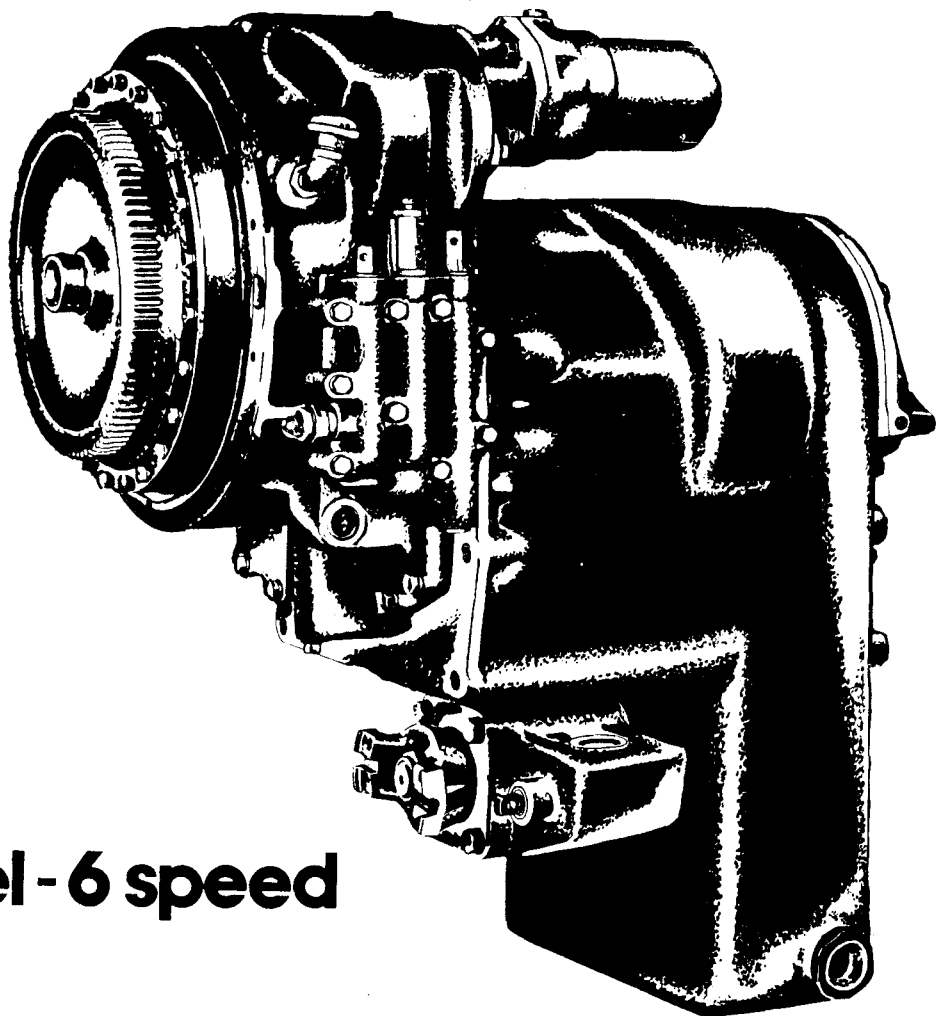


28000 powershift transmission

maintenance & service manual



**R & HR model - 6 speed
supplement**

CLARK COMPONENTS

North America

A Business Unit of Clark Equipment Company

Service Publications
324 E. Dewey Street
Buchanan, Michigan 49107

TOWING OR PUSH STARTING

Before towing the vehicle, be sure to lift the rear wheels off the ground or disconnect the driveline to avoid damage to the transmission during towing.

NOTE: If the transmission has 4 wheel drive, disconnect both front and rear drivelines. Because of the design of the hydraulic system, the engine **cannot** be started by pushing or towing.

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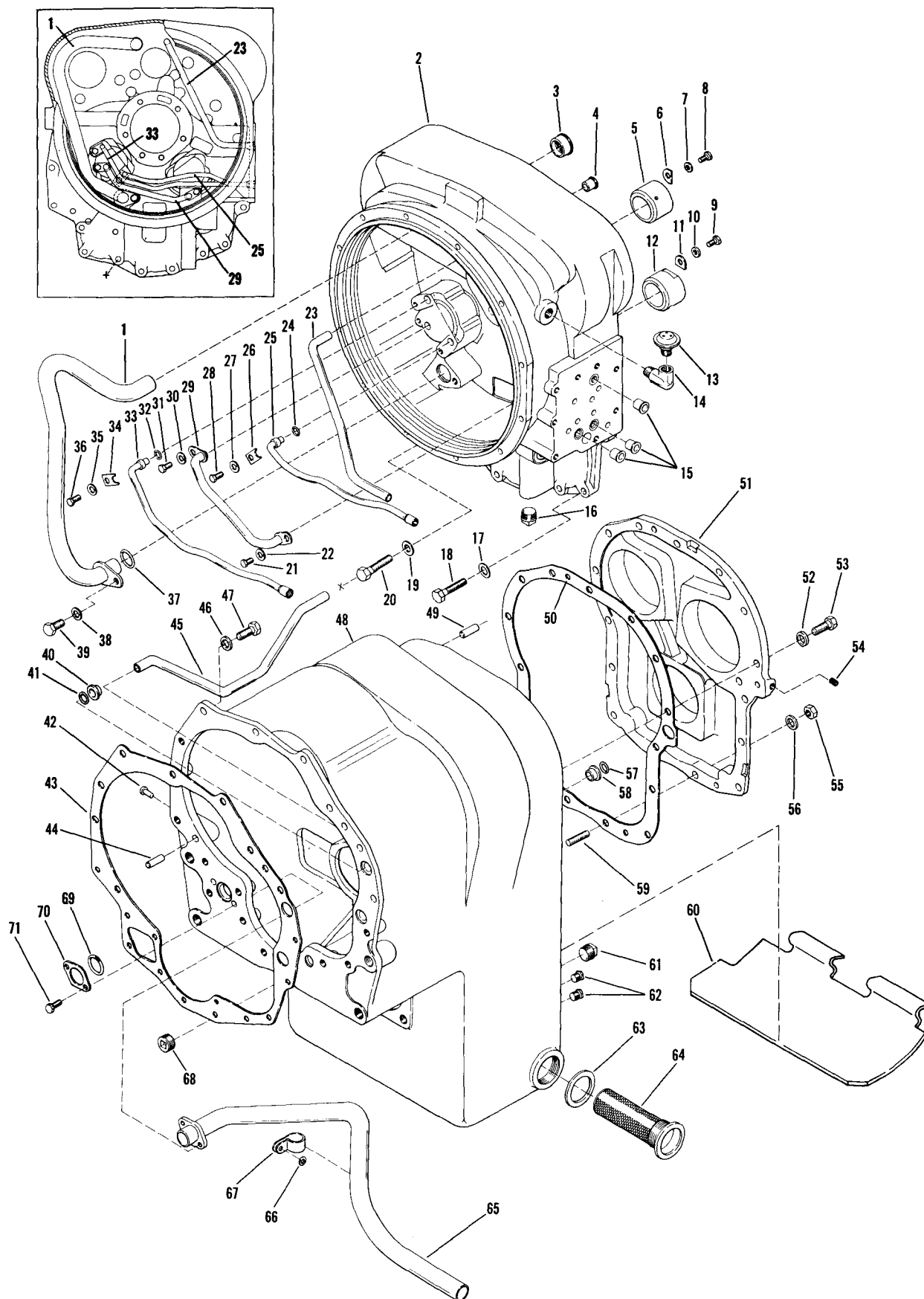


FIG. A

HR CONVERTER AND TRANSMISSION CASE GROUP

ITEM	DESCRIPTION	QTY.	ITEM	DESCRIPTION	QTY.
1	Suction Tube Assembly.....	1	36	Tube Clip Screw	1
2	Converter Housing and Tube Assembly.....	1	37	Suction Tube "O" Ring	1
3	Tube Sleeve	1	38	Suction Tube Retainer Lockwasher.....	1
4	Tube Sleeve	1	39	Suction Tube Retainer Screw.....	1
5	Converter Housing Sleeve	1	40	Tube Sleeve	1
6	Converter Housing Sleeve Lock	1	41	Pressure Tube "O" Ring.....	1
7	Converter Housing Sleeve Screw Lockwasher	1	42	Suction Line Tube Clip Rivet	1
8	Converter Housing Sleeve Screw	1	43	Converter Housing to Transmission Case Gasket	1
9	Converter Housing Sleeve Screw	1	44	Converter Housing to Transmission Case Dowel Pin	2
10	Converter Housing Sleeve Screw Lockwasher	1	45	Low Speed Clutch Pressure Tube	1
11	Converter Housing Sleeve Lock	1	46	Transmission Case to Converter Housing Screw Lockwasher	10
12	Converter Housing Sleeve	1	47	Transmission Case to Converter Housing Screw	10
13	Breather	1	48	Transmission Case Assembly	1
14	Street Ell	1	49	Transmission Case to Rear Cover Dowel Pin	2
15	Tube Sleeve	3	50	Transmission Case to Rear Cover Gasket	1
16	Pipe Plug	1	51	Transmission Case Rear Cover	1
17	Converter Housing to Transmission Housing Screw Lockwasher	4	52	Rear Cover to Case Screw Lockwasher	13
18	Converter Housing to Transmission Housing Screw	4	53	Rear Cover to Case Screw	13
19	Converter Housing to Transmission Housing Lockwasher	4	54	Rear Cover Pipe Plug	1
20	Converter Housing to Transmission Housing Screw	4	55	Rear Cover to Transmission Case Stud Nut	2
21	Lube Tube Retaining Screw	1	56	Rear Cover to Transmission Case Lockwasher	2
22	Lube Tube Retaining Screw Lockwasher ..	1	57	Tube Sleeve "O" Ring.....	1
23	Valve Oil Supply Tube	1	58	Tube Sleeve.....	1
24	3rd Speed Tube "O" Ring	1	59	Transmission Case to Rear Cover Stud	2
25	3rd Speed Tube Assembly	1	60	Oil Baffle.....	1
26	Tube Clip	1	61	Drain Plug	1
27	Tube Clip Screw Lockwasher	1	62	Oil Level Plug	2
28	Tube Clip Screw	1	63	Screen Assembly Gasket	1
29	Lube Tube Assembly	1	64	Screen Assembly	1
30	Lube Tube Retainer Screw Lockwasher	1	65	Suction Tube Assembly	1
31	Lube Tube Retainer Screw	1	66	Suction Tube Clip Washer	1
32	Reverse Tube "O" Ring	1	67	Suction Tube Clip	1
33	Reverse Tube Assembly	1	68	Pipe Plug	2
34	Tube Clip	1	69	Suction Tube "O" Ring	1
35	Tube Clip Screw Lockwasher.....	1	70	Suction Tube Retainer Washer	1
			71	Suction Tube Retainer Washer Screw	2

