

TRANSMISSION

The transmission, Fig. 1 is of the three speed, synchromesh type with synchronized 2nd and high speed gears. See shifting diagram, Fig. 4 in Driver's Instructions Section.

The transmission is bolted to the rear face of the flywheel bell housing with four cap screws and is supported on a rubber insulator at the center frame cross member which is the rear engine support or mounting.

Removal of Transmission and Transfer Case from Engine

1. Remove front and rear propeller shafts at universal joint in accordance with instructions under the "Propeller Shafts and Universal Joints".
2. Disconnect speedometer cable at transfer case.

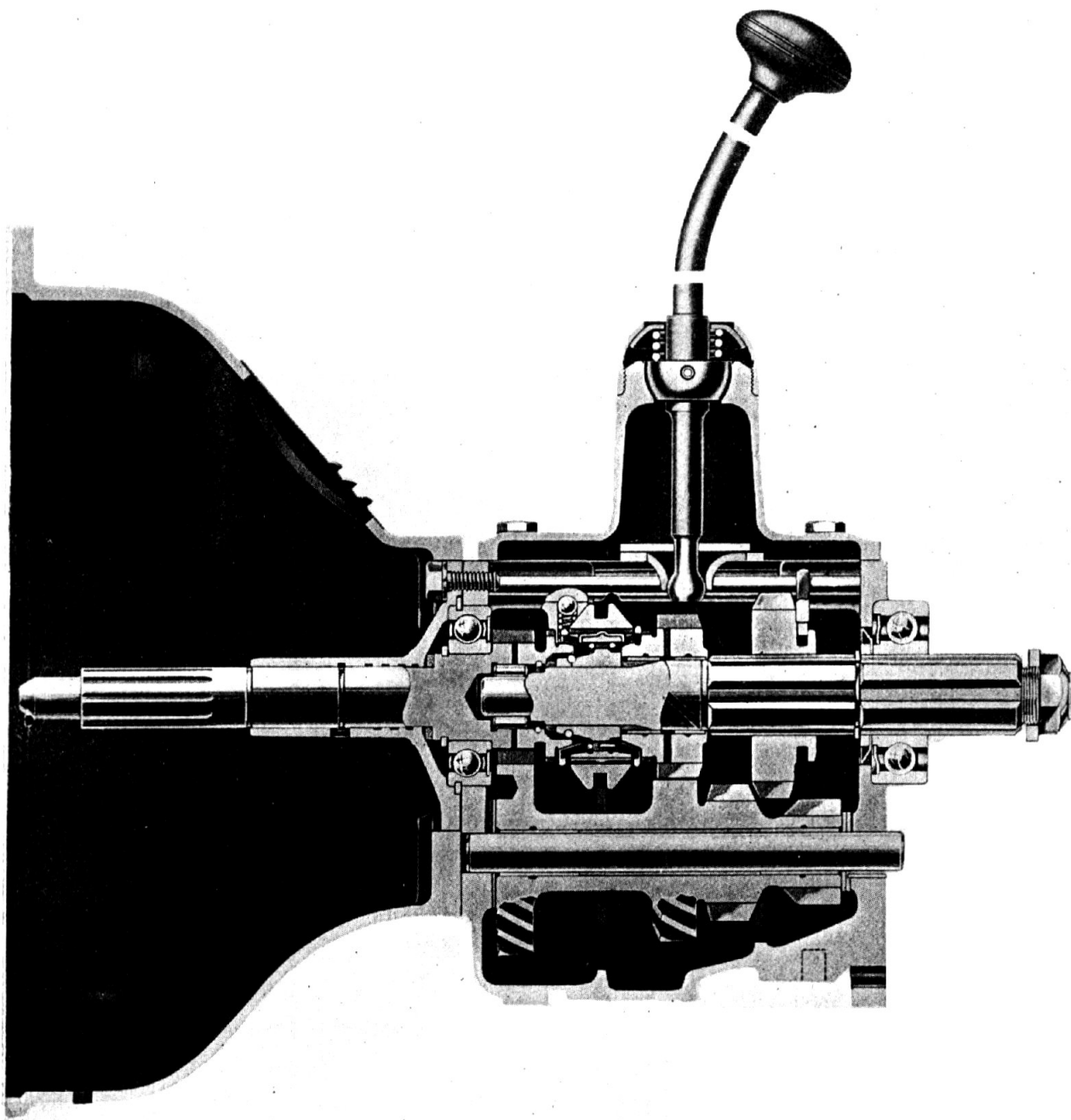


FIG. 1—TRANSMISSION

3. Disconnect brake and engine snubbing cables.
4. Remove nuts holding rear mounting to frame cross member.
5. Remove transfer case snubbing rubber bolt nut at cross member.
6. Remove transmission shift lever by unscrewing retainer collar at top of shift housing.
7. Disconnect the clutch release cable at bell crank and remove; also, remove clutch release lever No. 10, Fig. 2, "Clutch Section" through the inspection hole in the flywheel bell housing.
8. Place jacks under engine and transmission.
