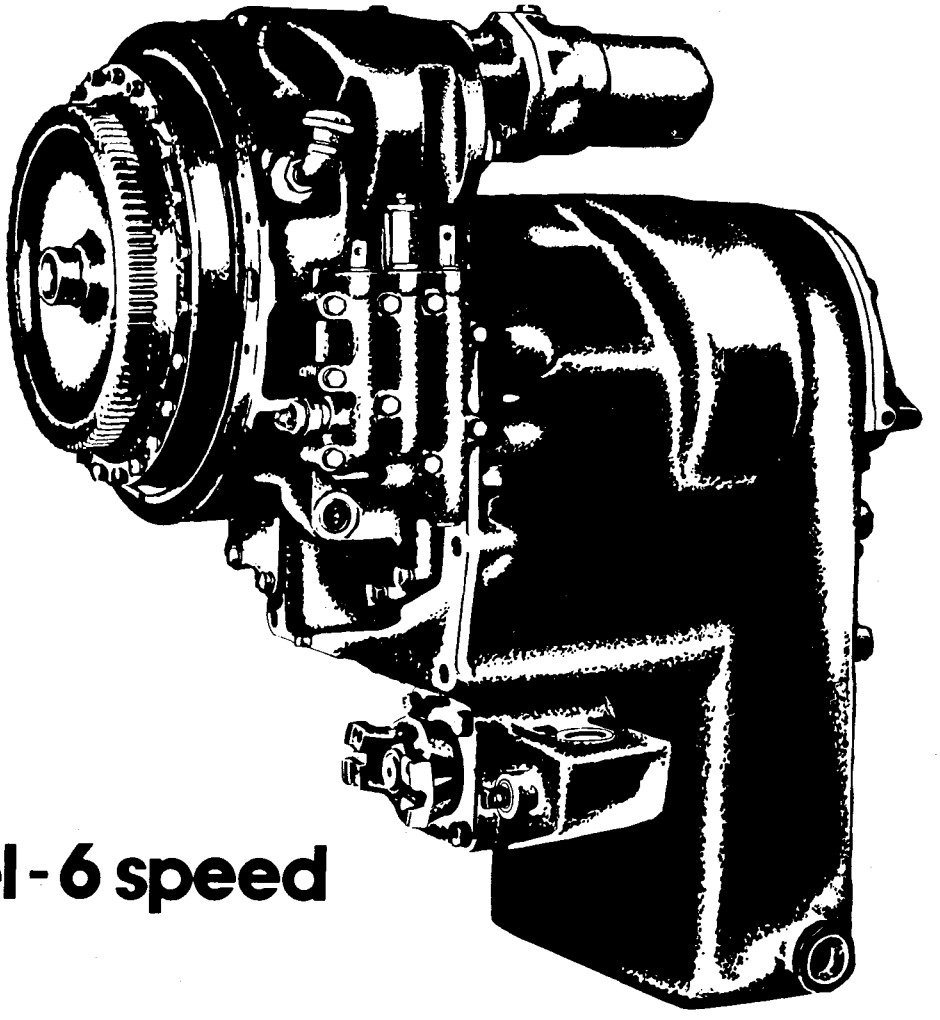
Only Copy
360 Speed Swing

28000 powershift transmission

maintenance & service manual



R & HR model - 6 speed supplement

CLARK COMPONENTS COMPANY

Div. of Clark Equipment Company

SM 286 (Revised 8-81)

Service Publications

324 E. Dewey Street

Buchanan, Michigan 49107

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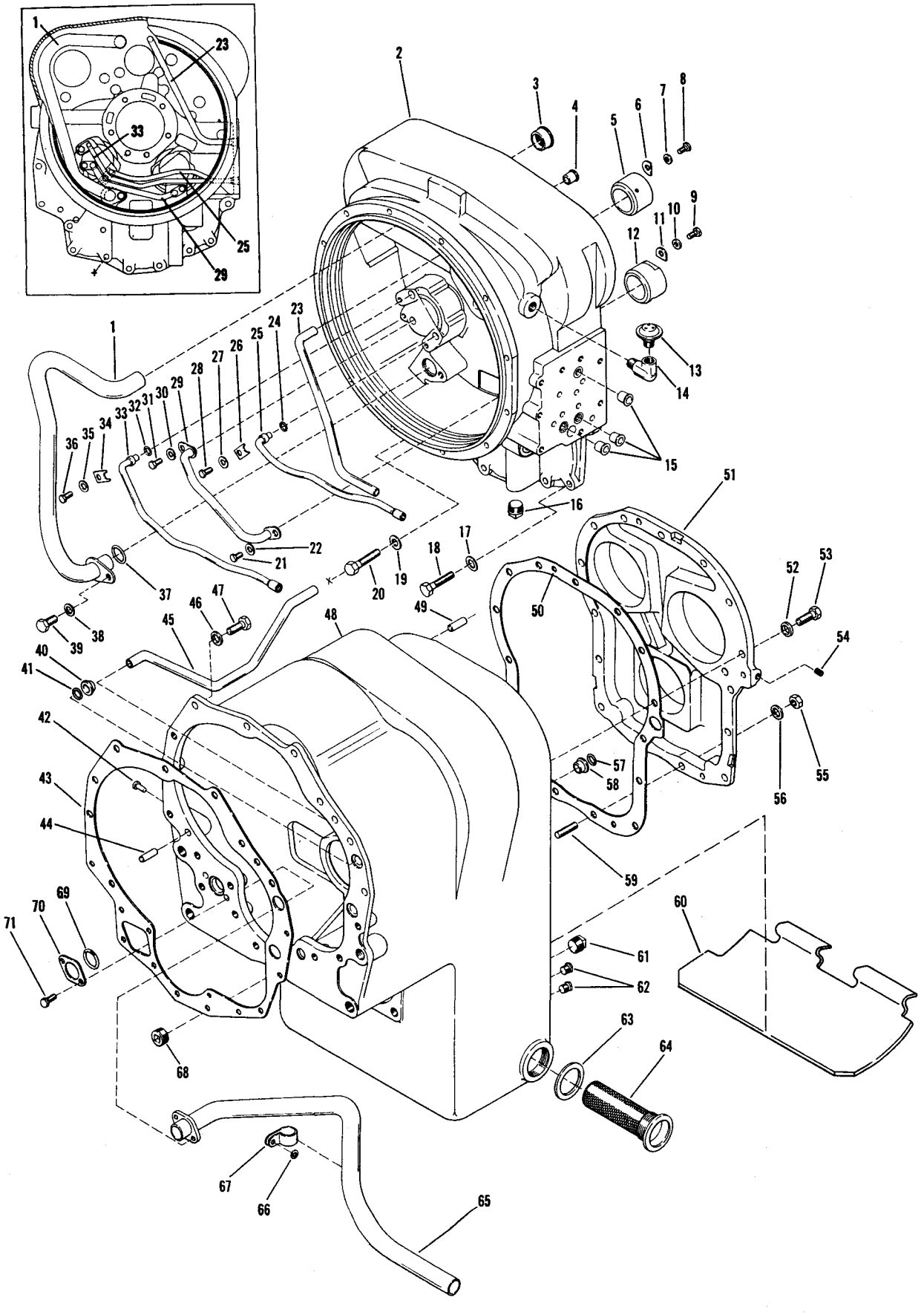