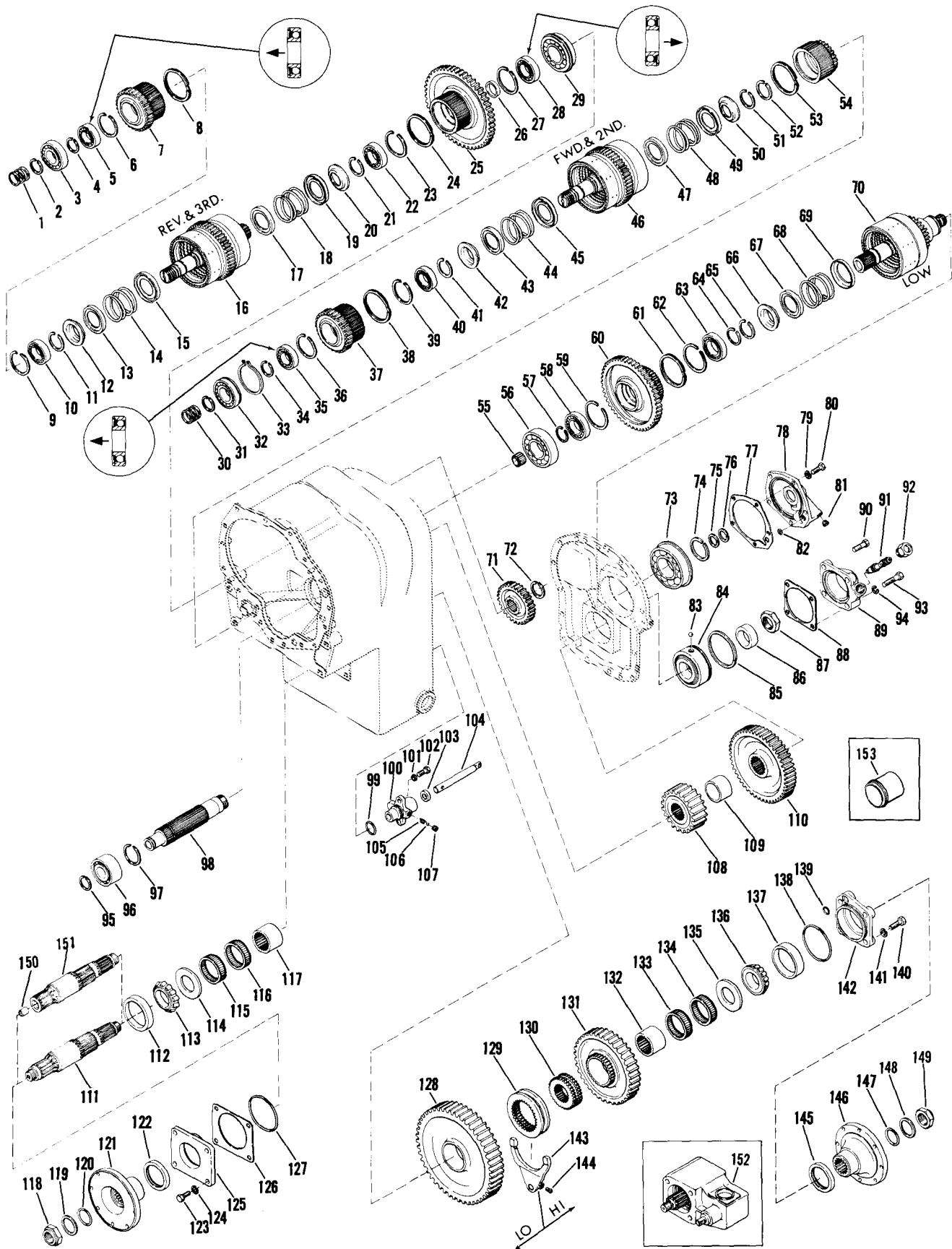


FIG. B

6-SPEED CLUTCH AND GEAR GROUP

ITEM	DESCRIPTION	QTY.	ITEM	DESCRIPTION	QTY.
1	Reverse and 3rd Clutch Shaft Piston Ring	3	77	Rear Bearing Cap Gasket	1
2	Front Bearing Retainer Ring	1	78	Rear Bearing Cap	1
3	Reverse and 3rd Shaft Front Bearing	1	79	Rear Bearing Cap Screw Lockwasher	5
4	Front Bearing Retainer Ring	1	80	Rear Bearing Cap Screw	5
5	Clutch Driven Gear Bearing	1	81	Rear Bearing Cap Plug	1
6	Clutch Driven Gear Bearing Snap Ring	1	82	Rear Bearing Cap "O" Ring	1
7	Clutch Driven Gear	1	83	Idler Shaft Rear Bearing Lock Ball	1
8	Clutch Hub Oil Baffle Ring	1	84	Idler Shaft Rear Bearing	1
9	Clutch Driven Gear Bearing Snap Ring	1	85	Idler Shaft Rear Bearing Locating Ring	1
10	Clutch Driven Gear Bearing	1	86	Speedometer Drive Gear or Bearing Spacer	1
11	Return Spring Retainer Snap Ring	1	87	Idler Shaft Nut	1
12	Snap Ring Retainer	1	88	Idler Shaft Bearing Cap Gasket	1
13	Spring Retainer	1	89	Idler Shaft Bearing Cap	1
14	Piston Return Spring	1	90	Idler Shaft Bearing Cap Screw	3
15	Spring Retainer	1	91	Speedometer Driven Gear	1
16	Reverse and 3rd Clutch Shaft and Drum	1	92	Speedometer Tube Nut	1
17	Spring Retainer	1	93	Idler Shaft Bearing Capscrew	1
18	Piston Return Spring	1	94	Idler Shaft Bearing Capscrew Lockwasher	4
19	Spring Retainer	1	95	Idler Shaft Front Bearing Retainer Ring	1
20	Return Spring Retainer Snap Ring	1	96	Idler Shaft Front Bearing	1
21	Snap Ring Retainer	1	97	Idler Shaft Gear Locating Ring	1
22	3rd Gear Bearing	1	98	Idler Shaft	1
23	3rd Gear Bearing Snap Ring	1	99	Range Shift Rail Support "O" Ring	1
24	Clutch Hub Oil Baffle Ring	1	100	Range Shift Rail Support	1
25	3rd Gear	1	101	Range Shift Rail Support Screw Lockwasher	2
26	3rd Gear Bearing Spacer	1	102	Range Shift Rail Support Screw	2
27	3rd Gear Bearing Snap Ring	1	103	Range Shift Rail Oil Seal	1
28	3rd Gear Bearing	1	104	Range Shift Rail	1
29	Reverse and 3rd Shaft Rear Bearing	1	105	Range Shift Rail Detent Spring	1
30	Forward and 2nd Shaft Piston Ring	3	106	Range Shift Rail Detent Ball	1
31	Front Bearing Retainer Ring	1	107	Range Shift Rail Detent Plug	1
32	Forward and 2nd Shaft Front Bearing	1	108	Idler Shaft Low Range Gear	1
33	Front Bearing Locating Ring	1	109	Idler Shaft Gear Spacer	1
34	Front Bearing Retainer Ring	1	110	Idler Shaft Gear	1
35	Clutch Driven Gear Bearing	1	111	Output Shaft	1
36	Clutch Driven Gear Bearing Snap Ring	1	112	Output Shaft Front Bearing Cup	1
37	Clutch Driven Gear	1	113	Output Shaft Front Bearing Cone	1
38	Clutch Hub Oil Baffle Ring	1	114	Output Gear Thrust Washer	1
39	Clutch Driven Gear Bearing Snap Ring	1	115	Output Gear Bearing	1
40	Clutch Driven Gear Bearing	1	116	Output Gear Bearing	1
41	Return Spring Retainer Snap Ring	1	117	Output Gear Bearing Inner Race	1
42	Snap Ring Retainer	1	118	Output Flange Nut	1
43	Spring Retainer	1	119	Output Flange Washer	1
44	Piston Return Spring	1	120	Output Flange "O" Ring	1
45	Spring Retainer	1	121	Output Flange	1
46	Forward and 2nd Clutch Shaft and Drum	1	122	Output Shaft Front Bearing Cap Oil Seal	1
47	Spring Retainer	1	123	Output Shaft Front Bearing Cap Screw	4
48	Piston Return Spring	1	124	Output Shaft Front Bearing Cap Lockwasher	4
49	Spring Retainer	1	125	Output Shaft Front Bearing Cap	1
50	Snap Ring Retainer	1	126	Front Bearing Cap Shim	AR
51	Return Spring Retainer Snap Ring	1	127	Front Bearing Cap "O" Ring	1
52	2nd Gear Retainer Ring	1	128	Low Range Gear	1
53	Clutch Hub Oil Baffle Ring	1	129	High Low Shift Hub	1
54	2nd Gear	1	130	Shift Hub Sieve	1
55	Low Speed Clutch Shaft Pilot Bearing	1	131	High Range Gear	1
56	2nd Gear Bearing	1	132	Output Gear Inner Race	1
57	Low Gear Bearing Retainer Ring	1	133	Output Gear Bearing	1
58	Low Gear Bearing	1	134	Output Gear Bearing	1
59	Low Gear Bearing Locating Ring	1	135	Output Gear Thrust Washer	1
60	Low Gear	1	136	Output Shaft Rear Bearing Cone	1
61	Low Gear Oil Baffle Ring	1	137	Output Shaft Rear Bearing Cup	1
62	Low Gear Bearing Locating Ring	1	138	Output Shaft Rear Bearing Cap "O" Ring	1
63	Low Gear Bearing	1	139	Output Shaft Rear Bearing Cap "O" Ring	1
64	Low Gear Bearing Retainer Ring	1	140	Output Shaft Rear Bearing Cap Screw	4
65	Return Spring Retainer Snap Ring	1	141	Output Shaft Rear Bearing Cap Screw Lockwasher	4
66	Snap Ring Retainer	1	142	Output Shaft Rear Bearing Cap	1
67	Spring Retainer	1	143	High and Low Range Shift Fork	1
68	Piston Return Spring	1	144	Shift Fork Lock Screw	1
69	Spring Retainer	1	145	Rear Bearing Cap Oil Seal	1
70	Low Speed Clutch Shaft and Drum	1	146	Rear Output Flange	1
71	Low Speed Drive Gear	1	147	Output Flange "O" Ring	1
72	Low Speed Drive Gear Retaining Ring	1	148	Output Flange Washer	1
73	Low Shaft Rear Bearing	1	149	Output Flange Nut	1
74	Low Shaft Rear Bearing Retainer Ring	1	150	Bushing (Used with Disconnect Only)	1
75	Low Shaft Piston Ring	1	151	Output Shaft (Used with Disconnect Only)	1
76	Low Shaft Piston Ring	1	152	Disconnect (Optional)	1
			153	Bearing Cap Bore Plug (Optional)	1

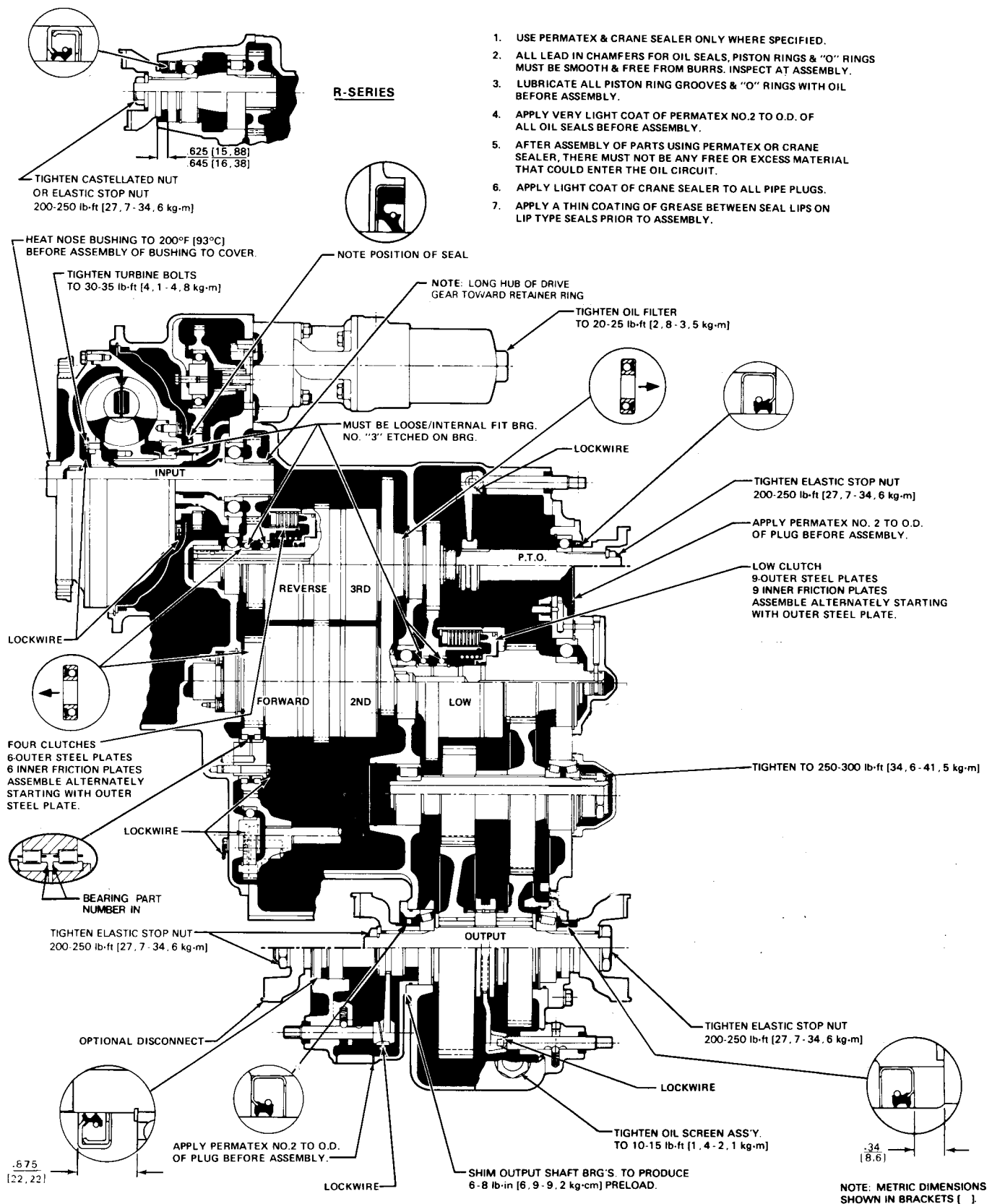


FIGURE C — 6-SPEED

HR MODEL 6-SPEED

(INTEGRAL TRANSMISSION AND CONVERTER)

To be used in conjunction with HR 28000 3-Speed Manual

The 6-speed information contained herein must be used in conjunction with the HR28320 Series 3-speed Maintenance and Service Manual, the difference being in the idler and output shafts. The 6-speed unit has a gear added to the idler shaft and the output shaft has a high and low range shift.

