Product: VIBRATORY COMPACTOR
Model: CS-64 VIBRATORY COMPACTOR C6S
Configuration: CS64 CP64 Vibratory Soil Compactor C6S00001-UP (MACHINE) POWERED BY C6.6 Engine

Media Number -KENR6081-15 **Publication Date -01/03/2014** **Date Updated -04/03/2014**

i05735237

Idler Gear - Remove

SMCS - 1206-011

Removal Procedure (Standard Idler Gear)

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	230-6284	Timing Pin (Camshaft)	1
B	136-4632	Timing Pin (Crankshaft)	1
	268-1966	Adapter	1

Start By:

a. Remove the fuel injection pump gear. Refer to Disassembly and Assembly, "Fuel Pump Gear - Remove" 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.

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

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

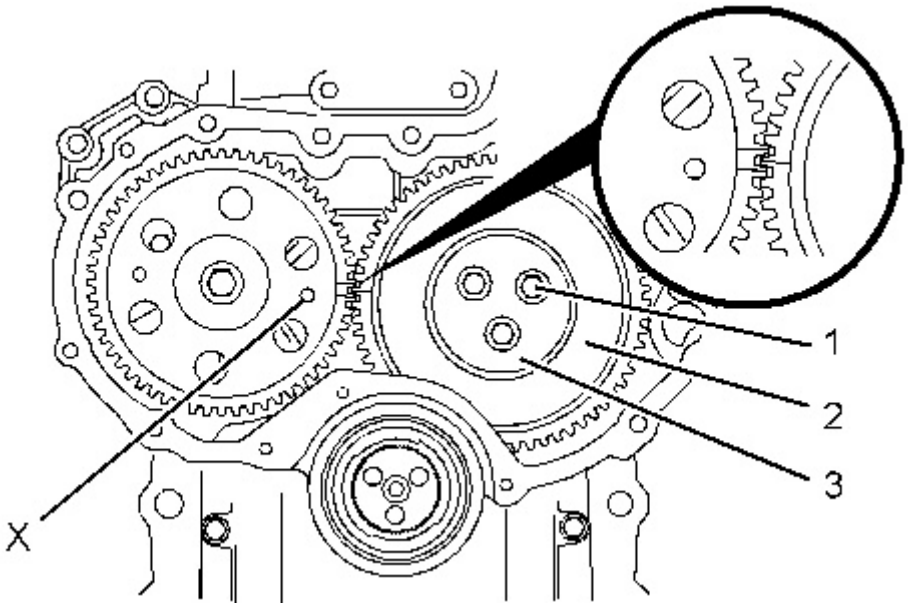

Illustration 1 g01337918

Alignment of timing marks

1. Ensure that Tooling (A) is installed into Hole (X) in the camshaft gear. Use Tooling (A) in order to lock the camshaft in the correct position.

   Note: Ensure that the gears are marked in order to show alignment. Refer to Illustration 1.

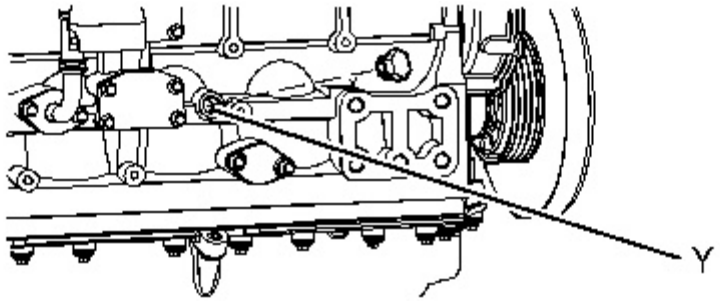

Illustration 2 g01337919

2. Ensure that Tooling (B) is installed in Hole (Y) in the cylinder block. Use Tooling (B) in order to lock the crankshaft in the correct position.

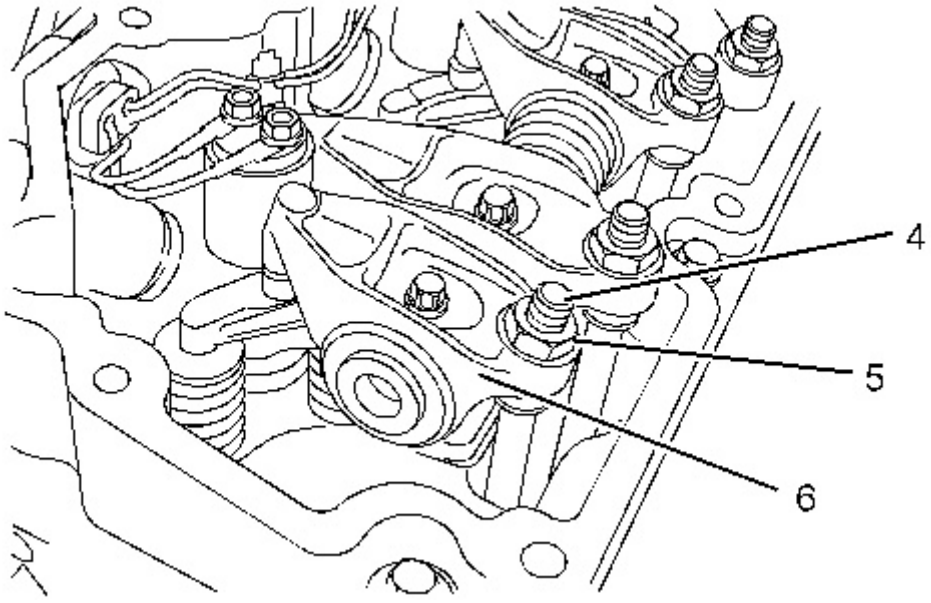

Illustration 3 g01337921

3. Loosen nuts (5) on all rocker arms (6). Unscrew adjusters (4) on all rocker arms (6) until all valves are fully closed.

   Note: Failure to ensure that ALL adjusters are fully unscrewed can result in contact between the valves and pistons.

4. Mark plate (3) in order to show orientation.

   Note: Identification will ensure that the plate can be installed in the original orientation.

5. Remove bolts (1).

6. Remove plate (3).

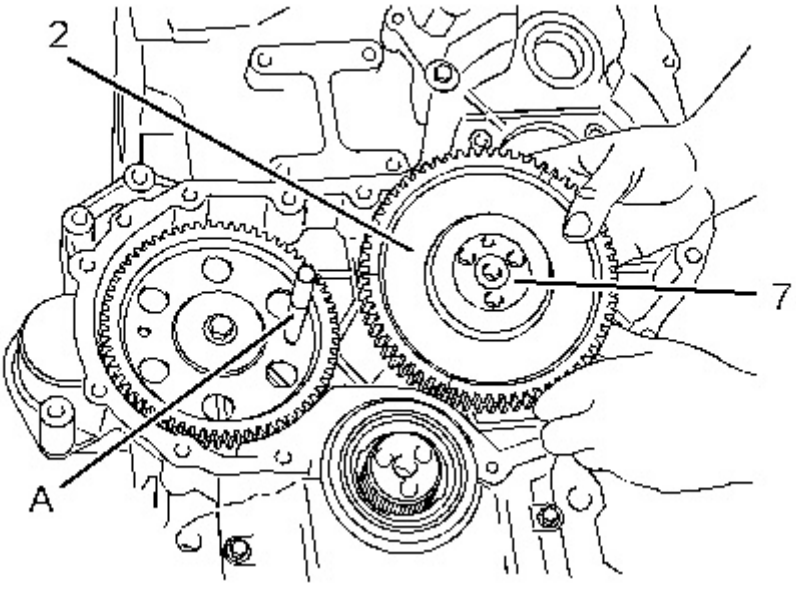

Illustration 4 g01337922

7. Remove the assembly of idler gear (2) and hub (7) from the recess in the front housing.

   Note: The idler gear must be tilted during removal.

