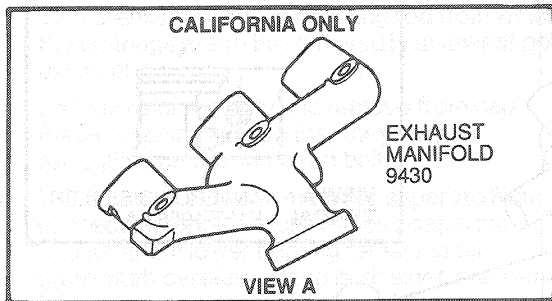
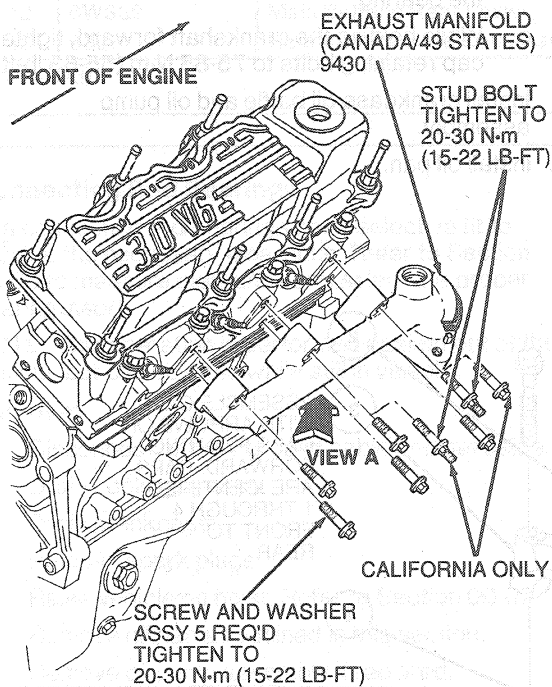


IN-VEHICLE SERVICE (Continued)

3. Position exhaust manifold on the cylinder head and install manifold retaining bolts. Tighten to 20-30 N·m (15-22 lb-ft).



4. Connect exhaust pipe to the exhaust manifold. Tighten the retaining nuts to 34-47 N·m (25-34 lb-ft).
5. Install coolant bypass hose. Tighten retaining nut to 20-30 N·m (15-22 lb-ft).
6. Connect EGR valve to exhaust manifold tube to exhaust manifold. Tighten to 35-65 N·m (26-48 lb-ft).
7. Connect PFE or DPFE hose(s).
8. Connect battery ground cable.
9. Start engine and check for exhaust and coolant leaks.

Main Bearing Inserts

The main bearing inserts are precision selective fit. To check the bearing clearances or to select fit a new bearing, refer to Section 03-00.

Tools Required:

- Main Bearing Insert Remover and Replacer TOOL-6331-E

Removal

1. Remove oil pan as outlined in this section.
2. Remove oil pump as outlined in this section.
3. Remove spark plugs to allow easy crankshaft rotation.
4. Replace one bearing at a time, leaving the other bearings securely fastened. Remove main bearing cap to which new bearings are to be installed.

NOTE: Rotate remover against end of bearing opposite locating tang.

5. Insert Upper Main Bearing Insert Remover and Replacer TOOL-6331-E or equivalent in the oil hole in the crankshaft.
6. Rotate crankshaft in the direction of the engine rotation to force the bearing out of the block.
7. Clean crankshaft journals. Inspect journals and thrust faces (thrust bearings) for nicks, burrs or bearing pickup that would cause premature bearing wear.
8. If the crankshaft rear oil seal is to be replaced, refer to Crankshaft Rear Oil Seal.

Installation

Lightly oil all bolt and stud bolt threads before installation.

1. Lubricate and position the upper bearing insert on the crankshaft journal with the plain end started into the side of the cylinder block with the locking tang slot. Line up the bearing tang with the slot in the block.
2. Install Upper Main Bearing Insert Remover and Replacer TOOL-6331-E or equivalent, in the crankshaft journal oil hole.
3. With the bearing and tool in position, rotate the crankshaft so that the tool catches the edge of the bearing and pushes into position, and seats in the cylinder block. Remove tool.
4. Install bearing insert in the main cap.
5. If bearing insert clearance is to be checked, refer to Section 03-00.
6. If No. 1 or No. 2 bearing insert was removed, lubricate the bearing surface with Engine Assembly Lubricant D9AZ-19579-D (ESR-M99C80-A) or equivalent, and install main cap. Tighten retaining bolts to 75-85 N·m (55-63 lb-ft).
7. If the rear main bearing insert was removed, perform the following:
 - a. Remove all traces of sealant from the main bearing cap to cylinder block parting line.
 - b. Apply a 6mm (1/4-inch) dot of Anaerobic Sealer E1FZ-19562-A or equivalent between rear cap and cylinder block as shown.