The 6-speed transmission has 3 working range shifts and 3 travel range shifts.

Gear ratio determines working and travel ranges. They are as follows:

1st — 2nd and 4th working range. 3rd — 5th and 6th travel range.

NOTE: Range shift from low to high must be made with machine stopped.

DISASSEMBLY

Use Figures 1 through 34 and 36 and Figures 42 through 48 in the HR 28000 3-Speed Manual. Figure 49 shows the idler shaft with one gear. The 6-speed unit will have two gears and a heavier front bearing. See Figure 49A below:

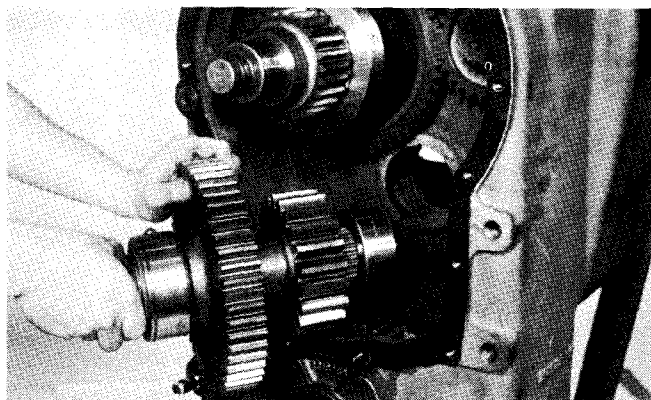


Figure 49A

6-speed idler shaft, gear and bearing assembly.

NOTE: Do not lose rear bearing lock ball.

Proceed with figure 50 through 54 in the HR28000 3-Speed Manual.

6-SPEED OUTPUT DISASSEMBLY

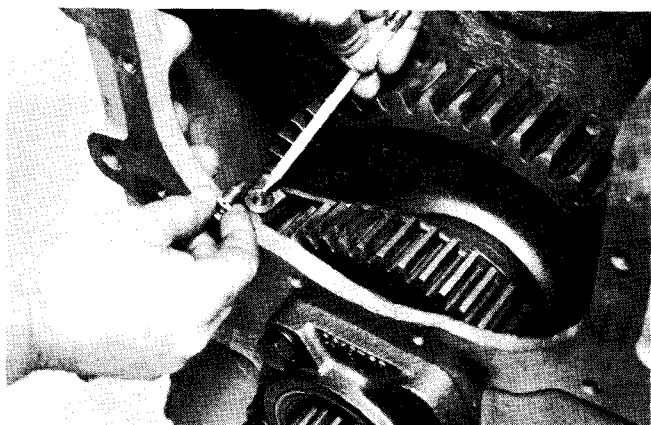


Figure 1

With all clutches and shafts removed, cut lockwire on range shift fork lockscrew. Remove fork lockscrew.

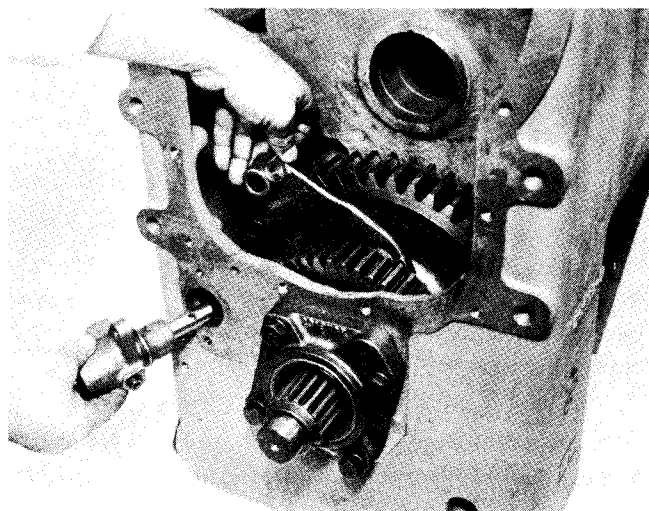


Figure 2

Remove range shift rail support bolts. Remove rail support, rail and range shift fork.

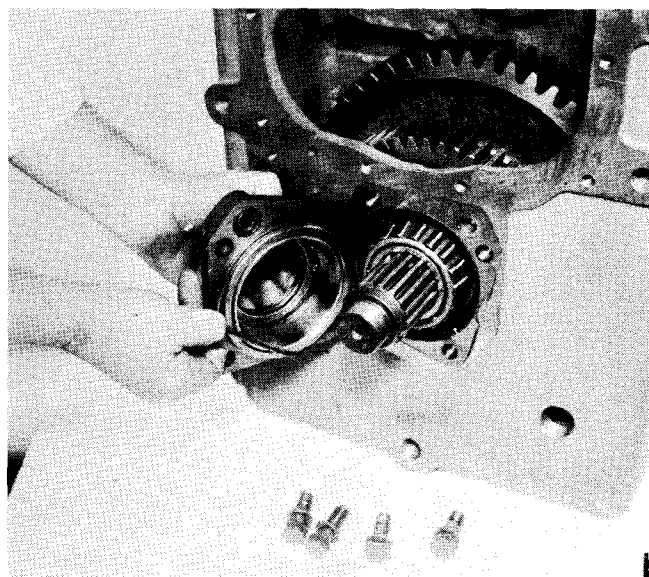
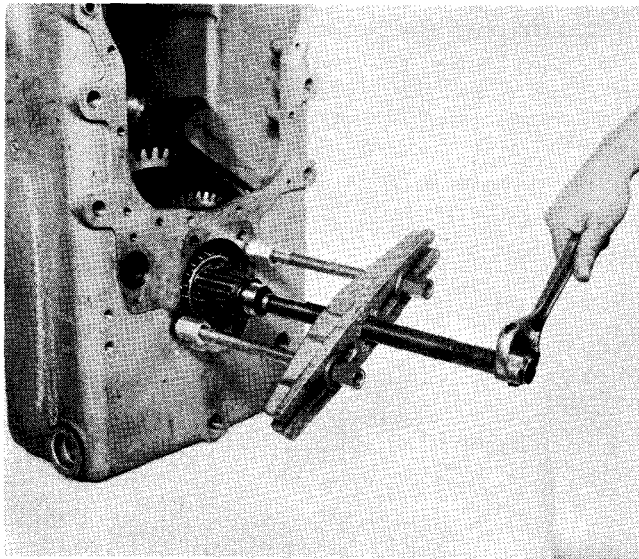


Figure 3

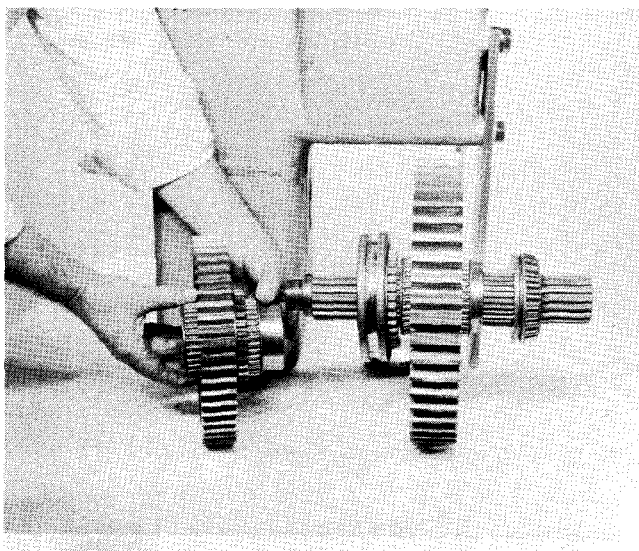
Remove output shaft rear bearing cap bolts and bearing cap.


Figure 4

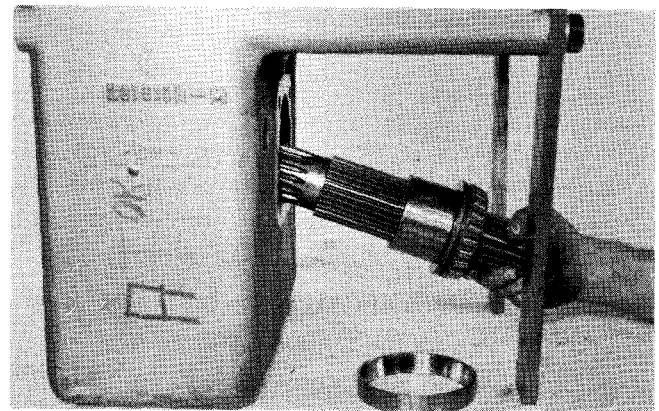
Remove front output flange nut, washer, "O" ring, flange and bearing cap from housing. Block output gears. Push output shaft from rear through gears and taper bearing.

Proceed with Figures 59 through 98 in the HR 28000 Series 3-Speed Maintenance Manual then refer to Figure 5 below.

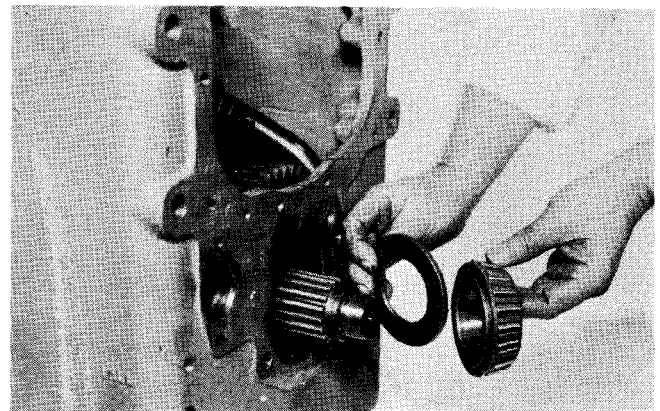
REASSEMBLY


Figure 5

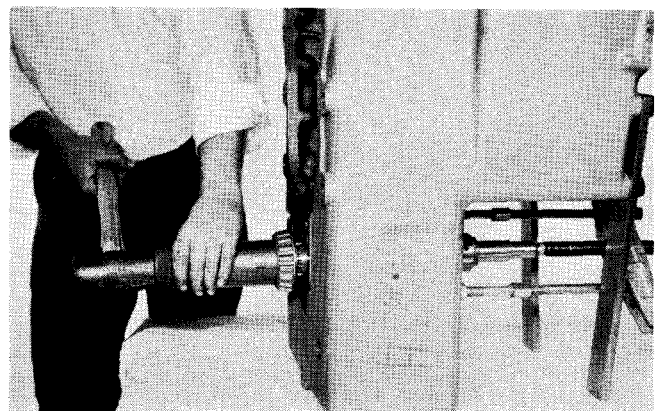
View of output shaft as it would be positioned in transmission case. Note front bearing cone and output gear thrust washer shouldered on shaft with large diameter of bearing in.


Figure 6

Position high and low range gears, shift hub, hub sleeve and needle bearings in transmission case as shown in Figure 5. Insert output shaft, front bearing and thrust washer through output gears. Use caution as not to damage high and low range gear needle bearings.


Figure 7

Position output gear thrust washer and rear taper bearing on output shaft.


Figure 8

Block output shaft from the front and install rear taper bearing.

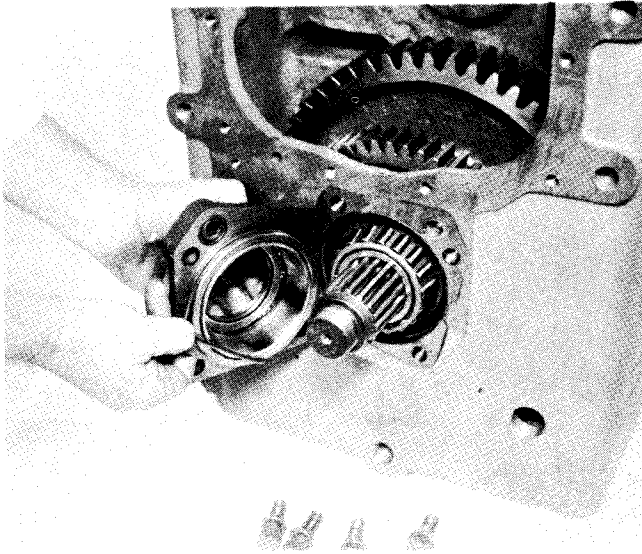


Figure 9

Using new "O" rings install rear output bearing cap and taper bearing cup on transmission case. Lube opening in bearing cap must be aligned with lube opening in case. Tighten bearing cap bolts to specified torque. (See torque chart.)

