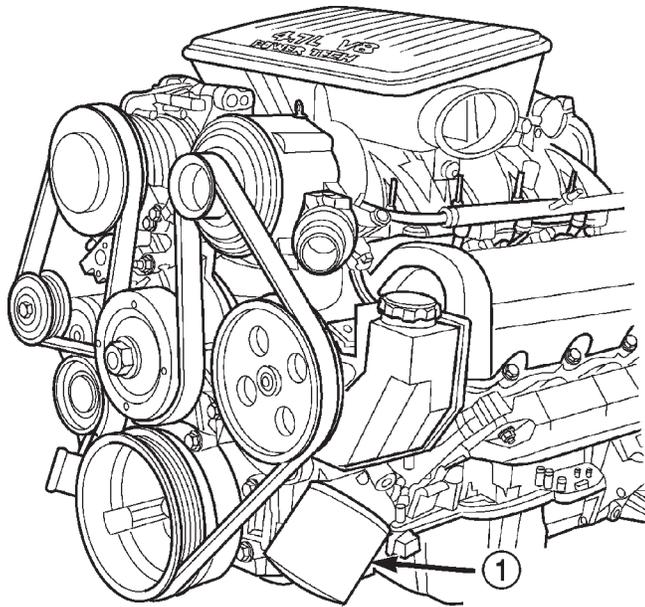


## OIL FILTER (Continued)



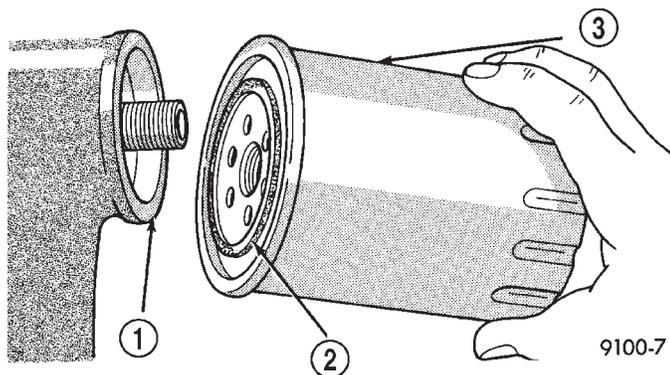
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**Fig. 100 Oil Filter - 4.7L Engine**

1 - ENGINE OIL FILTER

(2) Thread filter onto adapter nipple. When gasket makes contact with sealing surface, (Fig. 101) hand tighten filter one full turn, do not over tighten.

(3) Add oil, verify crankcase oil level and start engine. Inspect for oil leaks.



9100-7

**Fig. 101 Oil Filter Sealing Surface—Typical**

1 - SEALING SURFACE  
2 - RUBBER GASKET  
3 - OIL FILTER

## OIL PAN

**REMOVAL—4X2**

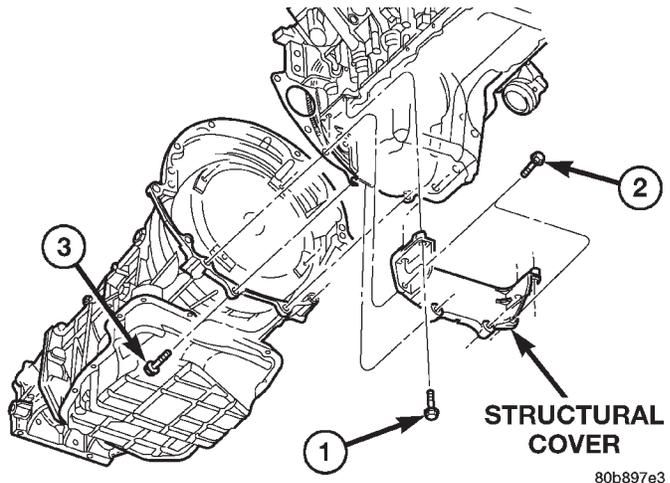
- (1) Drain the cooling system (Refer to 7 - COOLING - STANDARD PROCEDURE).
- (2) Remove the upper fan shroud.
- (3) Remove the throttle body resonator and air inlet hose.

(4) Remove the intake manifold (Refer to 9 - ENGINE/MANIFOLDS/INTAKE MANIFOLD - REMOVAL).

