disconnect the power steering pump bracket from the cylinder head and remove the drive belt from the pump pulley. Position the pump out of the way in a position that will prevent the oil from draining out.

6. Disconnect the oil level dipstick tube bracket from the exhaust manifold stud, if necessary.

7. If the right cylinder head is to be removed, on some vehicles it is necessary to disconnect the alternator-mounting bracket from the cylinder head.

8. Remove the thermactor crossover tube from the rear of the cylinder heads. If equipped, remove the fuel line from the clip at the front of the right cylinder head.

9. Raise and safely support the vehicle. Disconnect the exhaust manifolds from the muffler inlet pipes. Lower the vehicle.

10. Loosen the rocker arm fulcrum bolts so the rocker arms can be rotated to the side. Remove the pushrods in sequence so they may be installed in their original positions.

11. Remove the cylinder head attaching bolts and the cylinder heads. If necessary, remove the exhaust manifolds to gain access to the lower bolts. Remove and discard the head gaskets.

12. Clean all gasket-mating surfaces. Check the flatness of the cylinder head using a straightedge and a feeler gauge. The cylinder head must not be warped any more than 0.003 in. in any 6.0 in. span; 0.006 in. overall. Machine as necessary.

To install:

13. Position the new cylinder head gasket over the dowels on the block. Position the cylinder heads on the block and install the attaching bolts.

14. On 5.0L engine, tighten the bolts, in sequence, in 2 steps, first to 55–65 ft. lbs. (75–88 Nm), then to 65–72 ft. lbs. (88–97 Nm). On 5.8L engine, tighten the bolts, in sequence, in 3 steps, first to 85 ft. lbs. (116 Nm), then to 95 ft. lbs. (129 Nm), and finally to 105–112 ft. lbs. (142–152 Nm).

➨When the cylinder head bolts have been tightened following this procedure, it is not necessary to retighten the bolts after extended operation.

15. If removed, install the exhaust manifolds. Tighten the retaining bolts to 18–24 ft. lbs. (24–32 Nm).

16. Clean the pushrods, making sure the oil passages are clean. Check the ends of the pushrods for wear. Visually check the pushrods for straightness or check for runout using a dial indicator. Replace pushrods, as necessary.

17. Apply suitable grease to the ends of the pushrods and install them in their original positions. Position the rocker arms over the pushrods and the valves.

18. Before tightening each fulcrum bolt, bring the lifter for the fulcrum bolt to be tightened onto the base circle of the camshaft by rotating the engine. When the lifter is on the base circle of the camshaft, tighten the fulcrum bolt to 18–25 ft. lbs. (24–34 Nm).

➨If all the original valve train parts are reinstalled, a valve clearance check is not necessary. If any valve train components are replaced, a valve clearance check must be performed.

19. Install new gaskets on the rocker arm covers and install the covers onto the cylinder heads.

20. Raise and safely support the vehicle. Connect the exhaust manifolds to the muffler inlet pipes. Lower the vehicle.

21. If necessary, install the air conditioning compressor and brackets. Connect the refrigerant lines and electrical connector to the compressor.

22. If necessary, install the alternator bracket.

23. If the left cylinder head was removed, install the power steering pump.

24. Install the drive belts. Install the thermactor tube at the rear of the cylinder heads.

25. Install the intake manifold. Fill and bleed the cooling system.

26. Connect the negative battery cable, start the engine, and bring to normal operating temperature. Check for leaks. Check all fluid levels.

27. If necessary, have a MVAC certified tech evacuate and charge the air conditioning system.

Oil Pan

REMOVAL & INSTALLATION

3.8L Engine

◗ See Figure 119

1. Disconnect the negative battery cable.
2. Raise and safely support the vehicle.
3. Drain the oil pan, then remove the oil filter. Position the drain pan out of the way.
4. Remove the dual converter Y-pipe assembly.
5. Remove the starter motor. For details, please refer to the procedure located earlier in this section.
6. Remove the engine rear plate/converter housing cover.
7. Remove the retaining bolts and remove the oil pan.

To install:

8. Clean the gasket surfaces on cylinder block and the oil pan.
9. Trial fit oil pan to cylinder block. Ensure that enough clearance has been provided to allow the oil pan to be installed without sealant being scraped off when pan is positioned under the engine.
10. Apply a bead of silicone sealer to the oil pan flange. Also apply a bead of sealer to the front cover/cylinder block joint and fill the grooves on both sides of the rear main seal cap.

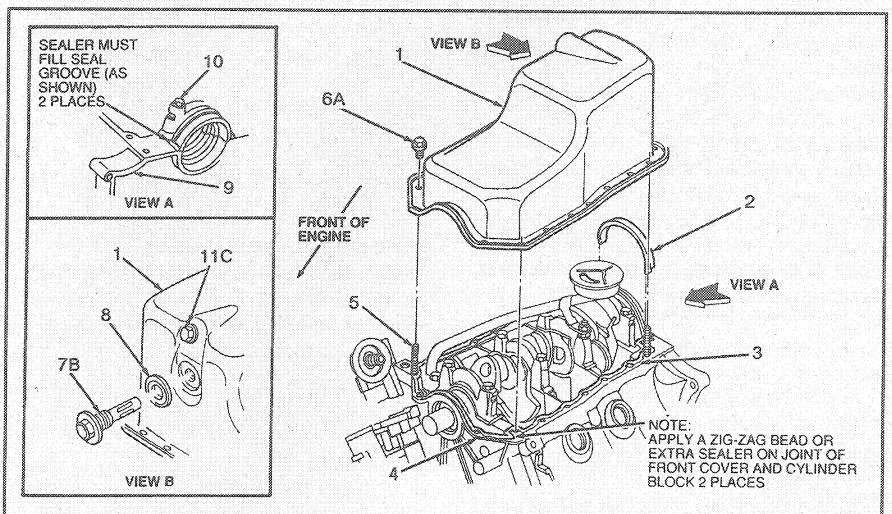
➨When using silicone rubber sealer, assembly must occur within 15 minutes after sealer application. After this time, the sealer may start to harden and its sealing effectiveness may be reduced.

11. Install the oil pan and secure to the block with the attaching screws. Tighten the screws to 7–9 ft. lbs. (9–12 Nm).
12. Install a new oil filter.
13. Install the engine rear plate/converter housing cover.
14. Install the starter motor. For details, please refer to the procedure located earlier in this section.
15. Install the Y-pipe converter assembly, then carefully lower the vehicle.
16. Fill the crankcase with the correct viscosity and amount of oil, then connect the negative battery cable.
17. Start the engine and check for leaks.

4.6L Engine

◗ See Figures 120, 121 and 122

1. Disconnect the battery cables, negative cable first, and remove the air inlet tube.
2. Relieve the fuel system pressure and disconnect the fuel lines; refer to Section 5. Drain the



1 Oil pan
2 Oil pan rear seal
3 Silicone gasket and sealant
4 Engine front cover
5 Guide pin (2 req'd)
6 Bolt (18 req'd)
7 Low oil level sensor
8 Low oil level sensor washer
9 Cylinder block
10 Rear cap
11 Oil pan drain plug
A Tighten to 9-12 Nm (80-106 lb.in.)
B Tighten to 25-34 Nm (18-25 lb.ft.)
C Tighten to 20-34 Nm (15-25 lb.ft.)

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Fig. 119 Exploded view of the oil pan assembly—3.8L engine