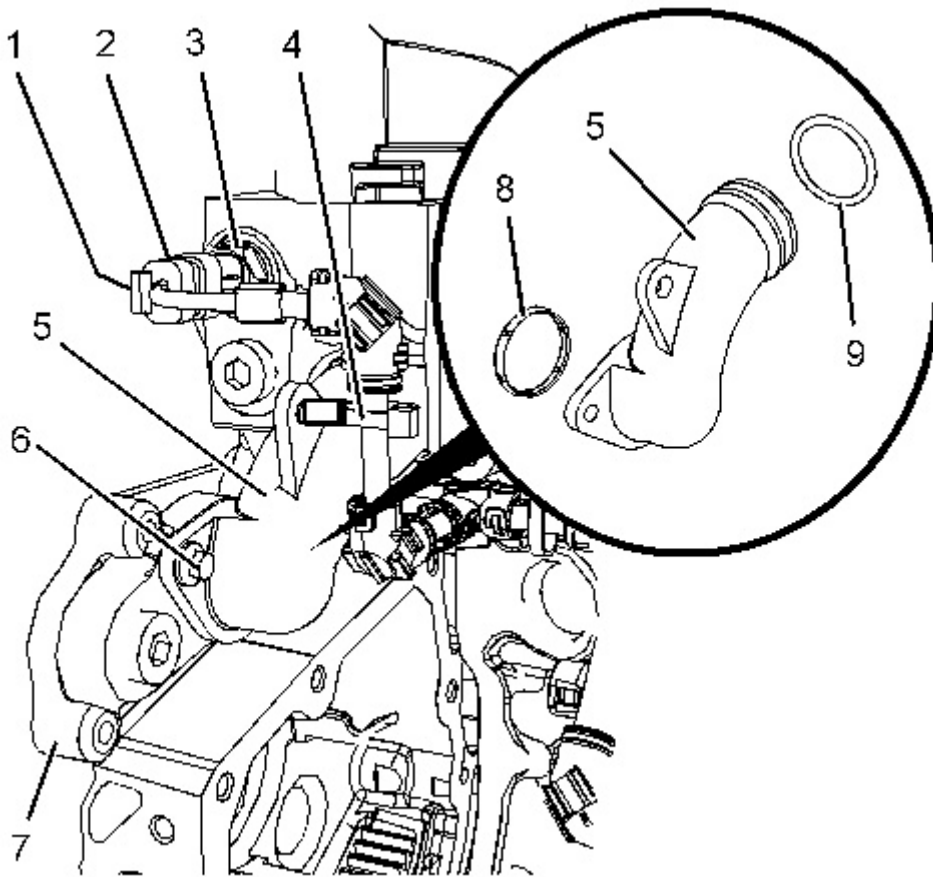


Illustration 6

g02490356

15. Install a new O-ring seal (8) and a new O-ring seal (9) to bypass tube (5). Use Tooling (D) in order to lubricate the O-ring seals.
16. Install bypass tube (5) to the cylinder head. Install bolts (6). Tighten the bolts to a torque of 9 N·m (80 lb in).
17. Connect harness assembly (2) to coolant temperature sensor (3).
18. Slide locking tab (1) (not shown) into the locked position.
19. Position harness assembly (2) onto bypass tube (5). Install a new cable strap (4).

Note: Ensure that the cable strap meets Original Equipment Manufactures (OEM) specification.

End By:

- a. Install the fuel injection pump. Refer to Disassembly and Assembly, "Fuel Injection Pump - Install" for the correct procedure.
- b. Install the timing gears. Refer to Disassembly and Assembly, "Gear Group (Front) - Install" for the correct procedure.
- c. If the engine has an accessory drive, install the accessory drive. Refer to Disassembly and Assembly, "Accessory Drive - Remove and Install" for the correct procedure.

