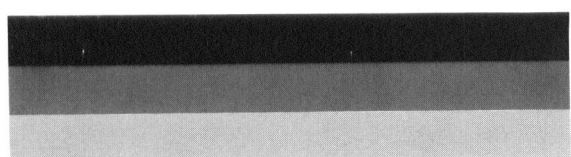


**FUNK
MANUFACTURING
COMPANY**

A horizontal bar composed of three stacked rectangular sections of different shades of gray.

PARTS LIST

SPEC 1299 MODEL 12000

FUNK MANUFACTURING

This parts list is divided into two sections, which are Bill of Material and drawing documents. The drawings are listed either in build level sequence directly associated to B/M levels or in alpha-numerical order. The drawing documents can be found in the back of the parts book following the B/M.

The B/M represents the stage or levels at which the transmission is assembled. These levels also refer to the reference numbers on the supporting drawings.

The drawings which support these build levels can be found in the information narrative on the right side of the B/M. The drawing will be listed as "asm per" followed by a drawing number, or if it uses the drawing number of the component part number it will be listed as a "drawing" in the narrative. When the word "drawing" appears in the information narrative, you will only find a drawing in the book if the component parts are serviceable.

To determine the part number of the required part, look through the drawings and locate the part needed. Then note the drawing number in the lower right hand corner and the reference number of the particular part required. Now go to the B/M listing and find that drawing number appears in the "asm per" narrative or in the component part column when "drawing" is used as the narrative. Now the part number can be determined by dropping down to the next build level and matching the reference number noted from the drawing with the right hand portion of the reference number on the Bill of Material.

EXAMPLE:

1	(1st level)	XXXXXXX	ASM FRT CVR SERV	1.00
			**ASM PER XXXXXXXX	
1-1	(2nd level)	XXXXXXX	ASM FRT CVR SERV	1.00
			REPL XXXXX FOR SERV.	
			**ASM PER XXXXXXXX	
			N/A XXXXX & XXXXX SEL	
1-1-1	(3rd level)	XXXXXXX	CVR.FRT ASM SERV	1.00
			REPL XXXXX FOR SERV.	
			**ASM PER XXXXXXXX	
			N/A XXXXX & XXXXX SEL	
			(NON SERVICEABLE DETAILS)	
1-1-2	(3rd level)	XXXXXXX	SEAL RING	1.00
1-1-3	(3rd level)	XXXXXXX	COVER, OIL PASSAGE	1.00
1-1-4	(3rd level)	XXXXXXX	CAPSCREW	3.00
1-1-5	(3rd level)	XXXXXXX	ASM, VLV CONV	1.00
			DRAWING (NON SERVICEABLE	
			DETAILS ASM DWG NOT INCL)	
1-1-6	(3rd level)	XXXXXXX	PLUG PIPE	1.00
3	(1st level)	XXXXXXX	CONV. ASM 12.75	1.00
			**DRAWING	
3-1	(2nd level)	XXXXXXX	IMPELLER CONVERTER	1.00
3-2	(2nd level)	XXXXXXX	HUB, IMPELLER	1.00
3-3	(2nd level)	XXXXXXX	O RING	1.00
3-4	(2nd level)	XXXXXXX	CAPSCREW	12.00

** SUPPORT DRAWING

superceded by Spec # 3942

Specification Sheet

FUNK REVERS-O-MATIC DRIVE, SERIES 12000

SHEET 1

FUNK MANUFACTURING CO
Coffeyville, Kansas

FOR: PETTIBONE# A25687-1 30 TON CR
PETTIBONE MULLIKEN CORPORATION
MODEL NO 12000 SPEC. NO. 1299

Engine HERCULES Model G-339-II Minimum Top Governed r.p.m. _____
Loaded Static r.p.m., Minimum _____ Maximum _____
Engine Flywheel, Special _____ Modified _____

MISC-157648

	PART NO.	NO. REQ.
CONVERTER DRIVE ASS'Y.	40121291 (was 4012104)	1
CONVERTER ASS'Y. 13" CODE B	12150 Replaced by 4012993	1
CONVERTER HOUSING ASS'Y.	12201-2A	1
AUXIL. PUMP ASS'Y. CODE	NOT REQUIRED	
SHUTTLE TRANSMISSION ASS'Y.	12301	1
INPUT SHAFT	12321	1
STATOR SUPPORT TUBE	12433	1
SHUTTLE CASE ASS'Y.: WITH DRAIN COCK (X)	12400-A	1
WITH PIPE PLUG ()		
OIL FILL ASS'Y.	12409 (Low Fill)	1
VALVE ASS'Y.	12500	1
CONTROL ASS'Y.	NOT REQUIRED	
TRANSMISSION ASS'Y.	NOT REQUIRED	
PARKING BRAKE ASS'Y.	NOT REQUIRED	
BRAKE HAND LEVER ASS'Y.	NOT REQUIRED	
HEAT EXCHANGER ASS'Y.	NOT REQUIRED	

SPECIAL SPECIFICATIONS:

Assemble valve with #12680 spring, #12681 stud, #12682 washer and one (1) #12685 ball joint.
Use #12690 lift bracket.
#12817 washer is replaced by #31379.
Omit Shims #12818.
Companion flange is replaced by #30076 end yoke and #30074 spacer.
Omit parts #12921 through and including #12825.
Delete #12540 instrument panel assembly.
Use proper protective plastic plugs on #12500 control valve pressure and temperature opening.
Must use 12-1232 cap in place of 12518 cap.