8. Remove hub (7) from idler gear (2).

Removal Procedure (Early Heavy-Duty Idler Gear)

Table 2

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	230-6284	Timing Pin (Camshaft)	1
B	136-4632	Timing Pin (Crankshaft)	1
	268-1966	Adapter	1

Start By:

a. Remove the fuel injection pump gear. Refer to Disassembly and Assembly, "Fuel Pump Gear - Remove" 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.

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

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: The assembly of heavy-duty idler gear is not serviceable. Do not disassemble the heavy-duty idler gear.

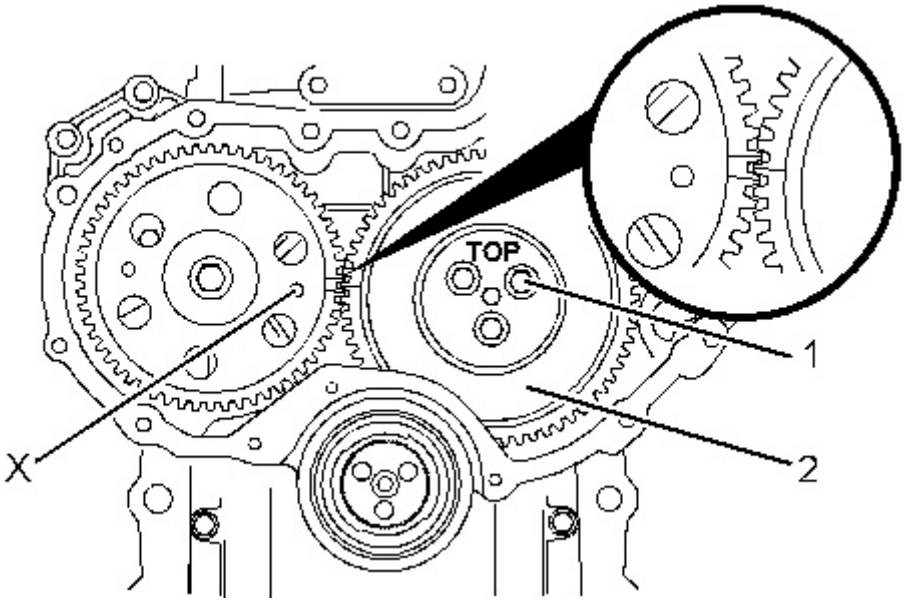

Illustration 5 g01337924

Alignment of timing marks

1. Ensure that Tooling (A) is installed into hole (X) in the camshaft gear. Use Tooling (A) in order to lock the camshaft in the correct position.

   Note: Ensure that the gears are marked in order to show alignment. Refer to Illustration 5.

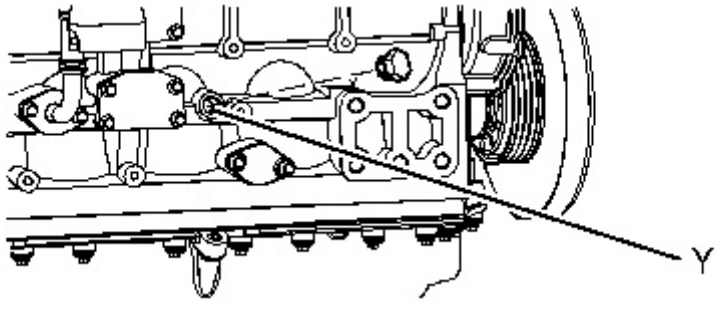

Illustration 6 g01337919

2. Ensure that Tooling (B) is installed in hole (Y) in the cylinder block. Use Tooling (B) in order to lock the crankshaft in the correct position.

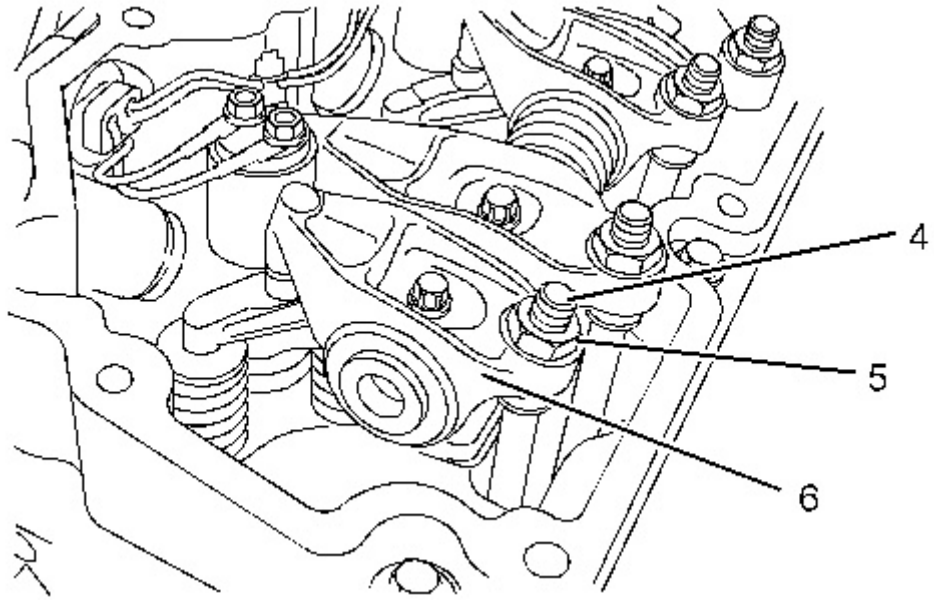

Illustration 7 g01337921

3. Loosen nuts (4) on all rocker arms (5). Unscrew adjusters (3) on all rocker arms (5) until all valves are fully closed.

   Note: Failure to ensure that ALL adjusters are fully unscrewed can result in contact between the valves and pistons.

