LT230 TRANSFER BOX

The following operations can be carried out with the gearbox in the vehicle. For ease of working, the vehicle should be raised on a suitable hoist or placed over a pit.

SPEEDOMETER DRIVE PINION

Remove and refit

Removing

1. Disconnect the battery.
2. Raise the vehicle on a suitable hoist.
3. Remove the speedometer drive clamp and nut and withdraw the cable.
4. Pry out the drive pinion assembly.

Refitting

5. Push in a new assembly and fit the speedometer cable and secure with the clamp and nut.

REAR OUTPUT SHAFT OIL SEAL

Service tool:
18G1422-Mainshaft rear oil seal replacer

Remove and refit

Removing

1. Disconnect the battery.
2. Raise the vehicle on a suitable hoist.
3. Disconnect the rear drive shaft from the output flange and tie to one side of the chassis.
4. Remove the brake drum retaining screws and withdraw the drum.
5. Remove the four back plate bolts that also retain the oil catcher and remove the brake back plate and catcher.

NOTE: An hexagonal type socket should be used for these bolts.

6. Remove the output shaft nut, steel washer, felt washer and withdraw the flange.
7. Using the slot provided, lever off the dust cover.
8. Pry out the output shaft oil seal(s).

Refitting

9. Pre-grease between the seal lips. Insert the double lipped oil seal, open side inwards, using service tool 18G1422 until contact is made with the bearing circlip. Take care not to touch the seal lips while fitting.
10. Fit the dust cover.
11. Lubricate the surface of the flange which runs in the seal and carefully fit the flange.

NOTE: To replace the flange bolts first remove the circlip before fitting the flange.

12. Secure the flange with the nut and washer and tighten to the specified torque (see section 06-Torque values).
13. Fit the back plate to the output housing using the 4 bolts and plain washers.

NOTE: The two lower fixings also hold the oil catcher which before fitting is coated with a silicone rubber sealant on the mating face.

14. Fit the brake drum and retain with the two screws.
15. Reconnect the drive shaft and tighten to the specified torque (see section 06-Torque values).

FRONT OUTPUT SHAFT OIL SEAL

Service tool:
18G1422-mainshaft rear oil seal replacer

Remove, refit and adjust

Removing

1. Disconnect the batten/.
2. Raise the vehicle on a suitable hoist.
3. Disconnect the front drive shaft from the flange and tie to one side of the chassis.
4. Remove the output shaft nut, steel washer, felt washer and withdraw the flange.
5. Remove the oil seal shield.
6. Pry out the oil seal(s).

Refitting

7. Pre-grease between the seal lips. Insert the new double lipped oil seal, open side inwards, using service tool 18G1422 until contact is made with the bearing circlip. Take care not to touch the seal lip while fitting.
8. Lubricate the running surface of the flange and fit it together with the oil seal shield.
9. Secure the flange with the nut and washer and tighten to the specified torque.
10. Refit the drive shaft and tighten to the specified torque (see section 06-Torque values).

TRANSFER BOX NEUTRAL WARNING SWITCH

Remove and refit

Removing

1. Disconnect the battery.
2. Raise the vehicle on a suitable hoist.
3. Disconnect the rear drive shaft from the output flange and tie to one side of the chassis.
4. Remove the brake drum retaining screws and withdraw the drum.
5. Remove the four back plate bolts that also retain the oil catcher and remove the brake back plate and catcher.

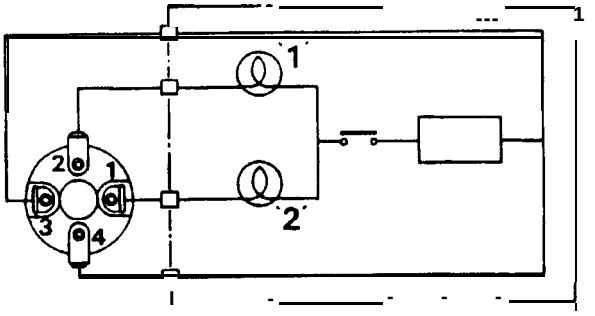
NOTE: An hexagonal type socket should be used for these bolts.

6. Disconnect the four wiring connections to the switch.
7. Loosen the lock nut using a suitable wrench and unscrew the warning light switch.

Refitting and adjusting

NOTE: Adjust switch position ONLY with transfer box neutral selected.

8. Connect suitable test equipment as shown.
9. Refit the switch and screw in until test lamp 1 is extinguished.
10. Screw in switch a further 1/3 to 1/2 turn.
11. Lock switch in position using the locknut.
12. Select 'Low Range' test lamp 1 should illuminate. Select 'High Range' test lamp 2 should illuminate. Select neutral, both test lamps should extinguish.



RR1990E

13. If adjustment is satisfactory, remove the test equipment and reconnect wiring leads correctly and check operation of the audible warning unit.
14. Fit the back plate to the output housing using the 4 bolts and plain washers.

NOTE: The two lower fixings also hold the oil catcher which before. fitting is coated with a silicone rubber sealant on the mating face.

15. Fit the brake drum and retain with the two screws.
16. Reconnect the drive shaft and tighten to the specified torque (see section 06-Torque values).

LT230 TRANSFER GEARBOX

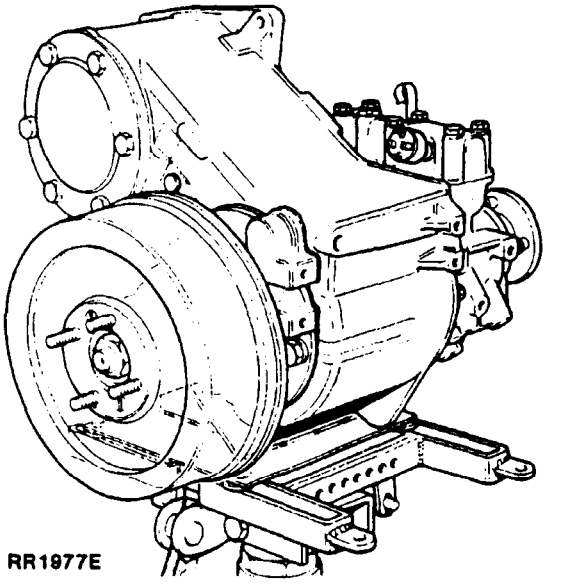
Service tool: 18G 1425 - Guide studs (3) Also, locally manufactured adaptor plate, see below.