9. Remove floor board inspection plate, drain radiator and remove upper hose.
10. Remove transfer shift lever pivot pin screw and lubricator.
11. Remove shift lever pin and remove levers.
12. Remove bolts holding center cross member to frame side rail and remove cross member.
13. Remove bolts holding transmission to flywheel bell housing.
14. Force transmission to right and disconnect clutch control lever tube ball joint.
15. Lower jacks under engine and transmission; slide transmission assembly towards rear of vehicle until clutch shaft clears bell housing.
16. Lower jack under transmission and remove assembly from under chassis.

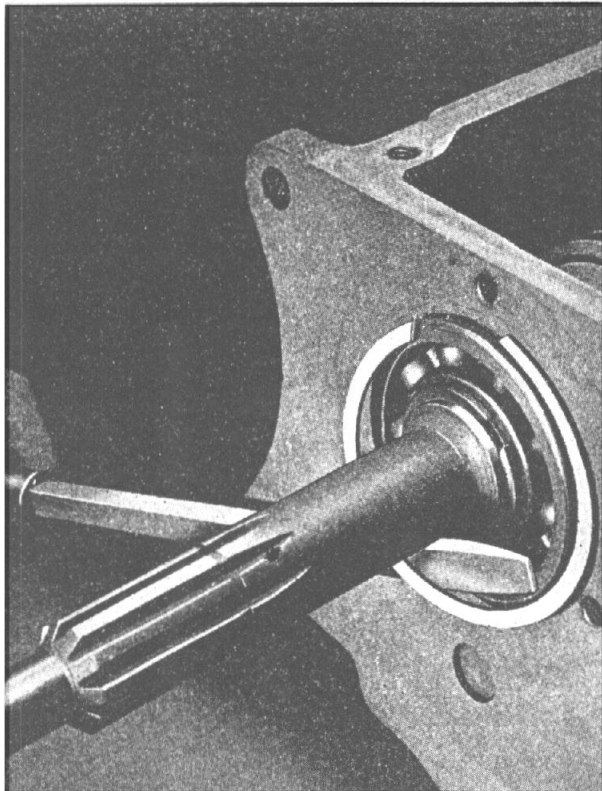


FIG. 2—REMOVING BEARING SNAP RING

Disassembly of Transmission

Drain lubricants from both the transmission and transfer case through drain plug holes in bottom of each case. It is advisable to clean the outside of the cases thoroughly with water or other suitable cleaning fluid before attempting to disassemble the units.

To disassemble the unit the following procedure is recommended:

1. Remove cap screws and lock washers holding rear cover. No. 37, Fig. 3 in Transfer Case Section.
2. Remove cotter pin, nut and washer permitting removal of main shaft gear No. 57.