4. Remove bolts (1) from the assembly of heavy-duty idler gear (2).

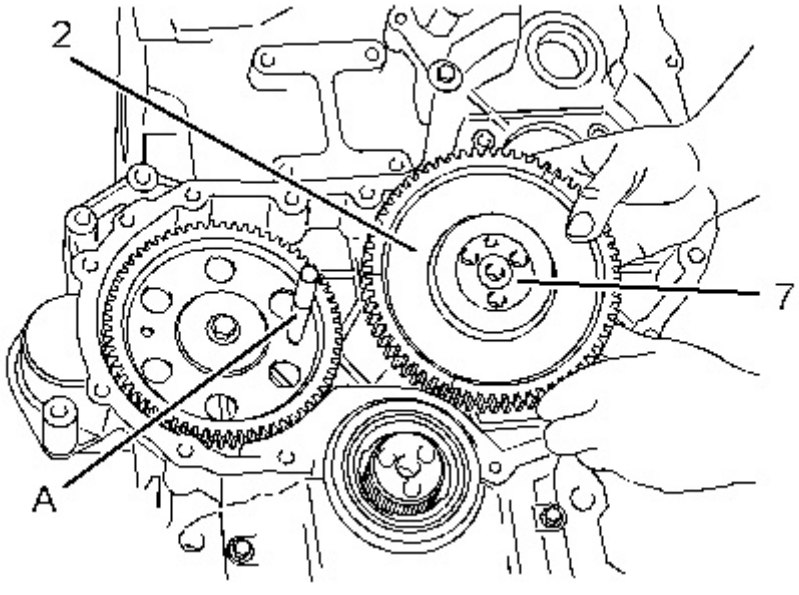

Illustration 8 g01337922

5. Remove the assembly of idler gear (2) from the recess in the front housing.

   Note: The idler gear must be tilted during removal.

Removal Procedure (Latest Heavy-Duty Idler Gear)

Table 3

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	230-6284	Timing Pin (Camshaft)	1
B	136-4632	Timing Pin (Crankshaft)	1
	268-1966	Adapter	1
C	-	Bolt (M8 x 80mm)	1

Start By:

a. If the engine is equipped with an air compressor, remove the air compressor. Refer to Disassembly and Assembly, "Air Compressor - Remove and Install" for the correct procedure.

b. If the engine is equipped with an accessory drive, remove the accessory drive. Refer to Disassembly and Assembly, "Accessory Drive - Remove and Install" for the correct procedure.

c. Remove the fuel injection pump gear. Refer to Disassembly and Assembly, "Fuel Pump Gear - Remove" for the correct procedure.

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

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

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: The assembly of heavy-duty idler gear is not serviceable. Do not disassemble the heavy-duty idler gear.

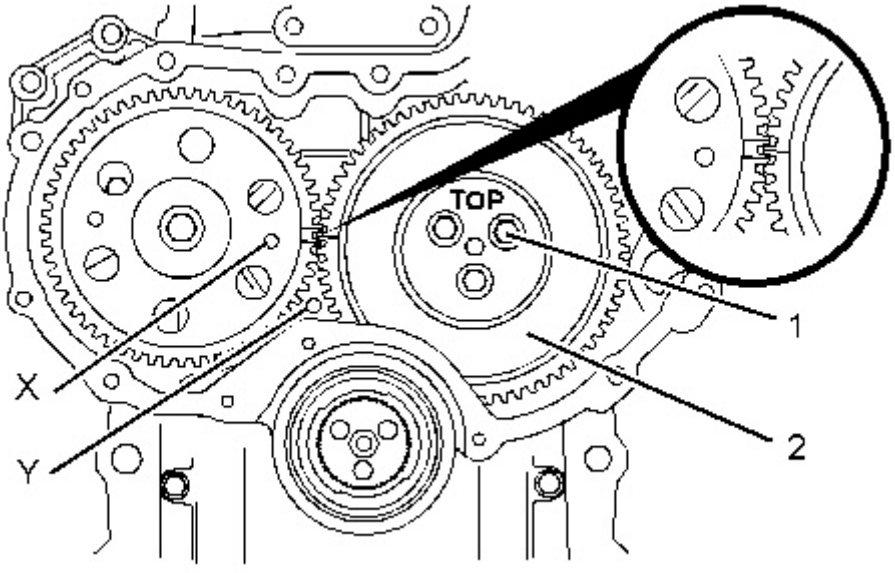

Illustration 9 g01343977

Alignment of timing marks

1. Ensure that Tooling (A) is installed into Hole (X) in the camshaft gear. Use Tooling (A) in order to lock the camshaft in the correct position.

   Note: Ensure that the gears are marked in order to show alignment. Refer to Illustration 9.

2. Ensure that Tooling (B) is installed in Hole (Y) in the front housing. Use Tooling (B) in order to lock the crankshaft in the correct position.

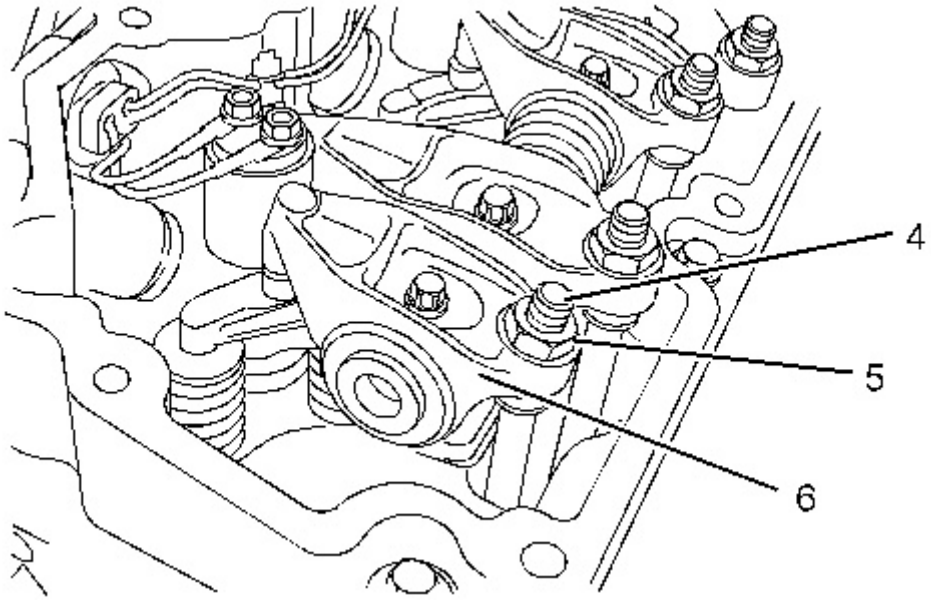

Illustration 10 g01337921

Typical example

3. Loosen nuts (5) on all rocker arms (6). Unscrew adjusters (4) on all rocker arms (5) until all valves are fully closed.

Note: Failure to ensure that ALL adjusters are fully unscrewed can result in contact between the valves and pistons.

