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SERVICE SHEETS

BSA SERVICE SHEET No. 408A

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1956 C10L AND C12 MODELS WITH LIGHT FOUR-SPEED GEAR-BOX

(1954/5 Four-speed Models use Service Sheet 209)

Removal of Gearbox

In most cases it will be found convenient to dismantle the gearbox whilst it is in position. However, if attention to the bearings is required it may be found advisable to remove the complete gearbox. The primary transmission, clutch and chain-case must be removed. (See Service Sheet 411).

To remove the gearbox from the frame, first detach the clutch and speedo cables. Remove the cover plates. Unscrew the gearbox holding bolts and lift the box clear.

Dismantling

In order to obtain access to the gearchange and kickstart mechanism the outer cover must be removed. Drain off the oil, if this has not already been done, and move the gear to neutral. Remove the three stud nuts and four screws securing the outer cover and the cover can be drawn away together with the kickstarter and gearchange levers. The internal clutch operating lever will fall away. The ratchet pinion assembly is secured by a large nut, remove this and the ratchet, ratchet pinion, bush spring and washer can be taken away.

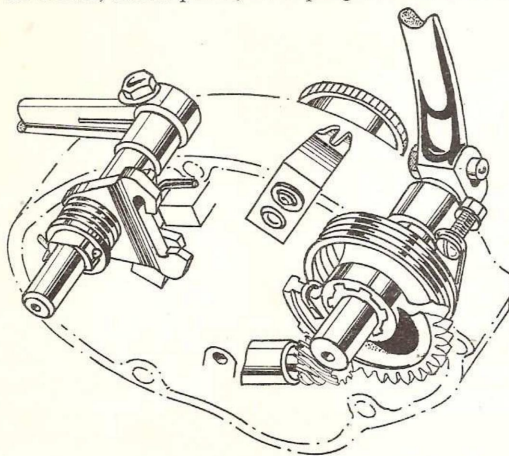


Fig. 2. C4 Kick-start and foot-change mechanism.

B.S.A. Service Sheet No. 408A (cont.)

The gearchange mechanism need not be dismantled unless it needs attention. If this is the case remove the gear lever and the small circlip behind it. The spindle and gearchange mechanism can now be withdrawn.

To obtain access to the gearbox internals the gearbox inner cover must first be removed. After the ratchet assembly has been removed it will be seen that the inner cover is held in position by one nut, undo this and remove the circlip located on the end of the layshaft and adjacent to the speedo drive. The inner cover and mainshaft can now be withdrawn. If it is required to remove the gearchange control quadrant from the inner cover, press out the gearchange spindle bush and expose the end of the control quadrant spindle. The spindle is threaded $\frac{1}{4}$ " B.S.C. and by using a suitable bolt as a draw tool the spindle can be withdrawn.

The selector shaft is secured in the gearbox shell by a grub screw which passes through the gearbox shell and engages in an annulus in the shaft. Slacken the grub screw and pull out the shaft. The gear cluster, forks and layshaft can now be withdrawn. Remove the gearbox sprocket by unscrewing the large ring nut and tap the pinion sleeve from its bearing. Lift the spring loading selector arm and slide the cam plate from its bearing. To remove the pinion sleeve bearing take out the retaining circlip, withdraw the oil seal and warm the case before tapping out the bearing.

Should the needle roller layshaft and bearing need replacing, removal is also facilitated by warming the gearbox shell.

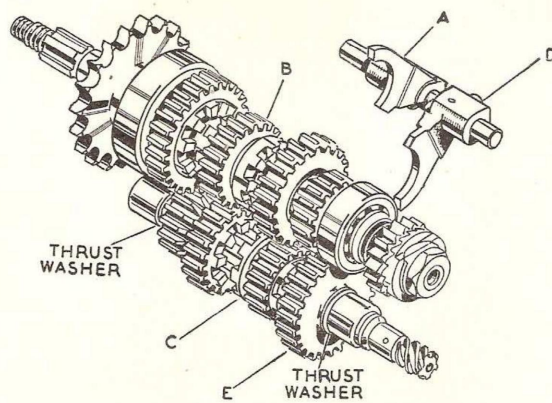


Fig. C43. Gear cluster.

