

## SECTION F

### THE GEARBOX

General Description.

Section No. F.1 Removing and replacing the gearbox.

Section No. F.2 Dismantling the gearbox.

Section No. F.3 Dismantling the mainshaft assembly.

Section No. F.4 Reassembling the mainshaft and gearbox.

Section No. F.5 Filler plug modification.

#### GENERAL DESCRIPTION

The gearbox has four forward speeds and one reverse. Synchromesh is incorporated on second, third and top gears.

Gear changing is effected by a remote control lever located at the outer side of the driver's seat.

Top gear is a direct drive ; third and second are in constant mesh ; first and reverse are obtained by sliding spur gears.

#### **Section F.1**

##### REMOVING AND REPLACING THE GEARBOX

Remove the power unit as detailed in Section A.14.

Remove the bell housing shield by unscrewing the four retaining bolts.

Remove the bell housing bolts and withdraw the gearbox with the bell housing and rear extension. Take care to support the weight of the box and avoid damage to the first motion shaft.

#### **Section F.2**

##### DISMANTLING THE GEARBOX

Unscrew the seven bolts securing the bell housing to the gearbox and remove the housing. The clutch shaft need not be removed. Note the bearing plate and bearing spring plate fitted against the bearing ; these must be replaced when the housing is reassembled. Take care not to lose the shifter shaft oil seals

fitted to the ends of the shifter shafts and locating in holes in the bell housing.

Extract the split pins and clevis pins from the selector and shifter arms on the gearbox side cover ; knock up the locking tabs, unscrew the nuts and withdraw the arms from the side cover.

Screw out the speedometer drive and the reverse light switch from the right-hand side of the rear extension.

Remove the filler plug and level indicator.

Unscrew the retaining screws and remove the side cover, also located by two dowels. Removal of the cover will release the selector balls and springs ; extract the balls from their holes in the casing and the springs from the cover.

Extract the eight screws and withdraw the rear extension from the gearbox ; a bearing plate and bearing spring plate are fitted against the bearing and must be replaced on reassembly.

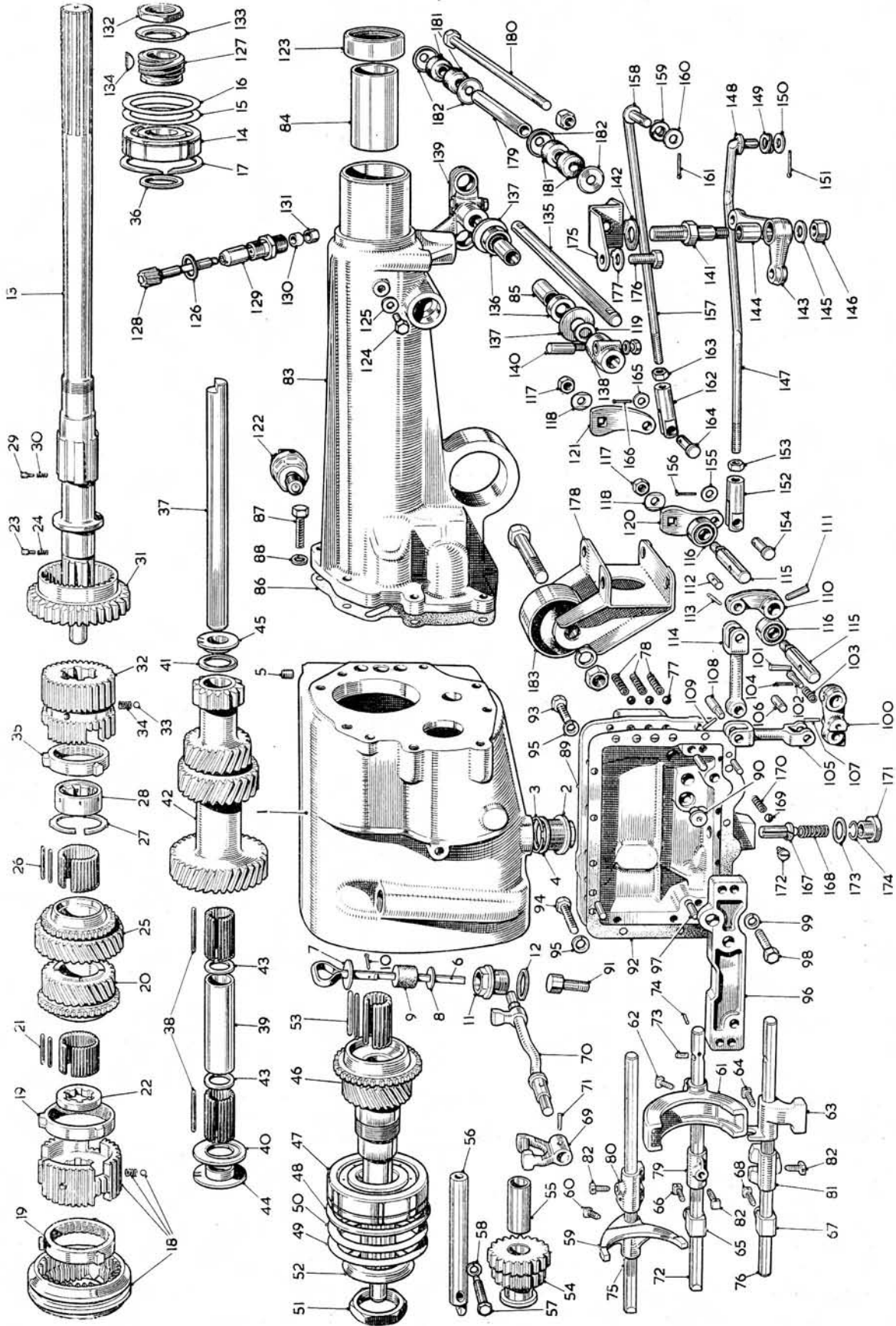
Cut the wire and unscrew the set screws locating the top gear fork and selector on the selector shaft ; push the shaft from the box leaving the fork in position.

