

## INTRODUCTION

- This parts book is designed so that you can look up part numbers in two different ways.
  1. If you know the model number of the transfer case, for example, T-223-H-36, you simply match the item number in the picture with the item number in the parts list. The parts list shows which part number is used on each model.
  2. If you don't know the model number, the description column in the parts list has descriptions of the different part numbers that are used on different models.
- This book only lists current models. Included with the list of models covered is a list of superseded models. For service parts for models not listed, contact Rockwell's Florence, Kentucky warehouse.
- All Rockwell gears and shafts are marked with the check letter and final digits of the part number, for example, F-5024 or X-2442.
- When you service gears, we recommend that you replace all mating gears for the best quality repair.
- Proper tools and maintenance procedures must be used. For T-221 and T-223 series transfer cases, follow the service instructions in Rockwell Field Maintenance Manual 3A. Also see Rockwell Field Maintenance Manual No. 1 for proper lubricant, lubricant capacities and change intervals.
- Service kits include parts to service all the different models covered by this book so the kit may include extra parts that you don't need. In addition to kits, individual parts are available. All kits and parts are available through Rockwell's Florence, Kentucky warehouse.

# T-221 SERIES SERVICE KITS

*MIKE Ryan*  
416 850 0508

## KIT T221-1

### MAIN CASE SEALS

PART NAME	PART NUMBER	QUANTITY	ITEM NUMBER ON EXPLODED VIEW
Oil Seal-input shaft front brg. cap, rear output shaft, output shaft front and front output shaft rear	A-1805-E-447	4	86, 96, 148, 160
Oil Seal-front output shaft rear	A-1205-Z-1768	1	160
Oil Seal-shift shaft	A-1205-N-1132	2	200, 201

## KIT T221-2

### MAIN CASE BEARINGS/SHIMS/SPACERS

PART NAME	PART NUMBER	QUANTITY	ITEM NUMBER ON EXPLODED VIEW
Bearing-input shaft rear	1828-P-94	1	71
Bearing-input shaft front	1828-L-142	1	79
Shim-input shaft front brg. cap (.003")	2803-S-1863	1	80
Shim-input shaft front brg. cap (.005")	2803-T-1866	1	80
Shim-input shaft front brg. cap (.010")	2803-U-1867	3	80
Shim-input shaft front brg. cap (.003")	2003-D-2162	2	80
Shim-input shaft front brg. cap (.005")	2803-E-2163	3	80
Shim-input shaft front brg. cap (.010")	2803-F-2164	2	80
Spacer-front and rear output shaft	1844-G-501	2	108, 161
Cup-rear output shaft rear brg., rear output shaft front brg. and idler shaft rear brg.	15245	3	109, 114, 124
Cone-rear output shaft rear brg., rear output shaft front brg. and idler shaft rear brg.	15126	3	110, 113, 125
Shim-rear output forward brg. cap and idler shaft front brg. cap (.003")	2803-V-1868	4	115, 135
Shim-rear output forward brg. cap and idler shaft front brg. cap (.005")	2803-W-1869	6	115, 135
Shim-rear output forward brg. cap and idler shaft front brg. cap (.010")	2803-X-1870	6	115, 135
Shim-rear output forward brg. cap and idler shaft front brg. cap (.003")	2803-G-2165	2	115
Shim-rear output forward brg. cap and idler shaft front brg. cap (.005")	2803-H-2166	3	115
Shim-rear output forward brg. cap and idler shaft front brg. cap (.010")	2803-J-2168	2	115
Spacer-idler shaft gear	1844-D-498	1	127
Cone-idler shaft front brg.	02476	1	130
Cup-idler shaft front brg.	02420	1	131
Silicone Gasket-3 oz. tube	1199-T-3842	2	70, 106, 122, 150, 162, 228

## KIT T221-3

### MAIN CASE MISCELLANEOUS PARTS

PART NAME	PART NUMBER	QUANTITY	ITEM NUMBER ON EXPLODED VIEW
Bushing-direct drive gear	1825-W-205	1	73
Cotter-input shaft nut, rear output shaft nut and output shaft nut	K-2412	3	89, 102, 139
Bushing-speed driven gear	1199-M-1105	1	98
Sleeve-speed driven gear	1898-U-671	1	100
Cotter-rear output shaft nut	K-2410	1	102
Pin-oil catcher and brake pull rod	K-236	2	154, 226, 227
Lockwire-shift fork	LW-1616	1	203, 208
Ball-shift shaft lock	1898-E-57	2	216, 218
Spring-shift shaft lock	2858-A-1	2	217, 219
Spring-shift shaft lock	2858-Q-277	1	217, 219

## T-221 SERIES MAIN CASE

ITEM	PART NAME	MODEL	QTY	PART NUMBER	DESCRIPTION
67	Capscrew-input shaft rear brg. cage	All	4	S-268-1	.375" - 16, 1" long, grade 8.
68	Washer-input shaft rear brg. cage	A1	4	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
		All others	4	WA-16	.67" O.D., .320" I.D., .094" thick.
69	Cage-input shaft rear brg.	All	1	3866-R-746	4 holes on 4.25" bolt circle diameter, closed end, 1.31" long.
70	Gasket-input shaft rear cap	All	-	1199-T-3842	Silicone gasket, use as required.*
71	Bearing- input shaft rear	All	1	1828-P-94	Ball bearing, with shield, 2.44" O.D., 1.18" I.D., .63" wide.
71A	Cup-input shaft rear	-	1	332	Not used on 221 models in this book.
71B	Cone-input shaft rear	-	1	339	Not used on 221 models in this book.
72	Washer-input shaft rear brg.	All	1	1829-X-726	2.0" O.D., 1.20" I.D., .124" thick.
73	Bushing-direct drive gear	All	1	1825-W-205	1.5" O.D., 1.36" I.D., 1.28" wide, split, 4 holes and 8 grooves, included in item 74.
74	Gear Assy-direct drive (1.796-1)	All	1	A-3892-U-1711	33T, spur, 4.98" O.D., 20T internal spline, 1.49" bushing bore, includes item 73.
	Gear Assy-direct drive (1.94-1)		1	A-3892-X-1714	33T, spur, 4.98" O.D., 19T internal spline, 1.49" bushing bore, includes item 73.
75	Washer-direct drive gear	All	1	1829-Y-727	2.0" O.D., 1.406" I.D., .124" thick.
76	Gear-low speed sliding (1.796-1)	All	1	3892-V-1712	20T, spur, 3.68" O.D., 1.625" - 10 internal spline, with shift groove.
	Gear-low speed sliding (1.94-1)		1	3892-Y-1715	19T, spur, 3.51" O.D., 1.625" - 10 internal spline.
77	Shaft-input	A1, M, M6, M7	1	3880-P-744	9.09" long with threaded end.
		All others	1	3880-J-1128	8.14" long, no threads.
78	Spacer-input shaft	-	1	1844-C-809	Not used on 221 models in this book.
79	Bearing-input shaft front	All	1	1828-L-142	Ball bearing, with shield, 2.83" O.D., 1.38" I.D., .67" long.
79A	Cone-input shaft front	-	1	357	Not used on 221 models in this book.
79B	Cup-input shaft front	-	1	353	Not used on 221 models in this book.
79C	Washer-input shaft front	-	1	1229-F-3048	Not used on 221 models in this book.
80	Shim-input shaft front brg. cap	A1, M, M6, M7	1	2803-S-1865	.003", use as required, 3 holes.
			1	2803-T-1866	.005", use as required, 3 holes.
			3	2803-U-1867	.010", use as required, 3 holes.
		All others	2	2803-D-2162	.003", use as required, 9 holes.
			3	2803-E-2163	.005", use as required, 9 holes.
			2	2803-F-2164	.010", use as required, 9 holes.
81	Cap Assy-input shaft front brg.	A1, M, M6, M7	1	A3-3866-U-749	3 holes on 3.75" bolt circle diameter, open end, includes item 86. A3-3866-U-749 replaces A-3866-U-749 with oil seal A-1805-N-378 which replaced A1-3866-U-749 with oil seal A-1805-W-413.
		All others	1	A-3866-U-1113	Shipping cover only.
82	Plug-input shaft front brg. cap	-	1	P-42	Hex socket-female.
83	Washer- input shaft front brg. cap	A1	3	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
		All others	3	WA-16	.67" O.D., .390" I.D., .094" thick.
84	Capscrew-input shaft front brg	A1, M, M6, M7	3	S-2612-1	.375" - 16, 1.50" long, grade 8. Replaces S-2611-1 which is 1.375" long.
		All others	3	S-268-1	.375" - 16, 1" long, grade 8.
85	Plug-input shaft shipping cover	N4, N7	1	PW-226	1.625" diameter, .083" thick.

