TOYOTA
LAND CRUISER
OVERDRIVE
BY FAIREY
FITTING INSTRUCTIONS

To suit Land Cruisers fitted with 3 speed gearboxes and 29 teeth on the Transfer Input. Gear.

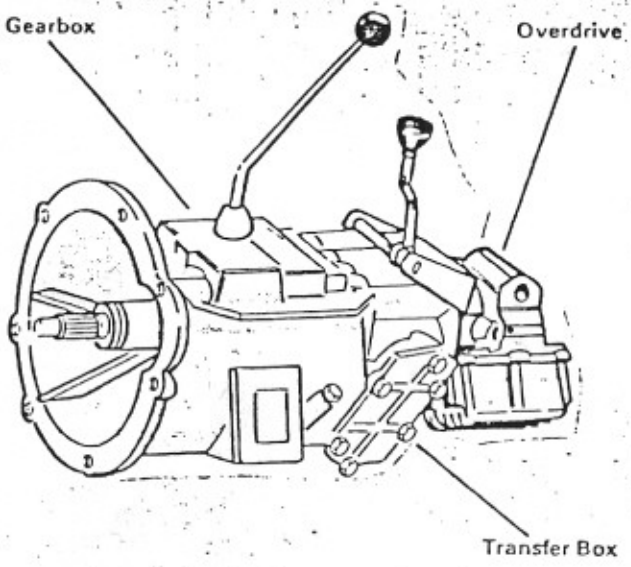
Side Power Take Off.

If this facility is required an optional

FAIREY WINCHES LTD.
TAVISTOCK
DEVON
ENGLAND

Telephone 0822 4101
Telex 45324

WHERE THE OVERDRIVE FITS



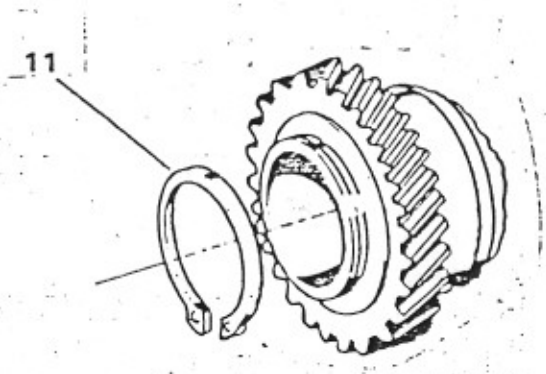
1. The overdrive fits into centre power take off access of the transfer box.

TOYOTA SIDE PTO

3. If the side PTO facility is required, the optional PTO gear, part number 5421, must be obtained before starting to fit the overdrive kit.

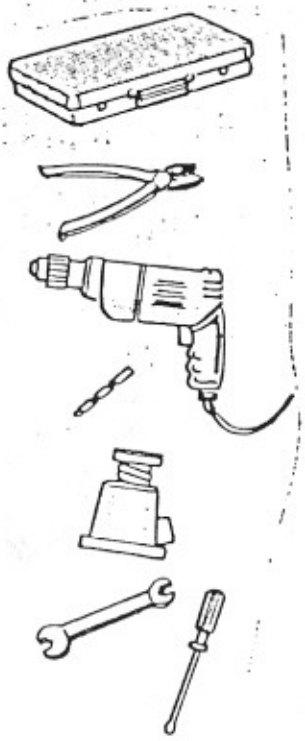
PREPARE THE OVERDRIVE

4. Tear off the exploded view at the back of these instructions and position it for easy reference.



5. Remove and discard the circlip, item 11.

TOOLS NEEDED



2. ½ in. square drive metric socket set.

External circlip pliers.

Hand or electric drill.

3 mm diameter twist drill bit.

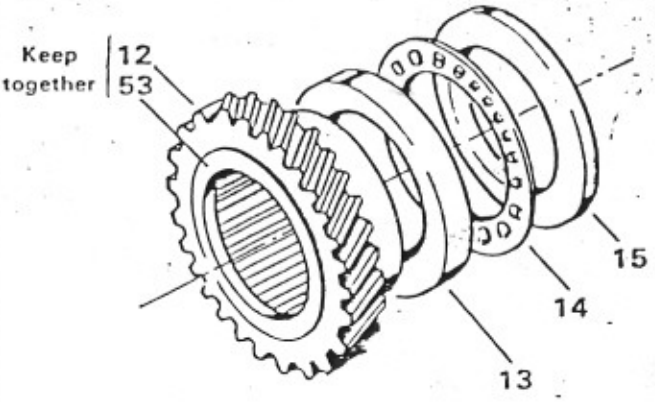
2 in. diameter hole saw.

Vehicle jack, either screw or hydraulic.

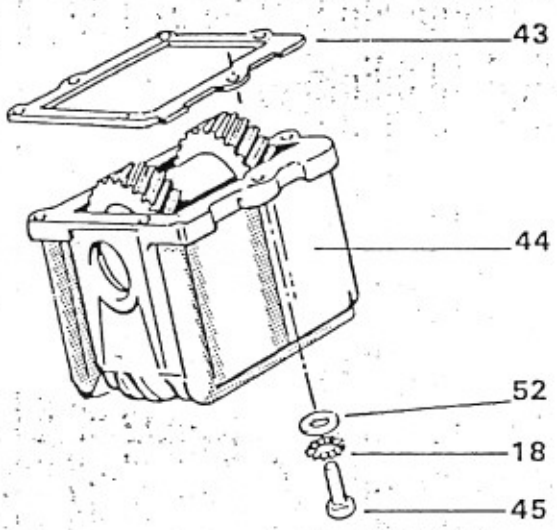
A small quantity of 'Loctite', preferably 270 grade, but 241 or 290 will do.

Gasket cement.

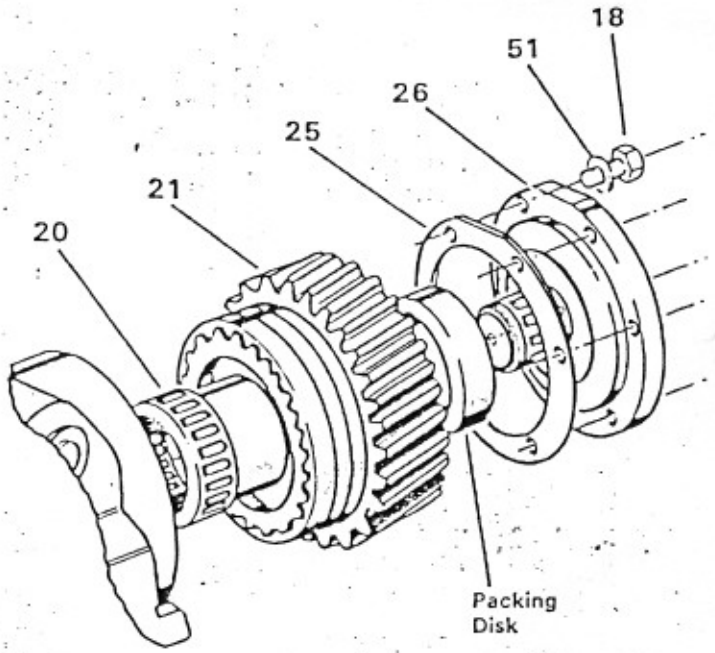
Selection of basic mechanic's hand tools (screwdriver, etc).



