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Configuration: C7.1 Industrial Engine 77000001-UP

Disassembly and Assembly C7.1 Industrial Engine

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i05949590

Flywheel Housing - Remove and Install - Type A, B, C, and D Wet Back-End Housing

SMCS - 1157-010

Removal Procedure of Type A Wet Back-End Housing

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A ⁽¹⁾	-	Guide Studs M10 by 100 mm	2
	-	Guide Studs M12 by 100 mm	2

⁽¹⁾ Use either tooling

Start By:

- Remove the flywheel. Refer to Disassembly and Assembly, "Flywheel - Remove" for the correct procedure.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

Note: The wet back-end flywheel housing may be installed on standard engines. When installing a wet back-end flywheel housing, to a standard engine a seal will not be installed to the flywheel housing.

1. There are four types of wet back-end flywheel housing that can be installed on the engine. The removal procedures for all types of flywheel housing are similar.
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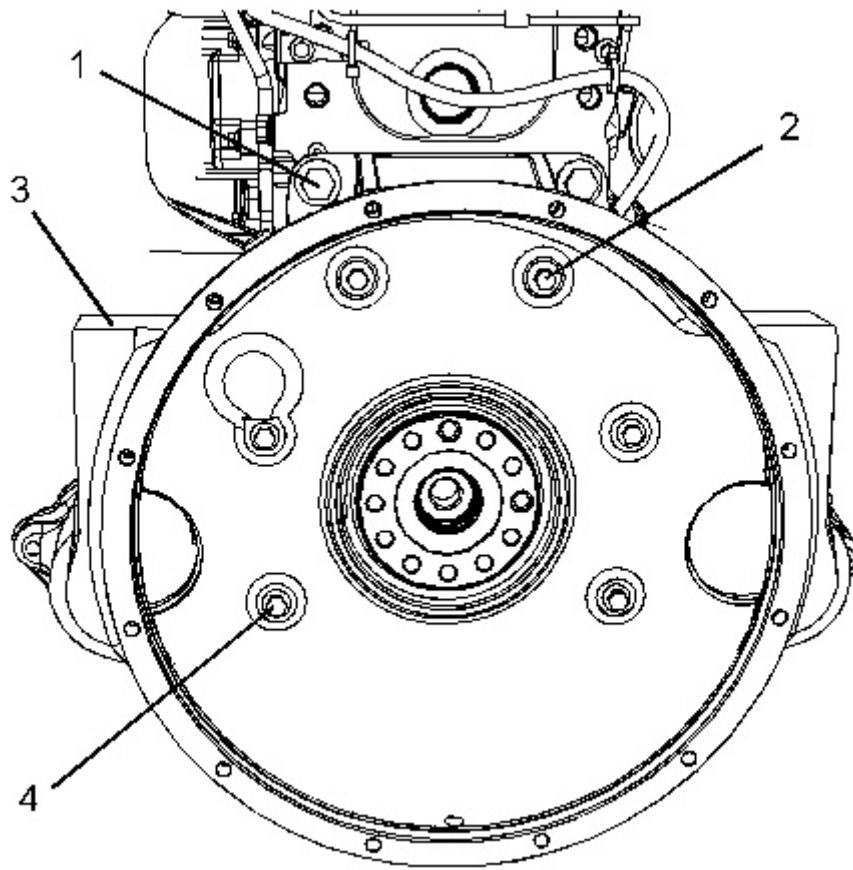


Illustration 1
Type A Wet Back-End Housing

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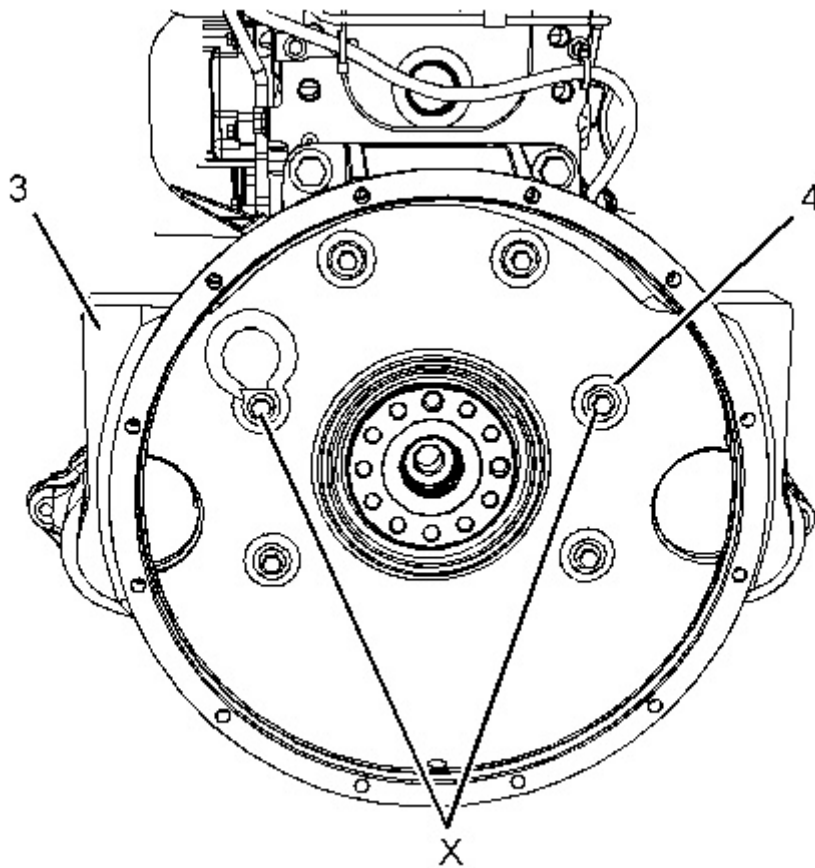


Illustration 2
Type A Wet Back-End Housing

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2. Remove bolts (4) from Position (X) in flywheel housing (3).
 3. Install Tooling (A) into Position (X) to flywheel housing (3).
 4. Install a suitable lifting device onto flywheel housing (3) to support the flywheel housing. The weight of the flywheel housing is approximately 40 kg (88 lb).
 5. Remove remaining bolts (4) from flywheel housing (3).
 6. Remove bolts (1) and bolts (2) from flywheel housing (3).
 7. Use the lifting device to remove flywheel housing (3) from the cylinder block.
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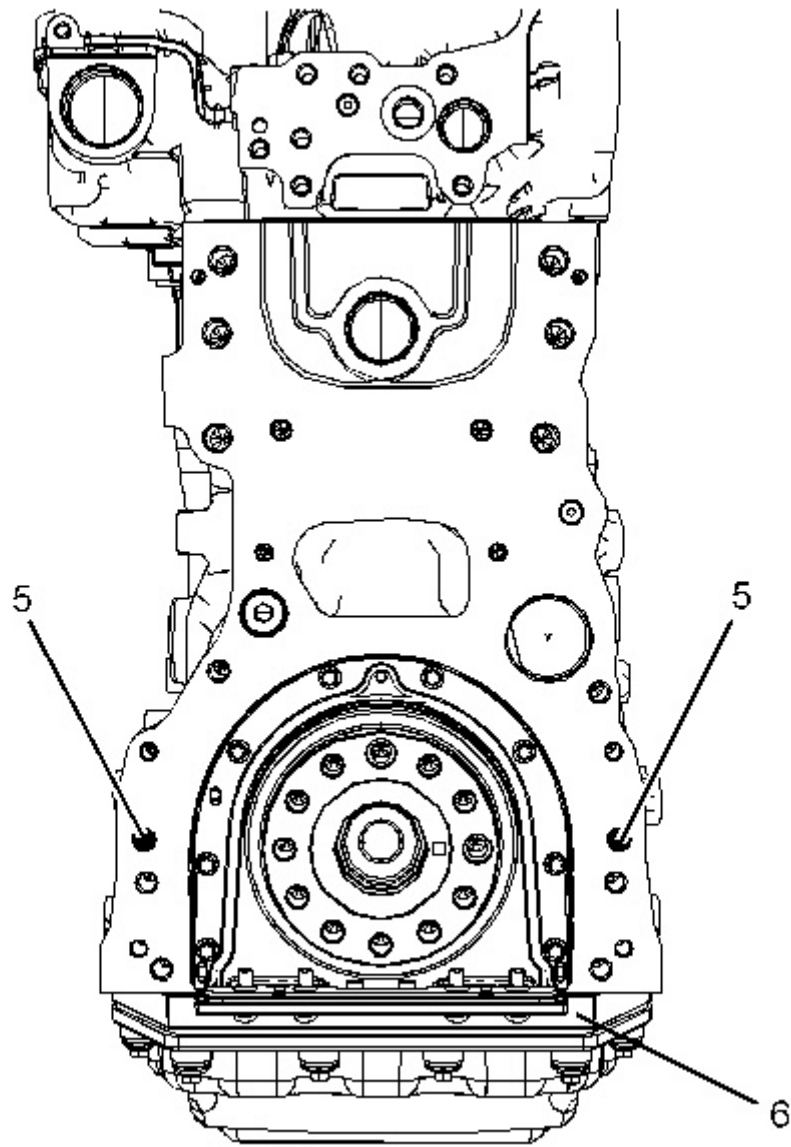