\* All preformed gaskets are replaced with silicone liquid gasket at time of service.

## T-221 SERIES MAIN CASE

ITEM	PART NAME	MODEL	QTY	PART NUMBER	DESCRIPTION
86	Oil Seal-input shaft front brg. cap	A1	1	A-1805-E-447	2.5" O.D., 1.75" I.D., .77" wide, double seal, lip, and case, included in item 81.
87	Washer-input shaft	-	1	1829-V-100	Not used on 221 models in this book.
88	Nut- input shaft	A1, M, M6, M7	1	1827-H-242	.875" - 14, .5" height, slotted.
89	Cotter-input shaft nut	A1, M, M6, M7	1	K-2412	.125" diameter, 1.5" long.
90	Deflector-input yoke	M, M6, M7	1	2847-P-640	Hook shape (cross section), 2.75" O.D., 1.76" I.D., .5" wide, included in item 91.
91	Flange/Yoke-input	M, M6, M7	1	A1-3897-A-1431	1310 series, 3.69" long, includes item 90, 1.25"-10 spline.
92	Flange/Yoke-rear output	M, M6	1	A1-3897-A-1431	1310 series, 3.69" long, includes item 93, 1.25"-10 spline.
		M7, N4, N7	1	A1-3897-Q-1655	1310 series, 3.53" long, 1.25" - 10 spline, includes item 93.
93	Deflector-rear output yoke	M, M6, M7, N4, N7	1	2847-P-640	Included in item 92.
94	Nut-rear output shaft	All	1	1827-H-242	1.813" O.D., 1.031" I.D., .25" thick.
95	Washer-rear output shaft nut	-	1	1229-E-1331	Not used on 221 models in this book.
96	Oil Seal-rear output shaft	All	1	A-1805-E-447	2.5" O.D., 1.75" I.D., .77" wide, double seal, lip, and case, included in item 97.
97	Cap Assy.-rear output shaft	All	1	A-3866-Y-805	4 holes on 3.875" bolt circle diameter, includes item 96 and 98.
98	Bushing-speed driven gear	All	1	1199-M-1105	Flanged, .4375" flange O.D., .03" flange width, .314" O.D., .254" I.D., .342" wide, included in item 97.
99	Gear-speed driven	A1	1	1898-Q-846	15T, R.H., Helical, .742" O.D.
		All others	1	1898-P-848	4T, R.H., Helical, 1.876" O.D.
100	Sleeve-speed driven gear	A1	1	1898-U-671	.375" thru hole, 1.261" long, .8125" - 20 UNEF 2A threads one end, .875" - 18 NS 2A threads other end.
101	Plug-speed hole	-	1	1850-R-18	Not used on 221 models in this book.
102	Cotter-rear output shaft nut	A1, M, M6, M7	1	K-2412	.125" diameter, 1.5" long.
		All others	1	K-2410	.125" diameter, 1.25" long.
103	Capscrew-rear output cap	A1, M, M6, M7	2	S-268-1	.375" - 16, 1" long, grade 8.
			1	S-2614-1	.375" - 16, 1.75" long, grade 8.
			1	10X-665	.375" - 16, 1" long, flat head.
		N4, N7	2	S-269-1	.375" - 16, 1.12" long, grade 8.
			1	S-2614-1	.375" - 16, 1.75" long, grade 8.
			1	10X-665	.375" - 16, 1" long, flat head.
104	Washer-rear output cap	A1	3	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
			1	1229-E-525	.781" O.D., .390" I.D., external teeth.
		All others	3	WA-16	.67" O.D., .390" I.D., .094" thick.
104	Washer-rear output cap	All others	1	1229-E-525	.781" O.D., .390" I.D., external teeth.
			1	1229-E-525	.781" O.D., .390" I.D., external teeth.
105	Breather-rear output shaft rear cap	-	1	A-1199-C-1043	Not used on 221 models in this book.
106	Gasket-rear output cap	All	-	1199-T-3842	Silicone gasket, use as required.*
107	Gear-speed driven	A1	1	1898-Q-849	4T, R.H., Helical, 1.775" O.D.
108	Spacer-rear output shaft	M, M6, M7	1	1844-G-501	2.125" O.D., 1.8125" I.D., 1.375" wide.
109	Cup-rear output shaft rear brg.	All	1	15245	2.44" O.D.
110	Cone-rear output shaft rear brg.	All	1	15126	1.25" bore.
111	Gear-rear output shaft	All	1	3892-R-1708	33T, L.H., Helical, 4.97" O.D., 1.625" - 10 internal spline.

\* All preformed gaskets are replaced with silicone liquid gasket at time of service.

## T-221 SERIES MAIN CASE

ITEM	PART NAME	MODEL	QTY	PART NUMBER	DESCRIPTION
112	Shaft-rear output	All	1	3880-Q-745	9.0625" long, threaded one end, 1.25" - 10 spline, 1.625" - 10 spline.
113	Cone-rear output shaft forward brg.	All	1	15126	1.25" bore.
114	Cup-rear output shaft forward brg.	All	1	15245	2.44" O.D.
115	Shim-rear output forward brg. cap	A1, M	1	2803-V-1868	.003", use as required, 3 holes.
			1	2803-W-1869	.005", use as required, 3 holes.
			3	2803-X-1870	.010", use as required, 3 holes.
		M6, M7	2	2803-V-1868	.003", use as required, 3 holes.
			3	2803-W-1869	.005", use as required, 3 holes.
			2	2803-X-1870	.010", use as required, 3 holes.
		All others	2	2803-G-2165	.003", use as required, 4 holes.
			3	2803-H-2166	.005", use as required, 4 holes.
			2	2803-J-2168	.010", use as required, 4 holes.
116	Cap-rear output forward cap	All	1	3866-T-748	3 holes on 3.25" bolt circle diameter, closed end.
117	Washer-rear output forward cap	A1	3	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
		All others	3	WA-16	.67" O.D., .390" I.D., .094" thick.
118	Capscrew-rear output forward cap	All	3	S-267-1	.375" - 16, .88" long, grade 8.
119	Capscrew-idler shaft rear cap	All	3	S-267-1	.375" - 16, .88" long, grade 8.
120	Washer-idler shaft rear cap	A1	3	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
		All others	3	WA-16	.67" O.D., .390" I.D., .094" thick.
121	Cap-idler shaft rear	All	1	3866-T-748	3 holes on 3.25" bolt circle diameter, closed end.
122	Gasket-idler shaft rear cap	All	-	1199-T-3842	Silicone gasket, use as required.*
123	Snap Ring-idler shaft	-	1	1854-E-187	Not used on 221 models in this book.
124	Cup-idler shaft rear brg.	All	1	15245	2.44" O.D.
125	Cone-idler shaft rear brg.	All	1	15126	1.25" bore.
126	Gear-idler shaft	All	1	3892-Q-1707	34T, R.H., Helical, 5.12" O.D., 1.625" - 10 internal spline.
127	Spacer-idler shaft gear	All	1	1844-D-498	2.125" O.D., 1.6875" I.D., 1.16" wide.
128	Gear-low speed (1.796-1)	All	1	3892-W-1713	37T, spur, 6.44" O.D., 1.625" - 10 internal spline.
	Gear-low speed (1.94-1)		1	3892-Z-1716	38T, spur, 6.61" O.D., 1.625" - 10 internal spline.
129	Shaft-idler	All	1	3880-N-742	5.375" long, 1.25" bearing diameter both ends, 1.625" - 10 spline.
130	Cone-idler shaft front brg.	All	1	02476	1.25" bore.
131	Cup-idler shaft front brg.	All	1	02420	2.69" O.D.
132	Washer-idler shaft brg.	-	1	1829-H-788	Not used on 221 models in this book.
133	Capscrew-indler shaft brg. washer	-	1	S-267-D1	Not used on 221 models in this book.
134	Lockwire-idler shaft brg. washer	-	1	LW-163	Not used on 221 models in this book.
135	Shim-idler shaft front brg. cap	A1, M	1	2803-V-1868	.003", use as required, 3 holes.
			1	2803-W-1869	.005", use as required, 3 holes.
			3	2803-X-1870	.010", use as required, 3 holes.
		All others	2	2803-V-1868	.003", use as required, 3 holes.
			3	2803-W-1869	.005", use as required, 3 holes.
			2	2803-X-1870	.010", use as required, 3 holes.
136	Cap-idler shaft front brg.	All	1	3866-T-748	3 holes on 3.25" bolt circle diameter, closed end.