Cut the wire and unscrew the set screws locating the reverse stop, selector and shifter arm ; push the shaft from the box and withdraw the stop, selector and shifter arm.

Cut the wire and unscrew the set screws locating the first and second gear shifter fork and stop ; rotate the shaft to bring the fork set screw to an accessible position ; cut the wire and slacken the set screw ; push the shaft from the box and withdraw the stop, selector and fork.

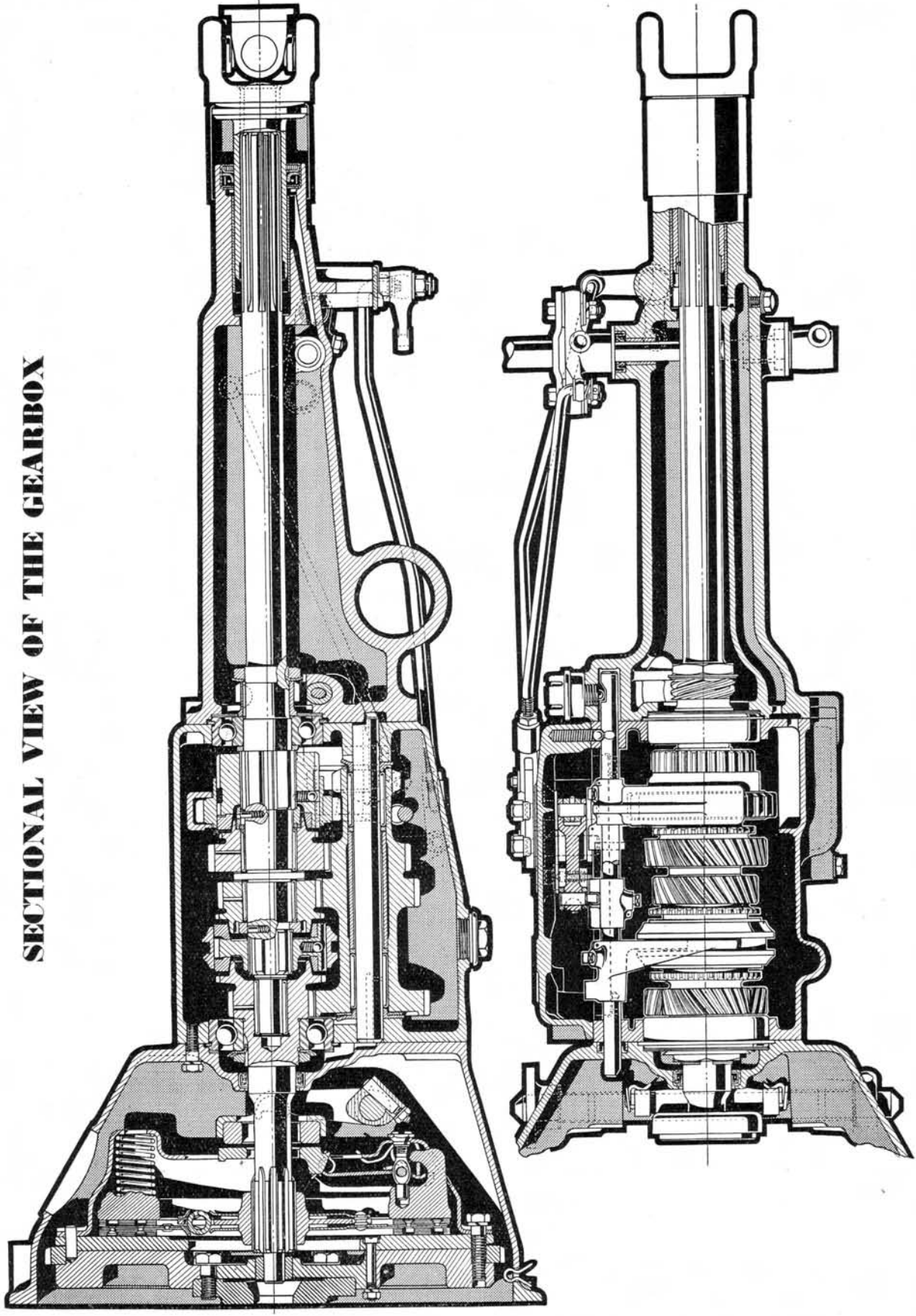
Take care not to lose the interlock balls which will be released as the shafts are withdrawn from the box.

