ARRANGEMENT OF LDS 5-SPEED GEARBOX
SHEET ONE
30.LDS
S1.1
Section “S”

GEARBOX

“S.” 1.

The gearbox is spigoted and bolted to the clutch bell housing. There may be either 4 or 5 forward speeds and a reverse, all forward gears being in constant mesh and using dog engagement.

The gearbox carcase is an extremely robust light alloy casting suitably webbed and stiffened to carry extreme shaft loadings.

The gear teeth are all 5DP with the gears on constant mesh 3rd, 4th and 5th speeds of long addendum pattern.

All gears other than reverse are hardened and ground to accurate limits.

The selector mechanism is located in a detachable housing mounted on the offside of the gearbox carcase and incorporating a sliding interlock to prevent double engagement.

The gearbox filler cap and oil level dipstick combined is to be found attached to the nearside of the carcase. The dipstick is calibrated to denote the amount of oil to be added to maintain the correct level. With regard to lubricant the specification quoted on page (vi) should be adhered to.

Removal of Gearbox

(1) Uncouple the propeller shaft from the gearbox flange, and move shaft to its limit towards the offside of the frame.

(2) Check that the position of the clutch operating lever and shaft splines are marked, then slacken the operating lever pinch bolts and remove the operating lever and return spring.

(3) Remove the clutch brake shoe (see clutch brake section).

(4) Remove the clutch bridle box flexible lubrication pipe.

(5) Disconnect the cable to the speedometer generator, slacken and remove nuts securing the generator to the spindle bearing and remove the generator.

(6) Uncouple the change speed coupling tube at the gearbox end.

(7) Disconnect and remove the intermediate exhaust pipe (BVW Engine). Disconnect bracket and oil shield from offside of gearbox securing intermediate exhaust pipe (Gardner Engine).

(8) The gearbox has provided on the top side a tapped hole into which is screwed the lifting eye, Part No. 474 SZ. Using this support the gearbox with suitable tackle and take the weight.

(9) Remove the bolts holding the gearbox to the clutch bell housing and withdraw the unit clear of the clutch bell housing when it may be lowered and dismantled as required. Reassembly is carried out by a reversal of the foregoing operations.

A mandrel Part No. 500 SZ is available to ensure correct alignment of the clutch plate. For clutch and clutch brake settings see respective sections.

To Dismantle the Gearbox

Having withdrawn the gearbox from the vehicle, proceed as follows:—

(1) Support on suitable rig and drain off oil.

(2) Remove the nuts securing the selector housing to the gearbox and remove the housing complete with the selector mechanism.

(3) Remove the nuts and covers at the rear end of the selector fork rods and draw out the rods, taking care to ease them out carefully to avoid the plungers jumping out and causing damage. Lift out the selector forks. Note the position and thickness of any shims at selector rod ends.

S1.2
(4) Engage two pairs of gears to lock the shafts and remove the nut securing the clutch brake drum and then remove the clutch brake drum and key. Use spanner, tool No. 469 SZ.

(5) Slacken and remove the nut securing the propeller shaft coupling flange to the output shaft and withdraw the flange. Use spanner, tool No. 471 SZ.

(6) Slacken and remove nuts from all bearing housing covers and remove them.

(7) Using spanner, tool No. 153 SZ slacken and remove the nuts on rear end of the mainshaft and front end of the output shaft. Lift tab washers then slacken and remove the setscrews at each end of the layshaft to free the end plates.

To Remove the Output Shaft

(8) Extract the front and rear output shaft bearings and housings from the gearbox.

Note:—Tapped holes are provided in all the housings to take jacking screws. The output shaft may now be withdrawn from the rear leaving its various gears free to be lifted from the gearbox.

To Remove the Constant Mesh Pinion

(9) Extract the constant mesh pinion bearing housing from the gearbox, complete with the bearing and constant mesh pinion.