- d. Install the engine oil pan . Refer to Disassembly and Assembly, "Engine Oil Pan - Install" for the correct procedure.
 - e. Install the crankshaft pulley. Refer to Disassembly and Assembly, "Crankshaft Pulley - Install" for the correct procedure.
 - f. Install the water pump. Refer to Disassembly and Assembly, "Water Pump - Install" for the correct procedure.
 - g. Install the fan. Refer to Disassembly and Assembly, "Fan - Remove and Install" for the correct procedure.
 - h. Fill the cooling system with coolant. Refer to Operation and Maintenance Manual, "Cooling System Coolant - Fill" for the correct procedure.
-

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Media Number -UENR4516-11

Publication Date -01/06/2015

Date Updated -29/10/2018

i05820295

Housing (Front) - Install

SMCS - 1151-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	6V-6640	Sealant	1
B	-	Guide Studs M8 by 80 mm	2
C	319-6486	Alignment Tool	1
	-	Bolts M10 by 50 mm	3
D	1U-6396	O-Ring Assembly Compound	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Ensure that the wiring harness assembly is correctly routed and the cable straps are not over tightened. Over tightening of the cable straps will damage the wiring harness and the convoluting.

1. Ensure that the front housing is clean and free from damage. If necessary, replace the front housing.

If necessary, install blanking plugs to a new front housing. Use Tooling (A) in order to seal all D-plugs.