PLEASE REFER TO THE REVERS-O-MATIC DRIVE INSTRUCTION MANUAL FOR ILLUSTRATIONS AND PART LIST CLARIFICATIONS. NOTE: DATA ON THIS PAGE SUPERSEDES ALL OTHER.

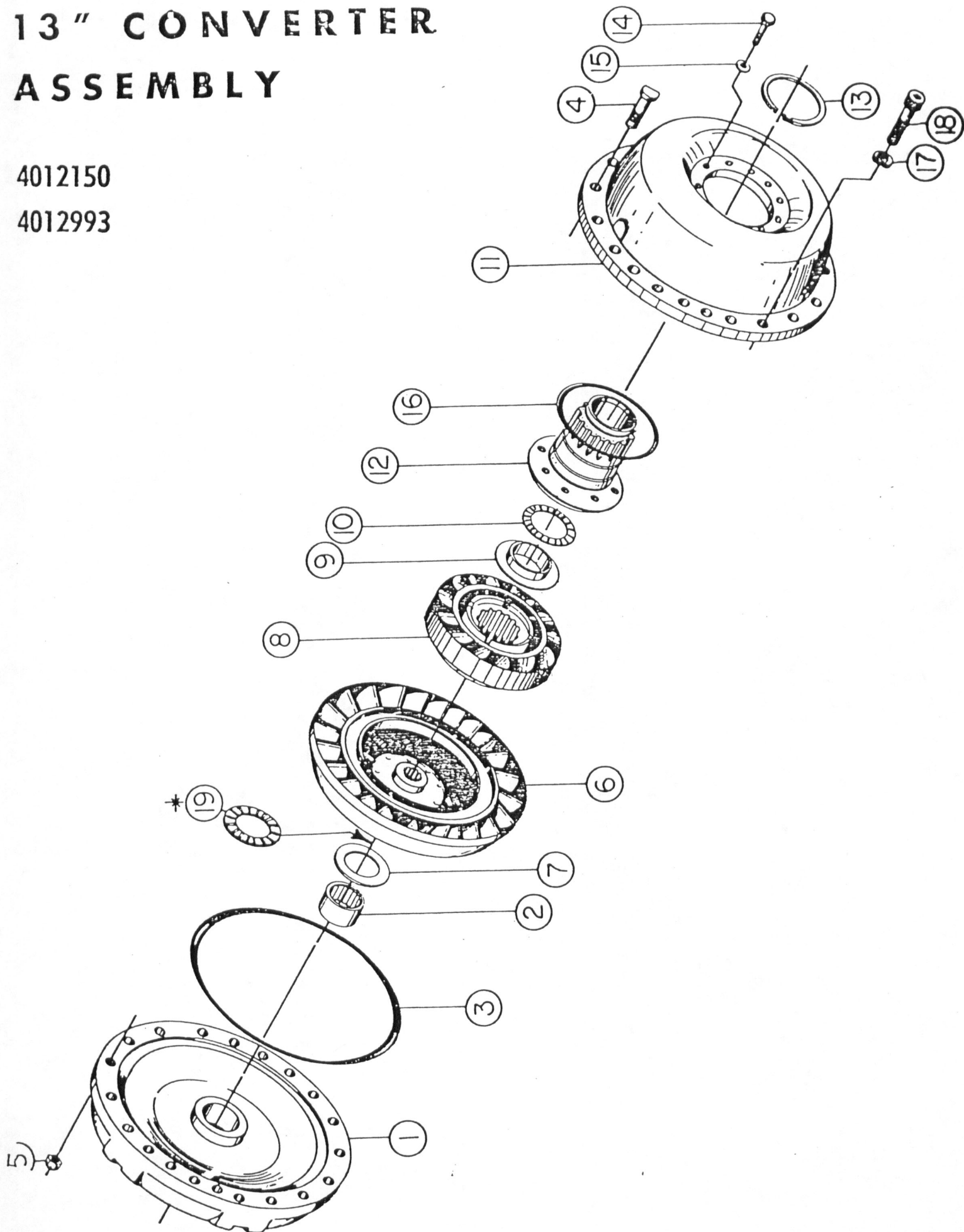
PREFIX (X) INDICATES SPECIAL PARTS REQ.
AND LISTED ON SHEET 2.