Install front bearing cap and shims. Tighten bolts to specified torque. Tap output shaft front and rear to seat taper bearings. Loosen front bearing cap bolts.

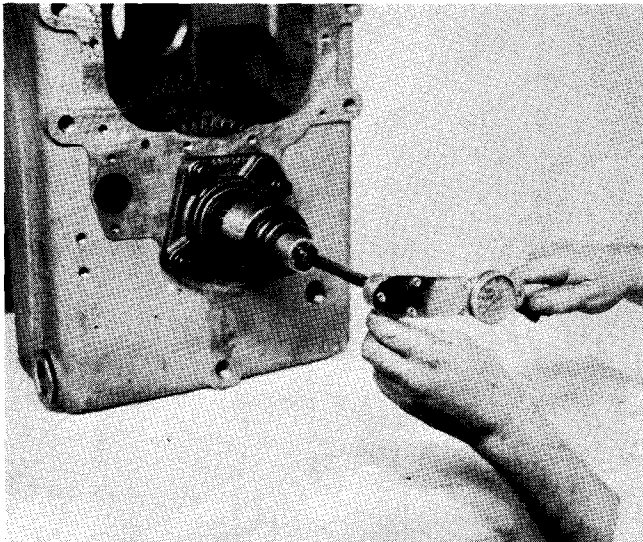


Figure 10

Using an inch lb. torque wrench, determine the rolling torque of the output shaft and record. Tighten front bearing cap bolts to specified torque. Check rolling torque with bolts tight. Torque must be 6 to 8 inch lbs. [0,07-0,09 m.kg] more than when bearing cap bolts were loose. Add or omit shims on the front bearing cap to achieve the proper preload.

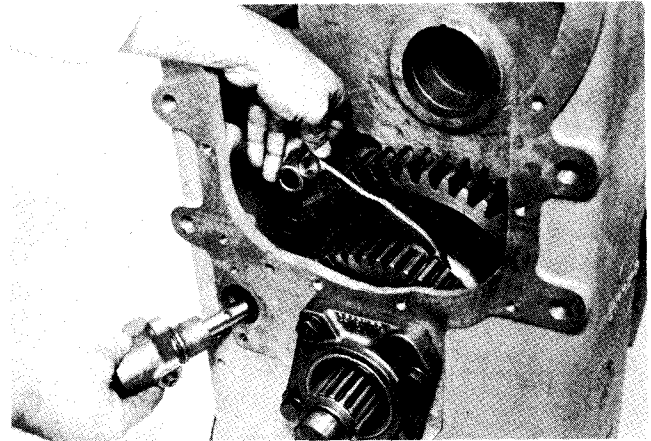


Figure 11

Locate high-low range shift fork in shift hub with offset of fork toward rear. Insert shift rail support and rail into bore in transmission housing and into shift fork.

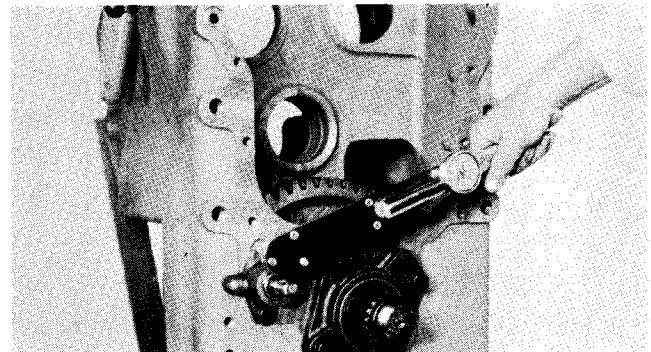


Figure 12

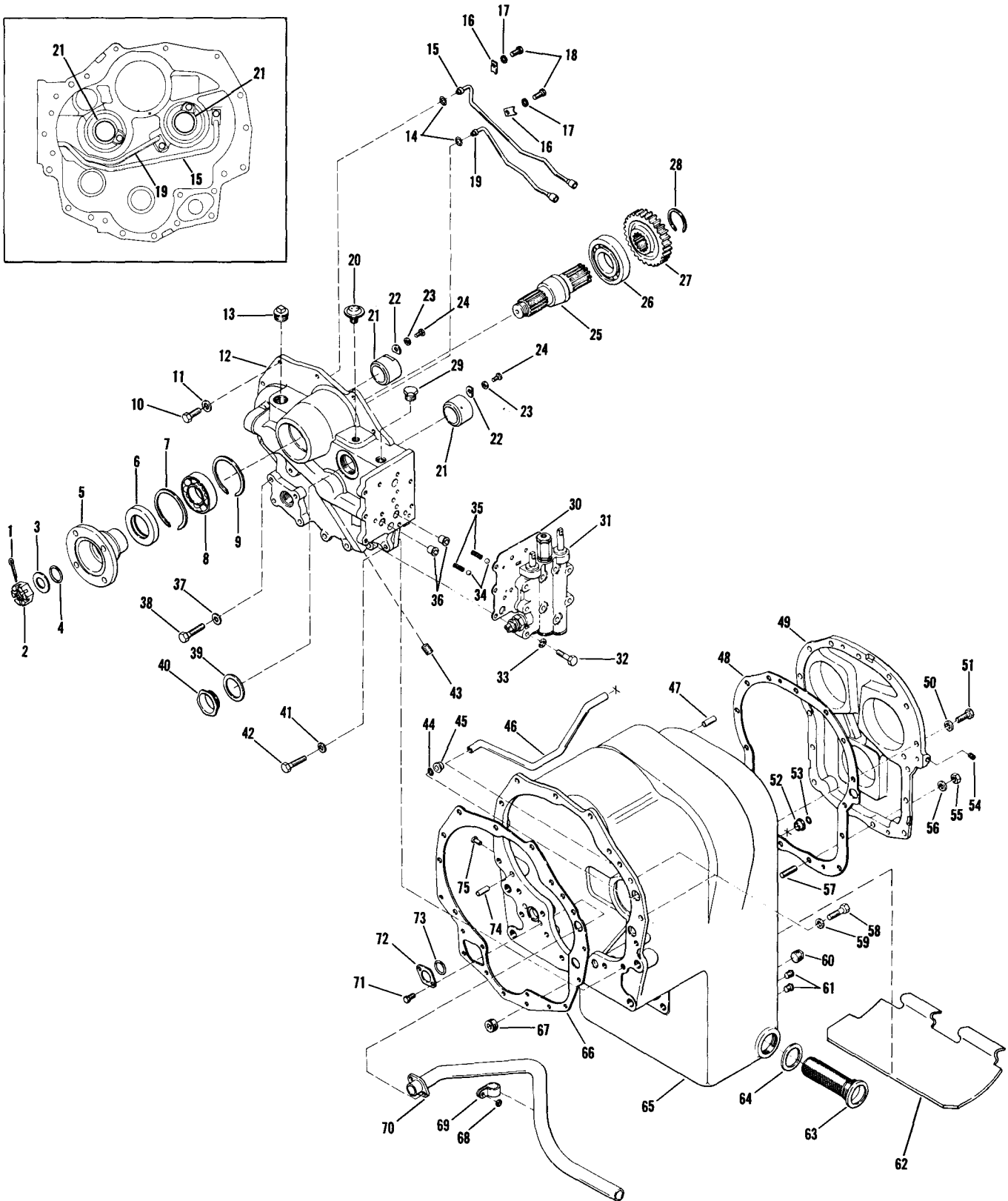
Tighten support bolts to specified torque. (See torque chart).



Figure 13

Locate lockwire hole in shift rail with hole in shift fork. Install lockwire, tighten securely and lockwire to prevent loosening.

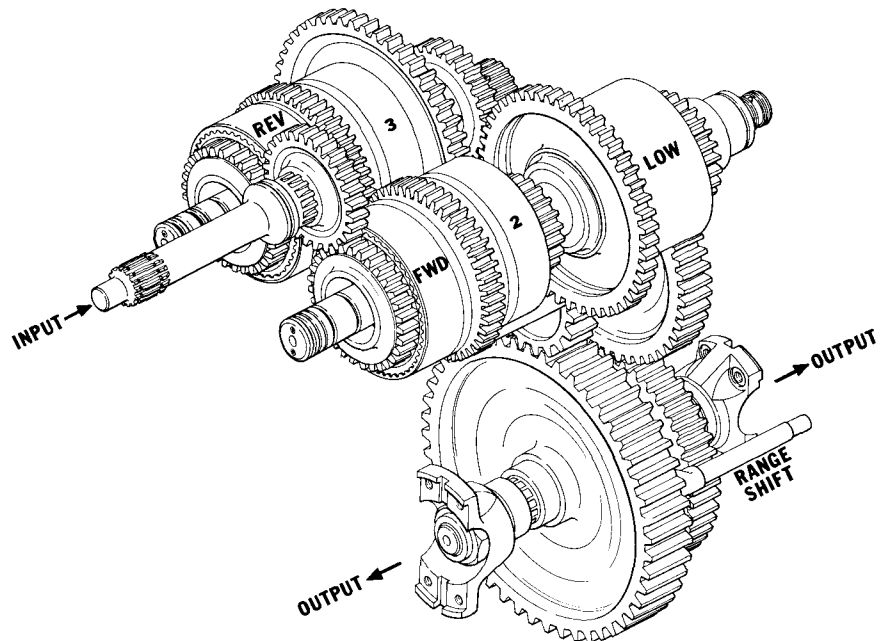
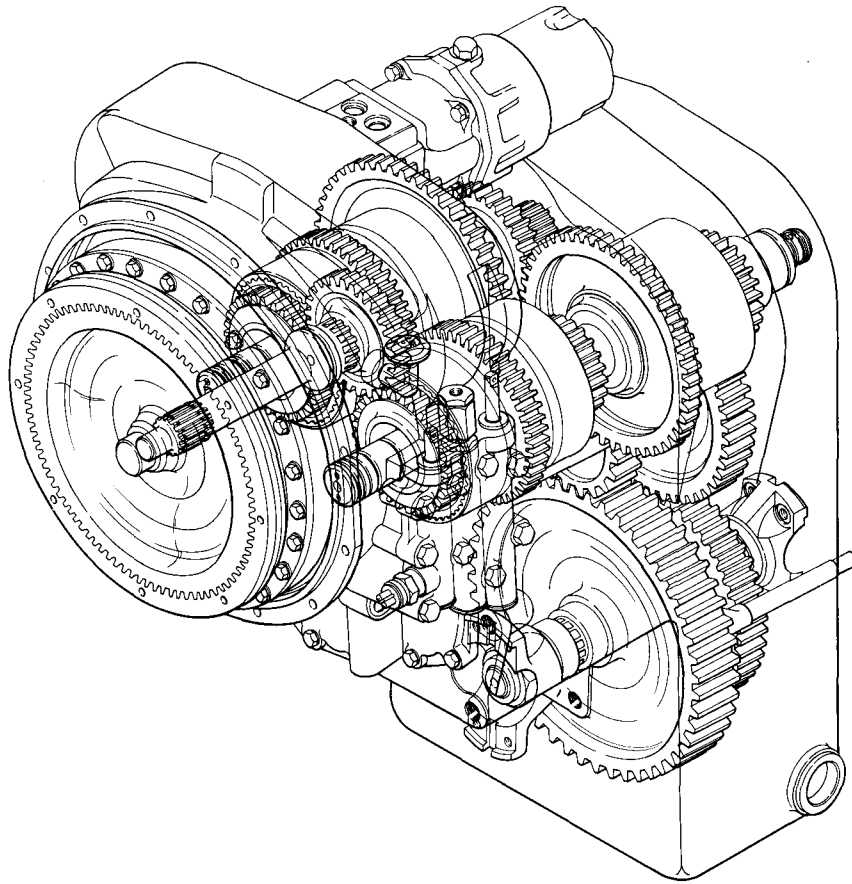
Proceed with Figure 104 in the HR 28000 3-Speed Manual.