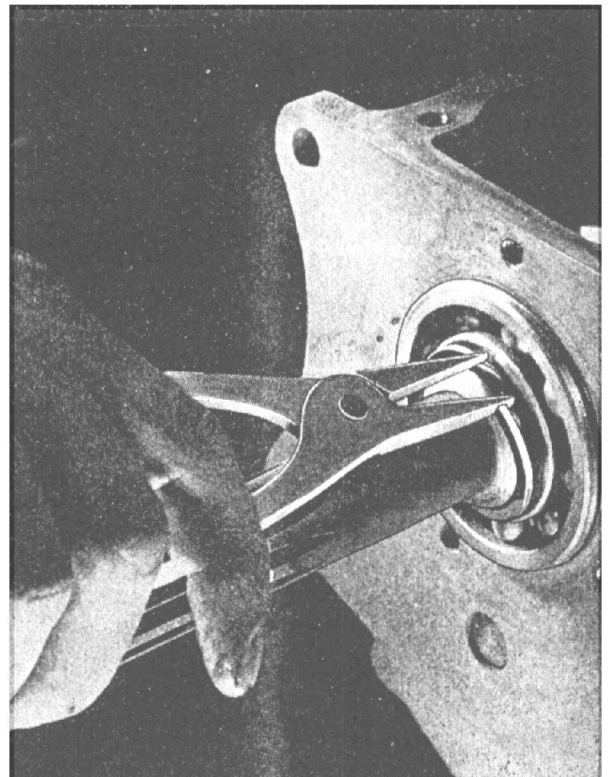


FIG. 3—REMOVING SNAP RING

3. Remove the four cap screws holding control housing to top of transmission and remove housing.
4. Remove shifter plate spring and take off shifter plate, No. 11, Fig. 4.
5. Loop a piece of wire around main shaft, just rear of main shaft second speed gear, twist wire and attach one end to the right hand front cover screw and the other end to the left hand cover screw, drawing the wire tightly to prevent the main shaft from sliding out of the case when transfer case is removed.
6. Remove the five cap screws holding the transfer case to the rear face of the transmission.

7. Support transfer case and with a rawhide mallet or brass rod and hammer, tap lightly on end of shaft and at the same time draw the transfer case away from the transmission. Be careful not to lose transmission gear shift interlock plunger. The transmission main shaft rear bearing No. 34, Fig. 4 should slide out of transfer case and remain in transmission.
8. Remove three screws holding main drive gear bearing retainer, No. 1 and remove retainer and gasket.
9. Remove shift fork guide pin, No. 20 through front of transmission.
10. Remove shift fork set screws with special wrench furnished in tool kit and remove shift shafts and forks. Be careful not to lose poppet springs and balls.
11. Remove lock plate at rear of transmission holding countershaft and reverse idler gear shaft.
12. With a drift, drive out the countershaft.
13. Remove main drive gear bearing, shaft and synchronizer blocking ring.
14. Remove snap rings from main drive gear shaft and bearing, Fig. 2 and 3 and remove bearing from shaft.
15. Remove main shaft assembly.
16. Remove countershaft gear set and three thrust washers, two bushings and a spacer.
17. Remove reverse idler gear shaft and gear.

To remove the gears on main shaft, first remove snap ring No. 27, Fig. 4, on end of shaft holding transmission high and intermediate clutch hub, No. 28. After the removal of the snap ring, the gears will slide off the shaft without difficulty. To disassemble synchronizer unit, push apart.

Wash all parts in suitable cleaning fluid and inspect for wear and damaged parts, replacing any parts which show excessive wear or damage.

Assembly of Transmission

The assembly of the parts in the transmission should be performed in the reverse manner in which it was dismantled making reference to exploded views of parts as shown in Fig. 4, for sequence of assembly.

When assembling synchronizer unit assembly place the right end of a synchronizer spring No. 14 in one shifting plate. Turn the unit around and make exactly the same installation with the other spring in the same shifting plate. This will actually place the spring action opposed to each other.

The bushings in countershaft gear set are of the floating type, being free to turn within the gear as well as on the shaft. When making assembly of countershaft to transmission case, dip these bushings in lubricant of S.A.E. 90 grade and be sure the spacer is installed between the two bushings. The steel thrust washer, No. 43 at the rear of countershaft gear is pinned in the case and the bronze washer, No. 42 is installed between steel washer and gear. Only one bronze washer, No. 37 is used at the front. The main shaft ball bearing, No. 34 is assembled to shaft so that the sealed side is in transmission, open side to transfer case.

TRANSMISSION TROUBLE AND REMEDIES

SYMPTOMS	PROBABLE REMEDY
Slips Out of High Gear	
Transmission misaligned with Bell Housing.....	{ Align Transmission Case to Bell Housing and Bell Housing to Engine
End play in Main Drive Gear.....	Tighten Front Retainer
Damaged Pilot Bearing or Front Bearing.....	Replace
Bent Shifting Fork.....	Replace
Slips Out of Second	
Bent Shifting Fork.....	Replace
Worn Gear.....	Replace
Weak Poppet Spring.....	Replace
Noise in Low Gear	
Rear Ball Bearing Broken.....	Replace
Gear Teeth Pitted or Worn.....	Replace gears
Shifting Fork Bent.....	Replace
Lack of Lubrication.....	Drain and Refill
Grease Leak into Bell Housing	
Gasket Broken Front Bearing Retainer.....	Replace
Transmission Case Overfilled with Lubricant...	Drain off to proper level