**THE GEARBOX COMPONENTS**



## KEY TO THE GEARBOX COMPONENTS

No.	Description	No.	Description	No.	Description
1.	Casing—gearbox.	95.	Washer—spring—gearbox side cover bolt.	138.	Collar—locating.
2.	Plug—drain.	96.	Plate assembly—gearbox side cover bearing.	139.	Coupling—universal.
3.	Circlip—drain plug.	97.	Dowel—side cover bearing plate.	140.	Cotter—collar and universal coupling.
4.	Washer—drain plug circlip.	98.	Bolt—side cover bearing plate.	141.	Pivot—external selector lever—rear.
5.	Plug—interlock hole.	99.	Tab washer—side cover bearing plate bolt.	142.	Tab washer—external selector lever.
6.	Indicator—oil level.	100.	Lever—internal selector.	143.	Lever—rear external selector.
7.	Washer—top.	101.	Pin—taper—internal selector lever.	144.	Bush—rear external selector lever.
8.	Washer—bottom.	102.	Plunger—internal selector.	145.	Washer—rear external selector lever.
9.	Felt.	103.	Spring—internal selector plunger.	146.	Nut—rear external selector lever.
10.	Pin—split.	104.	Pin—split—internal selector plunger.	147.	Rod assembly—selector lever connecting.
11.	Plug—oil filler.	105.	Link—selector.	148.	Washer—selector lever connecting rod.
12.	Washer—oil filler plug.	106.	Pin—selector link.	149.	Washer—Thackeray.
13.	Mainshaft.	107.	Pin—taper—selector link.	150.	Washer—plain.
14.	Bearing—mainshaft.	108.	Pin—selector operating.	151.	Pin—split.
15.	Plate—mainshaft bearing.	109.	Pin—taper—selector operating.	152.	Yoke—selector lever.
16.	Plate—mainshaft bearing spring.	110.	Lever—internal shifter.	153.	Locknut—selector lever yoke.
17.	Circlip—mainshaft bearing.	111.	Pin—taper—internal shifter lever.	154.	Pin—clevis—selector lever.
18.	Hub—mainshaft sliding—top, 3rd and striking dog.	112.	Pin—internal shifter lever.	155.	Washer—selector lever.
19.	Interceptor—mainshaft.	113.	Pin—taper—internal shifter lever.	156.	Pin—split—selector lever.
20.	Gear—3rd speed.	114.	Link—internal shifter lever.	157.	Rod assembly—shifter lever connecting.
21.	Roller—3rd speed gear.	115.	Shaft—cross—selector and shifter lever.	158.	Washer—shifter lever connecting.
22.	Lockplate—3rd speed gear.	116.	Seal—oil—lever cross-shaft.	159.	Washer—Thackeray.
23.	Plunger—3rd speed.	117.	Nut—lever cross-shaft.	160.	Washer—plain.
24.	Spring—3rd speed plunger.	118.	Tab washer—lever cross-shaft.	161.	Pin—split.
25.	Gear—2nd speed.	119.	Washer—Belleville.	162.	Yoke—shifter rod.
26.	Roller—2nd speed gear.	120.	Lever—selector—external.	163.	Locknut—shifter rod yoke.
27.	Washer—2nd speed.	121.	Lever—shifter—external.	164.	Pin—clevis—shifter rod.
28.	Collar—lock—2nd speed.	122.	Switch—reverse light.	165.	Washer—shifter rod.
29.	Plunger—2nd speed.	123.	Seal—oil—rear end.	166.	Pin—split—shifter rod.
30.	Spring—2nd speed plunger.	124.	Plug—oil hole.	167.	Plunger—reverse.
31.	Gear—1st speed.	125.	Washer—oil hole plug.	168.	Spring—reverse plunger.
