

TRANSFER CASE

The transfer case, Fig. 1 is an auxiliary unit located at the rear of the transmission. The transfer case is essentially a two speed transmission, which provides a low gear ratio and a means of connecting the transmission to the front axle.

The shifting mechanism, Fig. 2 is located on the transfer case for engaging and disengaging the drive to the front axle, also for shifting into the low gear ratio.

On hard surface and flat roads, disengage front axle drive by placing center shift lever in forward position. The right hand lever controls the gear ratio; low and high. The low gear ratio can only be used when left hand lever is in the engaged (rear) position for front drive. Proper position for disengaging axles to use power take-off unit is shown as "N" in Fig. 4, Page 6.

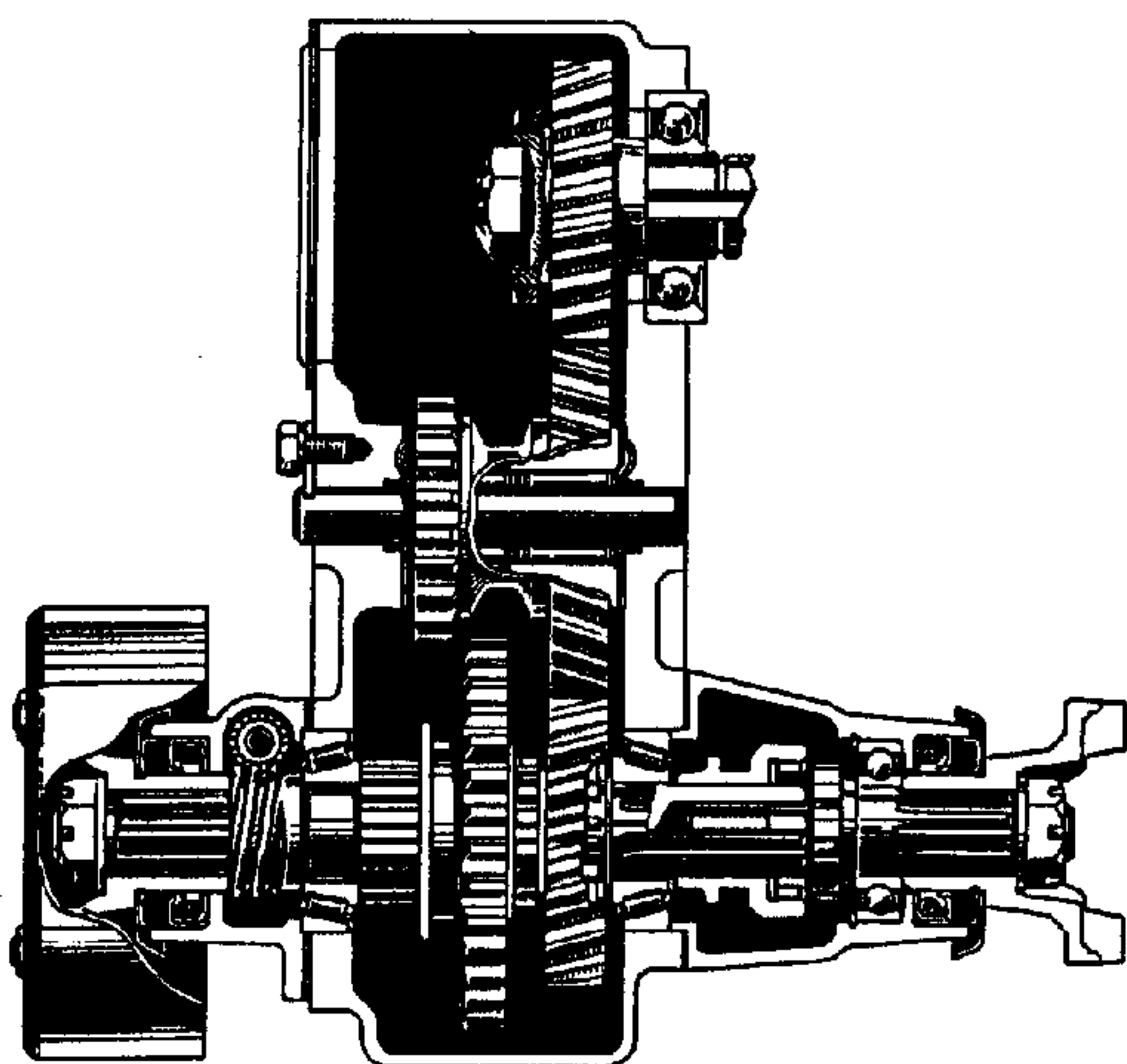


FIG. 1—TRANSFER CASE

Disassembling Transfer Case

To remove the gears and bearings from the transfer case on the bench, the following procedure is recommended.

1. Remove brake band assembly and linkage.
2. Remove cap screws and lockwashers holding lower cover, No. 55, Fig. 3.
3. Remove lock plate screw, lockwasher and lock-plate, No. 50.

