FRONT OUTPUT SHAFT HOUSING

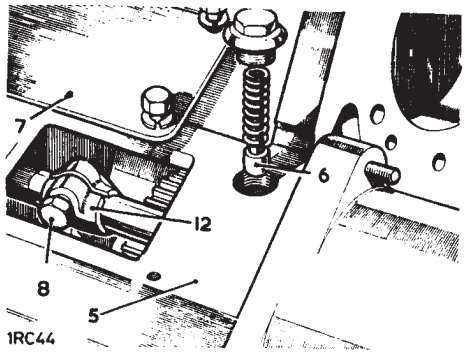
Remove and refit **37.10.05**

Removing

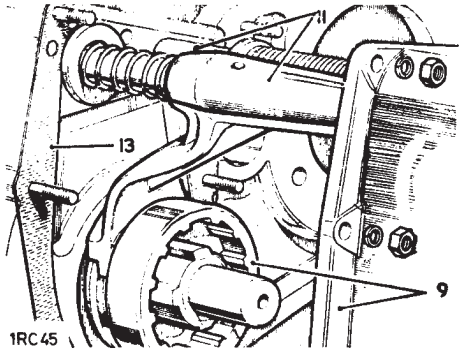
1 Remove the front floor. 76.10.12.
2 Remove the seat base. 76.70.06.
3 Drain the gearbox lubricating oil.
4 Remove the transmission brake. 70.45.16.
5 Remove the transfer box. 37.29.25.
6 Remove the transfer gear selector shaft plunger.
7 Remove the top cover from the transfer box.
8 Remove the pinch bolt from the transfer selector fork.
9 Remove the front output shaft housing from the transfer box, taking care to catch the four wheel drive locking dog which will be released.
10 Withdraw the loose selector fork from the transfer box.

Refitting

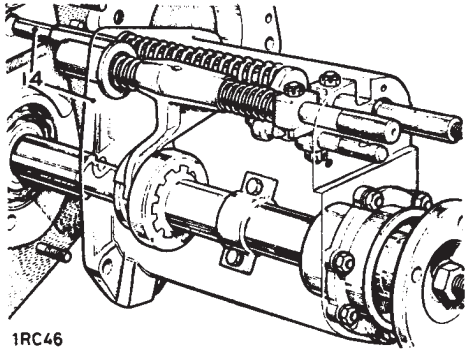
11 If the selector shafts have been removed, refer to 37.10.06 for refitting procedure.
12 Place the transfer gear selector fork in position, with the threaded side of the pinch bolt hole towards the centre of the transfer box.
13 Smear both sides of the joint washer with a general purpose grease and place in position on the transfer box.
14 Offer the output shaft housing to the transfer box, carefully locating the transfer gear selector shaft through the selector fork by turning the flange if necessary to engage the splines of the locking dog over the output shaft.



1RC44

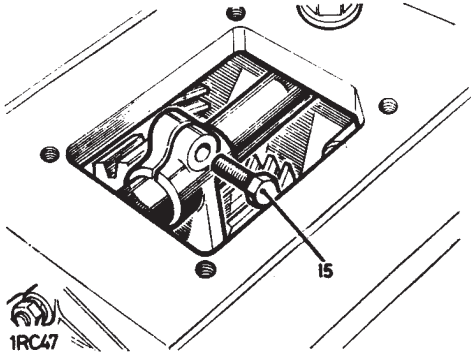


1RC45



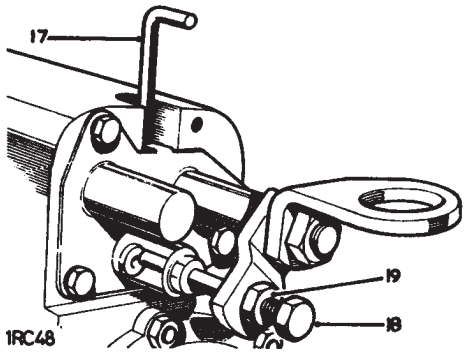
1RC46

15 Complete the refitting by reversing the removal procedure. Ensure that the selector fork pinch bolt engages the groove in the selector shaft. This bolt will fit only one way.



1RC47

16 If the transfer box is of the all helical type, see 37.29.28, adjust the transfer travel stop as follows.
17 Engage four wheel drive, low ratio, and check the fit of the four wheel drive locking pin in the pivot shaft. The pin must be an easy slide fit.
18 If necessary, adjust the stop bolt to obtain this condition.
19 Tighten the locknut to secure the stop bolt.
20 Replenish the gearbox oil.



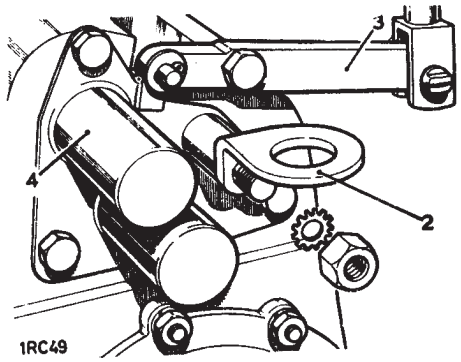
1RC48

FRONT OUTPUT SHAFT HOUSING

Overhaul **37.10.06**

Dismantling the housing

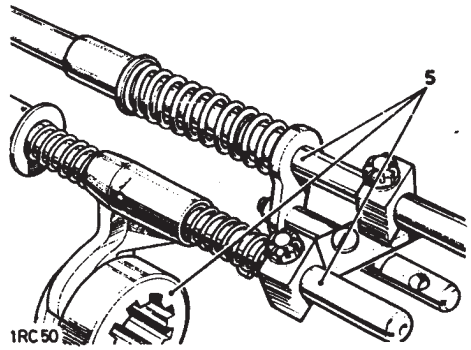
1 Remove the front output shaft housing. 37.10.05.
2 Remove the link from the transfer gear selector shaft.
3 Remove the four wheel drive control lever.



1RC49

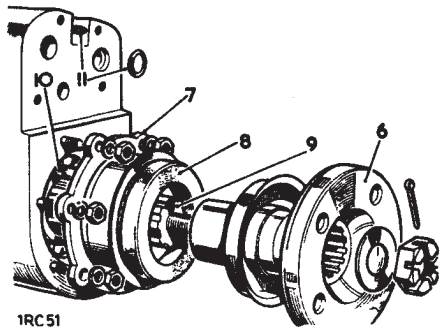
4 Remove the selector shaft dust cover.
5 Withdraw the selector shaft assemblies and the four wheel drive locking dog from the housing.

continued



1RC50

6 Remove the flange from the front output shaft.
7 Remove the oil seal retainer and gasket.
8 Press out the oil seal.
9 Remove the front output shaft from the housing.

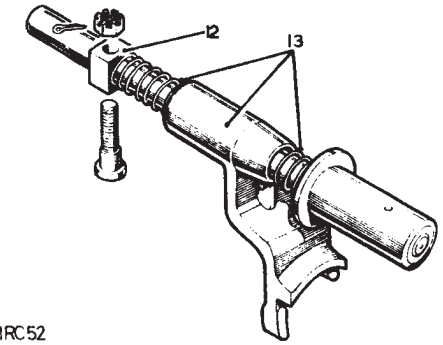


1RC51

10 Press out the bearing from the housing.
11 Remove the sealing rings for the four wheel drive locking pin and the transfer gear shaft.

Dismantling the four wheel drive selector shaft

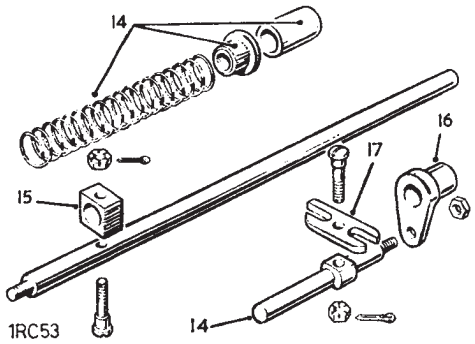
12 Remove the block from the selector shaft.
13 Withdraw the springs and selector fork from the shaft.



1RC52

Dismantling the transfer gear selector shaft

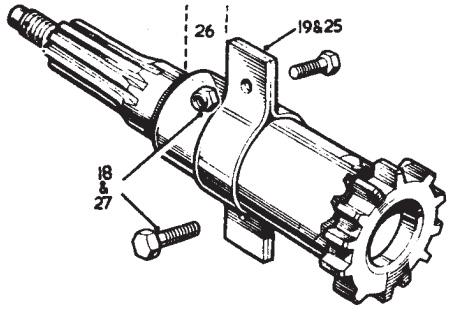
14 Slide the distance tube, bush, spring and pivot shaft assembly from the selector shaft.
15 Remove the block.
16 Remove the connector from the pivot shaft.
17 Remove the coupling from the pivot shaft.



1RC53

Dismantling the front output shaft

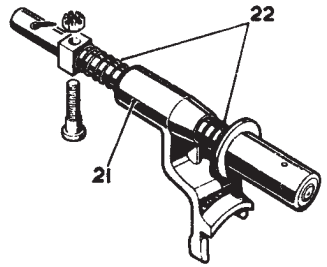
18 Remove the fixings.
19 Lift the two halves of the oil thrower from the shaft.



1RC55

Inspecting

20 Renew any components which show obvious wear or damage. Examine the bush in the four wheel drive control lever and renew if necessary.
21 Examine the four wheel drive selector fork and bushes, and renew as necessary. New bushes must be pressed flush with the end faces of the fork boss, and reamed in position to 15,887 mm + 0,012 mm (0.6255 in. + 0.0005 in.) diameter, and must be a sliding fit on the selector shaft.
22 Check the four wheel drive selector shaft springs, the free length should be 69,8 mm (2.75 in.).



1RC 54

23 Check the transfer selector shaft spring, the free length should be 181,76 mm (7.156 in.).
24 Examine the bush in the rear end of the front output shaft. The bush must be a sliding fit on the front end of the transfer box output shaft and must be firmly retained in its bore. If bush replacement is necessary, press the new bush flush with the end of the shaft and ream in position to 22,2 mm ± 0,013 mm (0.8755 in. ± 0.0005 in.) diameter.

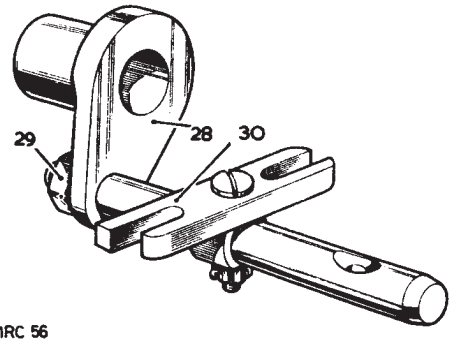
Assembling the front output shaft

NOTE: If a new output shaft is being fitted try the bronze bush over the front end of the rear output shaft and ensure that it is not tight to prevent subsequent seizure.

25 Fit the oil thrower to the front output shaft, do not fully tighten the fixings at this stage.
26 Position the oil thrower 25 mm (1 in.) from the shoulder on the shaft, as illustrated.
27 Tighten the fixings.

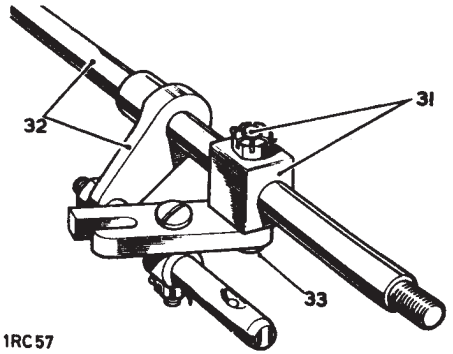
Assembling the transfer gear selector shaft

28 Fit the connector to the pivot shaft noting the relationship of the countersink in the hole at the other end of the shaft.
29 Do not fully tighten the fixings at this stage.
30 Fit the coupling to the pivot shaft locating the extended arm correctly, as illustrated.



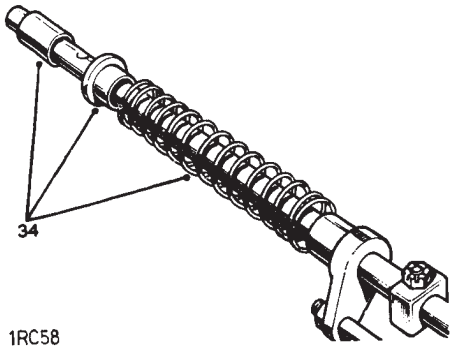
1RC 56

31 Fit the block to the transfer gear selector shaft, locating the fixings so that the nut and split pin are on the same side of the shaft as the plunger grooves.
32 Locate the pivot shaft assembly in position on the transfer gear selector shaft.
33 Engage the coupling with the special screw.



1RC57

34 Fit the spring, locating bush and distance tube on to the selector shaft.

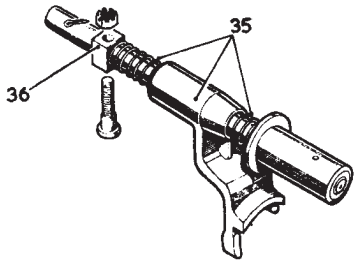


1RC58

Assembling the four wheel drive selector shaft.

35 Fit the springs and selector fork to the shaft. Note that the two springs are identical and are interchangeable.

36 Fit the block to the selector shaft.



1RC 59

Assembling the housing

37 Fit the oil seal for the front output shaft, lipped side inward, into the retainer, with a smear of sealant on the seal outside diameter.

38 Press the bearing into the housing.

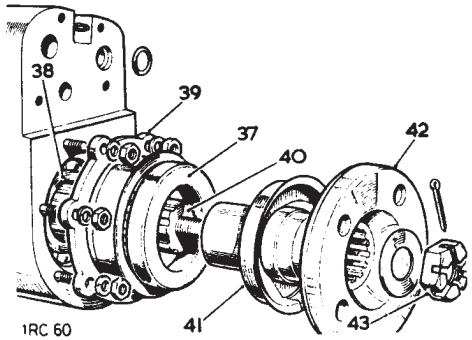
39 Smear both sides of the joint washer with general purpose grease, and fit the oil seal retainer and joint washer to the housing.

40 Fit the front output shaft.

41 If the mud shield has been removed, refit it, dished side first, to the output flange.

42 Fit the flange to the output shaft.

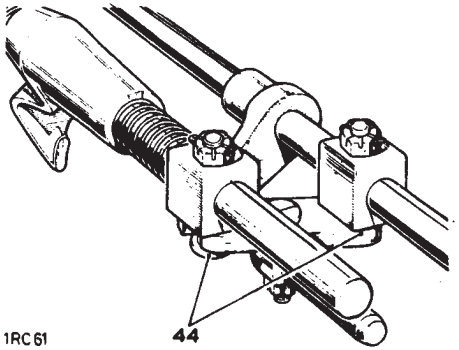
43 Tighten the securing nut to a torque figure of 11,75 kgf. m (85 lbf. ft.).