\* All preformed gaskets are replaced with silicone liquid gasket at time of service.

## T-221 SERIES MAIN CASE

ITEM	PART NAME	MODEL	QTY	PART NUMBER	DESCRIPTION
137	Washer-idler shaft front brg.	A1	3	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
		All others	3	WA-16	.67" O.D., .39" I.D., .094" thick.
138	Capscrew-idler shaft front brg	All	3	S-267-1	.375" - 16, .88" long, grade 8.
139	Cotter-output shaft nut	All	1	K-2412	.125" diameter, 1.5" long.
140	Nut-output shaft	A1, M, M6, M7	1	1827-H-242	.875" - 14, .5" high, slotted.
		All others	1	N-512-1	.75" - 16, slotted, grade 8.
141	Washer-output shaft	N4, N7	1	1229-V-1556	1.38" O.D., .78" I.D., .12" thick.
142	Capscrew-oil catcher	-	1	10X-830	Not used on 221 models in this book.
143	Washer-front brg. cap	-	1	1229-K-1597	Not used on 221 models in this book.
144	Flange/Yoke-front output	M, M6, M7	1	A1-3897-A-1431	1310 series, 3.69" long, 1.25" - 10 spline, includes item 145 (2847-P-640).
		N4	1	A-3897-C-2811	1310 yoke, 3.375" long, 1.25" - 10 spline, includes item 145 (2847-K-791).
		N7	1	A-3897-D-3072	Same as C-2811 except undercut versus radius on deflector seat, includes item 145 (2847-K-791).
145	Deflector-front output yoke	M, M6, M7	1	2847-P-640	Hook shape (cross section), 2.75" O.D., 1.76" I.D., .5" wide, included in item 144.
		N4, N7	1	2847-K-791	"S" shape, 2.75" O.D., 1.78" I.D., .5" wide, included in item 144, contact Rockwell specifications department.
146	Capscrew-front brg. cap	All	3	S-2612-1	.375" - 16, 1.50" long, grade 8. Replaces S-2611-1 which is 1.375" long.
147	Washer-front brg. cap	A1	3	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
		All others	3	WA-16	.67" O.D., .39" I.D., .094" thick.
148	Oil Seal-output shaft front	All	1	A-1805-E-447	2.5" O.D., 1.75" I.D., .77" wide, double seal, lip, and case, included in item 149.
149	Cap Assy.-output shaft front	All	1	A3-3866-U-749	3 holes on 3.75" bolt circle diameter, open end, includes item 148.
150	Gasket-output shaft front cap	All	-	1199-T-3842	Silicone gasket, use as required.*
151	Bearing.-output shaft front	All	1	1228-V-308	Ball bearing, with snap ring, 2.83" O.D., 1.38" bore, .67" wide.
152	Oil Catcher-output shaft	-	1	2847-Q-849	Not used on 221 models in this book.
153	Washer-oil catcher	-	1	WA-36	Not used on 221 models in this book.
154	Pin-oil catcher	-	1	K-236	Not used on 221 models in this book.
155	Shaft-front output	A1, M, M6, M7	1	3880-R-746	9.50" long, 3.34" from threaded end to 1.7" diameter. Replaces A-3880-R-746 which has snap ring and groove.
		All others	1	3880-T-1112	9.687" long, 3.53" from .75" - 16 threaded end to 1.75" diameter.
156	Snap Ring-front output shaft	N4, N7	1	1854-P-146	Fits over 1.75" diameter shaft.
157	Clutch-front output sliding	All	1	3892-T-1710	19T, spur, 2.57" O.D., 1.625" - 10 internal spline, with shift groove.
158	Gear-front output shaft	All	1	3892-S-1709	33T, L.H. Helical, 4.97" O.D., on shaft with 16T external spline, 1.77" O.D.
159	Bearing-front output shaft rear	All	1	1828-F-110	Ball bearing, with snap ring, 3.35" O.D., 1.77" I.D., .75" wide.

\* All preformed gaskets are replaced with silicone liquid gasket at time of service.

## T-221 SERIES MAIN CASE

ITEM	PART NAME	MODEL	QTY	PART NUMBER	DESCRIPTION
160	Oil Seal-front output shaft rear	A1	1	A-1205-Z-1768	2.879" O.D., 2.188" I.D., included in item 163.
		M, M6, M7	1	A-1805-E-447	2.50" O.D., 1.75" I.D., .77" wide, double seal, lip, and case, with spring.
161	Spacer-front output shaft	N4, N7	1	1844-G-501	2.125" O.D., 1.8125" I.D., 1.375" wide.
162	Gasket-front output shaft rear cap	All	-	1199-T-3842	Silicone gasket, use as required.*
163	Cap Assy.-front output shaft rear	A1	1	A1-3866-S-747	Internal brake mounting, 4 holes on 4.25" bolt circle diameter, 4 threaded holes on 3.75" bolt circle diameter, includes item 160 ( A-1205-Z-1768).
		All others	1	3866-X-752	Enclosed cap with 4 holes on 4.25" bolt circle diameter.
164	Washer-front output shaft rear cap	A1	4	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
		All others	4	WA-16	.67" O.D., .39" I.D., .094" thick.
165	Capscrew-front output shaft rear cap	A1, N4, N7	4	S-268-1	.375" - 16, 1" long, grade 8.
		All others	4	S-269-1	.375" - 16, 1.12" long, grade 8.
166	Stud-rear output shaft	-	1	4X-840	Not used on 221 models in this book.
167	Nut-rear output shaft	-	1	N-16-1	Not used on 221 models in this book.
168	Expansion Plug-front output shaft	A1	1	PW-221	1.312" O.D., .083" thick.
169	Hub-brake	-	1	3897-F-1332	Not used on 221 models in this book.
170	Snap Ring-brake hub	A1, M, M6, M7	1	1854-P-146	
171	Expansion Plug-brake hub	A1	1	PW-236	2.25" O.D., .083" thick.
188	Case-transfer	A1	1	3875-B-444	Less interlock. A, D, E, and F mounting bosses.
		M	1	3875-W-491	With interlock. C, D, E and F mounting bosses.
		M6, M7	1	3875-L-558	With interlock. B, E and F mounting bosses.
		N4, N7	1	3875-M-793	With interlock. D (modified), E and F mounting bosses.
189	Name Plate	-	1	1199-K-1493	Not used on 221 models in this book.
190	Screw-name plate	-	2	9X-16	Not used on 221 models in this book.
191	Expansion Plug-shift shaft	All	1	PW-216	1.0" O.D., .083" thick.
192	Plug-oil drain	N4, N7	1	P-24	Non-magnetic.
193	Expansion Plug-shift shaft	All	1	1850-X-76	
194	Plug-oil drain	All	1	P-112	Male, square head.
195	Plug-oil level	All	1	P-112	Male, square head.
196	Oil Catcher-input	-	1	1898-X-856	Not used on 221 models in this book.
197	Plug-oil high level	-	1	P-112	Not used on 221 models in this book.
198	Elbow-high oil level	-	1	1898-X-258	Not used on 221 models in this book.
199	Plug-oil level	-	1	P-112	Not used on 221 models in this book.
200	Oil Seal-shift shaft	All	1	A-1205-N-1132	1.25" O.D., .75" I.D., with single lip and dirt lip. Replaces A-1805-S-305 with single lip only.
201	Oil Seal-shift shaft	All	1	A-1205-N-1132	1.25" O.D., .75" I.D., with single lip and dirt lip. Replaces A-1805-S-305 with single lip only.
202	Shift Fork-declutch	All	1	2849-E-239	
203	Lockwire-shift fork	All	1	LW-166	16 gage, 6" long.