To Remove the Mainshaft

(10) Extract the rear mainshaft bearing housing, whilst at the same time drifting the mainshaft from the rear roller bearing; when the shaft is clear of the roller bearing it may be lifted from the gearbox complete with gears.

To Remove the Layshaft

(11) Extract the front and rear layshaft bearings and housings and drift out the layshaft to the rear when the gears which have been freed may be removed from the gearbox.

To Remove the Reverse Shaft

(12) Remove the nuts securing the reverse shaft flange on the outside of the gearbox.

(13) Withdraw the shaft using tool No. 491 SZ and lift out the reverse gear. When the various shaft assemblies have been removed from the box the gears can be withdrawn from the box, noting those which run on needle roller bearings.

Re-assembly of the gearbox is a reversal of all the foregoing operations. Shims are fitted on the selector shaft to line up the selector fork neutral position in relation to the sliding gear interlock.

To Dismantle the Selector Cover

(1) Remove the inspection cover.

(2) This will expose the interlock slide pins which may be easily removed thus freeing the interlock slide.

(3) Remove the nuts securing shaft spherical bearing and draw out shaft. The bore of this bush carries a felt washer.

(4) Slacken and remove the slotted nut to free the selector finger.
ARRANGEMENT OF LDS 5-SPEED GEARBOX
SHEET TWO
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SI.4
THREADS TO BE PRENED
OVER AFTER ASSEMBLY.
To Dismantle the Speedometer Drive

(1) Slacken and remove the nuts securing the spindle bearing to speedometer bearing housing.

(2) Withdraw the spindle bearing and spindle. It will be seen that the speedometer drive gear is pressed and pinned on to the spindle and that the pinion thrust is taken by a collar on the spindle abutting against a hardened button bolted into the drive housing and in the other direction by a wearing washer dowelled to the spindle bearing. The drive spindle runs directly in the iron spindle bearing.

Note:—Should at any time it become necessary to renew the speedometer drive gears or to change the ratio to suit new tyres and/or rear axle ratio, then having fitted the corresponding gear to the driving spindle care must be exercised in assembling the spindle bearing assembly.

It will be noted that the flange for attaching the spindle bearing to the speedometer drive housing has a number of holes and also that the spigot diameter of the spindle bearing is eccentric to the spindle box. This is to give the required range of adjustment of gear centres to suit the various speedometer gear ratios.

Further, it will be noted that each pair of holes in the flange are marked with a number which corresponds to the number of teeth on the speedometer drive spindle gear.

It is imperative that the spindle housing be assembled with the attachment studs in the holes marked with the number of teeth on the particular gear fitted.

Re-assembly is carried out by a reversal of operations 1–2 taking into account the previous note.

Servicing Data

All ball, roller and needle roller bearings should be renewed as deemed necessary.

1st and 2nd Speed Gears on Layshaft

These gears are renewable, being press fitted to the shaft and located, each by two keys.

New gears can be easily fitted by pressing off the old gears and refitting new ones by the same method.

Precautions should be taken when fitting new gears to remove all sharp edges which will otherwise damage the comparatively soft layshaft.

Selector Shaft and Spherical Bush

Initial Diametral Clearance—±0.005"/±0.0015".

Reverse Gear on Reverse Shaft

Initial Diametral Clearance, bush to shaft—±0.0045"/±0.0012".

The seals fitted at the constant mesh pinion and rear of the output shaft are of “Gaco M1” type and should be renewed at overhaul. In carrying out this operation the clutch brake drum and propeller shaft coupling flange diameter upon which these seals run, should be checked to ensure that no undue wear has taken place and also that the diameters are not damaged in any way.
ARRANGEMENT OF LDS 4-SPEED GEARBOX

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ARRANGEMENT OF LDS 4-SPEED GEARBOX
SHEET TWO
33.LDS
S1.8
ARRANGEMENT OF L.D.S. 4-SPEED GEARBOX

33LDS.