1RC 60

Pre-alignment of selector shafts

44 Locate the two selector shafts together by engaging the coupling with the special screws.



1RC61

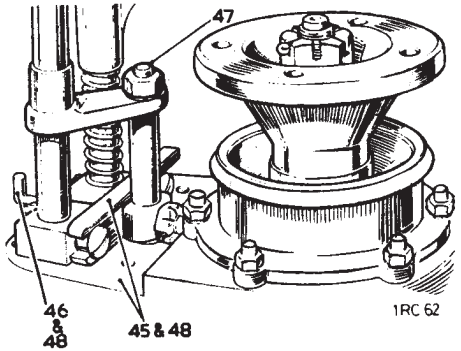
45 Locate the selector shaft assembly into the front face of the output shaft housing.

46 Fit the four wheel drive locking pin, engaging it in the countersunk hole in the pivot shaft. This will ensure correct radial alignment of the pivot shaft to the connector.

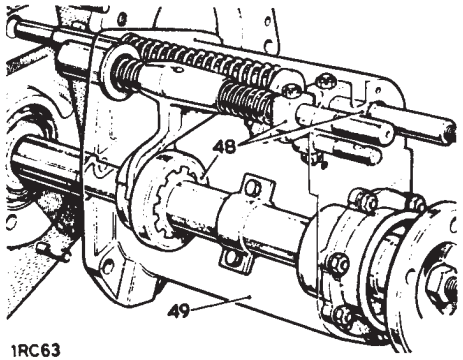
47 Fully tighten the nut to secure the connector to the pivot shaft.

48 Remove the locking pin and withdraw the selector shafts as one unit, then without disturbing their alignment, engage them into their correct location in the output shaft housing, while at the same time fitting the four wheel drive locking dog over the output shaft and into the selector fork.

49 If convenient, it will be advantageous at this stage to fit the front output shaft housing to the transfer box 37.10.05.



1RC 62



1RC63

50 Fit the sealing rings for the transfer gear selector shaft and the four wheel drive locking pin.

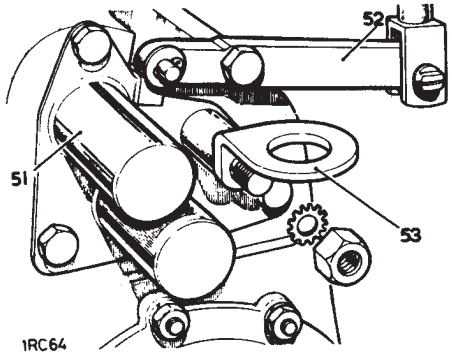
51 Grease the two shafts and fit the selector shaft dust cover, using Bostik sealant 772 on the joint face.

52 Fit the lever to the selector shaft, but do not fully tighten the fixing pending setting the four wheel drive lever during floor refitting.

53 Fit the transfer gearshaft link.

54 Fit the four wheel drive locking pin and control lever.

55 Refit the front output shaft housing. 37.10.05.



1RC64

DATA

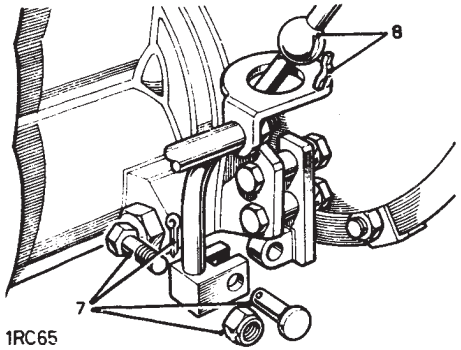
Four wheel drive selector fork bush	15,887 to 15,899 mm (0.6255 to 0.6260 in.) reamed diameter
Four wheel drive selector shaft springs, free length	69,8 m (2.75 in.).
Transfer selector shaft spring, free length	181,76 mm (7.156 in.).
Bush for output shaft	22,200 to 22,213 mm (0.8755 to 0.8760 in.) reamed diameter.

BELL HOUSING

Remove and refit 37.12.07

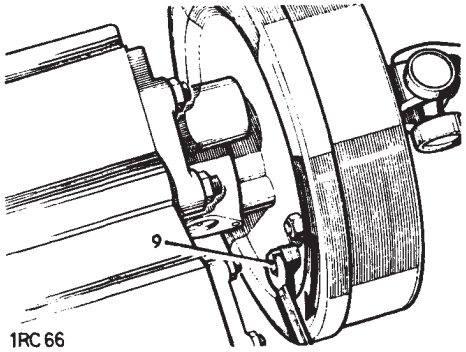
Removing

1 Remove the front floor. 76.10.12
2 Remove the seat base. 76.70.06.
3 Drain the gearbox lubricating oil.
4 Remove the gearbox assembly complete. 37.20.01.
5 Remove the main gearchange lever. 37.16.04.
6 Remove the clutch withdrawal unit. 33.25.12.
7 Disconnect the transfer gear lever from the bracket at the bell housing. The fixings illustrated are alternatives.
8 Withdraw the lever, taking care to retain the spring strip located between the lever ball and link.

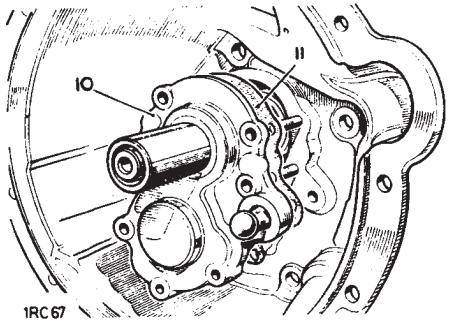


1RC65

9 Fully adjust the transmission brake to lock 'hard on'.
10 Remove the primary pinion cover and oil seal assembly.
11 Withdraw the joint washer.
12 Select any gear.
13 Remove the layshaft securing bolt and washer. DO NOT remove the circlip from the primary pinion.
14 Remove the bell housing fixings.
15 Retain the constant gear and conical distance piece which are released during the following procedure.
16 Hold the layshaft depressed fully rearwards and ease the housing from the gearbox.



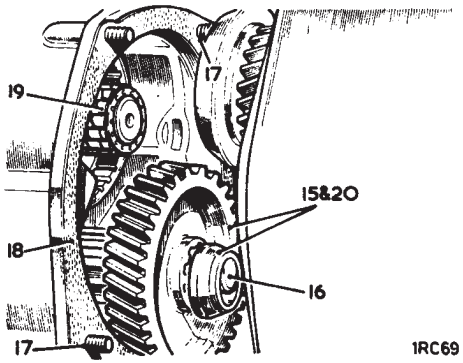
1RC66



1RC67

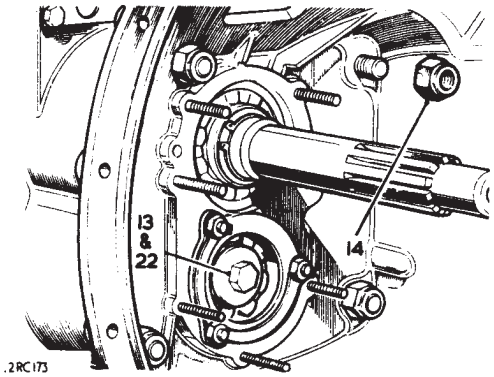
Refitting

17 Two of the bell housing to gearbox fixings are special fitted bolts, and must be positioned diagonally opposite each other.
18 Smear both sides of the joint washer with a general purpose grease and place in position on the gearbox.



1RC69

19 Ensure that the roller bearing for the primary pinion is in position.
20 Locate the conical distance piece and constant gear in place, in mesh with the primary pinion, on the rear face of the bell housing.
21 Retain the constant gear and conical distance piece in position, by holding through the layshaft bearing, from the inside of the bell housing, then offer the bell housing to the gearbox, using special care to align the constant gear with the splines on the layshaft.
NOTE: If the layshaft securing bolt has a nylon locking patch it should be discarded in favour of the latest standard setbolt. Smear with Loctite 601 and tighten to 6,9 kgf m (50 lbf ft).
22 Complete the reassembly by reversing 1 to 14. Smear the layshaft securing bolt with Loctite 601 and tighten to a torque figure of 6,9 kgf m (50 lbf ft).



2RC173

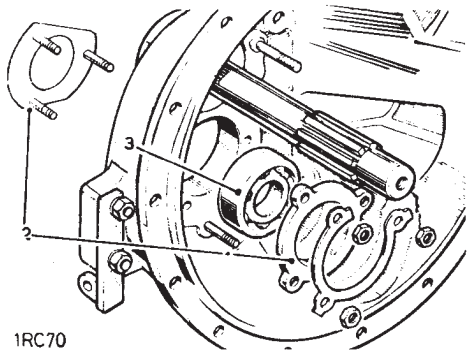
23 Check and replenish the gearbox lubricating oil.
24 Adjust the transmission brake. 70.45.09.

BELL HOUSING

Overhaul 37.12.08

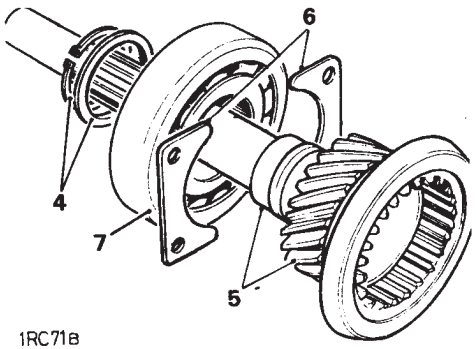
Dismantling

1 Remove the bell housing. 37.12.07.
2 Remove the layshaft bearing retainer and bearing plate.
3 Press the layshaft bearing from the bell housing.



1RC70

4 Remove the circlip and distance washer.
5 Press out the primary pinion.
6 Remove the bearing retaining plates.
NOTE: These are handed plates.
7 Press out the primary pinion bearing.



1RC71B

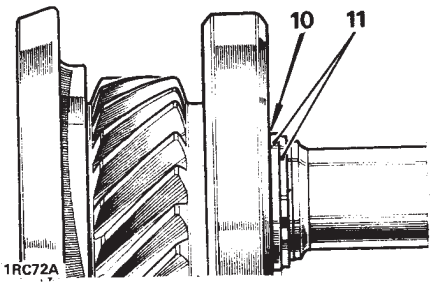
Assembling

8 Reverse 5 to 7

9 Fit the distance washer and position a new circlip in the retaining groove.

10 Check the end-float between the primary pinion and the distance washer. End-float must be the minimum obtainable, selecting a suitable distance washer from the range available. It should be possible to turn the washer without feeling any end-float.

11 Fit the selected distance washer and circlip.



12 Reverse 1 to 3.

GEARBOX MAIN CASING

Remove and refit 37.12.40

NOTE: If it is required to change the rear main oil seal only, it is not necessary to completely dismantle the gearbox. The oil seal is accessible after removing the intermediate gear and the mainshaft gear from the transfer box, see 37.29.25 and 37.20.25 for details.

Removing

1 Remove the front floor. 76.10.12.

2 Remove the seat base. 76.70.06.

3 Drain the gearbox lubricating oil.

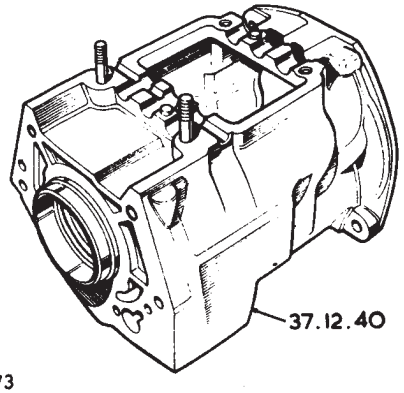
4 Remove the gearbox assembly complete. 37.20.01.

5 Remove the transmission brake. 70.45.16.

6 Remove the transfer box. 37.29.25.

7 Remove the main gear change lever. 37.16.04.

8 Remove the clutch withdrawal unit. 33.25.12.



9 Remove the bell housing. 37.12.07.

10 Remove the selector shafts. 37.16.31.

11 Remove the layshaft. 37.20.19.

12 Remove the mainshaft. 37.20.25.

13 When 1 to 12 are completed the gearbox main casing is released and can be dismantled as described under 'Overhaul', 37.12.43.

Refitting

14 Reverse 1 to 12.

GEARBOX MAIN CASE

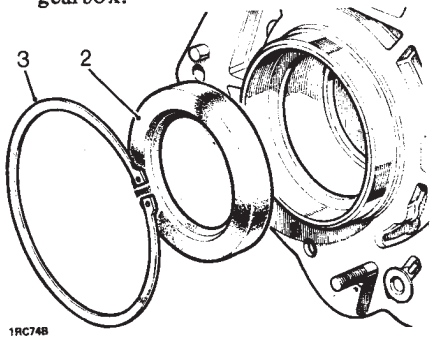
Overhaul 37.12.43

Dismantling

1 Remove the gearbox main case. 37.12.40.

2 Prise the oil seal from the rear of the mainshaft bearing housing.

3 Remove the circlip retaining the bearing housing to the rear face of the gearbox.



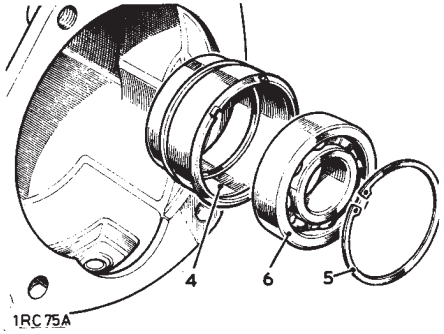
4 Press out the housing, complete with bearing, in a forward direction.

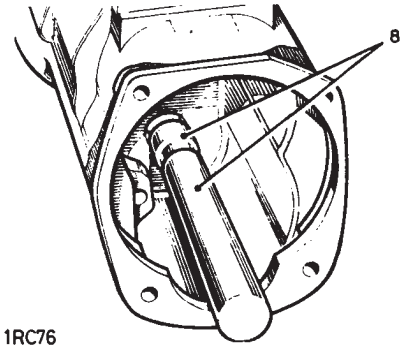
5 Remove the circlip.

6 Press the mainshaft rear bearing from the housing.

7 With the case warm, drive out the layshaft bearing outer race, using a suitable drift applied through the two extractor holes provided in the case rear face. (See also item 8.)

