SECTION F

THE GEARBOX

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.

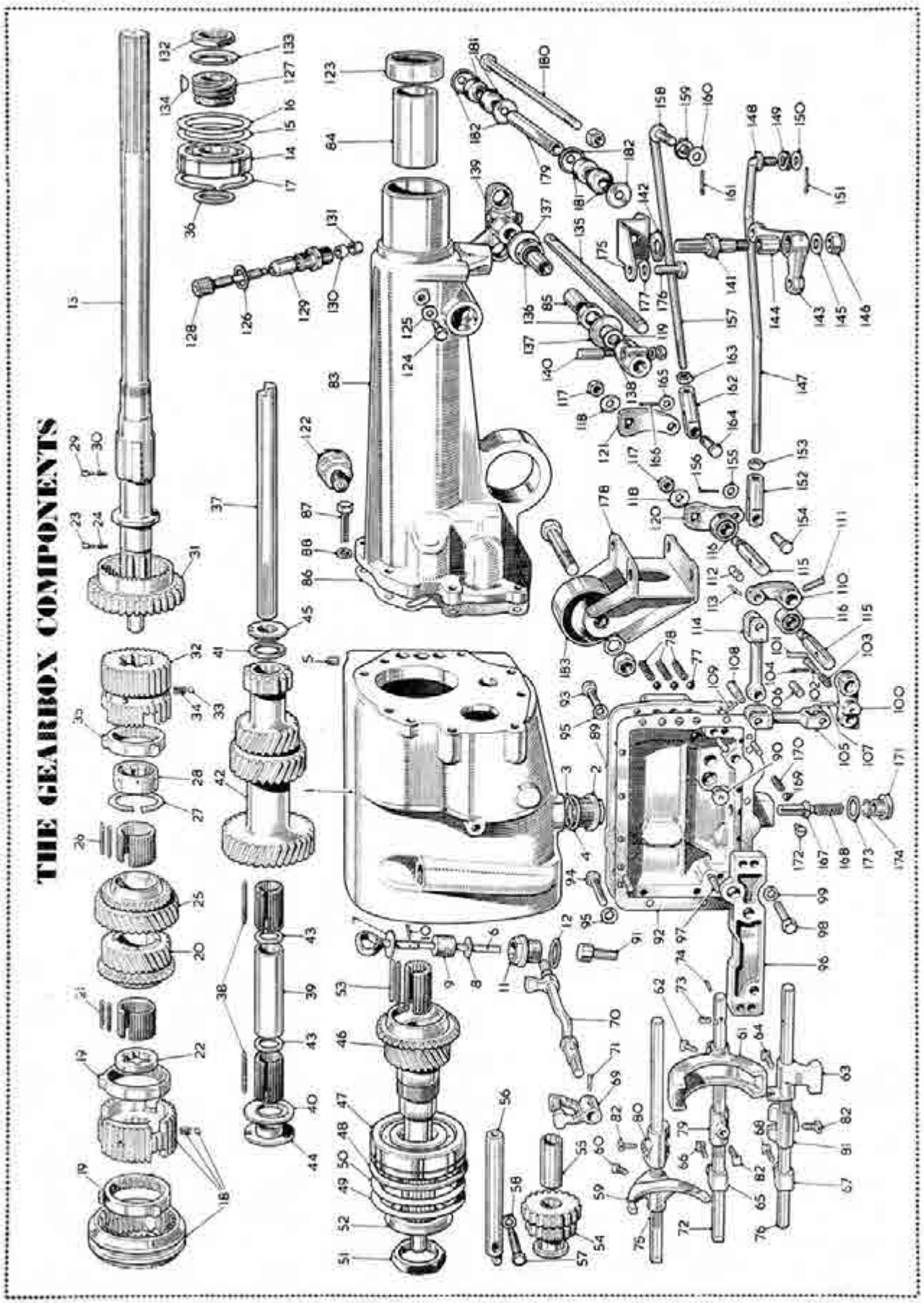
Cut the wire and unscrew the set screws locating the top gear fork and selector on the selector shaft ; push the shaft from the box leaving the fork in position.

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.