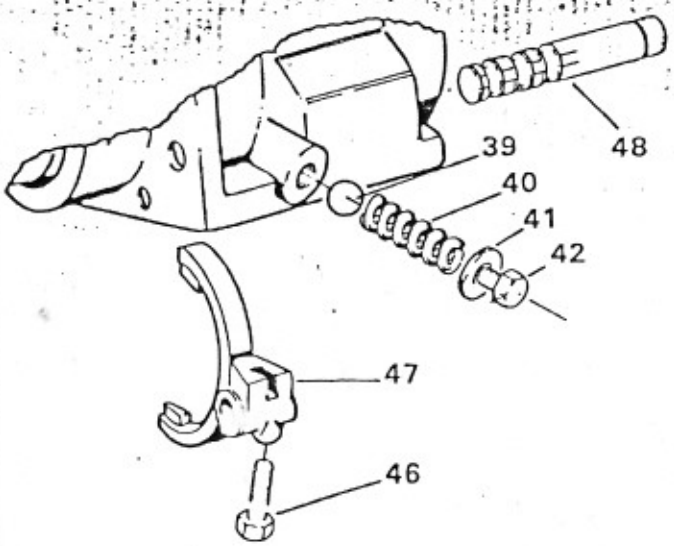
6. Remove the thrust washer 53, the gear 12, the spacer 13, the thrust bearing 14, the washer 15. The thrust washer 53 and the gear 12 must not be separated.



7. Remove the seven M8 bolts, 45, the shakeproof washers 18, the plain washers 52, the lower housing 44 and the gasket 43



9. Remove the M8 bolts and washers 51 and 18, the end cap 26, the gasket 25, the plastic packing disc (discard), the drive sleeve assembly 21, the bearing 20.



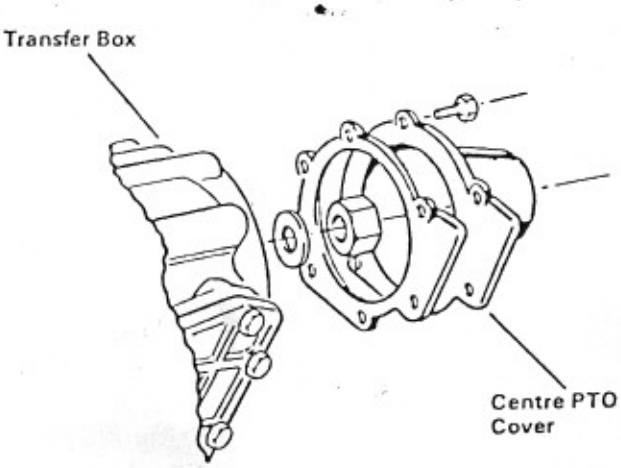
8. Remove the bolt and washer 42 and 41, the spring 40, the ball 39, the bolt 46, the shaft 48, and the fork 47

PREPARE THE VEHICLE

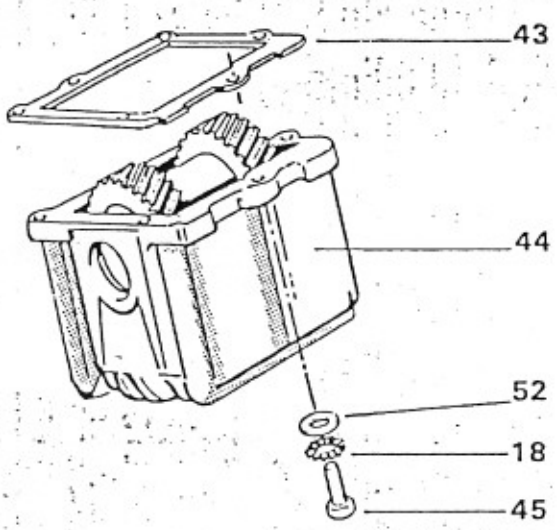
10. Disconnect the battery.

11. Remove the skid plate.

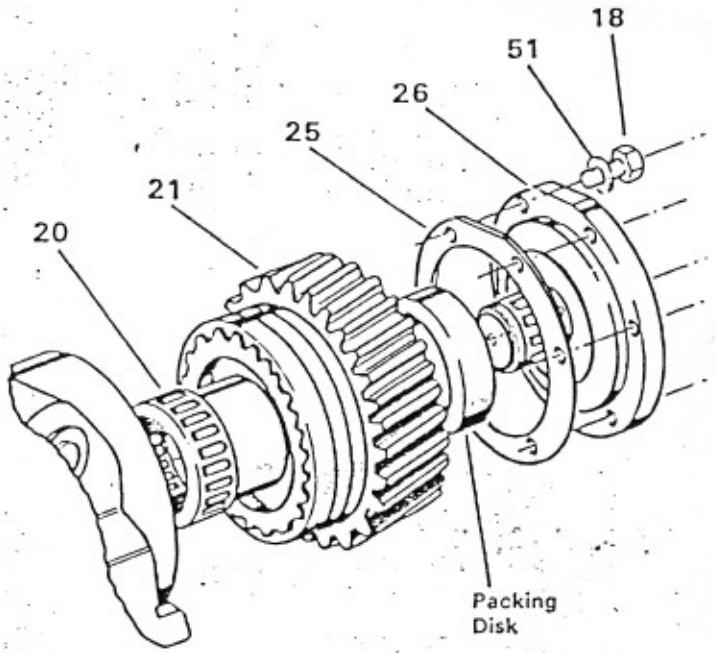
12. Drain oil and disconnect speedo cable and front and rear prop shafts.



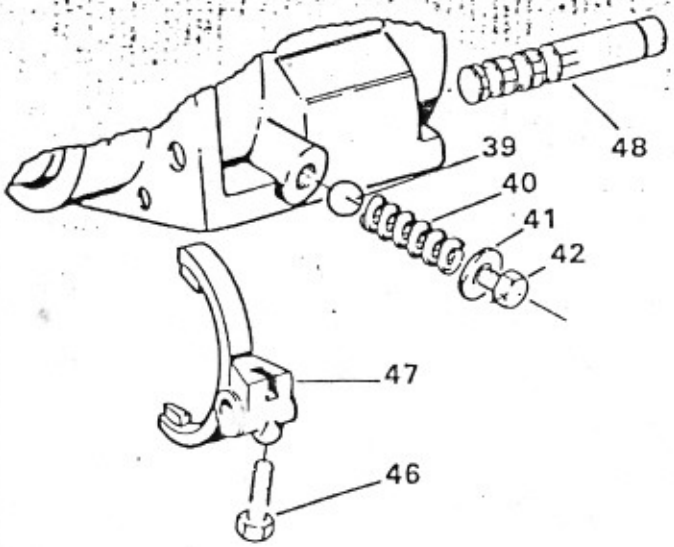
13. Remove the centre power take off cover and the



7. Remove the seven M8 bolts, 45, the shakeproof washers 18, the plain washers 52, the lower housing 44 and the gasket 43



9. Remove the M8 bolts and washers 51 and 18, the end cap 26, the gasket 25, the plastic packing disc (discard), the drive sleeve assembly 21, the bearing 20.



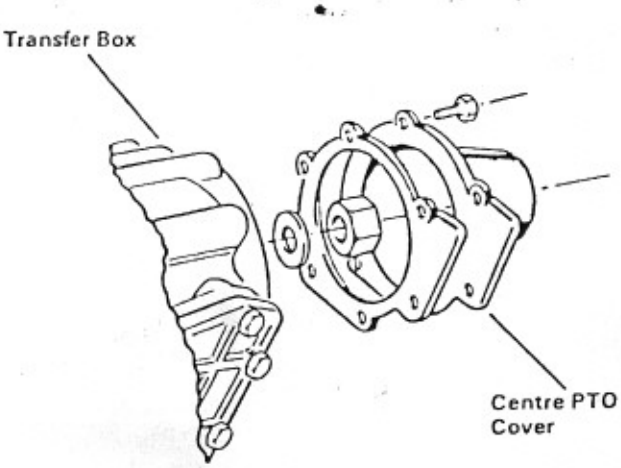
8. Remove the bolt and washer 42 and 41, the spring 40, the ball 39, the bolt 46, the shaft 48, and the fork

PREPARE THE VEHICLE

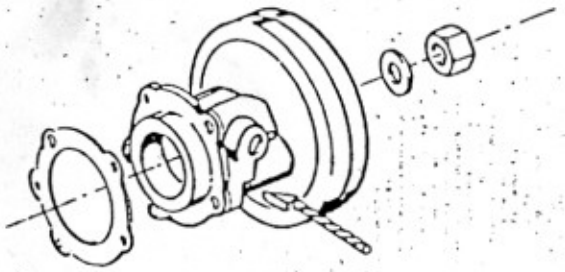
10. Disconnect the battery.