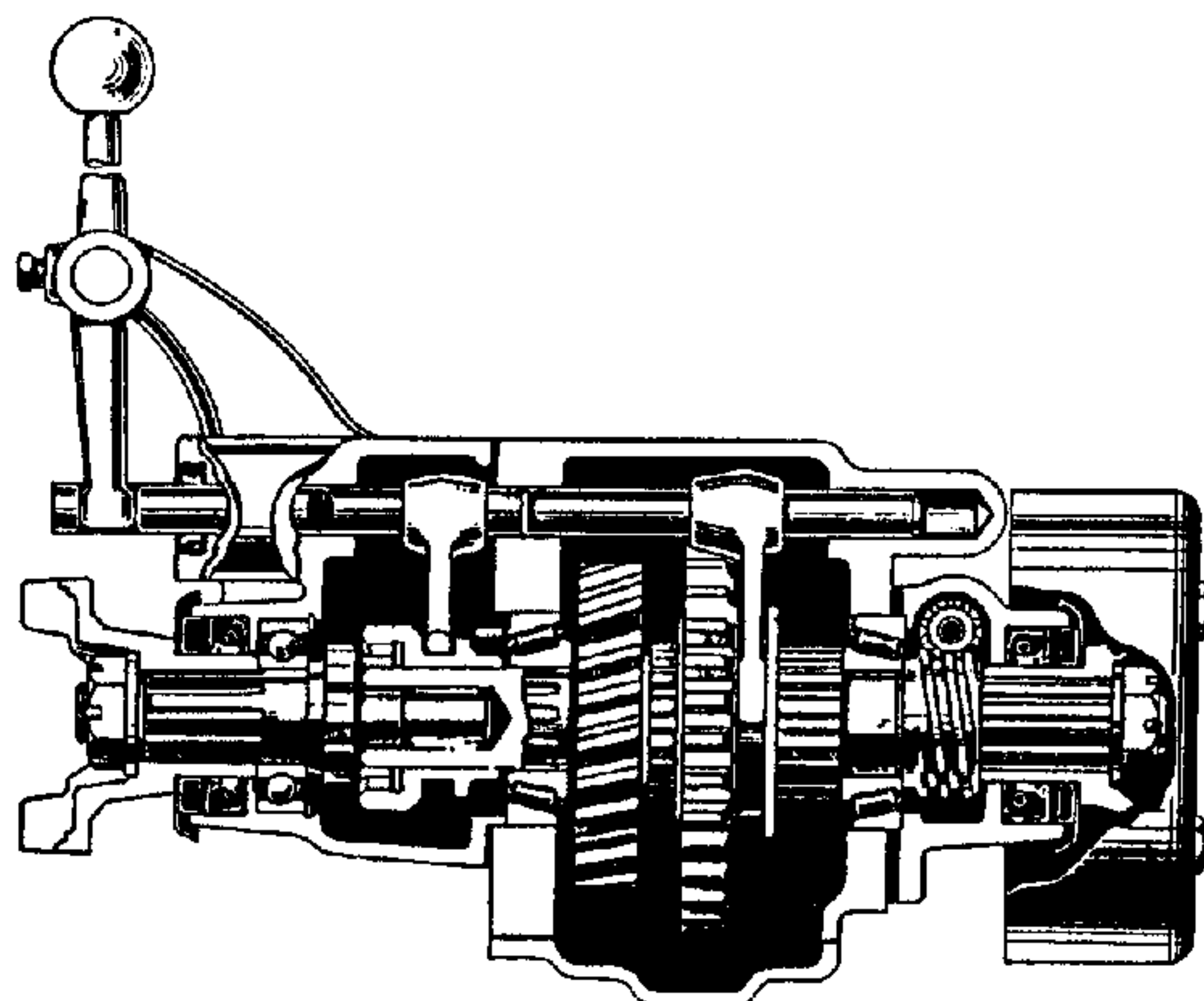


FIG. 2—TRANSFER CASE SHIFTING

4. With a punch, drive out intermediate shaft No. 62, to rear of case.
5. Intermediate gear No. 64 with Thrust washers No. 63 and No. 65, and roller bearings No. 61 and 66 can be removed through the bottom of case.
6. Remove poppet plugs No. 18, springs, No. 17, and balls No. 16 on both sides of output bearing cap, No. 14. Shift front wheel drive to engaged position (shaft forward).
7. Remove cap screws holding front output bearing cap No. 14 and remove cap as an assembly, with universal joint end yoke No. 26, clutch shaft No. 12, bearing No. 10, clutch gear No. 3, fork No. 2, and shift rod No. 8. Taking care not to lose inter-lock No. 7.
8. Remove output shaft snap ring No. 70 and thrust washer No. 69.
9. Remove cap screws holding rear output bearing cap No. 43, and remove cap as an assembly with universal joint flange No. 33, speedometer gears No. 40 and 45, bearing No. 51, and output shaft No. 67. This will allow sliding gear No. 56 and output shaft gear No. 68 to slide off the output shaft No. 67 and come out through the bottom of case.
10. Remove set screw No. 48 in sliding gear shift fork No. 49. This will allow shift rod No. 9 to slide through the fork and hole in case. The fork can then be removed through bottom of case.

