Parts List & Instruction Manual

SERIES RC

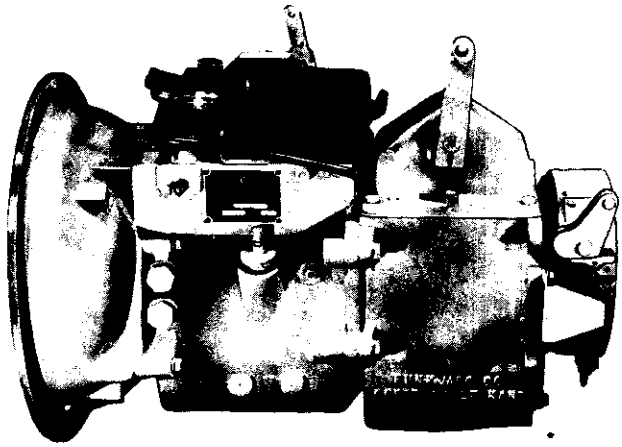
WITH

23000 TRANSMISSION

FUNK

reversomatic®

DRIVES



Funk MFG. CO.

ENGINEERS AND MANUFACTURERS
OF POWER TRANSMISSION EQUIPMENT

P. O. Box 577 Telephone (316) 251-3400 1211 W. 12th St.
COFFEYVILLE, KANSAS 67337

REVERS-O-MATIC DRIVE

Designed specifically for off-highway, forward-reverse, and lift-lower operations, the FUNK REVERS-O-MATIC DRIVE is particularly adaptable to equipment such as road rollers, industrial tractors and loaders, garbage trucks, and various other types of industrial equipment. Extremely compact, the unit can generally be installed by original equipment manufacturers without major re-design problems. The unit is available for engines with S.A.E. No. 2, 3 and 4 Flywheel Housings.

Before attempting any repairs on this unit, it is advisable that you request a Revers-O-Matic Drive Repair Manual which completely describes and illustrates the assembly and disassembly of your unit. This Booklet will be forwarded postpaid upon receipt of $1.00 per copy.

Should repair parts be required, please specify the model, specification, and serial numbers of your unit as well as the name and number of the parts accompanying your purchase order.

The above information will greatly facilitate the handling of your service order.

Thank you,
THE FUNK MFG. COMPANY

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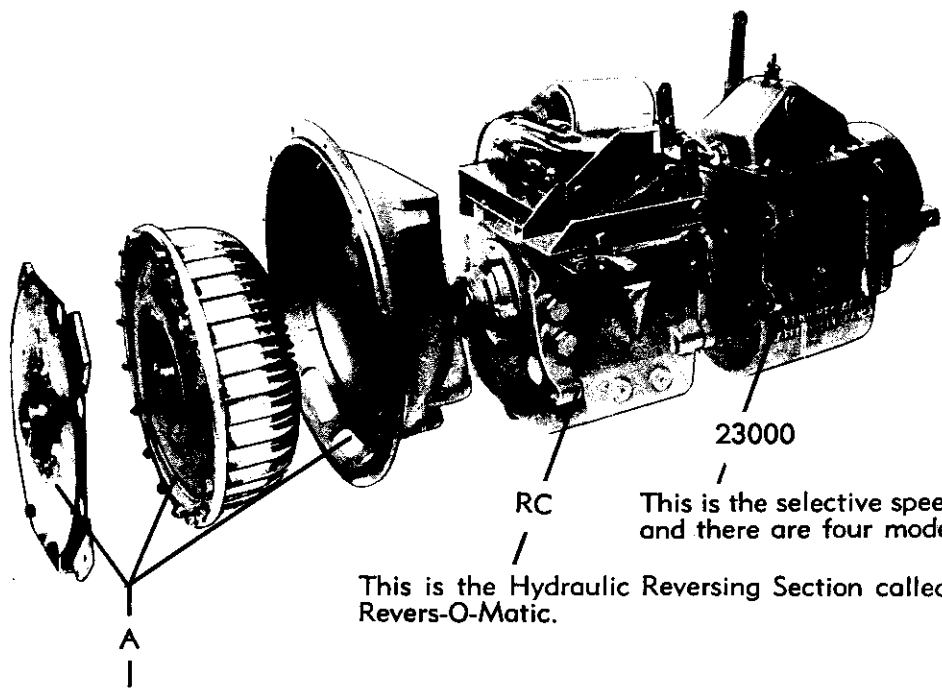
MODEL IDENTIFICATION SHEET

MODEL RC REVERS-O-MATIC DRIVE
WITH SERIES 23000 TRANSMISSION
AND ACCESSORIES



MODEL EXAMPLE: Model number RCA-23110 would indicate that Funk Mfg. Co. supplied a Drive Plate, Torque Converter, Converter Housing, Revers-O-Matic and the 23110 3-Speed Transmission.

MODEL EXAMPLE: Model number RC-23120 would indicate that Funk Mfg. Co. supplied only the Revers-O-Matic and the 23120 3-Speed Transmission.

MODEL EXAMPLE: Model number RCS-23120 would be same as the RC-23120 except the Input Shaft would have a 29 tooth spline to match different converter.