11. Remove the skid plate.

12. Drain oil and disconnect speedo cable and front and rear prop shafts.



13. Remove the centre power take off cover and the



14. Remove staked nut on parking brake and the bearing retainer and parking brake complete.

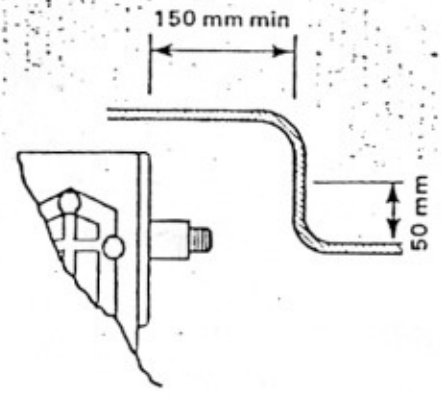
15. Disconnect all the transfer gearbox linkages and wiring.

17. Position a jack with 130 mm (5 in) of downtravel available, under the rear of the gearbox.

18. Disconnect exhaust pipe at exhaust manifold and disconnect any items which will be damaged by lowering the rear of the gearbox.

19. Disconnect rear transmission mounts and lower the gearbox by about 130 mm (5 in).

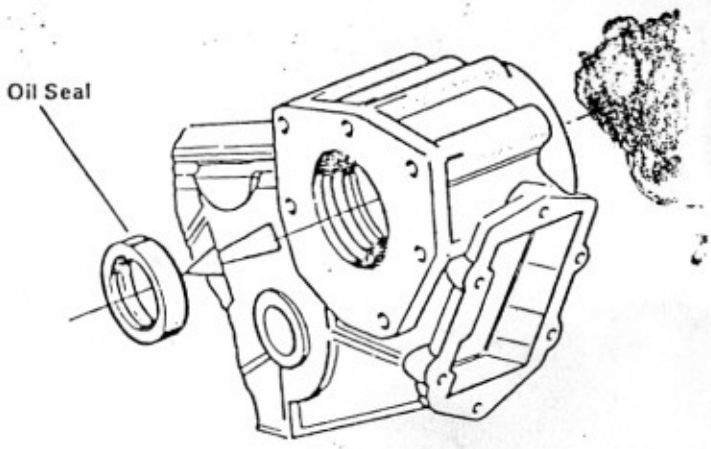
20. Remove the transfer box from the vehicle.



NOTE FJ55 ONLY

16. Measure between the transfer box face and the footwell panel of the body. This should be at least 150 mm (6 in). If necessary, handwork the panel, with the transfer box removed, in an area in line with the mainshaft and up the panel about 50 mm (2 in).

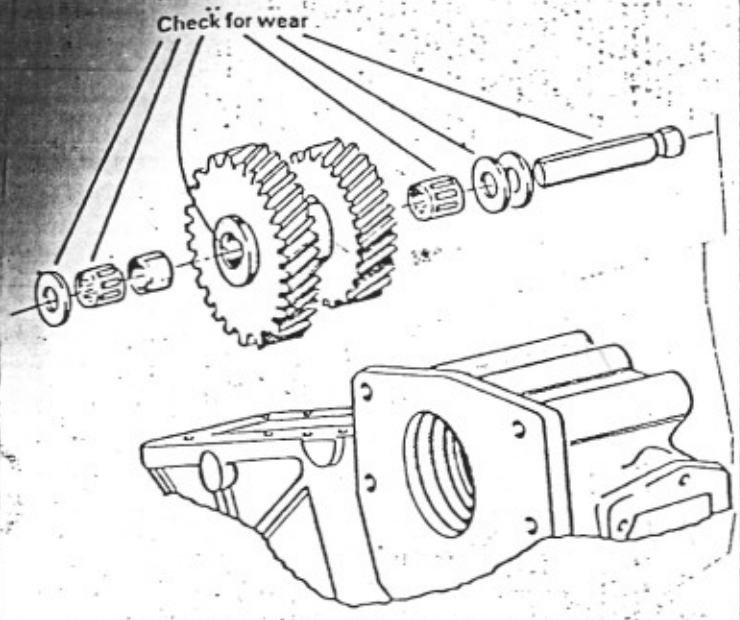
OD 2.362
ID 1.575
40X60X10 - seal



7044 16532

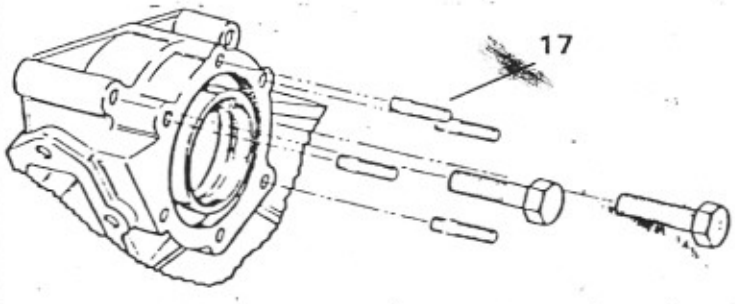
21. Remove the oil seal from the transfer box.

