

SECTION G

Cylinder Block and Liners

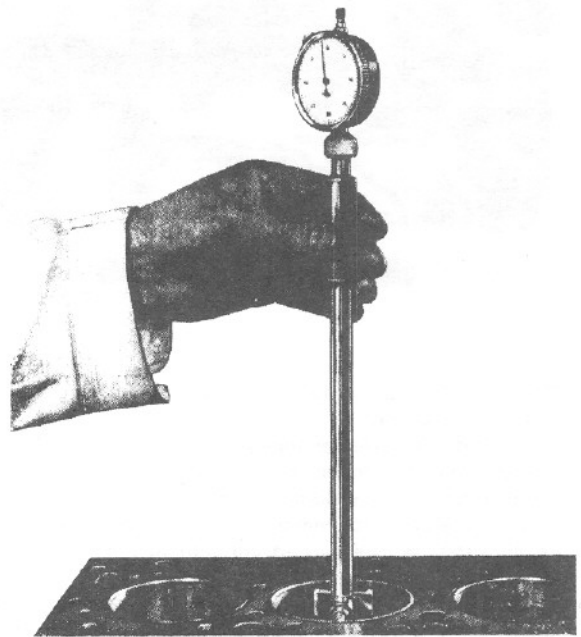
CYLINDER LINERS (4.108 ENGINES)

The cylinder liners fitted to the 4.108 series engines are centrifugally cast alloy iron, they are an interference fit in the cylinder block parent bore and of the thinwall dry type.

Reboring of these liners is not possible and new liners should be fitted when a rebore would normally be considered necessary.

Dimensional checks of the cylinder bore are carried out by means of the gauge tool shown in Fig. G.1. When checking liners each one should be measured in three positions — top, centre and bottom; the readings being taken parallel and at right angles to the centre line of the cylinder block giving six readings for each cylinder bore.

When checking the fitted internal bore of a new thin-wall liner it is advisable to allow a period of time to elapse for the liner to settle.



G1

the centrifugal cast iron wet type. They have flanges at the top and are sealed at the bottom by means of two rubber sealing rings which fit in machined recesses in the cylinder block.

To Renew Cylinder Liners

1. Remove all the various components from the cylinder block. (Refer to the appropriate sections for details of their removal).
2. Using a shouldered metal disc slightly smaller on the outside diameter than the parent bore diameter and a suitable press, press the liners carefully out through the top of the cylinder block.

NOTE: Support the block locally in the area of the top of the liner.

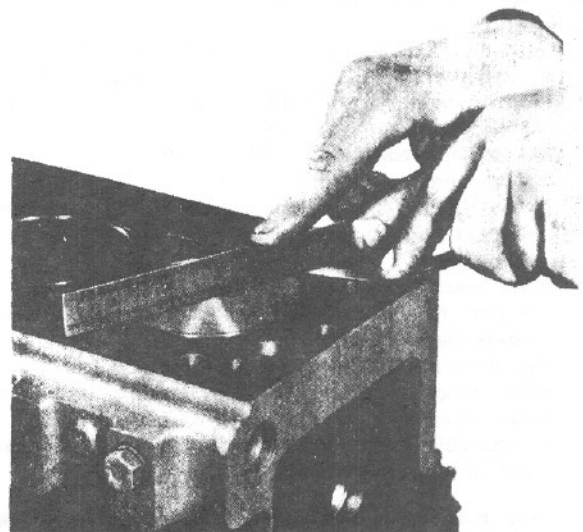
3. Lightly lubricate the outside of the liner with clean engine oil ready for fitting.
4. As the liner must protrude above the cylinder block top face and not be pressed fully home when fitted correctly, a solid stop washer should be available designed to give the correct liner protrusion.

NOTE: The limits for liner protrusion are given on page B.3 and may be checked as shown in Fig. G.2.

5. Press the liner into the bore progressively until it reaches the solid stop washer.
6. Bore and finish hone the liners to the dimension quoted on Page B.3.

NOTE: Where boring equipment is mounted on the top face of the cylinder block fit a parallel plate between the boring bar and cylinder block face. Such a plate should be thicker than 0.027 in (0.686 mm).