Remove and refit

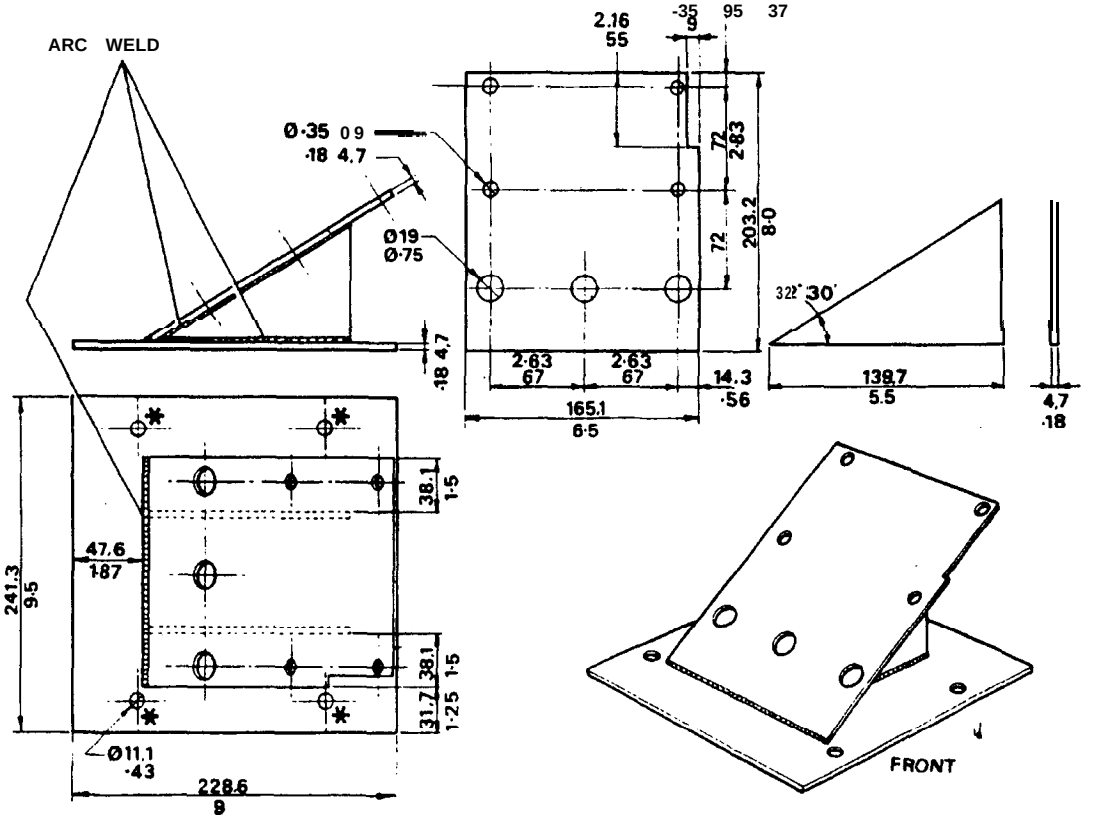
Adaptor plate for removing transfer gearbox

The transfer gearbox should be removed from underneath the vehicle, using a suitable transmission jack. An adaptor plate for locating the transfer gearbox onto the jack can be manufactured locally to the drawing RR2195E.

WARNING: Where the use of a transmission hoist is necessary, it is ABSOLUTELY ESSENTIAL to follow the hoist manufacturer's instructions to ensure safe and effective use of the equipment.



RR1977E



MATERIAL: STEEL PLATE

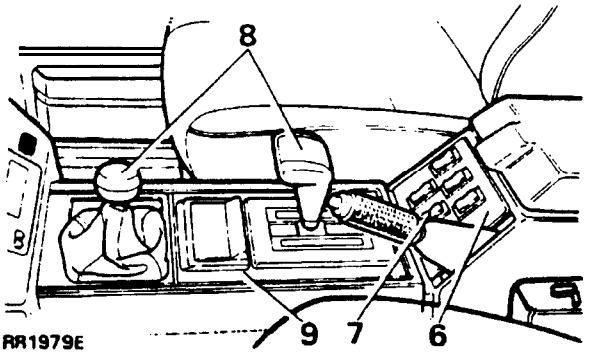
✱= TO BE DRILLED TO FIT TRANSMISSION JACK BEING USED

RR2195E

Continued

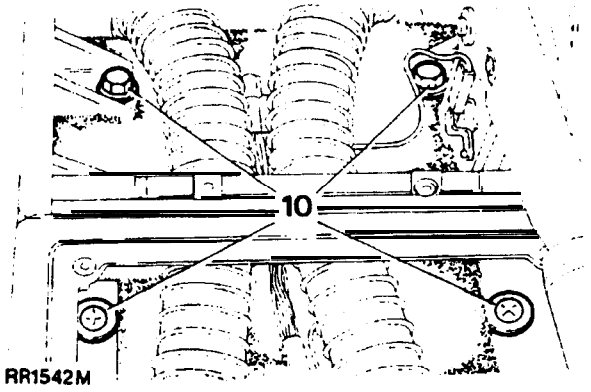
Removing

1. Install the vehicle on a suitable hoist.
2. Open the hood.
3. Disconnect the battery.
4. Release the airflow meter to plenum chamber hose.
5. Remove the four screws securing the glove box liner to the glove box and lift out the liner.
6. Carefully pry the window lift switch panel away from the front of the glove box.
7. Identify each switch connection for re-assembly, disconnect the plugs and remove the switch panel.
8. Remove the main and transfer gearbox knobs.
9. Carefully pry the centre panel out of the floor mounted console and remove it from the vehicle.