CHECK FOR WEAR IN TRANSFER BOX BEARINGS AND SHAFTS

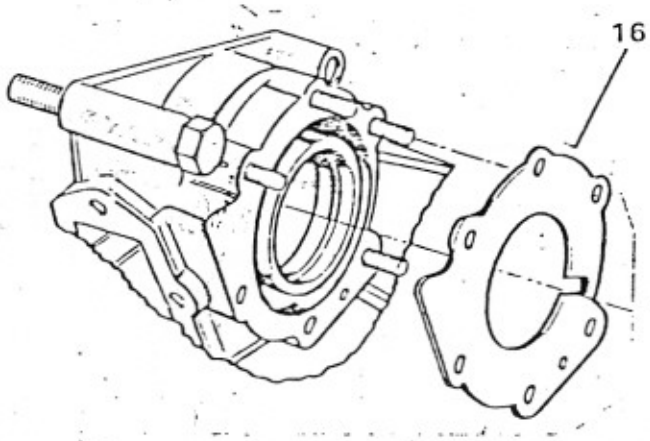


22. Follow the repair manual to check for wear particularly on the Idler Shaft and its bearings.

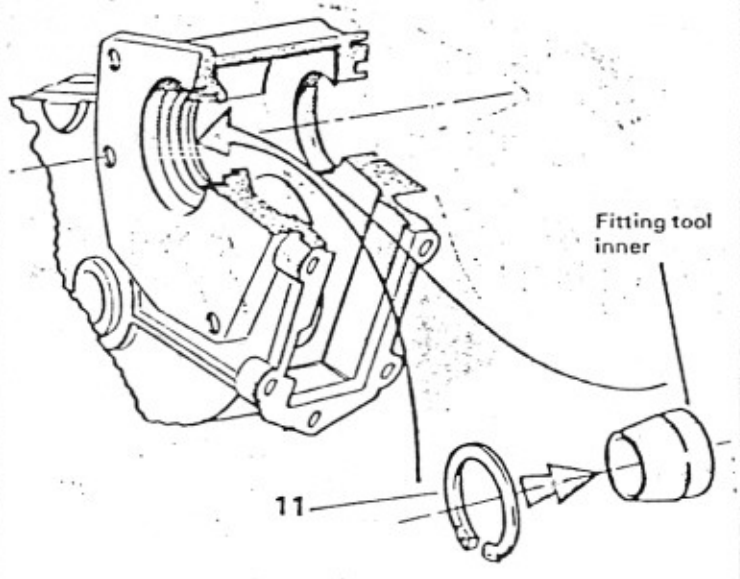
FITTING THE OVERDRIVE



23. Fit the four M8/M10 studs item 17 and two long M12 transfer box bolts into the transfer box where shown.

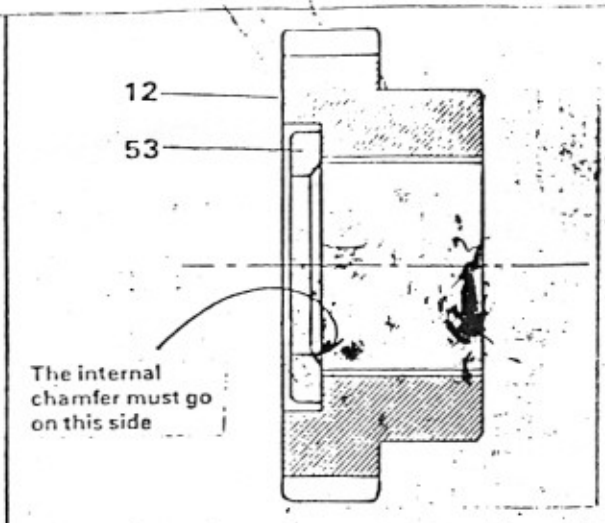


24. Fit the gasket item 16 onto the transfer box face.



25 . Fit the circlip item 11 onto the small tapered end of the fitting tool. Use the outer tube to push the circlip up the taper to within about 3 mm (1/8 in) of the end.

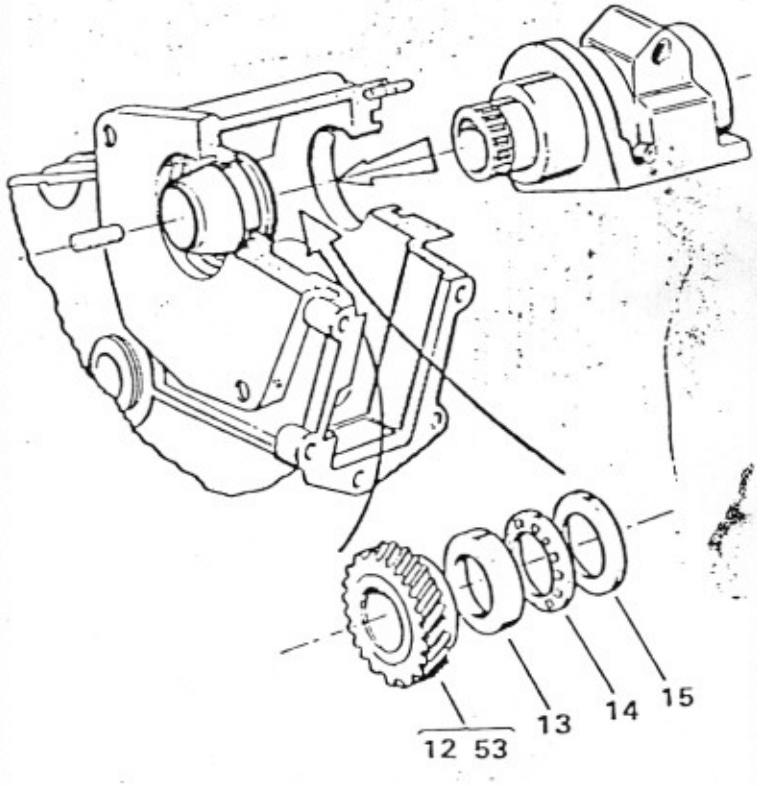
26 . Feed the tool into the transfer box.



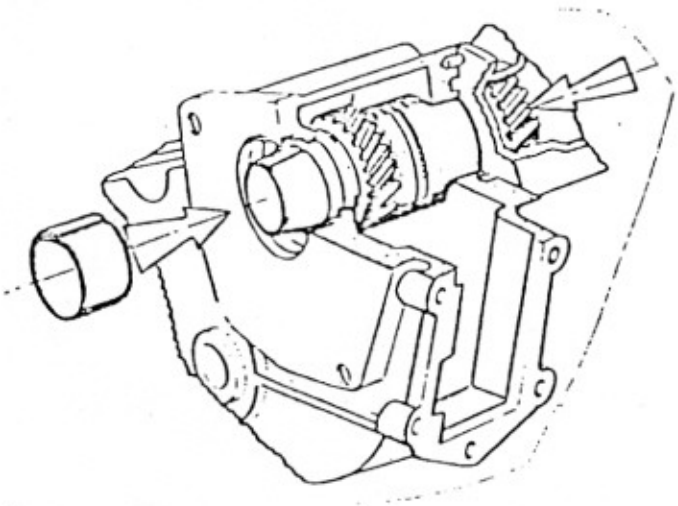
27 . Should the thrust washer have become separated from the gear 12, then fit the thrust washer into the recess making absolutely certain that the larger chamfer on the bore of the thrust washer goes against the transfer gear.

SIDE PTO

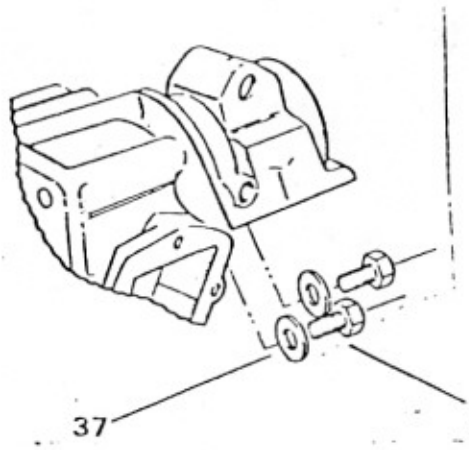
28 . If PTO gear 5421 is available this replaces the spacer, item 13, at the next fitting stage.



29 . Fit the transfer gear and thrust washer, the spacer 13 (or the PTO gear), the thrust bearing 14, the washer 15, through the side PTO access. Into these items feed the splined end of the main overdrive unit through the centre PTO access.

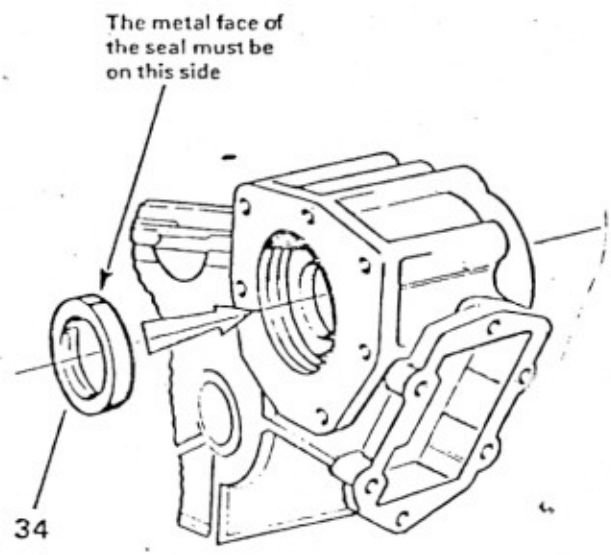


30. Push the outer tube of the fitting tool and hold the opposite end of the splined shaft until the circlip clicks into place. Remove the fitting tool and check the circlip is absolutely secure in the groove.