4. Remove bolts (1) from the assembly of heavy-duty idler gear (2). Refer to Illustration 9.

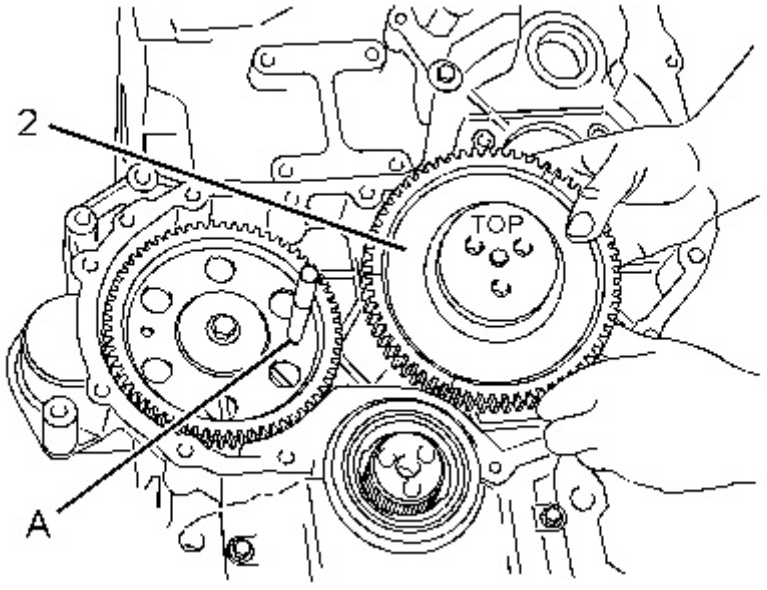

Illustration 11 g01269933

Typical example

5. Remove the assembly of idler gear (2) from the recess in the front housing.

Note: The idler gear must be tilted during removal.

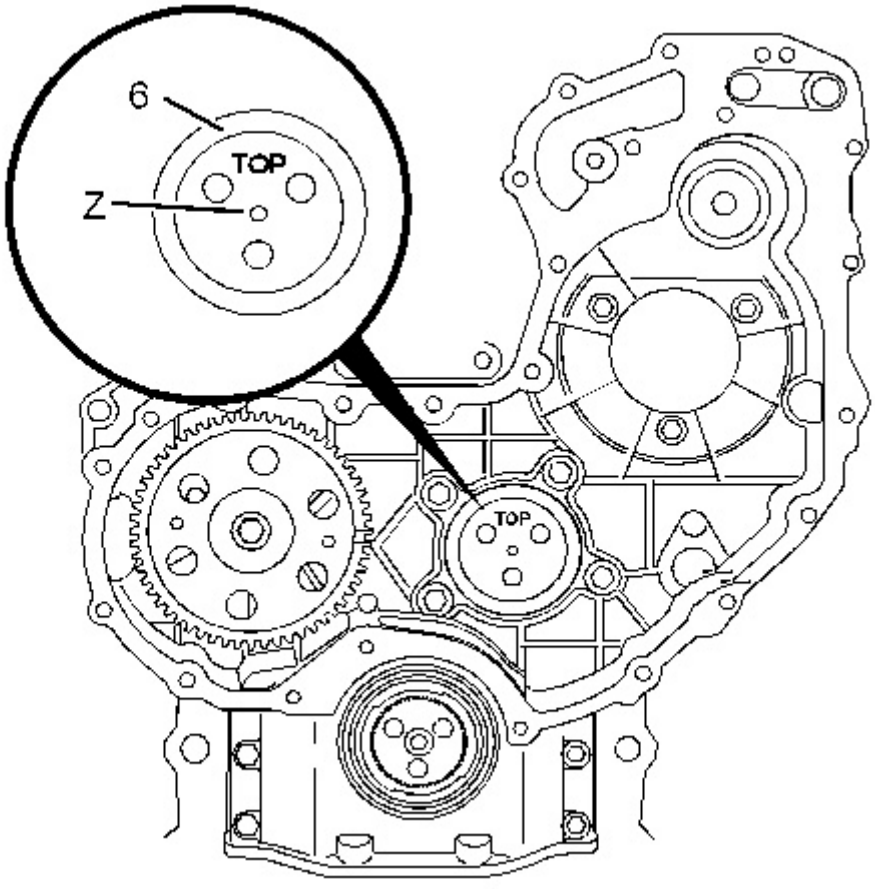

Illustration 12 g01348835

Typical example

6. If necessary, remove plate (6). Install Tooling (C) into threaded Hole (Z) in order to remove plate (6).

Product: VIBRATORY COMPACTOR
Model: CS-64 VIBRATORY COMPACTOR C6S
Configuration: CS64 CP64 Vibratory Soil Compactor C6S00001-UP (MACHINE) POWERED BY C6.6 Engine

Disassembly and Assembly
C6.6 Engines for Caterpillar Built Machines
Media Number -KENR6081-15 **Publication Date -01/03/2014** **Date Updated -04/03/2014**

i05735238

Idler Gear - Install

SMCS - 1206-012

Installation Procedure (Standard Idler Gear)

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	230-6284	Timing Pin (Camshaft)	1
B	136-4632	Timing Pin (Crankshaft)	1
	268-1966	Adapter	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that number one piston is at top dead center on the compression stroke. Refer to System Operation, Testing and Adjusting, "Finding Top Center for No. 1 Piston" for the correct procedure.

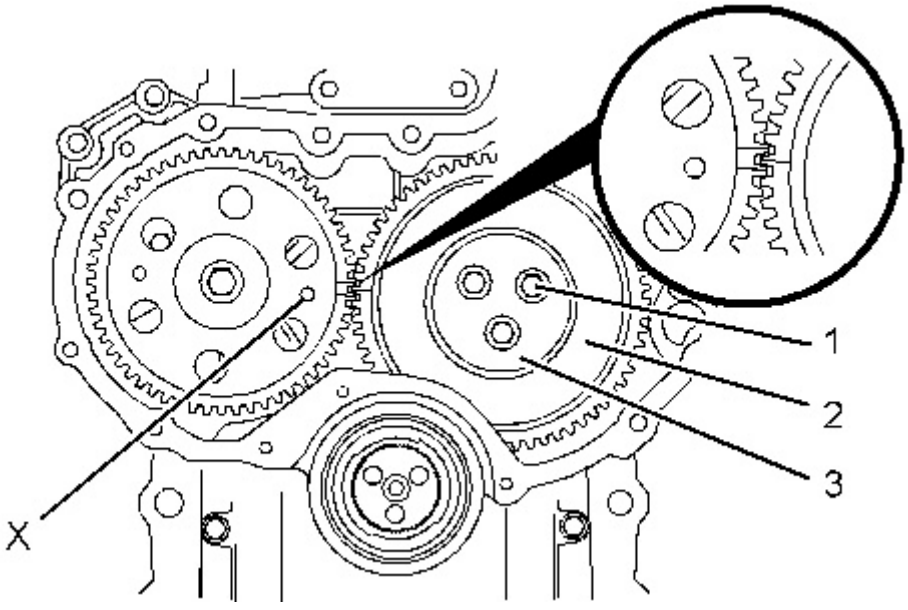

Illustration 1 g01337918

Alignment of timing marks

2. Ensure that Tooling (A) is installed into Hole (X) in camshaft gear (1).

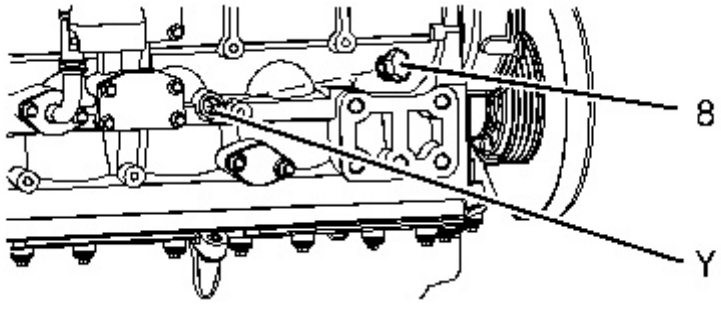

Illustration 2 g01337947

3. Ensure that Tooling (B) is installed in Hole (Y) in the cylinder block. Use Tooling (B) in order to lock the crankshaft in the correct position. Refer to System Operation, Testing and Adjusting, "Finding Top Center Position for No.1 Piston" for the correct procedure.