RR1979E

10. Release the two bolts and two screws securing the console assembly to the gearbox tunnel.

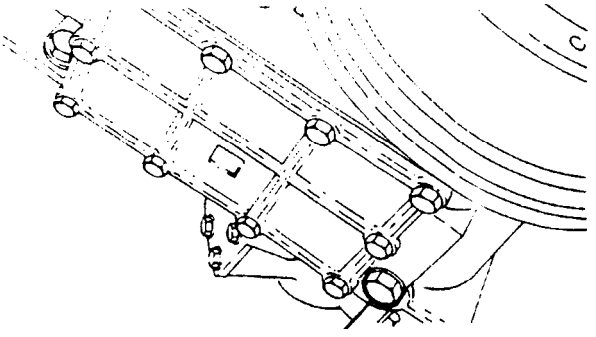


RR1542M

11. Release the parking brake and remove the cotter pin, clevis pin and washer securing the parking brake cable to the parking brake lever.
12. Carefully maneuver the assembly away from the radio housing and remove it from the vehicle.
13. Release the large nut retaining the parking brake outer cable to the top of the gearbox tunnel.
14. Remove the nut and feed the cable through the hole to the underside of the vehicle.

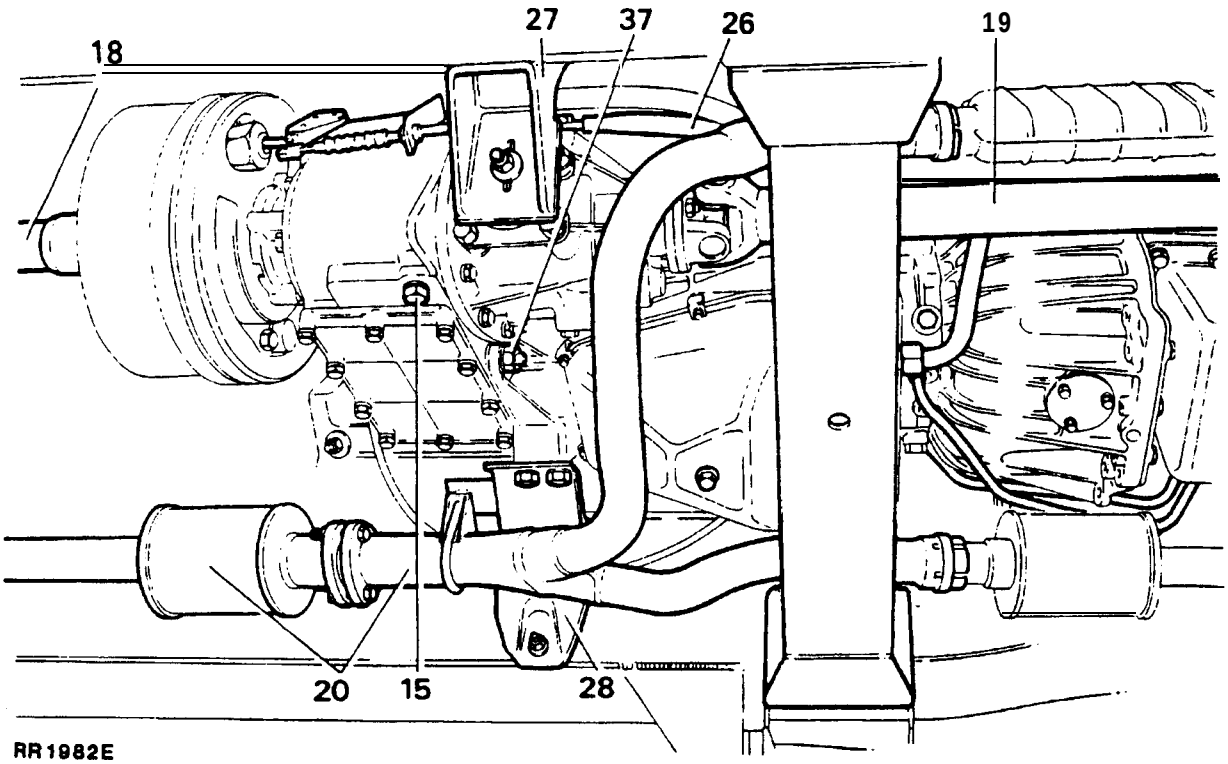
NOTE: The illustration for the following removal instructions is located at the top of the following page.

15. Raise the vehicle on the hoist and drain the transfer gearbox.
16. Release the nut and clamp securing the speedometer cable to the rear of the transfer box.
17. Withdraw the cable from the speedometer drive pinion.


RR1981E

15'

18 Release the four nuts securing the rear drive shaft to the rear output flange and tie to one side of the chassis.
19. Remove the four nuts securing the front drive shaft to the front output flange and tie to one side of the chassis.