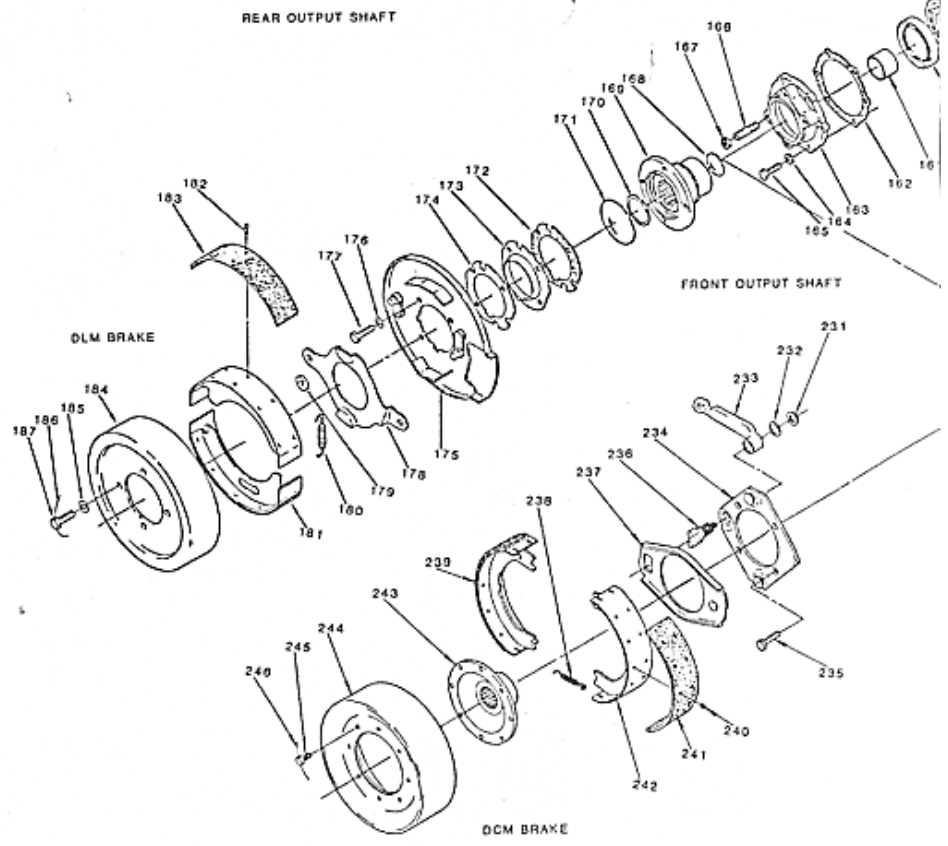
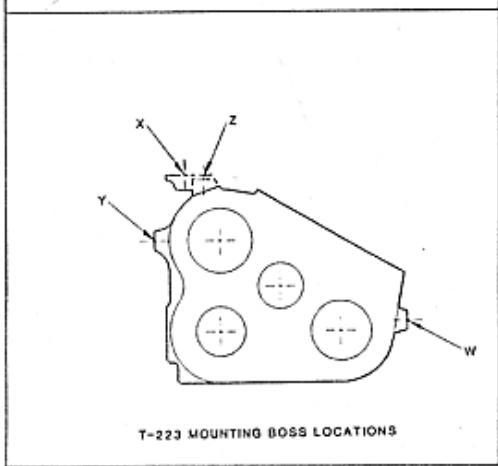
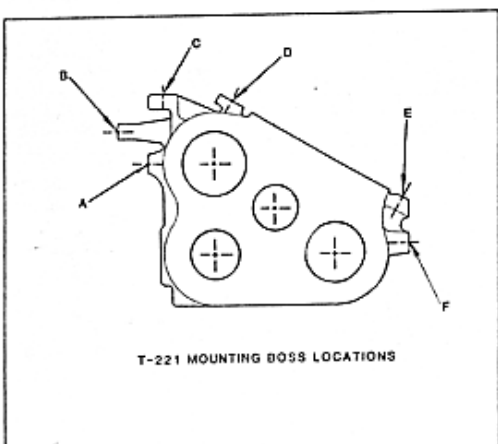
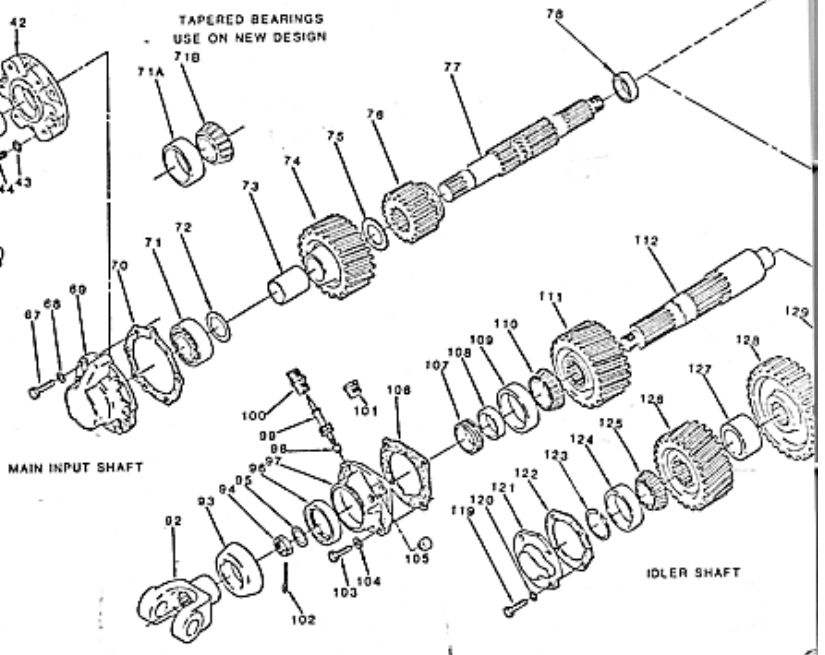
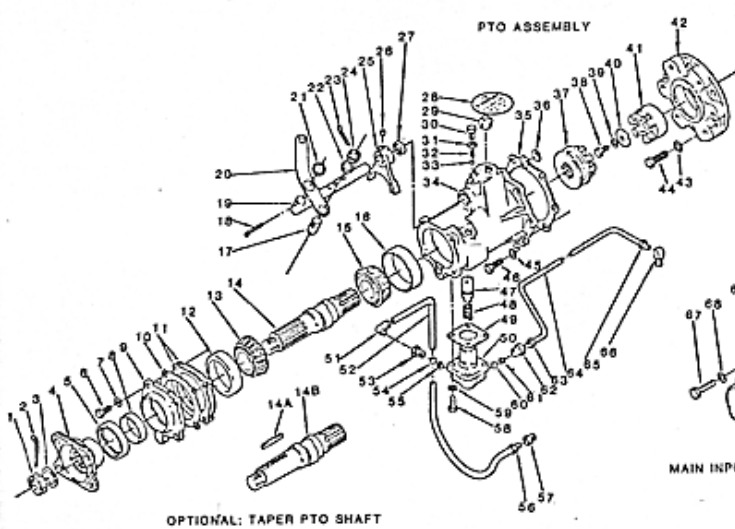
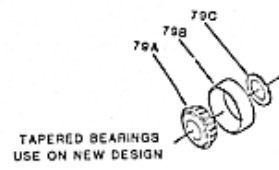
\* All preformed gaskets are replaced with silicone liquid gasket at time of service.

