

Crankshaft and Main Bearings**CRANKSHAFT AND MAIN BEARING****To Remove Crankshaft**

When removing the crankshaft, dismantle engine as described in the other relevant sections.

Note the removal of:—

1. Crankshaft rear oil seal, Fig. 1.

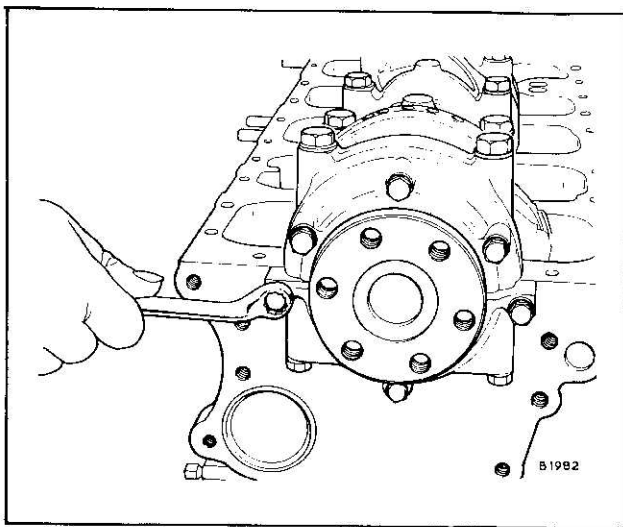


Fig. 1

2. No 1 main bearing cap together with oil pump, Fig. 2.

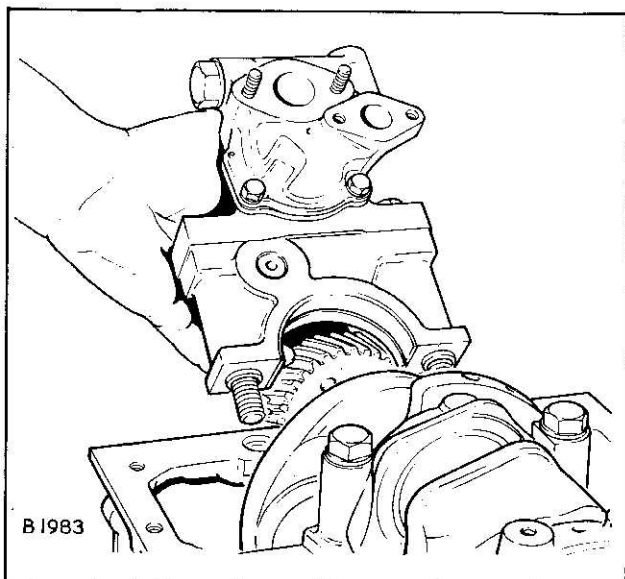


Fig. 2

3. Upper and lower thrust washers in centre main bearing, Fig. 3.

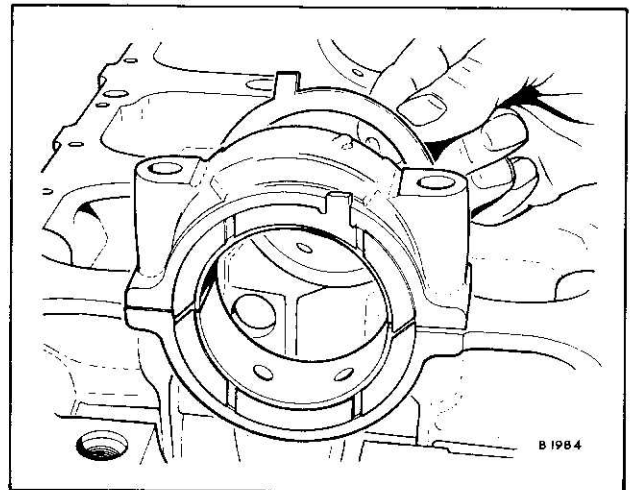


Fig. 3

Crankshaft Inspection

1. Thoroughly clean the crankshaft and ensure that the oil passages are clear.
2. Check for cracks or scratch marks, and measure the diameter of each crankpin and main journal. See 'Data' for wear limits and regrinding sizes.
3. Check the crankshaft alignment. If run-out exceeds the limit given in 'Data', renew the crankshaft.