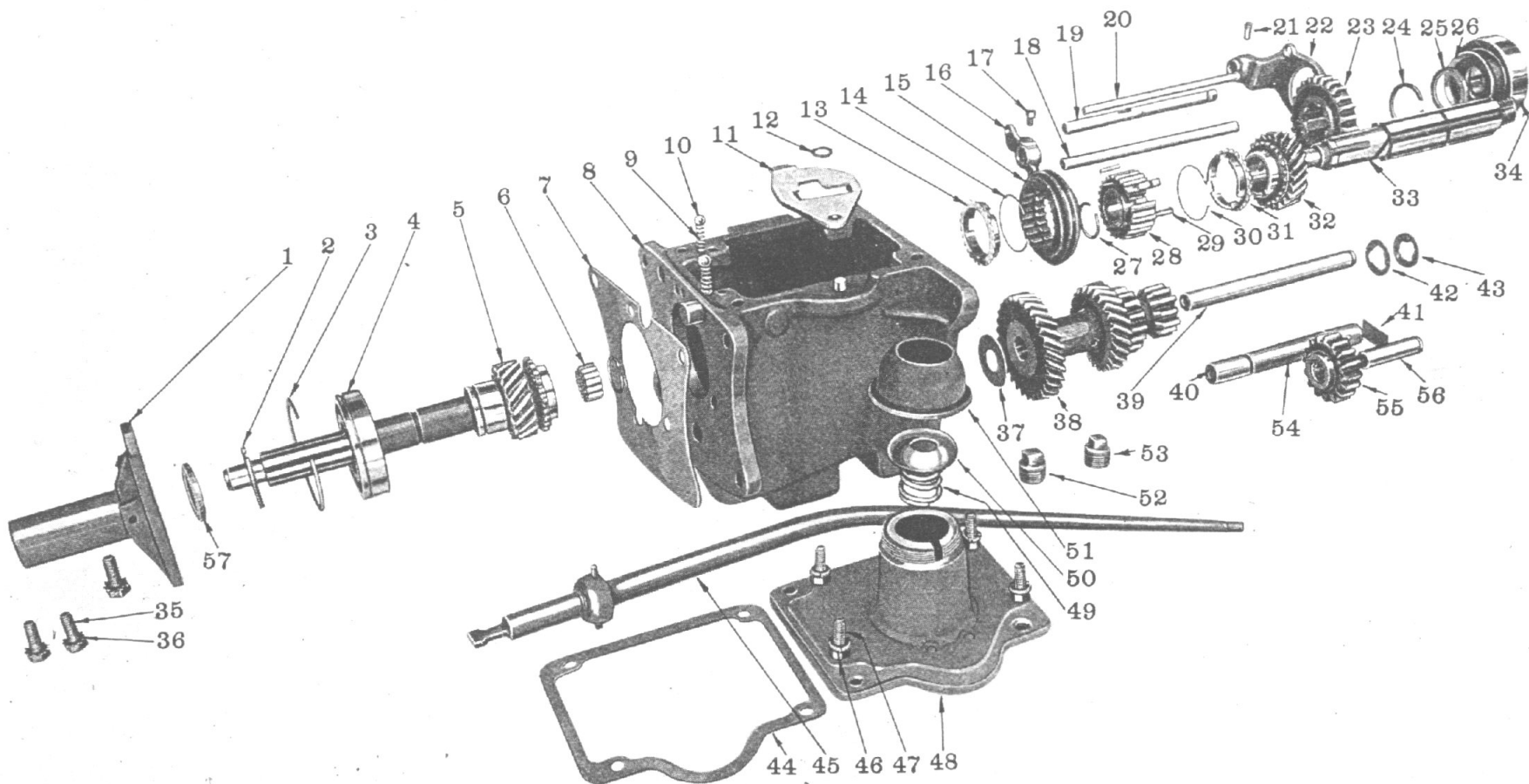


FIG. 4—TRANSMISSION

FIG. 4—TRANSMISSION (EXPLODED)