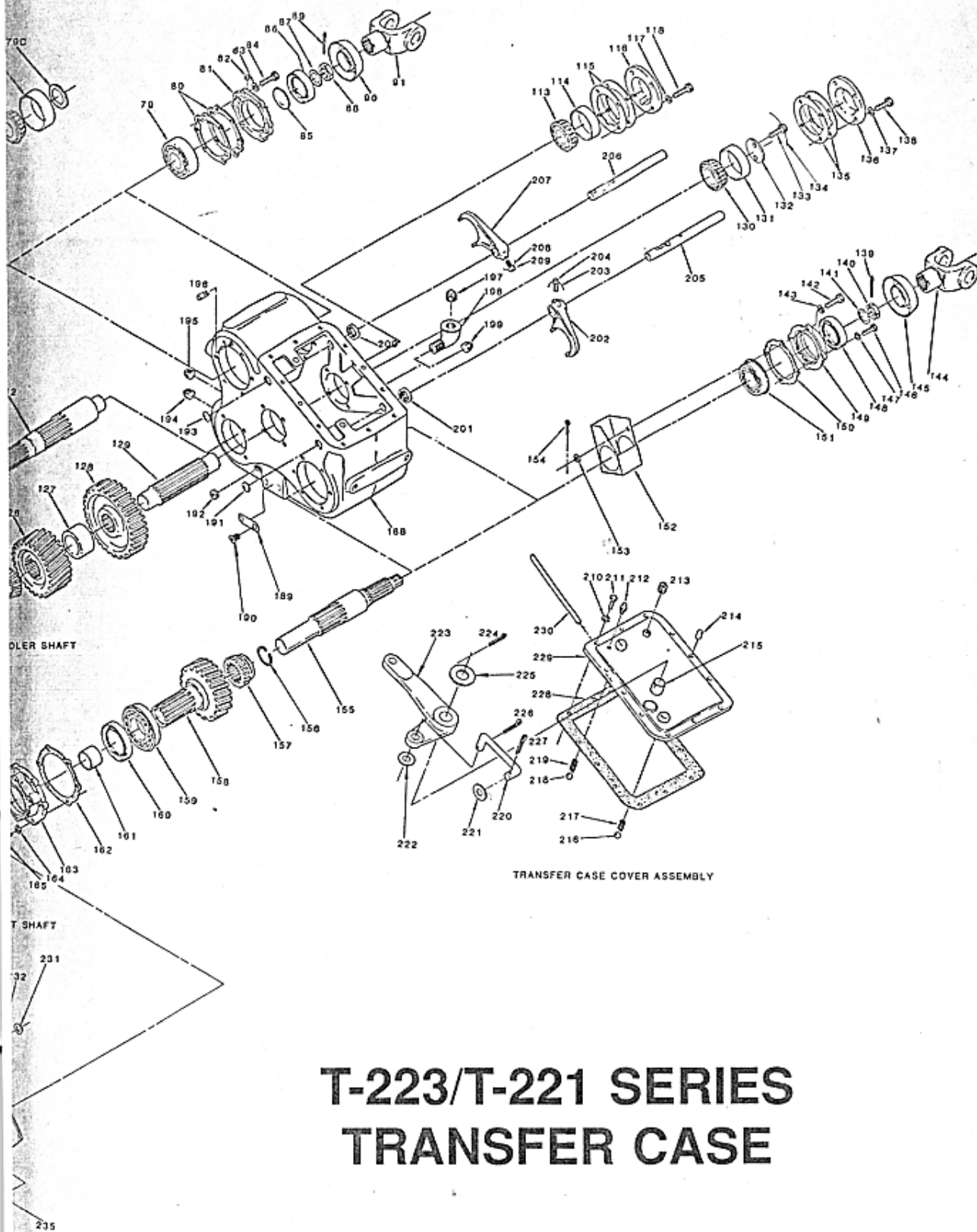
## T-221 SERIES MAIN CASE

ITEM	PART NAME	MODEL	QTY	PART NUMBER	DESCRIPTION
204	Lockscrew-shift fork	All	1	26X-54	.375" - 24, 1.156" long, square head.
205	Shift Shaft-declutch	A1	1	2843-A-417	4.88" long, contact Rockwell specifications department.
		All others	1	2843-C-419	5.063" long.
206	Shift Shaft-hi-low	A1	1	2843-Z-416	Set screw hole 150 degrees left of vertical, contact Rockwell specifications department.
		All others	1	2843-B-418	Set screw hole 30 degrees right of vertical.
207	Shift Fork-hi-low	All	1	2849-E-239	
208	Lockwire-shift fork	All	1	LW-166	16 gage, 6" long.
209	Lockscrew-shift fork	All	1	26X-54	.375" - 24, 1.156" long, square head.
210	Washer-case and top cover	A1	10	1229-K-1597	.75" O.D., .41" I.D., .09" thick.
		All others	9	WA-16	.67" O.D., .39" I.D., .094" thick.
211	Capscrew-case and top cover	A1	9	S-268-1	.375" - 16, 1" long, grade 8.
212	Breather-oil	All	1	A-1199-C-1043	
213	Capscrew-case top cover		1	S-2610-1	.375" - 16, 1.25" long, grade 8.
214	Dowel-T-case and cover	-	1	1846-X-284	Not used on 221 models in this book.
215	Pin-brake bellcrank	A1	1	1846-E-265	.625" O.D., 1.656" long with 1 hole .156" diameter.
216	Ball-shift shaft lock	All	1	1898-E-57	.438" diameter ball.
217	Spring-shift shaft lock	A1, M, M6, M7	1	2858-A-1	13 coils, 1.88" free length.
		All others	1	2858-Q-277	.438" diameter, 1.52" free length, contact Rockwell specifications department.
218	Ball-shift shaft lock	All	1	1898-E-57	.438" diameter ball.
219	Spring-shift shaft lock	A1, M, M6, M7	1	2858-A-1	13 coils, 1.88" free length.
		All others	1	2858-Q-277	.438" diameter, 1.52" free length, contact Rockwell specifications department.
220	Pull Rod-brake	A1	1	1845-A-27	
221	Washer-brake pull rod	A1	1	WA-36	.812" O.D., .406" I.D., .062" thick.
222	Washer-brake pull rod	A1	1	WA-36	.812" O.D., .406" I.D., .062" thick.
223	Bellcrank-brake operating	A1	1	302-T-540	
224	Cotter-bellcrank pin	A1	1	K-248	.125" diameter, 1" long.
225	Washer-bellcrank pin	A1	1	WA-310	1.312" O.D., .656" I.D., .094" thick.
226	Cotter-brake pull rod	A1	1	K-236	.094" diameter, .75" long.
227	Cotter-brake pull rod	A1	1	K-236	.094" diameter, .75" long.
228	Gasket-cover	All	-	1199-T-3842	Silicone gasket, use as required.*
229	Cover Assy.-T-case top	A1	1	A-3855-G-267	No cast bosses on underside.
		All others	1	3855-X-258	Breather hole in center and 2 cast interlock bosses on underside.
230	Shaft-shift interlock	M, M6, M7, N4, N7	1	1846-H-268	

\* All preformed gaskets are replaced with silicone liquid gasket at time of service.