(5) Raise vehicle on hoist.

(6) Disconnect exhaust pipe at exhaust manifolds.

(7) Remove the structural dust cover (Refer to 9 - ENGINE/ENGINE BLOCK/STRUCTURAL COVER - REMOVAL) (Fig. 102) using sequence shown.



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**Fig. 102 Structural Dust Cover Removal / Installation**

(8) Drain engine oil and remove oil filter.

(9) Position suitable jack under engine.

(10) Remove both left and right side engine mount through bolts (Fig. 103).

(11) Raise engine to provide clearance to remove oil pan.

(12) Place blocks of wood between engine brackets and lower mounts to provide stability to engine.

**NOTE: Do not pry on oil pan or oil pan gasket. Gasket is mounted to engine and does not come out with oil pan.**

(13) Remove the oil pan mounting bolts and oil pan (Fig. 104).

(14) Unbolt oil pump pickup tube and remove tube and oil pan gasket from engine.

**REMOVAL—4X4**

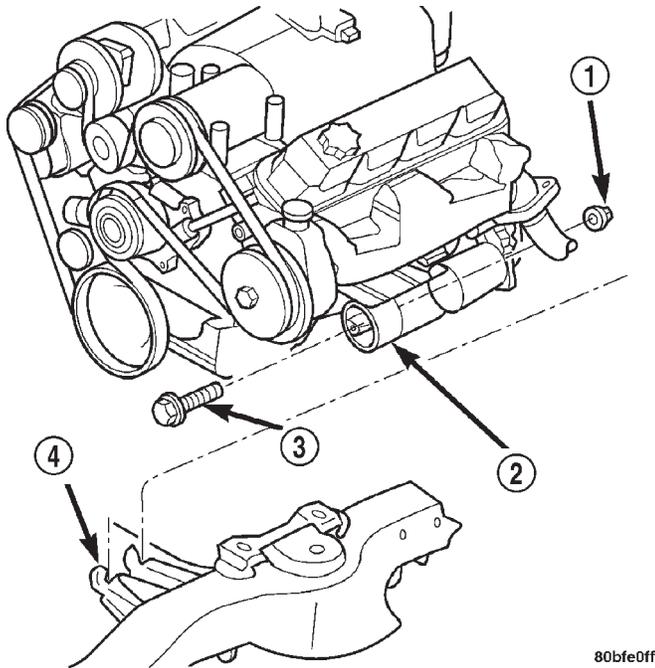
**NOTE: 4X4 vehicles equipped with a 4.7L engine must have the front axle removed before the oil pan can be removed.**

(1) Remove the front axle from vehicle. Refer to DIFFERENTIAL AND DRIVELINE.

(2) Remove the structural dust cover (Refer to 9 - ENGINE/ENGINE BLOCK/STRUCTURAL COVER - REMOVAL) (Fig. 105) using sequence shown.

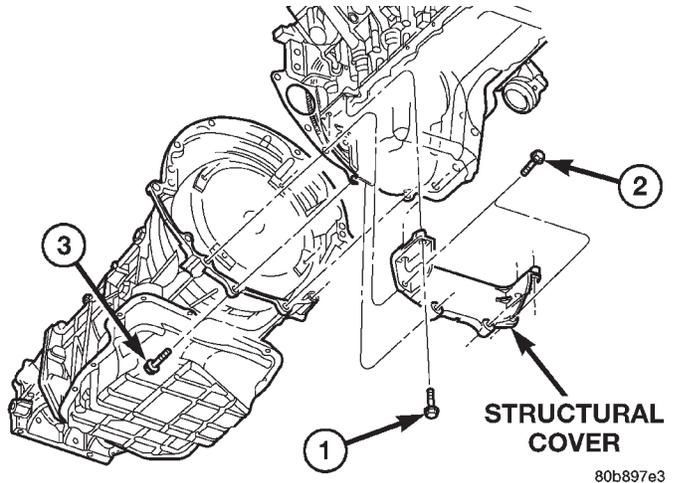
(3) Drain the engine oil and remove oil filter.