DESCRIPTION

The Revers-O-Matic Drive consists of a pair of hydraulically actuated multiple disc clutches. When the front clutch is engaged, the output shaft turns engine-wise and in most applications this produces forward motion. The rear clutch is driven by a simple gear train, and its rotation is opposite to the front clutch. Therefore, when the rear clutch is engaged, the output shaft turns anti-enginewise and in most applications this produces rearward motion.

The power is transmitted from the engine to the Revers-O-Matic Drive through a torque converter. The use of a torque converter, has two distinct advantages. First, the converter is essentially a fluid drive, there being no direct mechanical connection through it. This feature creates a very smooth and shock-free drive with the elimination of engine stalling and lugging. Secondly, the converter multiplies torque, but only during heavy pull-down loads. When loads are light, the converter transmits the engine power directly at almost engine speed and there is no torque multiplication. The net result is an action like a transmission, with infinitely variable and automatic speed ratios. The need for shifting gears, although present, is greatly reduced.

The Revers-O-Matic Drive is controlled by (1) one of (4) four control systems.

The standard control (RC23-7250) is a very unique system, thus being a device that sorts out motions from a single hand lever that FIRST engages one of the clutches and then accelerates the engine as the lever is moved further. Therefore, it is a unified control that regulates both the direction of travel and the speed of travel. Movement of the lever from a neutral position in one direction produces forward motion, and opposite movement of the lever produces rearward motion.

The optional RC23-12602 control is basically the same type as the RC23-7250 standard control, except that it is actuated by foot pedals instead of a hand lever. The action of the foot pedal is essentially the same, except that one pedal produces forward motion and the other, rearward motion.

The optional control system (RC-7639) is designed to accommodate the system requiring a self centering control valve, it also features the synchronized characteristic of engaging the clutches before accelerating the engine.

The optional control system (RC23-7450-B) is designed to accommodate the system requiring a 3 pos. valve and a separate accelerator device.

CAUTION:

The clutches are not power absorbing members and must not be subjected to slippage under power.

The clutch must be engaged prior to accelerating the engine when the vehicle is to be moved or direction changed.

The clutches are hydraulically applied and spring released. Each clutch has six friction plates which have sintered bronze facings and six reaction plates of polished steel. Because the clutches are hydraulically controlled, there is automatic compensation for normal wear - no adjustment is necessary.

SPECIFICATIONS AND APPLICATION DATA

Speed and Input Torque	Input r.p.m. (maximum): 2400 Input torque (maximum): 200 ft. lbs. plus, subject to our Engineering Department approval of application.
Converters	11¾" converter - 2.12 (Max.) Torque Multiplication. 11¾" Hi-K Converter - 2.54 (Max.) Torque Multiplication. 12" Converter - 2.15 (Max.) Torque Multiplication.
Oil System	Clutch Operating Pressure 160 P.S.I. Conv. Charge Pressure 80 P.S.I. Converter "Out" Pressure 10 P.S.I. Oil Capacity With selective speed 13 Qts. Type oil: Type A automatic transmission fluid, or equivalent. Oil Temp: (Max.) 250° F.
Oil Cooler	Type - Oil To Water Oil Cooler Capacity 300 B. T. U. Per Minute

Gear Ratios

3 speed (Non-Synchronized) Transmission

GEAR RATIOS

Model	Low	2nd	High
23110	3.74 to 1	1.9 to 1	1 to 1
23120	6.63 to 1	2.54 to 1	1 to 1
23121	6.63 to 1	3.17 to 1	1 to 1

4 Speed Transmission (Non-Synchronized)

GEAR RATIOS

Model	Low	2nd	3rd	4th
23150	6.63 to 1	3.17-1	1.72-1	1-1

These standard transmissions do not have towable features.

Shuttle Transmission
Revers-O-Matic Only
Direct 1.00 - 1
(Forward and Reverse)

OPERATION

Like all mechanical equipment, the Revers-O-Matic and 23000 transmission will need attention and servicing. Routine checks will help prevent down-time. The operator can aid in preventive maintenance by keeping a watchful eye, reporting weak or borderline malfunctioning.

Because the unit operates "in" oil and "by" oil, most of the maintenance is concerned with oil replenishment and oil cleanliness.

RULES OF OPERATION

1. Check oil level daily, stopping engine before check. Make sure area around oil fill is clean before removing dip stick.
2. Always shift the Revers-O-Matic to neutral before starting the engine, or when the vehicle is parked and the engine is running.

   To move the vehicle, select the speed range desired by shifting the transmission behind the shuttle box and then engage the directional clutch (forward or reverse) in the Revers-O-Matic.
3. Engage forward and reverse clutches at idle speed only. The clutches are not power absorbing members and must not be subjected to slippage under pressure.
4. Use brakes to slow motion or stop before applying the opposite clutch.
5. If the oil temperature gauge which is the converter oil "Out" temperature rises above 250°F. or the warning light comes on, stop the vehicle immediately. Shift Revers-O-Matic to neutral and run the engine at 1000-1200 R.P.M. The temperature should drop rapidly to the engine water temperature (within minutes). If the temperature does not drop, trouble is indicated. The cause of trouble should be determined before further operation of the vehicle; refer to "TROUBLE SHOOTING" instructions to be found elsewhere in this manual. Generally when overheating does occur, it is due to rapid reversals in the higher gear ratios. Shifting to a lower gear will help eliminate overheating due to this cause.
6. Do not shut off the engine when the unit is overheated.
7. The drive shaft should be disconnected if the vehicle is to be towed.