2. Clean all the gasket surfaces of the cylinder block.
-

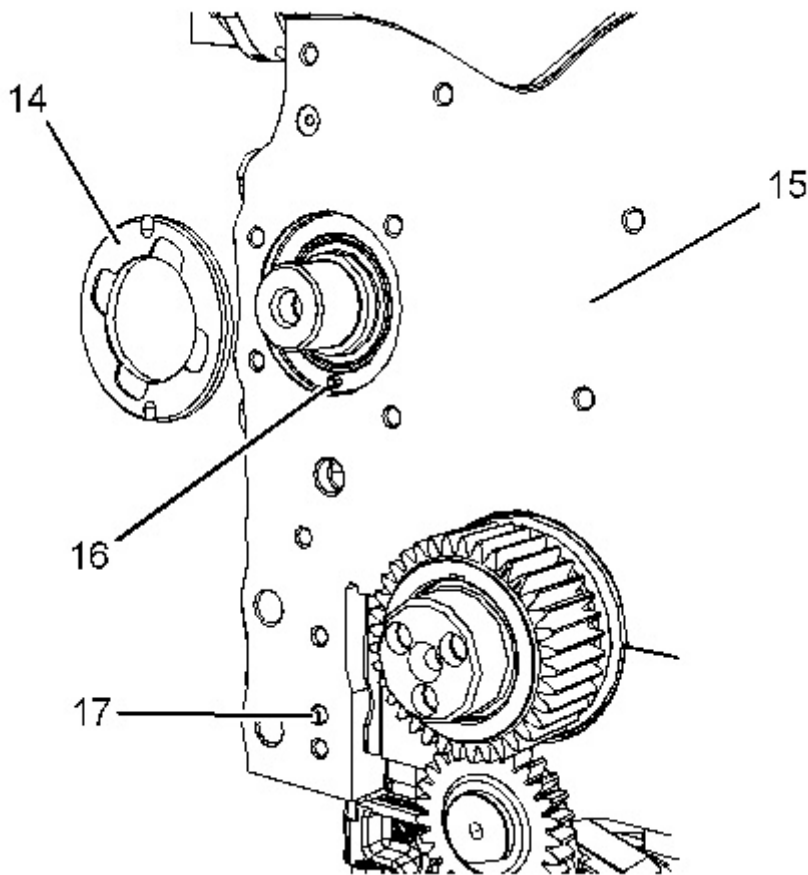


Illustration 1

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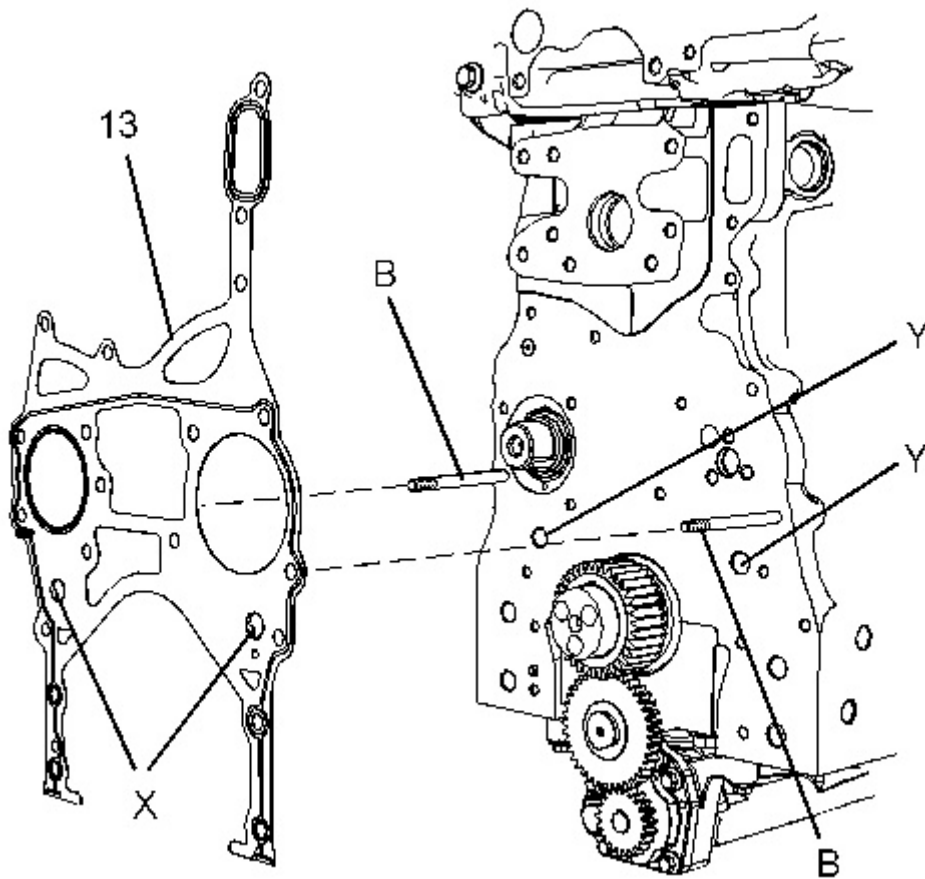


Illustration 2

g02490297

3. Inspect dowel (16) and dowel (17) for damage. If necessary, replace the dowels in cylinder block (15).
4. Install thrust washer (14) into the recess in cylinder block (15). Refer to Disassembly and Assembly, "Camshaft - Install" for more information.
5. Install Tooling (B) to cylinder block (15). Refer to Illustration 2.
6. Align a new gasket (13) with Tooling (B). Install the gasket to cylinder block (15).

Note: Ensure that two circular Tabs (X) on the gasket are engaged in two Holes (Y) in cylinder block (15). Ensure that dowel (17) in cylinder block (15) is engaged on the gasket.

7. Install Tooling (C) to cylinder block (15).
 8. Install the front housing over Tooling (B) and Tooling (C) onto cylinder block (15).
-