32.	Hub—sliding—1st and 2nd gear.	126.	Washer—bush—speedometer pinion.	169.	Ball—reverse plunger.
33.	Ball—1st and 2nd gear sliding hub.	127.	Gear—speedometer } 4/8 ratio.	170.	Spring—reverse plunger ball.
34.	Spring—1st and 2nd gear sliding hub.	128.	Pinion—speedometer }	171.	Plug—side cover.
35.	Interceptor.	129.	Bearing—speedometer pinion.	172.	Screw—retaining—side cover.
36.	Bearing—distance collar.	130.	Seal—oil—speedometer pinion.	173.	Washer—side cover plug.
37.	Layshaft.	131.	Collar—distance—speedometer pinion.	174.	Circlip—side cover plug.
38.	Roller assembly—layshaft.	132.	Locknut—speedometer gear.	175.	Bracket—engine steady.
39.	Spacer—layshaft roller.	133.	Washer—speedometer gear.	176.	Bolt—engine steady.
40.	Washer—layshaft thrust—front.	134.	Key—speedometer gear.	177.	Tab washer—engine steady.
41.	Washer—layshaft thrust—rear.	135.	Shaft—relay—gear change mechanism.	178.	Bracket—gearbox support.
42.	Gear unit—layshaft.	136.	Seal—oil—relay shaft.	179.	Tube—distance—engine steady.
43.	Washer—layshaft.	137.	Washer—relay shaft.	180.	Bolt—engine steady.
44.	Plate—layshaft thrust—front.			181.	Rubber—engine steady link.
45.	Plate—layshaft thrust—rear.			182.	Cup—engine steady link.
46.	Gear—drive.			183.	Bush—rubber—rear engine mounting.
47.	Bearing—drive gear.				
48.	Circlip—drive gear bearing.				

**SECTIONAL VIEW OF THE GEARBOX**

Remove the first motion shaft.

Tap out the layshaft ; remove the gear from the box by rolling it around the mainshaft gears. Note the two thrust washers which will probably be withdrawn with the gear ; if they are detached from the gear there is a danger that the needle rollers may drop out and be lost.

Remove the mainshaft as follows :—

Tap up the locking tab and unscrew the nut securing the speedometer drive gear and bearing ; remove the washer, speedometer drive gear and key, and the ball race.

Push the mainshaft assembly to the rear and then forward and out of the box.

Unscrew the reverse shaft locating bolt and remove the shaft and gear.

## Section F.3

### DISMANTLING THE MAINSHAFT ASSEMBLY

Slide the first and second gear synchromesh hub, gear and interceptor from the rear end of the shaft. Do not lose the balls and springs which will be released if the gear is removed from the hub.

Slide the top and 3rd speed hub and interceptor forwards from the shaft. Take care not to lose the balls and springs in the hub.

Depress the plunger locating the third gear thrust washer ; rotate the washer to line up the splines and slide it from the shaft.

Remove the third speed gear from the shaft taking care not to lose any of the 32 rollers.

Depress the second gear locking collar plunger and rotate the collar to line up the splines ; slide the

collar from the shaft. Extract the plunger from the shaft and remove the two halves of the locking washer ; slide the second gear from the shaft. The gear runs on 33 rollers.