7. Re-assemble the engine components to the cylinder block. (Refer to the appropriate sections for assembly of these).

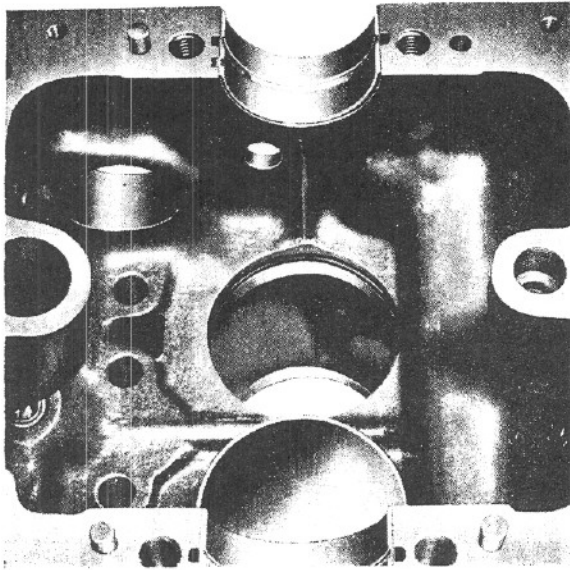


G2

CYLINDER LINERS (4.107 and 4.99)

Cylinder liners fitted to 4.107 and 4.99 engines are of

CYLINDER BLOCK AND LINERS—G.2



G3

Earlier 4.99 engines had only one sealing ring at the bottom of the liner.

4.107 and 4.99 cylinder liners have pre-finished bores. Under normal circumstances, the liner would only need to be renewed during major overhaul, but should it be necessary to remove the liner for any other reason, this can be carried out without removal of the crankshaft.

If at any time, the cylinder liners are removed and these same liners are to be refitted, then before they are removed from the cylinder block, they should be suitably marked so that they may be refitted to their original parent bore and in the same position in that bore, that is, thrust side of the liner to the thrust side of the cylinder block.

To Renew Cylinder Liners

Remove all components from cylinder block. Remove liners using a suitable liner removing tool (see Fig. G.4).

Once the liner has cleared the rubber sealing rings in the cylinder block, the liner can be removed by hand. Remove any corrosion and burrs which may be present at the inner ends of the landings.

Renew the rubber sealing rings in the grooves at the bottom lands.

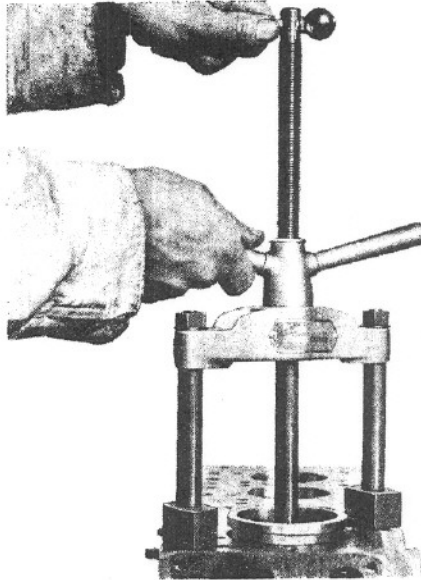
To ease fitting of the liners when the rings have been placed in position, smear the liners with soft soap or soapy water.

Place liner in position and press home by hand, ensuring that the rubber sealing rings remain in their grooves (see Fig. G.5).

The liners are a push fit and no force is required.

After fitting the liners, the cylinder block should be water tested at a pressure of 20 lbf/in² (1,4 kgf/cm²). Re-assemble engine as required and to instructions given for the various components.

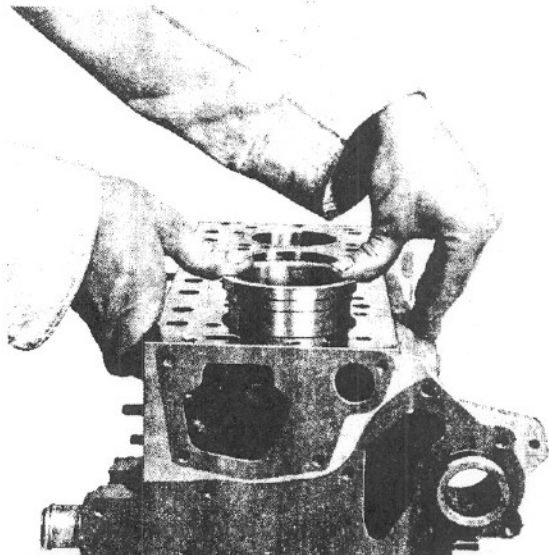
Note: If engine is overheated, it could have an adverse affect on the liner sealing rings.



G4

All 4.107 and later 4.99 engines have four small holes drilled along the fuel pump side of the cylinder block, each one breaking through into the area between the two sealing rings at the bottom of each cylinder liner. These holes permit any coolant which may have leaked past the upper sealing ring to escape thus relieving the bottom sealing ring of any pressure above it and preventing coolant from entering the engine sump.

In the case of a new engine, or where cylinder liners and/or sealing rings have been fitted, it is possible that a slight leakage of coolant could occur from these holes. This should ease as the liners and sealing rings settle down after the initial period of running, but where difficulty is experienced, then the use of BARSEAL in the cooling system (in accordance with the manufacturers instructions) is approved.



G5