8 An alternative method is to use a mandrel, approximately 300 mm (12 in.) long by 43,50 mm (1.687 in.) diameter, so that it is a tight fit in the outer race. Warm the gearbox case and outer race, keep the mandrel as cool as possible. With the casing warm, insert the mandrel into the outer race which will shrink on to the mandrel and withdraw easily.





9 The remaining oil drain and filler plugs, studs, dowels and retaining plate for selector shaft oil seals, can be removed as required. See 37.20.13 for removal of reverse idler gear and shaft if required.

Inspecting

10 Check all components for wear and damage.

11 Ensure that the two dowels in the gearbox top face, and the two dowels in the rear face, are secure.

Assembling

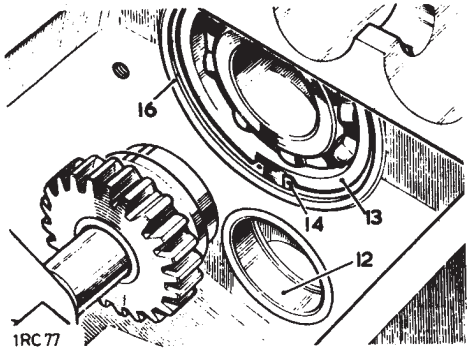
12 Press the layshaft rear bearing outer race, lipped edge first, into the gearbox case.

13 Smear the outside diameter of the mainshaft rear bearing with Loctite Retaining Compound, Grade 601 and press the bearing into the housing.

14 Retain with a circlip.

15 Fit the main shaft rear oil seal, lipped side first, into the bearing housing.

16 Smear the outside diameter of the bearing housing with Loctite Retaining Compound (Grade 601), Part No. 600303 and press it into position.



NOTE: The gearbox should not be filled with lubricating oil or used for twenty-four hours, to allow the Loctite to fully cure.

17 Fit the retaining circlip to the groove in the bearing housing where it protrudes through the rear face of the gearbox.

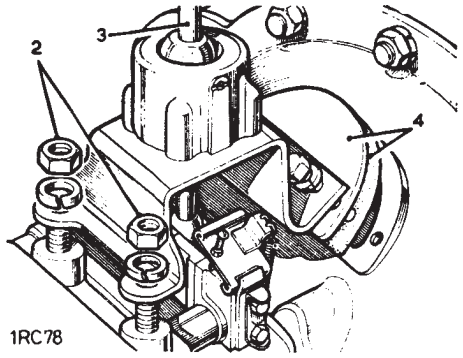
18 Refit the gearbox main case. 37.12.40.

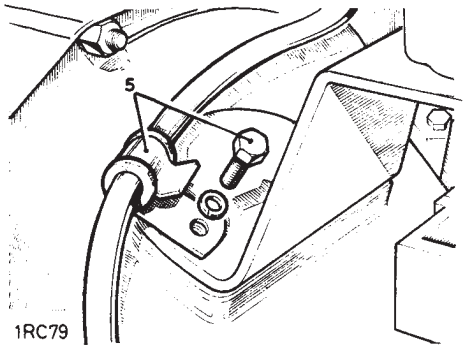
MAIN GEARCHANGE LEVER

Remove and refit 37.16.04

Removing

1 Remove the front floor. 76.10.12.
2 Remove the fixings.
3 Remove the main gearchange lever complete.
4 To prevent loss, lift off the top cover plate and rubber seal from the bell housing.





Refitting

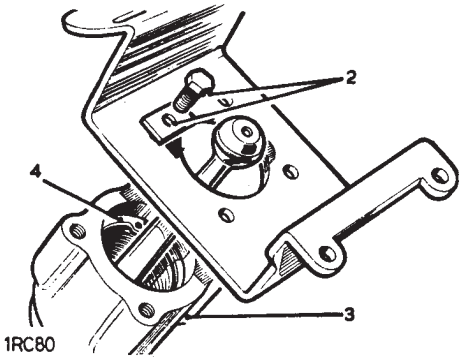
5 Reverse 1 to 4, noting that a retaining clip for the speedometer cable locates under the head of the front left hand gearchange lever securing bolt.

MAIN GEARCHANGE LEVER

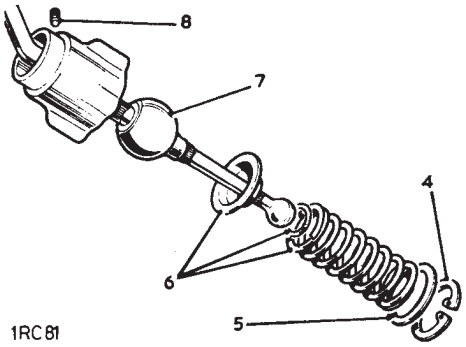
Overhaul 37.16.10

Dismantling

1 Remove the gearchange lever. 37.16.04.
2 Remove the fixings at the mounting plate.
3 Remove the lever housing from the mounting plate.
4 Remove the lever housing circlip.

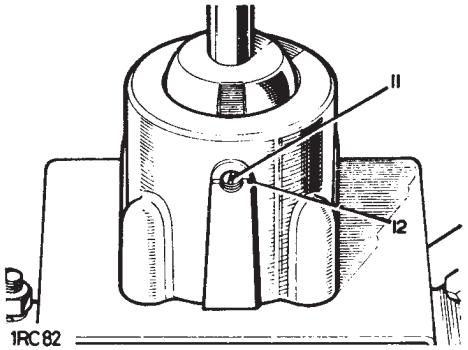


5 Withdraw the spring, rubber 'O' ring (later models) and spherical seat.
7 Lift out the gearchange lever.
8 Withdraw the lever ball locating pin.
9 Examine the components visually and renew any that show obvious wear or damage.



Assembling

10 Reverse 2 to 8.
11 Ensure that the lever locating pin engages the slot in the lever ball.
12 Secure the pin by peening.
13 Refit the gearchange lever. 37.16.04.

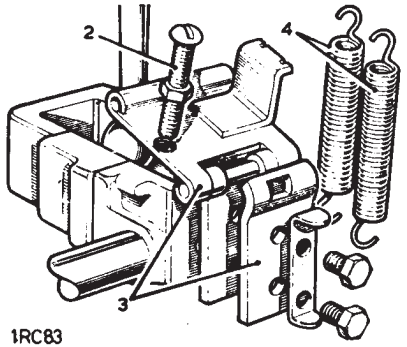


REVERSE STOP FOR MAIN GEARCHANGE LEVER

Remove, refit and adjust 37.16.28

Removing

1 Remove the front floor. 76.10.12.
2 Remove the hinge adjuster.
3 Remove the hinge and bracket from the reverse selector shaft.
4 Detach the two springs.



Refitting

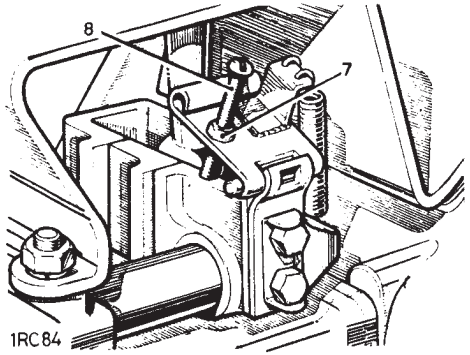
5 Reverse 1 to 4. Adjust the reverse stop before fitting the front floor, items 6 to 9.

Adjusting

6 Release the fixings and slide the reverse stop inspection cover up the four wheel drive selector lever.

NOTE: If the gearbox cover does not incorporate an inspection cover, then the adjustment must be carried out before the gearbox cover is fitted.

7 Slacken the adjusting screw locknut.
8 Adjust the screw so that the hinge rides easily up the gear lever when reverse gear is selected, while at the same time appreciable resistance is felt on moving the gear lever to the reverse position.



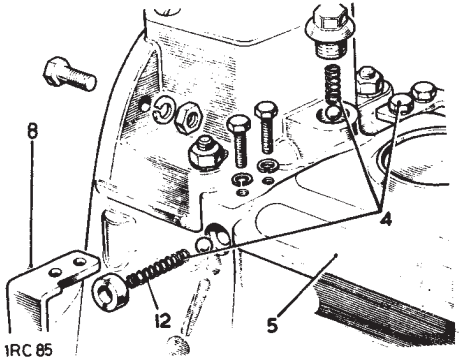
9 Ensure that 1st gear engages correctly, if there is any tendency to simultaneously engage reverse gear, readjust the reverse stop.

MAIN GEARCHANGE SELECTORS

Remove and refit 37.16.31

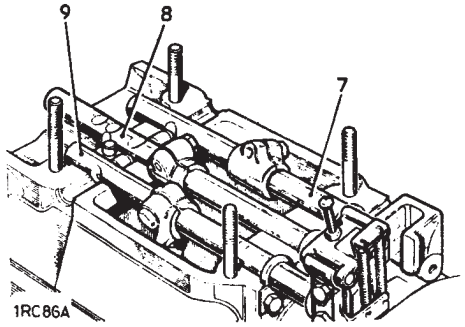
Removing

1 Remove the front floor. 76.10.12.
2 Remove the seat base. 76.70.06.
3 Remove the main gearchange lever. 37.16.04.
4 Remove the three selector springs and pack the drillings in the top cover with grease, to retain the selector balls when the cover is removed.
5 Remove the top cover and joint washer from the gearbox and collect the three selector balls.



6 Select third gear.
7 Lift the first/second selector shaft, do not attempt to remove but lift and withdraw the third/fourth selector shaft.
8 Lift, twist and remove the first/second selector shaft.
9 Lift, turn and withdraw the reverse selector shaft.

NOTE: No force is required to withdraw any of the selector shafts.

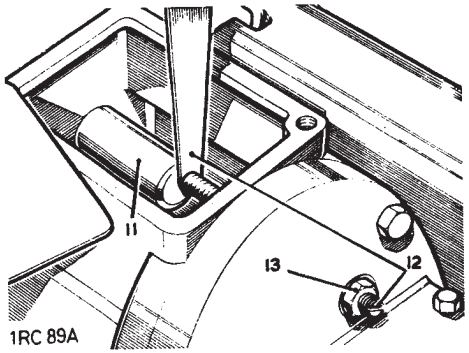


Refitting

10 Reverse 3 to 9.

NOTE: If a joint washer was not previously fitted to the top cover, then a joint washer should now be fitted.

11 Select reverse gear.
12 Adjust the reverse gear stop bolt so that there is 0,05 mm (0.002 in.) minimum clearance between the selector shaft and the end of the bolt.
13 Tighten the locknut.



NOTE: If the transfer box has been removed from the main gearbox, the foregoing adjustment must be carried out after the transfer box has been refitted.

14 Reverse 1 and 2.

DATA

Reverse gear selector shaft stop setting	0,05 mm (0.002 in) minimum clearance between shaft and stop

MAIN GEARCHANGE SELECTORS

Overhaul 37.16.34

NOTE: See the Note on page 37—20 at the end of Section 37.

Dismantling

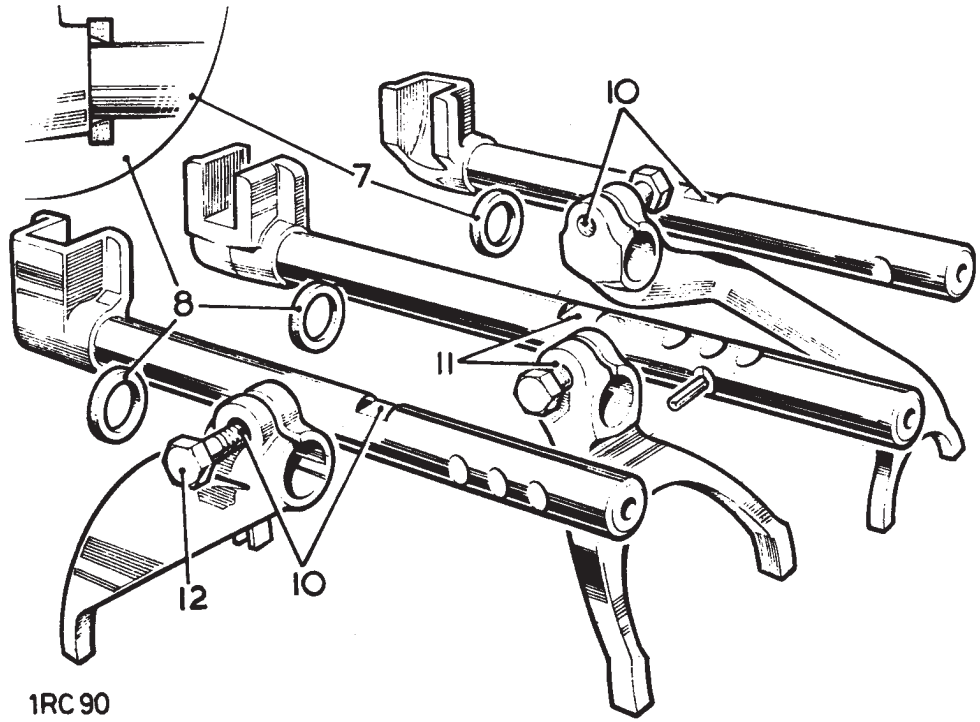
1 Remove the gearchange selectors. 37.16.31.
2 Remove the reverse selector stop. 37.16.28.
3 Remove the pinch bolts.
4 Withdraw the selector forks.
5 Withdraw the seals.

Inspecting

6 Examine the components visually and replace worn or damaged items.

Assembling

7 Fit the larger diameter tapered seal to the reverse shaft, with the thinner edge of the seal toward the front of the shaft.
8 Fit the two remaining tapered seals, thinner edges toward the front of the shafts.
9 Position the selector forks on the shafts.
10 Align the pinch bolt holes with the grooves on top of the shafts.
11 On the first/second gear selector, the groove required is the one nearest to the front of the shaft.
12 Fit the pinch bolts. There is radial movement between the selector fork and shaft before the pinch bolt is tightened, and the fork should be secured in the mid position and the bolts tightened to 2,7 kgf m (20 lbf ft).
13 Reverse 1 and 2.

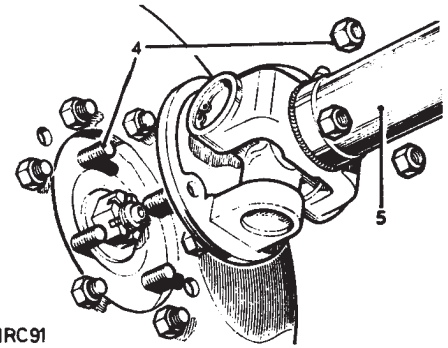


GEARBOX ASSEMBLY

Remove and refit 37.20.01

Removing

1 Remove the front floor. 76.10.12.
2 Remove the seat base. 76.70.06.
3 Drain the gearbox lubricating oil.
4 Remove the rear propeller shaft fixings at the transmission brake.
5 Move aside the shaft.