R MODEL COVER AND CASE GROUP

R MODEL COVER AND CASE GROUP

ITEM	DESCRIPTION	QTY.	ITEM	DESCRIPTION	QTY.
1	Flange Nut Cotter.....	1	41	Cover to Case Screw Lockwasher.....	4
2	Flange Nut.....	1	42	Cover to Case Screw.....	4
3	Flange Nut Washer.....	1	43	Pipe Plug.....	1
4	Flange "O" Ring.....	1	44	Clutch Pressure Tube "O" Ring.....	1
5	Input Flange.....	1	45	Tube Sleeve.....	1
6	Input Flange Oil Seal.....	1	46	Low Speed Clutch Pressure Tube.....	1
7	Input Shaft Front Bearing Retainer Ring....	1	47	Rear Cover Dowel.....	2
8	Input Shaft Front Bearing.....	1	48	Rear Cover to Transmission Case Gasket....	1
9	Input Shaft Front Bearing Retainer Ring....	1	49	Rear Cover.....	1
10	Cover to Case Screw.....	5	50	Rear Cover to Transmission Case Screw Lockwasher.....	13
11	Cover to Case Screw Lockwasher.....	5	51	Rear Cover to Transmission Case Screw.....	13
12	Front Cover and Tube Assembly.....	1	52	Tube Sleeve.....	1
13	Pipe Plug.....	1	53	Tube Sleeve "O" Ring.....	1
14	"O" Ring.....	2	54	Rear Cover Pipe Plug.....	1
15	3rd Speed Tube Assembly.....	1	55	Rear Cover to Transmission Case Stud Nut....	2
16	Tube Clip.....	2	56	Rear Cover to Transmission Case Stud Lockwasher.....	2
17	Tube Clip Screw Lockwasher.....	2	57	Rear Cover to Transmission Case Stud.....	2
18	Tube Clip Screw.....	2	58	Front Cover to Transmission Case Screw.....	5
19	Reverse Tube Assembly.....	1	59	Front Cover to Transmission Case Screw Lockwasher.....	5
20	Breather.....	1	60	Drain Plug.....	1
21	Front Cover Sleeve.....	2	61	Oil Level Plug.....	2
22	Front Cover Sleeve Lock.....	2	62	Oil Baffle.....	1
23	Sleeve Lockscrew Lockwasher.....	2	63	Screen Assembly.....	1
24	Sleeve Lockscrew.....	2	64	Screen Assembly Gasket.....	1
25	Input Shaft.....	1	65	Transmission Case Assembly.....	1
26	Input Shaft Rear Bearing.....	1	66	Front Cover Gasket.....	1
27	Input Shaft Gear.....	1	67	Transmission Case Plug.....	1
28	Input Shaft Gear Retainer Ring.....	1	68	Suction Tube Clip Washer.....	1
29	Front Cover Plug.....	1	69	Suction Tube Clip.....	1
30	Control Valve Plate Gasket.....	1	70	Suction Tube Assembly.....	1
31	Control Valve Assembly.....	1	71	Retainer Washer Screw.....	2
32	Valve Screw.....	9	72	Retainer Washer.....	1
33	Valve Screw Lockwasher.....	9	73	Suction Tube "O" Ring.....	1
34	Detent Ball.....	2	74	Front Cover Dowel Pin.....	2
35	Detent Spring.....	2	75	Suction Tube Clip Rivet.....	1
36	Tube Sleeve.....	2			
37	Cover to Case Screw Lockwasher.....	4			
38	Cover to Case Screw.....	4			
39	Front Cover Plug Gasket.....	1			
40	Front Cover Plug.....	1			



**28000 SERIES-6 SPEED
CLUTCH & GEAR ARRANGEMENT**

R MODEL 6-SPEED

(REMOTE MOUNTED TRANSMISSION FROM CONVERTER)

To be used in conjunction with the R28000 3-speed manual

The 6-speed information contained herein must be used in conjunction with the R28320 Series 3-speed Maintenance and Service Manual, the difference being in the idler and output shafts. The 6-speed unit has a gear added to the idler shaft and the output shaft has a high and low range shift.

The 6-speed transmission has 3 working range shifts and 3 travel range shifts.

Gear ratio determines working and travel ranges. They are as follows:

1st — 2nd and 4th working range. 3rd — 5th and 6th travel range.

NOTE: Range shift from low to high must be made with machine stopped.

DISASSEMBLY

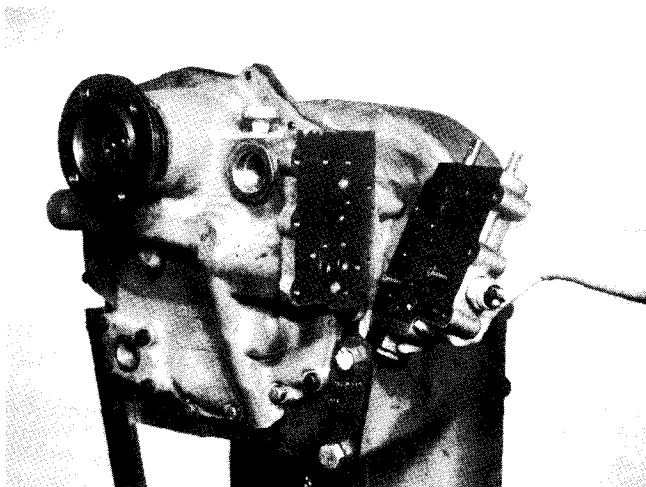


Figure 1

Remove control valve bolts and washers. Remove control valve. Use caution as not to lose detent springs and balls.

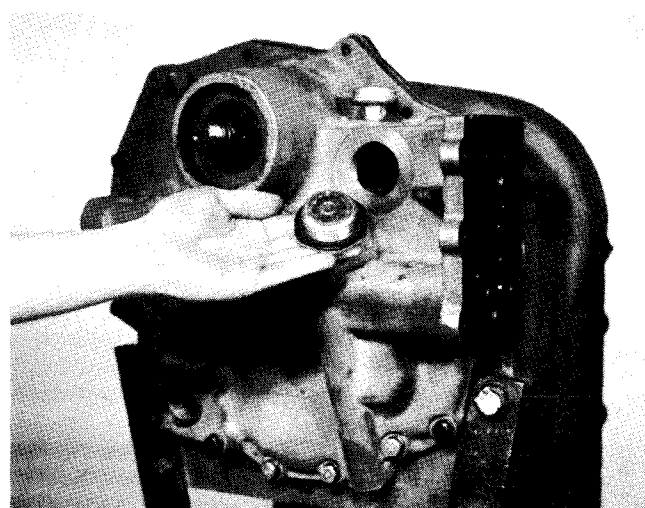


Figure 3

Remove front cover plug.

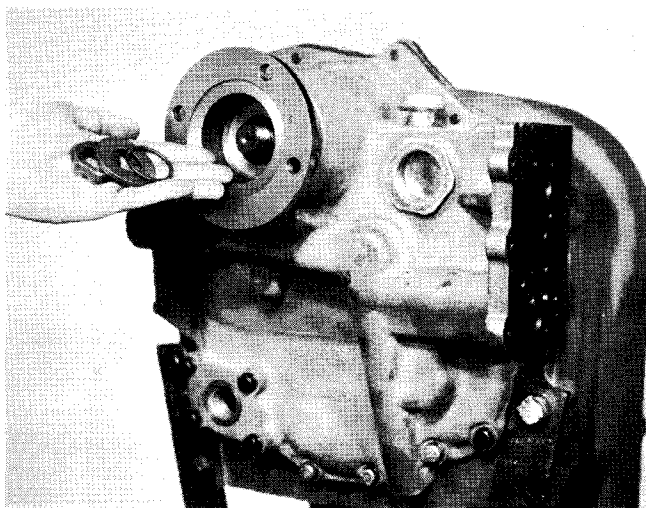


Figure 2

Remove companion flange nut, washer and "O" Ring.

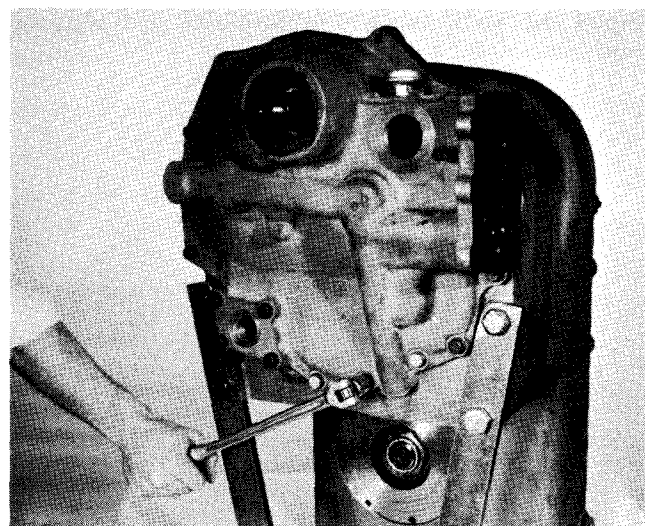


Figure 4

Remove bolts securing front cover to transmission housing.

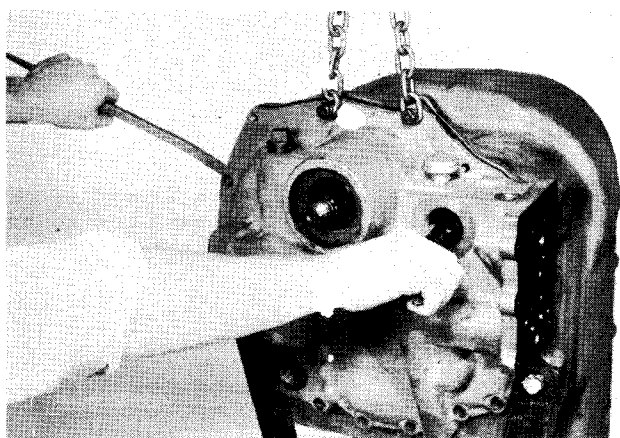


Figure 5

Support front cover with a chain fall. Using spreading type snap ring pliers, spread ears on forward clutch front bearing retaining ring. Holding snap ring open pry front cover from transmission housing.

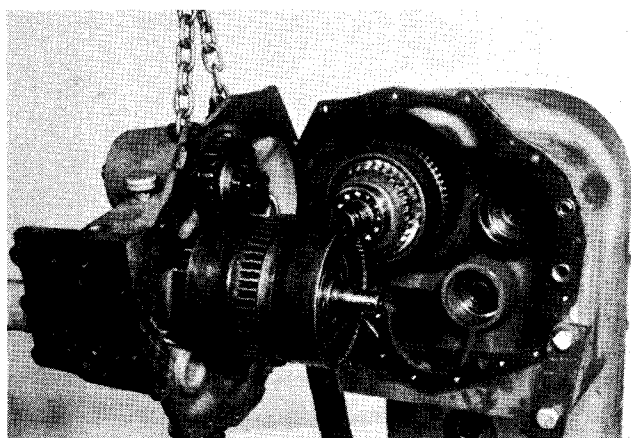


Figure 6

If forward and 2nd clutch comes out with front cover, spread ears on front bearing snap ring and separate clutch from front cover.

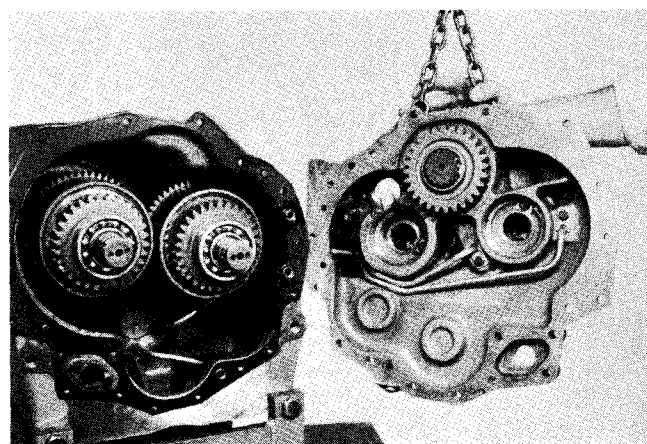


Figure 7

Front cover removed with forward and 2nd and reverse and 3rd clutch in transmission case.