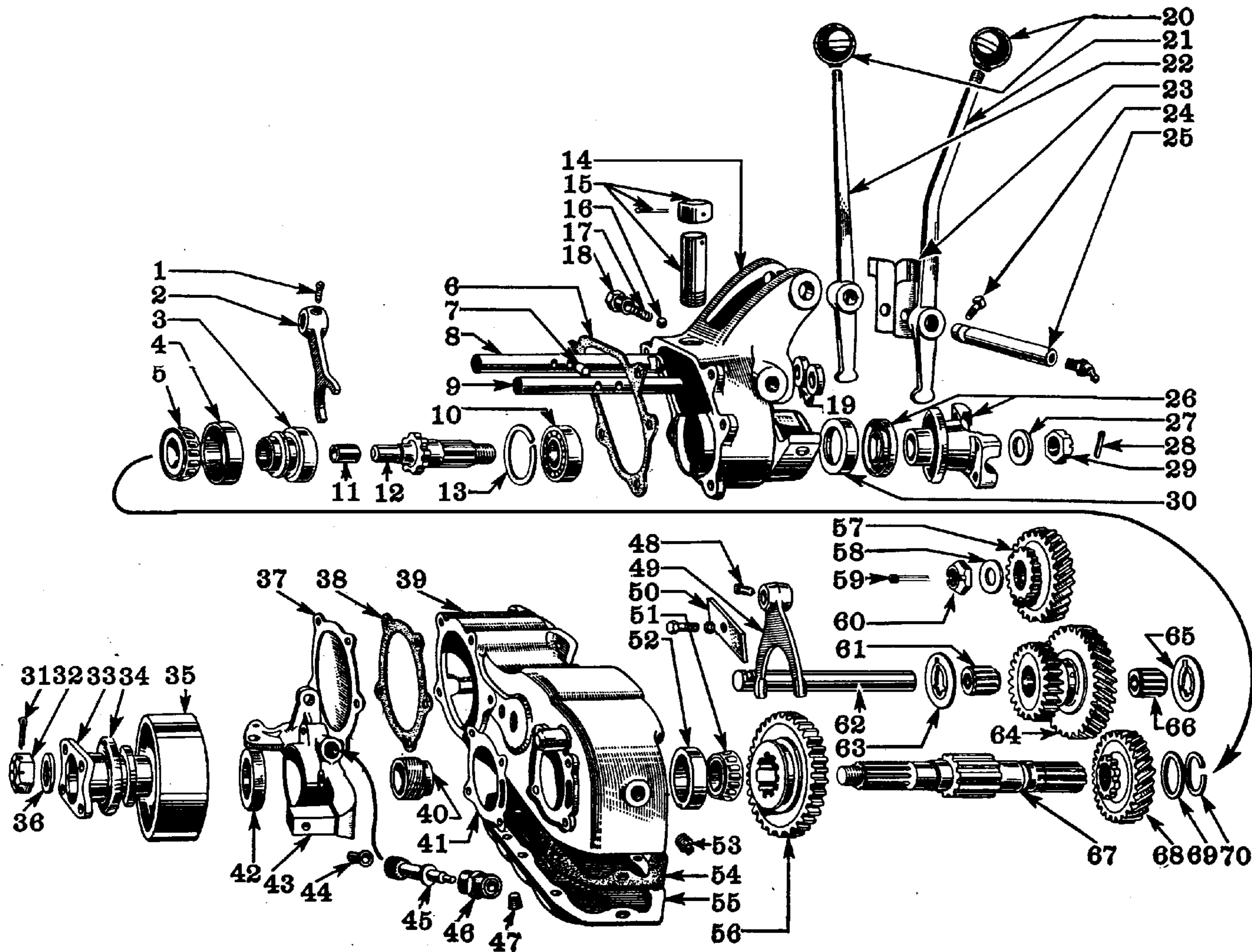


FIG. 3—TRANSFER CASE EXPLODED VIEW

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No.	Willys Part No.	Ford Part No.	Name
1	A-963	355550-S	Shift Fork to Rod Set Screw
2	A-960	GP-7711	Front Wheel Drive Shift Fork
3	A-992	GP-7762	Output Shaft Clutch Gear
4	52883	OIV-1202	Output Shaft Bearing Cup
5	51575	GP-7723	Output Shaft Bearing Cone and Rollers
6	A-957	GPW-7773	Output Shaft Bearing Cap Gasket—Front
7	A-965	GP-7789	Shift Rod Interlock
8	A-962	GP-7787	Front Wheel Drive Shift Rod
9	A-1504	GPW-7786	Under Drive Shift Rod
10	A-1007	GP-7719	Output Clutch Shaft Bearing
11	A-987	GP-7777	Output Clutch Shaft Pilot Bushing
12	A-976	GP-7761	Output Clutch Shaft
13	A-976	GP-7783	Output Clutch Shaft Bearing Snap Ring
14	A-956	GPW-7774	Output Shaft Bearing Cap—Front
15	A-934	GP-7754	Transfer Case Breather Assembly
16	5599	353075-S	Shift Rod Poppet Ball
17	A-966	GP-7788	Shift Rod Poppet Spring
18	A-967		Shift Rod Poppet Plug
19	A-974	GP-7798	Shift Rod Oil Seal
20	A-971	GP-7213	Shift Lever Handle
21	A-1505	GPW-7793	Under Drive Shift Lever
22	A-1506	GPW-7710	Front Wheel Drive Shift Lever
23	A-970	GP-7799	Shift Lever Spring
24	A-973	355378-S	Shift Lever Pivot Pin Set Screw
25	A-972	GP-7796	Shift Lever Pivot Pin
26	A-1106	GP-7729	Universal Joint End Yoke—Front
27	A-1028	355504-S	Companion Flange Nut Washer
28	5108	72053-S	Companion Flange Nut Cotter Pin
29	A-980	356125-S	Companion Flange Nut
30	A-958	GP-7770-A	Output Shaft Oil Seal
31	5108	72053-S	Companion Flange Cotter Pin
32	A-980	356125-S	Companion Flange Nut
33	A-1105	GP-4863	Companion Flange—Rear