B.S.A. Service Sheet No. 408A (cont.)

Assembly

Lift the spring loaded selector arm and fit the cam plate with the selector arm in the bottom gear position. If the pinion sleeve bearing and oil seal have been removed for any reason it is advisable to fit a new oil seal.

Warm the gearbox and press in the bearing. Fit the oil seal and circlip, making sure that it is correctly located. Fit the pinion sleeve.

Replace the layshaft ensuring that one of the hardened steel thrust washers is in its correct place as shown in Fig. (1). Layshaft thrust washers are available in three sizes.

Part No.	29-3645	Layshaft Thrust Washer	.075/.076
" "	29-3646	" "	" .084/.085
" "	29-3626	" "	" .092/.093

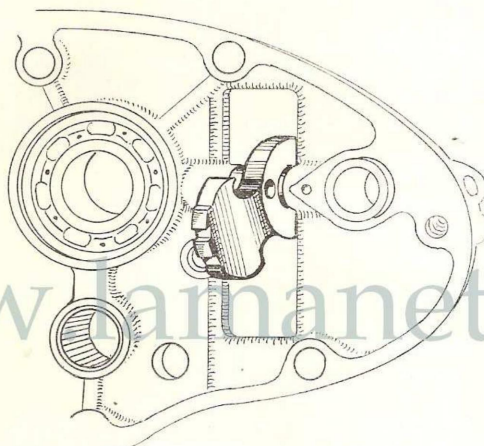


Fig. C44. Timing of gear-change operating lever.

Fit the mainshaft sliding gear fork (A) with its peg in the cam plate slot. Correct location is assisted by sliding the selector shaft through the fork and into its position in the gearbox shell. Fit the mainshaft sliding pinion (B) into its place on the fork and then place the layshaft sliding pinion (C) onto the layshaft. Carefully remove the selector shaft. Fit the layshaft sliding pinion fork and engage the peg in the slot on the cam plate.

Slide the selector fork shaft through the two forks and into position in the gearbox shell. Tighten the small grub screw making sure that it engages in its annulus.

Slide the mainshaft into position, fit the layshaft pinion (E) and place the other hardened steel washer in position.

B.S.A. Service Sheet No. 408A (cont.)

Place the mainshaft and inner cover in position but before they are pushed home the operating lever must be set so that the red dot on the lever and the cover coincide in the bottom gear position. Push the cover home and fit the securing nut.

Assemble the ratchet and pinion assembly. First place in position the steel washer and then the steel bush. Fit the spring ratchet pinion and ratchet. Finally, secure with the nut and tab washer.

Replace the outer cover, ensuring that the clutch operating lever is correctly positioned. To do this remove the inspection cap and fit the push rod in position. Moving the kickstart will prevent jamming and will assist engagement of the speedo drive.

Should the mainshaft ballbearing, located in the inner cover, need replacing it is necessary to extract the circlip, warm the cover and tap the bearing out. Refitting is self-explanatory.

Below is a list of useful part numbers:-

29-3608	Gearbox Sprocket Oil Seal.
29-3598	27T Pinion Sleeve.
29-3603	Outer Cover Stud. (long).
29-3604	„ „ „ (short).
29-3589	Cam Plate.
29-3636	Kickstart Ratchet
67-3376	„ „ Pinion
29-3637	„ „ „ Bush
29-3585	„ „ and Mainshaft Nut Lockwasher
29-3628	Selector Fork
29-3627	„ „ Shaft
29-3614	Mainshaft Sliding Pinion 21T
29-3621	Layshaft „ „ 18T
29-3616	„ complete
29-3643	Clutch Push Rod
67-3340	Footchange and Stop Plate Return Spring
67-3174	Kickstart Spring
29-3611	Mainshaft complete
29-3639	Layshaft Bearing Circlip