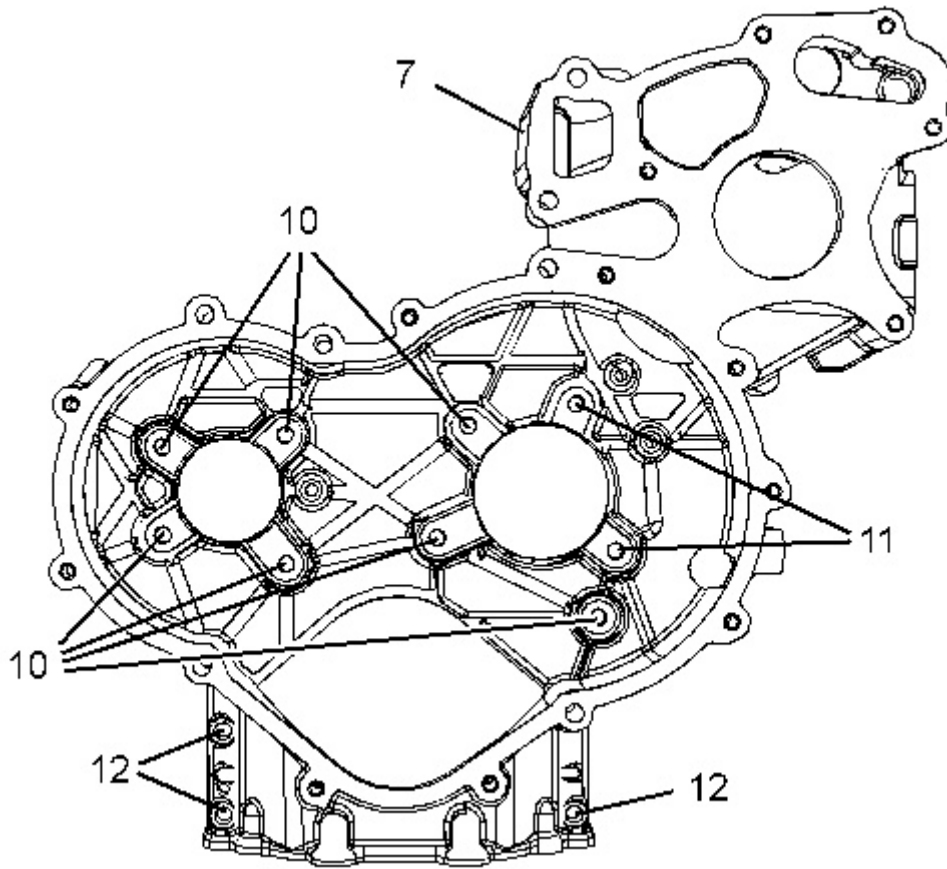


Illustration 3

g02490298

(10) M8 by 20 mm

(11) M8 by 35 mm

(12) M8 by 25 mm

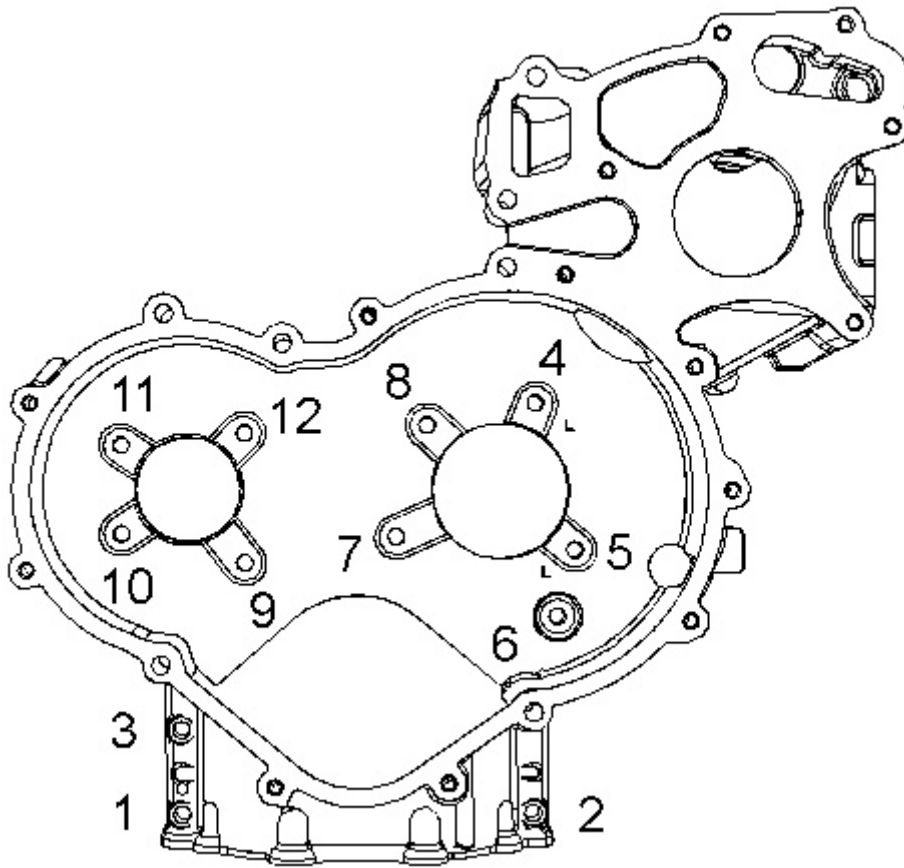


Illustration 4

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9. Install bolts (12) to front housing (7) finger tight.
 10. Remove Tooling (B).
 11. Loosely install bolts (10) and bolts (11). Refer to Illustration 3 for the correct position of the bolts.
 12. Tighten bolts (10), bolts (11) and bolts (12) in the sequence that is shown in Illustration 4 to a torque of 28 N·m (248 lb in).
 13. Remove Tooling (C) from the cylinder block.
-

