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SERVICE SHEETS

BSA SERVICE SHEET No. 414

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Models C10L and C11G

RE-ASSEMBLING THE ENGINE

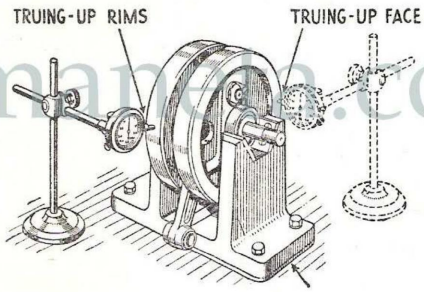
The need for absolute cleanliness cannot be over-emphasized. Parts should be thoroughly cleaned, and all traces of any anti-rust preparation with which new parts may be coated must be removed. All bearings should be smeared with fresh engine oil before re-assembly.

Flywheels

If the big-end assembly is to be renewed it is as well to check the weight of the new components against those which have been removed. A slight variation in weight is inevitable, but if it does not exceed 1½ ozs. no action need be taken; otherwise the flywheel assembly should be re-balanced. This tolerance should not be excceeded since, when first assembled, the flywheels were carefully balanced to suit the original parts, and the balance may be adversely affected if the weights of the new components differ considerably from those originally fitted.

Fit the flywheels to the crankpin, making sure that the key on the drive side is properly engaged in its keyway, and tighten the crankpin nuts by hand.

In order to tighten the crankpin nuts properly, the whole flywheel assembly must be held rigidly, preferably with the aid of a flywheel bolster. Alternatively, fix two $\frac{9}{16}$ in. diameter posts rigidly to the bench with their centres $3\frac{7}{8}$ in. apart. Midway between these posts a hole of 1 in. diameter should be bored to receive the mainshaft. The flywheel assembly can be mounted on these posts so that they pass through the holes bored in the flywheels. Tighten the drive side crankpin nut very firmly, using a tubular extension piece on the spanner, and punch over the edge of the crankpin with a centre punch to lock the nut.



Suitable packing under timing side 'vee' block to compensate for smaller diameter bearing.
Fig. C38. Checking flywheel alignment.

Now turn the assembly over, so that the gearside flywheel is on top and tighten the crankpin nut lightly. The grub screw in the end of the crankpin must be riveted over or centre-punched to prevent it unscrewing. If it unscrews, serious damage may result to the engine. Check that the side clearance of the connecting rod in the flywheels does not exceed .012 in. and is not less than .010 in.

The flywheels will now be aligned only very approximately and further steps must be taken to ensure that the wheels are as true as possible. Two of the actual (or similar) bearings to be used in the engine should be fitted to the mainshaft and the latter mounted

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on vee-blocks. The flywheels must be trued up, both on faces and rims, for which purpose a dial micrometer is necessary (Fig. C38), and after the wheels are trued to within at least .005 in., tighten the timing side crankpin nut fully. A mallet or lead hammer applied to the flywheels will provide a sufficiently heavy blow for final truing, and will not harm the flywheels (Fig. C39). The shafts should be finally trued to within .002 in. maximum. The shafts must not be struck.

All parts must be thoroughly clean and free from paraffin, grit or other foreign matter, and all traces of old jointing compound should be removed. If any bushes have been replaced then they must be reamered out to the correct dimensions.

The mainshaft bearing should be reamered with the aid of Service Tool, Part No. 61–1932, as shown in Fig. C40. The reamer holder should be passed through the drive side ballrace before engaging the reamer in the bush, thus ensuring correct alignment. Clear the case of any swarf resulting from the reaming operation and commence re-assembly.