FIG. A

CLARK EQUIPMENT

CLARK EQUIPMENT

HR CONVERTER AND TRANSMISSION CASE GROUP

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

CLARK EQUIPMENT

CLARK EQUIPMENT

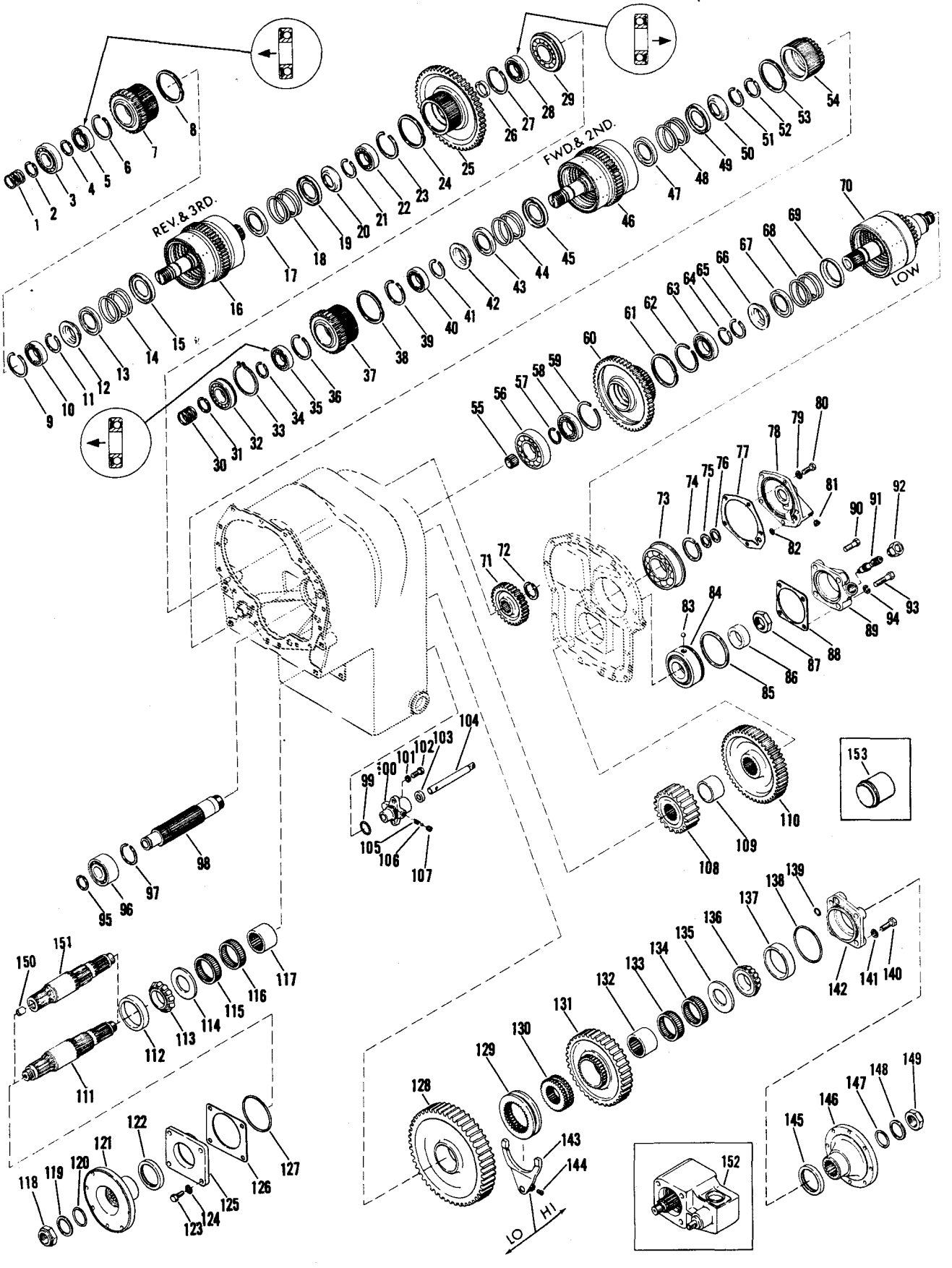


FIG. B

CLARK EQUIPMENT

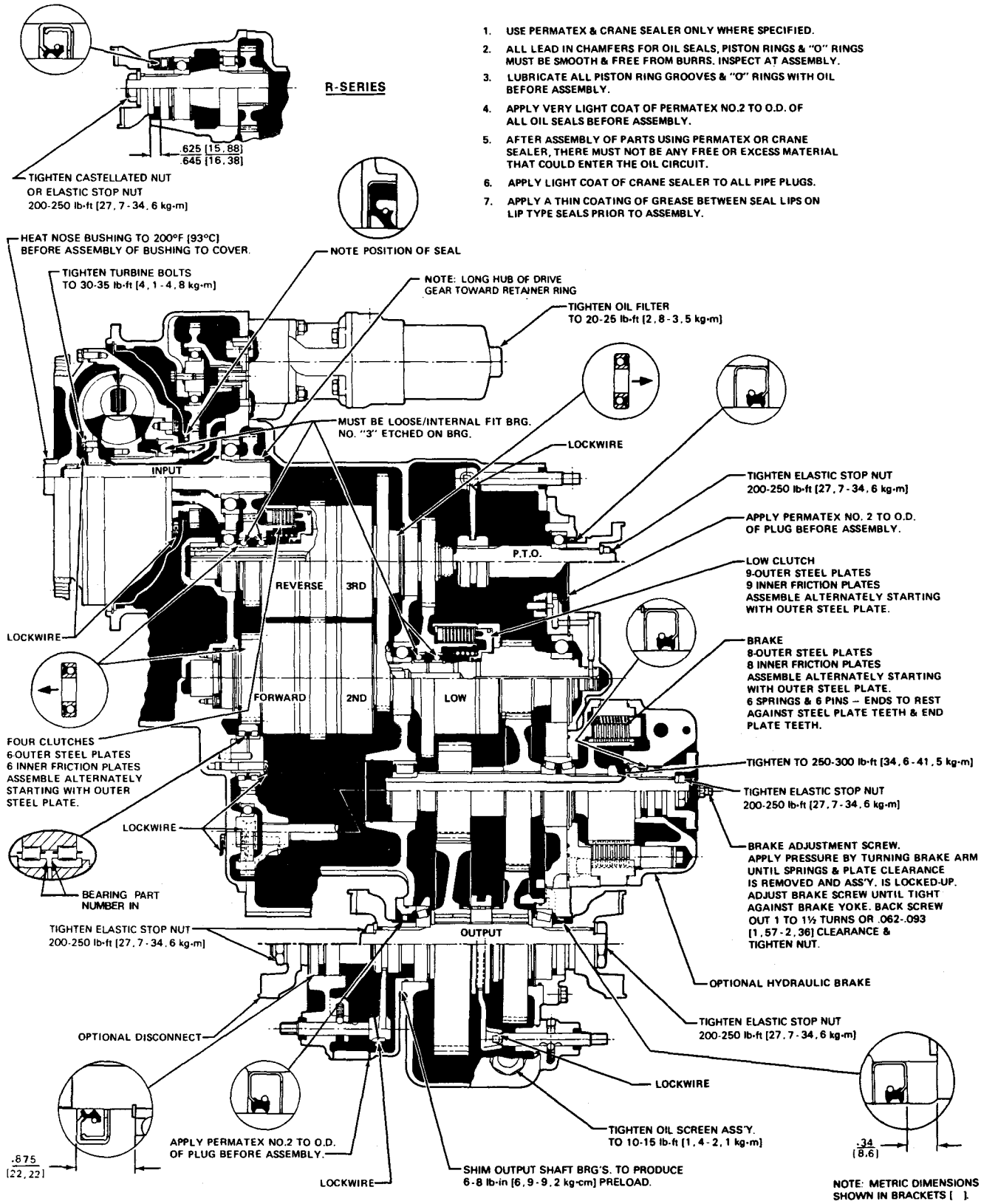
CLARK EQUIPMENT

6-SPEED CLUTCH AND GEAR GROUP

ITEM	DESCRIPTION	QTY.
1	Reverse and 3rd Clutch Shaft Piston Ring	3
2	Front Bearing Retainer Ring	1
3	Reverse and 3rd Shaft Front Bearing	1
4	Front Bearing Retainer Ring	1
5	Clutch Driven Gear Bearing	1
6	Clutch Driven Gear Bearing Snap Ring	1
7	Clutch Driven Gear	1
8	Clutch Hub Oil Baffle Ring	1
9	Clutch Driven Gear Bearing Snap Ring	1
10	Clutch Driven Gear Bearing	1
11	Return Spring Retainer Snap Ring	1
12	Snap Ring Retainer	1
13	Spring Retainer	1
14	Piston Return Spring	1
15	Spring Retainer	1
16	Reverse and 3rd Clutch Shaft and Drum	1
17	Spring Retainer	1
18	Piston Return Spring	1
19	Spring Retainer	1
20	Return Spring Retainer Snap Ring	1
21	Snap Ring Retainer	1
22	3rd Gear Bearing	1
23	3rd Gear Bearing Snap Ring	1
24	Clutch Hub Oil Baffle Ring	1
25	3rd Gear	1
26	3rd Gear Bearing Spacer	1
27	3rd Gear Bearing Snap Ring	1
28	3rd Gear Bearing	1
29	Reverse and 3rd Shaft Rear Bearing	1
30	Forward and 2nd Shaft Piston Ring	3
31	Front Bearing Retainer Ring	1
32	Forward and 2nd Shaft Front Bearing	1
33	Front Bearing Locating Ring	1
34	Front Bearing Retainer Ring	1
35	Clutch Driven Gear Bearing	1
36	Clutch Driven Gear Bearing Snap Ring	1
37	Clutch Driven Gear	1
38	Clutch Hub Oil Baffle Ring	1
39	Clutch Driven Gear Bearing Snap Ring	1
40	Clutch Driven Gear Bearing	1
41	Return Spring Retainer Snap Ring	1
42	Snap Ring Retainer	1
43	Spring Retainer	1
44	Piston Return Spring	1
45	Spring Retainer	1
46	Forward and 2nd Clutch Shaft and Drum	1
47	Spring Retainer	1
48	Piston Return Spring	1
49	Spring Retainer	1
50	Snap Ring Retainer	1
51	Return Spring Retainer Snap Ring	1
52	2nd Gear Retainer Ring	1
53	Clutch Hub Oil Baffle Ring	1
54	2nd Gear	1
55	Low Speed Clutch Shaft Pilot Bearing	1
56	2nd Gear Bearing	1
57	Low Gear Bearing Retainer Ring	1
58	Low Gear Bearing	1
59	Low Gear Bearing Locating Ring	1
60	Low Gear	1
61	Low Gear Oil Baffle Ring	1
62	Low Gear Bearing Locating Ring	1
63	Low Gear Bearing	1
64	Low Gear Bearing Retainer Ring	1
65	Return Spring Retainer Snap Ring	1
66	Snap Ring Retainer	1
67	Spring Retainer	1
68	Piston Return Spring	1
69	Spring Retainer	1
70	Low Speed Clutch Shaft and Drum	1
71	Low Speed Drive Gear	1
72	Low Speed Drive Gear Retaining Ring	1
73	Low Shaft Rear Bearing	1
74	Low Shaft Rear Bearing Retainer Ring	1
75	Low Shaft Piston Ring	1
76	Low Shaft Piston Ring	1

ITEM	DESCRIPTION	QTY.
77	Rear Bearing Cap Gasket	1
78	Rear Bearing Cap	1
79	Rear Bearing Cap Screw Lockwasher	5
80	Rear Bearing Cap Screw	5
81	Rear Bearing Cap Plug	1
82	Rear Bearing Cap "O" Ring	1
83	Idler Shaft Rear Bearing Lock Ball	1
84	Idler Shaft Rear Bearing	1
85	Idler Shaft Rear Bearing Locating Ring	1
86	Speedometer Drive Gear or Bearing Spacer	1
87	Idler Shaft Nut	1
88	Idler Shaft Bearing Cap Gasket	1
89	Idler Shaft Bearing Cap	1
90	Idler Shaft Bearing Cap Screw	3
91	Speedometer Driven Gear	1
92	Speedometer Tube Nut	1
93	Idler Shaft Bearing Capscrew	1
94	Idler Shaft Bearing Capscrew Lockwasher	4
95	Idler Shaft Front Bearing Retainer Ring	1
96	Idler Shaft Front Bearing	1
97	Idler Shaft Gear Locating Ring	1
98	Idler Shaft	1
99	Range Shift Rail Support "O" Ring	1
100	Range Shift Rail Support	1
101	Range Shift Rail Support Screw Lockwasher	2
102	Range Shift Rail Support Screw	2
103	Range Shift Rail Oil Seal	1
104	Range Shift Rail	1
105	Range Shift Rail Detent Spring	1
106	Range Shift Rail Detent Ball	1
107	Range Shift Rail Detent Plug	1
108	Idler Shaft Low Range Gear	1
109	Idler Shaft Gear Spacer	1
110	Idler Shaft Gear	1
111	Output Shaft	1
112	Output Shaft Front Bearing Cup	1
113	Output Shaft Front Bearing Cone	1
114	Output Gear Thrust Washer	1
115	Output Gear Bearing	1
116	Output Gear Bearing	1
117	Output Gear Bearing Inner Race	1
118	Output Flange Nut	1
119	Output Flange Washer	1
120	Output Flange "O" Ring	1
121	Output Flange	1
122	Output Shaft Front Bearing Cap Oil Seal	1
123	Output Shaft Front Bearing Cap Screw	4
124	Output Shaft Front Bearing Cap Lockwasher	4
125	Output Shaft Front Bearing Cap	1
126	Front Bearing Cap Shim	AR
127	Front Bearing Cap "O" Ring	1
128	Low Range Gear	1
129	High Low Shift Hub	1
130	Shift Hub Seeve	1
131	High Range Gear	1
132	Output Gear Inner Race	1
133	Output Gear Bearing	1
134	Output Gear Bearing	1
135	Output Gear Thrust Washer	1
136	Output Shaft Rear Bearing Cone	1
137	Output Shaft Rear Bearing Cup	1
138	Output Shaft Rear Bearing Cap "O" Ring	1
139	Output Shaft Rear Bearing Cap "O" Ring	1
140	Output Shaft Rear Bearing Cap Screw	4
141	Output Shaft Rear Bearing Cap Screw Lockwasher	4
142	Output Shaft Rear Bearing Cap	1
143	High and Low Range Shift Fork	1
144	Shift Fork Lock Screw	1
145	Rear Bearing Cap Oil Seal	1
146	Rear Output Flange	1
147	Output Flange "O" Ring	1
148	Output Flange Washer	1
149	Output Flange Nut	1
150	Bushing (Used with Disconnect Only)	1
151	Output Shaft (Used with Disconnect Only)	1
152	Disconnect (Optional)	1
153	Bearing Cap Bore Plug (Optional)	1