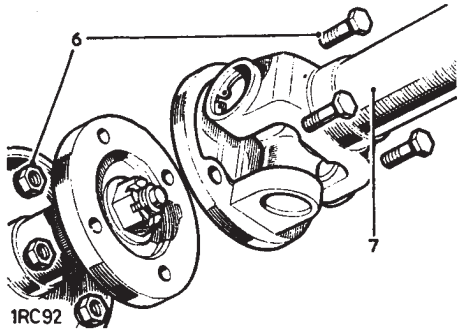


1RC91

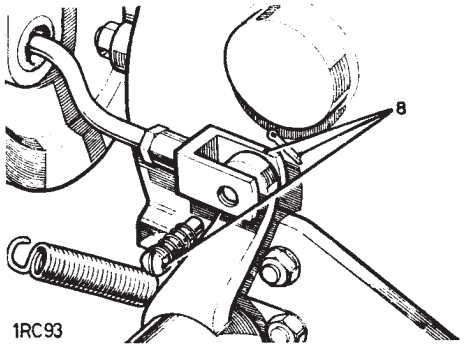
6 Remove the front propeller shaft fixings at the front output coupling.
7 Move aside the shaft.

NOTE: If the vehicle is fitted with any optional equipment driven from the gearbox, it must be disconnected at the gearbox. Refer to separate publication for details of optional equipment.

8 Disconnect the hand brake expander rod from the relay lever.

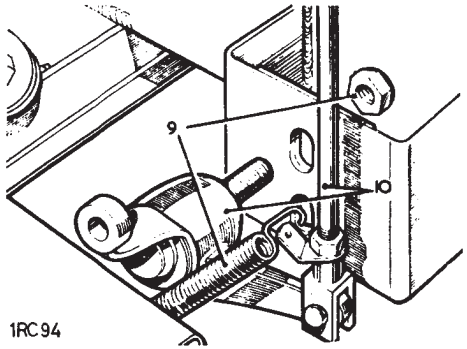


1RC92



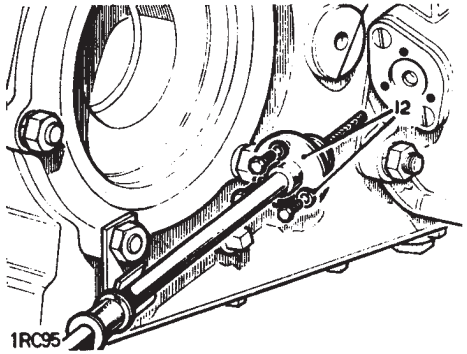
1RC93

9 Remove the brake lever and relay fixings.
10 Remove the brake lever and relay mechanism.



1RC94

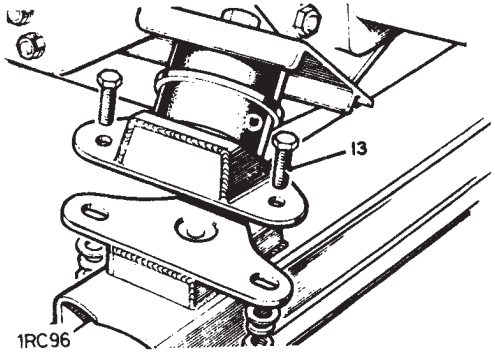
11 Left hand steering models only. Remove the brake lever cross-shaft.
12 Disconnect the speedometer cable from the gearbox.



1RC95

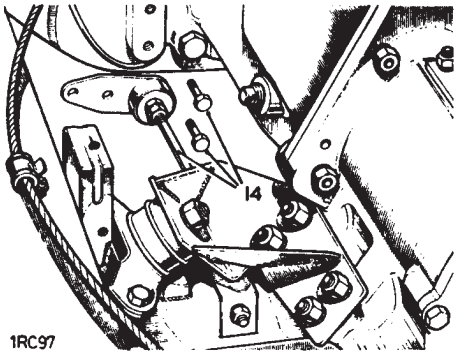
NOTE: On certain models, the engine exhaust pipe is located above the gearbox left hand rear mounting, and where applicable, the exhaust pipe must be moved clear. Also check the location of the engine earth strap, on certain models it is fitted between the gearbox and chassis and must therefore be disconnected.

13 Remove the fixings from two rear mountings for the gearbox.



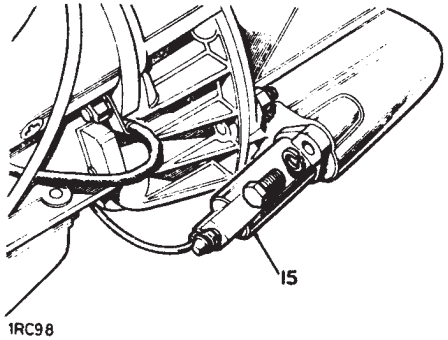
1RC96

14 On certain models, a tie rod is fitted between the gearbox and chassis. Where applicable, release the bracket at the bell housing and move the tie rod clear.
15 Remove the clutch slave cylinder from the bell housing.



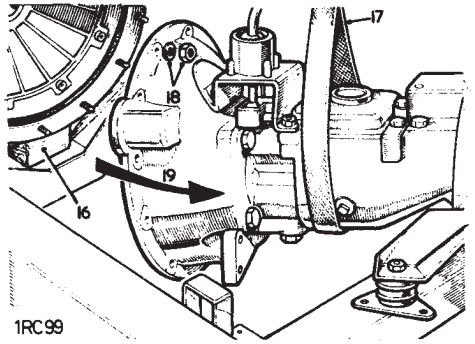
1RC97

16 Jack up the rear of the engine sufficient to insert a 25 mm (1 in.) thick block of wood between the flywheel housing and chassis, to retain the engine position when the gearbox is removed.



1RC98

17 Place a suitable sling around the gearbox and tension it sufficient to take the weight.



1RC99

18 Remove the remaining fixings securing the bell housing to the flywheel housing.
19 Carefully withdraw the gearbox rearwards clear of the clutch and lift from the vehicle.

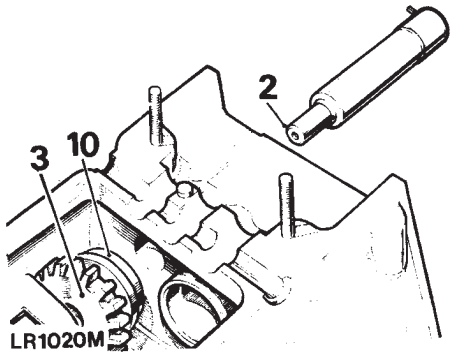
Refitting

20 Smear the splines of the primary pinion, the clutch centre and the withdrawal unit abutment faces with Molybdenum disulphide grease such as Rocol MTS 1000.
21 Check that the push-rod for the clutch slave cylinder is fitted to the release lever in the bell housing, then complete the refitting by reversing instructions 1 to 19.
22 Bleed the clutch hydraulic system as necessary. 33.15.01.

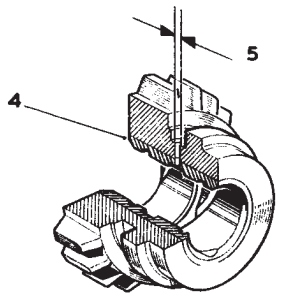
REVERSE IDLER GEAR AND SHAFT

Remove and refit, 1 to 3 and 10 to 12 37.20.13
Overhaul 1 to 12 37.20.14

Removing
1 Remove the gearbox main case. 37.12.40
2 Warm the gearbox case and drive out the reverse gear idler shaft from inside the case.
3 Lift out the reverse wheel assembly and collect the thrust washer and spacer on later assemblies with needle bearing.

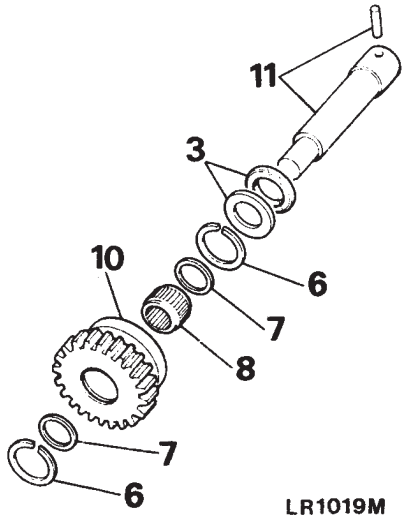


Overhauling
Early type with brush
4 Check the bush in the reverse wheel assembly. If a new bush is required it must be secured by peening after being pressed into position, and then reamed to 20,637 mm +0.025 mm (0.8125 in. +0.001 in.) diameter.



5 After reaming and peening as already described, drill a 3,18 mm (0.125 in.) diameter hole through the bush, using the existing hole in the gear as a pilot. Afterwards remove all fraze from the bore.

Later type with needle bearing
6 Remove the two circlips.
7 Remove the two washers.
8 Withdraw the needle bearing.
9 Examine gear and bearing and reassemble securing with the two circlips.



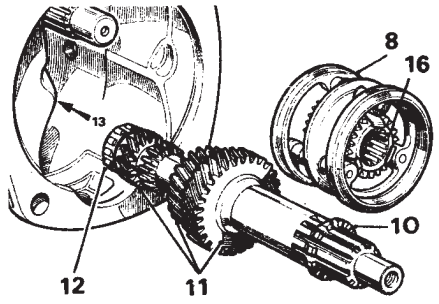
Refitting
10 Fit the reverse wheel assembly with the selector groove to the rear of the gearbox.
11 Press in the reverse shaft until flush with gearbox rear face and with the needle bearing type insert the spacer and thrust washer. Align the spring pin with the slot provided in the rear face.
12 Reverse instruction 1.

LAYSHAFT

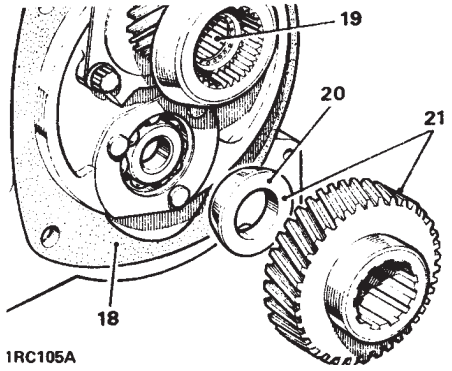
Remove and refit 37.20.19

NOTE: See the Important Note on page 37—20 at the end of Section 37.

Removing
1 Remove the front floor. 76.10.12.
2 Remove the seat base. 76.70.06.
3 Drain the gearbox lubricating oil.
4 Remove the gearbox assembly complete. 37.20.01.
5 Remove the main gearchange lever. 37.16.04.
6 Remove the clutch withdrawal unit. 33.25.12.
7 Remove the bell housing. 37.12.07.
8 Withdraw the third/fourth gear synchroniser from the mainshaft.
9 Manoeuvre the layshaft forward and downwards to clear the mainshaft.
10 Withdraw the layshaft.
11 The first, second and third gears are integral with the layshaft and cannot be removed.
12 If required, press the rear bearing inner race from the layshaft.
13 If required, refer to 37.12.43 for removal of layshaft rear bearing outer race.



Refitting
14 Reverse 11 as necessary.
15 Reverse 12 as necessary.
16 Fit the third/fourth synchroniser to the main shaft with the recessed end of the inner member towards the third speed gear.
17 Fit the layshaft and rear inner bearing member assembly.
18 Place the bell housing joint washer in position.
19 Ensure that the roller bearing for the primary pinion is in position.
20 Locate the conical distance piece and constant gear in place, in mesh with the primary pinion, on the rear face of the bell housing.
21 Retain the constant gear and conical distance piece in position, by holding from inside the bell housing, then offer the bell housing to the gearbox, aligning the constant gear with the splines on the layshaft.
22 Fit the bell housing fixings.
23 Loosely fit the layshaft securing bolt and washer and check that the layshaft has definite but minimum end-float.
24 To adjust, replace the conical distance piece, available in a range of three thicknesses.
25 Tighten the layshaft securing bolt, torque loading 8,5 kgf m (60 lbf ft).
26 Reverse 1 to 7.



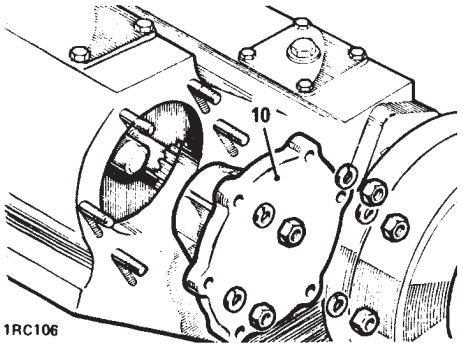
MAINSHAFT ASSEMBLY

Remove and refit **37.20.25**

Service tool: 600300, tool for mainshaft nut

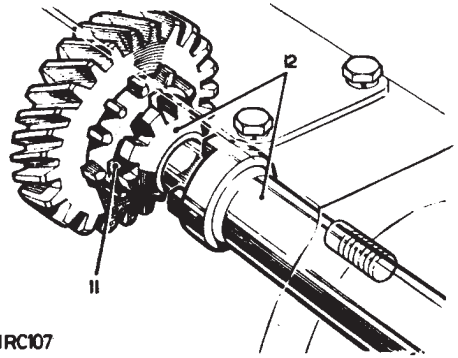
Removing

1 Remove the front floor. 76.10.12.
2 Remove the seat base. 76.70.06.
3 Drain the gearbox lubricating oil.
4 Remove the gearbox assembly complete. 37.20.01.
5 Remove the main gearchange lever. 37.16.04
6 Remove the clutch withdrawal unit. 33.25.12.
7 Remove the bell housing. 37.12.07.
8 Remove the selector shafts. 37.16.31.
9 Remove the layshaft. 37.20.19.
10 Remove the rear bearing housing from the transfer box.



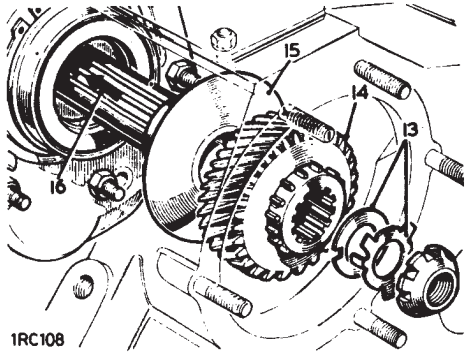
1RC106

11 Open the tab washer.
12 Remove the mainshaft nut. 600300.



1RC107

13 Withdraw the tab washer and shim washer.
14 Withdraw the mainshaft transfer gear.
15 Remove the oil thrower.
16 Drive out the mainshaft from the gearbox.