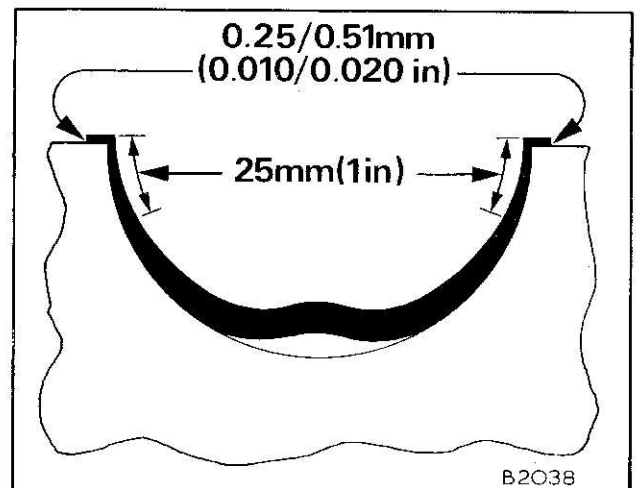
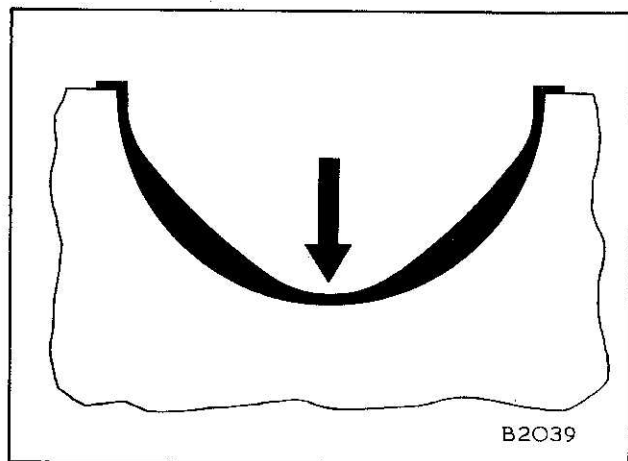
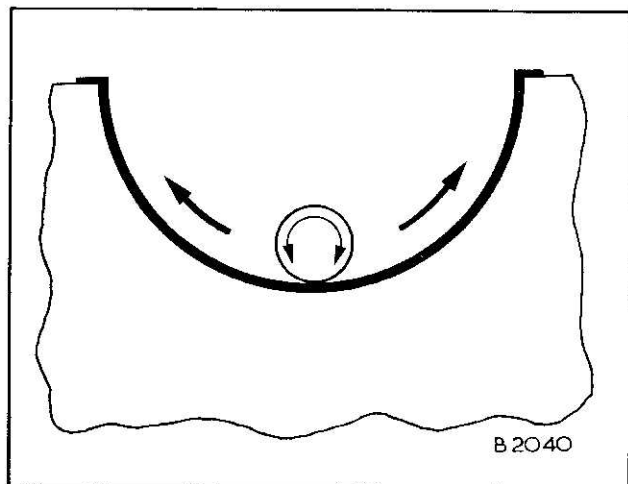