# T-223/T-221 SERIES TRANSFER CASE

## 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.

speed transmission) 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

### 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 clutching when transfer case is in direct drive; however, in returning to 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

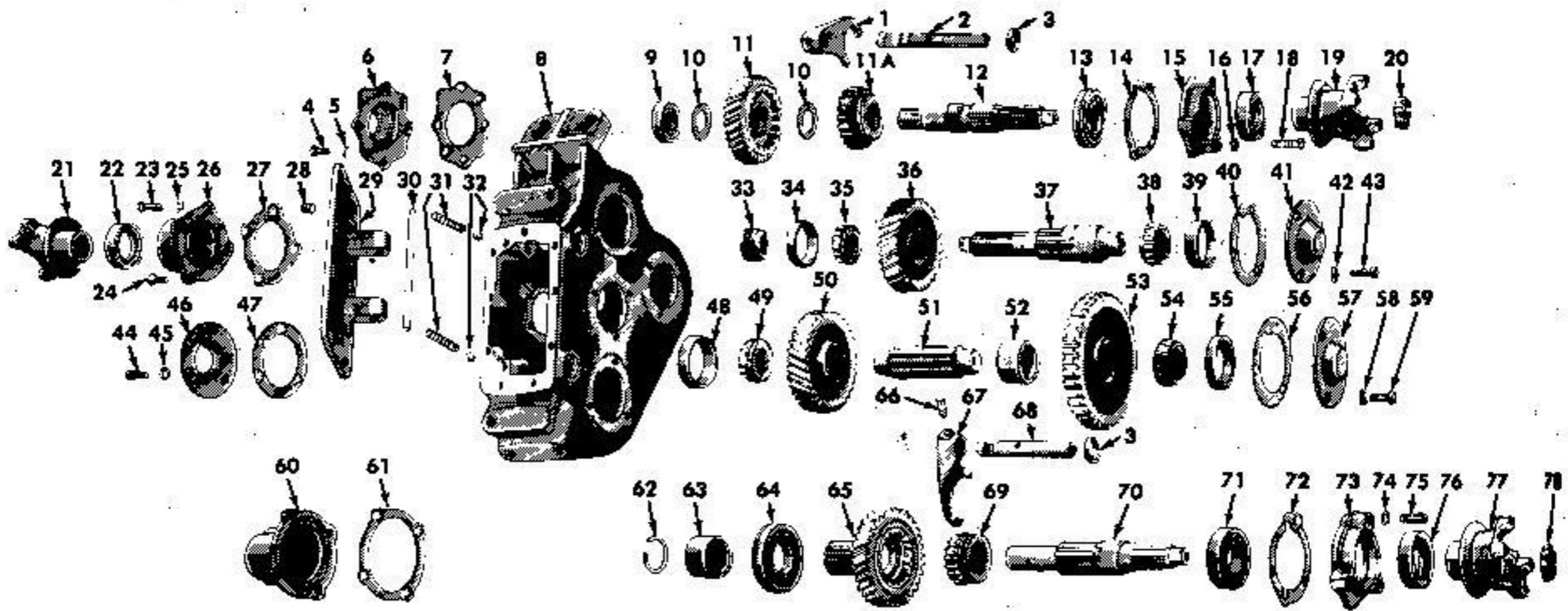
If it becomes necessary to replace a seal in either the input or the front or rear output shafts, perform the following steps:

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.