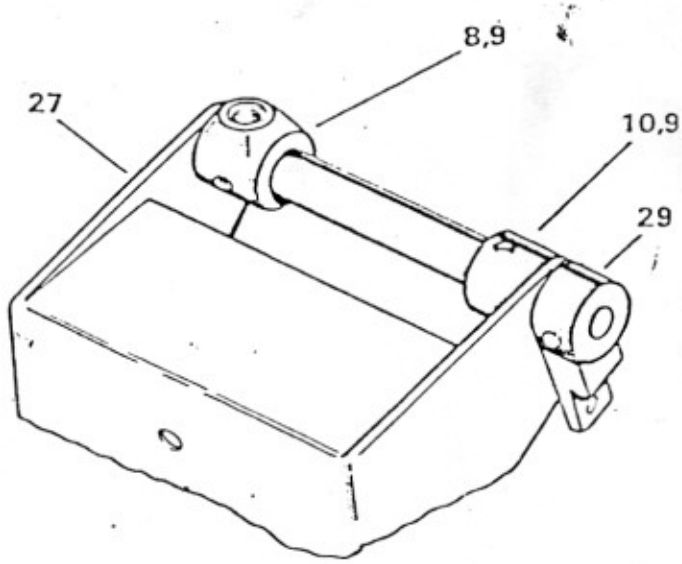
32. Fit the special M10 bolts 38 and shakeproof washers 37 into the two holes in the inside face of the overdrive and lightly tighten.

33. Refit the transfer box to the vehicle and torque bolts to 5-8 kgm (36-58 ft lb).



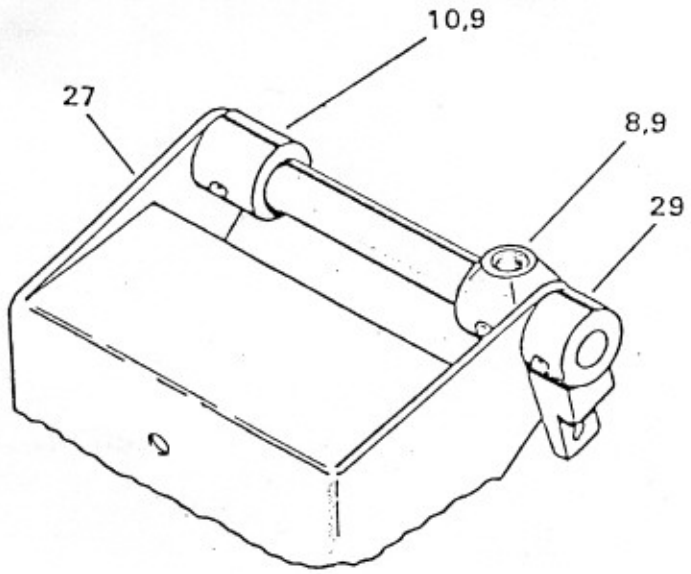
31. With the metal face towards the casting, fit the seal item 34 into the transfer box.

LEFT HAND DRIVE VEHICLES

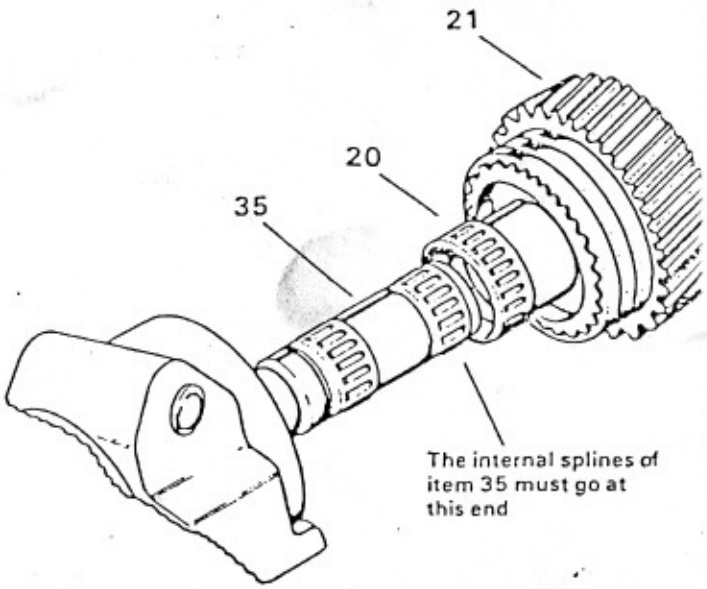


34. Assemble the bracket 27, the bush 10, the bracket shaft 29, the shift lever mounting 8 and pins 9

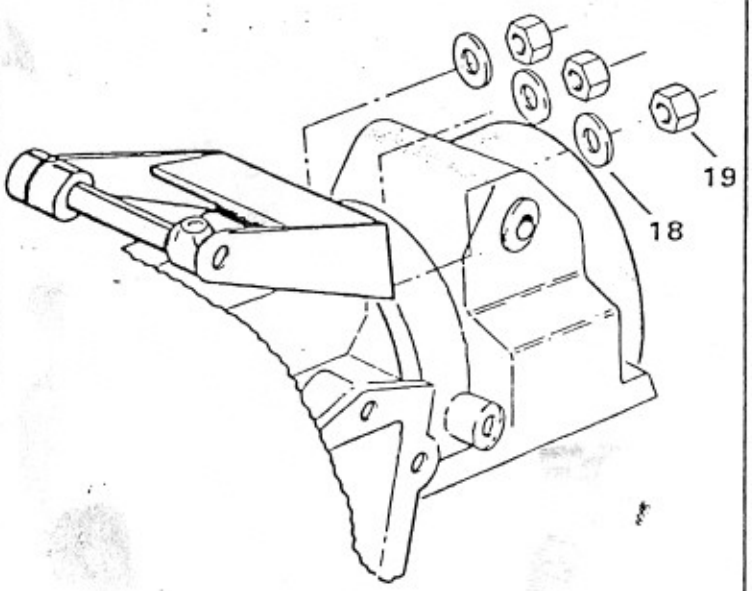
RIGHT HAND DRIVE VEHICLES



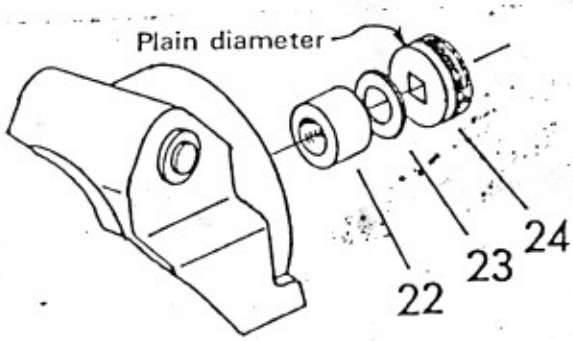
35 . Assemble the bracket 27, the bush 10, the bracket shaft 29, the shift lever mounting 8 and pins 9.



37 Fit bearing sleeve assembly 35, bearing 20 and drive sleeve 21. Make sure 35 and 21 engage the splines properly. From underneath make sure 21 has engaged bronze synchromesh cone. Turn if necessary.



36 . Fit the bracket assembly to the overdrive and tighten the nuts and bolts including the bolts inside the overdrive housing to 5 kgm (37 ft lb).



38 . Degrease mainshaft nut 22, locknut 24 and the thread on the end of the mainshaft.

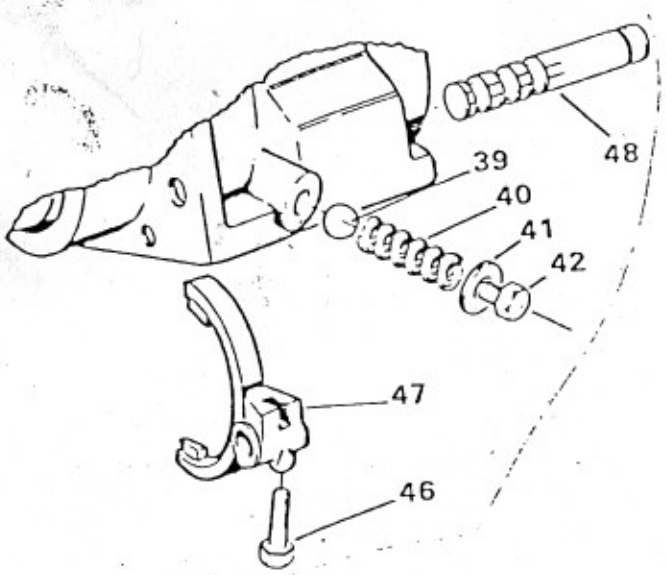
39 . Apply 'Loctite' to the mainshaft nut 22, fit and tighten to 11-14 kgm (80/100 ft lb).

