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Service Information Bulletin

SUBJECT	DATE
Oil Pan	July 2013

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0081	DD Platform	Installation of the Oil Pan	Added graphics, additional torque specs.
DDC-SVC-MAN-0080	DD Platform	Lubrication System / Cooling System Torque Specifications	Added additional torque specs.

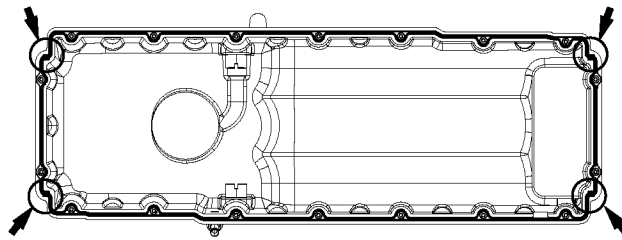


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2 Installation of the Oil Pan

Install as follows:

1. If the oil pump was removed, Refer to section "Installation of the Oil Pump, Oil Suction Manifold, and Oil Lines".
2. When a plastic oil 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.
3. For the aluminum oil pan, place the gasket on the top of the pan.
4. Apply a 5mm diameter bead of Loctite® 5970 or equivalent to the four corners circled below on the gasket.



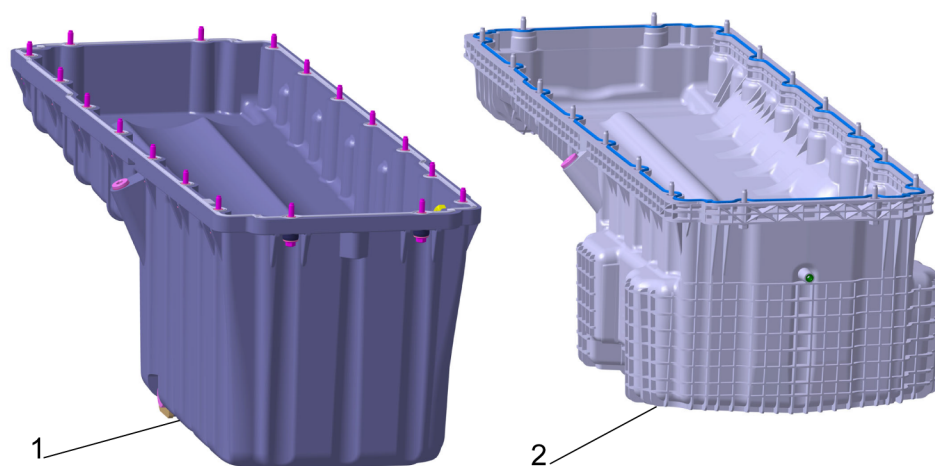
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5. Install the eighteen oil pan bolts and sleeve assemblies through the pan rail into the holes in the gasket.
6. Ensure the joint surfaces of the gear case, the cylinder block, and front cover are cleaned and there is no damage that could prevent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

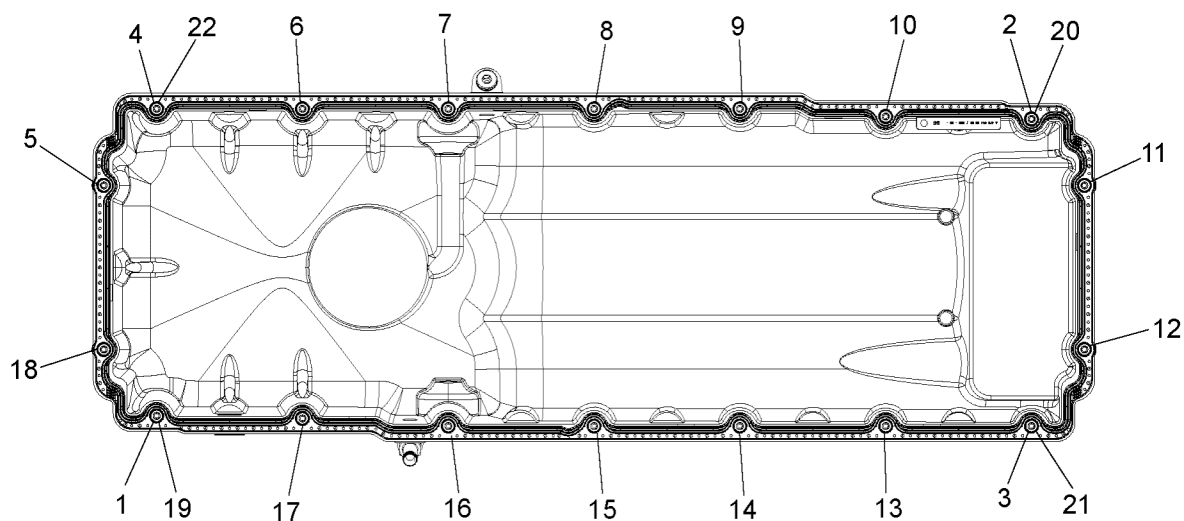
NOTE: Oil pan (1) is Duraplastic. Oil pan (2) is Thermoplastic.