DATE April 14, 1964
BY Robert Isnard

13" CONVERTER ASSEMBLY

4012150

4012993



13" CONVERTER ASSEMBLY—4012150

(SEE ILLUSTRATION ON OPPOSITE PAGE)

PARTS LIST

Ref. No.	Part No.	Description	No. Req.
1	4012152	Cover, Front	1
2	4F46028-12	Bearing, Pilot	1
3	4000537	"O" Ring, Front Cover Seal	1
4	4012155F	Bolt, Cover; 5/16" - N.F. (H.T.)	16
5	4012156	Nut, Lock; 5/16" N.F. Hex. Hd.	16
6	4012157	Turbine Assembly	1
7	4012161	Washer, Turbine Forward Thrust	1
8	4012161F	Stator Assembly	1
9	4012162J	Pilot, Thrust Bearing	1
10	4F55036-48	Bearing, Thrust	1
11	4012164-F	Impeller (Pump)	1
12	4012166-A	Gear, Impeller Hub	1
13	4012129	Ring, Seal; Impeller Hub Gear	1
14	4F10020-14	Capscrew, 5/16" N.C. x 7/8" Hex. Hd. (H.T.)	12
15	4F18002	Washer, 5/16" Sealing	12
16	4F37030-236	"O" Ring, Hub Gear Seal	1
17	4012121-A	Washer, Half Round 1-1/16 Dia. 1/8" Thick	8
18	4012123NY	Capscrew, 5/16" N.F. x 1-3/4" Soc. Hd. (H.T.)	8

13" CONVERTER ASSEMBLY—4012993

(SEE ILLUSTRATION ON OPPOSITE PAGE)

PARTS LIST

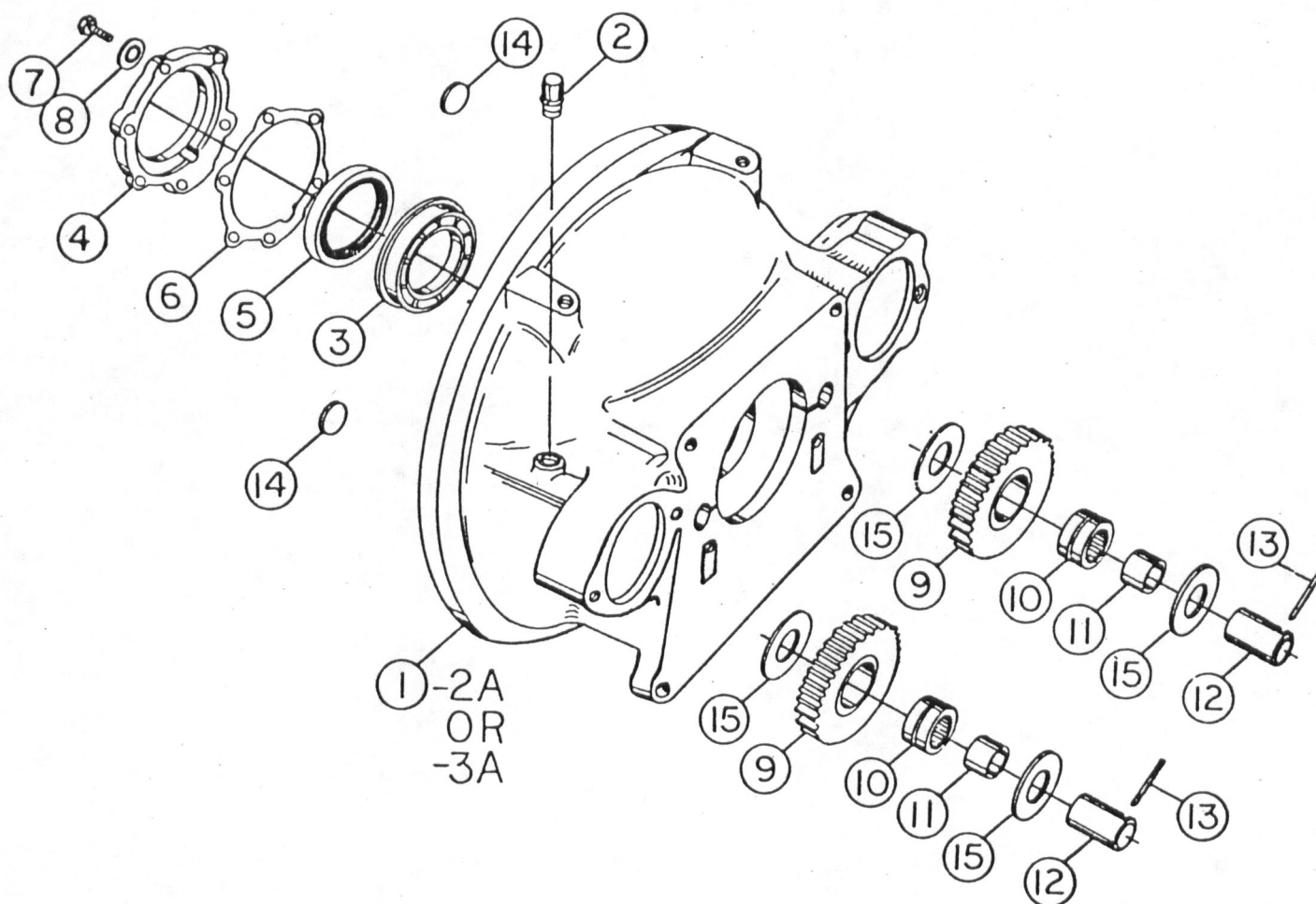
Ref. No.	Part No.	Description	No. Req.
1	4045110	Cover, Front	1
2	4F46028-12	Bearing, Pilot	1
3	4000537	"O" Ring	1
4	4012155F	Bolt, Cover	16
5	4F13111000	Locknut, Flanged	16
6	4045133	Turbine Assembly	1
7	4045129	Washer, Thrust	1
8	4012992	Stator Assembly	1
9	4045130	Thrust Washer	1
10	4F55136-50	Thrust Bearing	1
11	4012164F	Impeller	1
12	4012991	Impeller Hub	1
13	4012129	Ring, Seal	1
14	4F10420-14	Bolt, Place	12
15	4F18002	Washer, Dyna Seal	12
16	4F37030-236	"O" Ring	1
*19	4F55136-50	Thrust Bearing	1

