

P. Removal and Installation of Pistons and Connecting Rods

Removal:

1. Remove cylinder head (see Job No. 01—4, Section C).

Remove crankshaft and flywheel (see Job No. 01—4, Section O).

Note: If the pistons are removed with the crankshaft installed, unscrew connecting rod nuts and knock back connecting rod pins slightly by lightly tapping with a plastic hammer. Loosen and remove bearing caps.

3. Take out pistons and connecting rods upward.

Note: Combustion deposits on the upper end of the cylinder bores should be removed with a scraper in order to avoid damage to the piston rings. Before pressing out the connecting rods with pistons, the bearing shells must be taken out of the connecting rods.

When removing the bearing shell halves, mark them so that they can be refitted in the right order.

4. Remove the snap rings from the grooves in the piston pin eyes. Heat the pistons on a hot plate to approx. 60° C and press out the piston pins.

Installation:

5. Place the pistons, with the piston-head down, on a hot plate and heat up to about 60° C.

Thoroughly clean the oil passage and the connecting rod eye, hold the heated piston over the connecting rod and pass a locating drift through the piston eyes and the connecting rod eye. Then apply oil to the piston pins and press them in, if necessary tapping them with a plastic hammer. Make sure that the piston pins are centrally positioned!

Note: When installing the connecting rod with the piston attached, care must be taken to ensure that the off-center oil passage in the connecting rod is at the right, seen in the direction of travel.

6. Press the snap rings into the piston pin eyes.

7. Check the axial parallelity and squaring error of the connecting rods (see Job No. 03—5, Section C).

The permissible departure from axial parallelity is 0.03 mm and the permissible squaring error is 0.1 mm, over a length of 100 mm.

Correct greater deviations by squaring the connecting rods.

8. Before the pistons with connecting rods attached are installed, check and if necessary correct the attitude of the piston rings (Fig. 01—4/49).



Fig. 01—4/49

The connecting rods are numbered 1 to 4, corresponding to the four cylinders (Fig. 01—4/50).

Then apply graphite oil to the pistons and cylinder wall surfaces and insert the pistons with the aid of Piston Ring Tightening-Band 136 589 02 61 in the bores in the crankcase. When this is done, care must be taken to ensure that the cylinder wall surfaces are not damaged. When the pistons, with connecting rods attached, are correctly installed the numbers on the connecting rods must be on the left side, and the arrow on the piston-head must point in the direction of travel (Fig. 01—4/51).

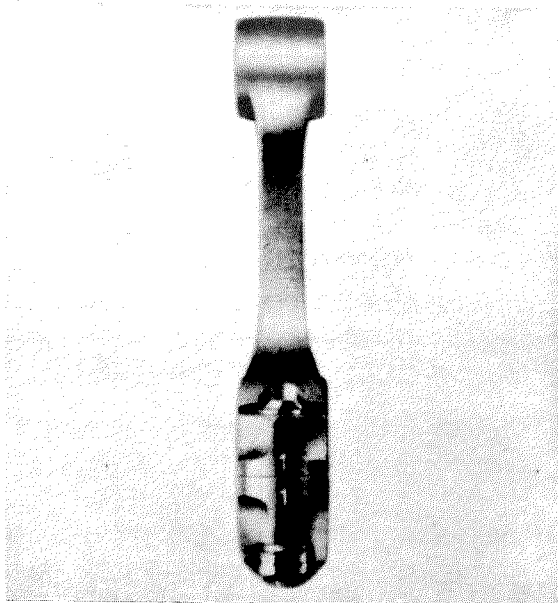


Fig. 01—4/50

9. Install the crankshaft and the flywheel (see Job No. 01—4, Section O).

10. Install the cylinder head (see Job No. 01—4, Section C).
11. Check the camshaft and ignition adjustment and, if necessary, correct (see Job No. 01—3, Sections E and F).

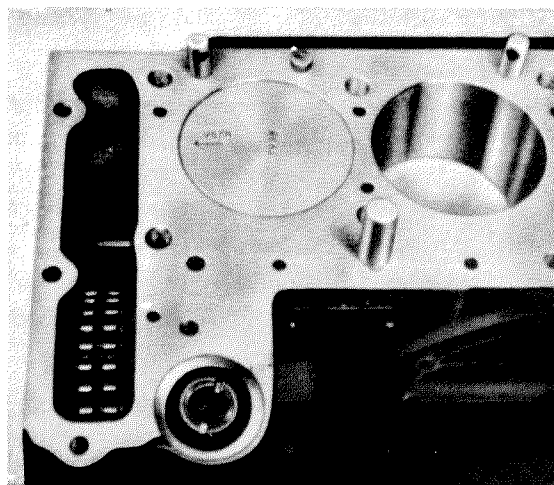


Fig. 01—4/51