



## DD15™ Service Information

**NUMBER:** 08 DD15-10   **S.M. REF.:** 3.2   **ENGINE:** DD15   **DATE:** September 2008

**SUBJECT:** 3.2 OIL PAN

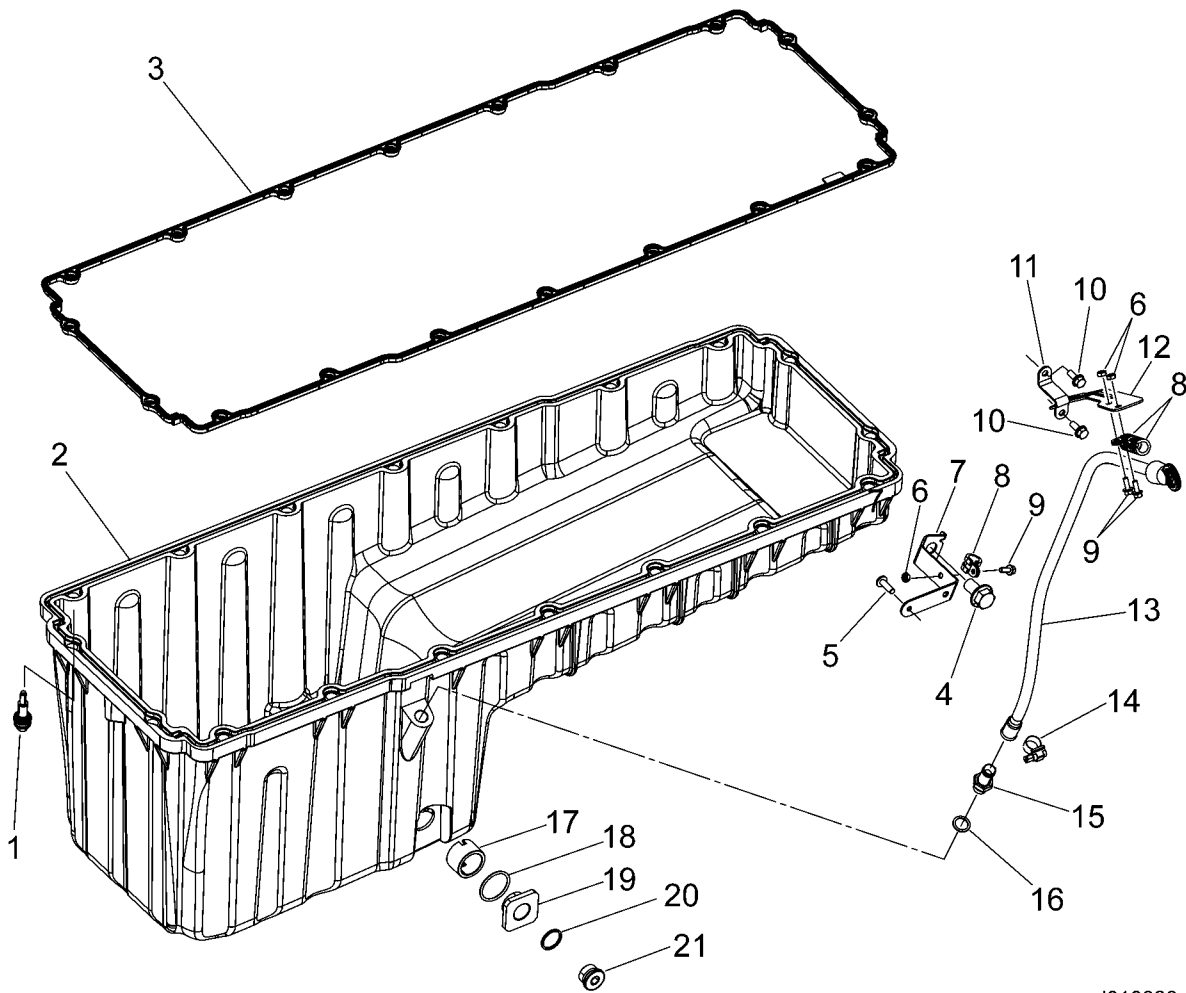
**PUBLICATION:** DDC-SVC-MAN-0002

Oil pan section 3.2 has been updated.