40 Fit washer 23

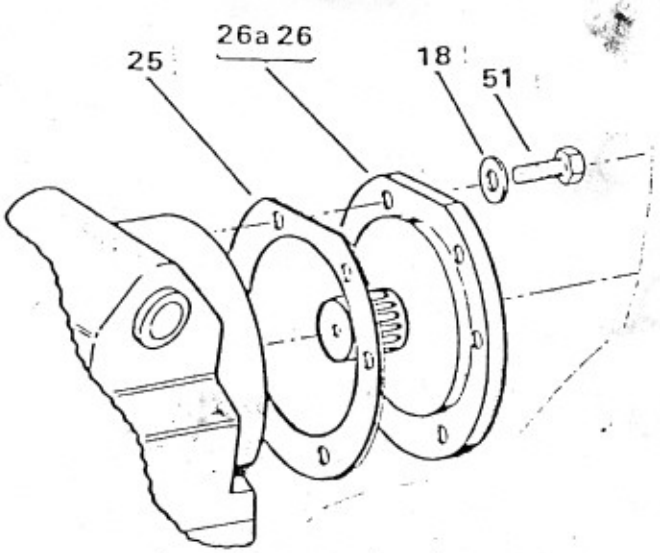
41 Apply 'Loctite' to 24.

42 Fit 24 and tighten to 11-14 kgm (80/100 ft lb).

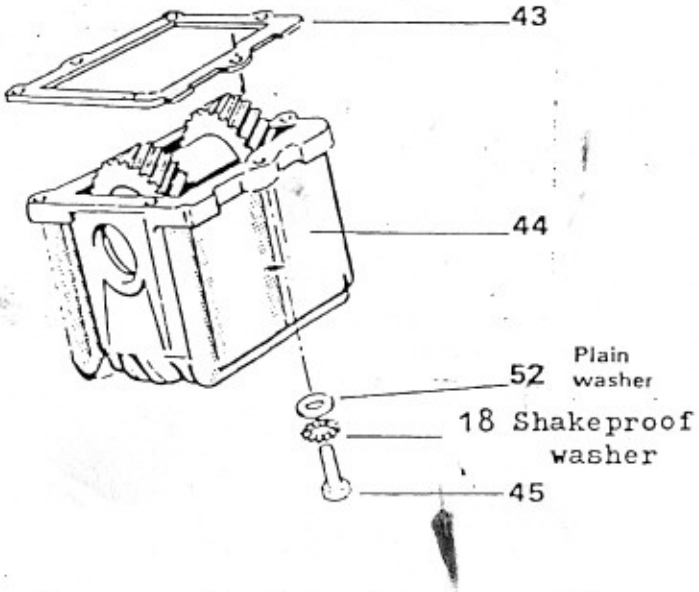
washer 23 is now trapped between the nuts 22 and 24.



43. Fit selector shaft 48, the bronze fork 47, the M8 bolt 46, the ball 39, the spring 40, the bolt and copper washer 42 and 41. Adjust the fork on the shaft in to the central position before tightening bolt to 2.2 kgm (15 ft lb).



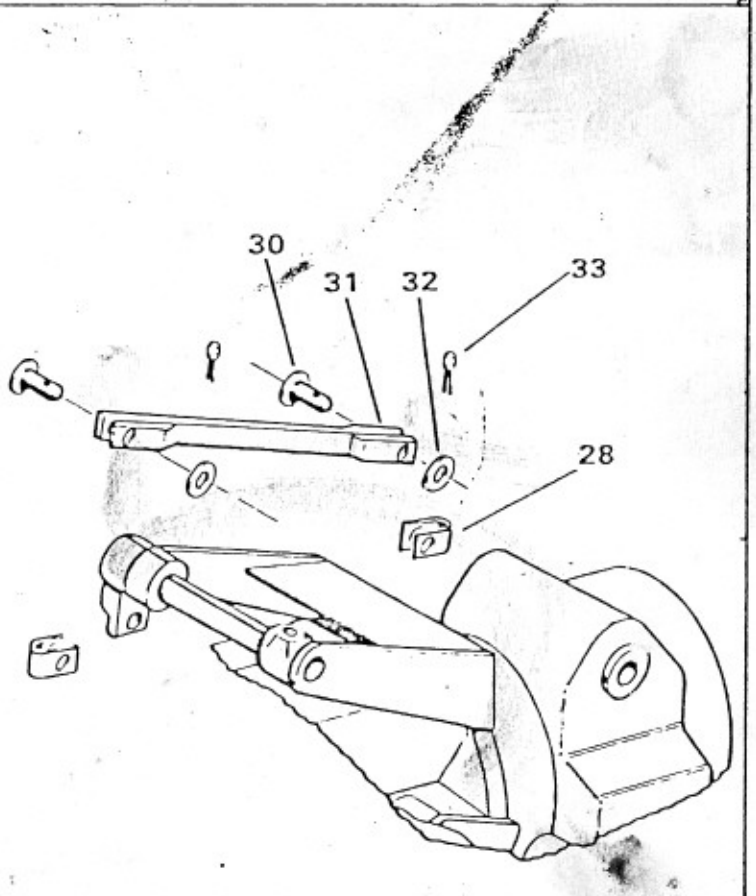
47. Assemble gasket 25, end cap 26, 'O' ring 26a, bolts and washers 51 and 18. Torque 3.3 kgm (25 ft lb).



44. Degrease and apply 'Loctite' to seven M8 bolts 45, degrease M8 holes in bottom of overdrive.

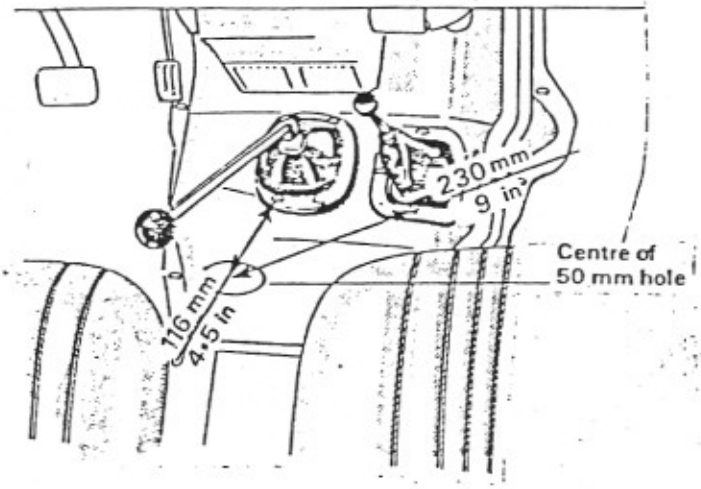
45. Apply gasket cement to gasket 43.

46. Fit lower housing 44 making sure that the plain washers 52 go against the casting and the shakeproof washers 18 go under the heads of the bolts



48. Assemble linkage.

LEFT HAND DRIVE VEHICLES



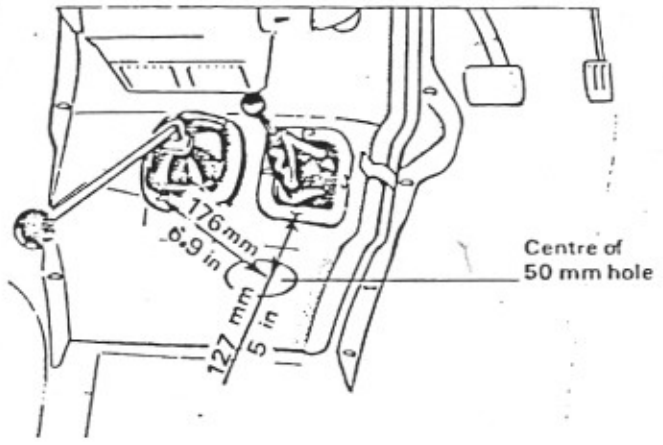
49. Drill a 50 mm (2 in) hole.