SERVICE

THE FUNK MFG. COMPANY recommends the use of type "A" automatic transmission fluid or equivalent in the Revers-O-Matic Drive, Torque Converter and 23000 Transmissions.

The type of service and the operating conditions will determine the maintenance interval. However as stated above, it is recommended that the oil level be checked daily; at the same time checking for oil leaks.

Because the hydraulic system is the heart of the transmission, it is especially important that the oil be kept clean.

All models of the unit have a common oil fill. This means the entire unit may be filled with lubricating oil from one oil fill location, positioned on the side of the Revers-O-Matic (shuttle) transmission.

When draining for an oil change, the Revers-O-Matic and ALL variable speed transmissions must be drained separately.

NOTE: ANY REFERENCE AS TO THE LEFT OR RIGHT HAND SIDE OF THE MODEL RC WITH 23000 IS MADE FROM THE REAR OF THE UNIT LOOKING FORWARD TOWARD THE ENGINE.

When servicing your unit for the first time, fill the Revers-O-Matic Drive to the overflow level with the recommended lubricant. This will take approximately 9 quarts. Start engine and run at idle speed for one minute. Stop engine and add 4 more quarts of fluid; some of the original fluid being required to fill the converter. Check the oil level with the dipstick, adding oil if necessary to bring the level up to the low mark when unit is cold, or the full mark when unit is warm. Run the engine for at least five minutes and recheck the oil level.

SERVICE PROCEDURE AND RECOMMENDATIONS

1. Stop engine before checking or adding oil.
2. Always check the oil level of the Revers-O-Matic Drive immediately after stopping the engine.
3. Clean around oil fill before checking or adding oil.
4. It is recommended that all lubricating oil and oil filter be changed after the first 20 hours of operation and/or after overhaul.
5. Thereafter and under normal operating conditions, it is recommended that all lubricating oil and oil filters be changed after every 500 hours of operation. The oil in the system must be changed whenever the oil shows traces of dirt or the effects of high operating temperature evidenced by discoloration or strong odor.
   If the oil in the system has become contaminated with metal particles, ALL the components of the hydraulic system (oil tubes, oil pump, oil filter, control valve, converter, clutches, heat exchanger, sump) must be thoroughly cleaned. Generally this means a tear-down of the units. Metal particles in the oil is evidence of failure of some part.
6. Drain dirty oil while unit is still warm, examining for contamination as described above.
7. Clean all magnetic drain plugs before replacing.
8. Replace oil filter element. Use AC TYPE PF-2 which is generally available at most gas stations.
9. Always use clean oil and clean containers.
10. Do not overfill.
11. Keep all joints in the shuttle box and transmission controls properly lubricated with heavy grease.
12. If radiator on the vehicle is drained during winter storage, the heat exchanger on the transmission must also be drained.

TROUBLE SHOOTING

The diagnosis of trouble in the transmission always should start by making certain preliminary checks before it is assumed that the transmission is at fault, or before carrying out any other trouble shooting procedures.

1. Check the coolant level in the engine radiator.
2. Check the oil level in the transmission. A low oil level can effect the operation of the transmission, and may indicate fluid leaks that could cause transmission damage. A high oil level can cause foaming of the oil which in turn may result in clutch slippage or leakage at the breather or filler tube.
3. Check the adjustment of the control and governor linkages. Make sure that the engine starts to rev up immediately after the pedal or lever leaves the neutral zone, and that the governor is being held wide open with pedal or lever in the full throttle position. All interferences that limit top R.P.M. should be remedied.

JERKING STARTS

If unit starts with a jerk, check the engine idle speed which is recommended at 450 to 550 R.P.M. If idle speed is lower than this, unit will die too easily in rapid reversals; and if higher than this, the converter will transmit too much torque for smooth starts. Maladjustment of the control system caused by excessive friction or external interference may cause the clutches to engage after the engine has started to accelerate. The control valve should be completely open before the engine starts to rev up. This is mandatory for smooth starts.

SLUGGISHNESS

Check engine for proper operating performance (refer to the performance check on Page 9). Adjust the rod from the control system to the governor so that the engine starts to rev up immediately after the control valve is opened.

All interferences that limit top R.P.M. should be remedied.

CLUTCH SLIPPAGE

Inspect the control valve and linkage for possible malfunction. Check the regulator valve for proper operating pressures as instructed under the performance check on Page 9. If the readings are other than normal, check for broken pressure regulator springs; make certain the valves are clean. Internally, inspect the clutch affected for possible damage. Check the oil pump for damage and improper performance.

CLUTCH FAILING TO RELEASE

First check for high oil level. Internally, inspect the clutch affected for burned, damaged or worn parts and replace as necessary. Check the alignment of the missing teeth on the separator plates with the oil drain holes in the clutch cylinder, making sure the drain holes are not clogged. If the output shaft exerts a turning force of 30 inch pounds of torque or more with the unit in neutral, corrective measures should be taken and this would require disassembly of the unit and inspection of all parts.