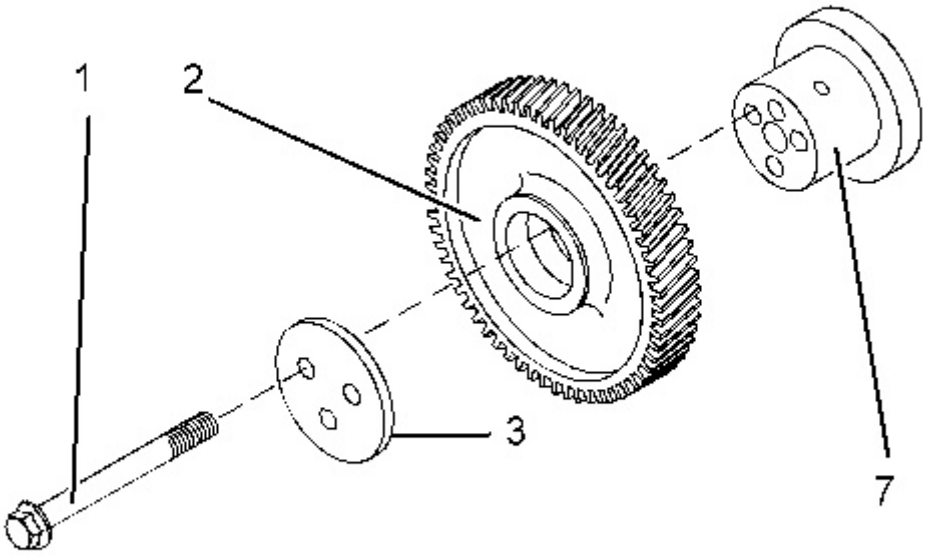

Illustration 3 g01337949

4. Clean idler gear (2) and inspect the idler gear for wear or damage. Refer to Specifications, "Gear Group (Front)" for more information. If necessary, replace the idler gear.
5. Clean hub (7) and inspect the hub for wear or damage. Refer to Specifications, "Gear Group (Front)" for more information. If necessary, replace the hub.
6. Lubricate hub (7) with clean engine oil. Slide hub (7) into idler gear (2). Ensure that the timing marks are toward the front of the idler gear.

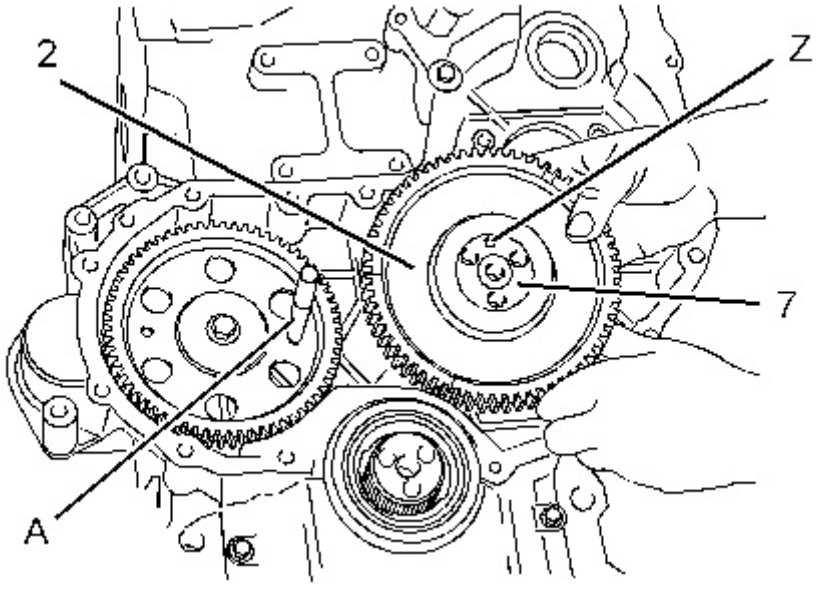

Illustration 4 g01337952

7. Align the timing mark on idler gear (2) with the timing mark on the camshaft gear. Refer to the illustration 1. Install the assembly of idler gear (2) and hub (7) into the recess in the timing case. Ensure that oil Hole (Z) is to the top of the hub.

   Note: The idler gear must be tilted during installation. Ensure that the holes in the hub are aligned with the holes in the cylinder block.

8. Clean plate (3) and inspect the plate for wear or damage. If necessary, replace the plate.

9. Lubricate plate (3) with clean engine oil. Align the holes in plate (3) with the holes in hub (7). Install the plate in the original orientation.

10. Install bolts (1).

11. Remove Tooling (A) and Tooling (B).

    Note: Ensure that timing marks are aligned, before removing the Tooling (A) and Tooling (B).