RR1982E

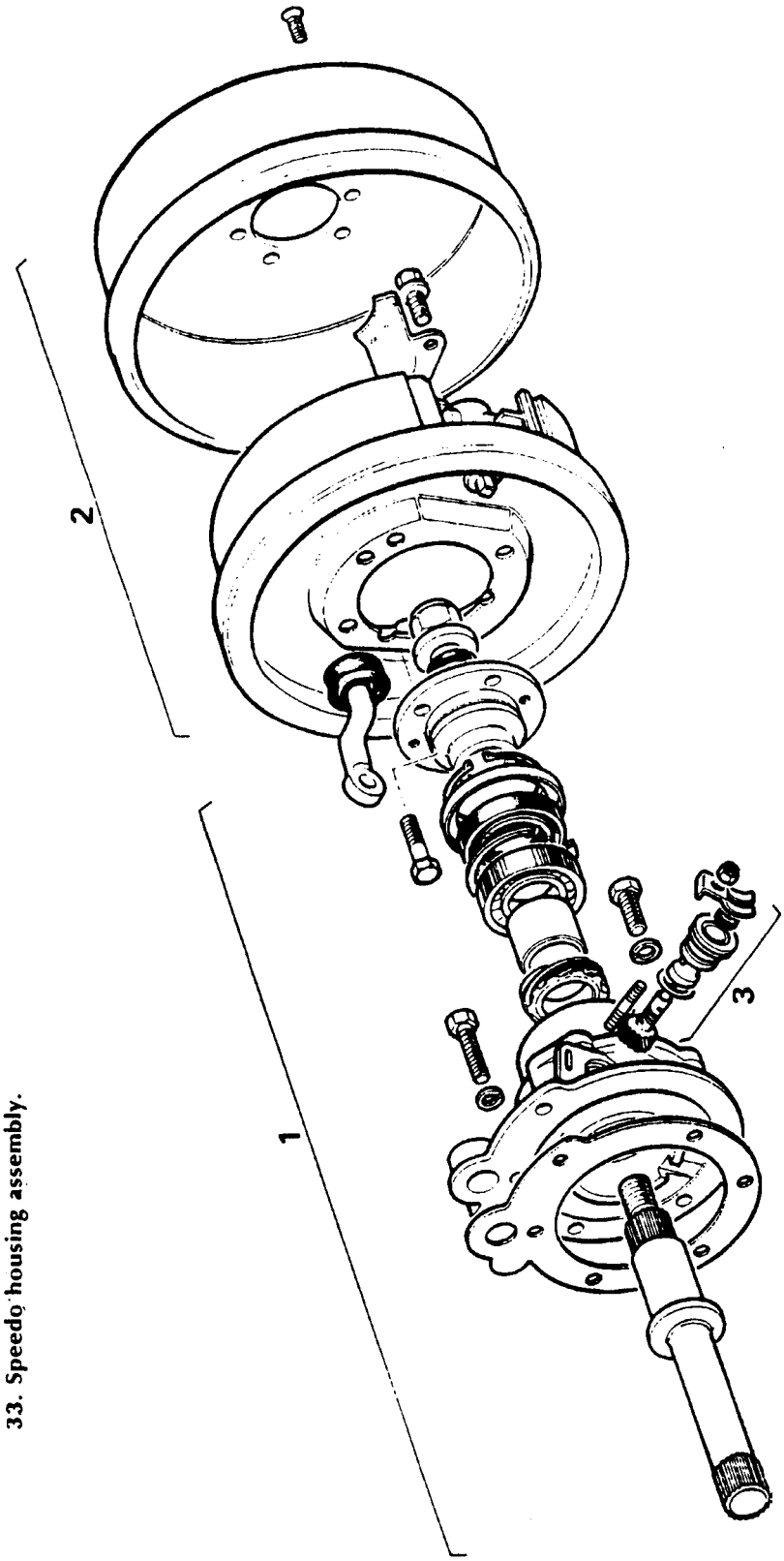
20. Release the bolts securing the intermediate exhaust pipe to the centre catalyst and separate the pipes. Retrieve the dougnut.
21. Remove the clamp at the tailpipe bracket, carefully tie the exhaust to the chassis side member.
22. Manufacture an adaptor plate in accordance with the drawing, to attach to the transmission jack and transfer box to facilitate removal (RR2195E).
23. Place four, 30mm (1.250 in) long spacers between the top of the hoist and the adaptor plate at the securing points and secure the adaptor plate to the hoist.
24. Remove the four central bolts from the transfer box bottom cover, move the jack into position and secure the adaptor plate to the transfer box.
25. Adjust the jack to take the weight of the transfer box.
26. Remove the tie bar from the transfer gearbox.
27. Remove the right-hand side mounting bracket to chassis nuts and bolts.
28. Remove the rear left-hand side mounting bracket to chassis nuts and bolts.
29. Remove right-hand side mounting bracket to flexible mounting rubber retaining nut and place bracket aside.
30. Lower the jack until the rear brake drum clears the rear passenger footwell.
31. Remove the cotter pin and washers securing the differential lock lever to the connecting rod, and disconnect the lever from the rod.
32. Disconnect the electrical leads from the differential lock switch and neutral warning switch.
33. Remove the breather pipe from the top of the transfer gearbox.
34. Select low range transfer box gear position.'
35. Release the high/low rod lower lock nut and remove the rod from the yoke.

