

4. Disconnect the wiper motor electrical connector and remove the wiper motor. Disconnect the windshield washer hose and remove the wiper motor mounting cover.

5. Remove the thermactor air dump tube-retaining clamp on 5.0L engine. Remove the thermactor crossover tube at the rear of the vehicle.

6. Raise and safely support the vehicle. Drain the crankcase. Remove the filler tube from the oil pan and drain the transmission.

7. Disconnect the starter cable and remove the starter. Disconnect the fuel line.

8. Disconnect the exhaust system from the manifolds. Remove the oxygen sensors from the exhaust manifolds.

9. Remove the thermactor secondary air tube to torque converter housing clamps. Remove the converter inspection cover.

10. Disconnect the exhaust pipes to the catalytic converter outlet. Remove the catalytic converter secondary air tube; and the inlet pipes to the exhaust manifold.

11. Loosen the rear engine mount attaching nuts and remove the engine mount through bolts. Remove the shift crossover bolts at the transmission.

12. Remove the brake line retainer from the front crossmember and disconnect the transmission kick-down rod.

13. Position a jack and wood block under the engine and raise the engine as high as it will go. Place wood blocks between the engine mounts and the chassis brackets, lower the engine, and remove the jack.

14. Remove the oil pan retaining bolts and lower the oil pan. Remove the 2 bolts retaining the oil pump pickup tube and screen to the oil pump and the nut from the main bearing cap stud. Allow the pickup tube to drop into the oil pan.

15. Rotate the crankshaft, as required, for clearance and remove the oil pan from the vehicle.

**To install:**

16. Clean the oil pan and the gasket mating surfaces. Clean the oil pump pickup tube and screen assembly.

17. Install a new oil filter. Position a new oil pan gasket on the cylinder block. Place the oil pickup tube and screen in the oil pan and position the oil pan on the crossmember.

18. Install the pickup tube and screen with a new gasket. Install the bolts and tighten to 12–18 ft. lbs. (16–24 Nm). Position the oil pan and install the retaining bolts. Tighten to 7–10 ft. lbs. (9–14 Nm).

19. Position the jack and wood block under the engine and raise the engine enough to remove the wood blocks. Lower the engine and remove the jack. Install the engine mount through bolts and tighten to 33–46 ft. lbs. (45–62 Nm).

20. Connect the fuel lines. Install the converter inspection cover. Tighten the rear mount attaching nuts to 35–50 ft. lbs. (48–68 Nm).

21. Install the shift crossover. Position the catalytic converters, secondary air tube and inlet pipes to the exhaust manifold and then install the retaining nuts.

22. Install the catalytic converter outlet attaching bolts and install the secondary air tube on the converter housing. Install the starter and connect the starter cable.

23. Install the oxygen sensors and lower the vehicle. Install the dipstick and tube. Install the thermactor air dump valve to exhaust manifold clamp.

24. Connect the windshield wiper hose and install the wiper motor mounting plate. Install the wiper motor.

25. Position the shroud and install the retaining bolts. Install the thermactor tube to the rear of the engine. Install the air cleaner assembly and air ducts.

26. Fill the crankcase with the proper type and

quantity of engine oil. Fill the transmission with the proper type and quantity of transmission fluid.

27. Connect the negative battery cable. Start the engine and check for leaks.

## Oil Pump

### REMOVAL & INSTALLATION

#### 3.8L Engine

➔ **The oil pump, oil pressure relief valve and drive intermediate shaft are contained in the front cover assembly.**

1. Disconnect the negative battery cable.
2. If necessary for access, remove the oil filter.
3. Remove the oil pump and filter body-to-engine front cover retaining bolts, then remove the oil pump and filter body from the engine front cover.

4. Inspect the oil pump body seal, oil pump and filter body, and engine front cover for distortion. Replace damaged components as necessary.

**To install:**

5. Position the oil pump and filter body on the engine front cover, then install the retaining bolts.
6. Tighten the four large engine front cover retaining bolts to 17–23 ft. lbs. (23–32 Nm), then tighten the remaining retaining bolts to 6–8 ft. lbs. (8–11 Nm).
7. If removed, install the oil filter, then connect the negative battery cable.

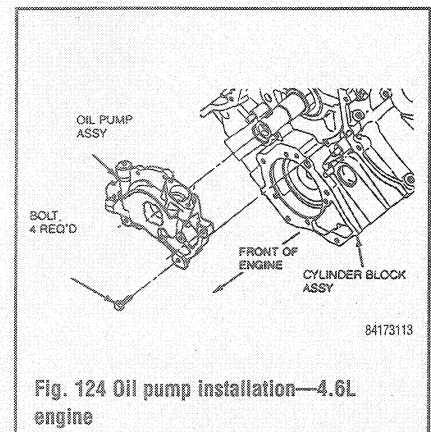
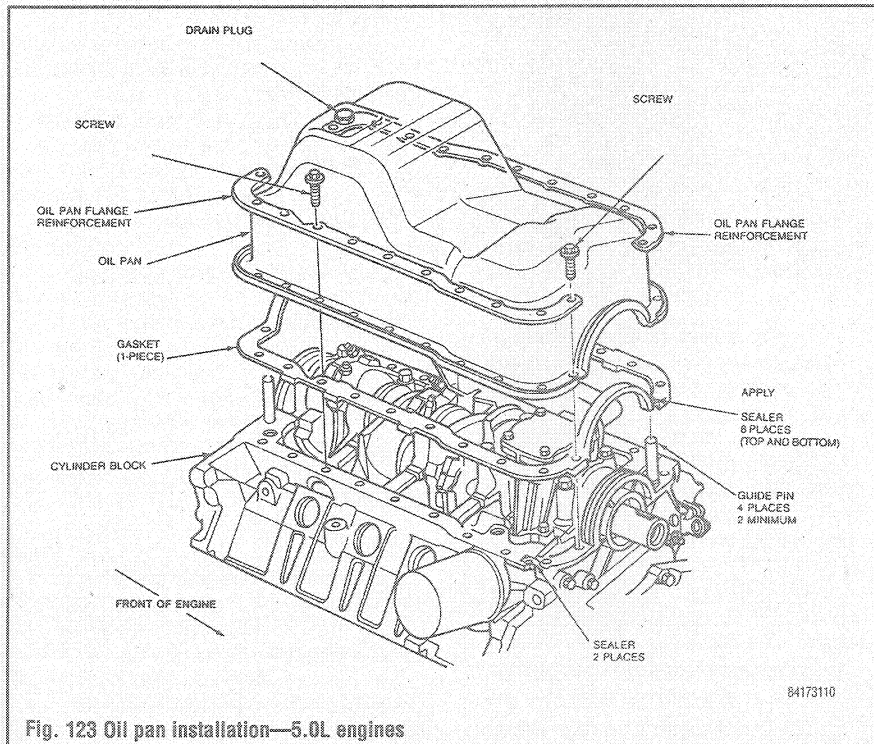
#### 4.6L Engine

➔ **See Figure 124**

1. Disconnect the negative battery cable.
2. Remove the valve covers, timing chain cover, and oil pan. Refer to the procedures in this Section.
3. Remove the timing chains according to the procedure in this Section.
4. Remove the 4 bolts retaining the oil pump to the cylinder block and remove the pump.
5. Remove the 2 bolts retaining the oil pickup tube to the oil pump and remove the bolt retaining the oil pickup tube to the main bearing stud spacer. Remove the pickup tube.

**To install:**

6. Clean the oil pickup tube and replace the O-ring.



**Fig. 123 Oil pan installation—5.0L engines**

**Fig. 124 Oil pump installation—4.6L engine**