

REASSEMBLY

RE-ASSEMBLY OF THE GEARBOX AND GEARCHANGE MECHANISM

The various shafts need to be checked for end-float and shimmed if necessary. End float should be minimal (about .005"-.010").

Note that the inner cover gasket is around 0.010" (0.4mm) and this must be accounted for when shimming or making your own gaskets.

Fit each shaft individually into the cases, do the shimming and then fit the complete cluster

Shimming layshaft and gear selector shaft

Shims for the gear selector fork shaft should be installed behind the flange of the steel bush in the main case (66-3084) (However, the selector shaft does not move very much radially it is possible to fit them in front of the bush (over the end of the selector shaft) without any problems).

Similarly fit the layshaft shims if required behind the bronze bush in the back of the main gearcase. There is no reason why the bush on the outer end of the layshaft couldn't have a hole drilled through the end to give access for a (plunger) clock gauge or depth micrometer.

Shimming mainshaft

Mainshaft sequence of parts: On the outside of the inner cover (the bearing side) there should be a steel washer that fits in first. Then the bearing and then the kickstart ratchet assembly. The washer fits into the machined recess behind (under) the bearing (and if it is dished then the raised part should face the bearing inner race)...there is no washer on the outside of the bearing, the first part of the kickstart ratchet assembly sits directly against the bearings outer face.

On the inside there is an oil flinger disc (another steel washer) which is fitted against the face of the last gear on the shaft..(the raised inner portion of the oil flinger washer fits against the gear), then a hardened thrust washer, this is approx. 1/8" thick and sits against the inner face of the bearing.

If the end float of the mainshaft is excessive (more than about .005") when the cover is refitted shims should also be added on the inside, between the flinger and the thrust washer, to produce the correct clearance. Don't forget to fit an inner cover gasket when checking this

Note when you tighten the two nuts that retain the kickstart ratchet assembly the first one on the shaft should only be done up finger tight. After tightening the second nut, and before bending over the tab washer check that you still have the correct amount of end float on the mainshaft.

Once all shafts have been shimmed assemble the gear cluster and fit and check end float again.

Fitting gear cluster

It is only possible to refit the shafts and their pinions in the box provided that the shafts are first assembled (with pinions in top gear position) outside the gearbox and then all fitted together.

Commencing with the layshaft, take off the low gear pinion only (this is the largest on the shaft) and hold the shaft in the left hand with the drilled end towards the wrist. Take up the selector shaft and fit the fork nearest to the small pinion into the dog clutch on the layshaft. Pick up the mainshaft which should be complete with its dog clutch, and put it in position so that the second selector fork engages with the mainshaft dog clutch. The whole assembly can now be fitted into the gearbox, the mainshaft being the first to enter its bearing. Verify again through the inspection cover that the pinions are set in the top gear position (see Fig M28). In this position the dog clutch on the mainshaft is in mesh with the pinion sleeve.

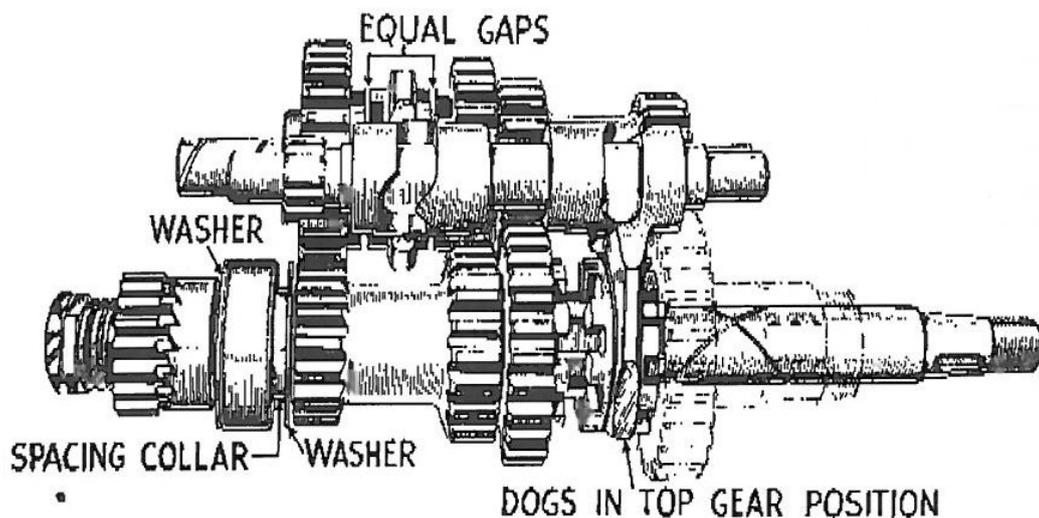


Fig. M28. Gear train.