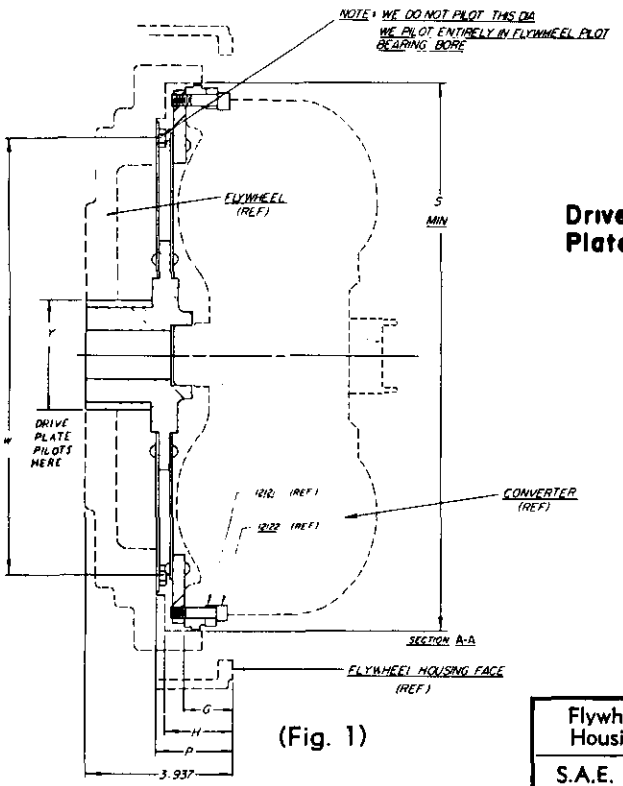
OVERHEATING

First, check for high oil level. Shifting to a lower gear will help eliminate the tendency to overheat. Inspect the heat exchanger and oil filter lines for obstructions and clean or replace as necessary. The possibility of insufficient oil flow to the heat exchanger caused by a worn or damaged oil pump should be checked. Inspect the oil filter for clogging.

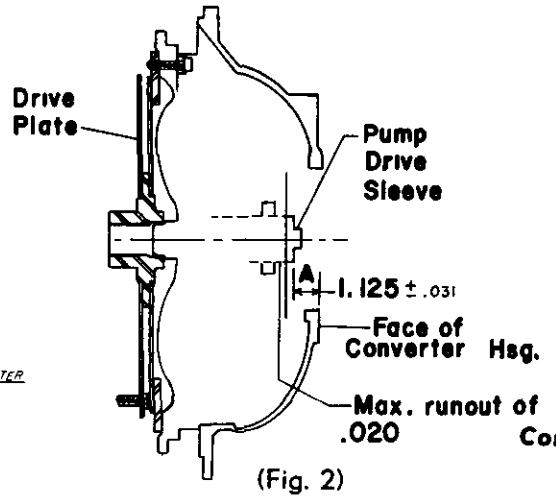
NOISY CONVERTER

First, check for low oil level. Inspect the converter for worn or damaged parts (see Pages 14 and 15 in the Revers-O-Matic Drive Repair Manual) check for damaged oil pump and replace if necessary.

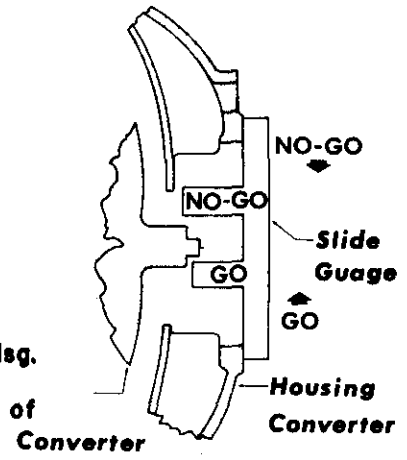
TORQUE CONVERTER INSTALLATION DATA



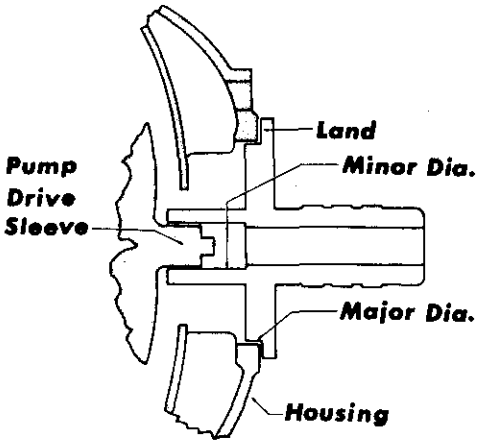
(Fig. 1)



(Fig. 2)



(Fig. 3)



(Fig. 4)

The 2 Drive Plate Assemblies Listed Below are Standards

Flywheel Housing	Flywheel	Converter	Y	Drive Plate Ass'y. No.	W	S	H	P	G	P-G
S.A.E. No. 2, 3, 4	S.A.E. 10"	12"	2.440 or 2.835 With Sleeve	12101	11.625	14½	1 15/16	2⅛	1⅜	¾
S.A.E. No. 2, 3, 4	S.A.E. 10"	11¾	2.440 or 2.835 With Sleeve	12101-K	11.625	14 5/16	1 15/16	2⅛	1⅜	¾

