



Fig. 49. Installing crankshaft semi-circular thrust washer

cylinders to suit oversize pistons, each bore is machined to the actual diameter of the piston to be fitted, plus the specified clearance in the bore.

The recommended bore finish is a "cross hatched" hone finish of 20-40 micro inches. This finish is equivalent to that obtained by thoroughly rubbing a used cylinder bore with partly worn No. 1 grade emery cloth to give a mat surface. The cutter of the boring machine should be set to bore the maximum diameter of the piston measured at the bottom of the piston skirt at a right angle to the gudgeon pin, plus its prescribed clearance in the cylinder bore less a small amount for honing.

It is advisable to regrind and reset the cutter after completing each cylinder bore.

The honing operation allows the bore size to be taken to the size that will allow the piston to be correctly fitted.

Bores must be parallel and round to within .0003 in. (.007 mm). The use of a cylinder gauge such as a Mercer, used with a ring gauge, is recommended for taking measurements. Top, middle and bottom of each bore should be checked both in line and at right angles to the gudgeon pin axis.

Cylinder liners

The cylinder block cylinder bores cannot be machined out to take cylinder liners and no attempt should be made to carry out this operation.

Crankcase breather

This unit, where fitted, contains a renewable filter element is held by a single bolt to the crankcase outside face just below the starter motor. A rubber joint ring is used between the breather body and crankcase.

These parts can be removed and replaced with the starter in position. The filter element should be stuck to the cover inside bottom face, with quick setting jointing compound, to keep it in place while refitting.

THE BREATHER OUTLET PIPE MUST ALWAYS POINT UPWARDS.

CRANKSHAFT

Main bearings

Steel backed lead bronze bearings with lead indium overlay or steel backed aluminium tin bearings are fitted to all new engines and must be used for replacements.

Main bearing shells may be changed without removing the crankshaft by following the normal practice of removing each main bearing cap separately and pushing its top main bearing shell around the crankshaft journal from the opposite side to its locating lip.

If a rear main bearing cap is found without locating dowels the engine must be removed to change the main bearings as it is not possible to replace undowelled rear main bearing caps correctly, without first removing the fly-wheel. The correct method of aligning undowelled rear main bearing caps is given under "Crankshaft—To replace".

Crankshaft end thrust (See Fig. 49)

Crankshaft end thrust is taken by two semi-circular steel thrust washers having bearing metal lined faces, with two vertical oil grooves across each face. The washers are fitted with their bearing lined faces towards the crankshaft thrust faces and may be removed by pushing them around the crankshaft centre journal after removing the sump and taking off the centre main bearing cap.

Endfloat can be checked by feeler gauges in the normal manner.