CLARK EQUIPMENT



28620 SERIES POWER SHIFT TRANSMISSION WITH VARIOUS OPTIONS

FIGURE C — 6-SPEED

CLARK EQUIPMENT

CLARK EQUIPMENT

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:

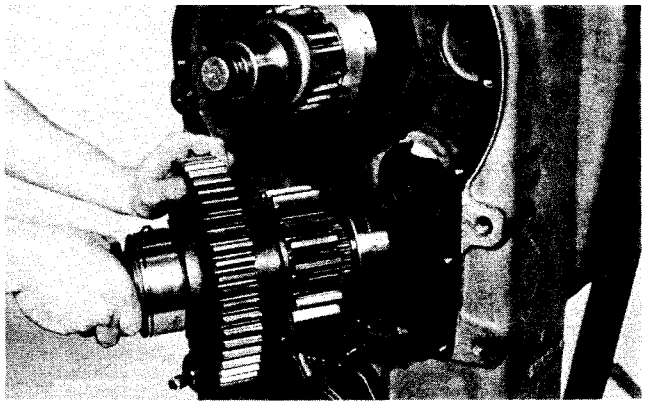


Figure 49A

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

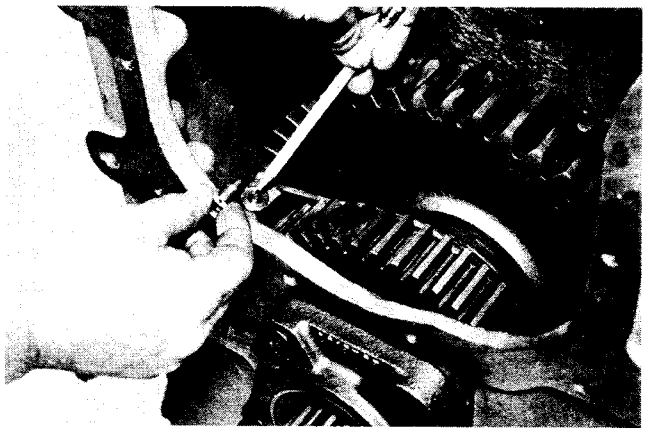


Figure 1

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

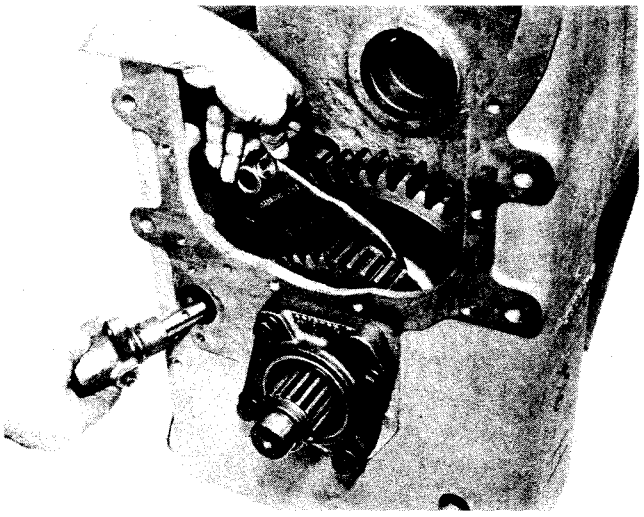


Figure 2

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

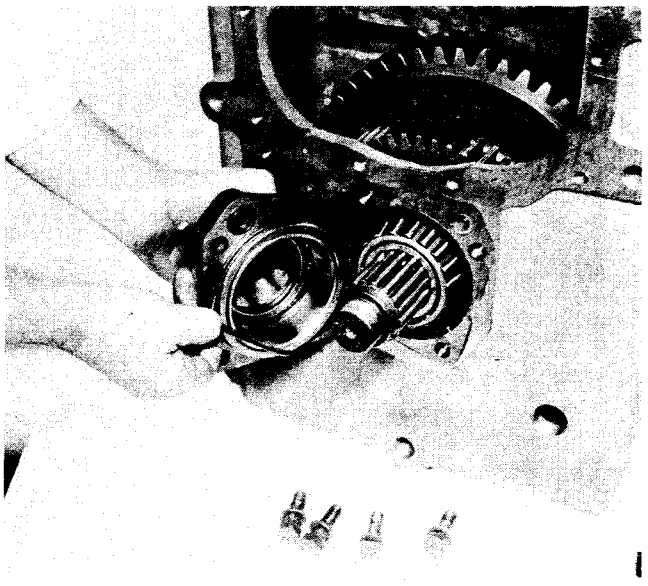


Figure 3

Remove output shaft rear bearing cap bolts and bearing cap.

CLARK EQUIPMENT

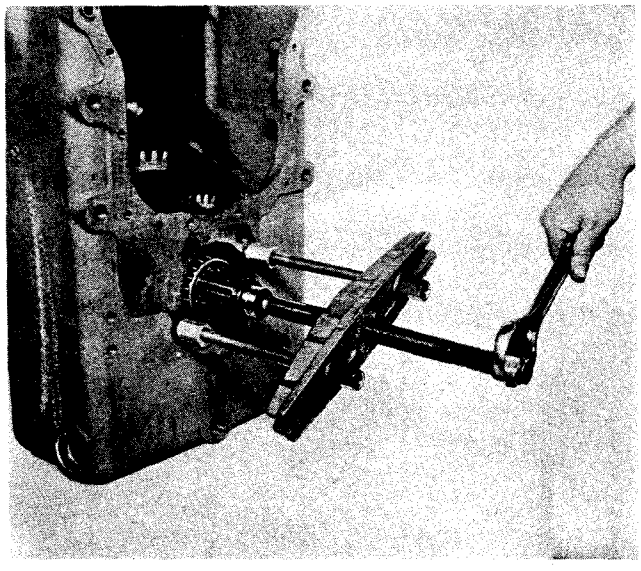


Figure 4

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

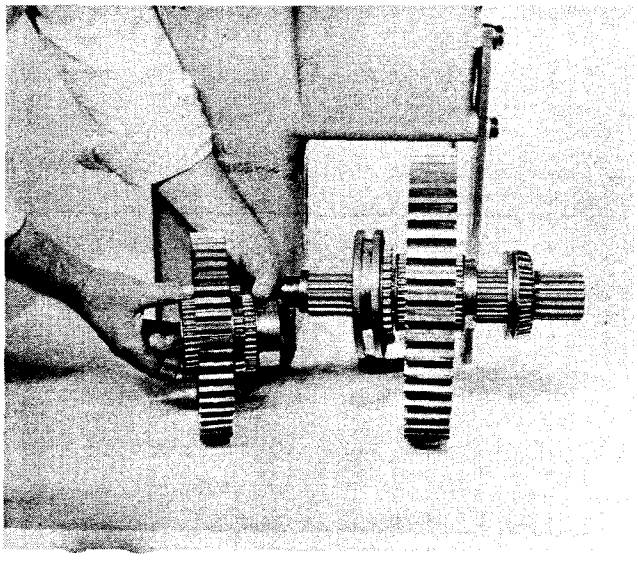


Figure 5

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.

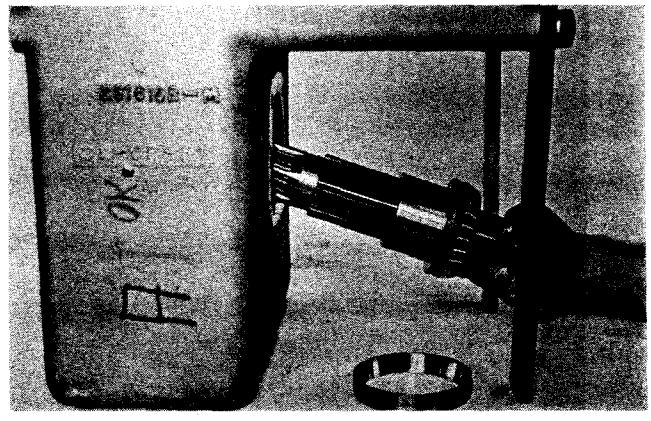


Figure 6

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.

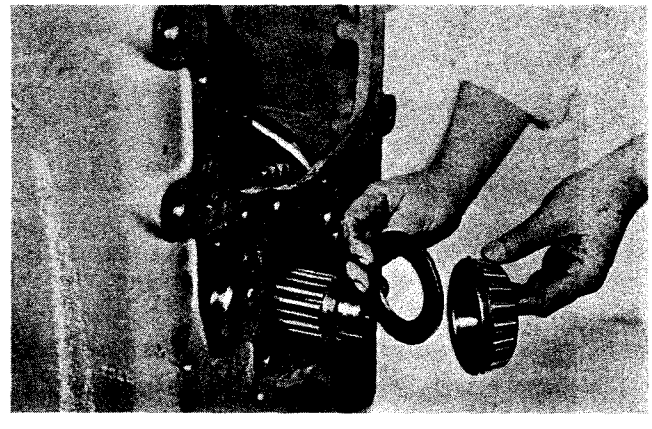


Figure 7

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

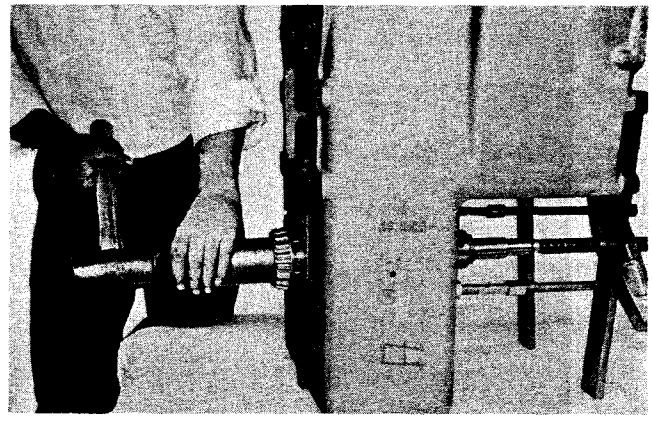


Figure 8

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

CLARK EQUIPMENT

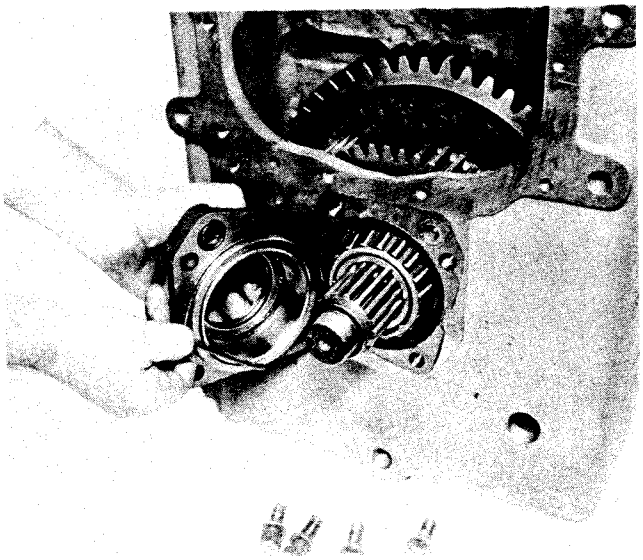


Figure 9

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.