1RC108

Refitting

NOTE: If any mainshaft components have been renewed, the checks described under 'Mainshaft overhaul' 37.20.31 must be carried out.

17 Reverse 1 to 16.

MAINSHAFT ASSEMBLY

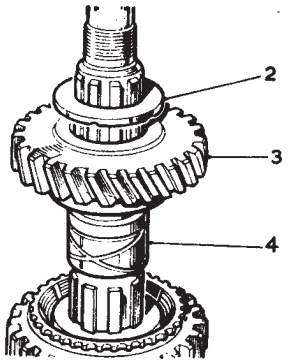
Overhaul **37.20.31**

Dismantling

1 Remove the mainshaft. 37.20.25.

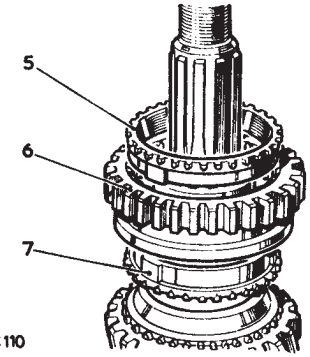
Mainshaft rear end

2 Withdraw the thrust washer.
3 Lift off the first speed gear.
4 Withdraw the bush for the first speed gear.



1RC 109

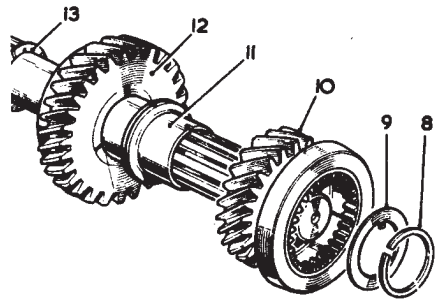
5 Withdraw the synchroniser rear cone.
6 Lift off complete the first/second speed synchroniser unit.
7 Withdraw the synchroniser front cone.



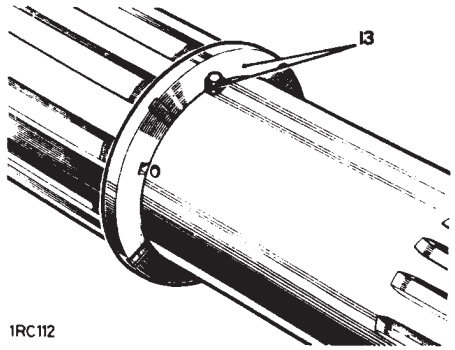
1RC110

Mainshaft front end

8 Remove the retainer ring from the groove in the mainshaft.
9 Withdraw the thrust washer, then the following items:
10 Third speed gear.
11 Distance sleeve.
12 Second speed gear.
13 If it is required to remove the thrust washer for the second speed gear, first remove the locating peg for the distance sleeve; the peg is a press fit in the mainshaft.



1RC111



1RC112

First/second speed synchroniser

14 Before dismantling, take precautions to avoid the loss of components as they are released. Three springs, balls and sliding blocks are retained in the unit under spring pressure.
15 Dismantle the synchroniser assembly, first pushing down the sliding blocks to free the balls from the retaining grooves in the outer member.

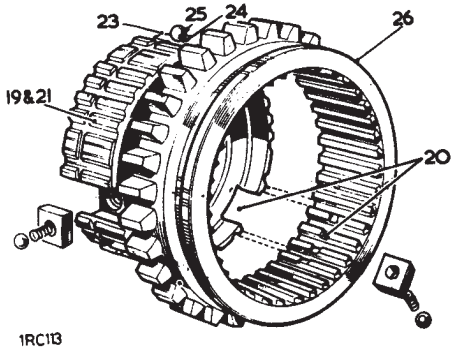
Inspecting

16 Examine all components for wear and damage.
17 Discard the mainshaft spring ring. Use a new replacement on assembly.
18 Check the synchronising clutch for third/fourth gears for wear, the detent springs can be replaced if required. A load of 6,5 to 9 kg. (15 to 20 lb.) should be required to actuate the clutch against the combined detent springs pressure.

Assembling

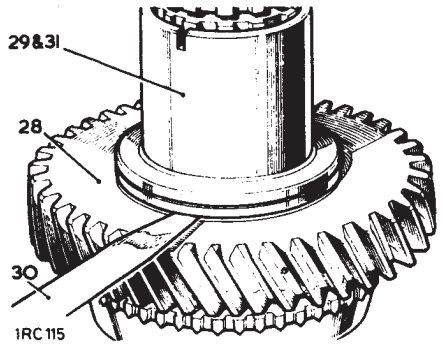
First/second speed synchroniser

19 Note the position of the longer splines on the inner member, formed by the offset groove.
20 Align the detent spring bores in the inner member with the ball retaining grooves in the outer member.
21 Fit the inner member to the outer member, entering the longer splines on the inner member at the gear teeth side of the outer member.
22 Repeat 20 and 21 in alternative positions and select the best position for easy slide fit.
23 Position the sliding blocks on the inner member, radiused faces outwards.
24 Locate the springs through the sliding blocks and into the housing bores in the inner member.
25 Position the balls on the spring ends; press home in sequence and retain by hand.
26 Lift the outer member to retain the balls. Continue lifting until the balls spring home into the retainer grooves.

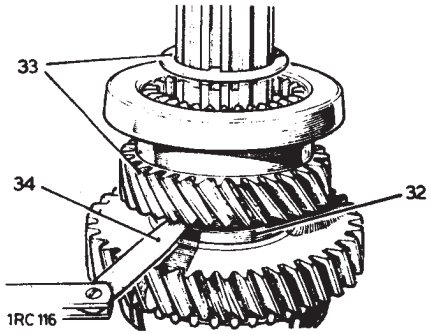


Mainshaft, front end

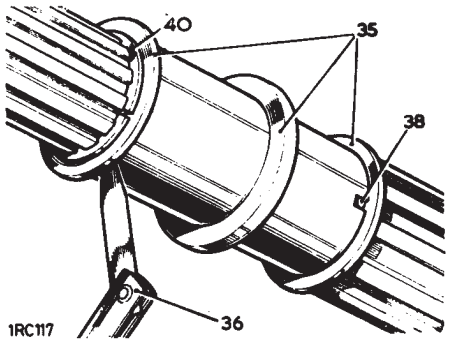
27 If the thrust washer for the second speed gear has been removed from the mainshaft, place the washer in position chamfered face first, engaging it over its locating peg. Do not fit the locating peg for the distance sleeve at this stage.
28 Fit the second speed gear, coned face last, to the end of the distance sleeve with the larger slot.
29 Slide the gear and sleeve assembly on to the mainshaft to abut with the thrust washer.
30 Holding the sleeve hard against the thrust washer, check the end-float of the second speed gear, this must be 0,10 to 0,18 mm (0.004 to 0.007 in.).



31 The end-float of the second and third speed gears is controlled by the length of the distance sleeve. With a new sleeve, the clearance may be excessive and can be corrected by rubbing down the applicable end face of the sleeve on a face plate and emery cloth. In the event of insufficient clearance, a new sleeve must be fitted.
32 Retain the second speed gear and distance sleeve on the mainshaft.
33 Fit the third speed gear and thrust washer.
34 Hold the thrust washer hard against the sleeve and check the end-float of the third speed gear, this must be 0,10 to 0,18 mm (0.004 to 0.007 in.). End-float adjustment is as already described in item 31.



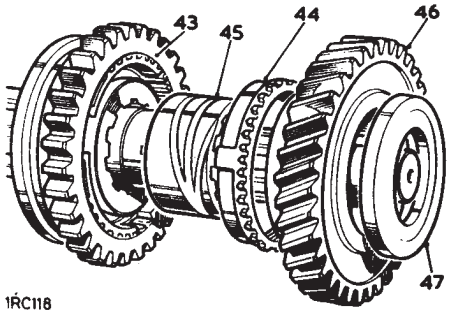
35 Remove the gears and distance sleeve from the mainshaft and refit the thrust washers and distance sleeve only, retain in position with the old spring ring.
36 Check the end float of the distance sleeve, this must be 0,03 to 0,20 mm (0.001 to 0.008 in.). Adjustment is made by changing either of the thrust washers which are available in a range of thicknesses.
37 When the end-float of the mainshaft gears and distance piece are correct, remove the spring ring, thrust washer for third speed gear and the distance sleeve.
38 If removed, fit the distance sleeve locating peg to the mainshaft, ensuring that the thrust washer for the second speed gear is engaged on its locating peg.
39 Fit the second speed gear, distance sleeve, third speed gear and thrust washer to the mainshaft.
40 Retain with a new spring ring.



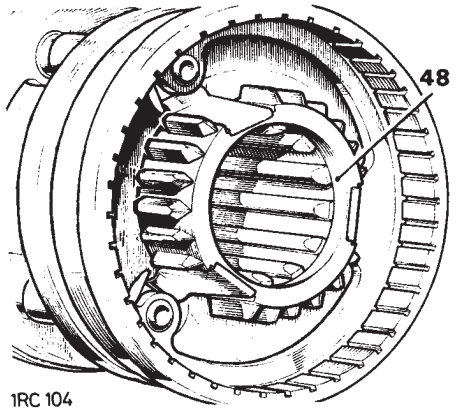
Mainshaft rear end

41 Position the mainshaft with the rear end uppermost.
42 Position a synchroniser cone on to the second speed gear.
43 Fit the first/second synchroniser unit to the shaft, reverse gear side uppermost.
44 Position a synchroniser cone on to the synchroniser inner member.
45 Fit the bush for first speed gear with the circular oil groove end uppermost. Ensure that the bush rear face is 0,05 to 0,18 mm (0.002 to 0.007 in.) below the end of the mainshaft splines; check by temporarily fitting the thrust washer, stepped face uppermost, and measuring the clearance between the bush and the thrust washer.
46 Fit the first speed gear.
47 Fit the thrust washer, stepped face uppermost.

continued



48 Fit the third/fourth synchroniser unit to the main shaft; noting that it must be fitted with the recessed end of the inner member towards the third gear.

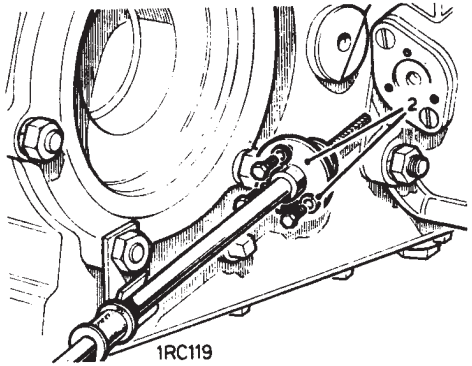


1RC 104

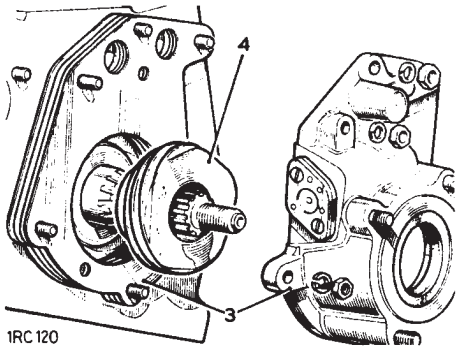
SPEEDOMETER DRIVE HOUSING

Remove and refit 37.25.09

Removing
1 Remove the transmission brake. 70.45.16.
2 Disconnect the speedometer cable from the gearbox.



1RC119



1RC 120

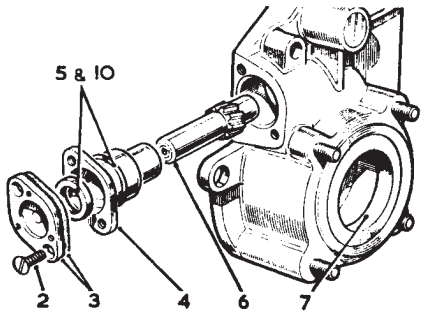
3 Remove the speedometer drive housing complete with shims.
4 Withdraw the speedometer drive worm.

Refitting
5 Reverse 1 to 4. If necessary, replenish the gearbox lubricating oil.

SPEEDOMETER DRIVE HOUSING

Overhaul 37.25.13

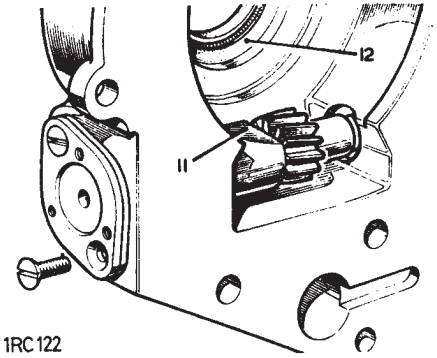
Dismantling
1 Remove the speedometer drive housing. 37.25.09.
2 Remove the pinion retainer fixings.
3 Withdraw the retainer and gasket.
4 Withdraw the pinion sleeve.
5 Remove the oil seal and 'O' ring.
6 Withdraw the speedometer pinion.
7 Remove the output shaft oil seal from the speedometer housing.



1RC121

Inspecting
8 Examine the pinion teeth and the speedometer drive worm for wear.
9 Check the sleeve which should be a slide fit on the pinion.

Assembling
10 Fit the oil seal, lipped side inwards, and 'O' ring to the sleeve.
11 Fit the pinion and sleeve, ensuring that the relieved face on the sleeve will be towards the speedometer drive worm when assembled.
12 Fit the output shaft oil seal, lipped side inward, using jointing compound on the seal outer diameter. The housing may be warmed to facilitate assembly.
13 Refit the drive housing. 37.25.09.



1RC122

DATA

Third/fourth gear synchronising clutch load	6,5 to 9 kg. (15 to 20 lb.).
End float of second speed gear	0,10 to 0,18 mm (0.004 to 0.007 in.)
End float of third speed gear	0,10 to 0,18 mm (0.004 to 0.007 in.)
End float of distance sleeve	0,03 to 0,20 mm (0.001 to 0.008 in.)
End float of first speed gear	0,10 mm to 0,20 mm (0.004 to 0.008 in.)
Clearance between first gear bush rear face and thrust washer	0,05 to 0,18 mm (0.002 to 0.007 in.); adjust bush length to suit.

INTERMEDIATE GEAR ASSEMBLY

Remove and refit 37.29.25

See 37.29.28.

Operations 1–18 and 24–27.