*Ref. No. 19 not used on Assembly 4012150

CONVERTER HOUSING ASSEMBLIES

4012201-2A

4012201-3A



PARTS LIST

Ref. No.	Part No.	Description	No. Req.
1-2A	40122052A	Housing, Converter; S.A.E. "A" Aux. Pump Flange	1 of 2
1-3A	40122053A	Housing, Converter; S.A.E. "A" Aux. Pump Flange	
2	4F68203	Breather, Converter Housing	1
3	4F40114R	Bearing, Converter Pilot	1
4	4012211	Retainer, Converter Pilot Bearing	1
5	4F65015	Seal, Oil; Converter Hub Gear Seal	1
6	4012213	Gasket, Converter Pilot Bearing Retainer	1
7	4F10020-14	Capscrew, 5/16-N.C. x 7/8" Hex. Hd. (H.T.)	6
8	4F18002	Washer, 5/16 Sealing	6
9	4012217	Gear, Idler; Primary Pump Drive	2
10	4F52072-34	Bearing, Idler Gear	2
11	4F54072-34	Race, Inner; Idler Gear Bearing	2
12	4012219	Shaft, Idler Gear	2
13	4F25187-14	Roll Pin; Shaft Retainer	2
14	4F22015	Plug, Expansion; 1-1/8" Dia. Standard	2
15	4012222	Washer, Idler Gear Thrust	4