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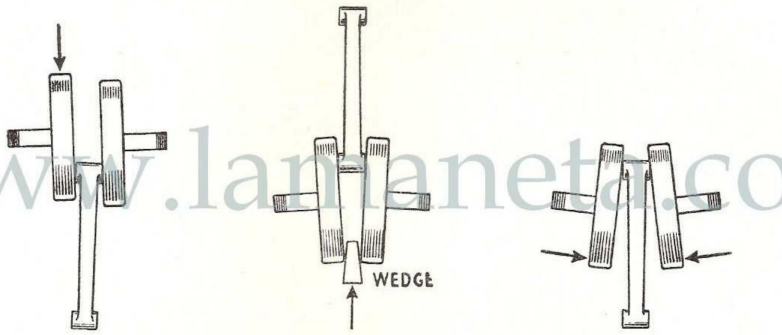

To bring shafts into line, a sharp blow with a mallet on **timing side** flywheel (indicated by arrow).

To bring flywheels parallel when sides opposite crankpin are converging, insert wedge as shown and deap sharp blow with mallet.

To bring flywheels parallel a sharp blow with mallet on flywheel rims on opposite side to crankpin.

Fig. C39. Method of correcting flywheels out of alignment. Note that above illustrations are exaggerated.

Place the oil flinger washer on the drive side mainshaft and push the flywheel assembly into position in the drive side crankcase half. Thinly coat the mating faces of the crankcase with jointing compound and slide the gear side half into position. The two halves must be perfectly mated and the flywheel assembly must rotate freely when the halves are bolted firmly together.

Replace the oil pump and bolt it into position making sure that the spring washers beneath the bolt heads are not omitted. Slide the pump driving spindle into position and retain it with its pin. Make sure that the blade of the pin is fully engaged in the spindle groove, and if necessary a small washer should be placed over the end of the pin to prevent its moving away from the spindle, but ensure that it does not force the pin too tightly into the groove when the timing cover is replaced.

Replace the key and push the small timing pinion into position on the mainshaft. Tighten the retaining nut and turn over the lockwasher.

Fit the cam followers, also the tappets in the case of the C10L, then replace the camshaft, ensuring that the mark on the camshaft gear coincides with the marked tooth on the mainshaft pinion. (See Fig. C41.).

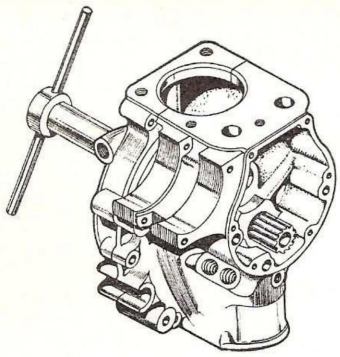

Fig. C40. Main Bearing Reamer.

Apply clean engine oil to the pinions and cams, then replace the timing cover using a new joint washer. Make sure that the oil seal passes easily over the shaft, or if a new oil seal is to be fitted, it can be pushed into position after the timing cover has been replaced.

Replace the advance and retard mechanism, making sure that, as the taper is engaged, the peg on the advance and retard spindle locates in the groove in the camshaft, then tighten down the retaining bolt.

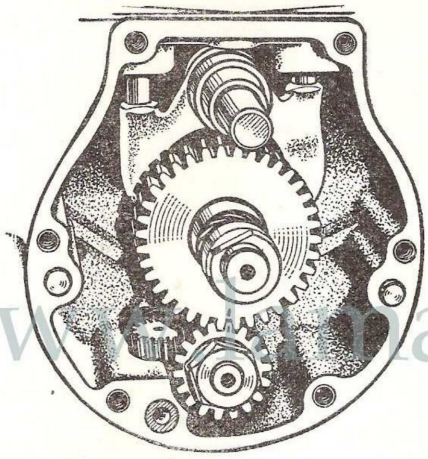

Fig. C41. Timing Gear Marks.

Finally time the engine as described in Service Sheet No. 404.

Assembly from this point is the same as after decarbonising. Replace the engine in the frame and tighten the engine and gearbox plate stud nuts.

Replace the primary chain case as indicated in Service Sheet No. 409. Make sure that the ported mainshaft sleeve which passes through the drive side oil seal is correctly positioned with the ports nearest the flywheel. It is immaterial which of the mainshaft grooves engages with the peg on the inside of the sleeve.

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