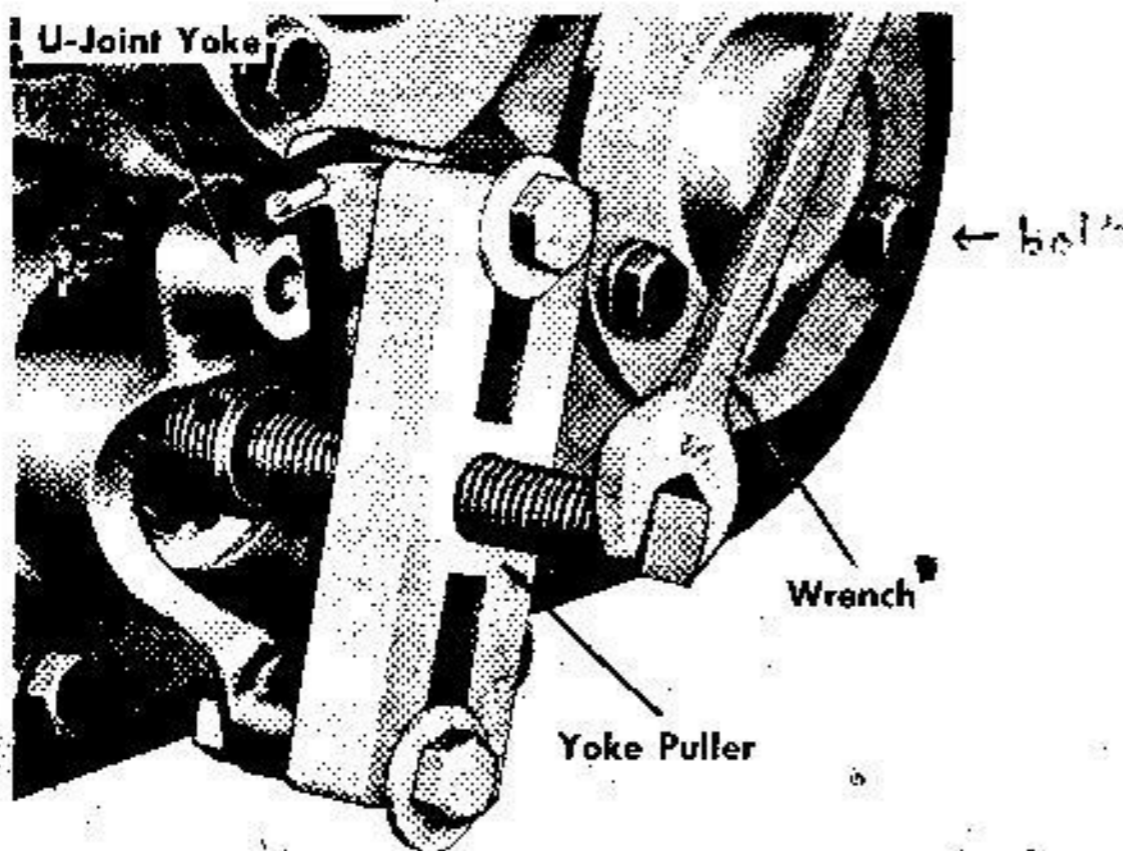
### Shift and Control Rod Adjustment

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-

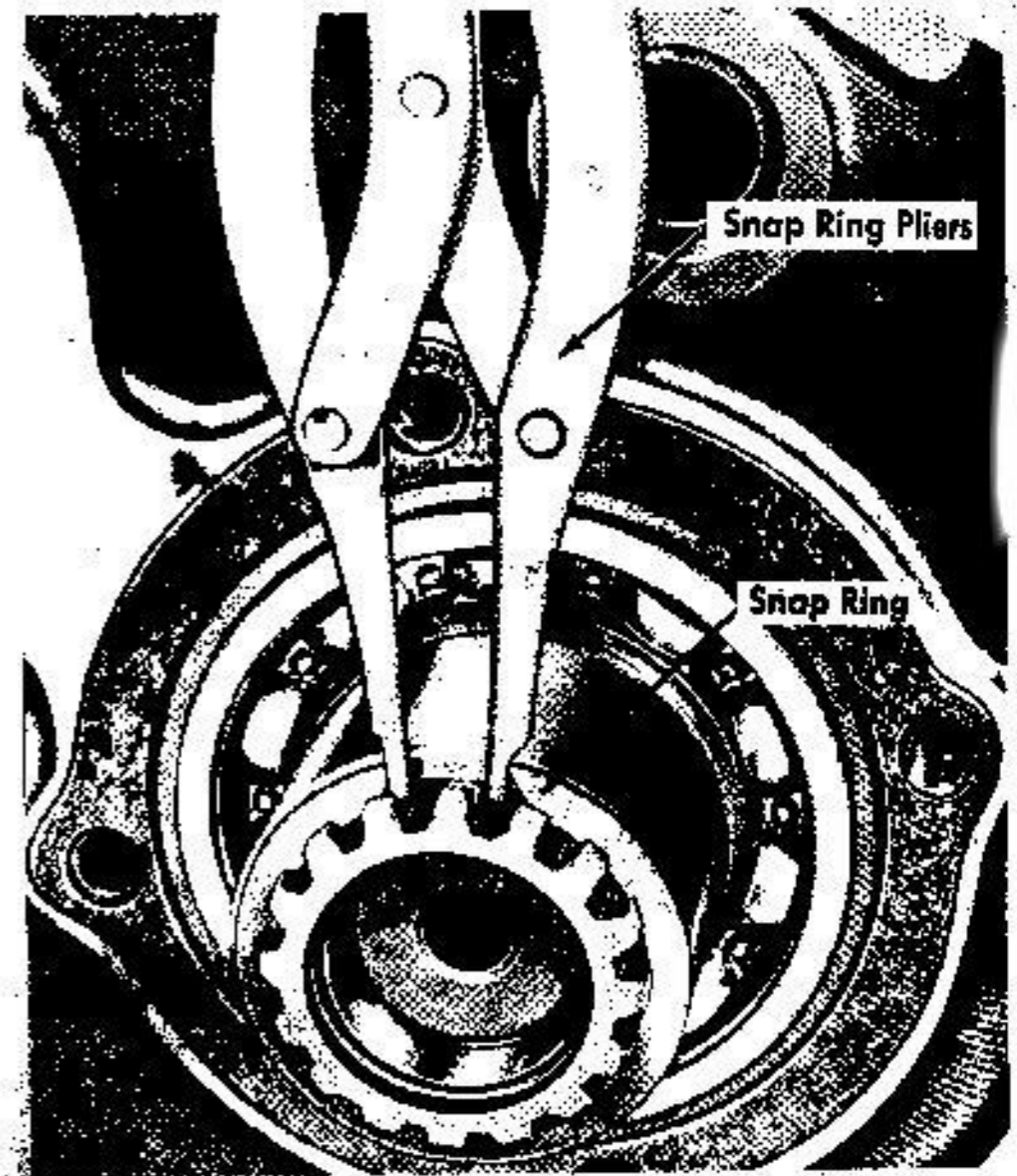


Timken model 221 transfer case (© G.M.C.)

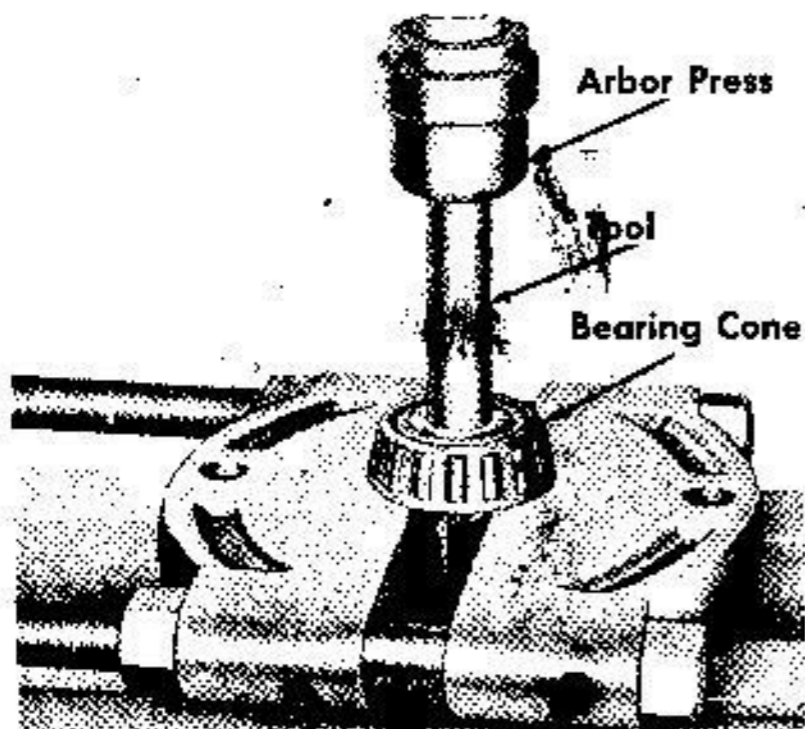
- |                      |                   |                      |                     |                       |
|----------------------|-------------------|----------------------|---------------------|-----------------------|
| 1 Shift fork         | 17 Oil seal       | 33 Speedometer gear  | 49 Bearing cone     | 65 Front output gear  |
| 2 Shift rod          | 18 Cap screw      | 34 Bearing cup       | 50 Input shaft gear | 66 Set screw          |
| 3 Oil seal           | 19 U-Joint yoke   | 35 Bearing cone      | 51 Idler shaft      | 67 Shift fork         |
| 4 Cap screw          | 20 Nut            | 36 Rear output gear  | 52 Spacer           | 68 Shift rod          |
| 5 Lock washer        | 21 U-Joint yoke   | 37 Rear output shaft | 53 Low speed gear   | 69 Front sliding gear |
| 6 Bearing cap        | 22 Oil seal       | 38 Bearing cone      | 54 Bearing cone     | 70 Front output shaft |
| 7 Gasket             | 23 Cap screw      | 39 Bearing cup       | 55 Bearing cup      | 71 Bearing            |
| 8 Transfer case      | 24 Flat cap screw | 40 Adjusting shims   | 56 Adjusting shims  | 72 Gasket             |
| 9 Bearing            | 25 Lock washer    | 41 Bearing Cap       | 57 Bearing cap      | 73 Bearing cap        |
| 10 Washer            | 26 Bearing cap    | 42 Lock washer       | 58 Lock washer      | 74 Lock washer        |
| 11 Direct drive gear | 27 Gasket         | 43 Cap screw         | 59 Cap screw        | 75 Cap screw          |
| 11A Input shaft gear | 28 Breather       | 44 Cap screw         | 60 Bearing cap      | 76 Oil seal           |
| 12 Input shaft       | 29 Cover          | 45 Lock washer       | 61 Gasket           | 77 U-Joint yoke       |
| 13 Bearing           | 30 Interlock pin  | 46 Bearing cap       | 62 Snap ring        | 78 Nut                |
| 14 Adjusting shims   | 31 Spring         | 47 Gasket            | 63 Spacer           |                       |
| 15 Bearing cap       | 32 Detent ball    | 48 Bearing cup       | 64 Bearing          |                       |
| 16 Lock washer       |                   |                      |                     |                       |



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.)

