## Subject:
Removal and Installation of the Flywheel Housing

## Date:
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### Additions, Revisions, or Updates

<table>
<thead>
<tr>
<th>Publication Number / Title</th>
<th>Platform</th>
<th>Section Title</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDC-SVC-MAN-0081</td>
<td>DD Platform</td>
<td>Removal of the Flywheel Housing - Installation of the Flywheel Housing</td>
<td></td>
</tr>
<tr>
<td>DDC-SVC-MAN-0004</td>
<td>EPA04 Series 60</td>
<td>Removal of the Flywheel Housing - Installation of the Flywheel Housing</td>
<td>If the engine is properly supported, it is no longer necessary to remove the engine from the vehicle before removing the flywheel housing.</td>
</tr>
<tr>
<td>DDC-SVC-MAN-0005</td>
<td>EPA07 Series 60</td>
<td>Removal of the Flywheel Housing - Installation of the Flywheel Housing</td>
<td></td>
</tr>
<tr>
<td>DDC-SVC-MAN-0024</td>
<td>EPA04 MBE 900</td>
<td>Removal of the Flywheel Housing - Installation of the Flywheel Housing</td>
<td></td>
</tr>
<tr>
<td>DDC-SVC-MAN-0034</td>
<td>EPA07 MBE 900</td>
<td>Removal of the Flywheel Housing - Installation of the Flywheel Housing</td>
<td></td>
</tr>
</tbody>
</table>
The following procedures apply to EPA07/10 DD Platform engines.
2 Removal of the Flywheel Housing

Remove as follows:

1. Drain engine oil and remove the oil pan.
2. Remove the doser injector feed line.
3. Remove the Crankshaft Position (CKP) sensor. Refer to section "Removal of the Crankshaft Position Sensor".
4. Remove the flywheel. Refer to section "Removal of the Flywheel".
5. Remove two bolts securing exhaust pipe bracket to flywheel housing.
6. For the DD15 and DD16: remove the clamp from the exhaust pipe and the axial power turbine and then remove exhaust pipe.
7. Support the engine by placing suitable jack stands under the cylinder block pan rails. Make sure not to damage the sealing surfaces of the oil pan rails.
8. Remove the rear engine mounts from the flywheel housing. Refer to the applicable vehicle Service Manual.
9. Thread two guide stud tools (J-43431) for the 14 mm bolts, into the cylinder block.
10. Remove the remainder of the bolts that secure the flywheel housing to the cylinder block.
11. Strike the front face of the housing alternately on each side with a soft hammer to loosen and work it off the dowel pins.
12. Remove and discard the flywheel housing gasket.
13. Remove all sealing material from the flywheel housing.
3 Installation of the Flywheel Housing

Install as follows:

1. Thread two guide studs (J–43431) for 14 mm bolts, into the cylinder block to guide the housing in place.
2. Install a new gasket.
3. Install all of the housing bolts in their proper location; finger-tighten them.

4. Remove the guide studs.

5. Torque the flywheel housing bolts using the sequence and torque shown.

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1. Bolt, M8 x 16 (2 qty.) 30 N·m (22 lb·ft)
2. Bolt, M14 x 1.5 x 90 (6 qty.) 120 N·m (88 lb·ft)
3. Bolt, M10 x 45 (6 qty.) 60 N·m (44 lb·ft)
4. Bolt, M10 x 90 (3 qty.) 60 N·m (44 lb·ft)
5. Bolt, M14 x 1.5 x 180 (1 qty.) 120 N·m (88 lb·ft)
6. Bolt, M8 x 45 (2 qty.) 30 N·m (22 lb·ft)
7. Bolt, M8 x 30 (2 qty.) 30 N·m (22 lb·ft)
8. Bolt, M14 x 1.5 x 70 (1 qty.) 120 N·m (88 lb·ft)
9. Stud, (1 qty.)
10. Nut, M12-10 (1 qty.) 100 N·m (74 lb·ft)
4. Remove the guide studs.
5. Torque the flywheel housing bolts using the sequence and torque shown.
6. Install the rear engine mounts to the flywheel housing. Refer to appropriate vehicle Service Manual.
7. Remove the jack stands and any other supports used to support the engine.
8. Inspect the crankshaft rear main oil seal. If any damage is found, replace as necessary.
9. Install the flywheel. Refer to section "Installation of the Flywheel"
10. For the DD15 and DD16; install the exhaust pipe and bracket to the flywheel housing and axial power turbine. Install two bolts into the bracket and flywheel housing. Install a clamp onto the exhaust pipe and axial power turbine.
11. Install the Crankshaft Position (CP) sensor. Refer to section "Installation of the Crankshaft Position Sensor"
12. Install the oil pan and fill the engine with new oil.
13. Prime the lubrication system. Refer to section "Priming the Engine Lubrication System"
The following procedures apply to EPA04 and EPA07 Series 60 engines.
4  Removal of the Flywheel Housing