OIL PAN (Continued)

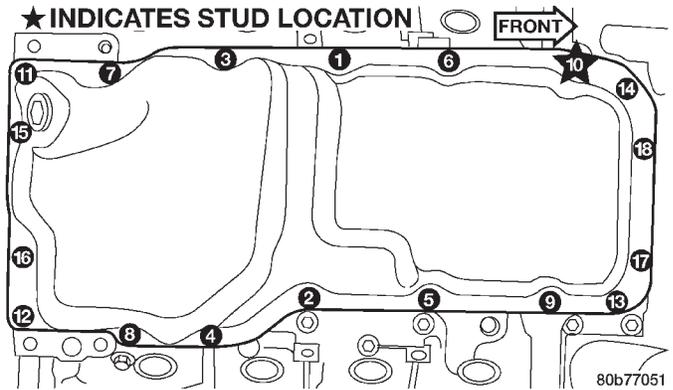


**Fig. 103 Engine Mount Through Bolt and Nut Removal / Installation**

- 1 - LOCKNUT AND WASHER
- 2 - ENGINE MOUNT/INSULATOR
- 3 - THROUGH BOLT
- 4 - FRAME

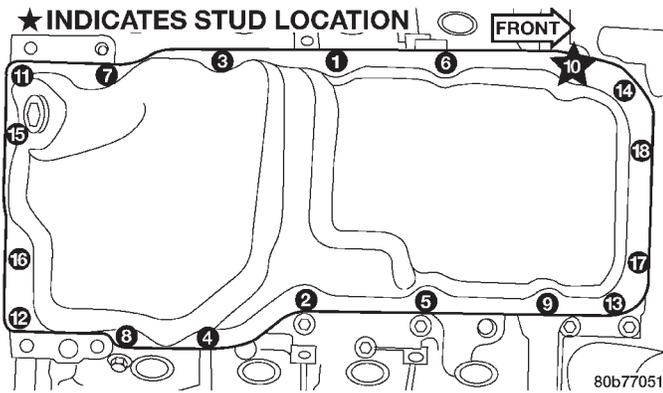


**Fig. 105 Structural Dust Cover Removal**



**Fig. 106 Oil Pan Mounting Bolts and Oil Pan**

- (2) Position the oil pan gasket and pickup tube with new o-ring. Install the mounting bolt and nuts. Tighten bolt and nuts to 28 N·m (20 ft. lbs.).
- (3) Position the oil pan and install the mounting bolts. Tighten the mounting bolts to 15 N·m (11 ft. lbs.) in the sequence shown (Fig. 104).
- (4) Raise the engine and remove the blocks of wood.
- (5) Lower engine and install both the left and right side engine mount through bolts (Fig. 103). Tighten the nuts to 68 N·m (50 ft. lbs.).
- (6) Remove jack and install oil filter.
- (7) Install structural dust cover (Refer to 9 - ENGINE/ENGINE BLOCK/STRUCTURAL COVER - INSTALLATION).
- (8) Install exhaust pipe onto exhaust manifolds.
- (9) Lower vehicle.
- (10) Install intake manifold (Refer to 9 - ENGINE/MANIFOLDS/INTAKE MANIFOLD - INSTALLATION).
- (11) Install throttle body resonator and air inlet hose.
- (12) Install upper fan shroud.
- (13) Fill cooling system (Refer to 7 - COOLING - STANDARD PROCEDURE).
- (14) Fill engine oil.
- (15) Start engine and check for leaks.



**Fig. 104 Oil Pan Mounting Bolts and Oil Pan**

**NOTE:** Do not pry on oil pan or oil pan gasket. Gasket is mounted to engine and does not come out with oil pan.

(4) Remove the oil pan mounting bolts and oil pan (Fig. 106).

(5) Unbolt oil pump pickup tube and remove tube and oil pan gasket from engine.

**INSTALLATION—4X2**

(1) Clean the oil pan gasket mating surface of the bedplate and oil pan.

## OIL PAN (Continued)

**INSTALLATION—4X4**

(1) Clean the oil pan gasket mating surface of the bedplate and oil pan.

(2) Position the oil pan gasket and pickup tube with new o-ring. Install the mounting bolt and nuts. Tighten bolt and nuts to 28 N·m (20 ft. lbs.).

(3) Position the oil pan and install the mounting bolts. Tighten the mounting bolts to 15 N·m (11 ft. lbs.) in the sequence shown (Fig. 106).

