

IN-VEHICLE SERVICE (Continued)

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 Tool TOOL-6331-E

Removal

1. Remove oil pan as outlined.
2. Remove oil pickup tube and screen assembly.
3. Replace one bearing at a time, leaving the other bearings securely fastened.
Remove main bearing cap to which new bearings are to be installed.
4. Insert Main Bearing Insert Tool TOOL-6331-E, or equivalent in the oil hole in the crankshaft.
5. Rotate crankshaft in the direction of engine rotation to force bearing out of the block.
6. Clean crankshaft journals. Inspect journals and thrust faces (thrust bearing) for nicks, burrs or bearing pickup that would cause premature bearing wear.
7. If the crankshaft rear oil seal is to be replaced, refer to Crankshaft Rear Oil Seal Removal and Installation.

Installation

NOTE: Lightly oil all bolt and stud bolt threads before installation.

1. Lubricate with XO-10W30-QSP (ESE-M2C153-E) or equivalent engine oil and position the upper bearing insert on crankshaft journal with plain end started into the side of cylinder block with locking tang slot. Line up bearing tang with slot in block.
2. Install Main Bearing Insert Tool TOOL-6331-E or equivalent in crankshaft journal oil hole.
3. With bearing and tool in position, rotate crankshaft so that the tool catches the edge of the bearing, pushes into position and sets in cylinder block. Remove tool.
4. Install bearing insert in main cap.
5. If bearing insert clearance is to be checked, refer to Section 03-00.
6. If No. 1 or No. 2 bearing was removed, lubricate bearing surface with Engine Assembly Lubricant D9AZ-19579-D (ESR-M99C80-A) or equivalent heavy engine oil and install main cap.
Tighten retaining bolts to 88-110 N-m (65-81 lb-ft).
7. If rear main bearing insert was removed, perform the following:
 - a. Remove all traces of sealant from main bearing cap to cylinder block parting line.
NOTE: The bearing cap must be installed within 15 minutes after the silicone sealer application. After this time, the sealer may start to set-up and its sealing effectiveness may be reduced.

- b. Apply a 3mm (1/8 inch) bead of Silicone Rubber D6AZ-19562-BA (ESB-M4G92-A and ESE-M4G195-A) or equivalent to main bearing cap-to-cylinder block parting line.

- c. Lubricate bearing surfaces with Engine Assembly Lubricant D9AZ-19579-D (ESR-M99C80-A) or equivalent heavy engine oil and install main bearing cap. Tighten retaining bolts to 88-110 N-m (65-81 lb-ft).

8. If thrust bearing insert was removed, perform the following:
 - a. Lubricate bearing surface with Engine Assembly Lubricant D9AZ-19579-D (ESR-M99C80-A) or equivalent heavy engine oil and install main bearing cap with bolt finger-tight.
 - b. Pry crankshaft forward against thrust surface on upper bearing insert, while holding bearing cap to the rear. This aligns thrust rear surfaces on both halves of the bearing.
 - c. While holding crankshaft forward, tighten cap retaining bolts to 88-110 N-m (65-81 lb-ft).
9. Install oil pickup tube and screen assembly with a new gasket.
Tighten pickup retaining bolts to 20-30 N-m (15-22 lb-ft).
Tighten tube support bracket retaining nut to 40-55 N-m (30-40 lb-ft).
10. Install oil pan as outlined.

Connecting Rod Bearings

The connecting rod bearings are a selective fit to provide the necessary clearance. Refer to Section 03-00 to measure clearance and select the proper bearing insert.

Removal

1. Remove spark plugs.
2. Remove oil pan as outlined.
NOTE: On Taurus Police applications, remove windage tray.
3. Turn crankshaft until connecting rod from which the bearings are to be removed is at the lowest point of travel.
4. Remove connecting rod cap and bearing lower insert.
CAUTION: Tape or place old spark plug boots over rod bolts to avoid damage to journal during service.
5. Remove upper bearing insert. Push piston up into cylinder bore slightly to provide clearance for removal.

Installation

NOTE: Lightly oil all bolt and stud bolt threads before installation.