Remove as follows:

1. Drain the engine oil and remove the oil pan; Refer to '3.9.2 Removal of Oil Pan'.
2. Remove the flywheel and scuff plate. Refer to '1.14.2 Removal and Cleaning of Flywheel'.
3. Support the engine by placing suitable jack stands under the cylinder block pan rails. Make sure not to damage the sealing surfaces of the oil pan rails.
4. Remove the rear engine mounts from the flywheel housing. Refer to the applicable vehicle Service Manual.
5. Remove the four long outer bolts and the eight short inner bolts that secure the flywheel housing to the engine.

**NOTE:** The illustration is shown with the flywheel housing already removed for clarity.

6. To guide the flywheel housing until it clears the end of the crankshaft, thread two guide studs (J-43431) for 14 mm bolts, into the cylinder block.

7. Thread eye bolts into the tapped holes in the side pads of the flywheel housing.
8. Strike the front face of the housing alternately on each side with a soft hammer to loosen and work it off the dowel pins.
9. Remove and discard the crankshaft rear oil seal.
10. Remove all sealing material from the flywheel housing. Refer to section, "Cleaning" in the "General Information" section at the beginning of this manual.
5 Installation of the Flywheel Housing

Install as follows:

1. Apply a continuous 1.6 mm (1/16 in.) bead of Loctite® 509 Gasket Eliminator®, or equivalent, to the cylinder block where it mates with the flywheel housing.

2. Thread two aligning studs (J-35785) for 12 mm bolts or guide studs (J-43431) for 14 mm bolts, into the cylinder block to guide the housing in place.

**NOTE:** Whenever crankshaft rear seal is put over the crankshaft, use crankshaft oil seal expander. Refer to '1.8.5 Installation of Front and Rear Crankshaft Oil Seal and Wear Sleeve.'

3. Support the housing and position it over the crankshaft and against the cylinder block.
4. Install all of the housing bolts in their proper location; finger-tighten them.
5. Remove the pilot studs.
6. Torque the eight short and four long flywheel housing bolts using the proper tightening sequence.

- a. If the bolts are 12 mm, torque to 112-126 N·m (83-93 lb·ft).
b. If the bolts are 14 mm, torque to 160-200 N·m (118-148 lb·ft).

7. Install the rear engine mounts to the flywheel housing. Refer to appropriate vehicle Service Manual.

8. Remove the jackstands and any other supports used to support the engine.

9. Install the crankshaft rear main oil seal. Refer to '1.8.5 Installation of Front and Rear Crankshaft Oil Seal and Wear Sleeve’.

10. Install the flywheel. Refer to ‘1.16.3 Installation of Flywheel’.

11. Install oil pan; Refer to ‘3.11.4 Installation of Oil Pan’, and refill the engine with new oil.
The following procedures apply to EPA04 and EPA07 MBE 900 engines.
6  Removal of the Flywheel Housing

Remove as follows:
   1. Remove any parts that are attached to the flywheel housing exterior.
   2. Disconnect the electrical connection and remove the Crankshaft Position (CP) sensor from the flywheel housing.
   3. Remove the oil pan and its gasket.
   4. Support the engine by placing suitable jack stands under the cylinder block pan rails. Make sure not to damage the sealing surfaces of the oil pan rails.
   5. Remove the rear engine mounts from the flywheel housing. Refer to the applicable vehicle Service Manual.
   6. Remove the flywheel housing mounting bolts and then remove the flywheel housing from the crankcase.
7 Installation of the Flywheel Housing

Install as follows:
1. Check the flywheel housing for damage.
2. Using a suitable scraper, such as a putty knife, clean the mating surfaces of the cylinder block and the flywheel housing. Remove any dirt or grease, and any traces of gasket material.
3. Install a new rear radial seal. Refer to ’1.8.2 Installation of Rear Radial Seal.’
4. Install a new flywheel housing gasket.
5. Install the flywheel housing mounting bolts and torque to 70 N·m (52 lb·ft).
6. Attach the rear engine mounts to the flywheel housing. Refer to the applicable vehicle Service Manual.
7. Remove the jack stands and any other supports used to support the engine.
8. Install the oil pan and new gasket. Refer to ’3.2.2 Installation of Oil Pan.’
9. Install the starter. Torque bolts to 80 N·m (59 lb·ft).
10. Install the flywheel. Refer to ’1.14.2 Installation of Flywheel.’
11. Install the Camshaft Position (CMP) sensor. Refer to ’1.22.3 Replacement of Camshaft Position Sensor.’
12. Install the Crankshaft Position (CKP) sensor. Refer to ’1.12.1 Replacement of Crankshaft Position Sensor.’