12. Install plug (8) to the cylinder block. Refer to Illustration 2.

13. Tighten bolts (1) to a torque of 44 N·m (32 lb ft).

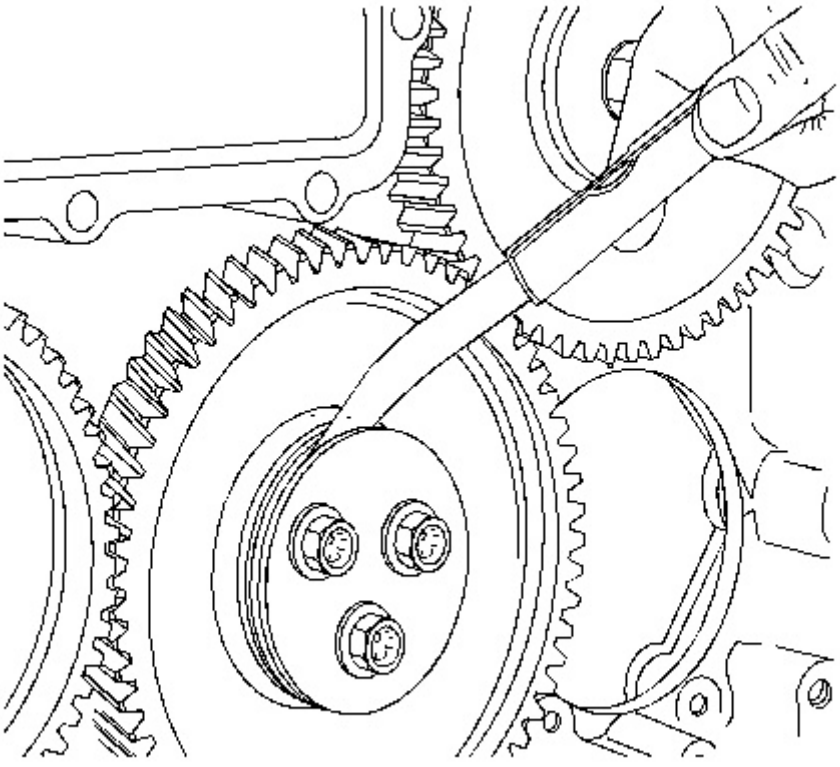

Illustration 5 g01337953

Checking end play by using a set of feeler gauge's

14. Use a set of feeler gauge's in order to check the end play for the idler gear. Refer to Specifications, "Gear Group (Front)" for more information.

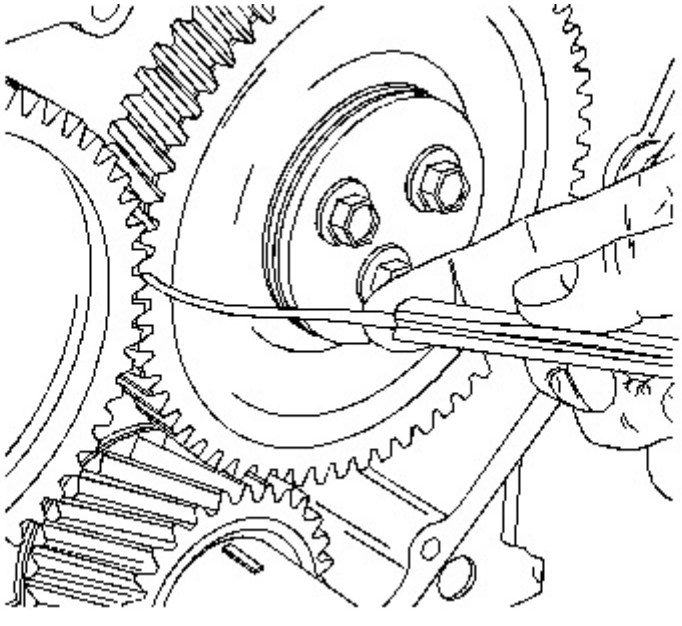

Illustration 6 g01335426

Checking backlash

15. Check the backlash between the idler gear and the camshaft gear. Refer to Specifications, "Gear Group (Front)" for more information.

16. Check the backlash between the idler gear and the crankshaft gear. Refer to Specifications, "Gear Group (Front)" for more information.

17. Lightly lubricate all of the gears with clean engine oil.

End By:

a. Install the fuel injection pump gear. Refer to Disassembly and Assembly, "Fuel Pump Gear - Install" for the correct procedure.

Installation Procedure (Early Heavy-Duty Idler Gear)

Table 2

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	230-6284	Timing Pin (Camshaft)	1
B	136-4632	Timing Pin (Crankshaft)	1
	268-1966	Adapter	1
C	9U-7324	Indicator Bracket	1
	7H-1942	Dial Indicator	1
	3S-3268	Indicator Contact Point	1
	7H-1940	Universal Attachment	1

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

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1. Ensure that number one piston is at top dead center on the compression stroke. Refer to System Operation, Testing and Adjusting, "Finding Top Center for No. 1 Piston" for the correct procedure.

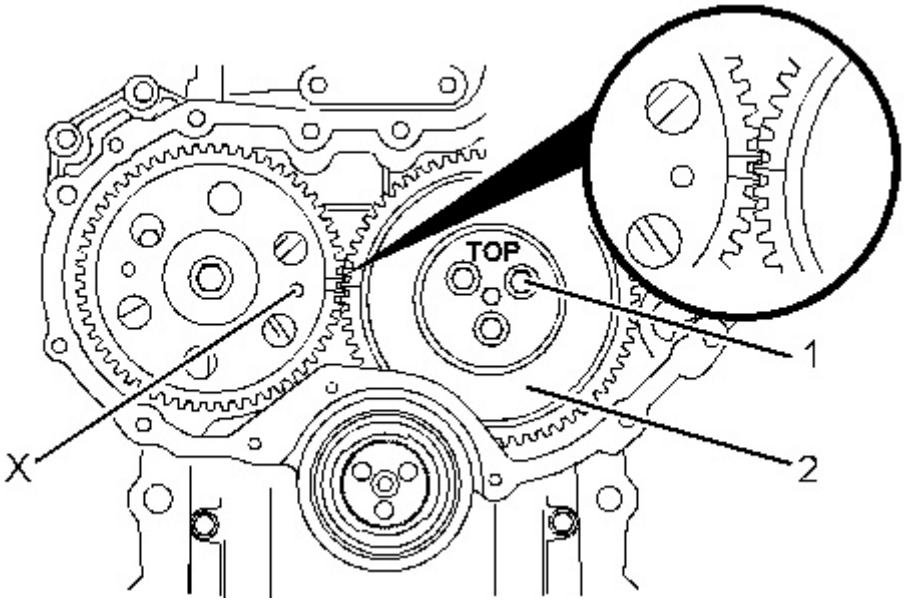

Illustration 7 g01337924

Alignment of timing marks

2. Ensure that Tooling (A) is installed into Hole (X) in the camshaft gear.

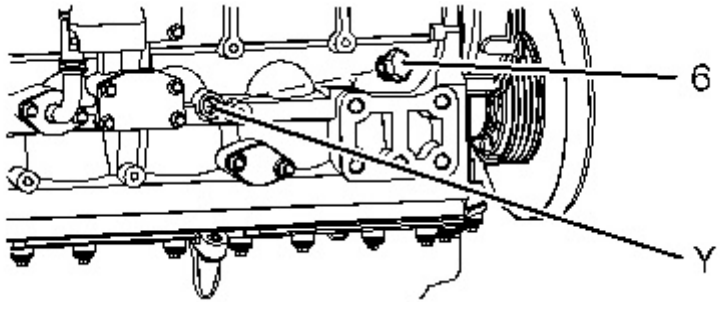

Illustration 8 g01337954

3. Ensure that Tooling (B) is installed in Hole (Y) in the cylinder block. Use Tooling (B) in order to lock the crankshaft in the correct position. Refer to System Operation, Testing and Adjusting, "Finding Top Center Position for No.1 Piston" for the correct procedure.

4. Clean the assembly of idler gear (2) and inspect the assembly of the idler gear for wear or damage. Refer to Specifications , "Gear Group (Front)" for more information. If necessary, replace the assembly of the idler gear.