34	A-1111	GP-7776	Dust Shield
35	A-1002	GP-2614	Brake Drum
36	A-1028	355504-S	Companion Flange Washer
37	A-1508	GPW-7708	Rear Cover
38	A-1509	GPW-7707	Rear Cover Gasket
39	A-1503	GPW-7705	Transfer Case
40	A-1511	GP-17285	Speedometer Drive Gear
41	A-982	GP-7782-A	Output Shaft Bearing Shim
42	A-958	GP-7770-A	Output Shaft Oil Seal
43	A-1507	GPW-7769	Output Shaft Bearing Cap—Rear
44	A-985	GP-17277	Speedometer Drive Pinion Bushing
45	A-1512	GPW-17271	Speedometer Driven Gear
46	636396	GP-17333	Speedometer Driven Gear Sleeve
47	A-1104	358059-S	Transfer Case Drain Plug
48	A-963	355550-S	Shifting Fork to Rod Set Screw
49	A-959	GP-7712	Under Drive Shift Fork
50	A-1001	GP-7767	Intermediate Shaft Lock Plate
51	51575	GP-7723	Output Shaft Bearing Cone and Rollers
52	52883	OIV-1202	Output Shaft Bearing Cup
53	5140	353064-S	Filler Plug
54	A-954	GP-7709	Transfer Case Cover Gasket—Bottom
55	A-953	GP-7708	Transfer Case Cover—Bottom
56	A-988	GP-7765	Output Shaft Sliding Gear
57	A-1510	GP-7722	Main Shaft Gear
58	A-1410	356580-S	Main Shaft Washer
59	5397	72071-S	Main Shaft Nut Cotter Pin
60	A-520	356134-S18	Main Shaft Nut
61	A-924	GP-7718	Intermediate Gear Bearing
62	A-998	GP-7743	Intermediate Shaft
63	A-1000	GP-7744	Intermediate Gear Thrust Washer
64	A-999	GP-7742	Intermediate Gear
65	A-1000	GP-7744	Intermediate Gear Thrust Washer
66	A-924	GP-7718	Intermediate Gear Bearing
67	A-1764		Output Shaft
68	A-989	GP-7766	Output Shaft Gear
69	A-990	GP-7771	Output Shaft Gear Thrust Washer
70	A-991	GP-7784	Output Shaft Gear Snap Ring

Disassembly of Front Cap Assembly