1. Preliminary checks should be made for the dimensions shown in Fig. No. 1, also the following must be within SAE tolerances before starting converter installation.
   A. Engine flywheel face runout.
   B. Engine flywheel housing pilot bore runout, and parallelism of mounting face in relation to flywheel.
2. Attach the converter drive plate assembly to the engine flywheel with the #F10030-12 capscrew (⅜ x ¾) and the #F16202 lockwasher supplied with the assembly. If the drive hub sleeve is required, it should be installed at this time.
3. Attach the torque converter to the converter drive plate with the #F11004-20NY socket head capscrew (5/16 x 1¼) and the #4012121 half round washer supplied with the assembly. Be sure the converter is positioned so that the drain plugs #45015 on the front side of the converter do not interfere with the drive plate.
4. Remove the converter housing from the Revers-O-Matic and attach this to the engine flywheel housing. The capscrews and lockwashers for this are not ordinarily supplied.
5. The location of the pump drive end of the torque converter (shown as dimension "A" Fig. #2) must be checked on all installations. Due to the flexibility of the drive plate allowing the converter to tilt slightly, it will be necessary to hold the converter hub in the center position.
6. The dimension "A" is to be 1⅛" plus or minus 1/32" and may be checked with a depth mike, a closely graduated scale rule and a straight edge, or the #CDG-1 "Go" and "No-Go" gauge (see Fig. #3) is available for this check. The dimension "A" is to be checked at the end of the pump drive sleeve and not at the ends of the two driving lugs. (see Fig. #2).

7. If dimension "A" is less than 1⅛" minus 1/32" or if the "Go" side of the #CDG-1 gauge will not slide by the end of the pump drive sleeve, it will be necessary to remove the converter housing and check for interference of the torque converter, converter drive plate, and engine flywheel for possible damaged or deformed drive plate. If no interference is found, the thickness of the flywheel must be reduced, or metal shims may be installed between the converter housing and the Revers-O-Matic drive.
8. If dimension "A" is more than 1⅛" plus 1/32", or the "No-Go" side of the #CDG-1 gauge will slide by the pump drive sleeve, shims may be installed between the engine flywheel and the converter drive plate. Plain washers not more than 1/16" thick may be used for this purpose.
9. The runout of the pump drive sleeve, which is not to exceed .020" max., is checked by using the #CRG-1 gauge (Fig. #4), which also checks for converter housing misalignment. The use of this gauge depends on a sense of feel. The #CRG-1 gauge slips over the pump drive sleeve and into the converter housing bore, this may require a slight lifting because the flexibility of the converter drive plate may allow the torque converter to tilt slightly. The gauge is then turned as the engine is turned over slowly. If the gauge turns freely through a full turn of the crankshaft, the converter and converter housing are in satisfactory alignment. If the gauge will not enter the converter housing bore, or the gauge does not turn freely as the engine is turned over, it will be necessary to recheck the tolerances noted in paragraph #1, as this would indicate the runout is in excess of the .020" limit.
10. Attach the Revers-O-Matic Drive to the converter housing with the #F10040-32 capscrews (7/16 x 2") and #F16203 lockwashers, checking first that the oil pump drive lugs are set at right angles to the drive lugs on the converter pump drive sleeve. The full weight of the Revers-O-Matic must be suspended during installation to prevent damage to the oil seal at the front of the oil pump. The Revers-O-Matic should be rotated a few degrees each way during installation to mesh the spline connections inside the converter.

    NOTE: The Revers-O-Matic must be filled with oil per service instructions on page 4 before engine is started.
11. Installation with reference to the standard 7250 control assembly is shown on page 12. Connect the throttle rod between the throttle lever (point "E" page 5) and the governor spring. Throttle rod length is adjusted so that the engine begins to rev up when the lever has left stop "A" by not more than 1/16". The rod from the operator's control is connected to the bell crank (point "D"), being sure that the operator can articulate the bellcrank thru 45° each way, or until stop "C" closes.