(4) Install structural dust cover (Refer to 9 - ENGINE/ENGINE BLOCK/STRUCTURAL COVER - INSTALLATION).

(5) Install oil filter.

(6) Install front axle. Refer to DIFFERENTIAL AND DRIVELINE.

(7) Lower vehicle.

(8) Fill engine oil.

(9) Start engine check for leaks.

**OIL PRESSURE SENSOR/  
SWITCH****DESCRIPTION**

The 2-wire, electrical/mechanical engine oil pressure sensor (sending unit) is located in an engine oil pressure gallery.

**OPERATION**

The oil pressure sensor uses two circuits. They are:

- A signal to the PCM relating to engine oil pressure
- A sensor ground through the PCM's sensor return

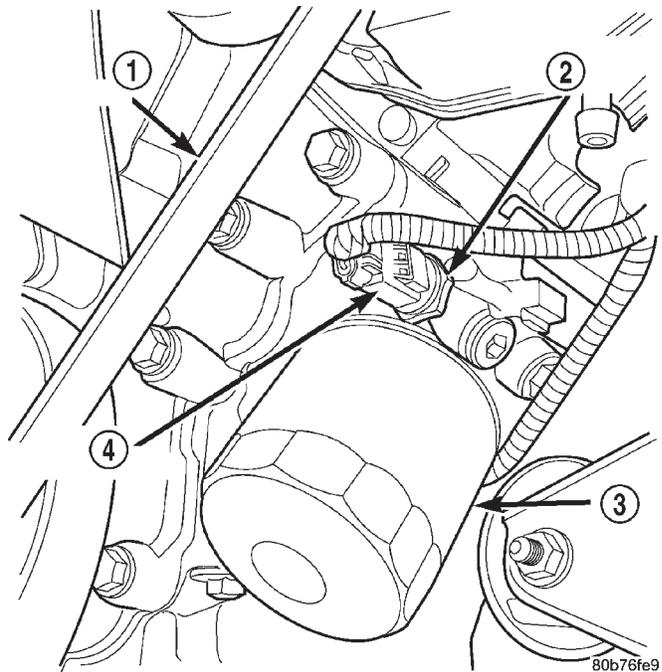
The oil pressure sensor returns a voltage signal back to the PCM relating to engine oil pressure. This signal is then transferred (bussed) to the instrument panel on a CCD bus circuit to operate the oil pressure gauge and the check gauges lamp. Ground for the sensor is provided by the PCM through a low-noise sensor return.

**REMOVAL**

- (1) Disconnect the negative cable from the battery.
- (2) Raise vehicle on hoist.
- (3) Remove front splash shield.
- (4) Disconnect oil pressure sender wire (Fig. 107).
- (5) Remove the pressure sender (Fig. 107).

**INSTALLATION**

- (1) Install oil pressure sender.
- (2) Connect oil pressure sender wire.
- (3) Install front splash shield.
- (4) Lower vehicle.
- (5) Connect the negative battery cable.



**Fig. 107 Oil Pressure Sending Unit**

- 1 - BELT
- 2 - OIL PRESSURE SENSOR
- 3 - OIL FILTER
- 4 - ELEC. CONNECTOR

**OIL PUMP****REMOVAL**

(1) Remove the oil pan and pick-up tube (Refer to 9 - ENGINE/LUBRICATION/OIL PAN - REMOVAL).

(2) Remove the timing chain cover (Refer to 9 - ENGINE/VALVE TIMING/TIMING BELT / CHAIN COVER(S) - REMOVAL).

(3) Remove the timing chains and tensioners (Refer to 9 - ENGINE/VALVE TIMING/TIMING BELT/CHAIN AND SPROCKETS - REMOVAL).

(4) Remove the four bolts, primary timing chain tensioner and the oil pump.

**DISASSEMBLY**

(1) Remove oil pump cover screws and lift off cover plate.

(2) Remove pump inner and outer rotors.

**NOTE:** Once the oil pressure relief valve, cup plug, and pin are removed, the pump assembly must be replaced.

(3) If it is necessary to remove the pressure relief valve, drive the roll pin from pump housing and remove cup plug, spring and valve.