No.	Willys Part No.	Ford Part No.	Name
1	640017	GPW-7050	Transmission Main Drive Gear Bearing Retainer
2	635844	GPW-7064	Transmission Main Drive Gear Snap Ring
3	635846	B-7070	Transmission Main Drive Gear Bearing Snap Ring
4	636885	GPW-7025	Transmission Main Drive Gear Bearing
5	A-5554	GPW-7017	Transmission Main Drive Gear
6	639422	GPW-7120	Transmission Main Shaft Pilot Roller Bearing
7	637495	GPW-7051-B	Transmission Main Drive Gear Bearing Retainer Gasket
8	A-1148	GPW-7005	Transmission Case
9	635837	GPW-7234	Transmission Poppet Spring
10	635838	353081-S7	Transmission Shift Rail Poppet Ball
11	635841	GPW-7216	Transmission Shift Plate
12	635839	GPW-7208	Transmission Shift Plate Spring
13	637834	GPW-7107	Transmission Synchronizer Blocking Ring
14	637831	GPW-7109	Transmission Synchronizer Spring
15	637833	GPW-7106	Transmission Second and Direct Speed Clutch Sleeve
16	636196	GPW-7230	Transmission Shift Fork—High and Intermediate
17	636200	GPW-7245	Transmission Shift Fork Lock Screw
18	A-1155	GPW-7241	Transmission Shift Rail—High and Intermediate
19	A-1156	GPW-7240	Transmission Shift Rail—Low and Reverse
20	635836	GPW-7206	Transmission Shift Fork Guide Pin
21	636200	GPW-7245	Transmission Shift Fork Lock Screw
22	636197	GPW-7231	Transmission Shift Fork Low and Reverse
23	636879	GPW-7100	Transmission Sliding Gear—Low and Reverse
24	635844	GPW-7064	Transmission Main Shaft Snap Ring
25	A-738	GPW-7062	Transmission Main Shaft Bearing Spacer
26	A-410	GPW-7080	Transmission Oil Retaining Washer
27	637835	GPW-7059	Transmission High and Intermediate Clutch Hub Snap Ring
28	637830	GPW-7105	Transmission High and Intermediate Clutch Hub
29	637832	GPW-7116	Transmission Synchronizer Shifting Plate
30	637831	GPW-7109	Transmission Synchronizer Spring
31	637834	GPW-7107	Transmission Synchronizer Blocking Ring
32	638798	GPW-7102	Transmission Main Shaft Second Speed Gear Assembly
33	A-519	GPW-7061	Transmission Main Shaft
34	A-916	GP-7065	Transmission Main Shaft Bearing
35	635868	20366-S	Hex. Head Screw (Bearing Retainer)
36	52510	34941-S	Lockwasher
37	635812	GPW-7119	Transmission Countershaft Thrust Washer—Front
38	A-739	GPW-7113	Transmission Countershaft Gears
39	638948	GPW-7111	Transmission Countershaft
40	A-878	GPW-7121	Transmission Countershaft Gear Bushing
41	638949	GPW-7135	Transmission Countershaft and Idler Lock Plate
42	635811	GPW-7129	Transmission Countershaft Thrust Washer—Rear (Bronze)
43	A-879	GPW-7126	Transmission Countershaft Thrust Washer—Rear (Steel)
44	635861	GPW-7223	Transmission Control Housing Gasket
45	A-1380	GPW-7210	Transmission Control Lever Assembly (Gear Shift Lever)
46	635868	20366-S	Hex. Head Screw (Control Housing)
47	52045	34806-S	Lockwasher
48	635857	GPW-7204	Transmission Control Housing Assembly
49	392328	GPW-7227	Transmission Control Lever Support Spring
50	635863	BB-7228	Transmission Control Housing Cap Washer
51	A-1379	BB-7220	Transmission Control Housing Cap
52	5140	353064-S	Transmission Drain Plug
53	5140	353064-S	Transmission Filler Plug
54	A-880	GPW-7115	Transmission Countershaft Bearing Spacer
55	636882	GPW-7142	Transmission Reverse Idler Gear Assembly
56	638952	GPW-7140	Transmission Reverse Idler Gear Shaft
57	640018	GPW-7052	Front Bearing Retainer Oil Seal

TRANSMISSION SPECIFICATIONS

Transmission

Make	Warner
Model.....	T 84 J
Type.....	Synchronous Mesh
Mounting.....	Unit Power Plant
Shift Lever Location.....	On Transmission
Speeds.....	3 Forward—1 Reverse
Ratio	
Low.....	2.665
Second.....	1.564
High.....	1:1
Reverse.....	3.554

Bearings

Clutch Shaft (Flywheel).....	Bushing
Clutch Release.....	Ball
Clutch Shaft Rear (Main Drive Gear).....	Ball
Main Shaft Front.....	13 Rollers
Main Shaft Rear.....	Ball
Counter Shaft Gear.....	Bushings (2)
Reverse Idler Gear.....	Bushing

Transmission Oil

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