

3-54 ENGINE AND ENGINE OVERHAUL

Crankshaft

▶ See Figures 213, 214, 215 and 216

1. Remove the main bearing inserts from the block and bearing caps.
2. If the crankshaft main bearing journals have been refinished to a definite undersize, install the correct undersize bearing. Be sure that the bearing inserts and bearing bores are clean. Foreign material under inserts will distort bearing and cause failure.
3. Place the upper main bearing inserts in bores with tang in slot.

▶ **The oil holes in the bearing inserts must be aligned with the oil holes in the cylinder block.**

4. Install the lower main bearing inserts in bearing caps.
5. Clean the mating surfaces of block and rear main bearing cap.
6. Carefully lower the crankshaft into place. Be careful not to damage bearing surfaces.
7. Check the clearance of each main bearing by using the following procedure:

- a. Place a piece of Plastigage® or its equivalent, on bearing surface across full width of bearing cap and about 1/4 in. off center.
 - b. Install cap and tighten bolts to specifications. Do not turn crankshaft while Plastigage® is in place.
 - c. Remove the cap. Using the supplied Plastigage® scale, check width of Plastigage® at widest point to get maximum clearance. Difference between readings is taper of journal.
 - d. If clearance exceeds specified limits, try a 0.001 in. or 0.002 in. undersize bearing in combination with the standard bearing. Bearing clearance must be within specified limits. If standard and 0.002 in. undersize bearing does not bring clearance within desired limits, refinish crankshaft journal, then install undersize bearings.
8. Install the rear main seal.
 9. After the bearings have been fitted, apply a light coat of engine oil to the journals and bearings. Install the rear main bearing cap. Install all bearing caps except the thrust bearing cap. Be sure that main

bearing caps are installed in original locations. Tighten the bearing cap bolts to specifications.

10. Install the thrust bearing cap with bolts finger-tight.
11. Pry the crankshaft forward against the thrust surface of upper half of bearing.
12. Hold the crankshaft forward and pry the thrust bearing cap to the rear. This aligns the thrust surfaces of both halves of the bearing.
13. Retain the forward pressure on the crankshaft. Tighten the cap bolts to specifications.
14. Measure the crankshaft end-play as follows:
 - a. Mount a dial gauge to the engine block and position the tip of the gauge to read from the crankshaft end.
 - b. Carefully pry the crankshaft toward the rear of the engine and hold it there while you zero the gauge.
 - c. Carefully pry the crankshaft toward the front of the engine and read the gauge.
 - d. Confirm that the reading is within specifications. If not, install a new thrust bearing and repeat the procedure. If the reading is still out of

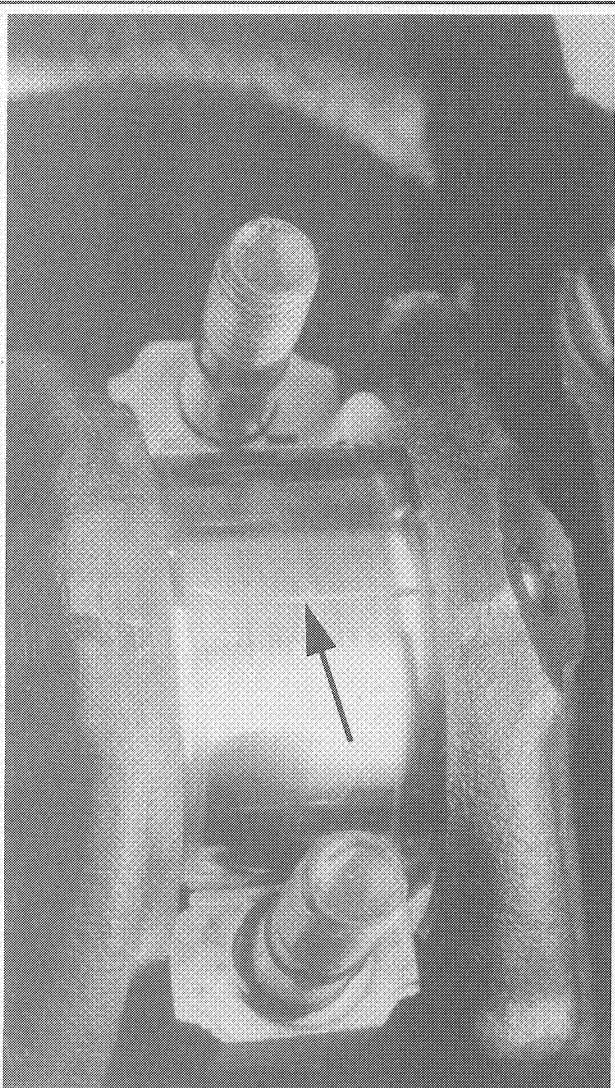


Fig. 213 Apply a strip of gauging material to the bearing journal, then install and torque the cap

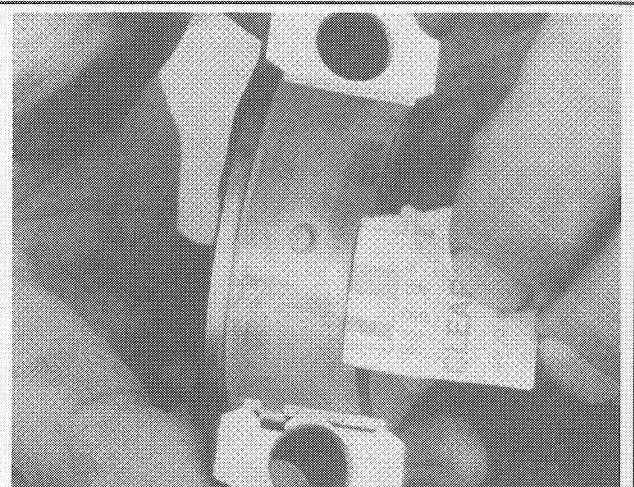


Fig. 214 After the cap is removed again, use the scale supplied with the gauging material to check the clearance

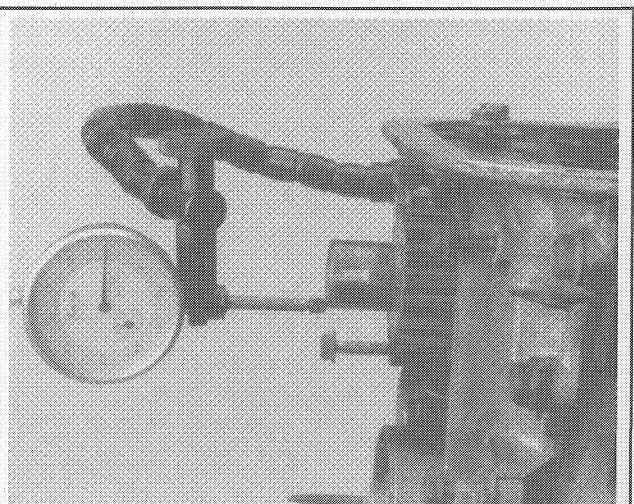


Fig. 215 A dial gauge may be used to check crankshaft end-play