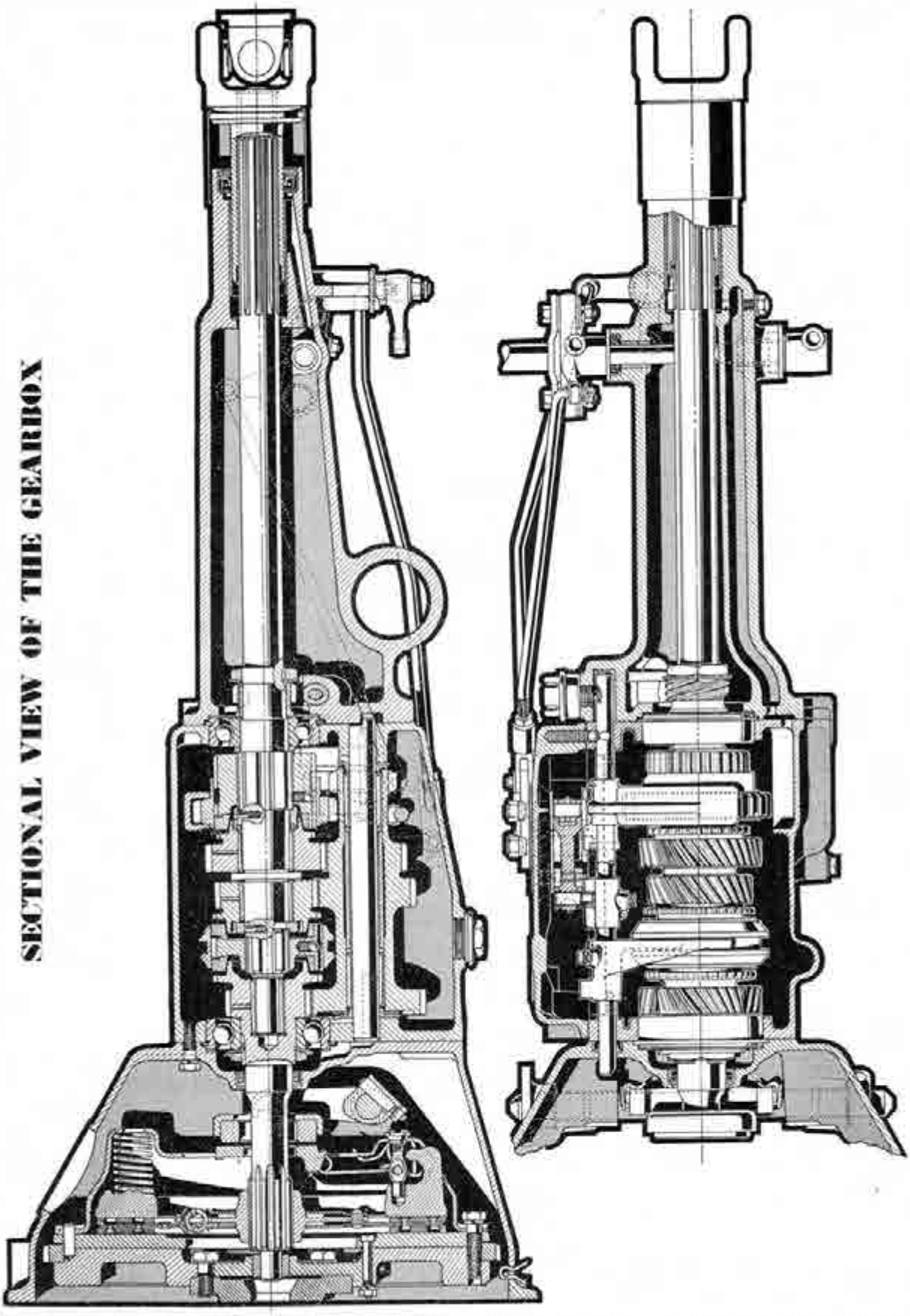
THE GEARBOX COMPONENTS



KEY TO THE GEARBOX COMPONENTS

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

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

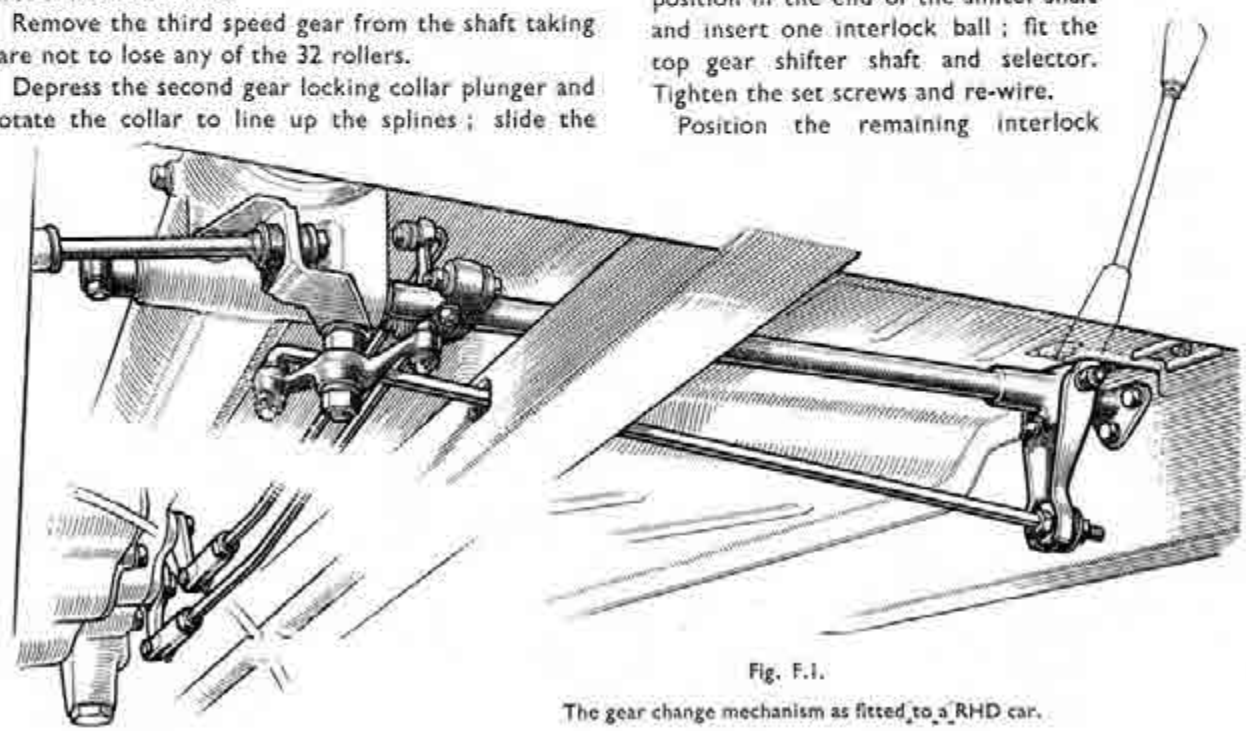


Fig. F.1.

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