

Postwar Crankcases for Single Cylinder Engines

Colin Farrington reveals all

Prior to 1948, a different crankcase was used for the 350cc engine. After this date, the same crank was used for both 350cc and 500cc engines. At the same time, a change was made to allow the use of the 500cc crank in both models.

Other changes which were introduced post-war included the following:

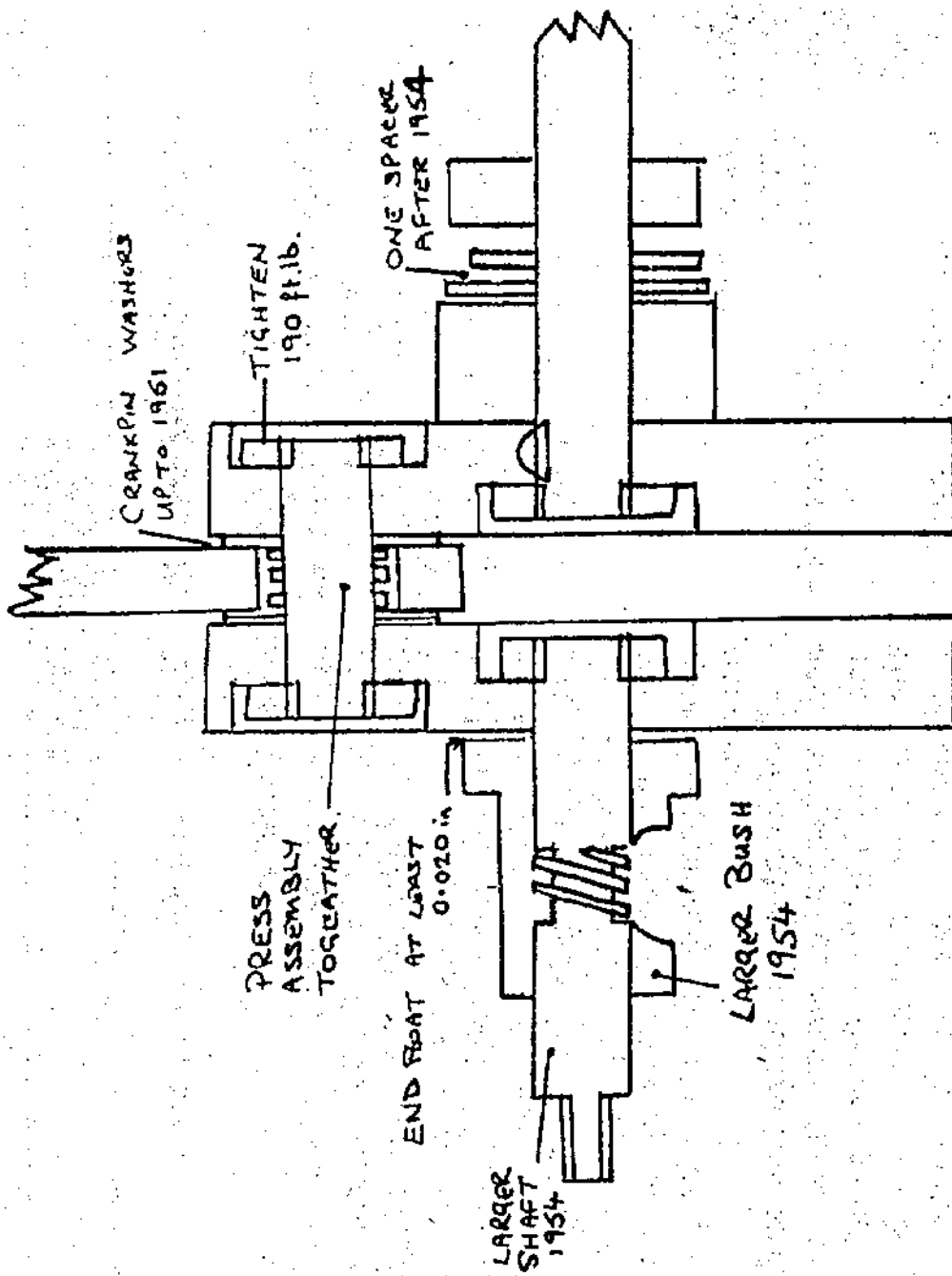
- **1947**
 - a) two start oil pump
 - b) oilway sizes increased
 - c) shorter conrod
 - d) plain bush in the timing side instead of a roller bearing.
- **1948**
 - a) crankcases and crankshafts as above
 - b) the size of the groove in the oil pump plunger increased from 3/16" to 1/4", with increase in the guide pin size to match.
- **1949**
 - a) valve lifter removed from crankcase; now on cylinder head.
- **1950**
 - a) steel crankpin washers used in place of bronze.
- **1951**
 - a) crankpin washers discarded and flywheels altered.
- **1952**
 - a) driveside main bearing recesses were changed to avoid end loading of the bearing.
- **1954**
 - a) larger diameter timing side shaft
 - b) two diameter timing side bush.
- **1955**
 - a) new crankcases cast, to use one large and one small drive side main bearing.
 - b) new drive side flywheel - keyways at 180 degrees.
- **1956**
 - a) cylinder wall oilfeed discontinued
 - b) magnetic filter fitted in crankcase.

As I was intending to build a 350cc special, I managed to find a 1947 500cc bottom end. It appeared to have been fitted with a new crankpin, assembled incorrectly, run for a short time and then abandoned. The crankpin had come loose and there was slight wear on the outer edge of the driveside flywheel, along with a slight groove in the driveside crankcase. As all the bearings were within tolerances, I decided to rebuild it ensuring that the same problem did not recur.

The liner in the con rod had been replaced, and no wear had occurred; it fit over the big end assembly with no appreciable side rock. The axles were checked to ensure that they were correctly fitted into the flywheels and were put on a hydraulic press to ensure that they were fully home and that the nuts were tight.

The crankpin was then fitted to the timing side flywheel, ensuring that the oil holes lined up. The big end bearing was assembled with thirty rollers in the cage, and the conrod fitted. The driving side flywheel, with Woodruff keys, was then fitted to the crankpin. The whole crankpin assembly was then aligned with a straight edge on both rims, was placed in a press and pressed fully home. The nuts were then run carefully home and tightened to a torque setting of 190 lb/ft. This procedure had obviously not been carried out the last time the flywheels had been assembled, and it was lucky that the crankpin had not been broken by the flywheels flexing.

The flywheels have to be trued. They should be turned between centres, and should have a maximum error of 0.002" at the flywheel face - the measurement being taken from the axles. The bearings on the drive side crankcase should be fitted by heating the crankcase and then dropping the bearings and spacers in. The timing side bush is pushed in, ensuring that the cutaway is correctly positioned for the oil



Section through single cylinder flywheel assembly, showing changes up to 1955

pump. This can be adjusted to give the correct end float on the crankshaft (min 0.020"); insufficient end float can cause seizure.

The crankcase was then assembled and bolted together; the rotation and end float can then be checked. The oil pump plunger was

then fitted and the guide pin screwed in. After checking that the pump was operating correctly, both end plates were re-fitted.

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