NOTICE: Before torquing, bolt grade must be determined by a marking on the bolt head. Grade 8.8 oil pan bolts cannot be torqued above 25 N·m (18 lb·ft) or damage to the bolt will occur.

8. Ensure that the seal has not been disturbed. Torque the eighteen oil pan bolt assemblies using the proper sequence shown below.



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- a. For a Duraplastic oil pan, torque bolts to 20 to 25 N·m (15 to 18 lb·ft).
- b. For the aluminum and thermoplastic oil pans, torque bolts to 30 to 35 N·m (22 to 26 lb·ft).

NOTE: The corner bolts on the oil pan will be torqued twice, as each is marked with two numbers in graphic above.

9. Install the oil pan drain plug with a new O-ring and torque the plug:
 - a. On a plastic oil pan, torque plug to 45 N·m +/- 7 N·m (33 lb·ft +/- 5 lb·ft).
 - b. On an aluminum oil pan torque plug to 60 N·m +/- 9 N·m (44 lb·ft +/- 6 lb·ft).
10. Install bolt at harness P-clip on the front center of the oil pan.
11. Install the dipstick.
12. Install the oil filter and cap. Torque to 55 N·m (40 lb·ft).

13. If oil pump was removed, Refer to section "Installation of the Oil Pump, Oil Suction Manifold, and Oil Lines".
14. Prime the lubrication system. Refer to section "Priming the Engine Lubrication System".
15. Refill the oil pan with lubricating oil. Refer to section "Engine Oil Capacities".



WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.



WARNING: ENGINE EXHAUST

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.

16. Start the engine and inspect for leaks.

3 Lubrication System / Cooling System Torque Specifications

This table contains the torque specifications for the lubrication system / cooling system.

Table 1.

LUBRICATION SYSTEM				
Component	Metric Unit (N·m)		English Unit (lb·ft)	
Threaded Insert Connecting Nut	100 N·m		73 lb·ft	
Oil Pan Drain Plug	45 N·m		33 lb·ft	
Oil Pan Bolts (For definition of oil pan composition, refer to "Installation of the Oil Pan.")	Duraplastic	20 to 25 N·m	Duraplastic	15 to 18 lb·ft
	Aluminum and Thermoplastic	30 to 35 N·m	Aluminum and Thermoplastic	22 to 26 lb·ft
Dipstick Tube Fitting M20X1.5	60 N·m		44 lb·ft	
Dipstick Tube Fitting M22X1.5	70 N·m		51 lb·ft	
Dipstick Tube Fitting M27X1.5	90 N·m		66 lb·ft	
Dipstick Tube Fitting M30X1.5	100 N·m		73 lb·ft	
Oil Filter and Cap	55 N·m ±5		40 lb·ft ±5	
Oil Pump Bolts	30 N·m		22 lb·ft	
Oil Manifold to Cylinder Block M10 Bolts	60 N·m		44 lb·ft	
Oil Manifold to Cylinder Block M8 Bolt	30 N·m		22 lb·ft	
Crankcase Breather to Engine Block	60 N·m		44 lb·ft	
Breather Pipe	30 N·m		22 lb·ft	
Filter Cover	55 N·m		40 lb·ft	
Thermostat to Oil Coolant Module	20-25 N·m		15-19 lb·ft	
Oil Coolant Module Guide Studs	10 N·m		7 lb·ft	
Oil Coolant Module Bolts	10 N·m		7 lb·ft	
	Final torque 60-65 N·m		Final torque 44-47 lb·ft	
Allen Head Plug to Module	70-80 N·m		51-59 lb·ft	
Oil Sample Valve	80 N·m		59 lb·ft	

Table 2.

COOLING SYSTEM		
Component	Metric Unit	English Unit
Thermostat	30 N·m	22 lb·ft
Water Manifolds Bolts	30 N·m	22 lb·ft
Exhaust Gas Recirculation Cooler to Water Manifold	20 N·m	15 lb·ft
Coolant Outlet Elbow	30 N·m	22 lb·ft
Water Pump Pulley	25 N·m	18 lb·ft