Section	Change
3.2 Oil Pan	Call-outs have been updated.
3.2.1 Removal of Oil Pan	Step 1: Open the oil filter and cap.
3.2.1.1 Cleaning of Oil Pan	Step 1: Clean the oil pan and attaching hardware with clean fuel oil or solvent.
3.2.2 Removal of Threaded Insert	Section 3.2.2 has been added.
3.2.3 Installation of Threaded Insert	Section 3.2.3 has been added.
3.2.4 Installation of Oil Pan	Section 3.2.4 has been changed.

### 3.2 OIL PAN

Depending on the manufacturer, the oil pan (2) consists either of glass fiber reinforced plastic or aluminum. Sealing of the oil pan (2) takes place using a metal elastomer pre-formed gasket (3) for the aluminum pan or an elastomer gasket for the plastic pan. The oil pan seal has high sealing reliability and noise reduction. The oil pan (2) holds 40 liters of engine oil. In order to determine the engine oil level, there is a conventional oil dipstick. See Figure 1.



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- |                      |                                    |
|----------------------|------------------------------------|
| 1. Bolt and Isolator | 12. Bracket                        |
| 2. Oil Pan           | 13. Dipstick and Dipstick Tube     |
| 3. Gasket            | 14. Clamp                          |
| 4. Bolt              | 15. Adapter                        |
| 5. Bolt              | 16. Seal                           |
| 6. Nut               | 17. Threaded Insert Connecting Nut |
| 7. Bracket           | 18. Seal Ring                      |
| 8. Clamp             | 19. Threaded Insert                |
|                      | 20.                                |
|                      | 21.                                |

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9. Bolt

10. Bolt

11. Bracket

20. Seal Ring

21. Drain Plug

**Figure 1 Oil Pan and Related Parts**

### 3.2.1 REMOVAL OF OIL PAN

Remove as follows:

1. Open the oil filter and cap.
2. Remove the drain plug and drain the engine oil.
3. Remove the dipstick.
4. Loosen the dipstick tube on the oil pan.
5. Remove bolt at harness P-clamp on front center of oil pan.
6. Loosen the eighteen oil pan bolts. Bolts will remain installed to the pan.
7. Remove the oil pan taking care not to damage the oil pump inlet pipe and screen.
8. Remove the oil pan seal and check for damage.

#### 3.2.1.1 CLEANING OF OIL PAN

Clean as follows:

1. Clean the oil pan and attaching hardware with clean fuel oil or solvent.



#### **CAUTION:**

**To avoid injury from flying debris when using compressed air, wear adequate eye protection (face shield or safety goggles) and do not exceed 40 psi (276 kPa) air pressure.**

2. Dry with compressed air.

#### **NOTICE:**

Do not use solvents to clean gaskets. Damage to the gasket will result.

3. Clean the surfaces of the cylinder block and flywheel housing where they mate.

### **3.2.1.2 INSPECTION OF OIL PAN**

Inspect as follows:

1. Check bolts and isolator assemblies for dryness, tears, or damage. Replace as necessary.
2. Check oil pan for dents, cracks or damage. Replace as necessary.
3. Inspect threaded inserts for cracks or damage. Replace as necessary.
4. Clean seals and seal grooves (if applicable) with clean fuel oil and inspect for cracks or tears. If damage is found, replace as necessary.

### **3.2.2 REMOVAL OF THREADED INSERT**

Remove as follows:

1. Remove oil pan. Refer to section 3.2.1 "Removal of Oil Pan".
2. Remove threaded insert using Snap-On® tool GLD139 or equivalent.

### **3.2.3 INSTALLATION OF THREADED INSERT**

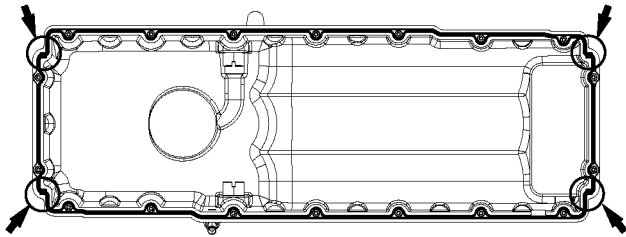
Install as follows:

1. Install new O-ring on threaded insert.
2. Install threaded insert into oil pan.
3. Install threaded insert connecting nut and torque to 100 N·m (73 lb·ft).
4. Install the oil pan. Refer to section 3.2.4 "Installation of Oil Pan".