1. Remove cotter pin, No. 28, nut, No. 29 and washer No. 27.
2. Remove universal joint yoke No. 26.
3. Remove oil seal No. 30.
4. Remove set screw No. 1 and shifting rod No. 8.
5. Clutch gear No. 3 and fork No. 2 can now be removed together.
6. Remove output clutch shaft No. 12 carefully pressing through the bearing No. 10.
7. Remove snap ring No. 13.
8. Remove bearing No. 10.

Disassembly of Rear Cap Assembly

1. Remove cotter pin No. 31, nut, No. 32, and washer No. 36.
2. Remove companion flange No. 33.
3. Remove oil seal No. 42.
4. Remove speedometer driven gear, No. 45.
5. Output shaft No. 67 can now be removed from cap No. 43 after which bearing cone No. 51 and the speedometer driving gear No. 40 can be pressed off the shaft.

Shims No. 41 provided between the rear cap No. 43 and case No. 34 are for adjustment of the roller bearings No. 51 and 5. Bearings should be adjusted so that there is not more than .003" end movement of the shaft No. 67.

Reassembling is merely a reversal of the foregoing. When assembling the transfer case to the transmission be sure that the countershaft lock plate No. 41, Fig. 4, Transmission Section is properly located between the two shafts and fits into transfer case. Make certain that all parts are carefully washed and free from all dirt and foreign matter.

Assembly of Transmission and Transfer Case to Vehicle

The installation of the assembly to the engine is the reversal in the operations for disassembly as covered under heading "Removal of Transmission and Transfer Case". For illustration of snubbing rubber and rear engine mounting see Fig. 4.