51. Jack transmission back into place and refit all previously removed items.

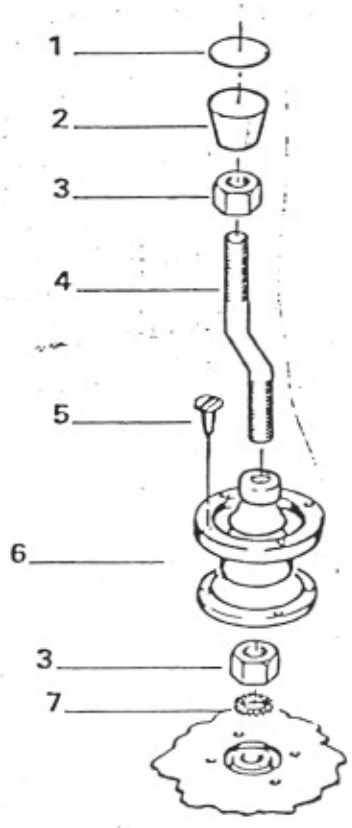
52 Fill gearbox and transfer box with oil.

53. Fill overdrive with oil until oil comes out of the transfer box level hole. Replace all the level plugs.

RIGHT HAND DRIVE VEHICLES



50. Drill a 50 mm (2 in) hole.



54. Fit shaft lever and drill four holes 3 mm (1/8 in) diameter in the floor to secure the grommet.

OPERATING INSTRUCTIONS

The overdrive unit is fitted with a synchromesh gearchange unit and should be treated as an extra gearbox. Since the overdrive gearchange is mechanical, the clutch must be used when changing into or out of overdrive just the same as when changing gear in the gearbox. There are three lever positions, overdrive in, neutral, and overdrive out.

To engage

Simultaneously press the clutch and release the accelerator pedal. Move the overdrive operating lever forward. Simultaneously release the clutch and press the accelerator.

To disengage

Simultaneously press the clutch and release the accelerator pedal. Move the overdrive operating lever backward. Simultaneously release the clutch and press the accelerator.

MAINTENANCE

The overdrive oil is integral with the transfer box. When changing the transfer box oil also remove the overdrive drain plug. When refilling the overdrive always make sure that the transfer box level plug is removed to obtain the correct oil level.

O – After 100 and 500 miles check the tightness of the accessible overdrive bolts and nuts to a torque of 4 kgm (30 ft lb).

PARTS LIST

Item Ref.	Description	Fairey Winches Part Number	Quantity
1	Label	768	1
2	Knob	746	1
3	Locknut M12	4-49-1223	2
4	Shift Lever	5424	1
5	Self Tapping Screws	5197	4
6	Grommet Assembly	5194	1
7	Shakeproof Washer M12	4-52-1213	1
8	Shift Lever Mounting	5413	1
9	Roll Pin	4-56-502423	2
10	Bush	5418	1
11	Circlip	4-24-5261203	2 (1 spare)
12	Transfer Gear	6356	1
13	Spacer (or PTO gear)	5684 (or 5421)	1
14	Thrust Bearing	4-07-5776203	1
15	Thrust Washer	4-03-5776323	1
16	Gasket	5710	1
17	Stud	5704	4
18	Shakeproof Washer	4-53-0823	18
19	Nut M8	4-47-0813	4
20	Needle Bearing	4-12-45502723	1
21	Drive Sleeve Assembly	6401	1
22	Mainshaft Nut	6354	1
23	Tab Washer	6357	1
24	Locknut	5387	1
25	Gasket	5727	1
26a	O Ring Seal	4-21-5383	1
26	End Cap Assembly	5701	1
27	Bracket Assembly	5408	1
28	Nylon Strip	5058	2
29	Bracket Shaft Assembly	5728	1
30	Clevis Pin	785	2
31	Link Rod	5726	1
32	Plain Washer	156	2
33	Split Pin	4-63-151223	2
34	Oil Seal	4-22-40601031	
35	Bearing Sleeve Assembly	6402	1
37	Shakeproof Washer M10	4-52-1013	2

PARTS LIST

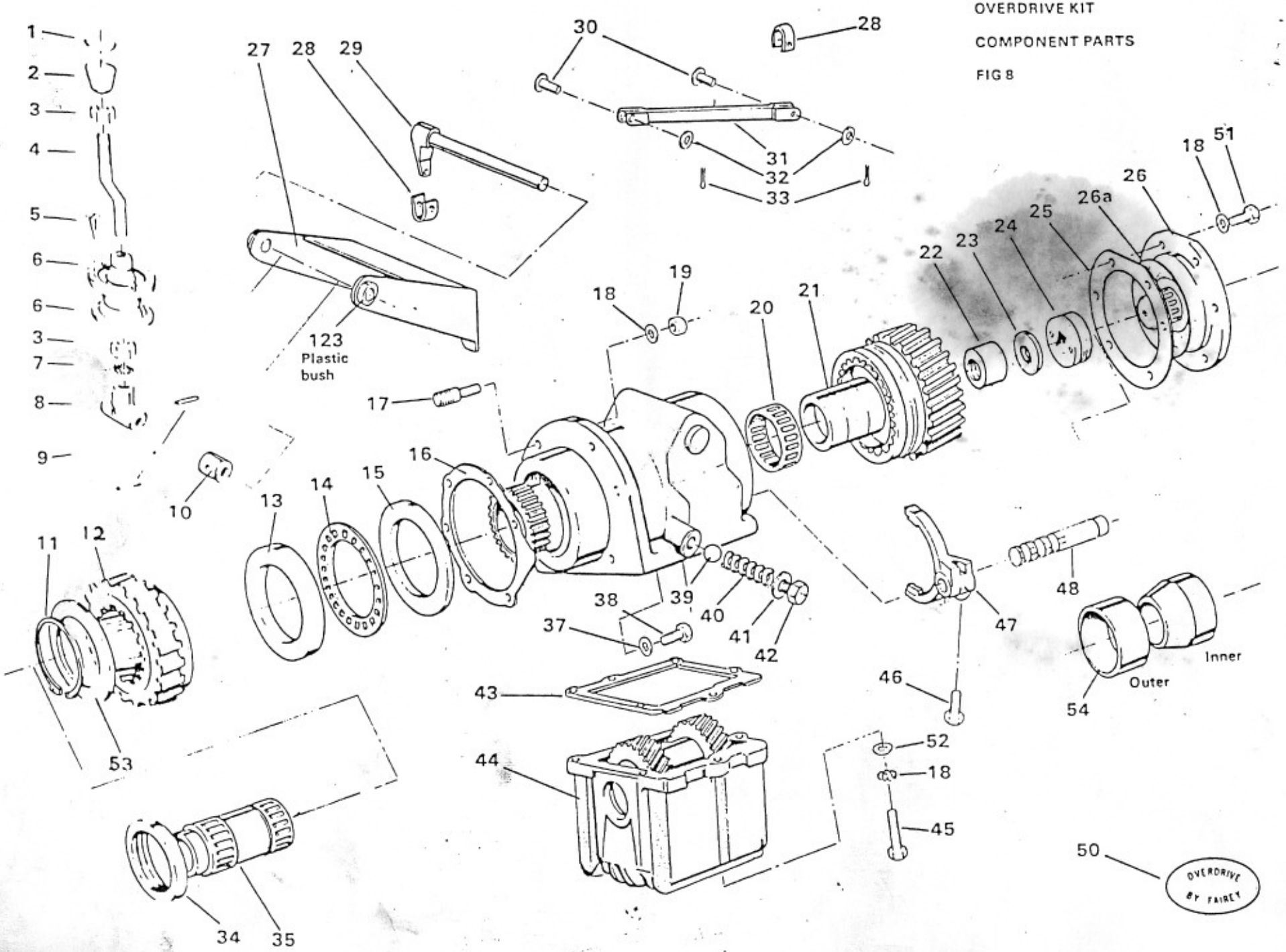
Item Ref.	Description	Fairey Winches Part Number	Quantity
38	Special Bolt	5402	2
39	Steel Ball	753	1
40	Spring	725	1
41	Copper Washer	5713	1
42	Bolt M10, 16 mm long	4-32-1001612	1
43	Gasket	5703	1
44	Lower Housing Assembly	5704	1
45	Bolt M8, 30 mm long	4-33-0803012	4
	Bolt M8, 100 mm long	4-33-0810012	3
46	Bolt M8, 25 mm long	4-33-0802512	1
47	Selector Fork	5393	1
48	Selector Shaft Assembly	6403	1
50	Overdrive Label	5201/R	1
51	Bolt M8, 18 mm long	4-33-0801822	6
52	Plain Washer	6271	7
53	Thrust Washer	6274	1
54	Circlip Fitting Tool (inner and outer)	6278	1
55	Drop Arm	5415	1
56	Bracket Shaft	5417	1
57	Roll Pin	4-56-502423	1
58	Synchromesh Outer	5423	1
59	Spring	5700	2
60	Driving Sleeve	6355	1
61	Shifter Block	5699	3
62	Thrust Washer	5384	1
63	Baulk Ring	5695	2
64	Input Gear	5382	1
65	Needle Bearing	4-12-45502723	1
66	Thrust Washer	4-03-4565103	1
67	Thrust Bearing	4-07-4565303	1
68	Thrust Washer	4-03-4565403	1
69	Circlip	4-24-4556183	1
70	Pivot Bar Assembly	5395	1
71	Circlip	4-27-6823153	1
72	Needle Bearing	5694	1
73	Upper Housing	6352	1
74	Washer	5708	2
75	Seal	4-21-1123	4
76	Screw	4-71-0800813	1
77	Nylon Seal	4-23-083	1