Illustration 3
Typical example

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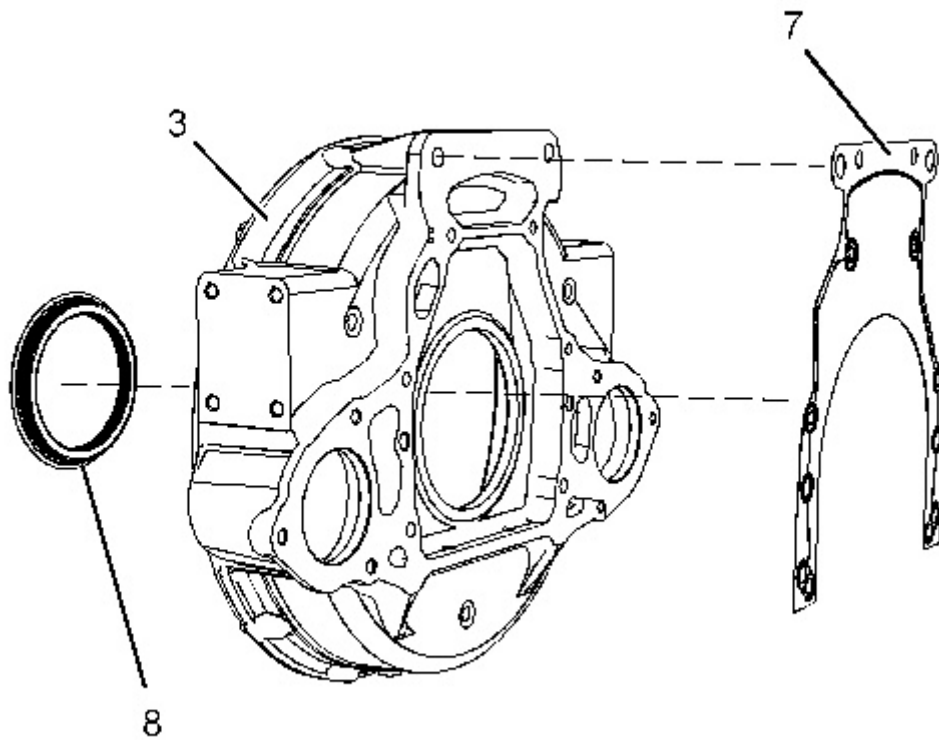


Illustration 4
Typical example

g03743025

8. Remove dust seal (6).
9. Remove gasket (7).
10. If necessary, remove dowels (5) from the cylinder block.
11. Remove oil seal (8) from flywheel housing (3).

Removal Procedure of Type B Wet Back-End Housing

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A ⁽¹⁾	-	Guide Studs M10 by 100 mm	2
	-	Guide Studs M12 by 100 mm	2

⁽¹⁾ Use either tooling

Start By:

- a. Remove the flywheel. Refer to Disassembly and Assembly, "Flywheel - Remove" for the correct procedure.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

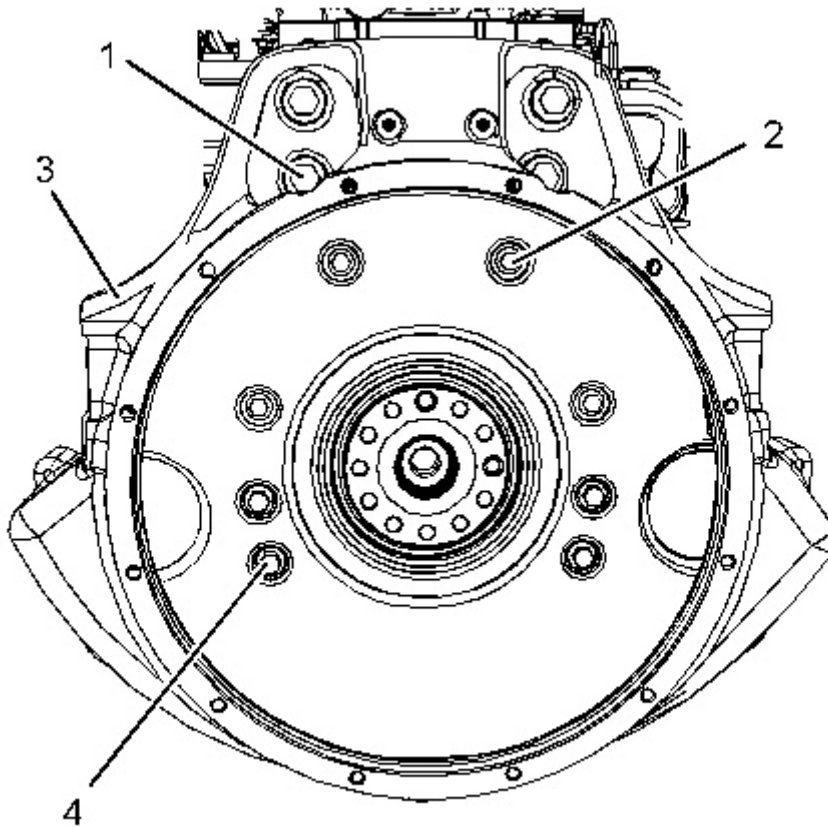


Illustration 5
Type B Wet Back-End Housing

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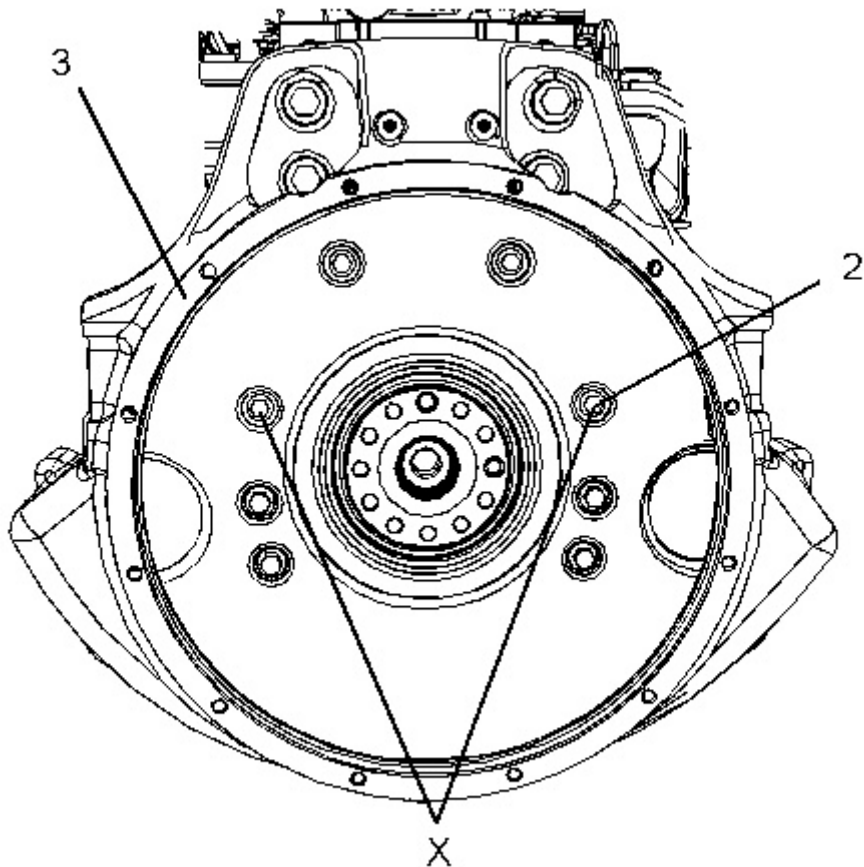


Illustration 6
Type B Wet Back-End Housing

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1. Remove bolts (2) from Position (X) in flywheel housing (3).
 2. Install Tooling (A) into Position (X) to flywheel housing (3).
 3. Install a suitable lifting device onto flywheel housing (3) to support the flywheel housing. The weight of the flywheel housing is approximately 40 kg (88 lb).
 4. Remove remaining bolts (2) from flywheel housing (1).
 5. Remove bolts (1) and bolts (4) from flywheel housing (3).
 6. Use the lifting device to remove flywheel housing (3) from the cylinder block.
-