Continued

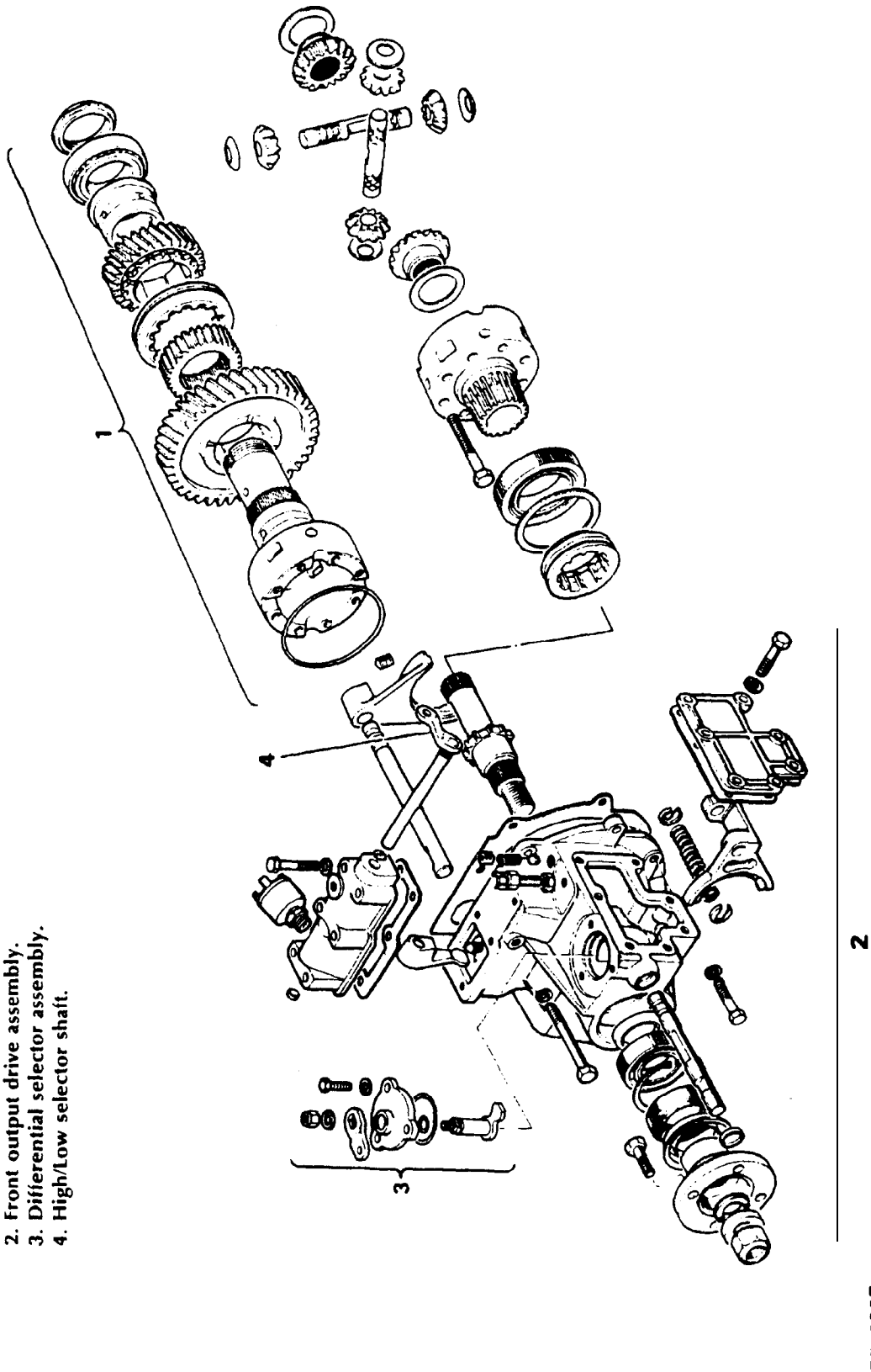
36. Place a suitable wooden block between the main gearbox and chassis cross-member, then lower the jack until the gearbox contacts the wooden block.
37. Remove the upper and lower bolts securing the transfer box to the main gearbox.
38. Fit three guide studs to the main gearbox 18G 1425 and maneuver the transfer gearbox rearwards to detach it from the main gearbox.

Refitting

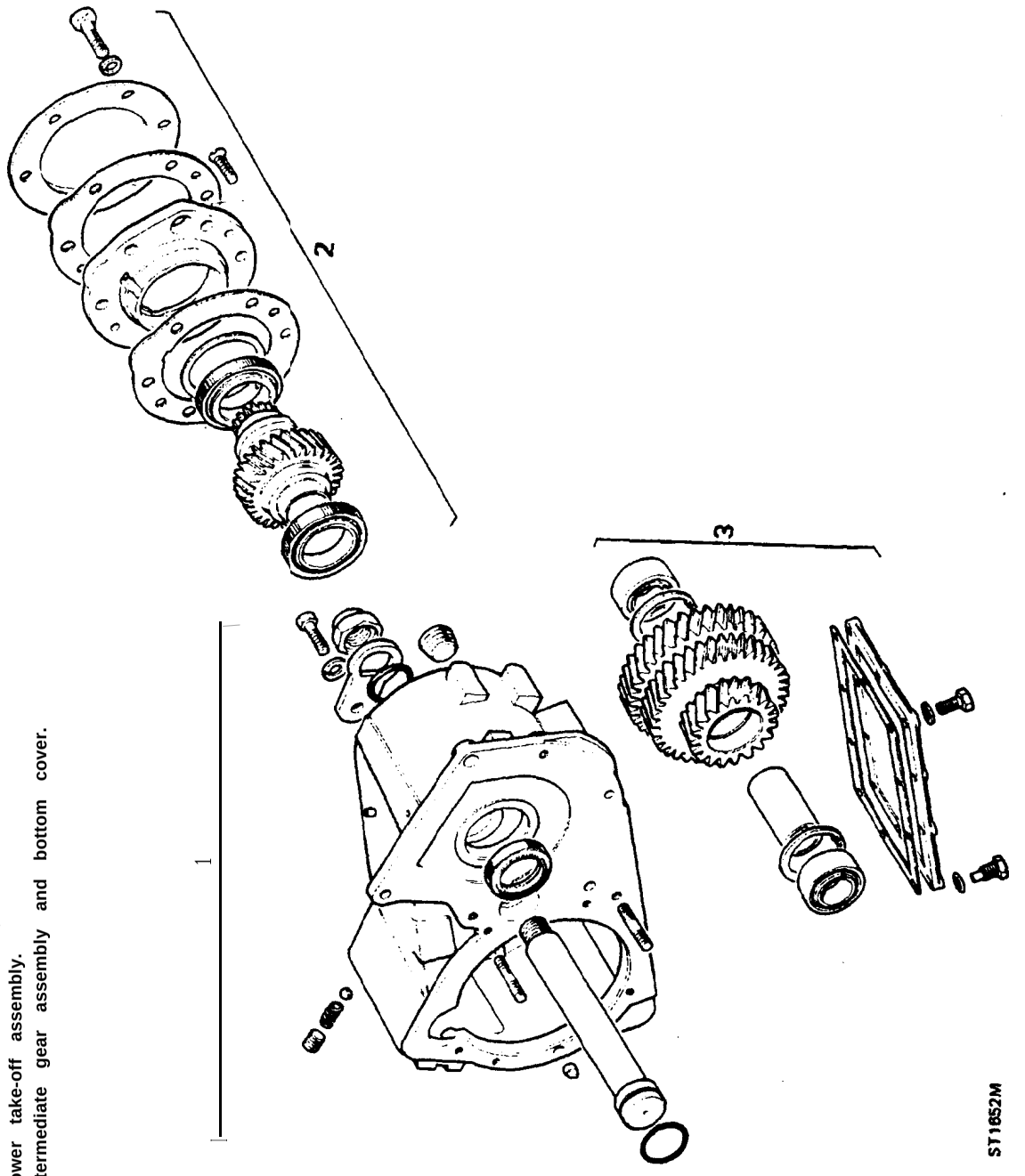
39. Make sure that the joint faces of the transfer box and main gearbox extension case are clean and that the three guide studs, 18G 1425, are fitted to the extension case.
40. Lubricate the oil seal in the joint face of transfer box, secure the transfer box to the adaptor plate on the lifting hoist and raise the hoist until the transfer box can be located over the guide studs.
41. Remove the guide studs and secure the transfer box to the main gearbox extension case. Tighten the nuts and bolts to the correct torque (see section 06-Torque values).
42. Complete the refitting procedure by reversing the removal sequence, noting the following important points.
43. After removing the lifting hoist and adaptor plate from the transfer box, clean the threads of the four bolts for the transfer box bottom cover, coat them with Loctite 290 and fit them together with spring washers. Tighten to the specified torque.
44. Refill the transfer box with the correct grade oil to the oil level plug hole. (See Section 09).
45. Check, and if necessary top-up the oil level in the main gearbox. Use the correct grade oil. (see section 09).
46. Check the operation of the parking brake and adjust as necessary. (see section 10).