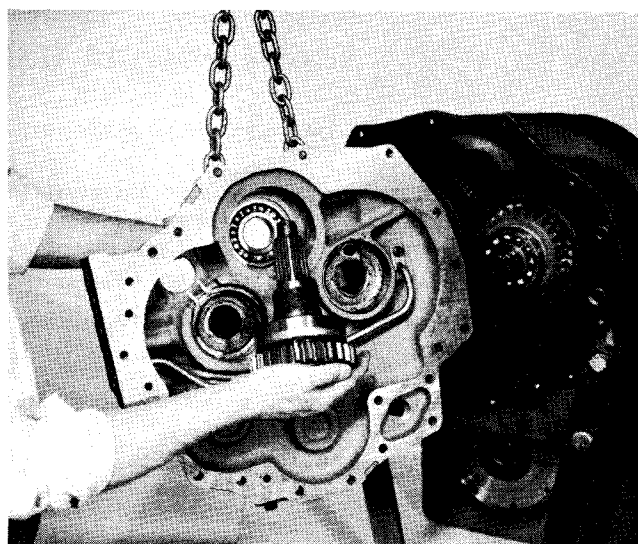


Figure 8

If input shaft is to be removed, tap on threaded end of shaft, remove input shaft, gear and bearing.

Proceed with Fig. 9 and 11, and Fig. 17 through 23 in the R28000 3-speed manual. Figure 24 shows the idler shaft with one gear. The 6-speed unit will have two gears and a heavier front bearing. See Figure 24A below:

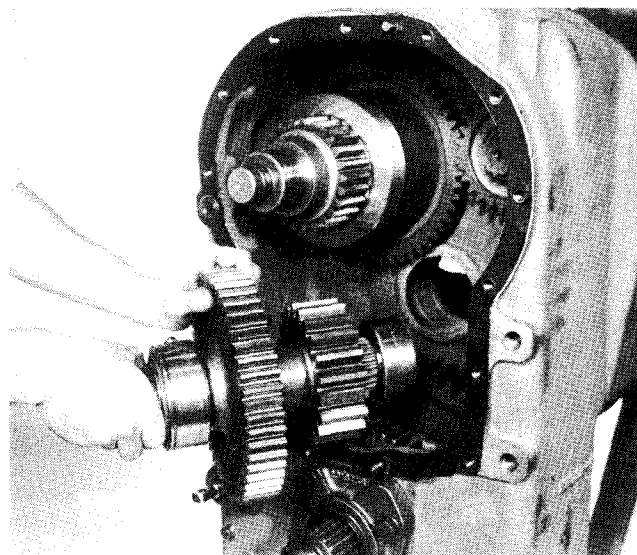


Figure 24A

6-speed idler shaft, gear and bearing assembly

NOTE: Do not lose rear bearing lock ball.

Proceed with Figure 25 through 29.

6-SPEED OUTPUT DISASSEMBLY

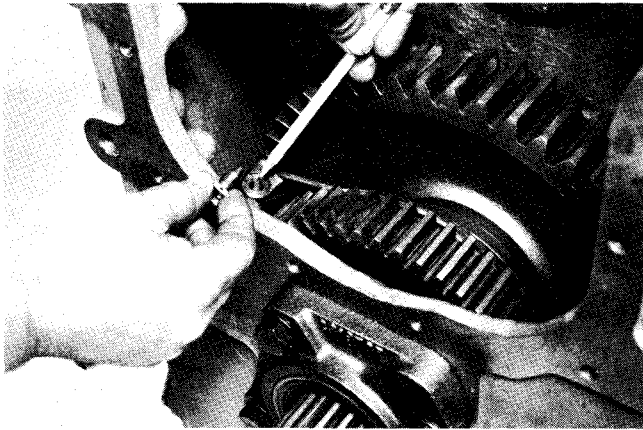


Figure 9

With all clutches and shafts removed, cut lockwire on range shift fork lockscrew. Remove fork lockscrew.

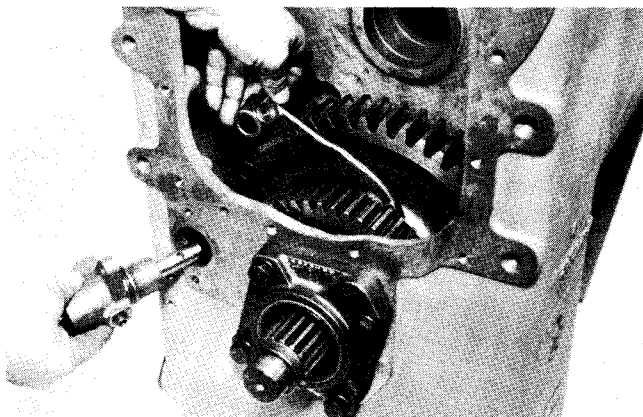


Figure 10

Remove range shift rail support bolts. Remove rail support, rail and range shift fork.

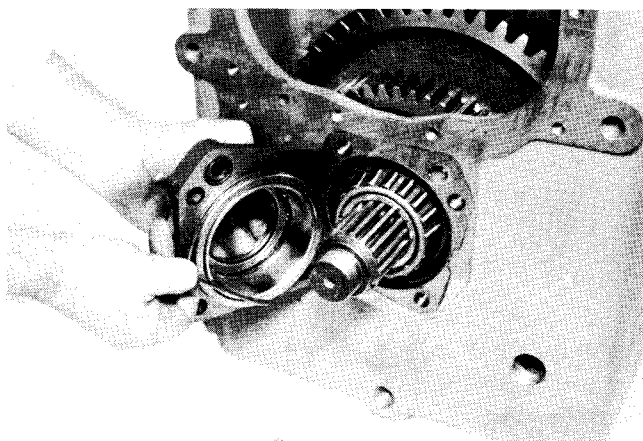


Figure 11

Remove output shaft rear bearing cap bolts and bearing cap.

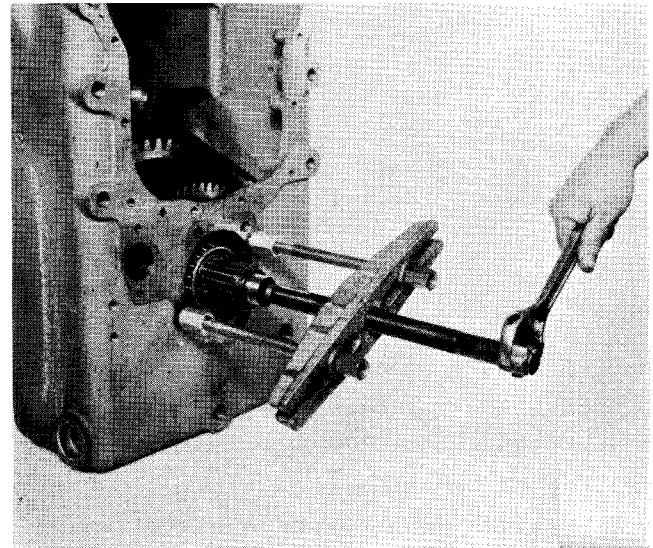


Figure 12

Remove front output flange nut, washer, "O" ring, flange and bearing cap from housing. Block output gears. Push output shaft from rear through gears and taper bearing.

Proceed with Figure 34 through 73 in the R 28000 Series 3-Speed Maintenance Manual then refer to Figure 13 below:

REASSEMBLY

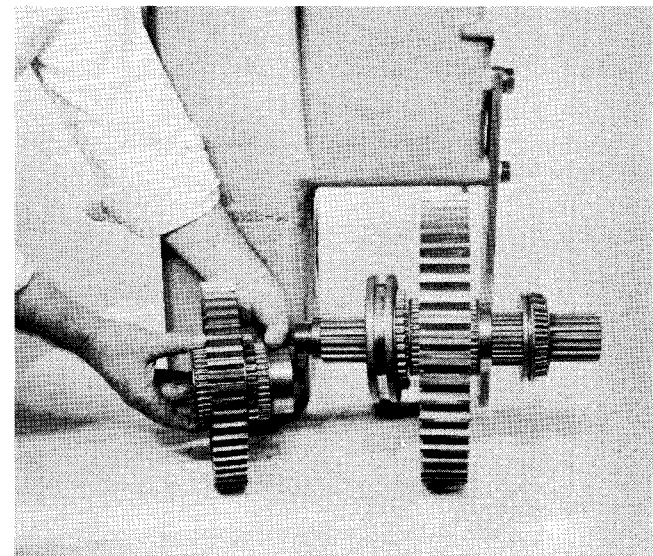


Figure 13

View of output shaft as it would be positioned in transmission case. Note front bearing cone and output gear thrust washer shouldered on shaft with large diameter of bearing in.

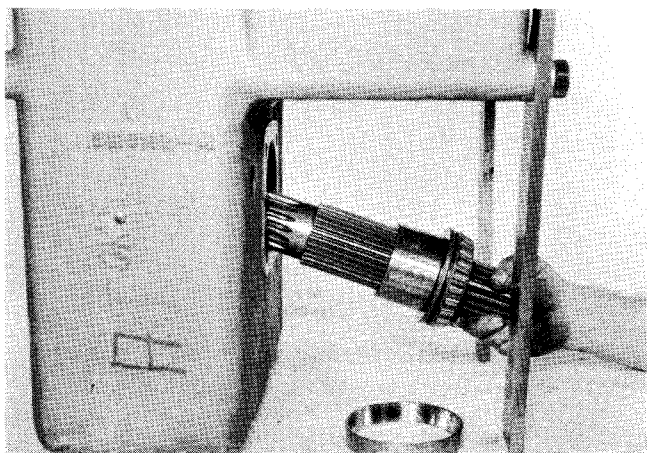


Figure 14

Position high and low range gears, shift hub, hub sleeve and needle bearings in transmission case as shown in Figure 13. Insert output shaft, front bearing and thrust washer through output gears. Use caution as not to damage high and low range gear needle bearings.

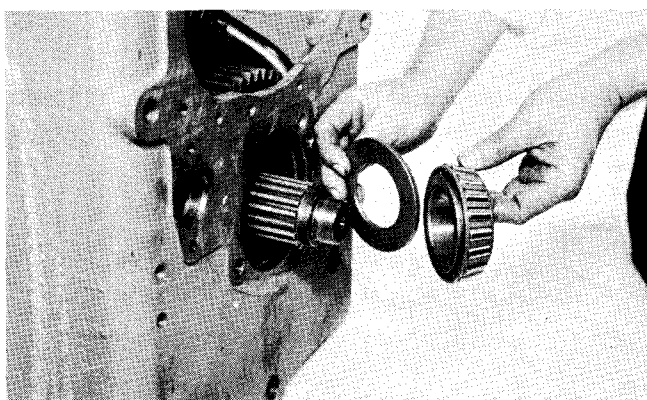


Figure 15

Position output gear thrust washer and rear taper bearing on output shaft.

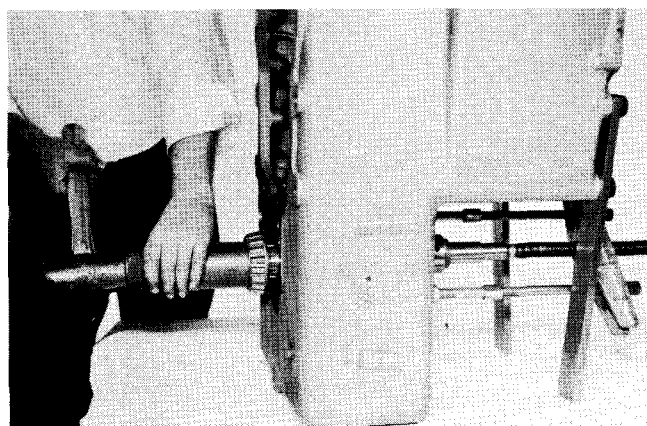


Figure 16

Block output shaft from the front and install rear taper bearing.

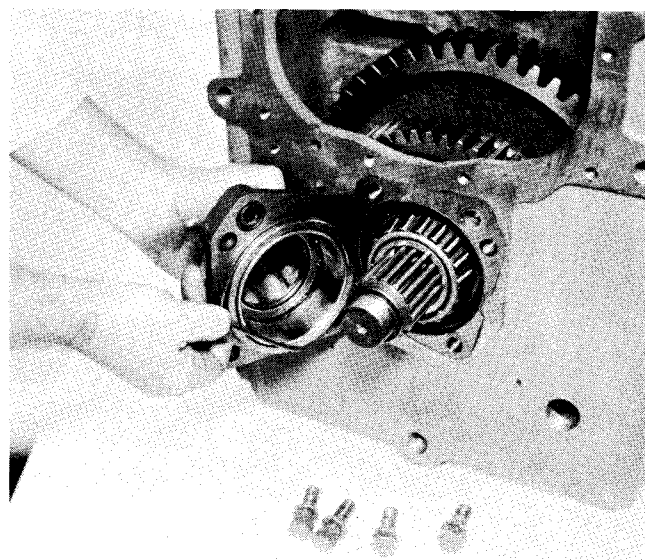


Figure 17

Using new "O" rings install rear output bearing cap and taper bearing cup on transmission case. Lube opening in bearing cap must be aligned with lube opening in case. Tighten bearing cap bolts to specified torque. (See torque chart.)