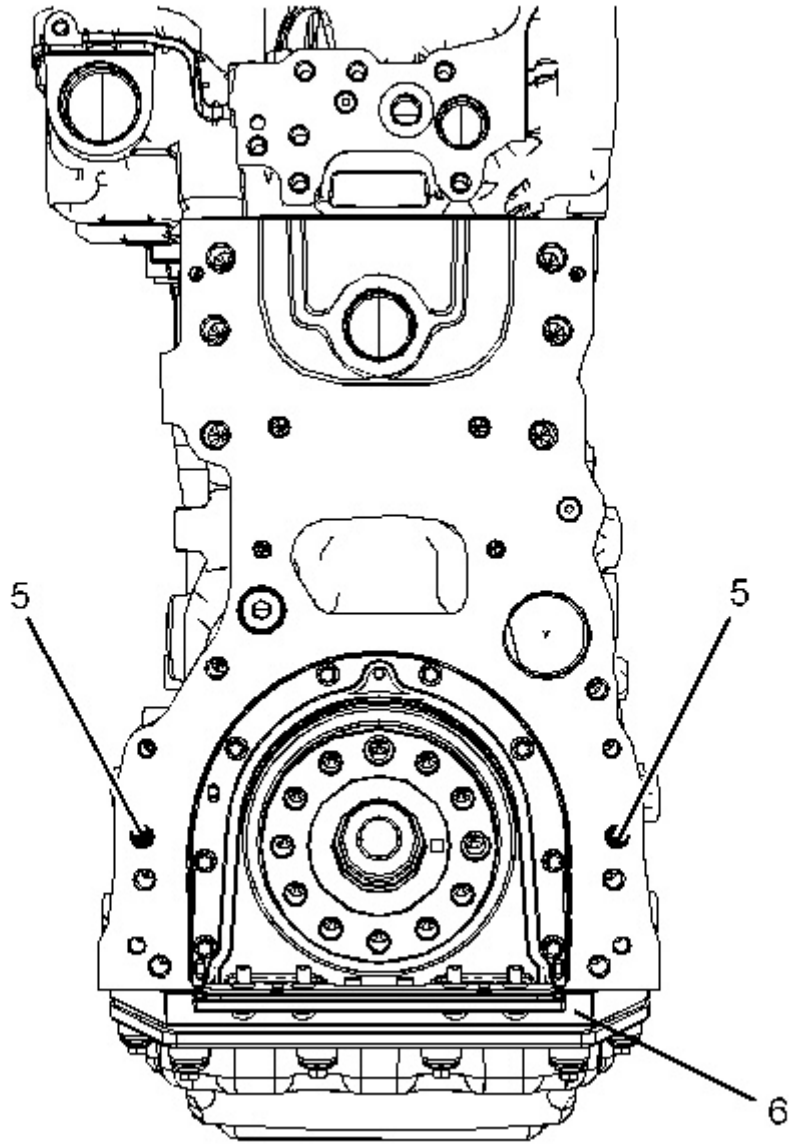


Illustration 7
Typical example

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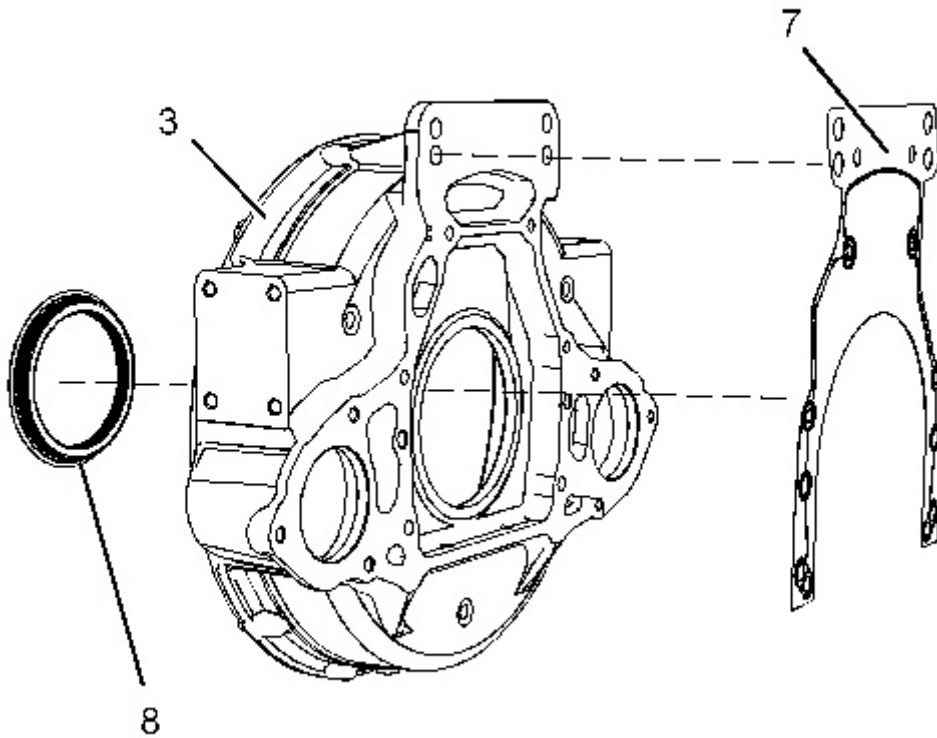


Illustration 8
Typical example

g03742617

7. Remove dust seal (6).
8. Remove gasket (7).
9. If necessary, remove dowels (5) from the cylinder block.
10. Remove oil seal (8) from flywheel housing (3).

Removal Procedure of Type C Wet Back-End Housing

Table 3

Required Tools			
Tool	Part Number	Part Description	Qty
A ⁽¹⁾	-	Guide Studs M10 by 100 mm	2
	-	Guide Studs M12 by 100 mm	2

⁽¹⁾ Use either tooling

Start By:

- a. Remove the flywheel. Refer to Disassembly and Assembly, "Flywheel - Remove" for the correct procedure.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