1. Rear output drive assembly.
2. Transmission brake drum assembly.
33. Speedo housing assembly.



1. Centre differential assembly.
2. Front output drive assembly.
3. Differential selector assembly.
4. High/Low selector shaft.



1. Transfer box. Case assembly.
2. Power take-off assembly.
3. tntermediate gear assembly and bottom cover.

LT230 TRANSFER GEARBOX OVERHAUL

Service Tools:

18G 47-7	-input gear cluster bearing cones remover/replacer
18G 47BB-1	-Adaptor centre differential bearing remover
18C 47BB-3	-Adaptor centre differential bearing remover button
18G 257	-Circlip pliers
18G 1205	-Drive flange wrench
18G 1271	-Oil seal remover
18G 1422	-Mainshaft rear oil seal replacer
18G 1423	-Adaptor/socket centre differential locknut remover/replacer
18G 1424	-Centre differential bearing replacer
MS 47	-Hand press
MS 550	-Bearing and oil seal replacer handle
LST 47-1	-Adaptor centre differential bearing remover
LST 104	-Intermediate gear dummy shaft
LST 105	-Input gear mandrel
LST 550-4	-Intermediate gear bearing races replacer

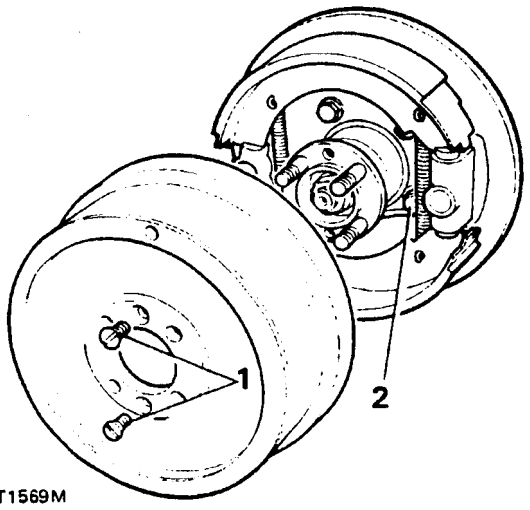
TRANSFER BOX DATA

Front and rear bevel gear pre-load	See text
High range gear end-float	0.05 to 0.15 mm (0.002 to 0.006 in)
Front differential bearing pre-load	0.56 to 1.69 Nm (S-15 in lb)
Input Rear bearing pre-load	0.56 to 2.25 Nm (S-20 in lb)
Intermediate shaft bearing pre-load	0.56 to 1.69 Nm (S-15 in lb)

Parking brake removal

1. Remove two countersunk screws and withdraw brake drum.
2. Remove four bolts securing the brake back-plate; the two bottom fixings retain the oil catcher.

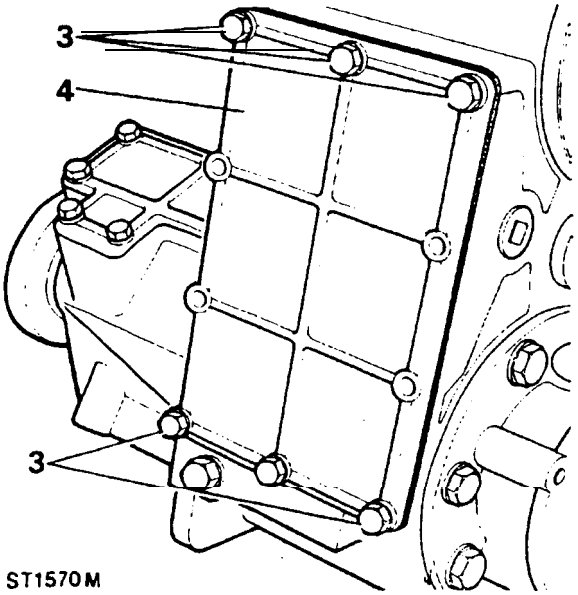
NOTE: An hexagonal type socket should be used for these bolts.