After assembling to the engine be sure that the clutch pedal has $\frac{3}{4}$ " free pedal travel; refer to Page 37 for "Clutch Pedal Adjustment." Fill both the transmission and the transfer cases with the proper lubricant. See Lubrication Chart, Page 12.

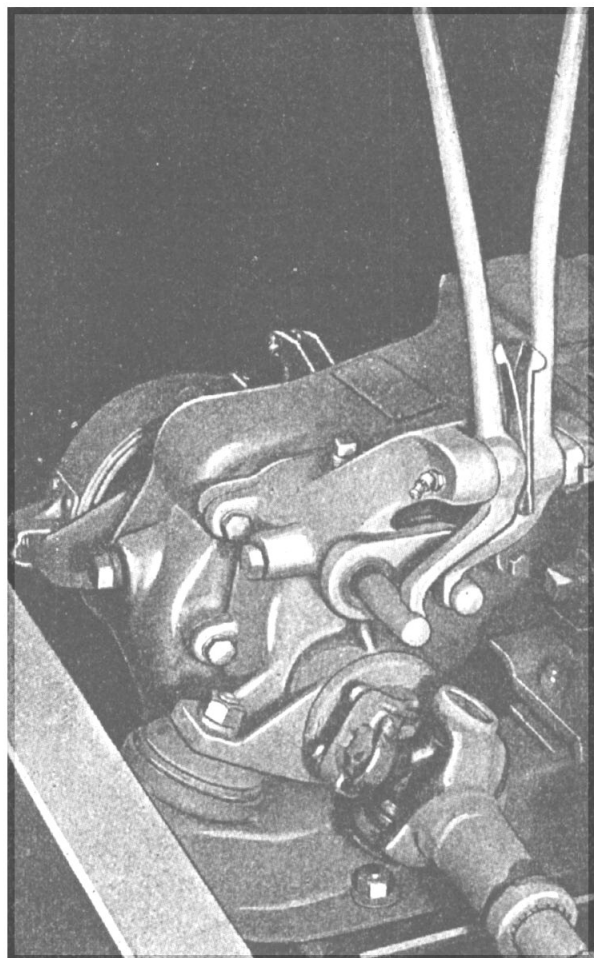


FIG. 4—TRANSFER CASE SNUBBING RUBBER

TRANSFER CASE TROUBLES AND REMEDIES

SYMPTOMS	PROBABLE REMEDY
Slips Out of Gear (High-Low)	
Shifting Lock Spring Weak.....	Replace spring
Bearing Broken or Worn.....	Replace
Shifting Fork Bent.....	Replace
Slips Out Front Wheel Drive	
Shifting Lock Spring Weak.....	Replace
Bearing Worn or Broken.....	Replace
End Play in Shaft.....	Adjust (See Instructions)
Shifting Fork Bent.....	Replace
Hard Shifting	
Lack Lubrication.....	Drain and Refill—3 pints
Shift Lever Stuck on Shaft.....	Remove, clean-lubricate
Shifting Lock Ball Scored.....	Replace Ball
Shifting Fork Bent.....	Replace Fork
Low Tire Pressure.....	Inflate all tires—30 lbs.
Grease Leak at Front or Rear Drive	
Grease leak at covers.....	Install new Gaskets
Grease leak between Trans. and Transfer cases..	Install new Gaskets
Grease leak at Output Shafts.....	Install new oil Seal

TRANSFER CASE SPECIFICATIONS

Transfer Case

Make.....	Spicer
Model.....	18
Mounting.....	Unit with Transmission
Shift Lever.....	Floor,
Ratio.....	{ High 1:1
	Low 1.97:1

Transfer Case Bearings

Transmission Mainshaft.....	Ball
Idler Gear.....	2 Roller
Out Put Shaft.....	Taper Roller
Front Axle Clutch Shaft	
Front Bearing.....	Ball
Rear Pilot in Output Shaft.....	Bronze Bushing I.D. .627"

Transfer Case Oil

Capacity Pts.....	See Capacity Chart, Page 3
S.A.E. Viscosity.....	See Lubrication Chart, Page 12

Speedometer Drive

Drive Gear Teeth.....	4
Driven Gear Teeth.....	14