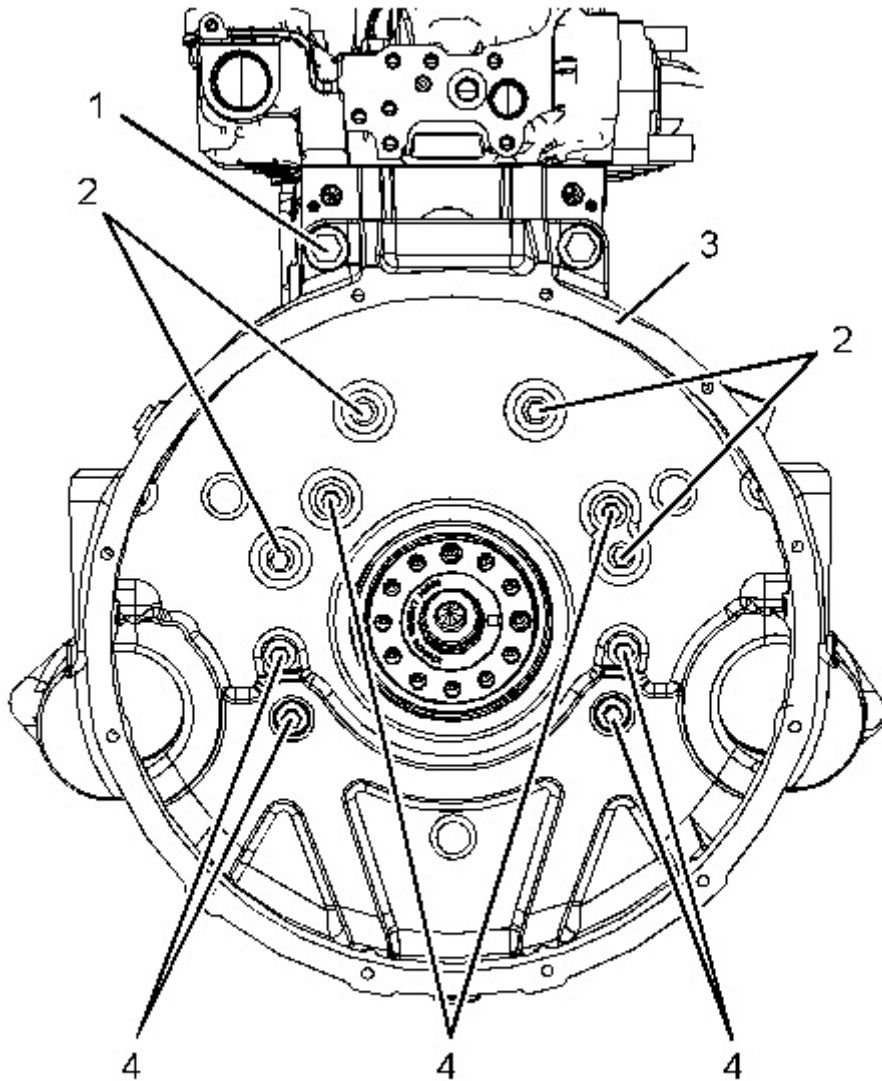


Illustration 9
Type C Wet Back-End Housing

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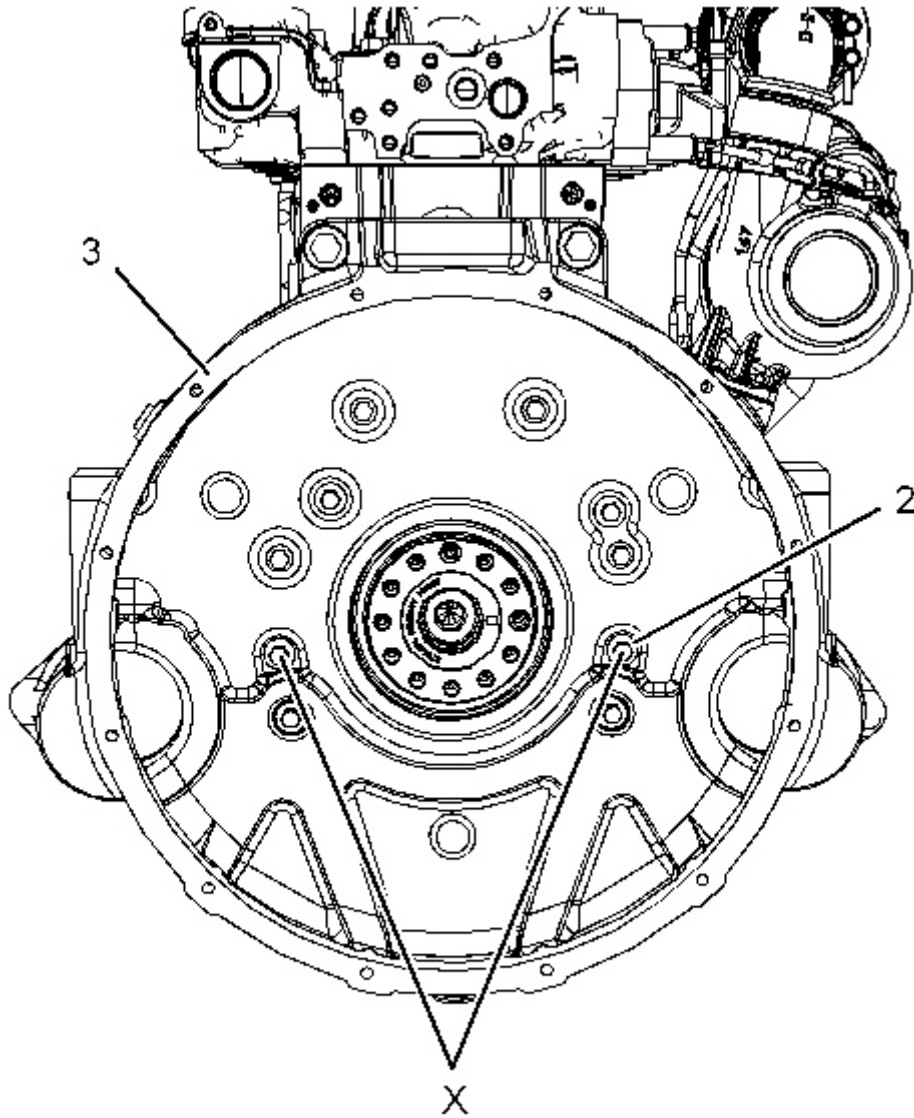


Illustration 10

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Type C Wet Back-End Housing

1. Remove bolts (2) from Position (X) in flywheel housing (3).
 2. Install Tooling (A) into Position (X) to flywheel housing (3).
 3. Install a suitable lifting device onto flywheel housing (3) to support the flywheel housing. The weight of the flywheel housing is approximately 40 kg (88 lb).
 4. Remove remaining bolts (2) from flywheel housing (3).
 5. Remove bolts (1) and bolts (4) from flywheel housing (3).
 6. Use the lifting device to remove flywheel housing (3) from the cylinder block.
-

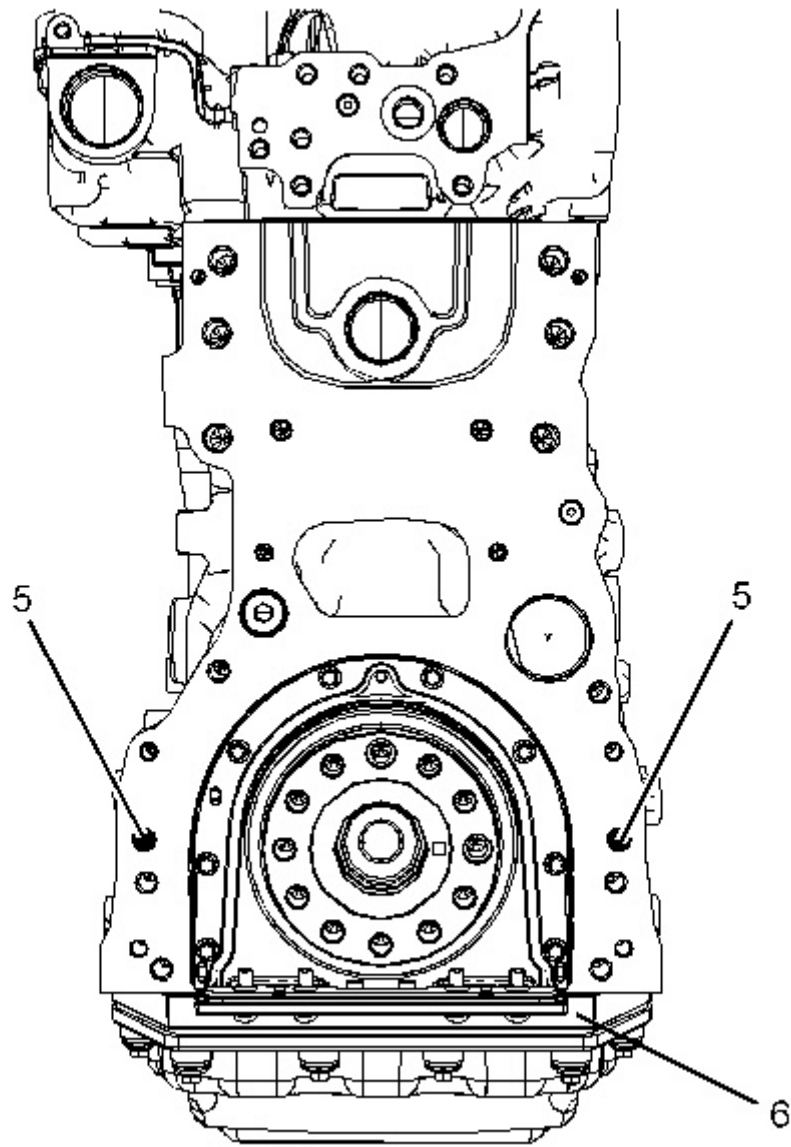


Illustration 11
Typical example

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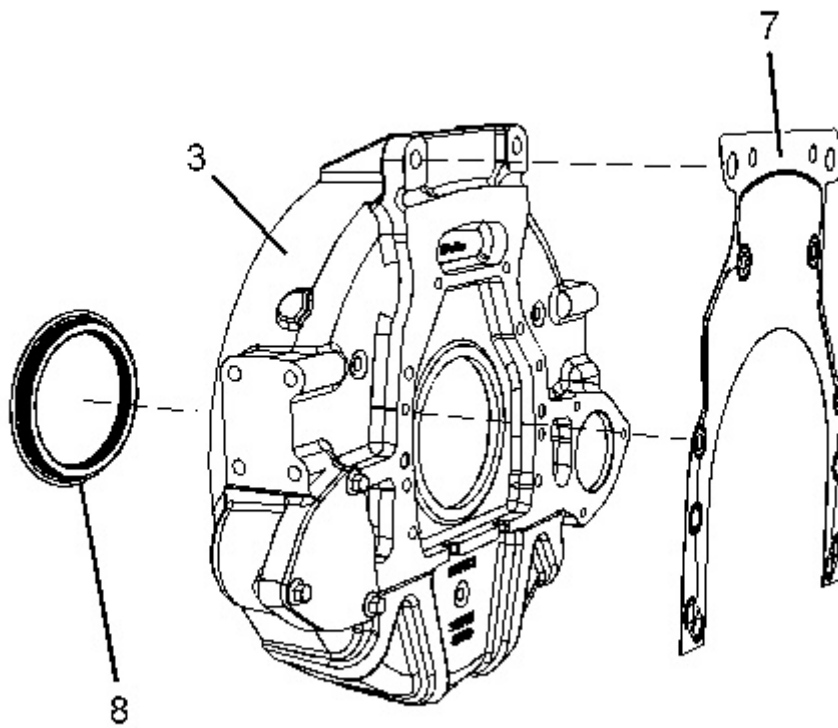


Illustration 12
Typical example

g03743021

7. Remove dust seal (6).
8. Remove gasket (7).
9. If necessary, remove dowels (5) from the cylinder block.
10. Remove oil seal (8) from flywheel housing (3).