ST1569M

Bottom cover removal

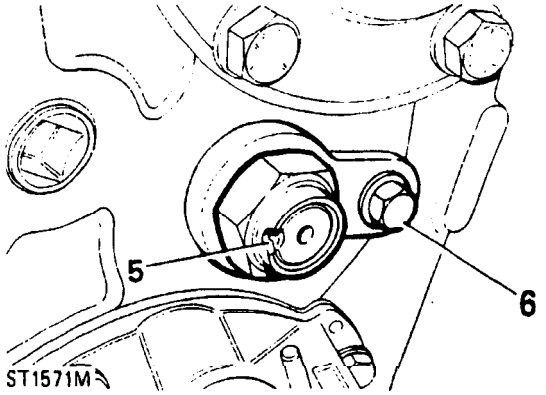
3. Remove the six bolts and washers retaining the bottom cover.
4. Remove the bottom cover and gasket, discard the gasket.



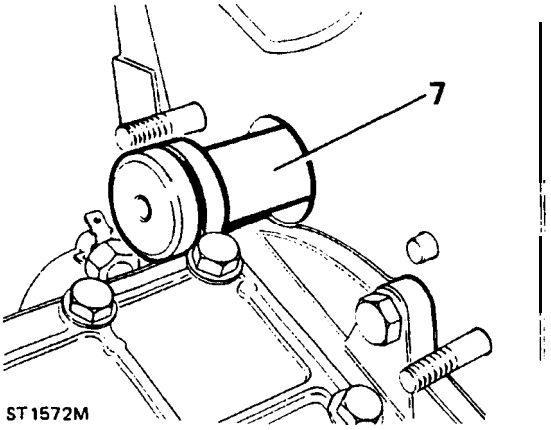
ST1570M

intermediate shaft and gear cluster removal

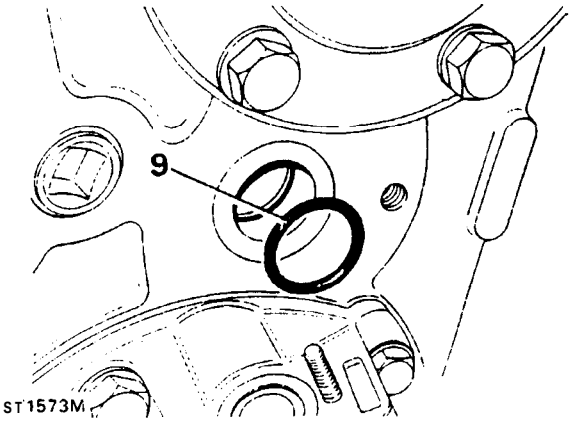
5. Release stake nut from recess in intermediate shaft, remove stake nut and discard.
6. Unscrew the single bolt and remove anti-rotation plate at the rear face of the transfer box.



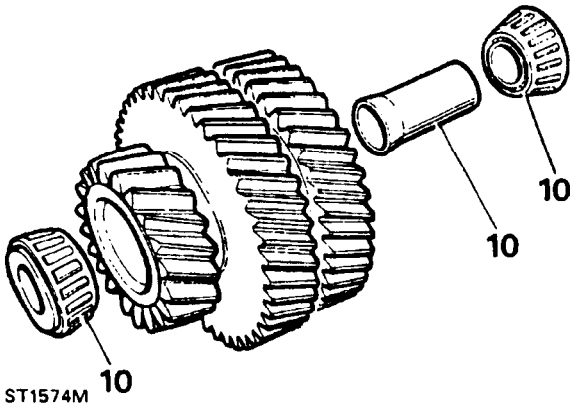
7. Tap the intermediate gear shaft from the transfer box.



8. Lift out the intermediate gear cluster and bearing assembly.
9. Remove the 'O' rings from the intermediate gear shaft and from inside the transfer box and discard.