5. Lubricate the bearings in the assembly of idler gear (2) with clean engine oil.

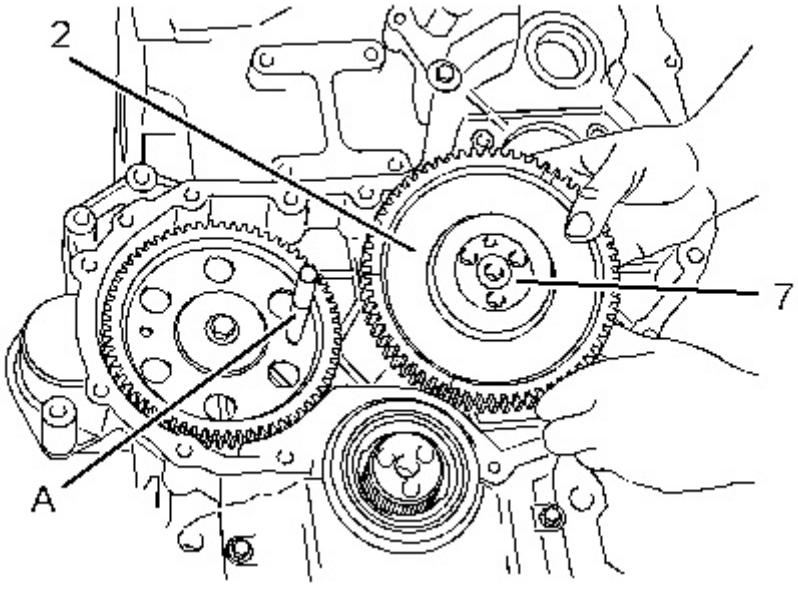

Illustration 9 g01337922

6. Align the timing mark on idler gear (2) with the timing mark on the camshaft gear. Refer to the illustration 7. Install the assembly of idler gear (2) into the recess in the timing case. Ensure that the identification mark TOP is upward.

   Note: The idler gear must be tilted during installation. Ensure that the holes in assembly of the idler gear are aligned with the holes in the cylinder block.

7. Install bolts (1).

8. Remove Tooling (A) and Tooling (B).

   Note: Ensure that timing marks are aligned, before removing the Tooling (A) and Tooling (B).

9. Install plug (6) to the cylinder block. Refer to Illustration 8.

10. Tighten bolts (1) to a torque of 44 N·m (32 lb ft).

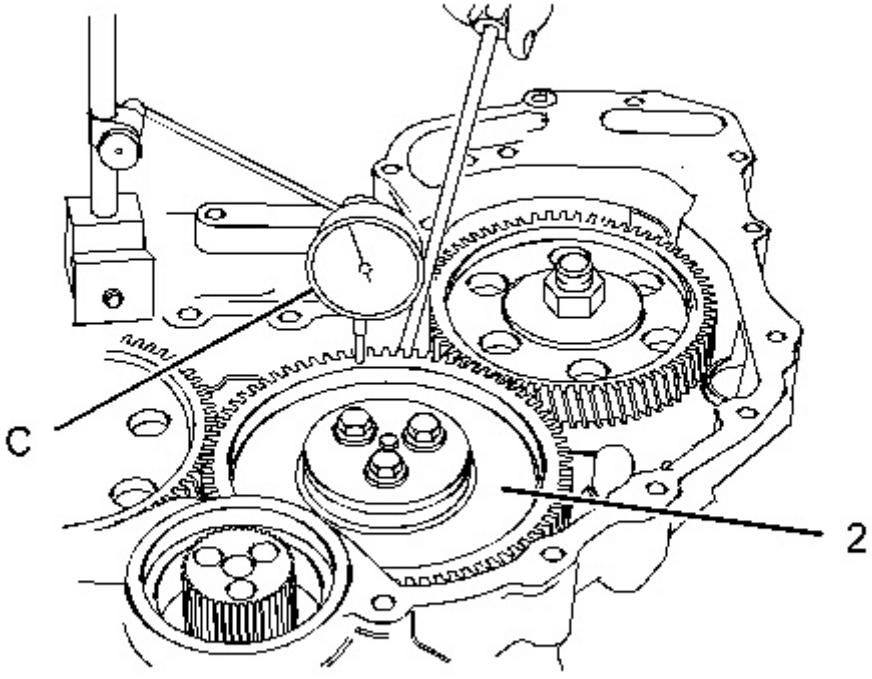

Illustration 10 g01337957

11. Use Tooling (C) in order to check the end play for the heavy-duty idler gear. Refer to Specifications, "Gear Group (Front)" for more information.

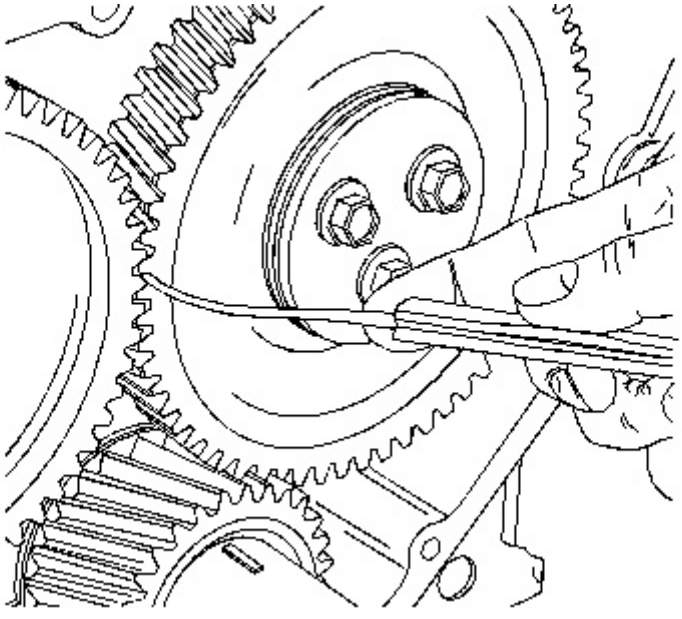

Illustration 11 g01335426

Checking backlash

12. Check the backlash between the idler gear and the camshaft gear. Refer to Specifications, "Gear Group (Front)" for more information.

13. Check the backlash between the idler gear and the crankshaft gear. Refer to Specifications, "Gear Group (Front)" for more information.

14. Lightly lubricate all of the gears with clean engine oil.

End By:

a. Install the fuel injection pump gear. Refer to Disassembly and Assembly, "Fuel Pump Gear - Install" for the correct procedure.

Installation Procedure (Latest Heavy-Duty Idler Gear)

Table 3

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	230-6284	Timing Pin (Camshaft)	1
B	136-4632	Timing Pin (Crankshaft)	1
	268-1966	Adapter	1
C	9U-7324	Indicator Bracket	1
	7H-1942	Dial Indicator	1
	3S-3268	Indicator Contact Point	1
	7H-1940	Universal Attachment	1

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 Postion for No. 1 Piston" for the correct procedure.