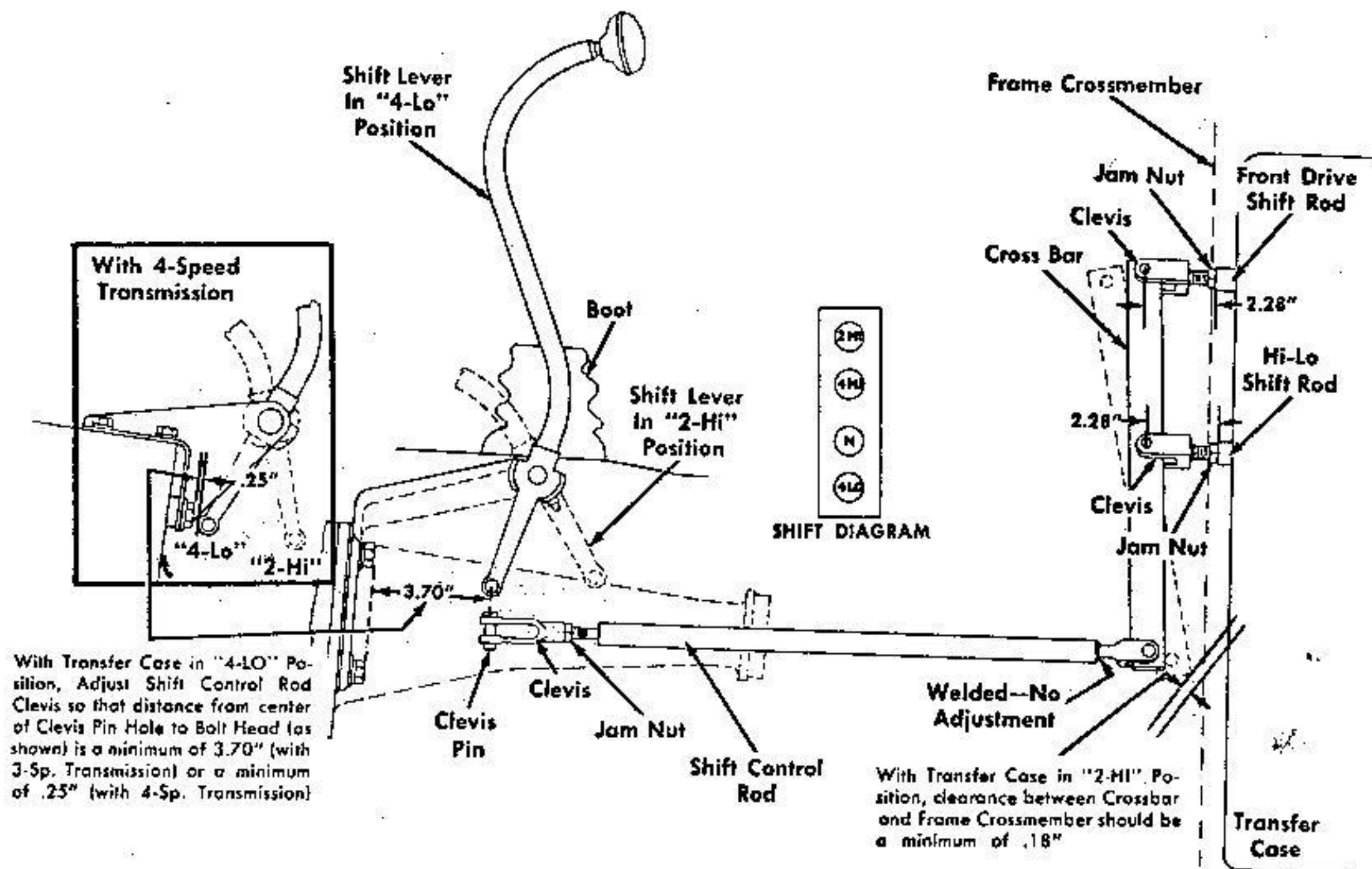
### Rear Output Shaft

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



Shift and control rod adjustment (© G.M.C.)

rear bearing cap; then remove cap.

- Remove cap screws attaching front bearing cap; then remove cap and shims. Attach shims to cap for reassembly.
- Press or drive out input shaft toward front of case.
- Remove direct drive gear, sliding gear and thrust washer from inside case.
- Remove front bearing and washer. Remove other bearing from shaft.

### Assembly

During assembly, it is important that all parts are cleaned and lubricated to prevent deterioration before it is placed in service. Use new gaskets, oil seals, snap-rings and lock washers.

### Input Shaft

- Press front bearing onto shaft with shielded side of bearing toward shoulder on shaft. Insert shaft through opening in front of case and as shaft is being moved into position, install sliding gear, washer, direct drive gear and washer. Install rear bearing on shaft with shielded side toward inside. Install gasket and bearing cap at rear of case. Tighten cap screws securely. At front of case, install bearing cap and shims. Use same thickness of shims as removed during disassembly. Install U-joint yoke and nut. Tighten nut firmly and install cotter pin.

### Rear Output Shaft

- Press bearing cone onto rear output shaft.
- Press or drive rear output shaft in case through shaft gear.
- Press or drive bearing cup into case. Install bearing cap, using same thickness of shims that were removed. Tighten cap screws firmly.
- At rear of shaft, press bearing cone onto shaft and bearing cup into case. Install speedometer drive gear.
- Install new oil seal in bearing cap; then install gasket and cap with screws.
- Install U-joint yoke and secure with nut. Tighten nut firmly and install cotter pin.
- Check end play of shaft, using dial indicator. Remove or add adjusting shims as required until end play is as near zero as possible.

### Front Output Shaft

- Place front output gear inside case; then install bearing over gear hub and into position in case.
- Press bearing onto output shaft.
- As output shaft is installed through opening in front of case, sliding gear must be located on shaft as shaft is pushed into its proper position.
- Install new oil seal in bearing cap; then install gasket and cap with screws.
- Install spacer on gear; then install snap-ring.
- Install gasket and bearing cap.

Secure with cap screws.

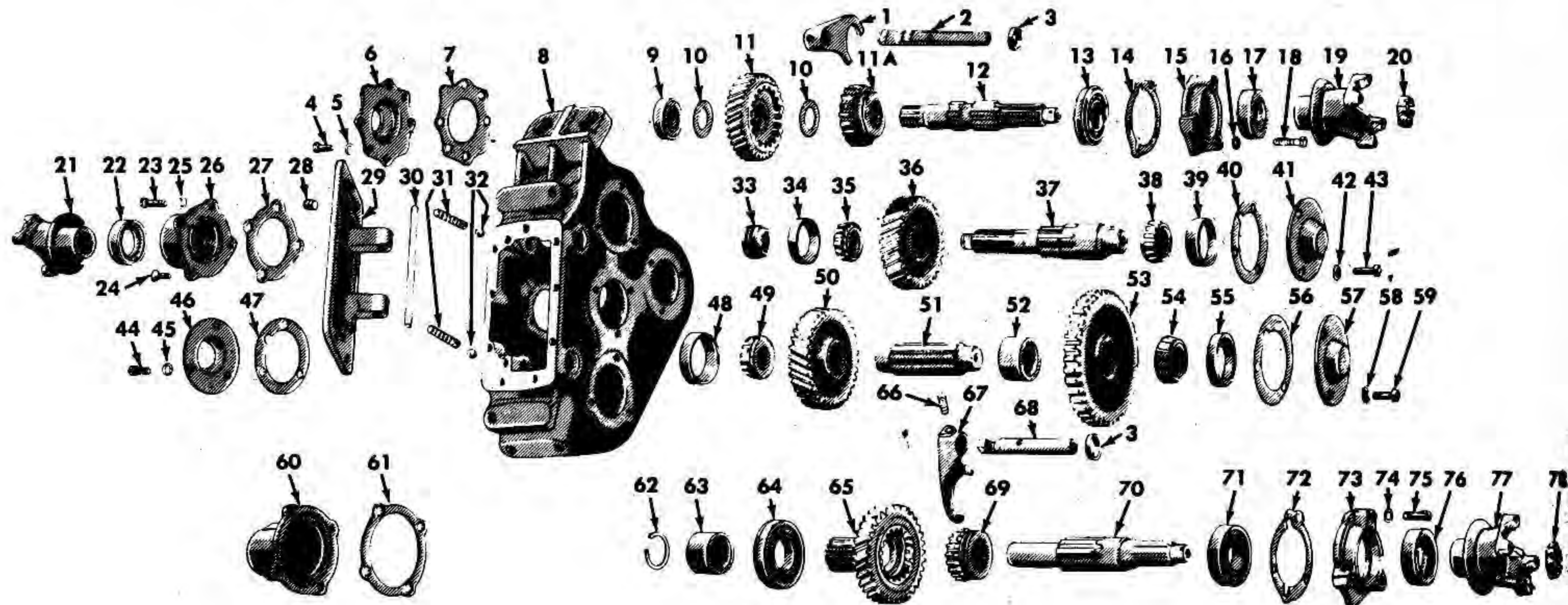
- Install U-joint yoke and secure with nut. Tighten nut securely and install cotter pin.

### Idler Shaft

- Press bearing cone onto front end of idler shaft.
- Start idler shaft into front side of case and install low speed gear, spacer, constant mesh gear and bearing cone as shaft is pushed into position.
- Press bearing cups into case and over bearing cones.
- At rear of case, install bearing cap and gasket with cap screws.
- At front of case, install bearing cap and adjusting shims with cap bolts. NOTE: Make sure adjusting shims used are same thickness as shims removed.
- Check end play of shaft, using dial indicator. Subtract or add adjusting shims as required until end play is as near to zero as possible.

### Cover and Shift Rod

- Install oil seals in case.
- Push shift rods into case with caution, so as not to damage oil seals.
- Install shift forks on respective shift rods. Install set screws attaching forks to rods. Twist safety wire around shift rods and then through hole in set screw.
- Insert detent balls and springs into holes in case.
- Slide interlock pin into bosses on inner surface of cover. Install gasket on case with sealing compound. Press end of cover down; then slide cover upward and press into position. Secure with cap screws.



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

- |                      |                   |                      |                     |                       |
|----------------------|-------------------|----------------------|---------------------|-----------------------|
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| 2 Shift rod          | 18 Cap screw      | 34 Bearing cup       | 50 Input shaft gear | 66 Set screw          |
| 3 Oil seal           | 19 U-Joint yoke   | 35 Bearing cone      | 51 Idler shaft      | 67 Shift fork         |
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