PERFORMANCE CHECK

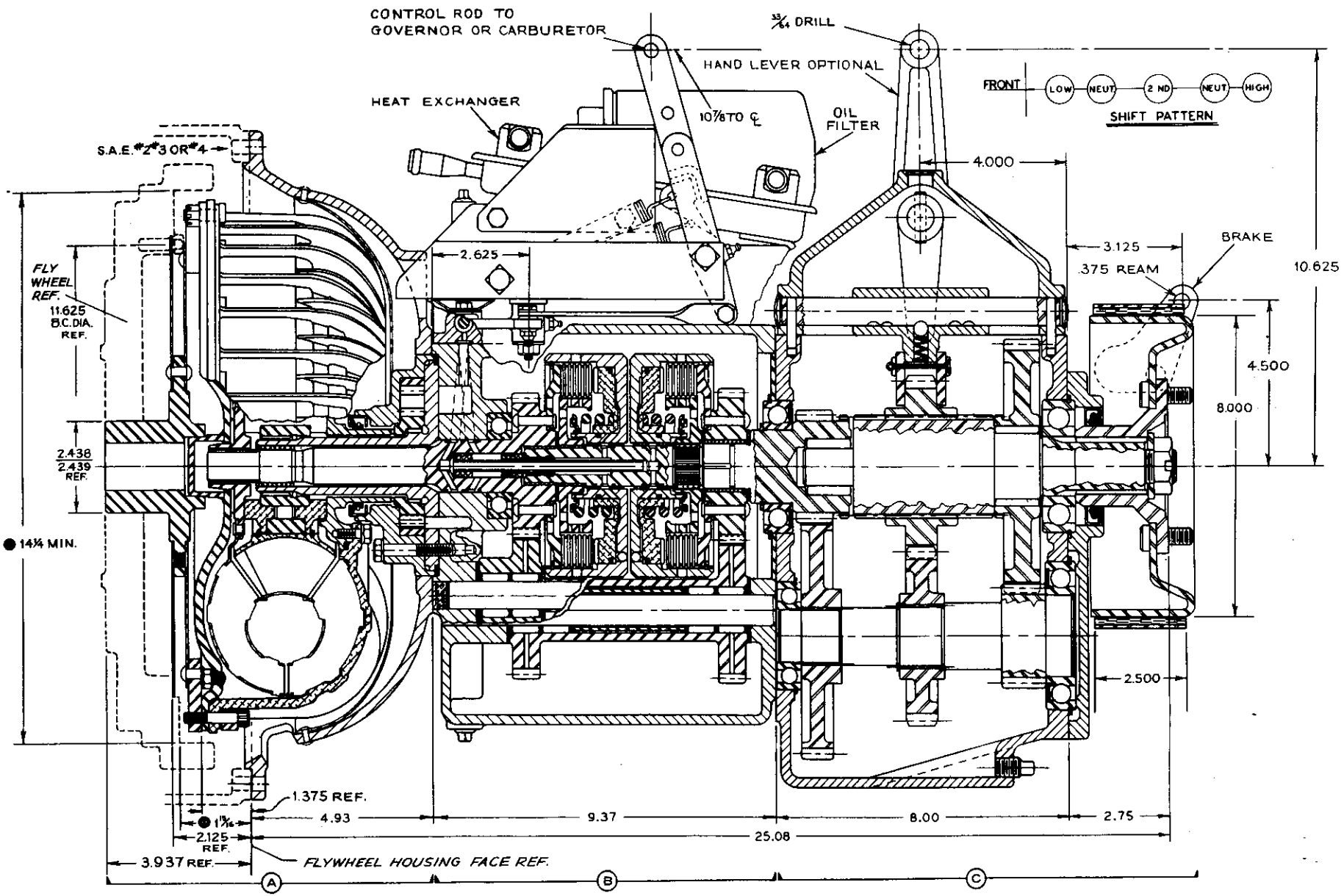
Attach a tachometer to the engine with the transmission in neutral. Holding the forward pedal or lever wide open, the engine should turn up to the top governor R.P.M. as shown on the specification sheet. If the R.P.M. is less than this, check the control and governor linkage to make sure that the governor is being held wide open, or tune up the engine. Check the R.P.M. with the reverse pedal or lever fully depressed. The engine speed should be the same as above.

Next, place the transmission in high gear and lock the brakes. Holding the forward pedal or lever wide open, the engine should turn up to the minimum static R.P.M. as shown on the specification sheet. If the R.P.M. is less than this, tune up the engine. If the engine speed is over the maximum static R.P.M. as shown on the specification sheet, the torque converter or the hydraulic clutches in the Revers-O-Matic are slipping. Repeat the same test, using the reverse pedal or lever.

If a check indicates that the converter or the Revers-O-Matic are at fault, first check the oil level of the unit as described under "Service" on Page 6. Next, check the control oil pressures. Install a 200# pressure gauge in the pipe fitting located on top of the control valve and at the front end of the Revers-O-Matic Drive. With the engine turning approximately 1500 R.P.M. the pressure should read 150 P.S.I. minimum. If less than this, remove and clean the pressure regulator valves as follows:

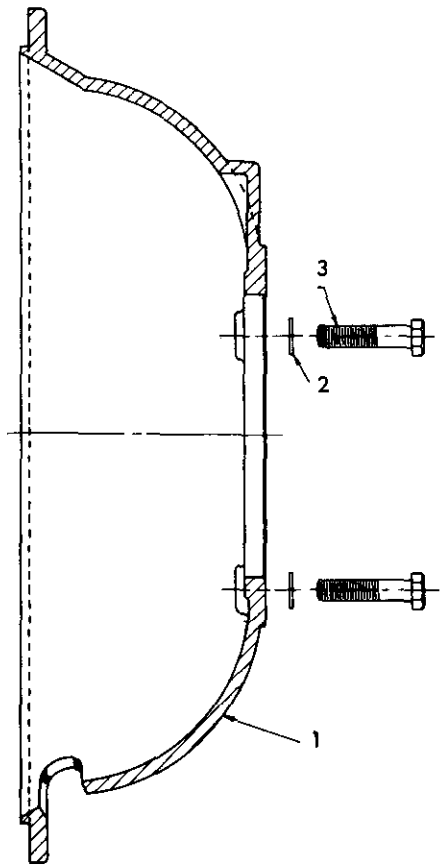
1. Remove the upper regulator cap on the left hand side of the unit near the front end of the case. Remove the spring, valve, and guide pin. Thoroughly clean the valve port as well as the various parts of the valve. Set the parts of the upper regulator valve aside so that they will not be mixed up with other parts later on.
2. Install the upper regulator cap **only** in the upper regulator valve port.
3. Remove the lower regulator cap, spring, valve and guide pin. Thoroughly clean the valve port as well as the various parts of the valve.
4. Reassemble the lower regulator valve complete, being sure that the valve slides freely in the valve port.
5. A pressure reading can now be taken on the lower regulator valve, using the gage previously installed. The lower regulator should be set at 75 to 80 P.S.I.
6. The pressure of the regulators can be adjusted by adding or removing washers under the springs in the regulator caps.
7. Remove the upper regulator cap and reassemble the upper regulator valve complete, being sure that the valve slides freely in the valve port.
8. The upper regulator valve should now be set so as to read 160 to 170 P.S.I. at 1800 R.P.M. in neutral. However, the pressure will drop momentarily below 100 P.S.I. when the clutches are engaged. With the engine idling, the regulator should read approximately 100 P.S.I.
9. With new oil in the unit, the pressure regulator valves may buzz. This is due to a foaming of the oil. Do not read the pressure gage when the regulator valves are buzzing. Idle the engine for several minutes, then rev up and read the pressure gage.
10. The 10# pressure regulator valve located on the right hand side of the unit is rarely a source of service problems. However, if the valve should require cleaning, follow the steps described above for the other two regulator valves.

TYPICAL MODEL -- RCA 23110 - 23120 - 23121



CONVERTER HOUSING

4TRCA 7500 ASSEMBLY

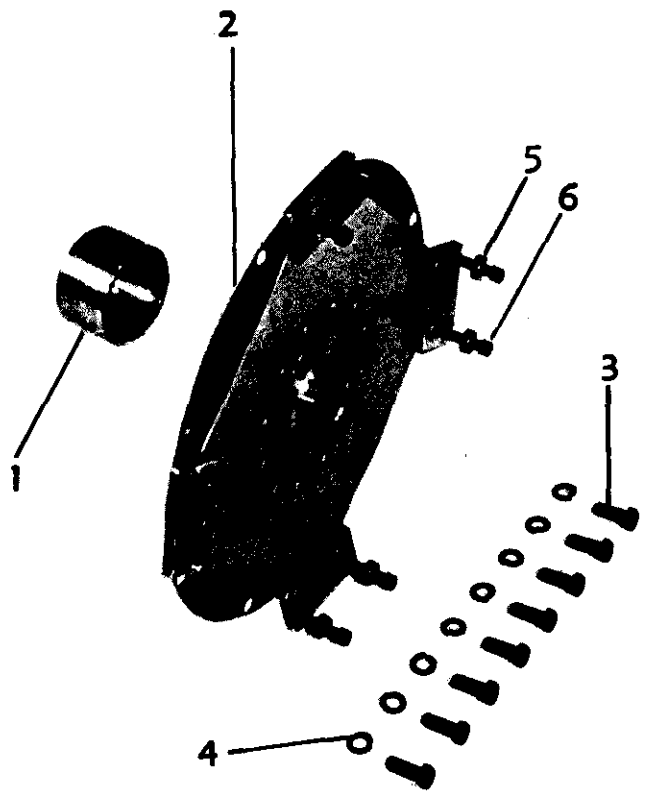


PARTS LIST

Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4TRCA 7501-2 (S.A.E. No. 2) 4TRCA 7501-3 (S.A.E. No. 3) 4TRCC 7501-4 (S.A.E. No. 4)	Converter Housing	1
2	F 16203	Lockwasher, 7/16"	4
3	F 10040-32	Capscrews, 7/16 x 2" NC	4