## Section F.4

### REASSEMBLING THE MAINSHAFT AND GEARBOX

Replace the reverse gear, shifter fork and cross-shaft ; screw in the locating bolt.

Reassemble the mainshaft components by reversing the sequence of operations detailed for dismantling (see Section F.3).

Replace the main shaft in the box ; fit the bearing to the shaft and housing.

Refit the first motion shaft and bearing assembly.

Assemble the two roller races in the layshaft gear ; fit the thrust washers to the gear ends and hold them in position with a smear of grease. Position the layshaft gear in the box by rolling it around the main shaft gears and locating the tabs on the thrust washers in the grooves provided. Push the layshaft into position with the cutaway portion at the rear to locate in the end face of the rear extension.

Refit the shifter forks to the main shaft gears.

Insert the first and second gear shifter rod (the middle one), and thread on the fork, selector and stop ; tighten and re-wire the set screws.

Make sure that the interlock plunger is riveted in position in the end of the shifter shaft and insert one interlock ball ; fit the top gear shifter shaft and selector. Tighten the set screws and re-wire.

Position the remaining interlock

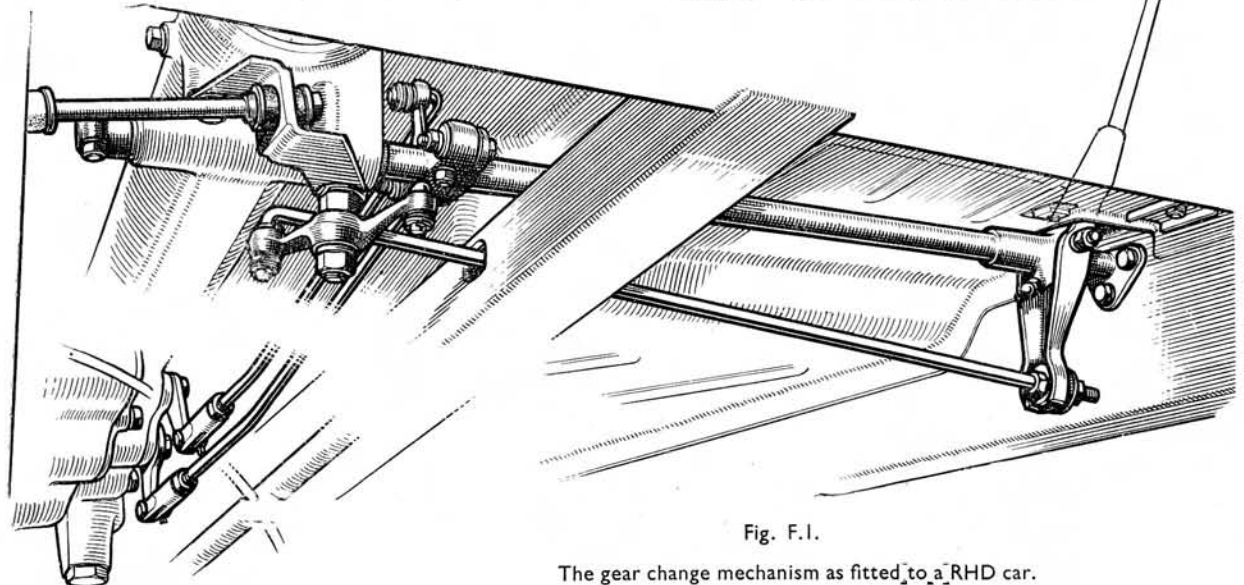


Fig. F.1.

The gear change mechanism as fitted to a RHD car.

ball ; insert the reverse gear shifter shaft and thread on the stop and shifter arm ; tighten and re-wire the set screws.

Refit the selector balls to the housing and the springs in the holes in the side cover.

Refit the side cover, bell housing and rear extension.

Screw in the reverse light switch, speedometer drive, drain plug, and filler plug.

## SECTION F.5

### FILLER PLUG MODIFICATION.

The filler plug and oil level indicator have been altered by the addition of a circlip to prevent oil leaking at this point. Cars should have the new parts fitted when being serviced.

Part Nos. of the new parts are as follows :—  
Filler plug : AEB.3225. Filler plug circlip : AEB.3226.  
Sub-assembly, oil indicator : AEB.3223