TRANSFER GEARBOX

Remove and refit 37.29.25

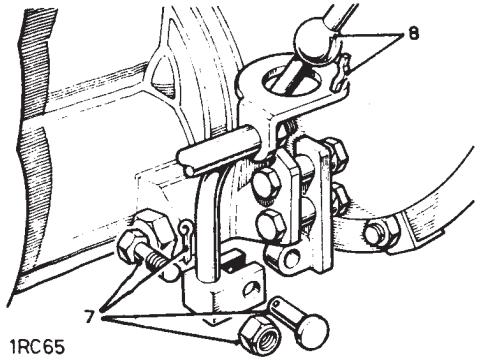
Service tool: 605862, intermediate shaft extractor

Removing

1 Remove the front floor. 76.10.12.
2 Remove the seat base. 76.70.06.
3 Drain the gearbox lubricating oil.
4 Disconnect the front propeller shaft from the gearbox.
5 Remove the transmission brake. 70.45.16.

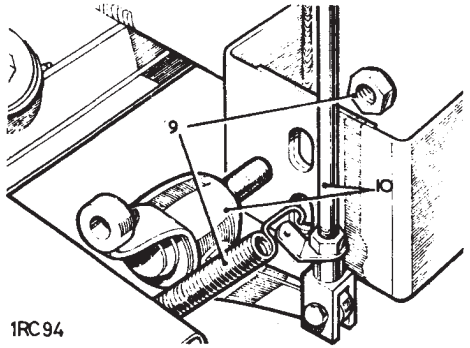
NOTE: If the vehicle is fitted with any optional equipment driven from the transfer box, it must be disconnected at the transfer box. Refer to separate publication for details of optional equipment.

6 Disconnect the speedometer cable from the gearbox.
7 Disconnect the transfer gear lever from the bracket at the bell housing. The fixings illustrated are alternatives.
8 Withdraw the lever, taking care to retain the spring strip, located between the lever ball and link.



1RC65

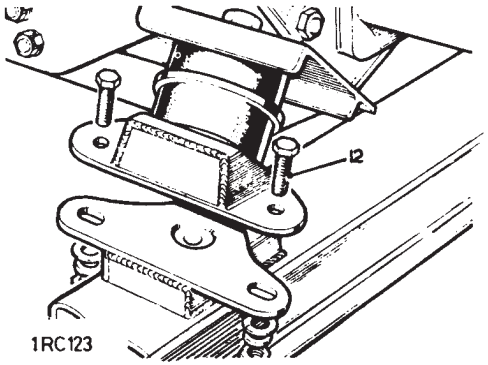
9 Remove the brake lever and relay fixings.
10 Remove the hand brake lever and relay mechanism.
11 Left hand steering models only. Remove the hand brake cross-shaft.



1RC94

NOTE: On certain models, the engine exhaust pipe is located above the gearbox, left hand rear mounting, and where applicable, the exhaust pipe must be moved clear. Also check the location of the engine earth strap, on certain models it is fitted between the gearbox and chassis and must, therefore, be disconnected.

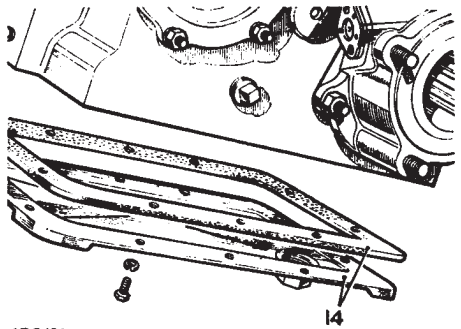
12 Remove the fixings from the two rear mountings for the gearbox.



1RC123

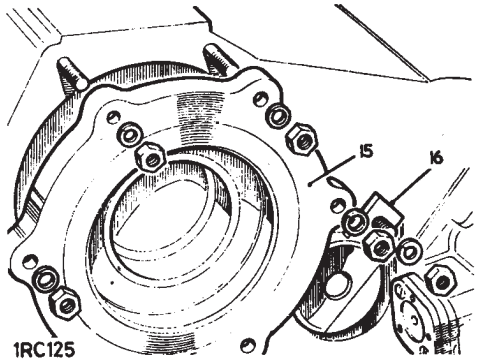
13 Jack up the rear of the engine sufficient to insert a 25 mm (1 in.) thick block of wood between the flywheel housing and the chassis to support the gearbox.

14 Remove the bottom cover plate and gasket from the transfer box.



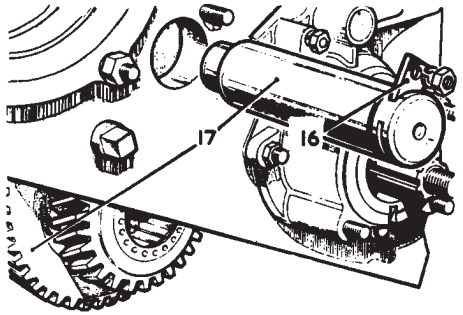
1RC124

15 Remove the mainshaft rear bearing housing, or if fitted, the power take off drive unit.
16 Remove the fixings from the retaining plate for the intermediate shaft.



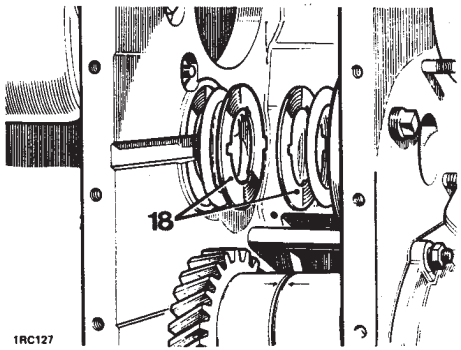
1RC125

17 Support the intermediate gear by hand while using Service Tool 605862 to withdraw the intermediate shaft complete with retaining plate and oil seal 'O' ring. Withdraw the intermediate gear and roller bearings through the bottom of the casing.



1RC126

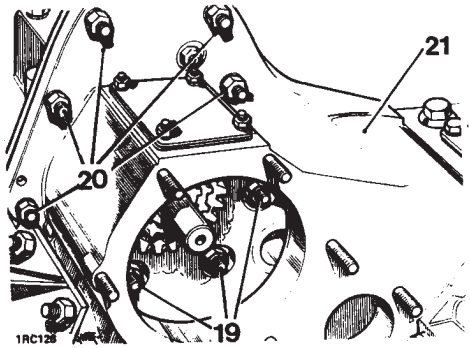
18 Remove the thrust washers and if fitted, shims located between each end of the intermediate gear and casing.



1RC127

19 Remove the internal fixings.
20 Remove the external fixings.
21 Withdraw the transfer gearbox and joint washer from the main gearbox.

continued



1RC128

Refitting

22 Smear both sides of the joint washer with general purpose grease and place it in position on the main gearbox.
23 Fit the transfer box to the main gearbox, engaging the dowel locations.
24 Refit the roller bearings to the intermediate gear and fit any shims for the intermediate gear, between the thrust washers and the casing, ensuring that the thrust washer bronze faces are towards the intermediate gear. Use a little general purpose grease to retain in position.

NOTE: If the intermediate gear, bearings or thrust washers have been renewed, the gear end-float must be checked and adjusted, as described under 'Transfer box overhaul' 37.29.28.

25 Locate the intermediate gear, complete with roller bearings, in position in mesh with the high and low gear wheels.
26 Fit the intermediate shaft, together with its oil seal 'O' ring and retaining plate through the casing, shims, thrust washers and intermediate gear, tapping it lightly home when the spigotted end of the shaft engages its location in the front of the casing. The shaft must be a light tap fit.
27 Reverse 1 to 16. When refitting the bottom cover plate gasket, smear both sides with jointing compound.

TRANSFER GEARBOX (ALL HELICAL GEAR TYPE)

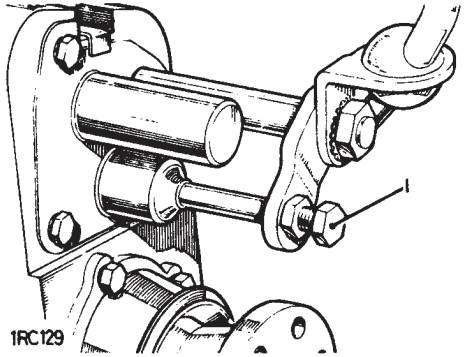
Overhaul 37.29.28

Service tool: 243241 thread protector

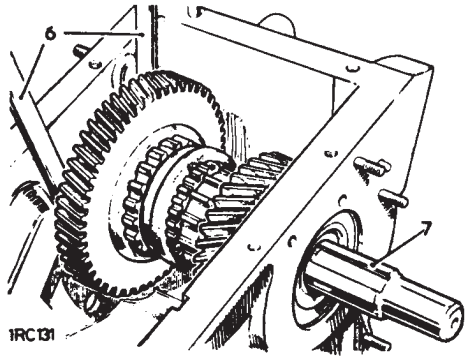
Dismantling

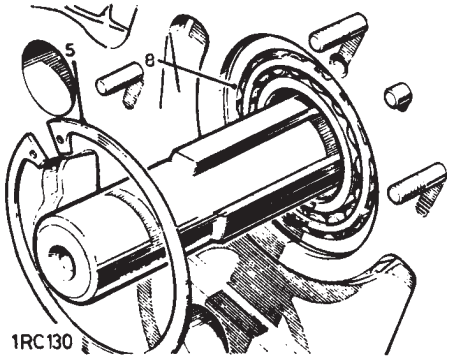
General

1 There are two types of transfer box in use, one utilises a helical and spur gear arrangement, while the other is of all helical design. The only visible external difference is a selector shaft adjuster, fitted to the front output shaft housing on the all helical box only. Identify the gearbox type before proceeding. Because the overhaul instructions for the two types carry the same operation number (37.29.28) but are printed separately, the applicable description is added to the operation title and to each continuing page.

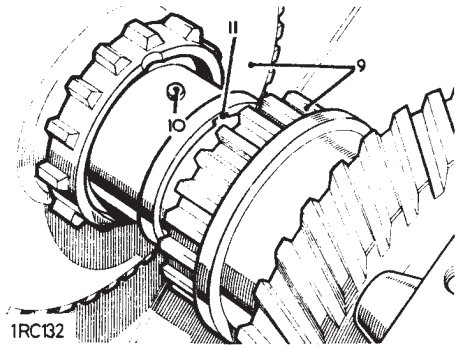


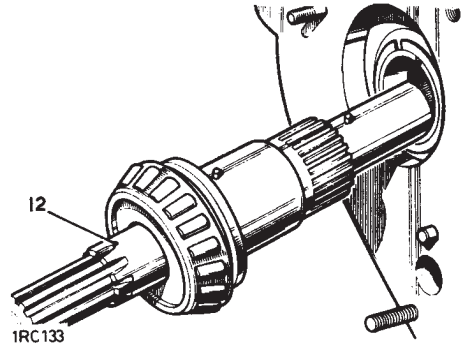
2 Remove the transfer gearbox. 37.29.25.
3 Remove the front output shaft housing. 37.10.05.
4 Remove the speedometer drive housing. 37.25.09.
5 Remove the circlip retaining the front bearing outer race.
6 Place two 16 mm (0.625 in.) diameter distance pieces between the rear face of the low gear wheel and the transfer box.
7 Retaining the distance pieces in position, use a soft mallet to drive the shaft rearwards until the low gear wheel just abuts the distance pieces.
8 Insert a mild steel chisel between the bush for the high gear wheel and the front bearing and prise the bearing outward approximately 6 mm (0.250 in.).



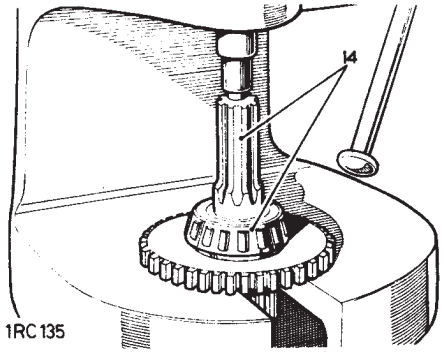


9 Part the change speed inner member and high gear wheel by hand.
10 Rotate the output shaft to locate the position of the shaft peg.
11 Using a suitable piece of wire, locate the slot in the high gear wheel thrust washer over the peg in the output shaft.
12 Retaining the distance pieces in position, use a soft-face mallet to drive the shaft rearwards until it can be withdrawn by hand complete with roller bearing, thrust washer and two locating pegs.



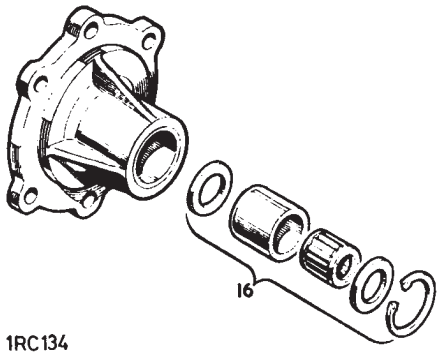


13 Withdraw the high and low speed gear assembly together with the front bearing from the transfer box.
14 Press the rear bearing and thrust washer from the output shaft. The low speed gear may be used as a press block for removal of the rear bearing.



(ALL HELICAL GEAR TYPE)

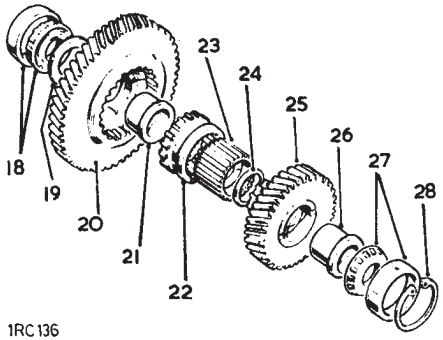
15 Press the front bearing outer race from the transfer box.
16 Remove the circlip, retaining plate and roller bearing from the mainshaft rear bearing housing.



1RC134

Inspection

17 Inspect the following components and renew any which show obvious wear or damage. Refer to the illustration for aid to identification.
18 Bearing for output shaft, rear.
19 Thrust washer for low gear wheel.
20 Low gear wheel.
21 Bush for low gear wheel.
22 Outer member for transfer change speed.
23 Inner member for transfer change speed.
24 Thrust washer for high gear wheel.

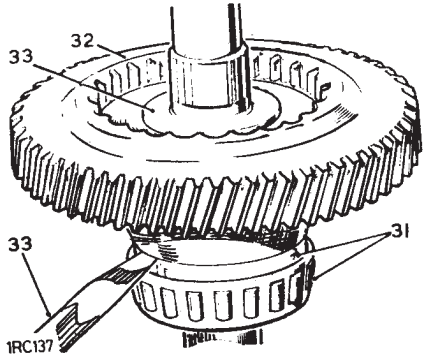


1RC136

25 High gear wheel.
26 Bush for high gear wheel.
27 Bearing for output shaft, front.
28 Circlip fixing bearing.
29 The steel thrust washer for the high gear wheel and the two locating pegs in the output shaft must be in good condition.
30 If necessary, renew the oilite bush in the transfer casing, which carries the transfer selector shaft. This bush is an interference fit in the casing, and must be reamed to 28,16 mm (1.148 in.) after fitting.

