Specifications

END PLAY

Idler Shaft	As Near As Poss. To 0.0"
Rear Output Shaft	As Near As Poss. To 0.0"

SHIMS

Type	Selective Fit
Thickness Available	0.003"
	0.005"
	0.010"

COVER SPRING

Length	2.0"
Pressure @ 1.0"	50-60 Lbs.

Timken Model 221

Description

The transfer case, mounted on frame and crossmember brackets behind the main transmission assembly, provides a means for transmitting power to the rear and/or front axles and power take-off. A single control rod, linked to the gearshift lever, is used to select desired gear in the transfer case.

Four-wheel-drive may be engaged or disengaged at any time without declutching when transfer case is in direct drive; however, in returning from two-wheel-drive from four-wheel-drive, the accelerator may have to be released momentarily, to relieve torque, while shift is being made.

Oil Seal Replacement

If it becomes necessary to replace the seal in either the input or the front or rear output shafts, perform the following steps:

1. Drain lubricant from transfer case.
2. Disconnect applicable driveshaft.
3. Remove cotter pin and nut from U-joint yoke.
4. Use suitable puller and remove U-joint from shaft.
5. Remove cap screws attaching bearing cover; then remove cover and gasket.
6. Drive out old seal from bearing cover. Coat outer diameter of new seal with sealing compound and install it in bearing cover with lip facing inward.
7. Using new gasket, replace bearing cover. NOTE: Make sure oil passages are aligned when installing gasket and cover.
8. Drive U-joint yoke on shaft and replace nut and cotter pin.
9. Connect driveshaft. Replace lubricant.

Shift and Control Rod Adjustment

1. With crossbar disconnected, adjust both shift rod clevises to a distance of 2-9/32" from center of pin hole to end of shift rod, then tighten jam nuts.
2. Connect shift rod clevises to crossbar with clevis and cotter pins.
3. Shift transfer case to 2-wheel drive position.
4. Disconnect shift control rod from lever at adjustable clevis.
5. Check clearance between crossbar and frame crossmember. If necessary, disconnect and readjust front drive shift rod clevis to obtain a minimum clearance of 3/16". Connect shift rod clevis to crossbar.
6. Connect control rod to lever and shift transfer case to the "4-LO" position. Measure distance from center of clevis pin hole to bolt head. If necessary, disconnect and readjust shift control rod clevis to obtain a minimum clearance of 3-11/16" (with 3-speed tranmission) or 1/4" (with 4-speed transmission). Connect control rod clevis to shift lever.

Disassembly

Cover and Shift Rod

1. Mount transfer case on a suitable repair stand and drain lubricant.
2. Position transfer case shift rods in four-wheel low.
3. Remove nine cap screws attaching cover; then slide cover upward and lift to remove. NOTE: When removing cover, care should be taken not to lose detent balls and springs.
4. Remove detent balls and springs from holes in case and remove interlock pin from cover.
5. Cut lock wires; then remove shift fork set screws.
6. Using a brass drift, tap shift rods from case and lift out forks as each rod is removed. Remove oil seals.

Shaft Yokes and Deflector

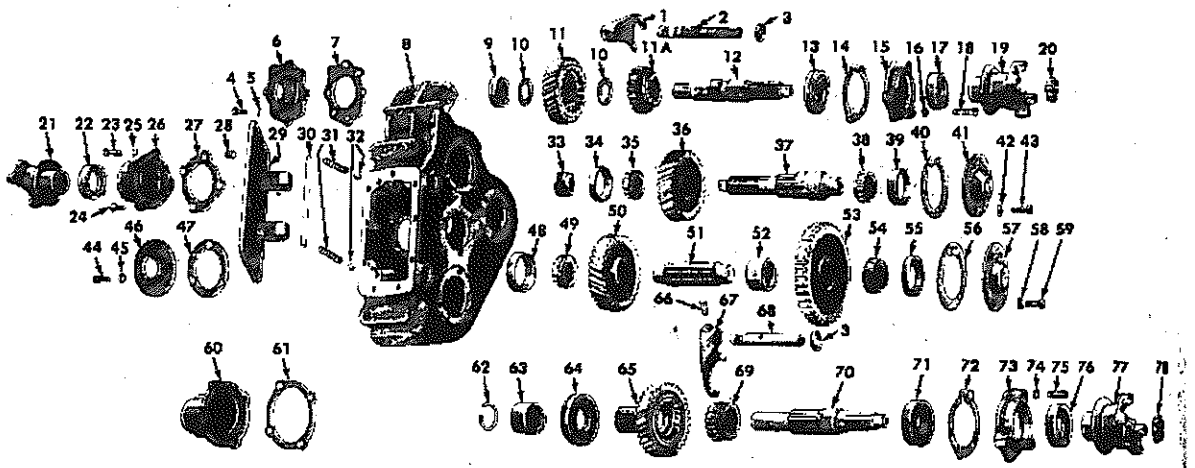
1. Remove cotter pins and nuts from three U-joint yokes.
2. Using suitable puller, remove U-joint yokes.

Idler Shaft

1. Remove cap screws attaching front and rear idler shaft bearing caps to case; then remove caps, oil seal and adjusting shims. Attach shims to cap for reassembly. NOTE: Mark bearing cap with dye or prick punch for reassembly reference. They must be assembled to same location from which they were removed.
2. Press or drive idler shaft out of case. Remove input shaft constant mesh gear, spacer and low speed gear.
3. Remove bearing cone and bearing cup.