### 3.2.4 INSTALLATION OF OIL PAN

Install as follows:

1. When a plastic pan is used, insert the raised lip portion of the seal into the groove in the oil pan. Press down on the isolator seal and insert it completely around the oil pan. Be careful not to stretch or bunch the seal. For best results, install the seal at each corner, then at points half way between the corners. Continue in this manner, halving the distance and seating the seal.
2. For the aluminum pan, place the gasket on the top of the pan.
3. Reapply loctite® 5970 or equivalent to the four corner squares in gasket.

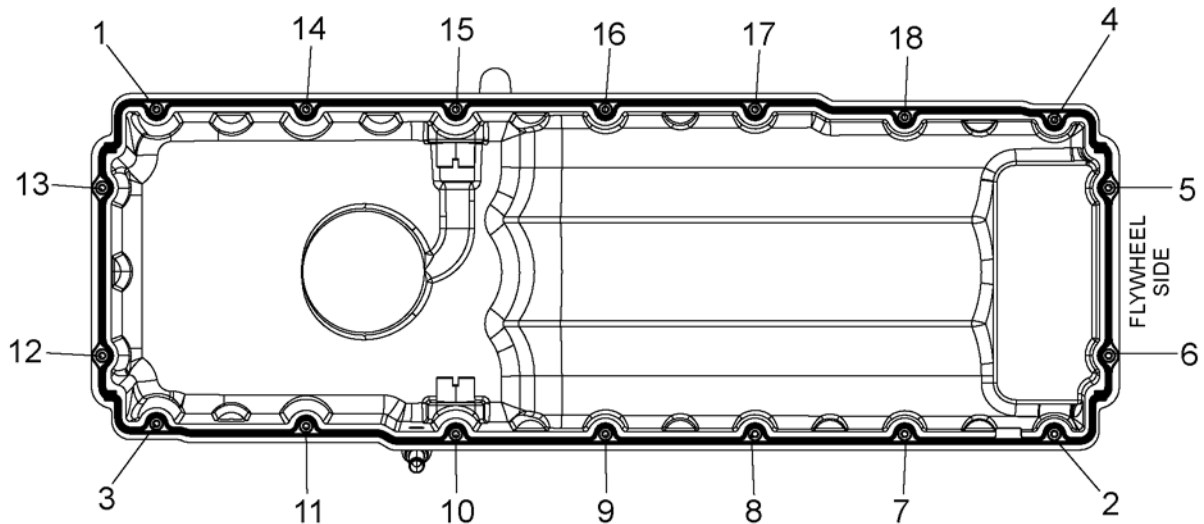


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**Figure 2 Four Corner Squares in Gasket**

4. Install the eighteen oil pan bolts and sleeve assemblies through the pan rail into the gaskets holes.
5. Ensure the joint surfaces of the gear case and the cylinder block are cleaned and there is no damage that could prevent sealing.
6. Install the oil pan assembly in position on the cylinder block.

7. Ensure that the seal has not been disturbed. Torque the eighteen oil pan bolt assemblies to 20 N·m (15 lb·ft) using the proper sequence.



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**Figure 3 Oil Pan Torque Sequence**

8. Install the oil pan drain plug and torque the plug to 45 N·m (33 lb·ft).
9. Install bolt at harness P-clamp on front center of oil pan.

10. Install dipstick tube fitting if removed from pan and torque to spec. Listed in Table 1.

Fitting	Thread Size	Torque Spec
Fitting to pan	M20x1.5	60 N·m (44 lb·ft)
Fitting to pan	M22x1.5	70 N·m (51 lb·ft)
Fitting to pan	M27x1.5	90 N·m (66 lb·ft)
Fitting to pan	M30x1.5	100 N·m (73 lb·ft)

**Table 1 Torque Specs for Pan Fittings**

11. Install dipstick tube on fitting and tighten clamp.
12. Install dipstick.
13. Install oil filter & cap. Torque to 55 N·m  $\pm$ 5 (40 lb·ft  $\pm$ 5).

**NOTE:**

If oil pump was removed, follow section 1.6 "Priming the Oil System."

14. Refill the crankcase with lubricating oil.

 <b>WARNING:</b> <b>ENGINE EXHAUST</b>
<b>To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.</b>

15. Start the engine and inspect for leaks.



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## **ADDITIONAL SERVICE INFORMATION**

Additional service information is available in the Detroit Diesel *DD15 Workshop Manual*, DDC-SVC-MAN-0002. The next revision to this manual will include the revised information.

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