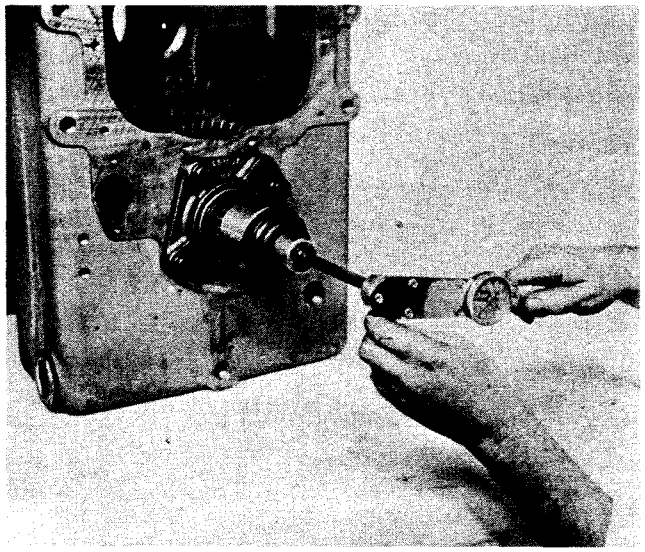


Figure 10

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.

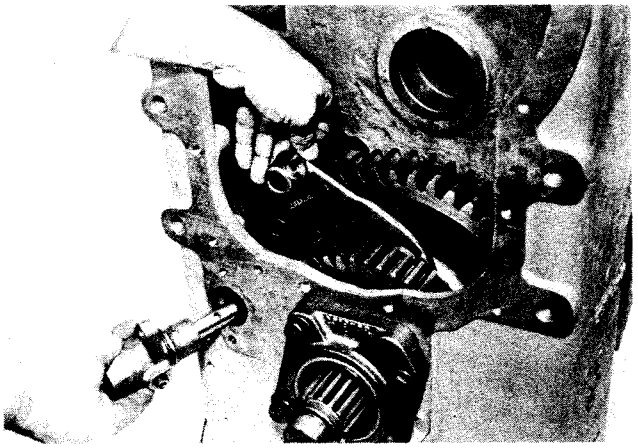


Figure 11

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.

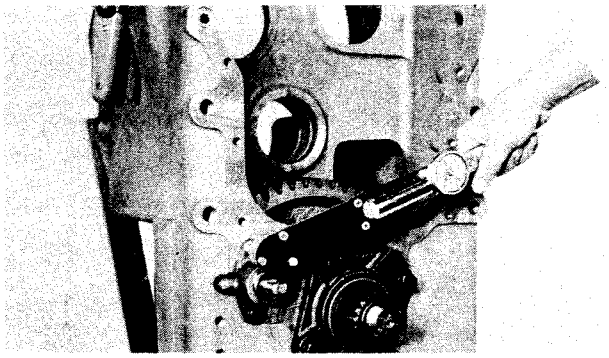


Figure 12

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

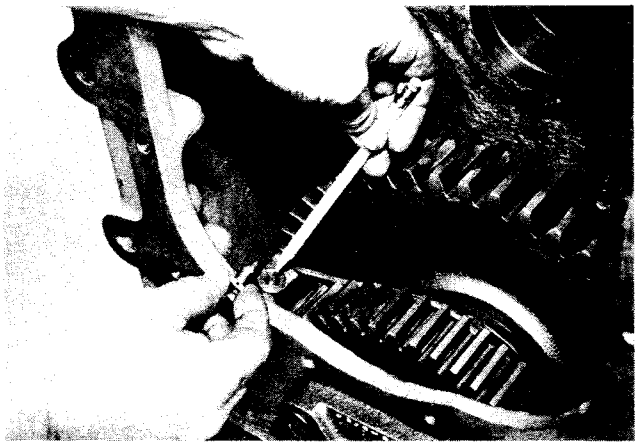
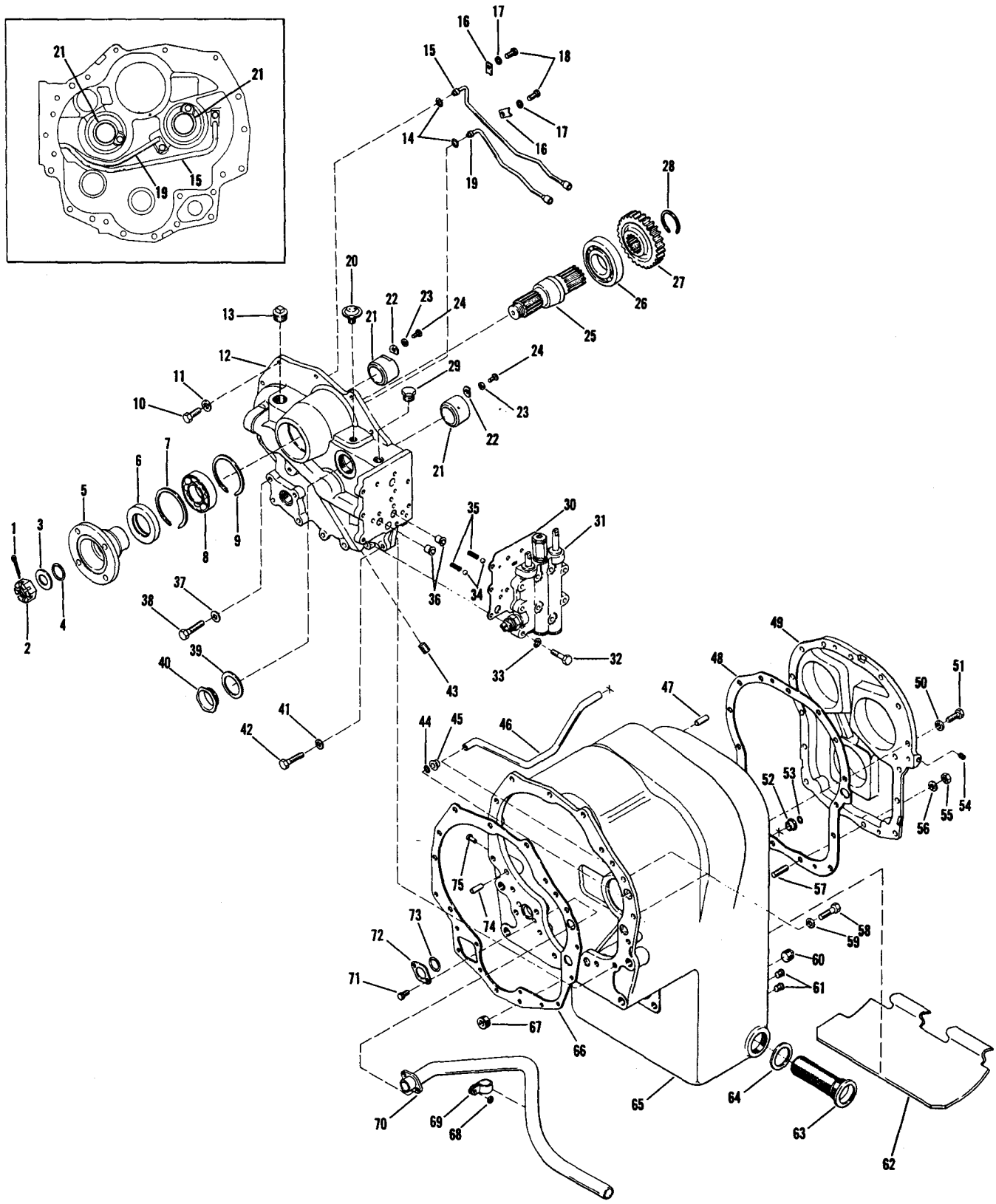