Removal Procedure of Type D Wet Back-End Housing

Table 4

Required Tools			
Tool	Part Number	Part Description	Qty
A ⁽¹⁾	-	Guide Studs M10 by 100 mm	2
	-	Guide Studs M12 by 100 mm	2

⁽¹⁾ Use either tooling

Start By:

- a. Remove the flywheel. Refer to Disassembly and Assembly, "Flywheel - Remove" for the correct procedure.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

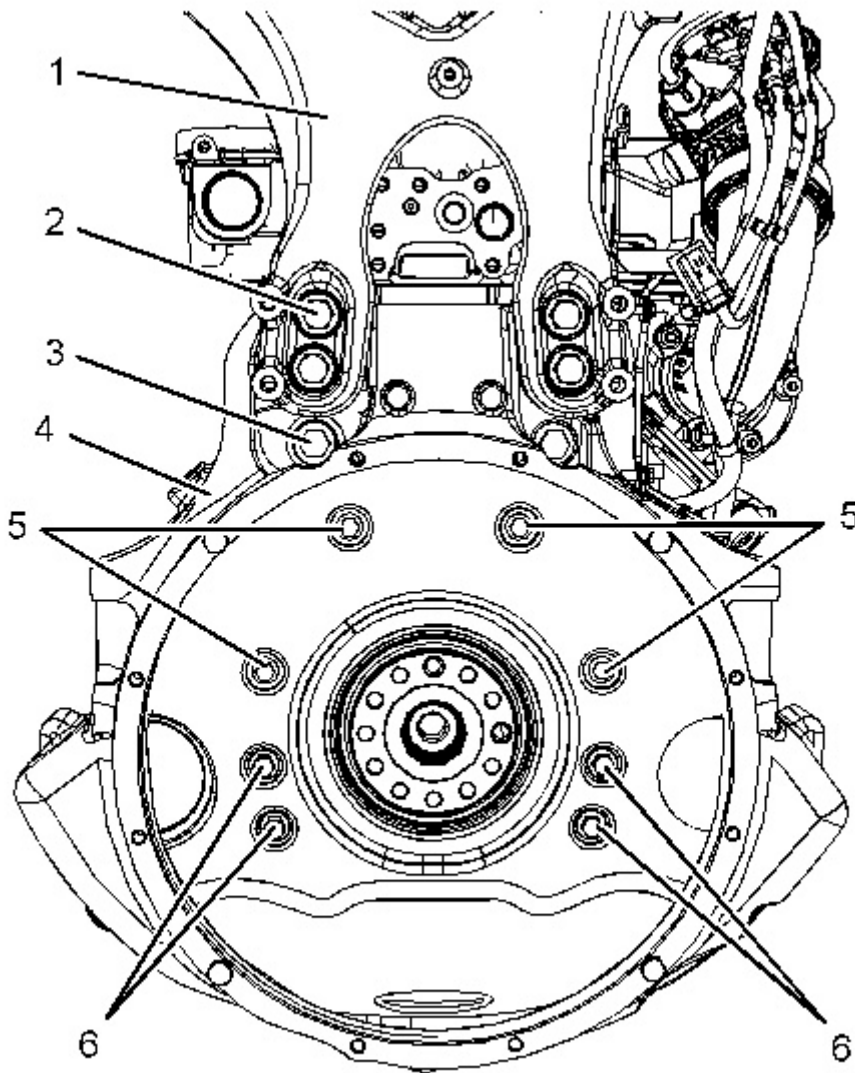


Illustration 13
Type D Wet Back-End Housing

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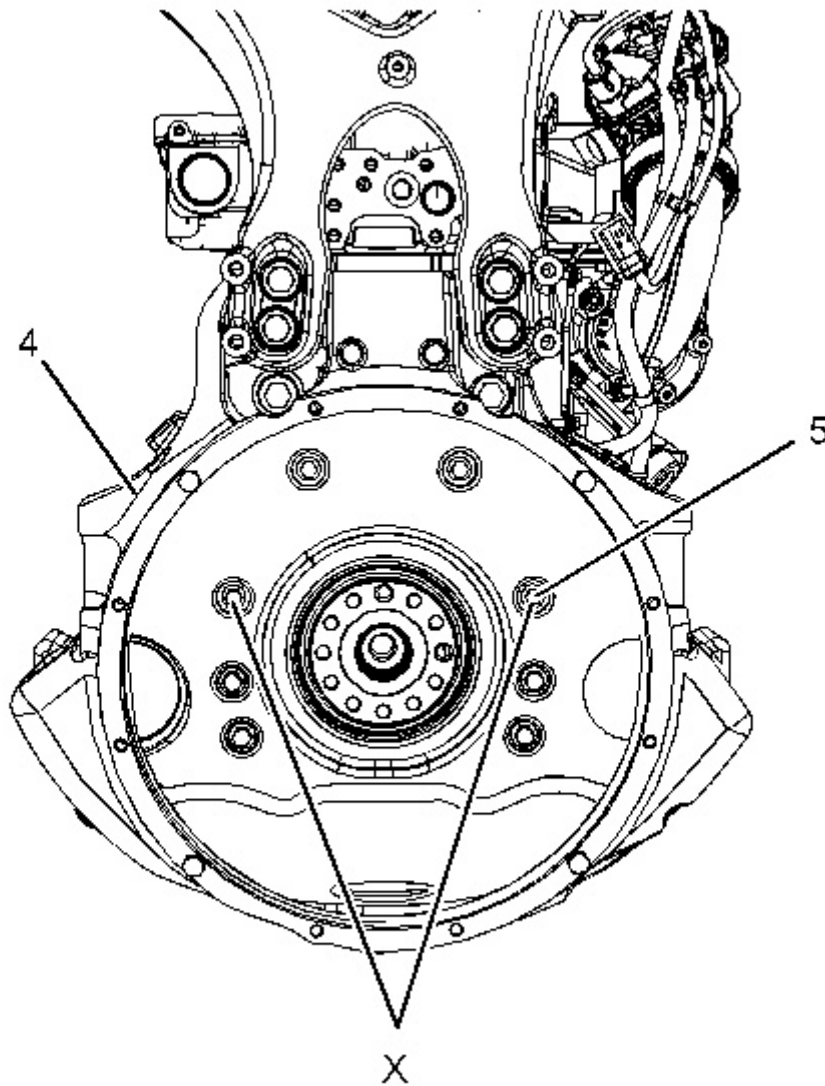


Illustration 14

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Type D Wet Back-End Housing

1. Remove bolts (2) from bracket (1). Remove the bracket from flywheel housing (4). Refer to Disassembly and Assembly, "Support and Mounting (CEM) - Remove and Install" for the correct procedure.
2. Remove bolts (5) from Position (X) in flywheel housing (4).
3. Install Tooling (A) into Position (X) to flywheel housing (4).
4. Install a suitable lifting device onto flywheel housing (4) to support the flywheel housing. The weight of the flywheel housing is approximately 40 kg (88 lb).
5. Remove remaining bolts (5) from flywheel housing (4).
6. Remove bolts (3) and bolts (6) from flywheel housing (4).
7. Use the lifting device to remove flywheel housing (4) from the cylinder block.