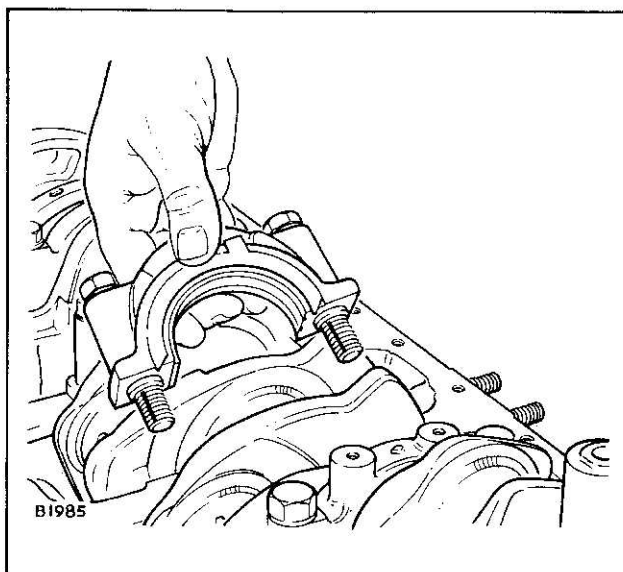
Fig. 4

Crankshaft and Main Bearings**To Fit New Crankshaft Rear Oil Seal**

1. Settle approximately 25 mm (1 in) of each end of the seal into the groove of the half housing with the seal ends protruding 0,25/0,51 mm (0.010/0.020 in) above the joint face, Fig. 4.
2. Press the remainder of the seal into position starting from the centre and working outwards, Fig. 5.
3. Using a suitable round bar, roll and press the seal into position, Fig. 6.

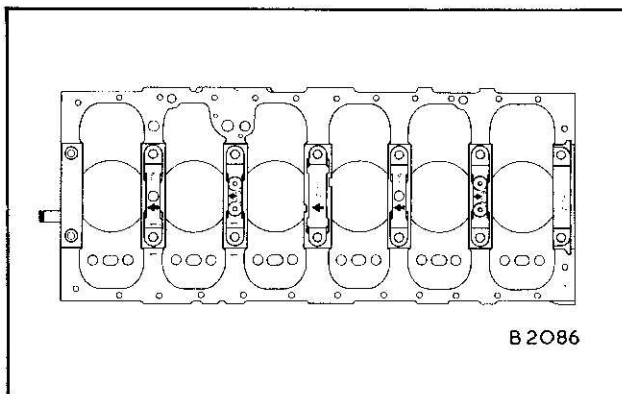
**Fig. 5****Fig. 6****To Refit Crankshaft**

1. Ensure that the main bearing housings, caps and crankshaft are clean.
2. Fit the upper half bearings, lubricate with engine oil and lower crankshaft in position.
3. Push the crankshaft towards the front and rear end alternately and slide the upper thrust washers in position ensuring the oil grooves are facing the crankshaft.
4. Fit the lower half bearing shells on each cap, including the lower thrust washers on centre cap, Fig. 7.

**Fig. 7**

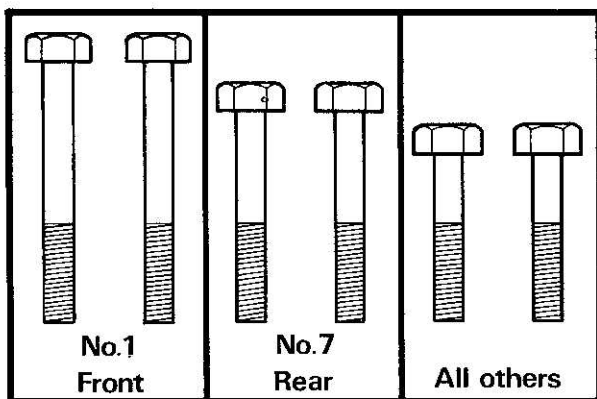
5. Place caps in position according to the location mark, with the directing arrow towards the front of the engine, Fig. 8. The caps can be identified as follows:

No 1 — has oil pump spigot location.
No 2 — block and cap marked '1'.
No 3 — has tapped drillings for oil pipe support. Block and cap marked '1'.
No 4 — has thrust washer locations.
No 5 — has no markings.
No 6 — has tapped drillings for oil pipe support. No other markings.
No 7 — rear of cap forms sump joint location.

Crankshaft and Main Bearings**Fig. 8**

Note: Caps must be fitted with arrows towards front of engine. Serial numbers must correspond with serial numbers on bottom face of block.