Figure 13

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

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

CLARK EQUIPMENT



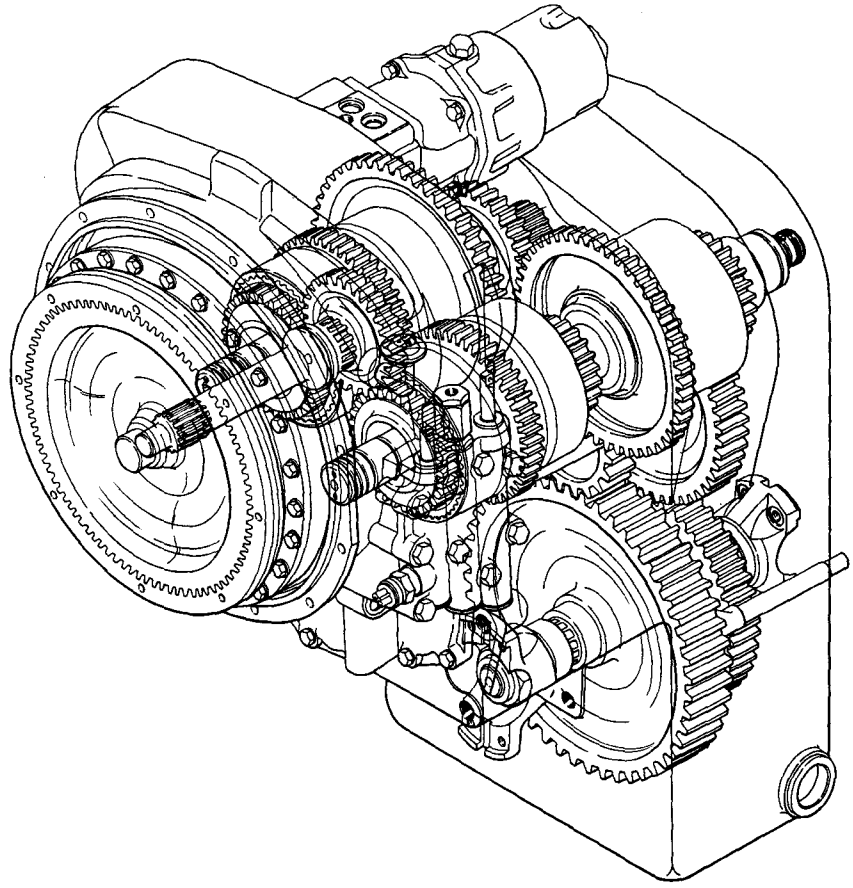
R MODEL COVER AND CASE GROUP

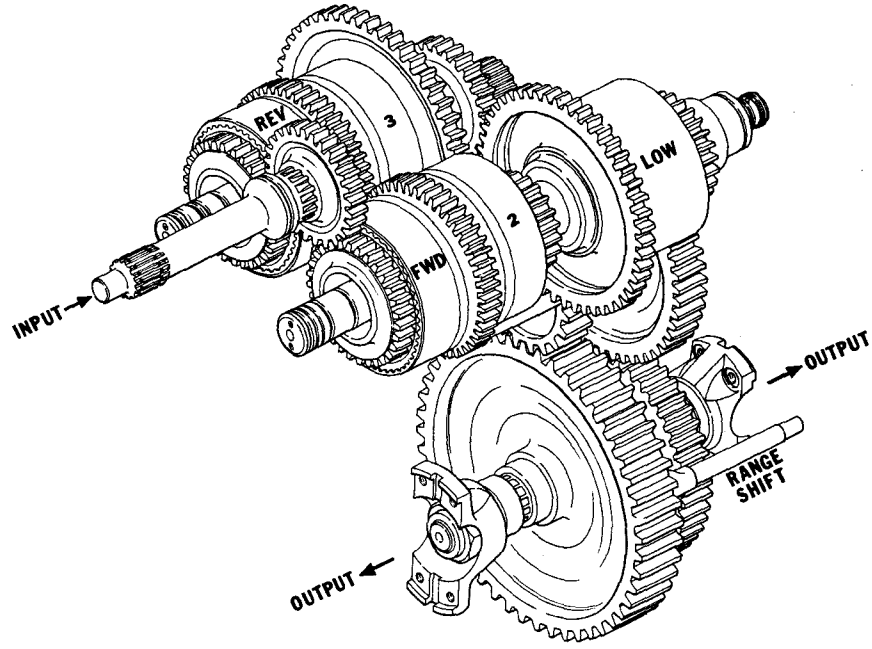
CLARK EQUIPMENT

R MODEL COVER AND CASE GROUP

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

CLARK EQUIPMENT





28000 SERIES - 6 SPEED
CLUTCH & GEAR ARRANGEMENT

CLARK EQUIPMENT

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

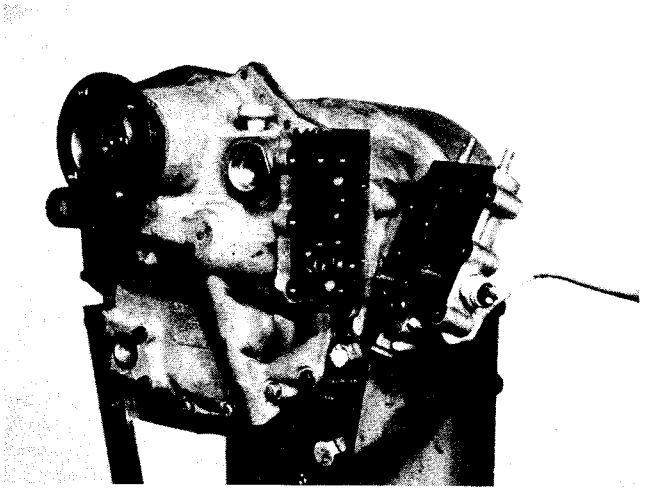


Figure 1

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

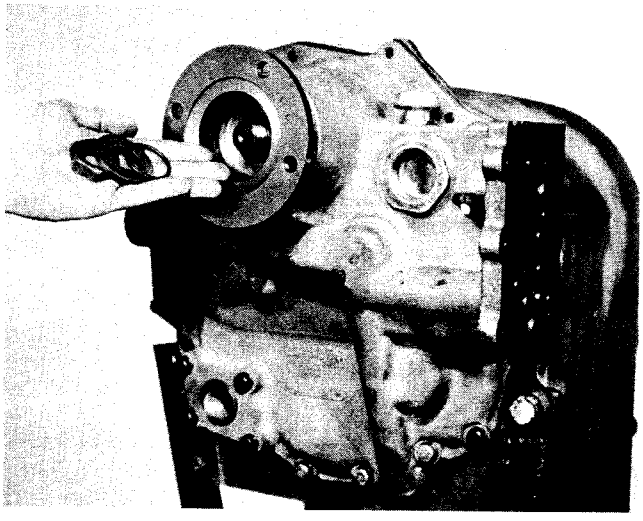


Figure 2

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

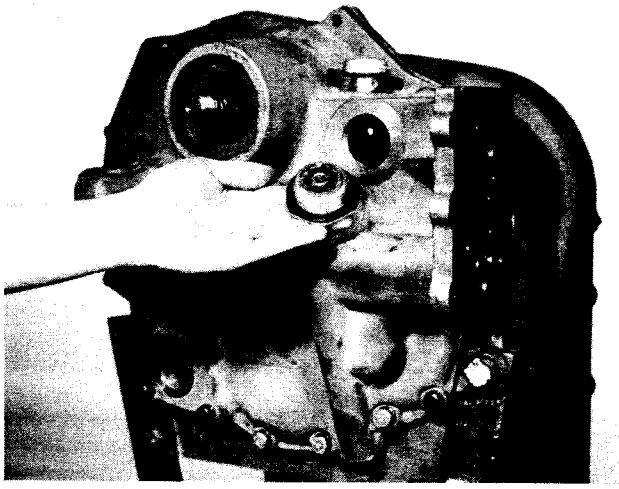


Figure 3

Remove front cover plug.

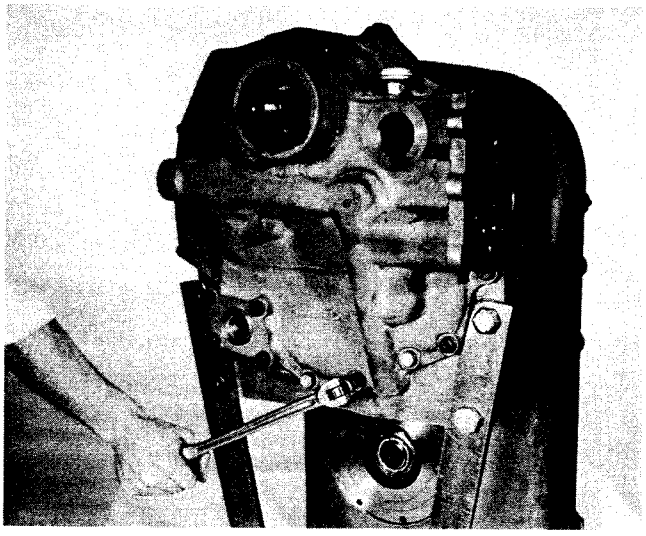


Figure 4

Remove bolts securing front cover to transmission housing.

CLARK EQUIPMENT

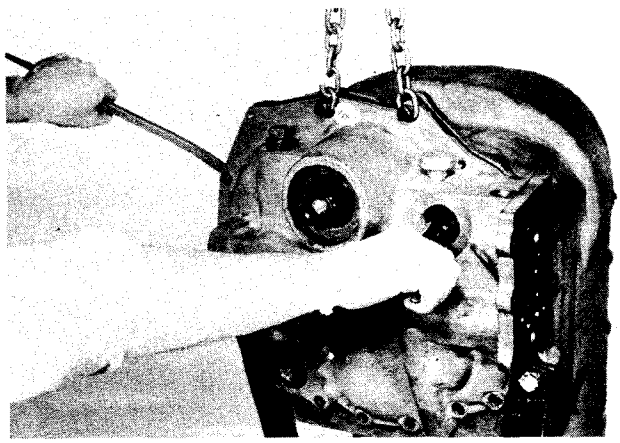


Figure 5

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.

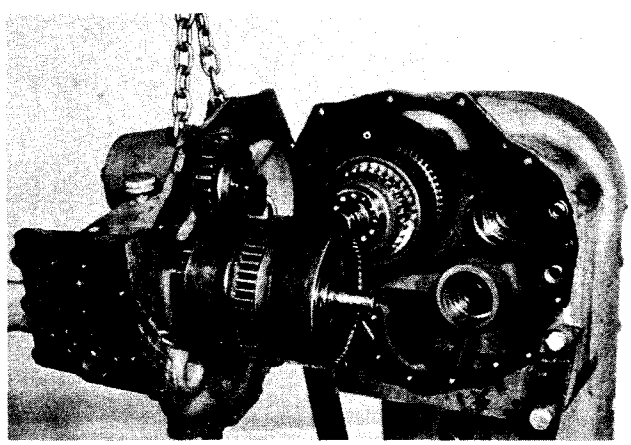


Figure 6

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

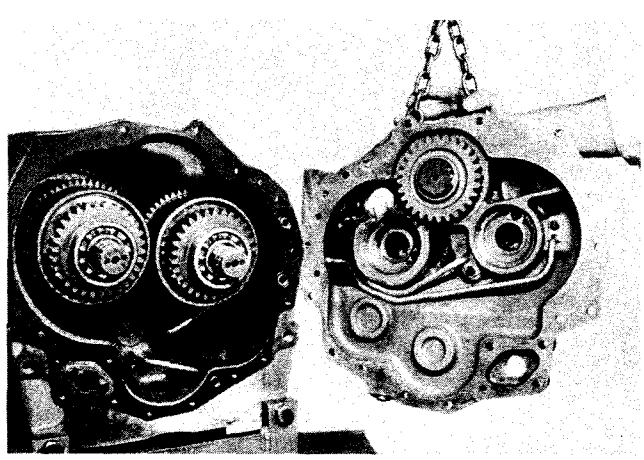


Figure 7

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

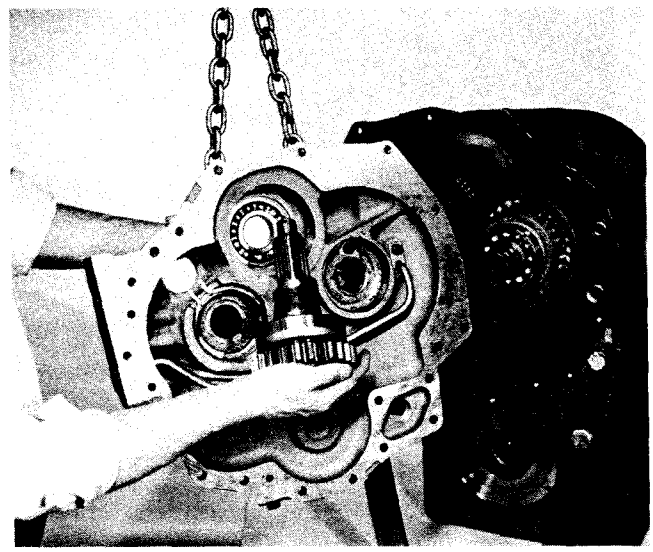


Figure 8

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:

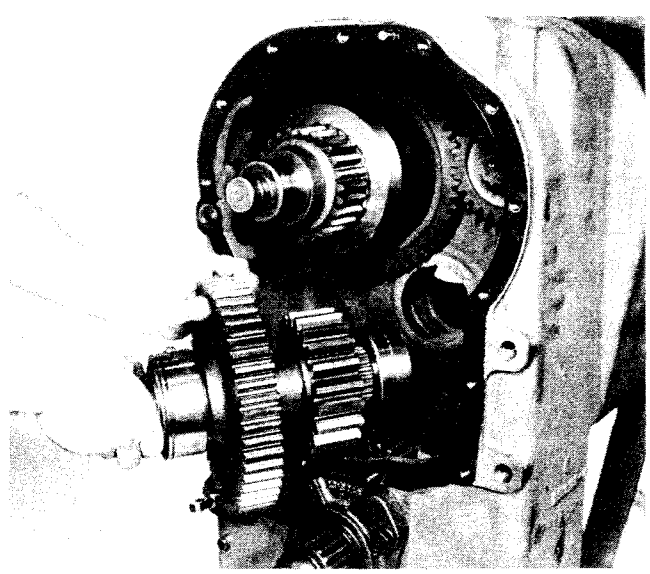


Figure 24A

6-speed idler shaft, gear and bearing assembly

NOTE: Do not lose rear bearing lock ball.