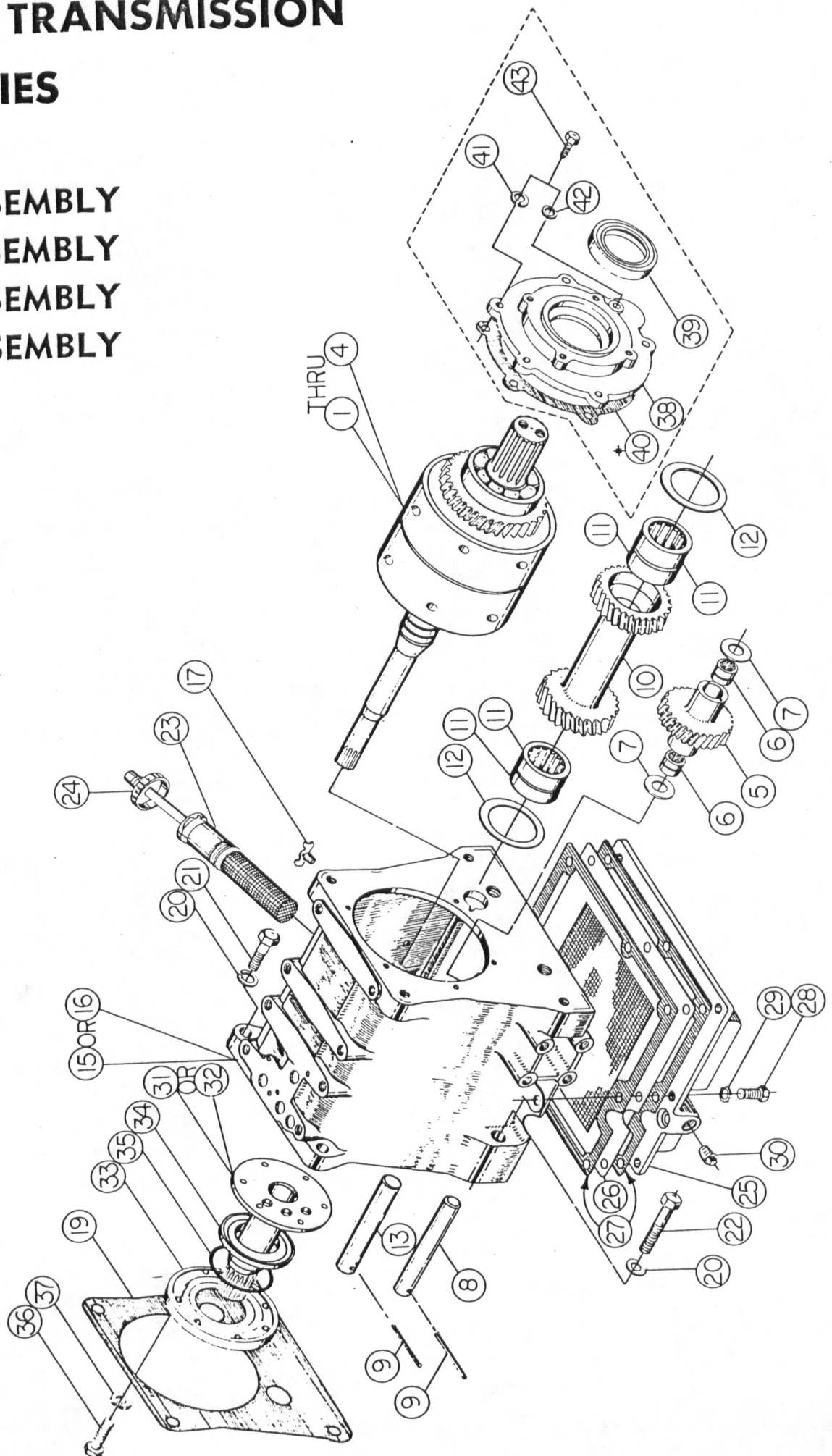
SHUTTLE TRANSMISSION ASSEMBLIES

4012300 ASSEMBLY

4012301 ASSEMBLY

4012302 ASSEMBLY

4012303 ASSEMBLY



4012300 ASSEMBLY FOR 12" OR 11³/₄" CONVERTER SHUTTLE ONLY OR DROP TRANS

4012301 ASSEMBLY FOR 13" CONVERTER SHUTTLE ONLY OR DROP TRANS

4012302 ASSEMBLY FOR 12" OR 11³/₄" CONVERTER SHUTTLE ONLY OR 12700 TRANS

PARTS LIST

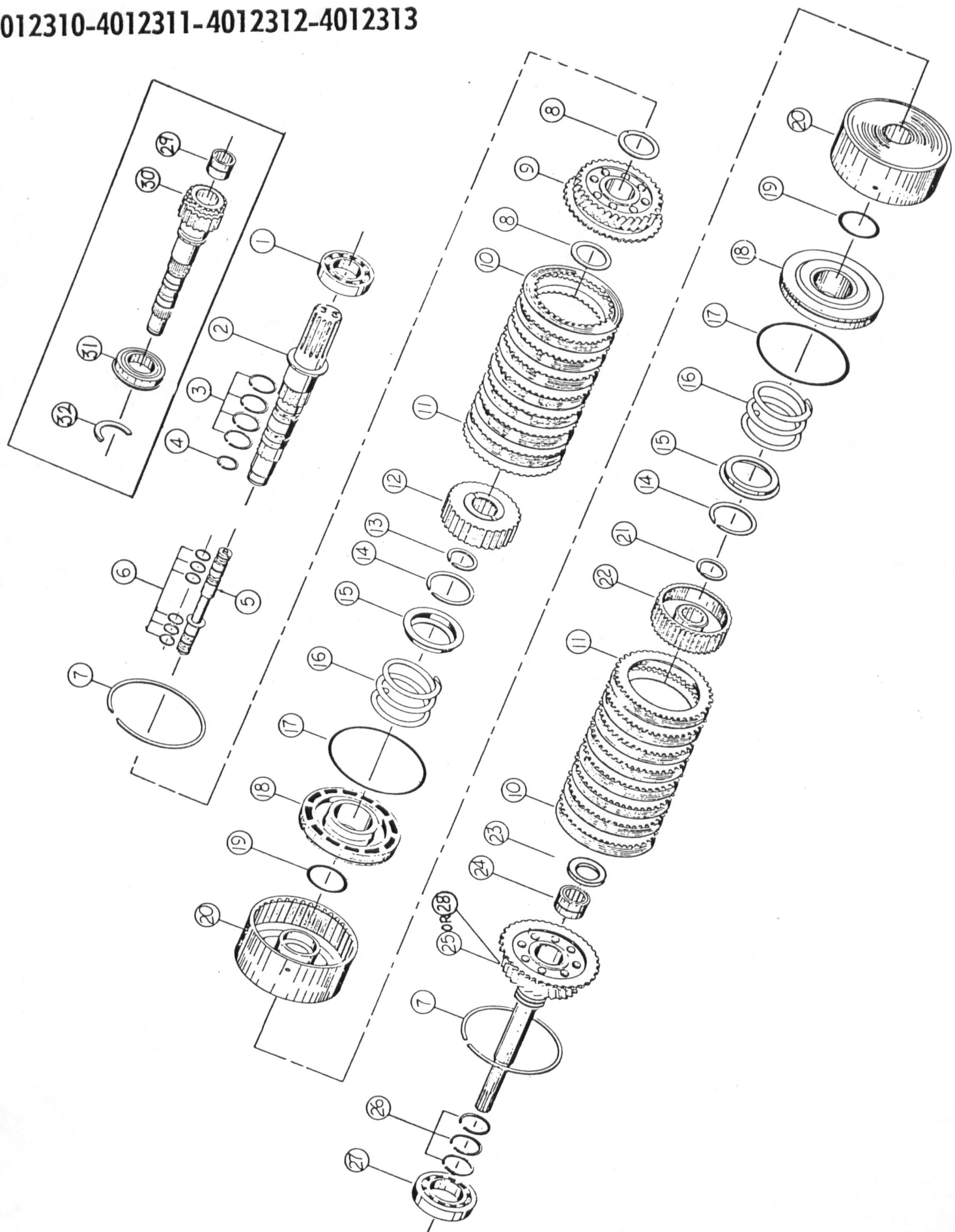
(SEE ILLUSTRATION
ON OPPOSITE PAGE)

