from the engine according to instructions for replacing the fan belt or, leave the generator bolted to the upper part of the cylinder block and split the engine according to the instructions below:

b. Detailed Instructions. To split the engine proceed as follows:

(1) Drain water from radiator, oil from crankcase, and gasoline from fuel pump and carburetor. Disconnect and remove fuel lines and radiator overflow pipe. Disconnect output leads at switchbox. Remove air cleaner and spark plugs.

(2) Remove fuel pump from gear cover (two cap screws hold it in place).

(3) Remove the ten cap screws holding gear cover in place, and pull off gear cover. When the cover is off, remove the crankshaft gear, camshaft gear and governor (or magneto) drive gear.

NOTE: When removing gear cover, be sure not to lose fiber cam thrust plug when it is forced out.

(4) Remove the thirteen cap screws holding the cylinder block to the oil base.

(5) Remove the four cap screws holding the lower half of the generator assembly to the flywheel housing.

(6) Remove the oil gauge so it will not be bent when the block is lifted off the oil base.

(7) Lift the engine and generator from the oil base and lay it on a suitable platform about 12 inches high, magneto side down (fig. 27). Tie a string around the oil pump tappet to prevent it from falling into the case.

NOTE: Do not withdraw the camshaft while the engine is in an upright position, or the tappets will drop into the oil base.

26. CYLINDERS AND PISTONS.

a. Inspection. After splitting the engine, disconnect the connecting rod bearings and withdraw the pistons from the cylinders. Examine the cylinder walls. If they are scored or worn excessively, they will have to be reground, and new pistons will have to be fitted. Clean the pistons and rings with gasoline and examine them. If the rings are properly fitted they will have a bright, highly polished surface. Any dark colored or rusty spots or tool marks on rings indicate that the rings are worn and do not fit the cylinder walls tightly. Improperly fitted rings should be replaced, or they may cause pistons to pump oil.

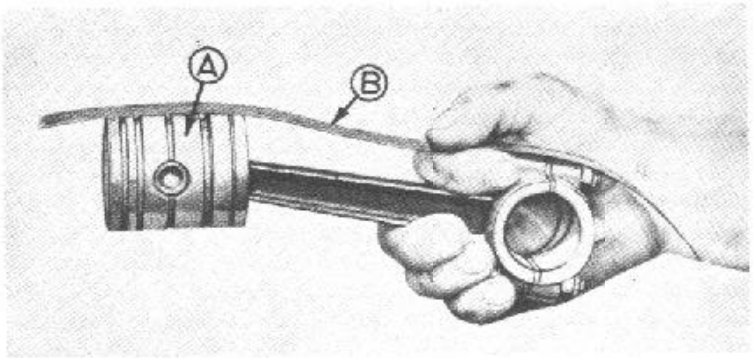
b. Fitting Pistons in Cylinders. Proper clearance between piston and cylinder wall is 0.002 inches. With rings removed, a piston of correct

size should just fall through the cylinder. Be sure to replace pistons in same cylinders from which they were removed. The cylinders are numbered consecutively 1, 2, 3, 4 from crank end to radiator end, and each connecting rod is marked with a number corresponding to the cylinder to which it is fitted. When fitting a piston, check the clearance with a 0.002 inches shim (fig. 28). New pistons should not wedge when being fitted with this size shim, but a noticeable drag will be felt.

c. Replacing Piston Pins. The piston pins in the engine are full-floating and are held in the piston by means of spring steel retainers (fig. 41). The steel pin is fitted to the bronze bushing in the upper end of the connecting rod with a snug hand-press fit, and to the piston itself with a tight hand-press fit (should be snug enough to require considerable force to insert the pin). To test fit of pin in rod bushing, clamp pin in a vise, after attaching the connecting rod. The weight of the rod should be sufficient to allow the rod to drop gradually. Use the same test when fitting pin in piston (fig. 29). Use a shim to test pin fit. Replace piston pins that are worn, or are loose in bushing or piston. If connecting rod bushing is worn, replace it.

27. CONNECTING RODS AND BEARINGS.

a. General. Each connecting rod bearing is numbered to correspond to the cylinder to which it belongs. When properly adjusted, the bearing clearance should be 0.002 inches for smooth operation. Examine the condition of the bearings after removing the connecting rods from the crankshaft. If they are scored, scrape or fit the rods with new bearings.



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A. Piston. B. 0.002-inch shim.

Figure 28. Fitting new piston with shim.