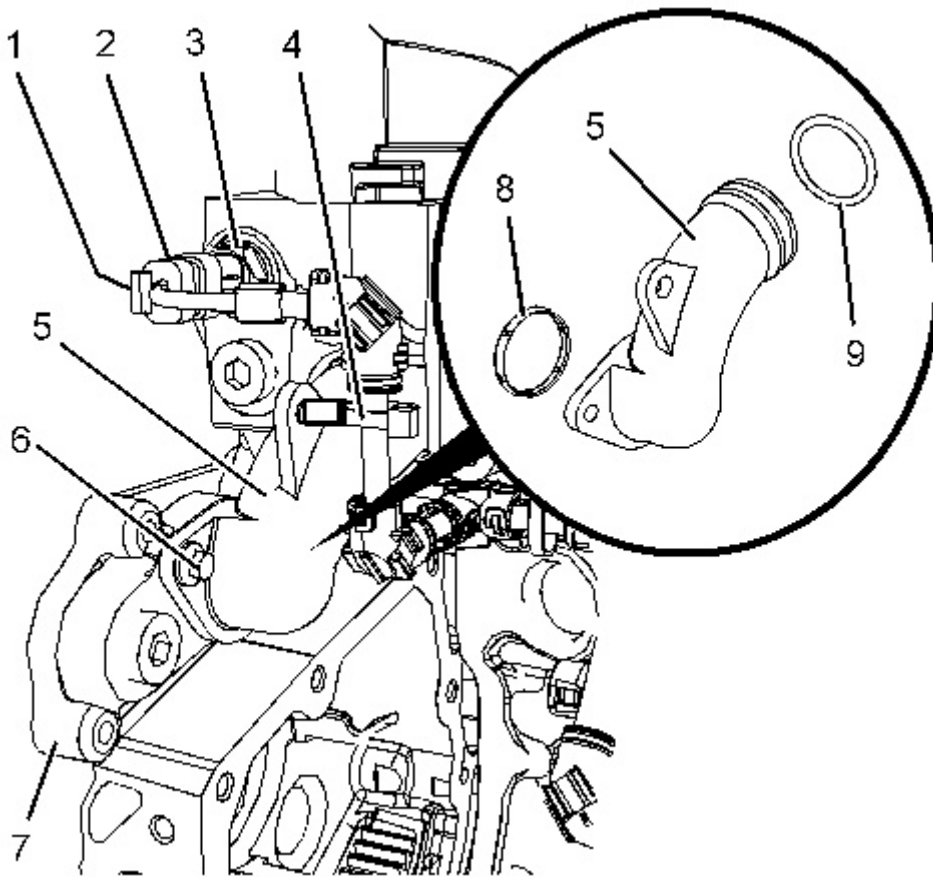


Illustration 5

g02488340

14. Install a new O-ring seal (8) and a new O-ring seal (9) to bypass tube (5). Use Tooling (D) in order to lubricate the O-ring seals.
15. Install bypass tube (5) to the cylinder head. Install bolts (6). Tighten the bolts to a torque of 9 N·m (80 lb in).
16. Connect harness assembly (2) to coolant temperature sensor (3).
17. Slide locking tab (1) (not shown) into the locked position.
18. Position harness assembly (2) onto bypass tube (5). Install a new cable strap (4).

Note: Ensure that the cable strap meets Original Equipment Manufactures (OEM) specification.

End By:

- a. Install the fuel injection pump. Refer to Disassembly and Assembly, "Fuel Injection Pump - Install" for the correct procedure.
- b. Install the timing gears. Refer to Disassembly and Assembly, "Gear Group (Front) - Install" for the correct procedure.
- c. If the engine has an accessory drive, install the accessory drive. Refer to Disassembly and Assembly, "Accessory Drive - Remove and Install" for the correct procedure.

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