4012303 ASSEMBLY FOR 13" CONVERTER SHUTTLE ONLY OR 12700 TRANS

Drawing Ref. No.	New Part No.	Old Part No.	Description	No. Req.
1	4012310	12310	Shaft and Clutch Assy., Shuttle Only, 12" or 11 ³ / ₄ " converter . . .	
2	4012311	12311	Shaft and Clutch Assy., Shuttle Only, 13" converter . . .	1 of 4
3	4012312	12312	Shaft and Clutch Assy; 4 Speed Trans. 12" or 11 ³ / ₄ " converter . . .	
4	4012313	12313	Shaft and Clutch Assy; 4 Speed Trans; 13" Converter . . .	
5	4012385	12385	Gear, Idler . . .	1
6	4F52071-54	12386	Bearing, Idler Gear . . .	2
7	4012388	12388	Washer, Idler Gear Thrust . . .	2
8	4012389	12389	Shaft, Idler Gear . . .	1
9	4F25219-14	12391	Pin, Spring; Idler Gear Shaft Retainer . . .	2
10	4012393A	12393-A	Gear, Countershaft . . .	1
11	4F52072-35	12359	Bearing, Countershaft Gear . . .	4
12	4012396	12396	Washer, Countershaft Gear Thrust . . .	2
13	4012397	12397	Shaft, Countershaft Gear . . .	1
15	4012400-A	12400-A	Shuttle Trans. Case Assy; Shuttle Only (low flange) . . .	1 of 2
16	4012400-B	12400-B	Shuttle Trans. Case Assy; Attached Trans. (Shown) . . .	
17	4012403	12403	Cock, Drain; Oil Level Check (Shown) . . .	1
19	4012405	12405	Gasket, Shuttle Trans. to Conv. Housing . . .	1
20	4F16205	12406	Washer, 9/16" Medium Spring Lock . . .	4
21	4F10060-32	12407	Cap Screw, 9/16"-N.C. x 2" Hex. Hd. (H.T.) . . .	2
22	4F10060-60	12408	Cap Screw, 9/16"-N.C. x 3-1/2" Hex Hd. (H.T.) . . .	2
23	4012409	12409	Oil Fill Tube and Strainer Assembly . . .	1
24	4012417	12417	Cap/Dip Stick Assembly . . .	1
25	4012421	12421	Sump, Shuttle Transmission . . .	1
26	4012422	12422	Sump, Screen Assembly . . .	1
27	4012423	12423	Gasket, Sump . . .	2
28	4F10040-20	12424	Cap Screw, 7/16"-N.C. x 1-1/4" Hex. Hd. (H.T.) . . .	8
29	4F10203	12425	Washer, 7/16" Medium Spring Lock . . .	8
30	4F20000-4	12426	Plug, Pipe; Shuttle Trans. Drain, 1/2" N.P.T. Sq. Hd. Magnetic . . .	1
31	4012431	12432	Tube, Stator Supt.; 12" Conv. (Shown) . . .	1 of 2
32	4012433	12433	Tube, Stator Support, 13" Converter . . .	
33	4012436-A	12436	Plate, Cover; Front Index . . .	1
34	40121259		Floating Seal . . .	1
35	4F37030-233		"O" Ring . . .	1
36	4F10020-20	12437	Cap Screw 5/16"-N.C. x 1-1/4" Hex. Hd. (H.T.) . . .	6
37	4F16201	12438	Washer, 5/16" Medium Spring Lock . . .	6
38	4012441	12441	Retainer, Rear Bearing . . .	1
39	4F65013	12442	Seal, oil; Output Shaft Seal . . .	1
40	4012443	12443	Gasket, Rear Bearing Retainer . . .	1 to 3
41	4F16202	12120-1	Washer, 3/8" Medium Spring Lock . . .	5
42	4F18003	12445	Washer, 3/8" Sealing . . .	1
43	4F10030-16	12446	Capscrew, 3/8"-N.C. x 1" Hex Hed. (H.T.) . . .	6

SHAFT AND CLUTCH ASSEMBLIES

4012310-4012311-4012312-4012313



SHAFT AND CLUTCH ASSEMBLIES

4012310-4012311-4012312-4012313

CHANGE SHEET FOR PAGE 37 12000 SERIES MANUAL

PARTS LIST (SEE ILLUSTRATION ON OPPOSITE PAGE)

Use with Assy's - 4012310, 4012311

Ref. No.	Part No.	Description	No. Req.
1	4F41209	Bearing, Ball	1
2	4012351	Shaft, Output	1
25	40121250	Shaft, Assy., Input (11 3/4 & 12 Converter).	1
25A	40121249	Shaft Assm. (13" Converter).	1