Proceed with Figure 25 through 29.

CLARK EQUIPMENT

6-SPEED OUTPUT DISASSEMBLY

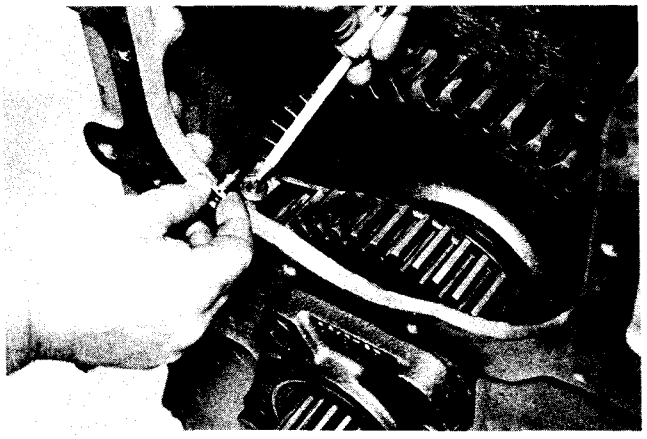


Figure 9

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

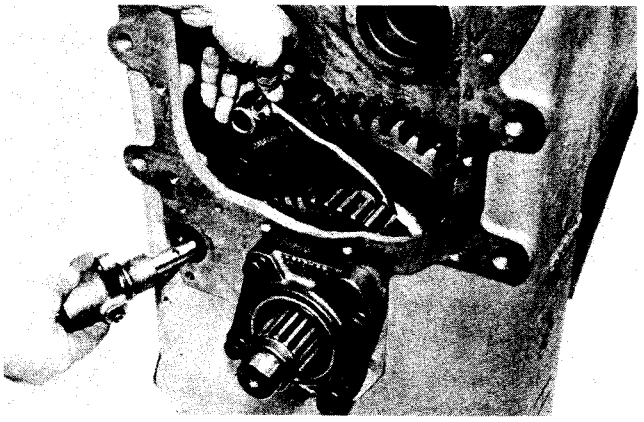


Figure 10

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

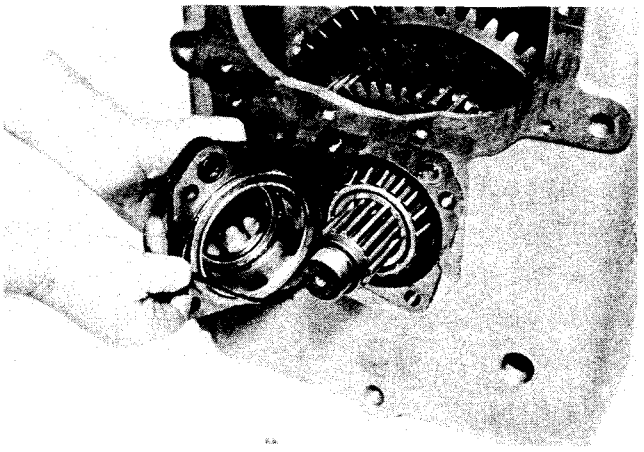


Figure 11

Remove output shaft rear bearing cap bolts and bearing cap.

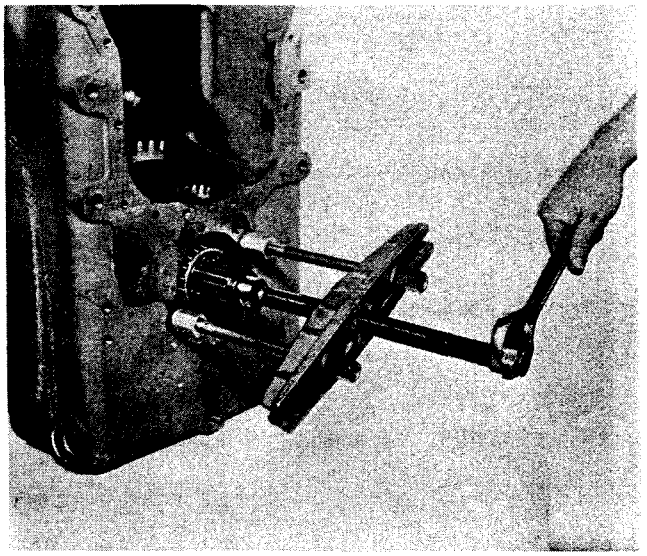


Figure 12

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

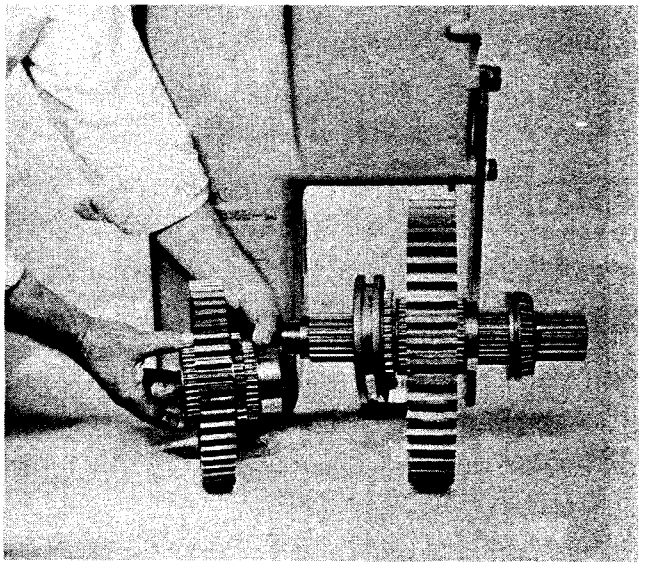


Figure 13

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.

CLARK EQUIPMENT

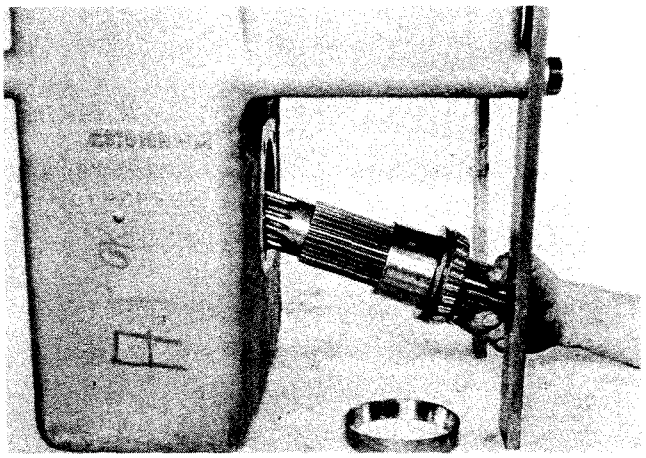


Figure 14

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.

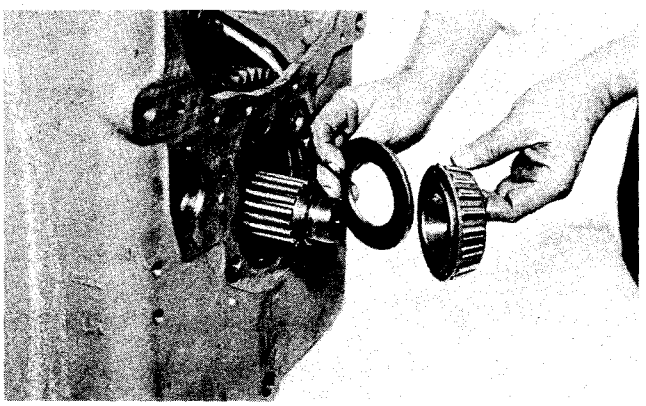


Figure 15

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

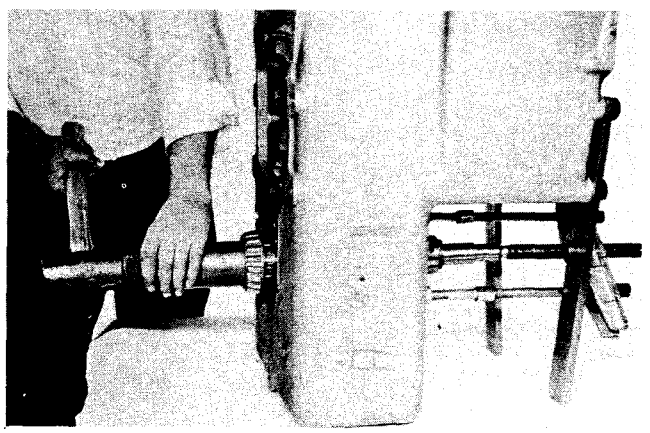


Figure 16

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

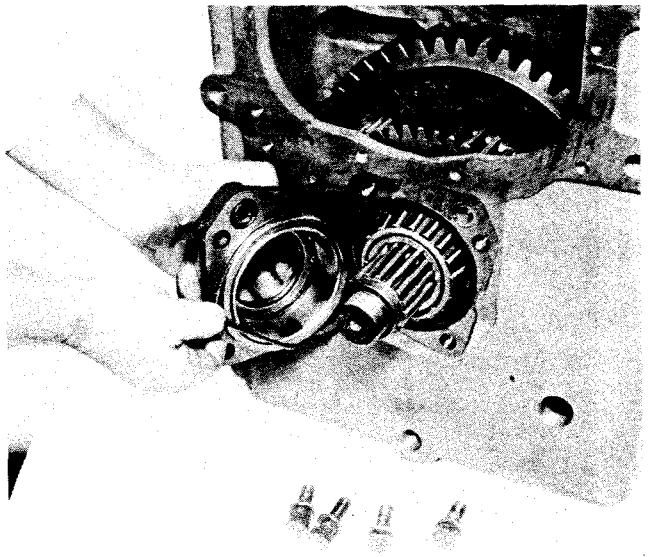


Figure 17

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.