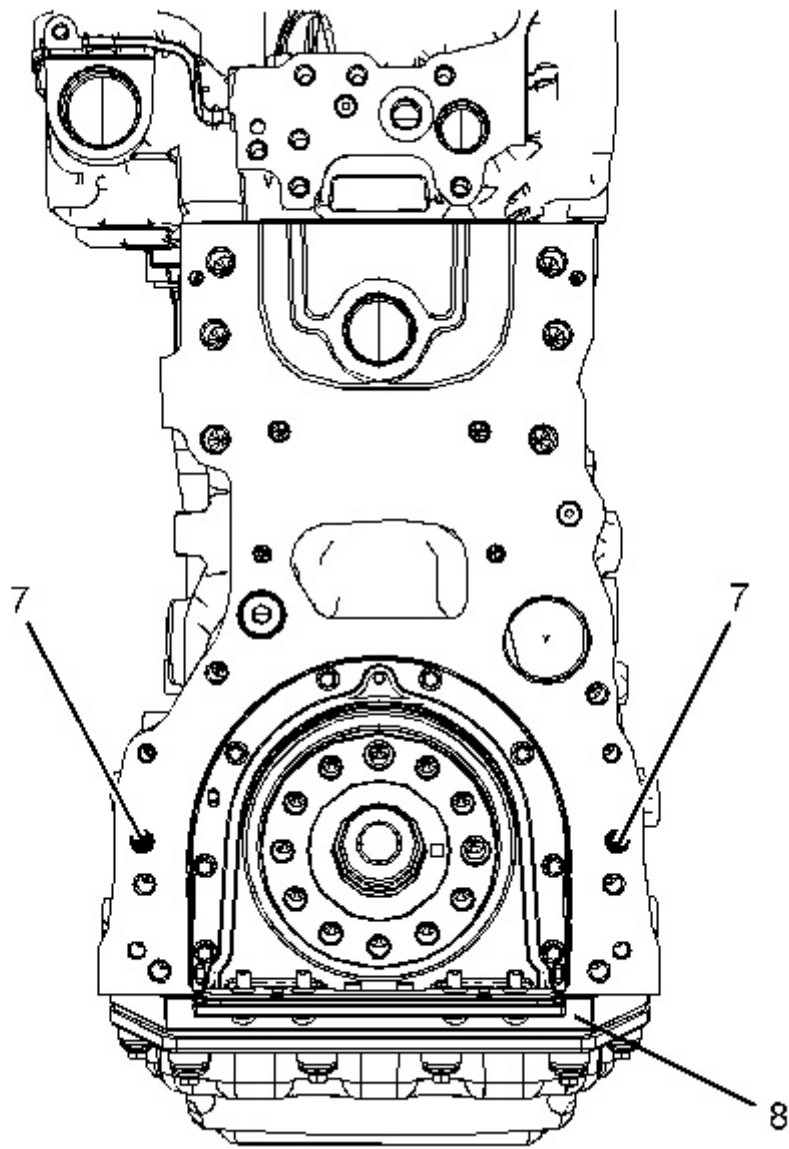


Illustration 15
Typical example

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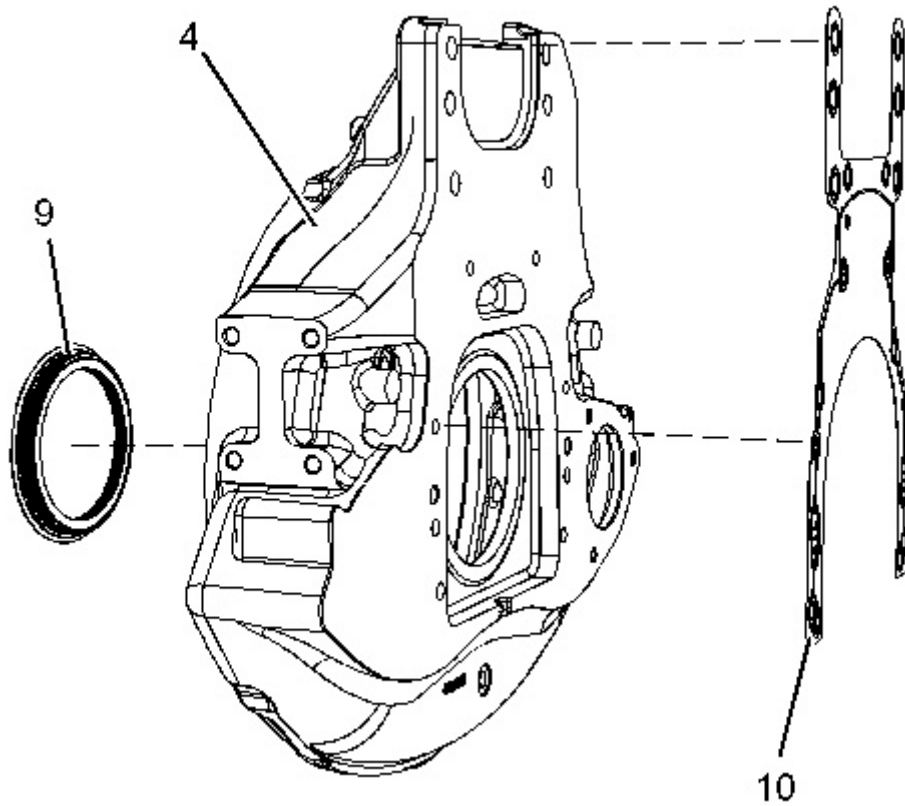


Illustration 16
Typical example

g03743094

8. Remove dust seal (8).
9. Remove gasket (10).
10. If necessary, remove dowels (7) from the cylinder block.
11. Remove oil seal (9) from flywheel housing (4).

Installation Procedure of Type A Wet Back-End Housing

Table 5

Required Tools			
Tool	Part Number	Part Description	Qty
A ⁽¹⁾	-	Guide Studs M10 by 100 mm	2
	-	Guide Studs M12 by 100 mm	2