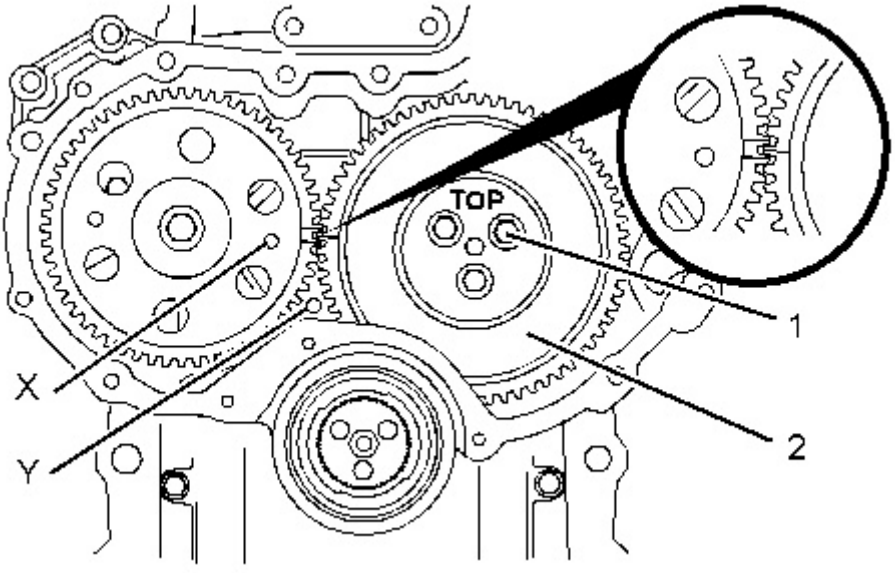

Illustration 12 g01343977

Alignment of timing marks

2. Ensure that Tooling (A) is installed into Hole (X) in the camshaft gear.
3. Ensure that Tooling (B) is installed in Hole (Y) in the cylinder block. Use Tooling (B) in order to lock the crankshaft in the correct position. Refer to Systems Operation, Testing and Adjusting, "Finding Top Center Position for No.1 Piston" for the correct procedure.

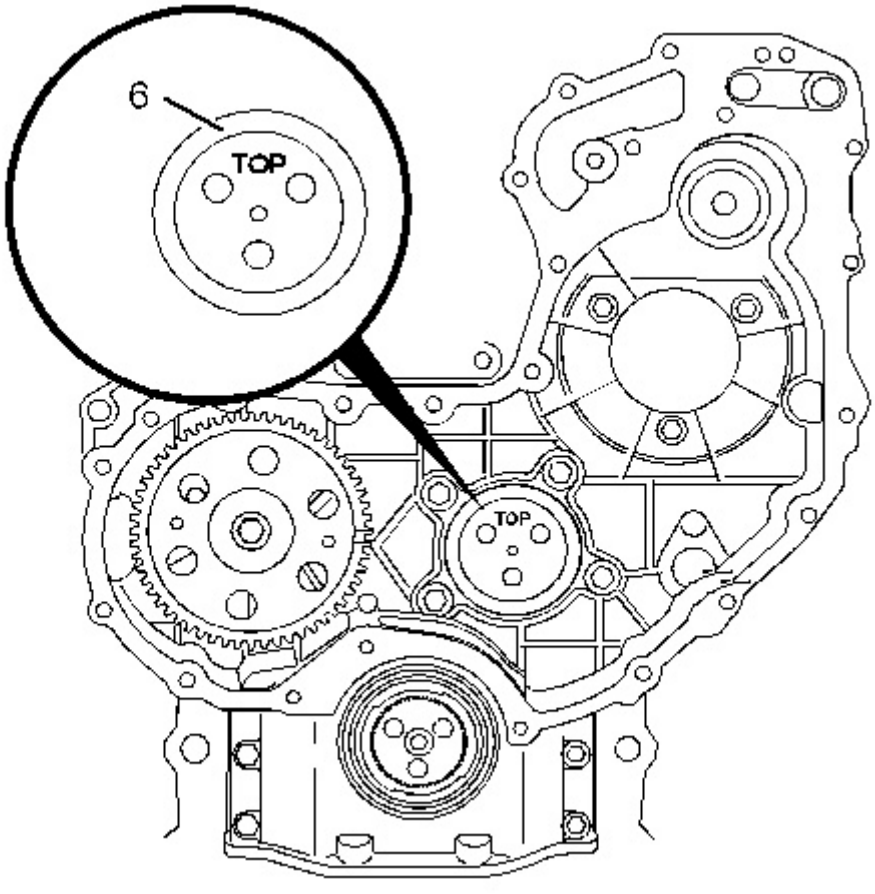

Illustration 13 g01387344

Typical example

4. Install plate (6) into the recess in the front housing.

   Note: Ensure that the identification mark TOP is upward.

5. Clean the assembly of idler gear (2) and inspect the assembly of the idler gear for wear or damage. Refer to Specifications, "Gear Group (Front)" for more information. If necessary, replace the assembly of the idler gear.

6. Lubricate the bearings in the assembly of idler gear (2) with clean engine oil.

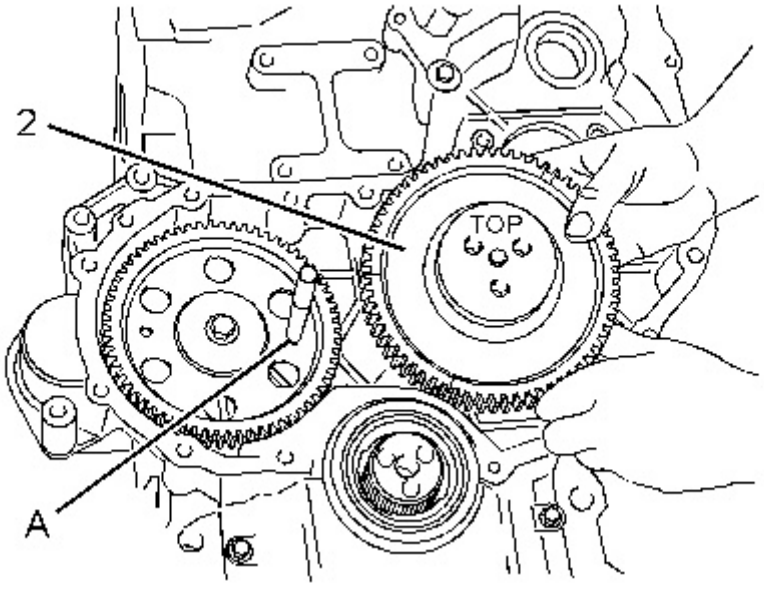

Illustration 14 g01269933

7. Align the timing mark on idler gear (2) with the timing mark on the camshaft gear. Refer to Illustration 12. Install the assembly of idler gear (2) into the recess in the timing case. Ensure that the identification mark TOP is upward.

   Note: The idler gear must be tilted during installation. Ensure that the holes in the assembly of the idler gear are aligned with the holes in the cylinder block.

8. Install bolts (1). Tighten bolts (1) to a torque of 44 N·m (32 lb ft).

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