Use with Assy's.-4012310, 4012311, 4012312, 4012313

3	4012365	Ring Seal Output Shaft	4
4	4012365-A	Ring Seal Output Shaft	1
5	4012340	Asm. Tube, Oil	1
6	4012347	Ring, Seal, Oil Tube	6
7	4012383	Ring, Retaining	2
8	4012336	Washer, Thrust, Output Gear	2
9	4012330	Asm. Gear Output	1
10	4012381	Plate, Clutch, Friction (Internal Spline)	16
11	4012382	Plate, Clutch, Reaction (External Splint)	16
12	4012368	Hub, Rear Clutch	1
13	4F39010-150	Ring, Retainer, Hub, Rear	1
14	4F80500-250	Retainer, Ring, Clutch Spring	2
15	4012378A	Retainer, Clutch, Return Spring	2
16	4012377	Spring, Clutch Return	2
17	4012376A	Seal, Piston Outer	2
18	4012374E	Piston	2
19	4F37040-333	"O" Ring, Piston, Inner	2
20	4012370A	Assy., Clutch Cylinder	2
21	4F39010-143	Ring, Retaining, Hub Front	1
22	4012366	Hub, Front Clutch	1
23	4012329	Washer, Thrust, Input Shaft	1
24	4F52072-44	Bearing, Pilot, Input Shaft	1
26	4012328	Seal, Ring	3
27	4F41210	Bearing, Ball	1

Use with Assy's.-4012312, 4012313

28	40121250	Asm. Input Shaft 11 3/4-12 Converter	1
28A	40121249	Asm. Input Shaft 13" Converter.	1
29	4F52072-35	Pilot Bearing, Output Shaft	1
30	4012356	Shaft, Output	1
31	4F41211-RHH	Bearing, Ball	1
32	4F81200-261	Ring, Retaining	1

12320 INPUT ASM. 12" CONVERTER

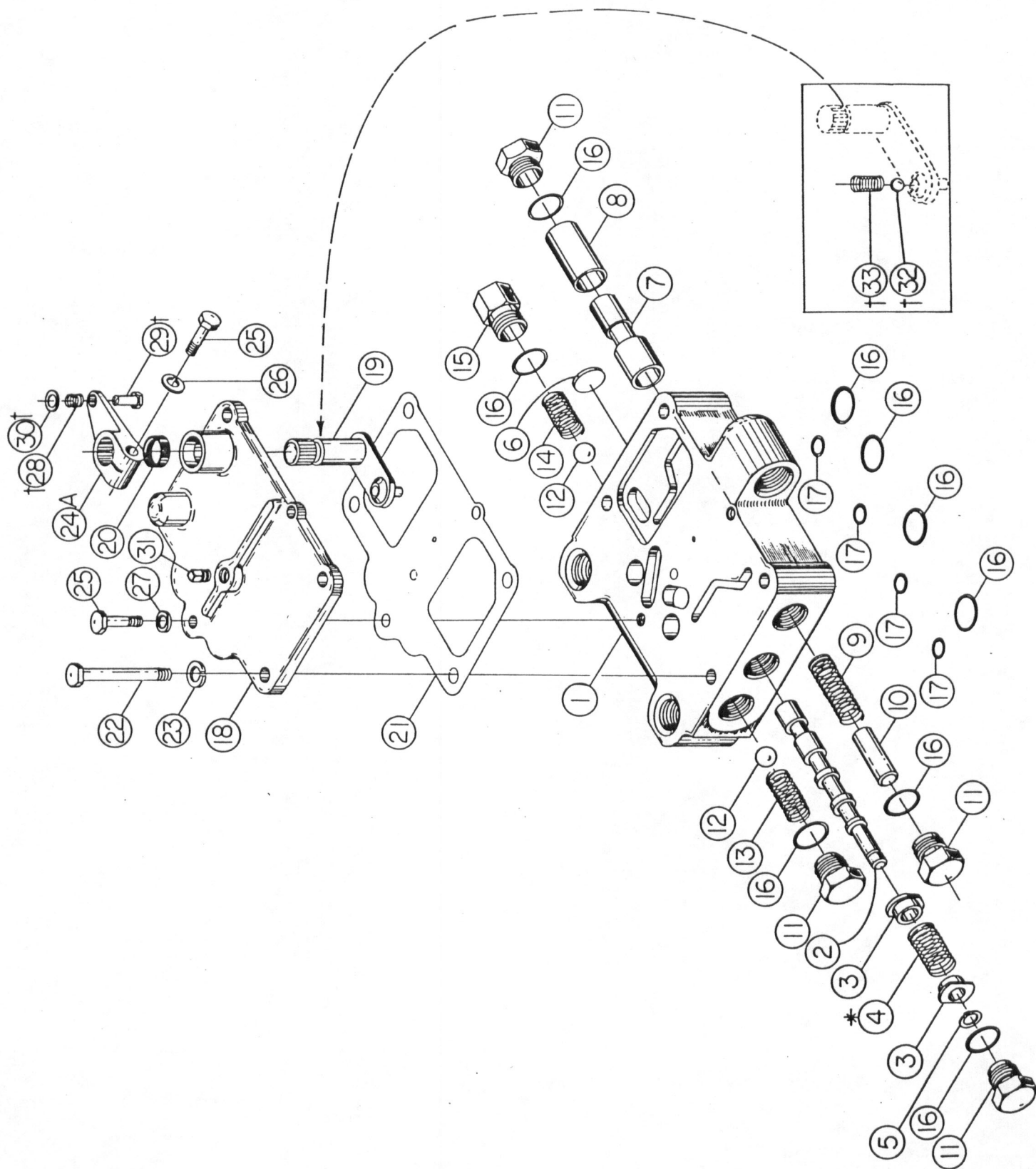
~~12321 INPUT ASM. 13" CONVERTER~~

Assemblies assembled complete with Items 26 & 27

CONTROL VALVE ASSEMBLIES

40012500 (SELF CENTERING)