⁽¹⁾ Use either tooling

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

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

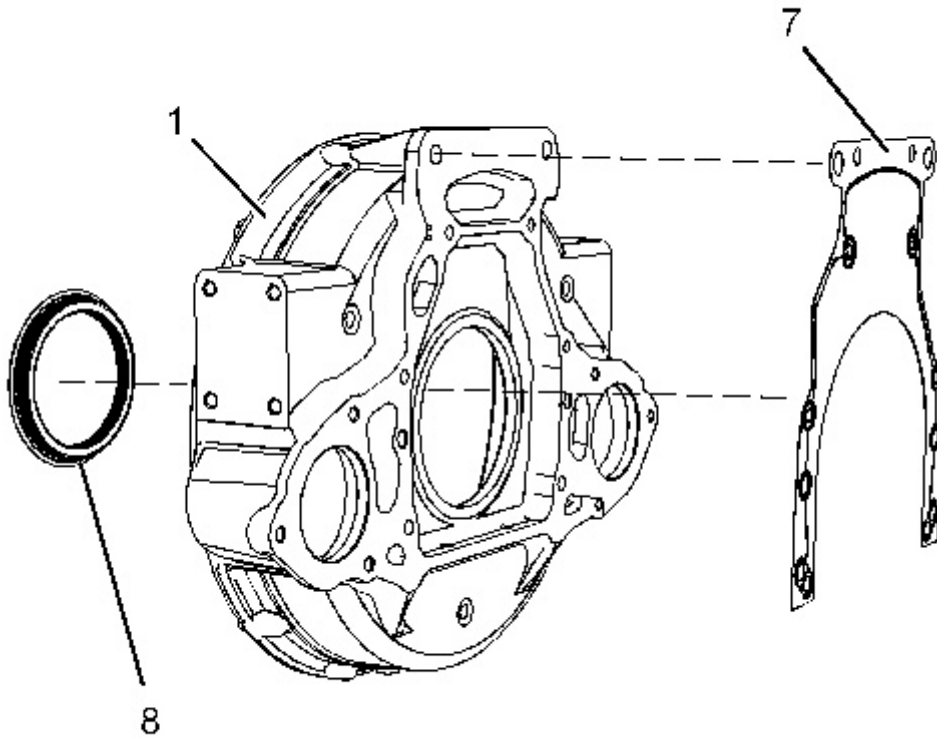


Illustration 17
Typical example

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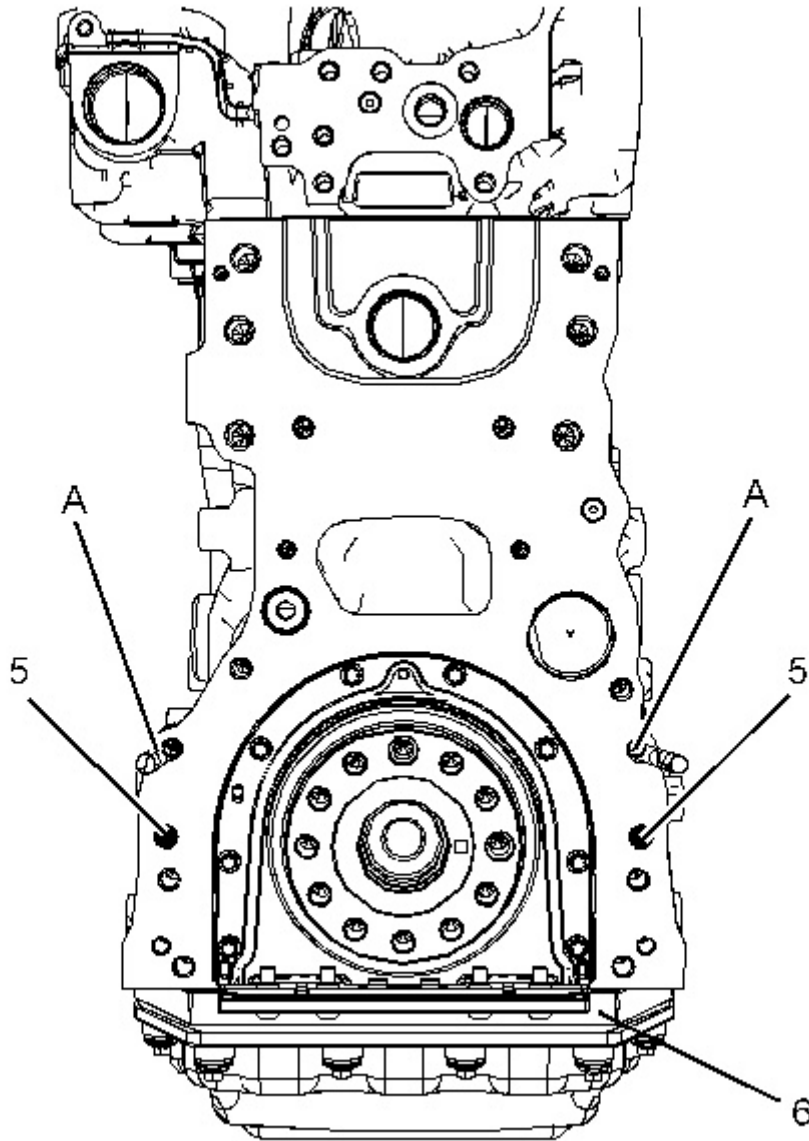


Illustration 18

g03743196

Typical example

2. Install a new oil seal (8) to flywheel housing (1). Press the new oil seal into the flywheel housing from the rear. Ensure that the front edge of the oil seal is flush with the gasket surface of the flywheel housing.
3. Inspect the crankshaft rear seal for leaks. If there are any oil leaks, replace the crankshaft rear seal. Refer to Disassembly and Assembly, "Crankshaft Rear Seal - Remove" and refer to Disassembly and Assembly, "Crankshaft Rear Seal - Install" for the correct procedure.
4. Clean the rear face of the cylinder block. If necessary, install dowels (5) to the cylinder block.
5. Install Tooling (A) to the cylinder block.
6. Align a new gasket (7) with Tooling (A). Install the gasket to the cylinder block.
7. Install dust seal (6).