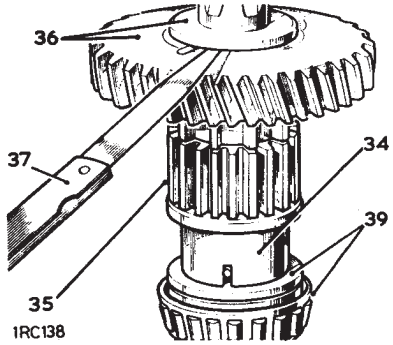
Pre-assembly end-float checks, items 31 to 39

31 Fit the steel thrust washer and the rear bearing on to the rear of the output shaft.
32 Fit the low gear wheel complete with bush on to the output shaft to abut with the steel thrust washer.
33 Hold the bush in firm contact with the steel thrust washer and check the end-float of the low gear wheel, which must be 0.05 mm to 0.22 mm (0.002 in. to 0.009 in.).



1RC137

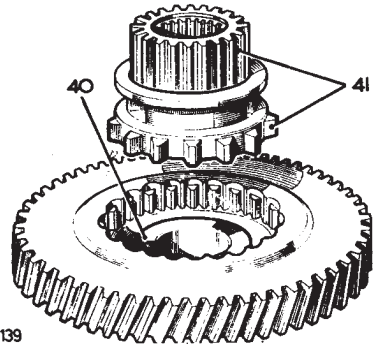
34 Remove the low gear wheel from the shaft, and replace the centre bush.
35 Fit the change speed inner member, and the thrust washer for the high gear wheel.
36 Fit the high gear wheel complete with bush.
37 Hold the bush for the high gear wheel in firm contact with the thrust washer and check the end-float of the high gear wheel, which must be 0,12 mm to 0,55 mm (0.005 in. to 0.022 in.).
38 Excessive end-float on either gear wheel may be rectified by carefully rubbing down the end of the respective bush, using fine emery cloth and a face place. Insufficient end-float can be rectified by fitting a new bush, followed by a further end-float check and rubbing down as necessary.
39 Remove all the components from the shaft except the steel thrust washer and rear bearing inner member, ready to proceed with the final assembly of the transfer box.



1RC138

Assembling

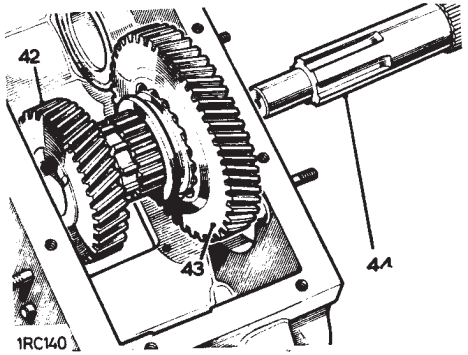
40 Fit the bush to the low gear wheel.



1RC139

41 Place the change speed inner and outer members against the thrust side of the bush. The recessed side of the inner member should be towards the bush, and the teeth on the outer member should be in mesh with the internal teeth of the gear wheel.
42 Place the high gear wheel, minus its centre bush, in position on the assembly with the dog teeth abutting the change speed outer member.
43 Lower the complete assembly into position in the transfer box, with the low gear wheel to the rear.
44 Carefully push the output shaft through the assembly and into position, from the rear, ensuring that the low gear wheel bush locates on the peg in the shaft, and that the splines of the change speed inner member are located on the shaft splines.

continued

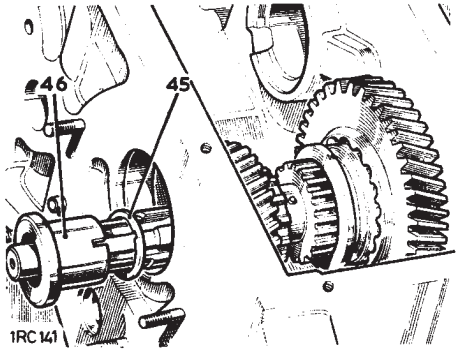


1RC140

(ALL HELICAL GEAR TYPE)

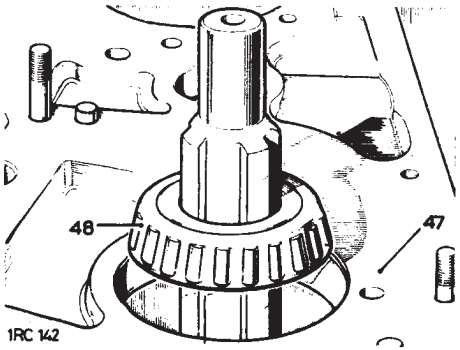
45 Slide the thrust washer for the high gear wheel over the front of the shaft and through the centre of the high speed gear, taking care to ensure that the washer slides over the peg and is located in the recess on the gear change inner member.

46 Fit the bush through the high gear wheel and locate it also on the peg.



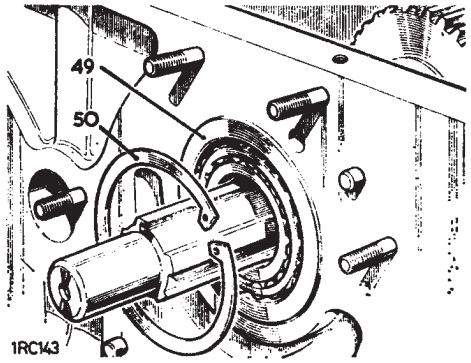
47 Turn the casing on its side with the rear face downwards.

48 With the output shaft threaded end resting on the bench, drift the front taper roller bearing on to the shaft. Protect the thread against damage and make sure that the gears do not separate while the roller bearing is being fitted otherwise the bushes may become dislodged from the pegs on the shaft.



49 With the assembly held in the same position, drive the front bearing outer race into the housing.

50 Fit the circlip.



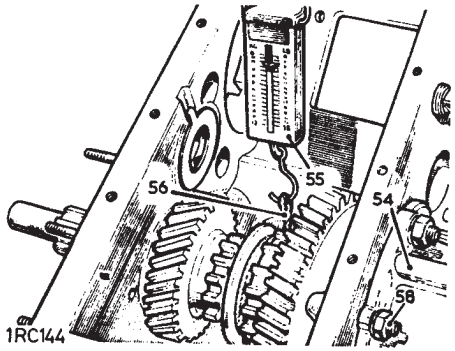
51 Fit the rear bearing outer race, do not fit fully in at this stage.

52 Using the protection cap 243241 over the threaded end of the output shaft, drive the shaft forward until the front bearing is hard against the circlip.

53 Then lightly tap the rear bearing outer race further in to remove all end-float from the output shaft without introducing pre-load.

Setting the output shaft bearing pre-load, items 54 to 61

54 Fit the speedometer housing, without any shims, and loosely retain with nuts and spring washers.



55 Measure the rolling resistance of the output shaft, using a nylon cord attached to a spring balance. Coil the cord around the low gear wheel selector groove and note the measurement recorded on the spring balance required to rotate the output shaft after having overcome inertia.

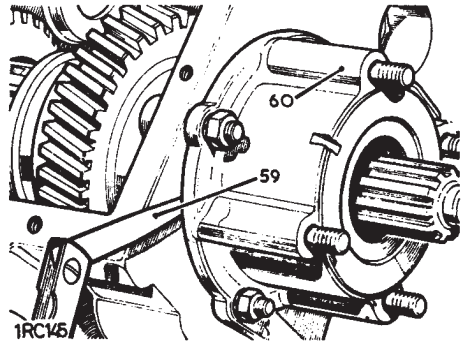
56 Ensure that the cord does not slip, giving a false reading.

57 Bearing pre-load is correct when a figure of 0,9 kg. to 1,8 kg. (2 lbs to 4 lbs.) is recorded on the spring balance.

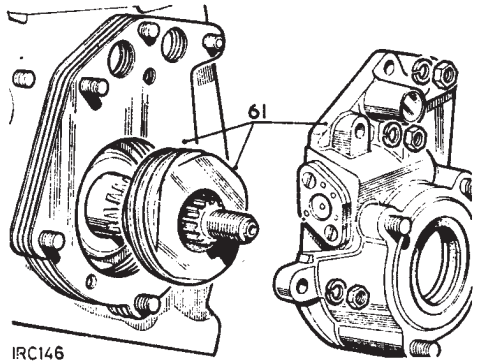
58 Adjustment is made by tightening the speedometer housing securing nuts, progressively and evenly.

59 When the bearing pre-load is correct, ensure that the clearance between the speedometer housing and the transfer box is evenly disposed, using feeler gauges. The measured clearance obtained is equal to the thickness of shims required for subsequent assembly between the speedometer housing and transfer box to maintain correct bearing pre-load.

60 Withdraw the spring balance and nylon cord from the low gear wheel, and remove the speedometer housing from the transfer box.



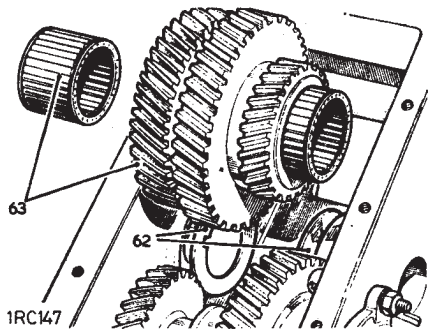
61 Using a determined thickness of shims, fit the speedometer drive worm and housing.



Determining the intermediate gear end-float, items 62 to 66

62 Place the two thrust washers for the intermediate gear in position in the transfer box and retain with a film of grease. The washers must be fitted with the bronze faces inward and located in the casing by their tabs.

63 Locate the intermediate gear, complete with roller bearings, in position in mesh with the high and low gear wheels.



(ALL HELICAL GEAR TYPE)

64 Fit the intermediate shaft through the casing, thrust washers and intermediate gear, tapping it lightly home when the spigotted end of the shaft engages its location in the front of the casing. The shaft must be a light tap fit.

65 Using feeler gauges, check the end-float of the intermediate gear, this must be 0,10 mm to 0,20 mm (0.004 in. to 0.008 in.).

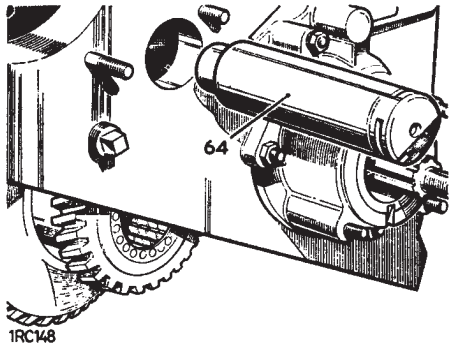
66 Adjustment is made by grinding the steel face of the thrust washers to increase end-float, or by fitting shims, available in 0,25 mm (0.010 in.) thickness, between the thrust washers and the casing to reduce end-float.

67 When the intermediate gear end-float is correct, remove the intermediate shaft and gear, and place aside for subsequent assembly after the transfer box has been fitted to the main gearbox.

68 Reassemble the rear bearing housing and the output drive flange by reversing the removal procedure.

69 Adjust the transfer travel stop after fitting the front output shaft housing to the transfer box, see 37.10.05.

70 Refit the transfer gearbox. 37.29.25.



1RC148

1RC149

DATA

Bush for transfer selector shaft	29,16 mm (1.148 in.) reamed diameter
End-float of low gear wheel	0,05 to 0,22 mm (0.002 to 0.009 in.)
End-float of high gear wheel	0,12 to 0,55 mm (0.005 to 0.022 in.)
Output shaft bearing pre-load	0,9 to 1,8 kg. (2 to 4 lb.) measured with spring balance cord coiled around the low gear wheel selector groove.
End-float of intermediate gear	0,10 to 0,20 mm (0.004 to 0.008 in.)

TRANSFER GEARBOX

(HELICAL AND SPUR GEAR TYPE)

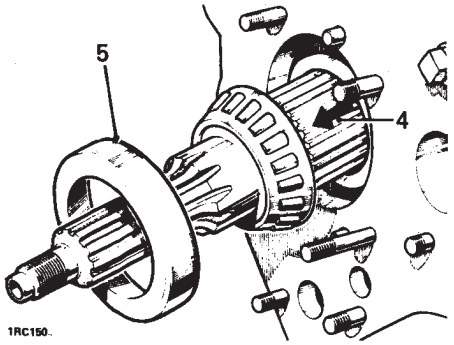
Overhaul 37.29.28

Service tool: 243241, thread protector

Dismantling

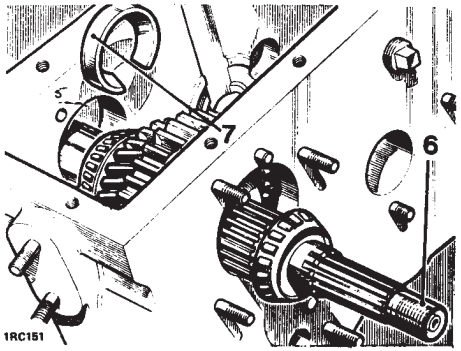
General
There are two types of transfer box in use, one with helical and spur gears and the other with all helical gears. The only visible external difference between the two is a selector shaft adjuster fitted to the front output shaft housing on the all helical box only. Identify the gearbox type before proceeding. Because the overhaul instructions for the two types carry the same operation number (37.29.28) but are printed separately, the applicable description is added to the operation title and to each continuing page.

1 Remove the transfer gearbox. 37.29.25.
2 Remove the front output shaft housing. 37.10.05.
3 Remove the speedometer drive housing. 37.25.09.
4 Using a mallet, drive the output shaft rearwards.
5 Withdraw the rear bearing outer race when released from the casing.

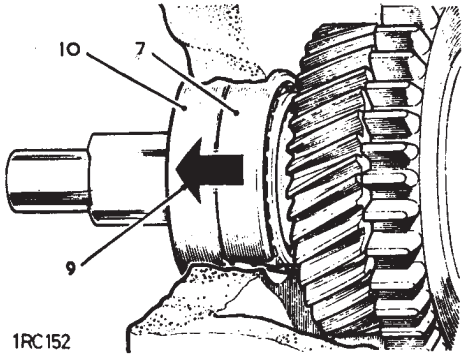


6 Fit protection cap 243241, over the threaded end of the output shaft, and drive the shaft forward as far as possible.
7 Slide the shaft to the rear and insert a suitable packing piece between the rollers of the front bearing and the outer race.

NOTE: A packing piece can be made from a scrap bearing outer race, with the outer diameter reduced to give clearance in the transfer box and suitably slotted to fit over the shaft.