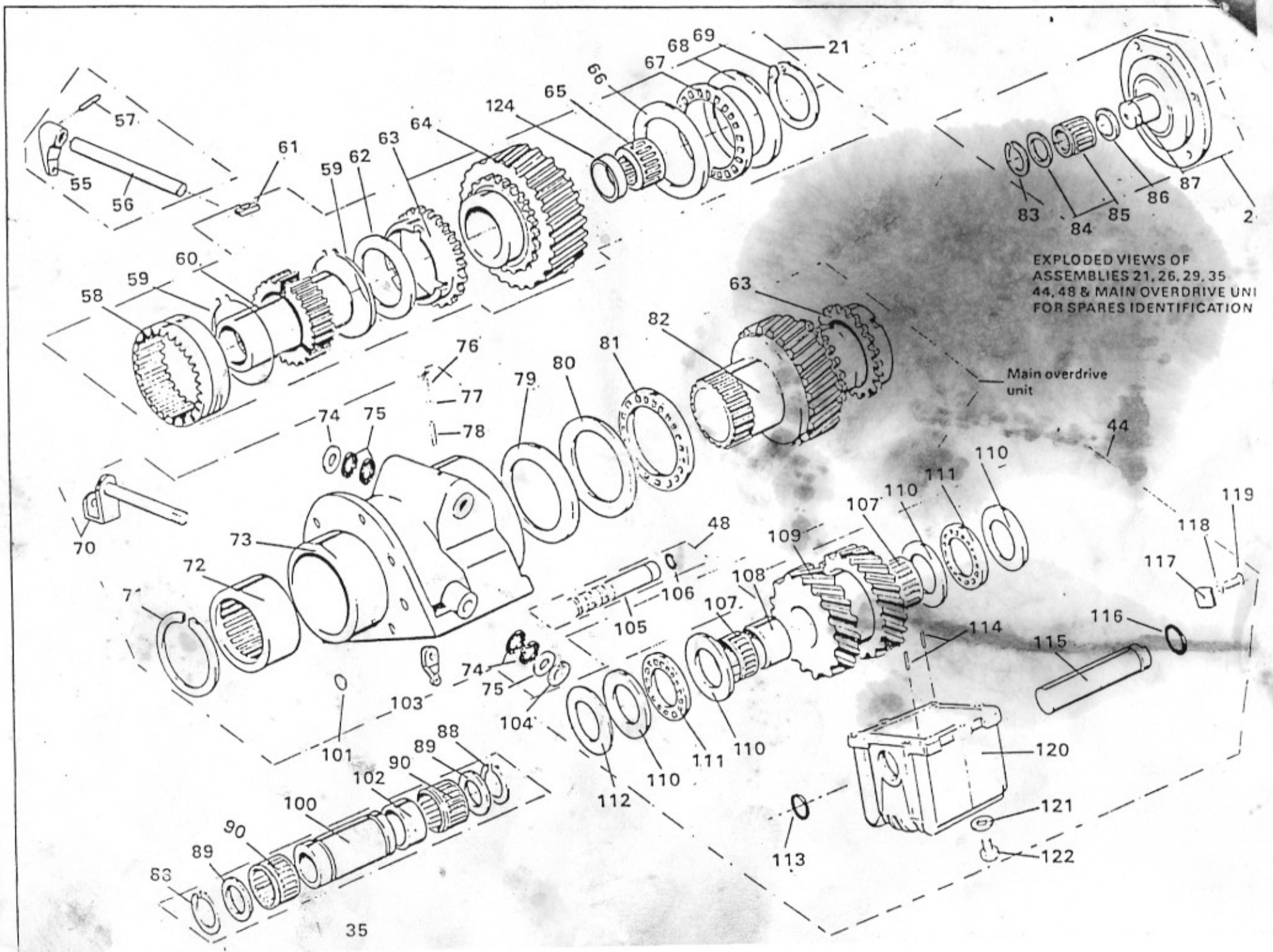
Item Ref.	Description	Fairey Winches Part Number	Quantity
78	Roll Pin	4-56- 502423	1
79	Shim, .1 mm thick	4-01-5776103	
80	Thrust Washer	4-03-5776083	1
81	Thrust Bearing	4-0705776203	1
82	Output Gear	5381	1
83	Circlip	4-26-2518123	1
84	Thrust Washer	5696	1
85	Needle Bearing	4-12-25353023	1
86	Spacer	5690	1
87	End Cap	5380	1
88	Snap Ring	4-26-4023153	2
89	Thrust Ring	5689	2
90	Needle Bearing	4-12-40452723	2
100	Bearing Sleeve	6353	1
101	Sealing Disc	5729	1
102	Spacer	6359	1
103	Selector Lever	5394	1
104	Circlip	4-24-1319093	1
105	Selector Shaft	5400	1
106	'O' Ring Seal	4-21-0123	1
107	Needle Bearing	4-12-30362623	2
108	Spacer	5388	1
109	Laygear	5383	1
110	Thrust Washer	4-03-3047103	4
111	Thrust Bearing	4-07-3047203	2
112	Shim:– .13 mm thick	4-01-3047133	
	.05 thick	4-01-3047053	
113	'O' Ring Seal	4-21-0253	1
114	Roll Pin	4-56-401213	2
115	Layshaft	5398	1
116	'O' Ring Seal	4-21-2133	1
117	Clamp Plate	5399	1
118	Spring Washer	4-51-0613	1
119	Bolt	4-33-0601212	1
120	Lower Housing	5376	1
121	Copper Washer	5004	2
122	Plug	992	2
123	Bush (shown on page 11)	5723	2
124	Spacer	6404	1

OVERDRIVE KIT

COMPONENT PARTS

FIG 8




EXPLODED VIEWS OF
ASSEMBLIES 21, 26, 29, 35
44, 48 & MAIN OVERDRIVE UNI
FOR SPARES IDENTIFICATION
Main overdrive unit
35