6. Fit the main bearing setscrews in the correct caps, Fig. 9, and tighten evenly to torque given in 'Data'.

**Fig. 9**

7. Check the crankshaft end float with a dial indicator, Fig. 10, or a feeler gauge. If the limit given in 'Data' is exceeded, use oversize thrust washers.

8. Fit the rear oil seal housing as follows:—

Fit new gasket with suitable jointing compound to cylinder block and rear bearing cap.

Coat joint faces of the housing with suitable jointing compound.

Smear a film of graphited grease over the exposed inside diameter surface of the strip.

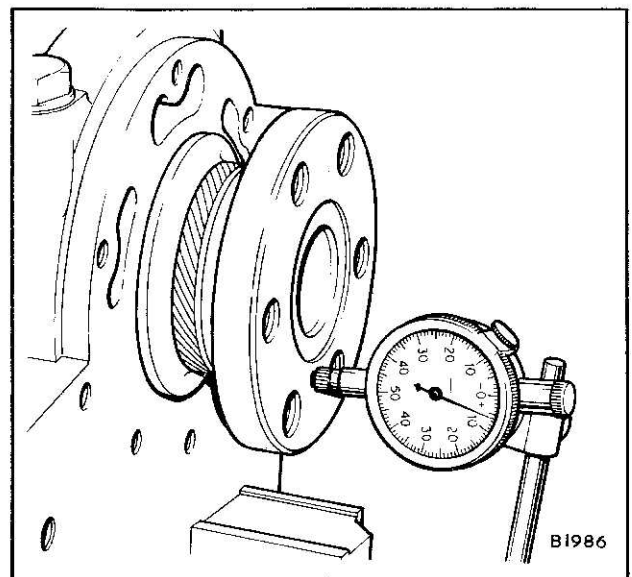
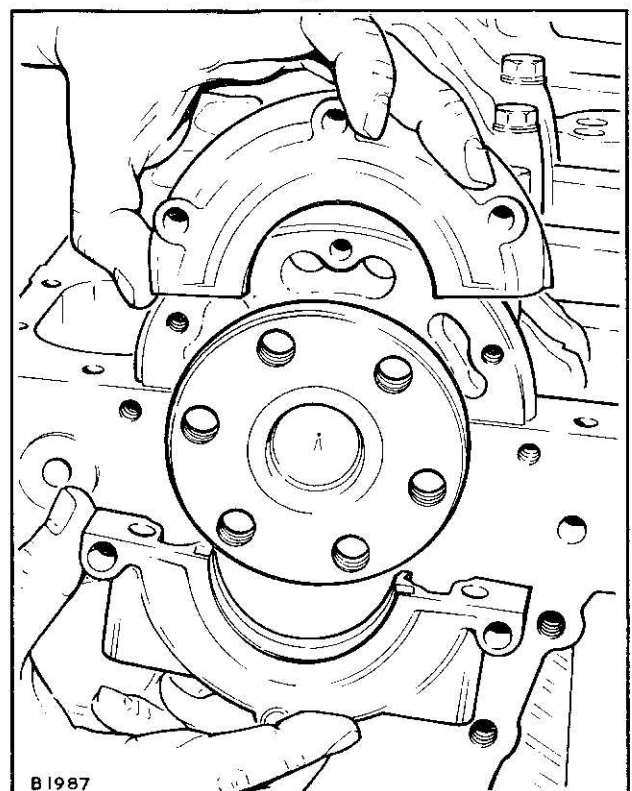
Coat the half housing butt faces with jointing compound.

Oil the crankshaft rear end oil return groove.

Place the half housings in position on the engine, Fig. 11, and locate all setscrews finger tight only.

Tighten the clamping bolts to a torque of only 0,8 kgf m (6 lbf ft).

9. Reassemble engine as detailed in the relevant sections.

**Fig. 10****Fig. 11**