Install front bearing cap and shims. Tighten bolts to specified torque. Tap output shaft front and rear to seat taper bearings. Loosen front bearing cap bolts.

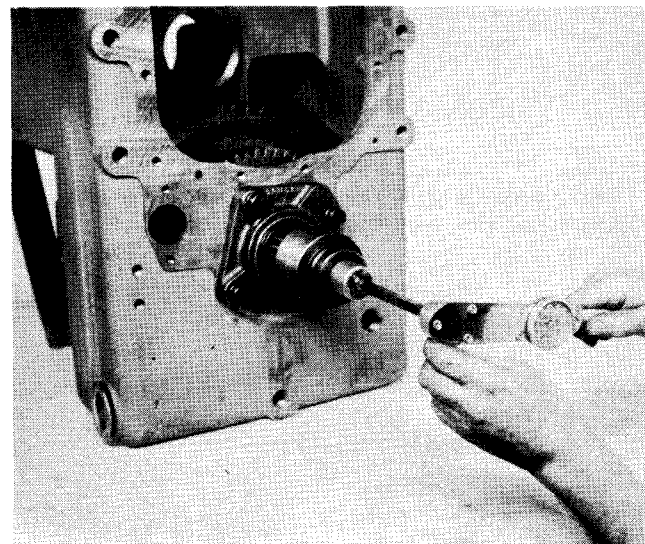


Figure 18

Using an inch lb. torque wrench, determine the rolling torque of the output shaft and record. Tighten front bearing cap bolts to specified torque. Check rolling torque with bolts tight. Torque must be 6 to 8 inch lbs. [0,07-0,09 m.kg] more than when bearing cap bolts were loose. Add or omit shims on the front bearing cap to achieve the proper preload.

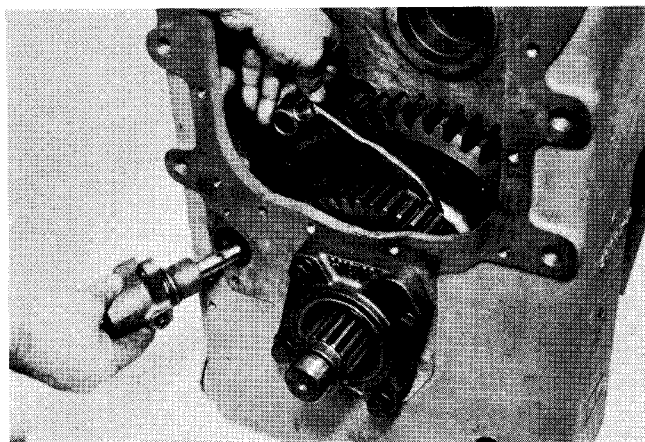


Figure 19

Locate high-low range shift fork in shift hub with offset of fork toward rear. Insert shift rail support and rail into bore in transmission housing and into shift fork.

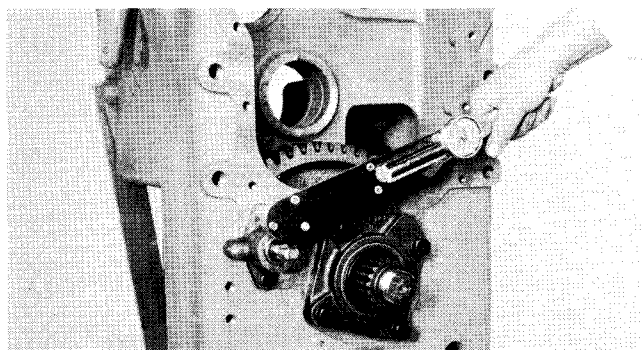


Figure 20

Tighten support bolts to specified torque. (See torque chart).

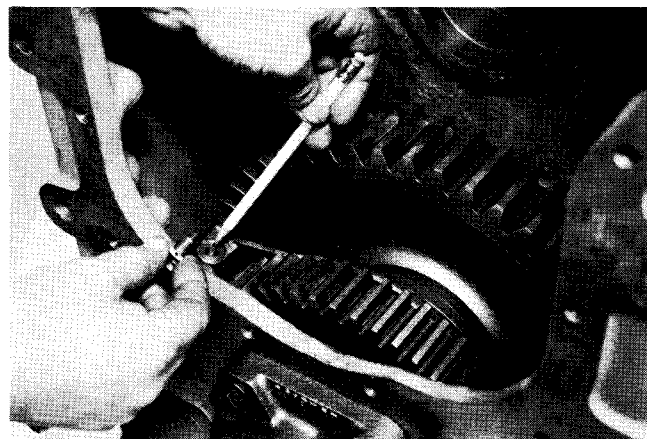


Figure 21

Locate lock screw hole in shift rail with hole in shift fork. Install lock screw, tighten securely and lockwire to prevent loosening.

Proceed with Fig. 79 through Fig. 94 and Fig. 100 and 101, in the R28000 3-Speed Manual.

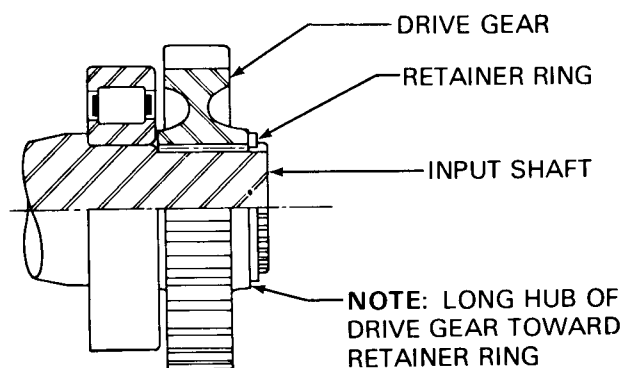


Figure 22

Input shaft, rear bearing, drive gear and snap ring.

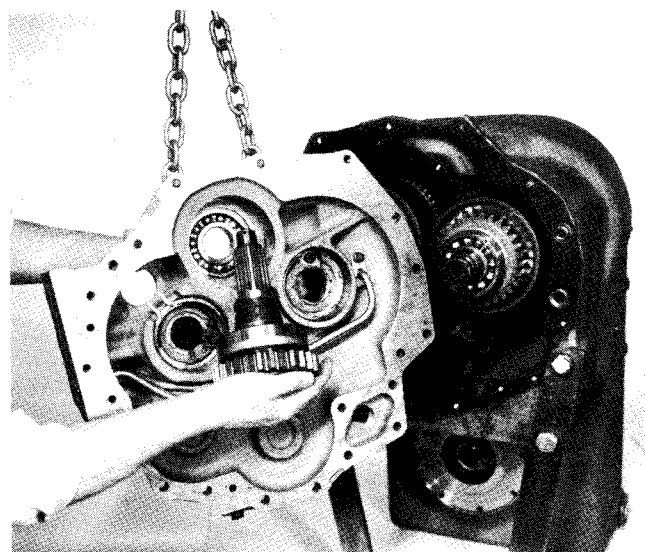


Figure 23

Install input shaft into front bearing.

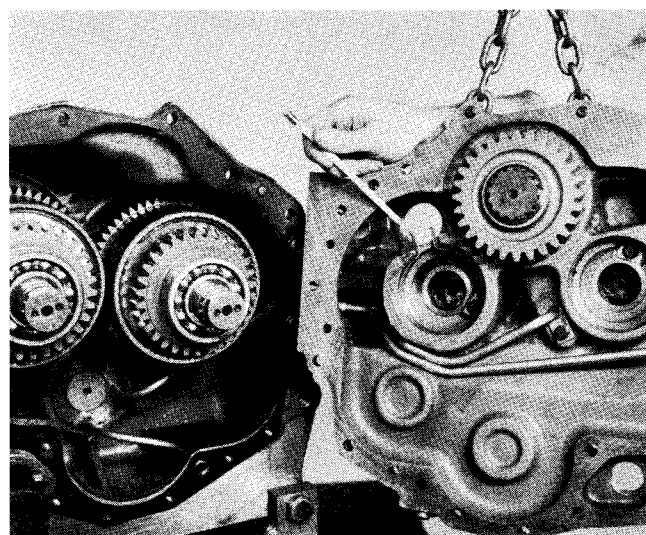


Figure 24

Forward clutch front bearing locating ring.

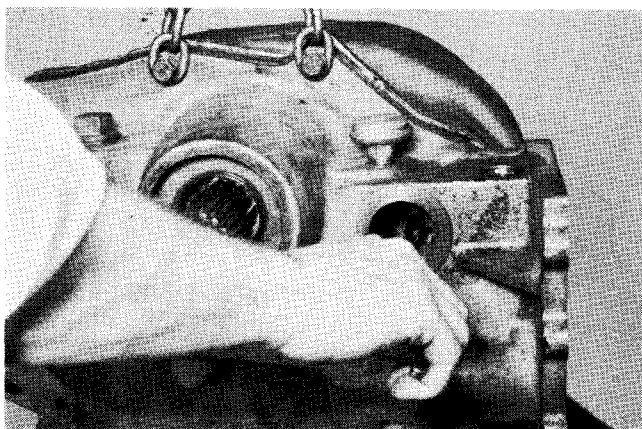


Figure 25

Support front cover with a chain fall. Spread forward clutch front bearing retainer ring. Position front cover to transmission case. Tap cover into place using caution as not to damage any of the clutch shaft piston rings.

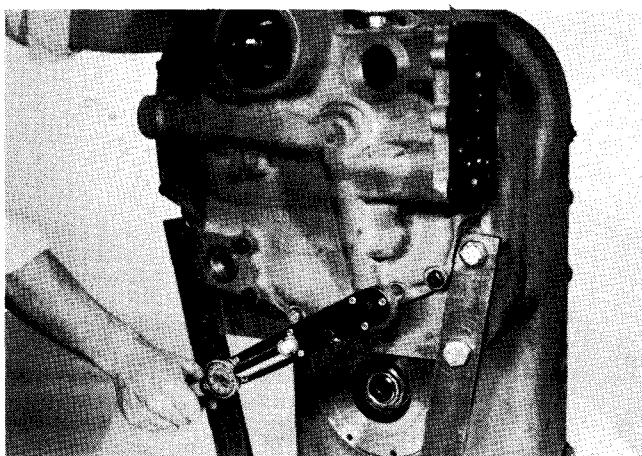


Figure 26

Install cover to case bolts. Tighten to specified torque.

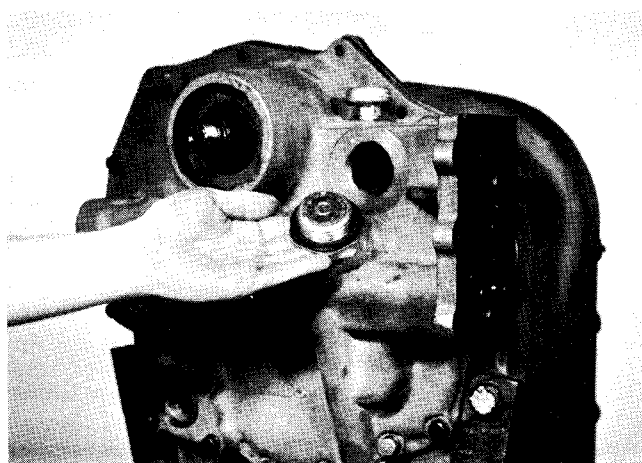


Figure 27

Install front cover plug.

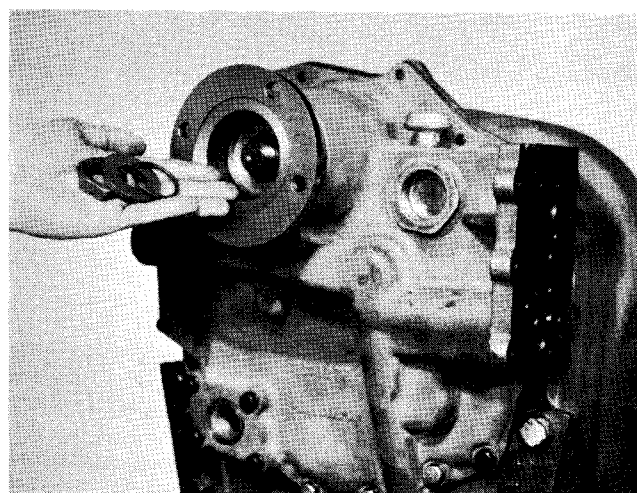


Figure 28

Install companion flange, flange "O" Ring, washer and nut. Tighten nut 175 to 200 ft. lbs. torque. [24, 2 - 27, 6 m.kg]

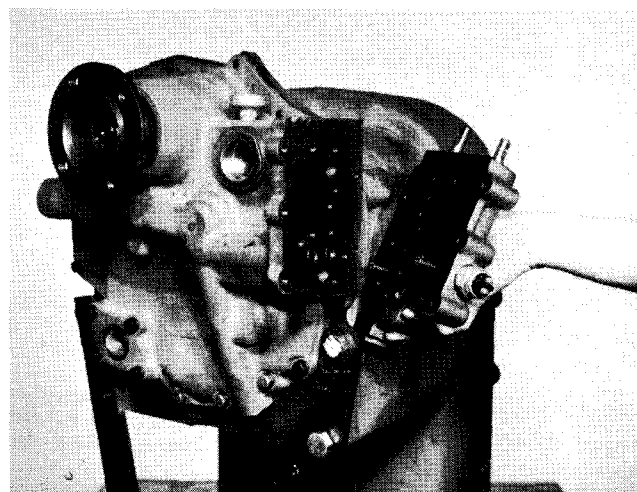


Figure 29

Locate detent balls and springs in control valve. Position new gasket. Secure valve with bolts and washers. Tighten to specified torque.