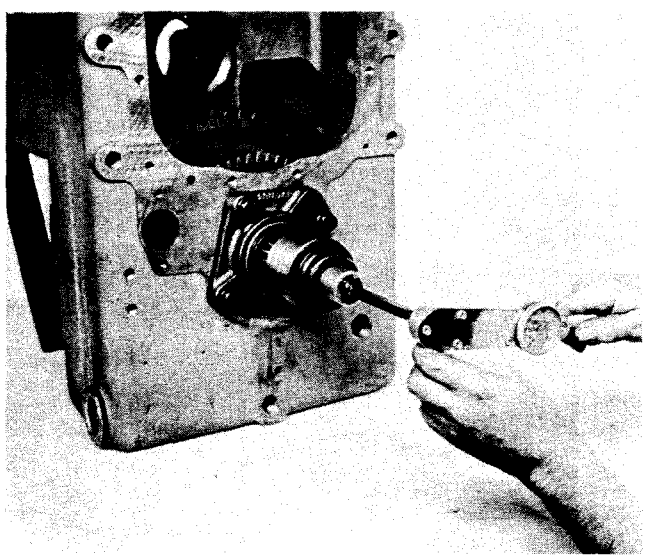


Figure 18

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.

CLARK EQUIPMENT

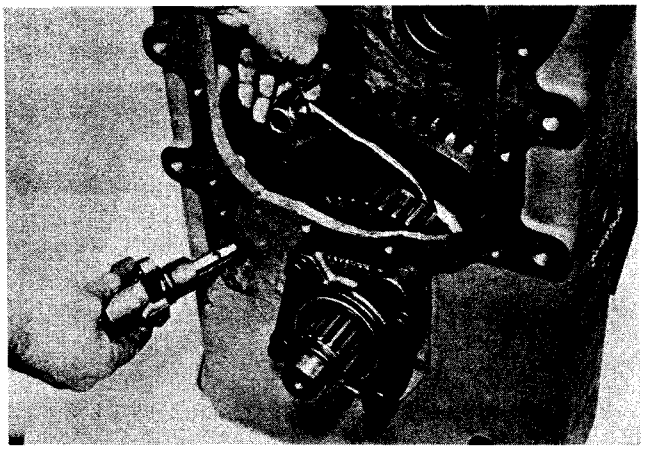


Figure 19

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.

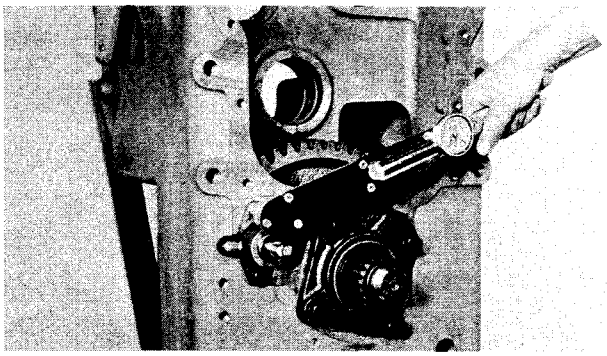


Figure 20

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

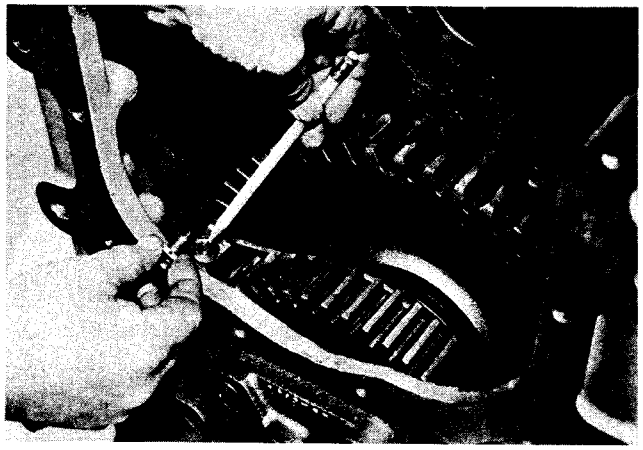


Figure 21

Locate lockscrew hole in shift rail with hole in shift fork. Install lockscrew, 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.

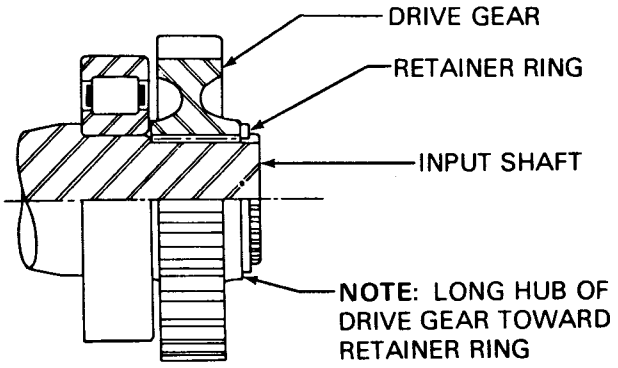


Figure 22

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

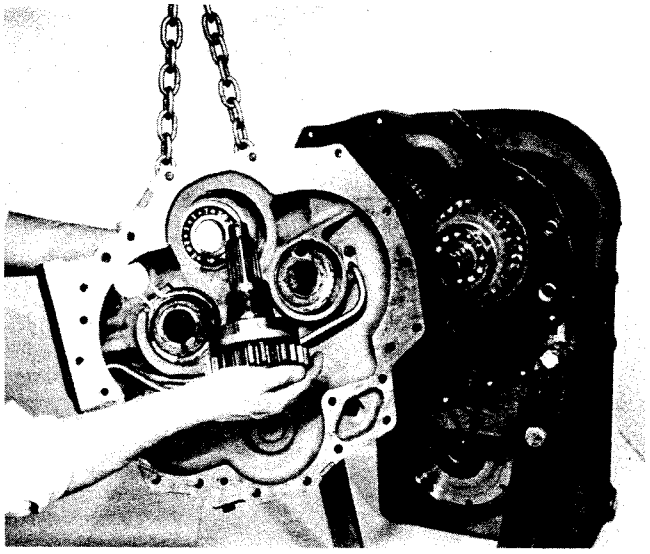


Figure 23

Install input shaft into front bearing.

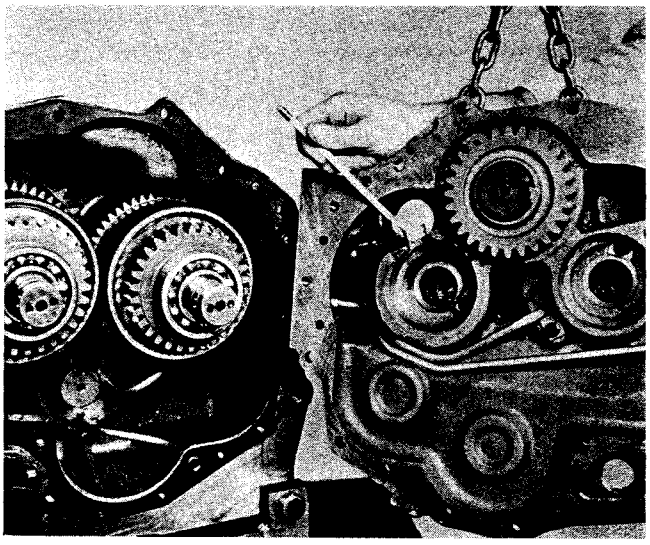


Figure 24

Forward clutch front bearing locating ring.

CLARK EQUIPMENT

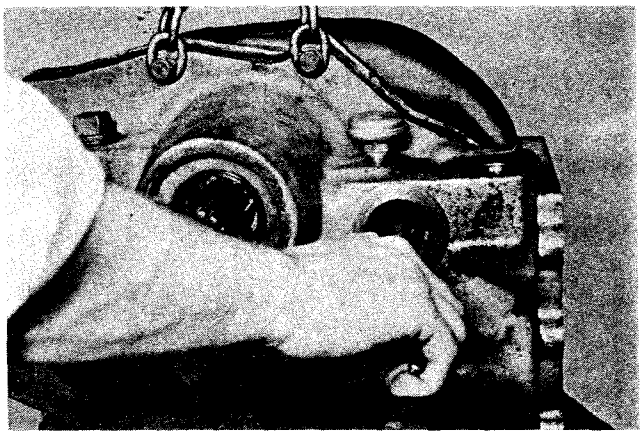


Figure 25

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.

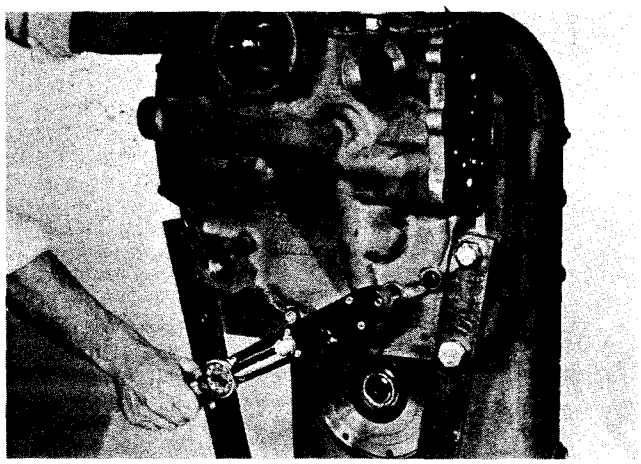


Figure 26

Install cover to case bolts. Tighten to specified torque.

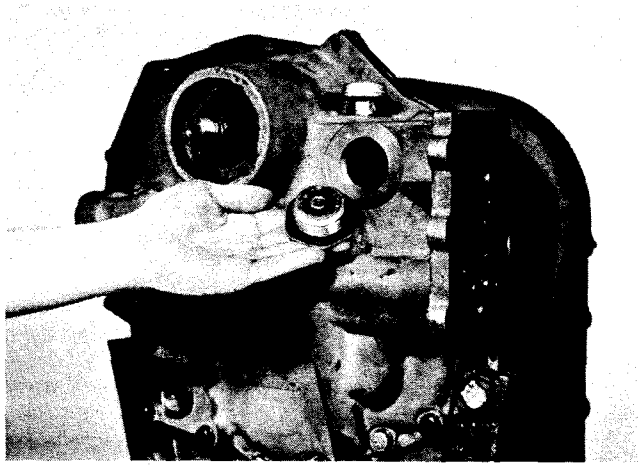


Figure 27

Install front cover plug.

