rods and pistons into cylinder bores from above in the opposite manner to that detailed for removal, with the word FRONT ON THE PISTON CROWN TOWARDS THE CRANKSHAFT PULLEY END OF THE ENGINE.

To facilitate insertion of the pistons in the cylinders and to prevent piston ring breakage, a Churchill piston ring compressor should be used. This tool reference number is 38 U-2.

Tighten nuts to the correct torque given in the Data Section under "Connecting Rods".

Gudgeon pin—To remove

Remove circlip retaining gudgeon pin in position with circlip pliers. Scrape away any carbon which may have accumulated in the outer ends of the piston bosses to facilitate removal of the gudgeon pin.

Warm the assemblies, preferably in oil to about 50°C (120°F) and push out the gudgeon pins. Tight fitting gudgeon pins should not be driven out of cold pistons.

Gudgeon pin—Fit

At room temperature of 21°C (70°F) the gudgeon pin should be a finger push fit in the piston and only just free in the connecting rod little end bush. It should be possible for the connecting rod to fall by its own weight when the piston and connecting rod assembly is held horizontal.

Gudgeon pins are classified into two grades, the dimensions of which are given in the Data Section under "Gudgeon Pins". Only the larger grade is available for service use.

Gudgeon pin—To refit

The original piston, gudgeon pin and small end bush may be used again, if the gudgeon pin is without shake, both in the piston bosses and in the small end bush.

The correct way of assembling the connecting rod to the piston is shown in Fig. 46.

The gudgeon pin retaining circlips should be renewed.

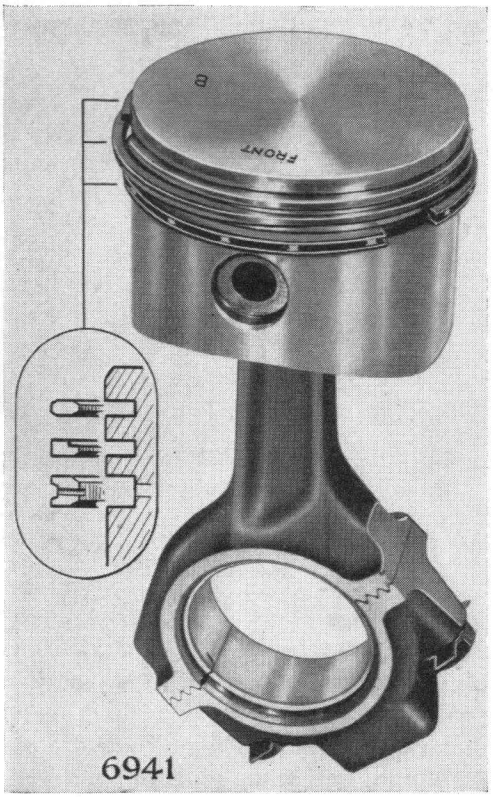

Fig. 46. *Piston rings and piston and connecting rod correctly assembled*

Big end bearings

Steel backed lead bronze bearings with lead indium overlay are fitted to all new engines and must be used as replacements. These bearings are able to carry greater loads than white metal bearings, but they are harder and small particles do not bed themselves into the bearing metal.

In consequence, scoring of the crankshaft big end journals will occur if abrasive particles reach the bearings. Regular oil changing and renewal of the filter element at the recommended mileages are therefore most important.

If necessary bearing shells may be renewed provided the crankshaft big end journals are not oval or scored.

Connecting rods

Owing to their shorter length these rods cannot be straightened Any piston showing signs of misalignment should have its connecting rod changed.