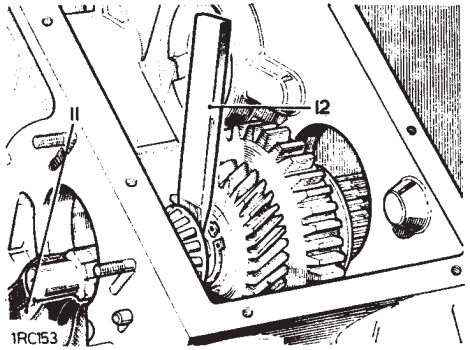


8 Remove the circlip retaining the front bearing outer race.
9 With the packing piece in position, drive the shaft forward.
10 Withdraw the front bearing outer race.

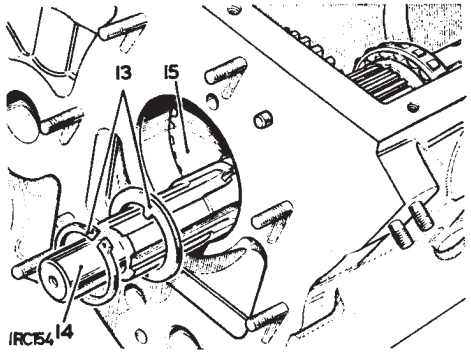


11 Place pads of rag in position to protect the transfer box bearing bores during the following operations.

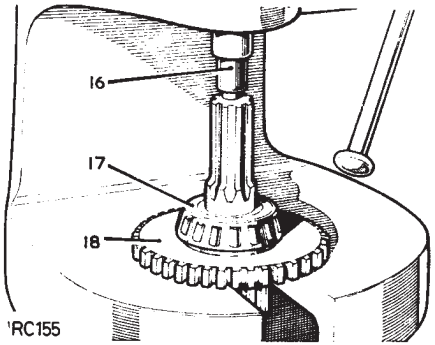
12 Using a suitable mild steel bar with a chisel end, drive the front bearing from the output shaft.



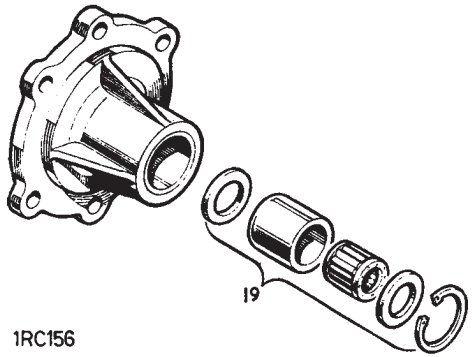
13 Remove the circlip and thrust washer from the output shaft.
14 Withdraw the shaft through the gears.
15 Remove the gears through the bottom of the casing.



16 Retain the protector 243241 on the shaft threads.
17 Extract or press the rear bearing from the output shaft.
18 As illustrated, the low speed gear may be used as a press block for the removal of the rear bearing.

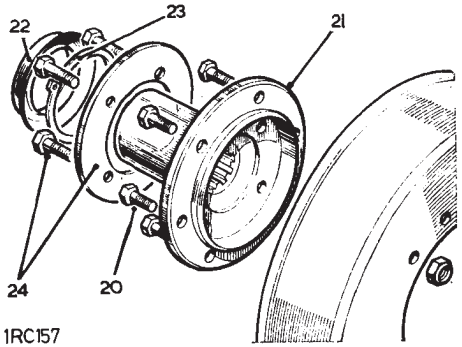


19 Remove the circlip, retaining plate and roller bearing from the mainshaft rear bearing housing.



(HELICAL AND SPUR GEAR TYPE)

20 Remove the fixings, flange to brake drum.
21 Withdraw the coupling flange.
22 Prise off the mud shield.
23 Remove the retaining circlip from the propeller shaft bolts.
24 Withdraw the bolts and retainer plate.



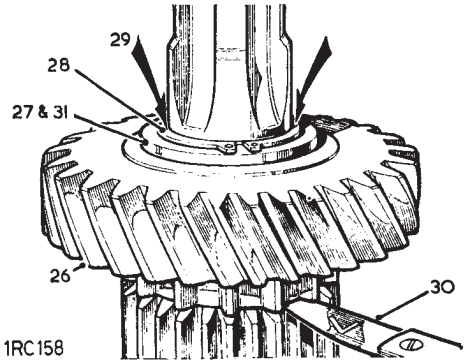
1RC157

Inspecting

25 Renew any components which show obvious wear or damage. Check the condition of the shaft splines for the low gear wheel, it is important that the spline corners are not worn.
Note that the low gear wheel is a loose fit on the shaft, this allows the gear to tilt in operation, causing the spline edges at the annular groove to bite on the splines of the low speed gear, locking it in position. Examine the sleeve of the output flange for damage which could cause failure of the oil seal.

Pre-assembly check, items 26 to 31

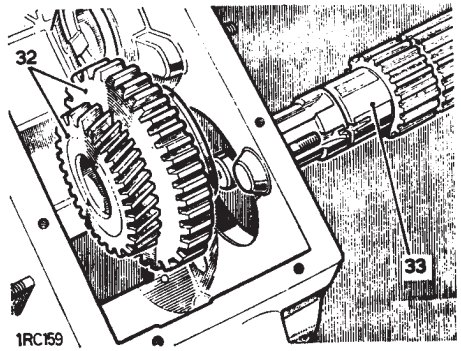
26 Fit the high gear wheel on to the output shaft.
27 Fit the thrust washer.
28 Fit the circlip.
29 Place a suitable piece of tube over the shaft and push the circlip towards the gear to produce minimum gear end-float.
30 Maintaining this condition, check the end-float between the gear and the shaft, this must be 0,15 mm to 0,20 mm (0.006 in. to 0.008 in.) under these conditions.
31 Adjustment of the high gear wheel end-float is made by reducing the thickness of the thrust washer, or fitting a new thrust washer, as required. If fitting a new thrust washer fails to reduce the end-float to the required limits, replace the shaft and/or gear.



1RC158

Assembling

32 Position the high and low gears in the transfer box.
33 Fit the output shaft, from the rear of the box, to engage the gears.

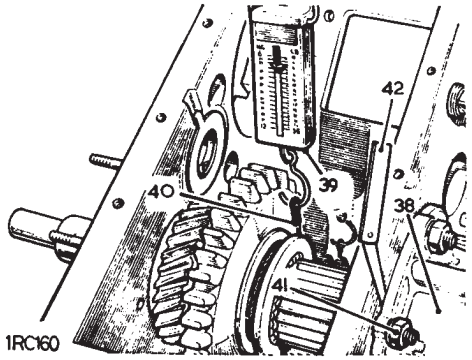


1RC159

34 Fit the thrust washer, determined during the pre-assembly check, to the output shaft and secure, using a new circlip.
35 Use pads of rag to protect the transfer box bearing bores, and drive the two roller bearings on to the output shaft. Fit the front bearing outer race and secure with a circlip.
36 Fit the rear bearing outer race.
37 Using the protection cap 243241 over the threaded end of the output shaft, drive the shaft forward until the front bearing is hard against the circlip. Then lightly tap the rear bearing outer race further in to remove all end-float from the output shaft without introducing pre-load.

Setting the output shaft bearing pre-load, items 38 to 44

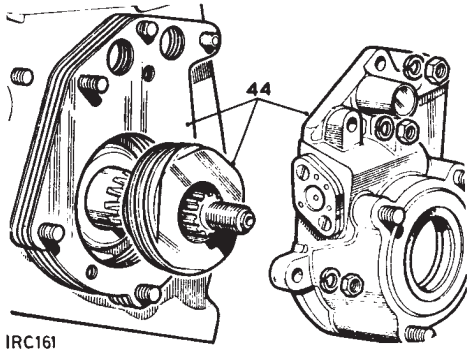
38 Fit the speedometer housing, without any shims, and loosely retain with nuts and spring washers.
39 Measure the rolling resistance of the output shaft, using a nylon cord attached to a spring balance. Coil the cord around the low gear wheel selector groove and note the measurement recorded on the spring balance required to rotate the output shaft after having overcome inertia.
40 Ensure that the cord does not slip, giving a false reading.
41 Bearing pre-load is correct when a figure of 0,9 to 1.8 kg. (2 to 4 lbs.) is recorded on the spring balance. Adjustment is made by tightening the speedometer housing securing nuts, progressively and evenly.



1RC160

42 When the bearing pre-load is correct, ensure that the clearance between the speedometer housing and the transfer box is evenly disposed, using feeler gauges. The measured clearance obtained is equal to the thickness of shims required for subsequent assembly between the speedometer housing and transfer box to maintain correct bearing pre-load.
43 Withdraw the spring balance and nylon cord from the low gear wheel, and remove the speedometer housing from the transfer box.
44 Using the determined thickness of shims, fit the speedometer drive worm and housing.

continued



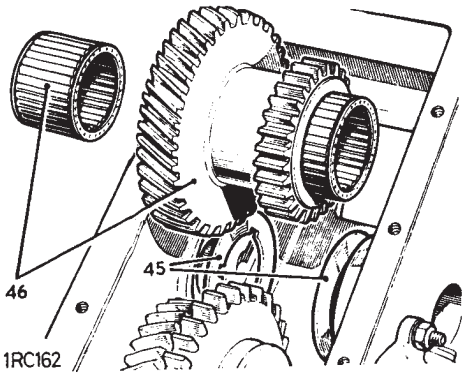
1RC161

(HELICAL AND SPUR GEAR TYPE)

Determining the intermediate gear end-float, items 45 to 49

45 Place the two thrust washers for the intermediate gear in position in the transfer box and retain with a film of grease. The washers must be fitted with the bronze faces inward and located in the casing by their tabs.

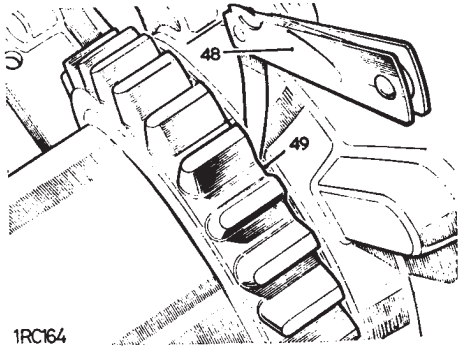
46 Locate the intermediate gear, complete with roller bearings, in position in mesh with the high and low gear wheels.



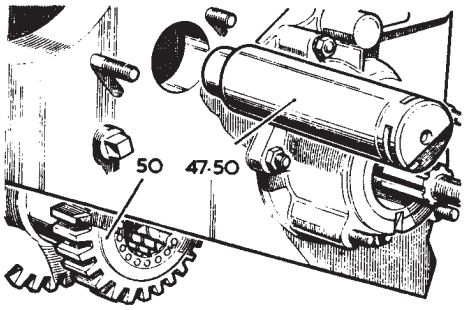
47 Fit the intermediate shaft through the casing, thrust washers and intermediate gear, tapping it lightly home when the spigotted end of the shaft engages its location in the front of the casing. The shaft must be a light tap fit.

48 Using feeler gauges, check the end-float of the intermediate gear, this must be 0,10 mm to 0,20 mm (0.004 in. to 0.008 in.).

49 Adjustment is made by grinding the steel face of the thrust washers to increase end-float, or by fitting shims, available in 0,25 mm (0.010 in.) thickness, between the thrust washers and the casing to reduce end-float.



50 When the intermediate gear end-float is correct, remove the intermediate shaft and gear, and place aside for subsequent assembly after the transfer box has been fitted to the main gearbox.



DATA

High gear end-float	0,15 to 0,20 mm (0.006 in. to 0.008 in.)
Intermediate gear end-float	0,10 to 0,20 mm (0.004 in. to 0.008 in.)
Output shaft bearing pre-load	0,9 to 1,8 kg. (2 to 4 lb.) measured with spring balance cord coiled around the low gear-wheel selector groove.

51 Re-assemble the rear bearing housing and the output drive flange by reversing the removal procedure.

52 Refit the transfer gearbox. 37.29.25.

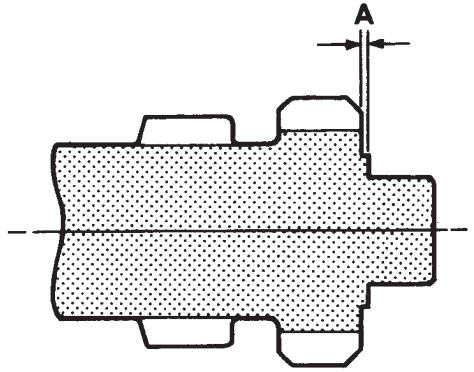
IMPORTANT NOTE

Main Gearbox

A new layshaft was introduced on Suffix 'C' gearboxes commencing at the following serial numbers:

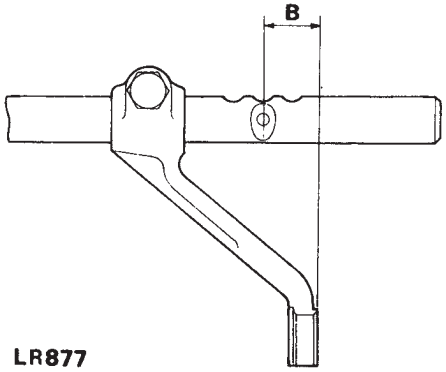
90420785 C
95133940 C
89503913 C
90116000 C

The new layshaft, which has the same part number as its predecessor, can be identified by the reduced length of the step between the rear bearing and back face of the first speed layshaft. The step length was 1,5 mm (0.060 in) and is now 0,45 mm (0.018 in), dimension 'A'.



In addition to the layshaft change, gearboxes with Suffix letter 'D' contain gears manufactured to a process known as Electro-Chemically Machined (E.C.M.). The gears concerned are as follows:

Description	Part No.
Primary pinion and constant gear	RTC 2684
3rd/4th synchro clutch	FRC 2765
1st speed mainshaft gear	FRC 3201
2nd speed mainshaft gear	FRC 2673
3rd speed mainshaft gear	FRC 2720
1st/2nd inner/outer member	RTC 2685
1st/2nd selector shaft	FRC 5897

E.C.M. gears **must not** be fitted with the early type layshaft. Therefore when fitting E.C.M. gears to a Suffix 'C' gearbox, before the above serial numbers, the layshaft must be replaced by the latest type.

Also, when fitting E.C.M. gears to a pre-Suffix 'D' gearbox, the 1st/2nd selector shaft must be changed for latest modified shaft FRC 5897. Whilst the fork is the same, it would be preferable to renew it at the same time. It is important that the fork is assembled to the shaft to dimension 'B' 18,28 mm to 18,16 mm (0.720 in to 0.715 in).