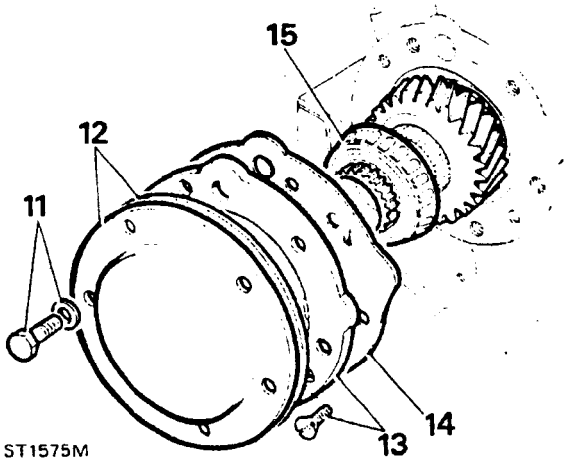


10. Remove the taper roller bearings and bearing spacer from the intermediate gear cluster assembly.



Power take-off cover removal

11. Remove five bolts and washers retaining the take-off cover
12. Remove the cover and gasket, discard the gasket.



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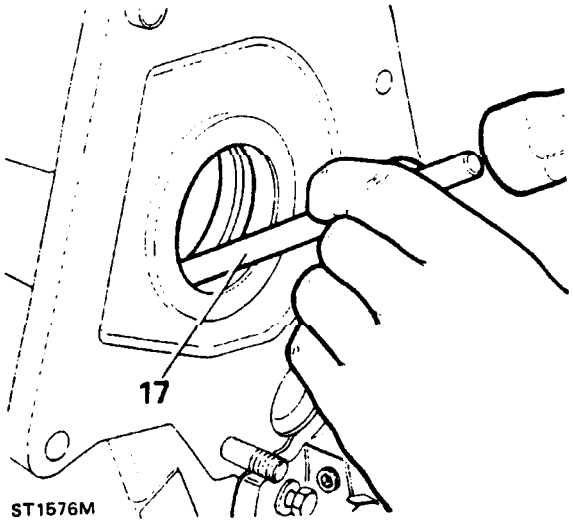
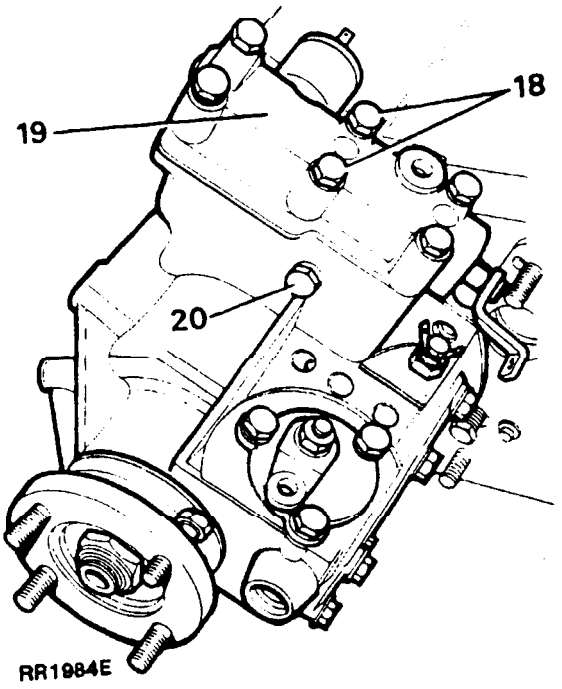
input gear removal

13. Remove the two countersunk screws and detach the main shaft bearing housing.
14. Remove the gasket and discard.
15. Withdraw the input gear assembly.
16. Pry out and discard the oil seal at the front of the transfer box casing using service tool 18C 1271.
17. Drive out the input gear front bearing track.



High/low cross-shaft housing removal

18. Remove the six bolts and washers retaining the cross-shaft housing, ground lead and retaining clip.
19. Remove the cross-shaft housing and gasket, discard the gasket.

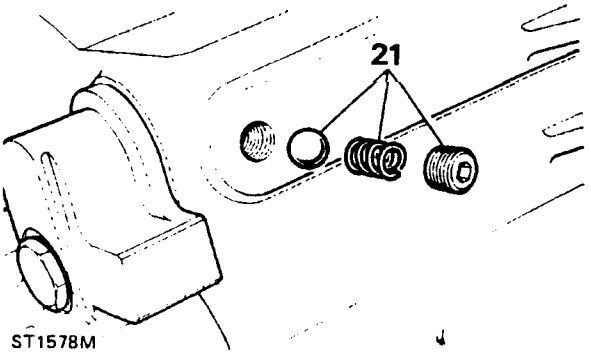


Front output housing removal

20. Remove the eight bolts and washers and detach the output housing from the transfer box casing, taking care not to mislay the dowel. Remove the gasket and discard.

Centre differential removal

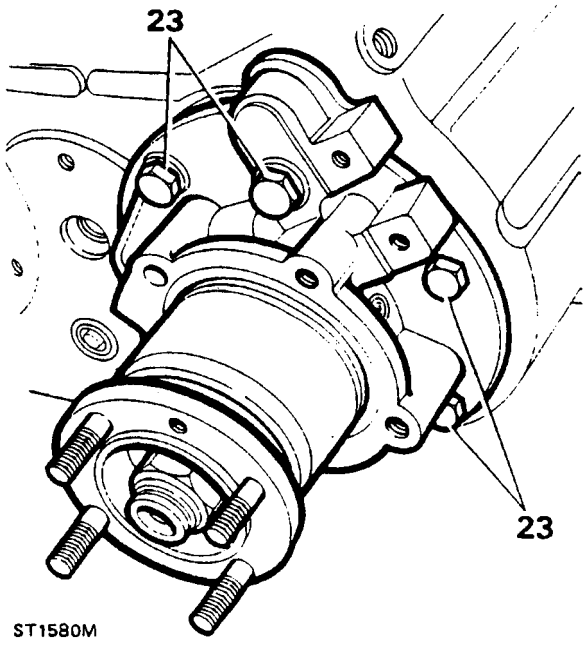
21. Remove high/low selector shaft detent plug, spring and retrieve the ball with a suitable magnet.



22. Withdraw the centre differential and selector shaft/fork assembly.

Rear output housing removal

23. Remove six bolts and washers and detach the rear output housing and shaft assembly from the transfer casing.
24. Remove the gasket and discard.



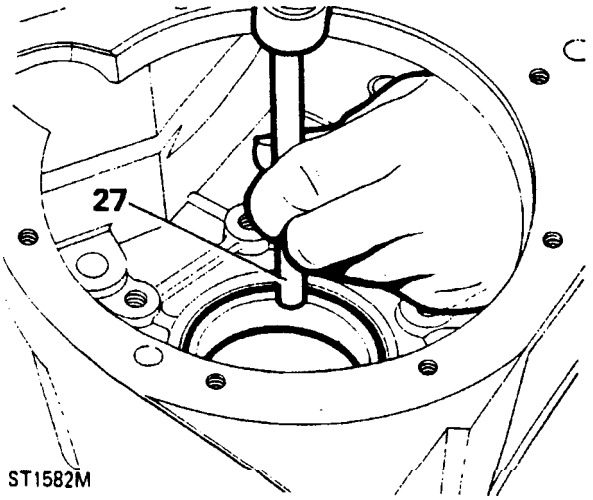
ST1580M

Transfer case overhaul - dismantling

25. Inspect the studs and dowels for wear or damage. Remove if replacements are required.
26. Remove the magnetic drain plug, copper washer and filler/level plug. Discard the washer.

ST1581M

27. Drive out differential rear bearing track.
28. Clean all areas of the transfer casing ensuring all traces of 'Loctite' are removed from faces and threads.



ST1582M

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