40012500-A (3 POSITION)



CONTROL VALVE ASSEMBLIES

40012500 (SELF-CENTERING)

40012500-A (3 POSITION)

PARTS LIST (SEE ILLUSTRATION ON OPPOSITE PAGE)

Drawing Ref. No.	New Part No.	Old Part No.	Description	No. Req'd.
1	4012501	12501	Body, Control Valve	1
2	4012502	12502	Valve, Clutch Selector	1
3	4012503	12503	Spacer, Clutch Selector Valve	2
* 4	4012504	12504	Spring, Valve Centering 19/32" Dia. x 2" Long	1
5	4F39010-37	12505	Ring, Snap; Space Retainer	1
6	4F22007	12402	Plug, Expansion: 3/4" Dia. Standard	1
7	4012511	12511	Valve, High Pressure; Male	1
8	4012512	12512	Valve, High Pressure; Female	1
9	4012513	12513	Spring, High Pressure Valve: 19/32" Dia. x 4-1/4" Long	1
10	4F27105-40	12513-1	Pin, Spring Guide; 7/16" Dia. x 2-1/2" Long	1
11	4TRC-7225	12514	Cap, Regulator Valve	4
12	4F74000-20D	12515	Ball, Valve Seat; 5/8" Dia. Steel	2
13	4012516	12516	Spring, Second Regulator Valve 19/32" Dia. x 3" Long	1
14	4012517A	12517A	Spring, Third Regulator Valve 19/32" Dia. x 2-1/2" Long	1
15	4012-1232	12518	Cap, Third Regulator Valve	1
16	4F37020-116	12249-1	"O" Ring	9
17	4F37010-012	12522	"O" Ring	4
18	4012526	12526	Cover, Control Valve	1
19	4012527	12527	Arm, Clutch Selector Valve	1
20	4F65086	12428	Seal, Oil	1
21	4012531	12531	Gasket, Control Valve Cover	1
22	4F10030-44	12532	Capscrew, 3/8"-N.C. x 2-3/4" Hex. Hd. (H.T.)	4
23	4F16202	12120-1	Washer, 3/8" Medium Spring Lock	4
24	4012535	12535	Arm Control Valve, 21/64" End Hole Dia.	1
24A	4012535-A	12535-A	Arm, Control Valve, 1/2" End Hole Dia.	1
25	4F10020-16	12536	Cap Screw, 5/16" - N.C. x 1" Hex. Hd. (H.T.)	3
26	4F16201	12438	Washer, 5/16" Medium Spring Lock	1
27	4F18002	12168	Washer, 5/16" Dyna-Seal	2
†28	4012680	12680	Spring, Control Valve Arm	1
†29	4012681	12681	Stud, Control Valve Arm	1
†30	4F17002-W		Washer, 5/16" Std. Flat	1
31	4F19001-2		1/8" Pipe Plug	1
†32	4F74000-12D	12529	Ball, Clutch Selector Valve Detent; 3/8" Dia. Stl.	1
†33	40TR-7204	12530	Spring, Clutch Selector Valve Detent; 3/8" Dia. x 1-1/2" Long	1

† Parts used only in 3 position control valve

* This part not used in 3 position control valve

GASKET AND SEAL KITS FOR MODEL 12000, SPEC. 1299

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>CONSISTS OF:</u>	<u>QTY.</u>
4000427	Gasket & Seal Kit for 13" Converter Assy. #12150	12129 Seal Ring 45017 O'Ring F18002 Washer F37030-236 O'Ring	1 1 12 1
4000428	Gasket & Seal Kit for Converter Housing Assy.	F18002 Washer F65015 Oil Seal 12213 Gasket	6 1 1
4000429	Gasket & Seal Kit for Pump Assy. Part #12230	12235 Gasket F18004 Washer F37020-120 O'Ring	1 2 2
4000430	Gasket & Seal Kit for Oil Manifold Assy Part #12240	F18002 Washer F37020-116 O'Ring	4 2
4000431	Gasket & Seal Kit for Oil Filter Assy. Part #12270	F37020-116 O'Ring 12271 Element F37030-244 O'Ring F37030-218 O'Ring	1 1 1 1
4000433	Gasket & Seal Kit for Shuttle Transmission Assembly	4000178 Gasket kit 12423 Gasket	1 2
4000434	Gasket & Seal Kit for Rear Cover Assy.	F65013 Oil Seal 12443 Gasket F18003 Washer	1 3 1
4000435	Gasket & Seal Kit Clutch Stack Assy.	12328 Seal Ring 12347 Seal Ring 12365 Seal Ring 12365A Seal Ring F37040-333 O'Ring 12376-A Seal Ring	3 6 4 1 2 2
4000436	Gasket & Seal Kit for Control Valve Assy. Part #12500	F37020-116 O'Ring F37010-012 O'Ring F65001 Oil Seal 12531 Gasket	9 4 1 1

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SPEC. 1259
ASSEMBLY NO. 12000
DATE WRITTEN 4-14-68

REVISION LIST

MISCH

[illegible]

RITTENBY R.I.

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