SERVICING MACHINE AFTER TRANSMISSION OVERHAUL

The transmission, torque converter, and its allied hydraulic system are important links in the drive line between the engine and the wheels. The proper operation of either unit depends greatly on the condition and operation of the other; therefore, whenever repair or overhaul of one unit is performed, the balance of the system must be considered before the job can be considered completed.

After the overhauled or repaired transmission has been installed in the machine, the oil cooler, and connecting hydraulic system must be thoroughly cleaned. This can be accomplished in several manners and a degree of judgment must be exercised as to the method employed.

The following are considered the minimum steps to be taken:

1. Drain entire system thoroughly.
2. Disconnect and clean all hydraulic lines. Where feasible, hydraulic lines should be removed from machine for cleaning.
3. Replace oil filter elements, cleaning out filter cases thoroughly.
4. The oil cooler must be thoroughly cleaned. The cooler should be "back flushed" with oil and compressed air until all foreign material has been removed. Flushing in direction of normal oil flow will not adequately clean the cooler. If necessary, cooler assembly should be removed from machine for cleaning, using oil, compressed air and steam cleaner for that purpose. **DO NOT** use flushing compounds for cleaning purposes.
5. On remote mounted torque converters remove drain plug from torque converter and inspect interior of converter housing, gears, etc. If presence of considerable foreign material is noted, it will be necessary that converter be removed, disassembled and cleaned thoroughly. It is realized this entails extra labor; however, such labor is a minor cost compared to cost of difficulties which can result from presence of such foreign material in the system.
6. Reassemble all components and use only type oil recommended in lubrication section. Fill transmission through filler opening until fluid comes up to **LOW** mark on transmission dipstick. **NOTE:** If the dipstick is not accessible oil level check plugs are provided.

Remove **LOWER** check plug, fill until oil runs from **LOWER** oil hole. Replace filler and level plug.

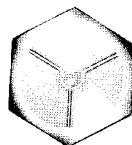
Run engine two minutes at 500-600 RPM to prime torque converter and hydraulic lines. Recheck level of fluid in transmission with engine running at idle (500-600 RPM).

Add quantity necessary to bring fluid level to **LOW** mark on dipstick or runs freely from **LOWER** oil level check plug hole. Install oil level plug or dipstick. Recheck with hot oil (180-200° F.) [82, 2-93, 3° C].

Bring oil level to **FULL** mark on dipstick or runs freely from **UPPER** oil level plug.
7. Recheck all drain plugs, lines, connections, etc., for leaks and tighten where necessary.

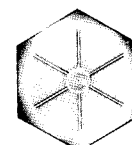
TORQUE IN (LBS.—FT.) BOLTS, CAPSCREWS, STUDS AND NUTS

Grade 5 Identification, 3 Radial
Dashes 120° Apart on Head of Bolt



Grade 5

Grade 8 Identification, 6 Radial
Dashes 60° Apart on Head of Bolt



Grade 8

LUBRICATED OR PLATED

Nominal Thread Size	FINE THREADS	COARSE THREADS	FINE THREADS	COARSE THREADS
3/8	26-29 [3,6-4,0m.kg]	23-25 [3,2-3,4m.kg]	37-41 [5,1-5,6m.kg]	33-36 [4,6-4,9m.kg]
7/16	41-45 [5,7-6,2m.kg]	37-41 [5,1-5,6m.kg]	58-64 [8,0-8,8m.kg]	52-57 [7,2-7,8m.kg]
1/2	64-70 [8,8-9,6m.kg]	57-63 [7,9-8,7m.kg]	90-99 [12,4-13,6m.kg]	80-88 [11,-12,1m.kg]
9/16	91-100 [12,6-13,8m.kg]	82-90 [11,3-12,4m.kg]	128-141 [17,7-19,4m.kg]	115-127 [15,9-17,5m.kg]

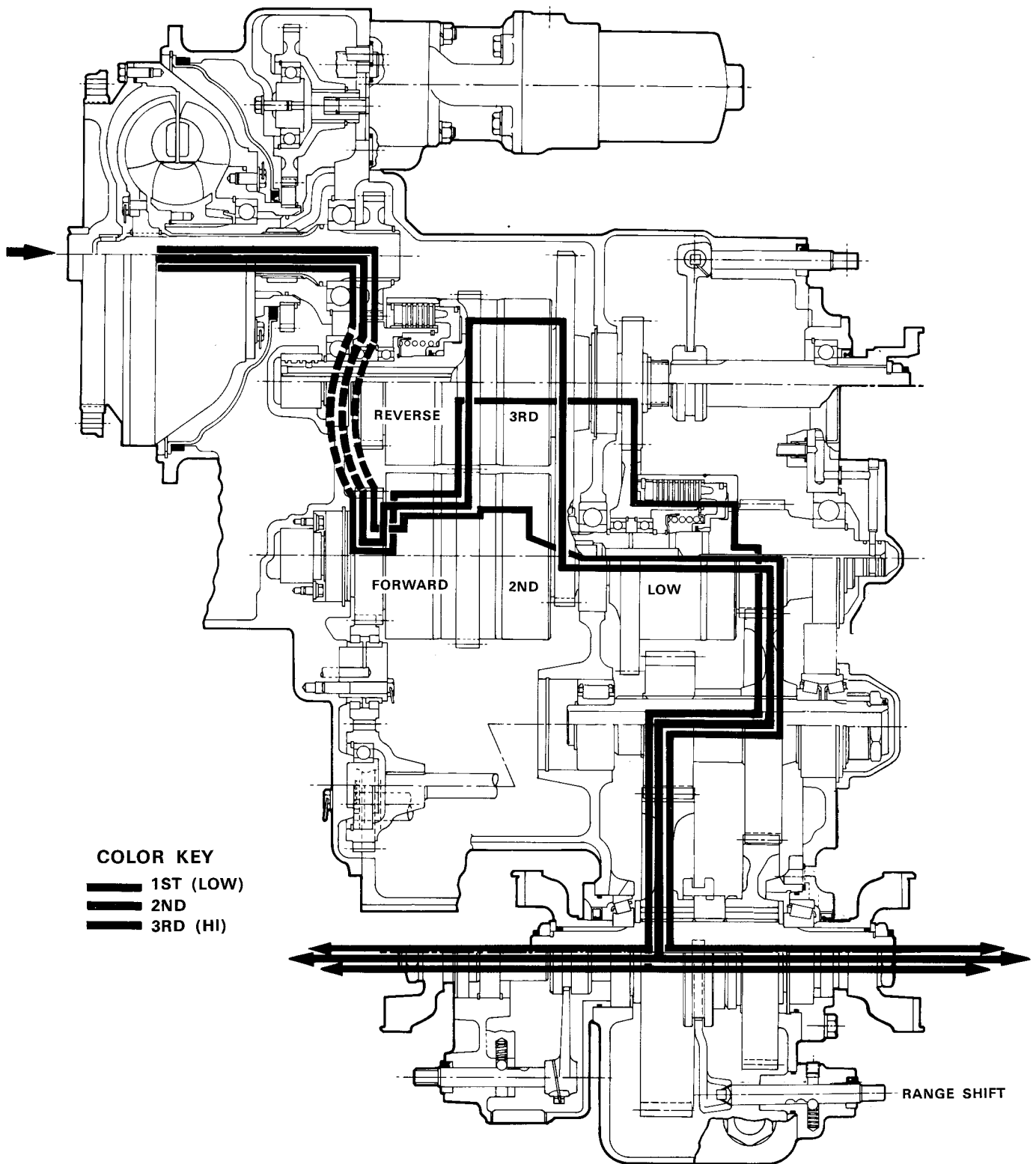


FIG. D

6 SPEED TRANSMISSION LOW RANGE

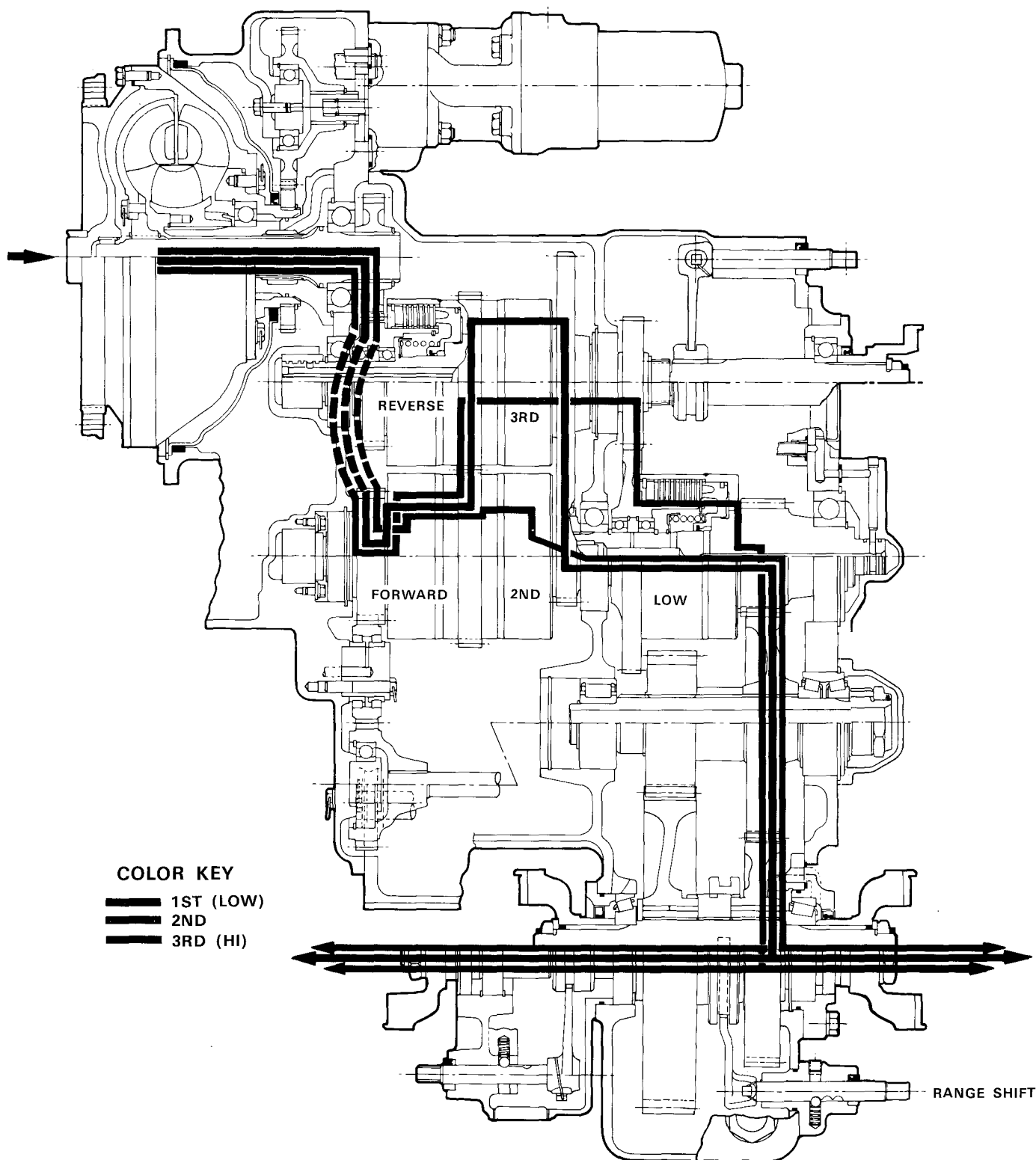


FIG. E

6 SPEED TRANSMISSION HI RANGE

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NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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