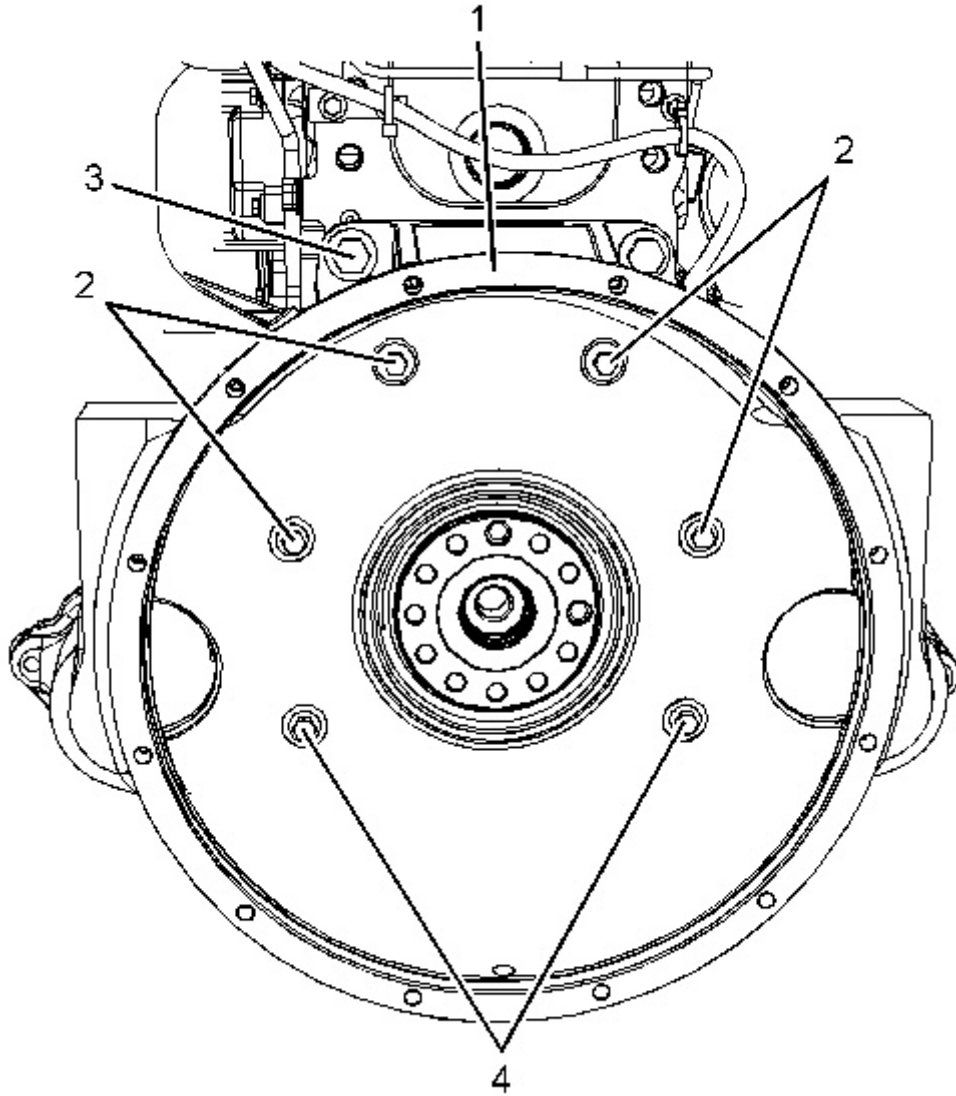


Illustration 19

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Type A flywheel housing

Bolts (2) are 10 mm

Bolts (3) are 16 mm

Bolts (4) are 12 mm

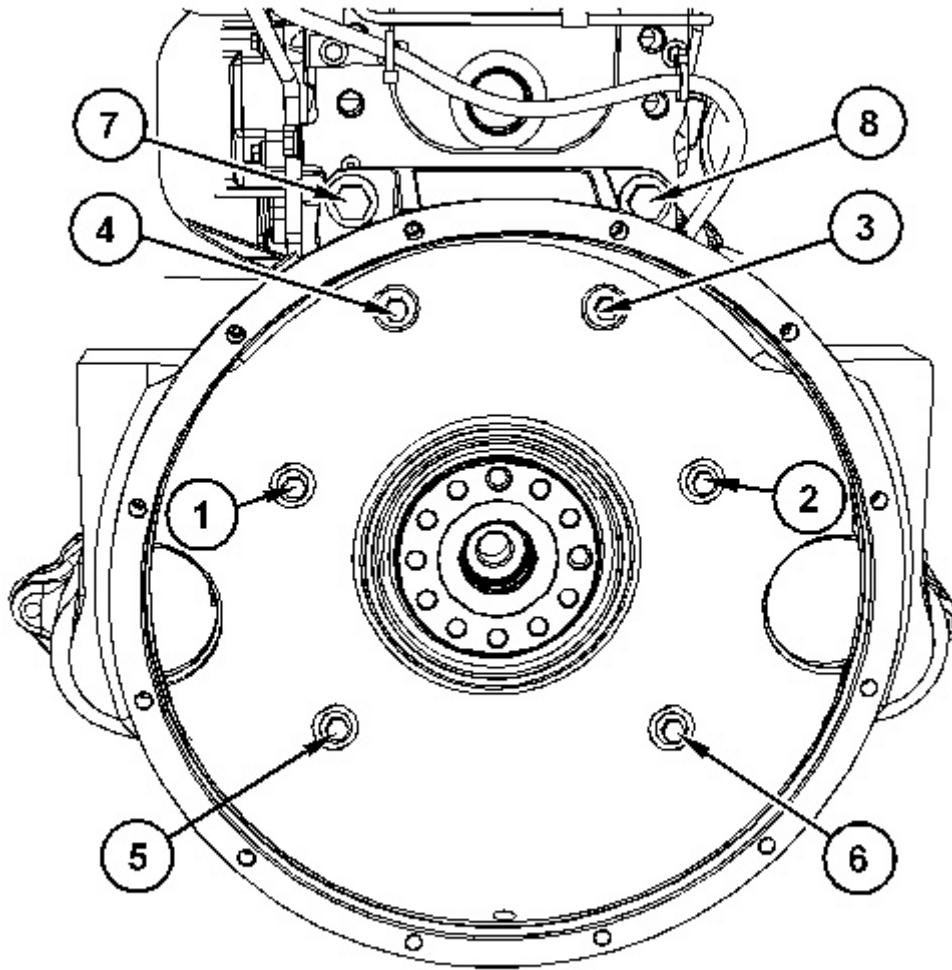


Illustration 20

g03735134

Tightening sequence of Type (A) flywheel housing

8. **Ensure that bolts (2), bolts (3) and bolts (4) are clean and free from oil or grease. Ensure that all threaded holes in the cylinder block are clean and free from oil or grease.**
9. Install a suitable lifting device onto the flywheel housing. The weight of the flywheel housing is approximately 40 kg (88 lb).
10. Use the lifting device to align flywheel housing (1) with Tooling (A). Install the flywheel housing to the cylinder block.
11. Install bolts (2), bolts (3), and bolts (4).
12. Remove Tooling (A). Install remaining bolts (2).
13. Follow Step 14.a through Step 14.c to tighten bolts (3), bolts (2), and bolts (4) in the tightening sequence that is shown in Illustration 20.

- a. Tighten bolts (2) to a torque of 63 N·m (46 lb ft).
 - b. Tighten bolts (3) to a torque of 190 N·m (140 lb ft).
 - c. Tighten bolts (4) to a torque of 115 N·m (85 lb ft).
14. Check the alignment of flywheel housing (1) with the crankshaft. Refer to System Operation, Testing and Adjusting, "Flywheel Housing - Inspect" for more information.

End By:

- a. Install the flywheel. Refer to Disassembly and Assembly, "Flywheel - Install" for the correct procedure.

Installation Procedure of Type B Wet Back-End Housing

Table 6

Required Tools			
Tool	Part Number	Part Description	Qty
A ⁽¹⁾	-	Guide Studs M10 by 100 mm	2
	-	Guide Studs M12 by 100 mm	2

⁽¹⁾ Use either tooling

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

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

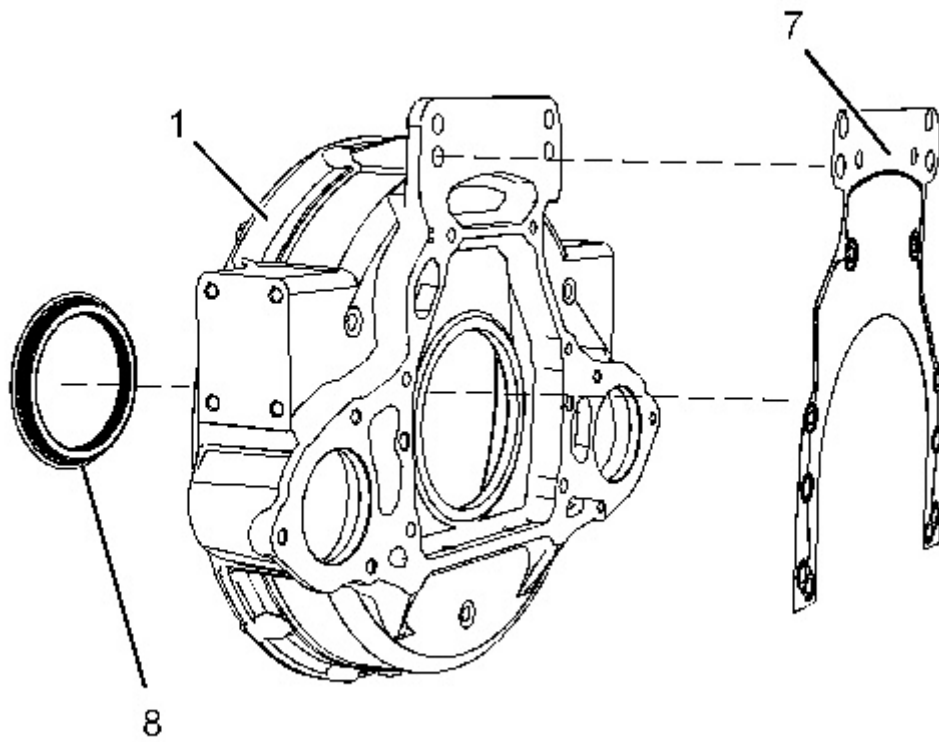


Illustration 21
Typical example

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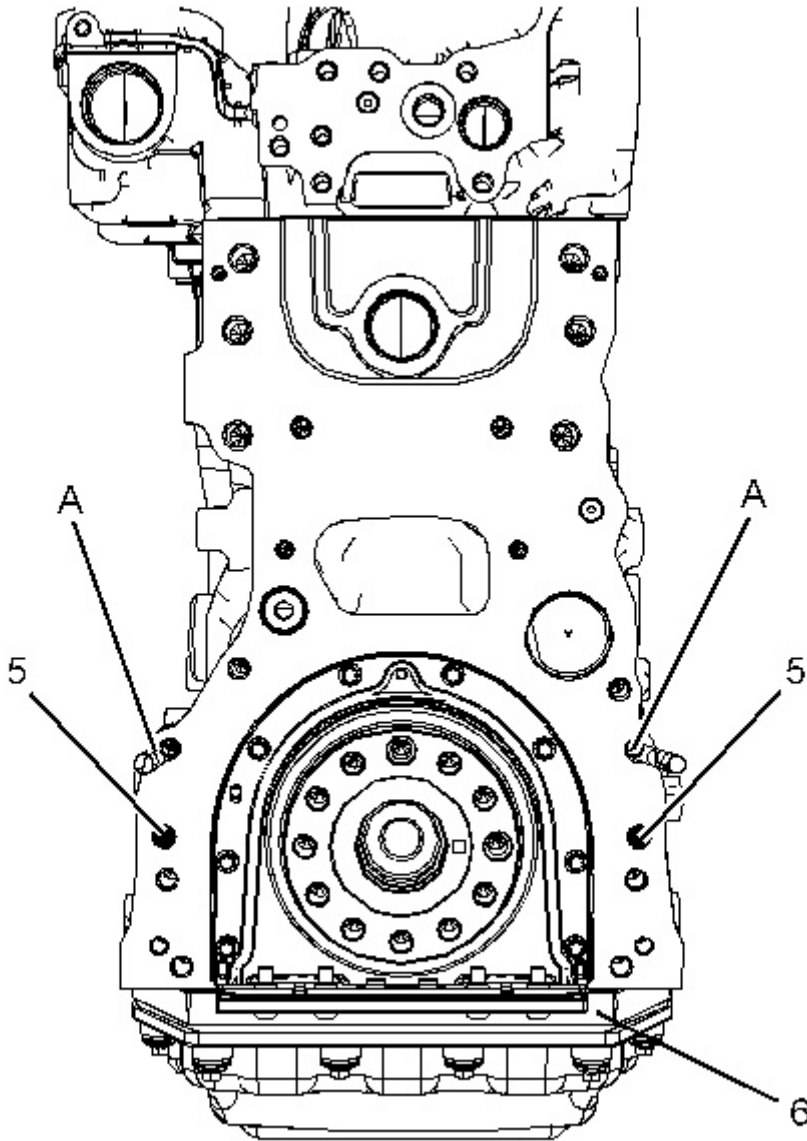


Illustration 22

g03743503

Typical example

2. Install a new oil seal (8) to flywheel housing (1).

Note: Press the oil seal into the flywheel housing from the rear. Ensure that the front edge of the oil seal is flush with the gasket surface of the flywheel housing.

3. Inspect the crankshaft rear seal for leaks. If there are any oil leaks, replace the crankshaft rear seal. Refer to Disassembly and Assembly, "Crankshaft Rear Seal - Remove" and refer to Disassembly and Assembly, "Crankshaft Rear Seal - Install" for the correct procedure.
4. Clean the rear face of the cylinder block. If necessary, install dowels (5) to the cylinder block.
5. Install Tooling (A) to the cylinder block.
6. Align a new gasket (7) with Tooling (A). Install the gasket to the cylinder block.

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