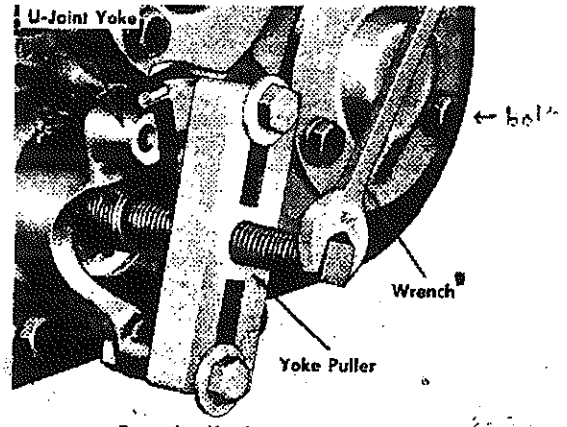
Front Output Shaft

1. Remove cap screws attaching front bearing cap; then remove cap, oil seal and gasket.
2. Pull front output shaft and bearing assembly from case. Remove bearing from shaft, using an arbor press.
3. Remove front sliding gear.
4. Remove cap screws attaching rear bearing cap; then remove cap and gasket.
5. Remove snap-ring from front output gear; then remove sliding spacer.
6. Drive output gear inward out of bearing; then lift out of case.
7. Remove bearing.

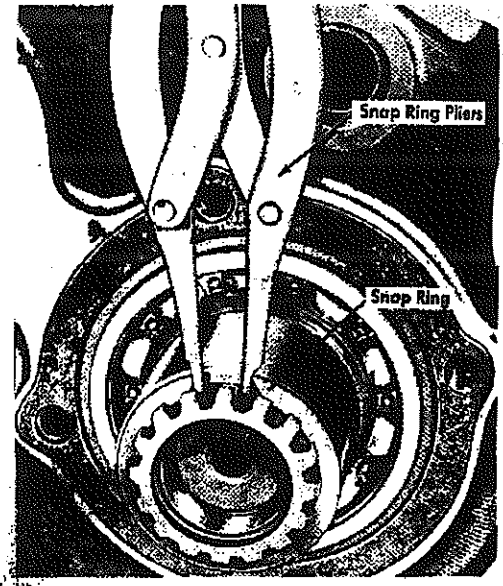


Timken model 221 transfer case (© G.M.C.)

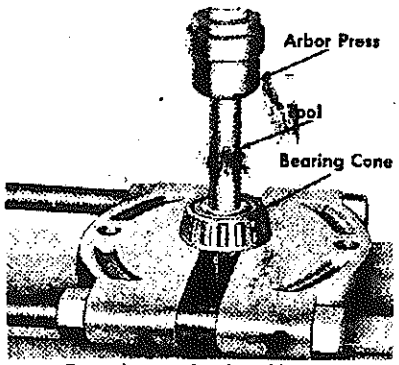
1 Shift fork
2 Shift rod
3 Oil seal
4 Cap screw
5 Lock washer
6 Bearing cap
7 Gasket
8 Transfer case
9 Bearing
10 Washer
11 Direct drive gear
11A Input shaft gear
12 Input shaft
13 Bearing
14 Adjusting shims
15 Bearing cap
16 Lock washer
17 Oil seal
18 Cap screw
19 U-Joint yoke
20 Nut
21 U-Joint yoke
22 Oil seal
23 Cap screw
24 Flat cap screw
25 Lock washer
26 Bearing cap
27 Gasket
28 Breather
29 Cover
30 Interlock pin
31 Spring
32 Detent ball
33 Speedometer gear
34 Bearing cup
35 Bearing cone
36 Rear output gear
37 Rear output shaft
38 Bearing cone
39 Bearing cup
40 Adjusting shims
41 Bearing Cap
42 Lock washer
43 Cap screw
44 Cap screw
45 Lock washer
46 Bearing cap
47 Gasket
48 Bearing cup
49 Bearing cone
50 Input shaft gear
51 Idler shaft
52 Spacer
53 Low speed gear
54 Bearing cone
55 Bearing cup
56 Adjusting shims
57 Bearing cap
58 Lock washer
59 Cap screw
60 Bearing cap
61 Gasket
62 Snap ring
33 Spacer
64 Bearing
65 Front output gear
66 Set screw
67 Shift fork
68 Shift rod
69 Front sliding gear
70 Front output shaft
71 Bearing
72 Gasket
73 Bearing cap
74 Lock washer
75 Cap screw
76 Oil seal
77 U-Joint yoke
78 Nut



Removing U-Joint yoke (© G.M.C.)



Removing snap-ring from front output gear (© G.M.C.)



Removing bearing from idler shaft (© G.M.C.)

Rear Output Shaft

1. Remove cap screws attaching rear output bearing caps. Remove caps, gasket, oil seal and shims. Attach shims to cap for reassembly. NOTE: Mark bearing caps with dye or prick punch for reassembly reference. They must be assembled to same location from which they were removed.
2. Remove speedometer gear from rear output shaft; then press drive shaft toward front of case until shaft and bearing can be removed. Lift out rear output shaft gear.
3. Remove bearing cone and bearing cup.

Input Shaft

1. Remove cap screws attaching