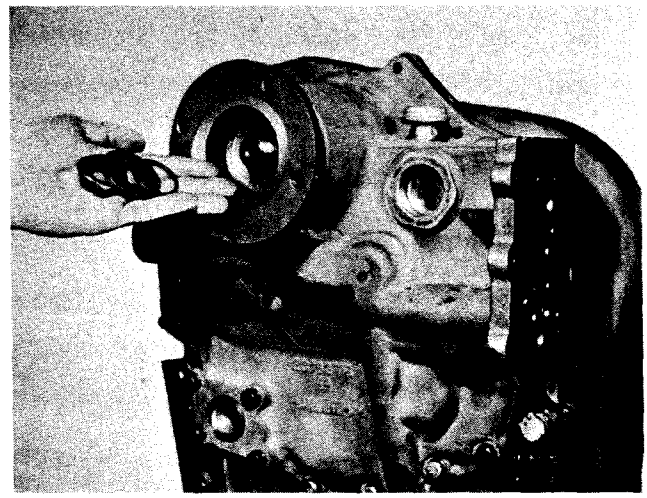


Figure 28

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

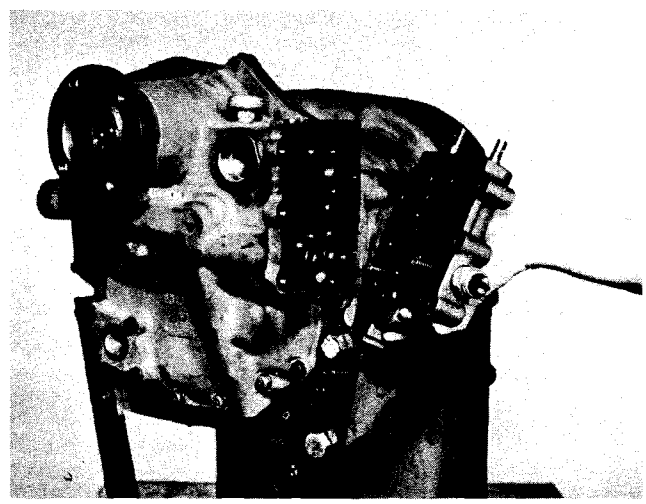


Figure 29

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

CLARK EQUIPMENT

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).

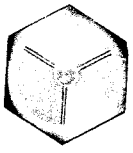
   Add quantity necessary to bring fluid level to **LOW** mark on dipstick or runs freely from **LOWER** oil level check plug hole. Install oil level plug or dipstick. Recheck with hot oil (180-200° F.) [82, 2-93, 3° C].

   Bring oil level to **FULL** mark on dipstick or runs freely from **UPPER** oil level plug.

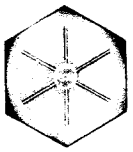
7. Recheck all drain plugs, lines, connections, etc., for leaks and tighten where necessary.

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

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



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



LUBRICATED OR PLATED

Nominal Thread Size	Grade 5 FINE THREADS	Grade 5 COARSE THREADS	Grade 8 FINE THREADS	Grade 8 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]

CLARK EQUIPMENT

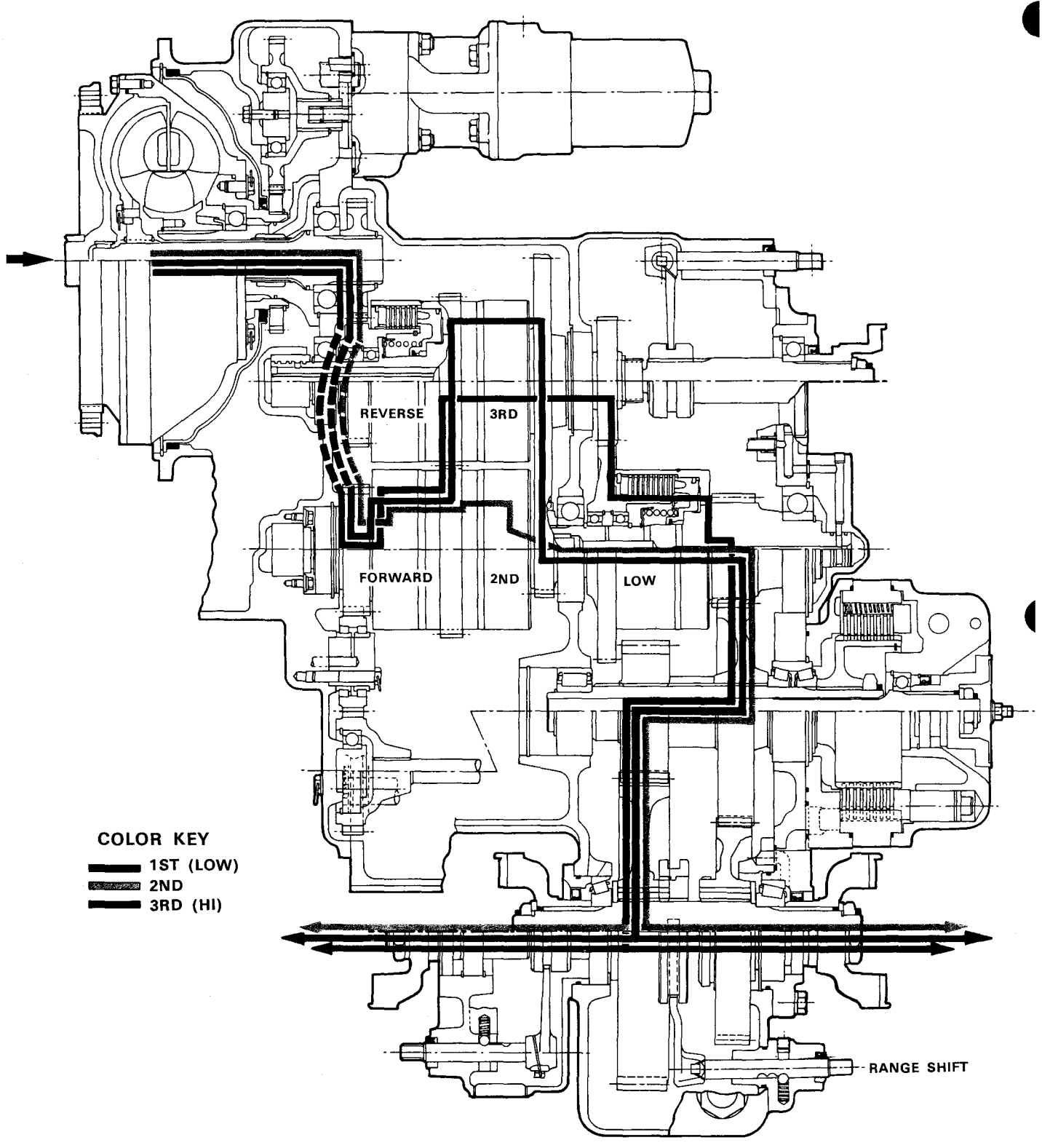


FIG. D

6 SPEED TRANSMISSION LOW RANGE

CLARK EQUIPMENT

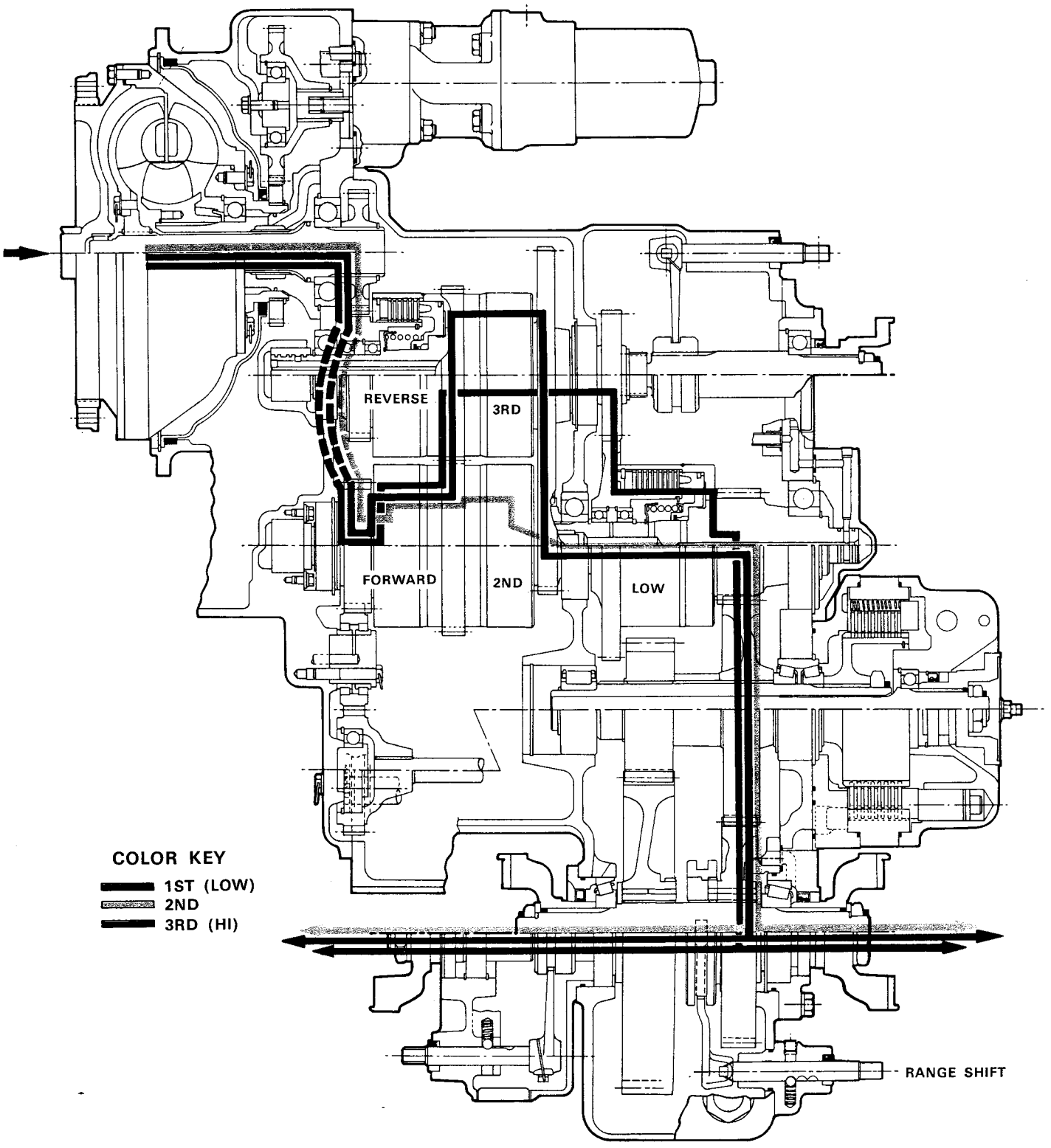


FIG. E

6 SPEED TRANSMISSION HI RANGE