DRIVE PLATE ASSEMBLIES

PART NO. 4012101 & 4012101 - K

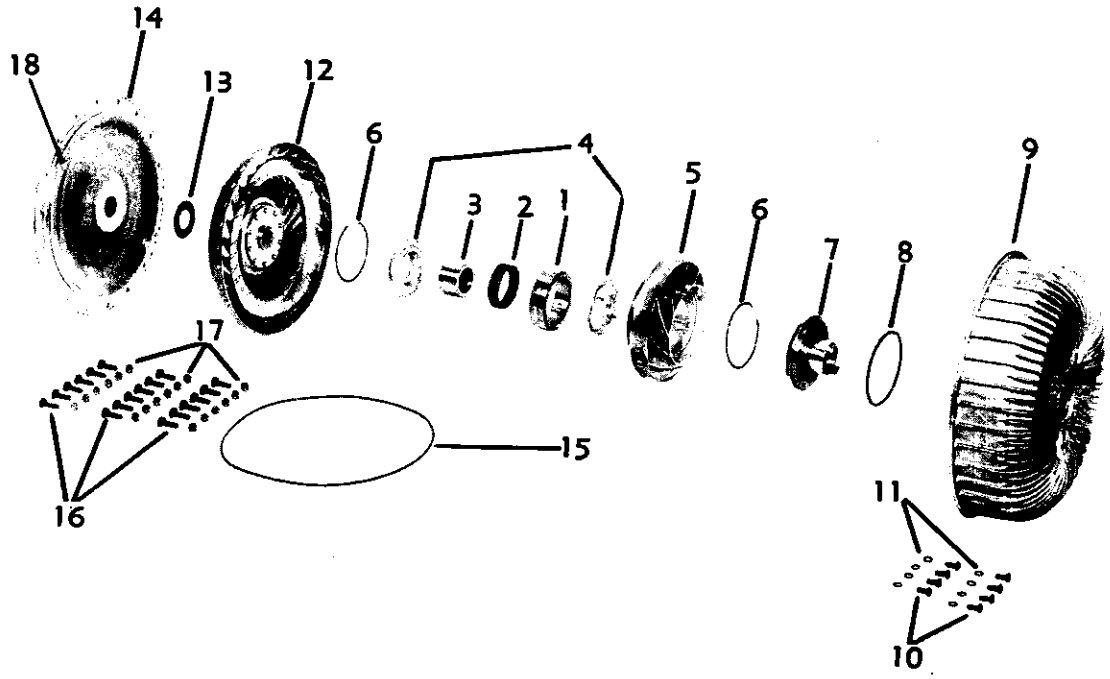


PARTS LIST

Ref. No.	Part No.	DESCRIPTION	No. Reqd.
*1	4012100-1	Sleeve, Drive Hub (1¾ long)	1
2	4012101	Drive plate assembly, converter (for 12" Converter)	1
	4012101-K	Drive plate assembly, converter (for 11¾ Converter	1
3	F 10030-12	Cap screw ⅜-NC x ¾ hex head (HT)	8
4	F 16202	Washer ⅜ Medium spring lock	8
5	4012121	Washer half round 11/16 dia x ¼ thick	8
6	F 11004-20 NY	Cap screw 5/16 NF x 1¼ socket head (HT)	8

*12100-1 sleeve is required to change the standard pilot hub diameter of 2.4395" to 2.8332" pilot hub diameter.

CONVERTER ASSEMBLY



CONVERTER ASSY. NOS. 4045001, 4045022, 4045027, 4045030, 4045031

ASSEMBLY NO. 4045001

12" CONVERTER

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4045013	Race (Outer)	1
2	4045010	Sprag (One way clutch)	1
3	4045012	Race (Inner)	1
4	4045009	Washer - Stator Thrust	2
5	4045008	Stator Assembly	1
6	4045011	Snap Ring	2
7	4045003	Hub Impeller	1
8	4045006	Gasket - Hub to Impeller	1
9	4045002	Impeller Assembly	1
10	4045004	Cap Screw	8
11	4045005	Lock Washer	8
12	4045007	Turbine Assembly	1
13	4045016	Washer - Turbine Thrust	1
14	4045014	Cover Assembly - Front	1
15	4045017	"O" Ring Gasket	1
16	4045018	Bolt - Cover to Impeller	10
17	4045019	Lock Nut	10
18	4045015	Drain Plug	2

ASSEMBLY NO. 4045022

(11¾ Hi. K) Converter Without Drive Ring

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4045013	Race (outer)	1
2	4045010	Sprag (one way clutch)	1
3	4045012	Race (inner)	1
4	4045009	Washer - Stator Thrust	2
5	4045025	Stator Assembly	1
6	4045011	Snap Ring	2
7	4045003	Hub - Impeller	1
8	4045006	Gasket - Hub to Impeller	1
9	4045023	Impeller Assembly	1
10	4045004	Cap Screw	8
11	4045005	Lock Washer	8
12	4045024	Turbine Assembly	1
13	4045016	Washer - Turbine Thrust	1
14	4045026	Cover Assembly - Front	1
15	4045017	"O" Ring Gasket	1
16	4045018	Bolt - Cover to Impeller	10
17	4045019	Lock Nut	10
18	4045015	Drain Plug	2

ASSEMBLY NO. 4045027

(11¾ Hi. K) Converter With Drive Ring

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4045013	Race (outer)	1
2	4045010	Sprag (one way clutch)	1
3	4045012	Race (inner)	1
4	4045009	Washer - Stator Thrust	2
5	4045025	Stator Assembly	1
6	4045011	Snap Ring	2
7	4045003	Hub - Impeller	1
8	4045006	Gasket - Hub to Impeller	1
9	4045023	Impeller Assembly	1
10	4045004	Cap Screw	8
11	4045005	Lock Washer	8
12	4045024	Turbine Assembly	1
13	4045016	Washer - Turbine Thrust	1
14	4045028	Cover Assembly - Front	1
15	4045017	"O" Ring Gasket	1
16	4045018	Bolt - Cover to Impeller	10
17	4045019	Lock Nut	10
18	4045015	Drain Plug	2

ASSEMBLY NO. 4045030

(11¾) Converter With Drive Ring

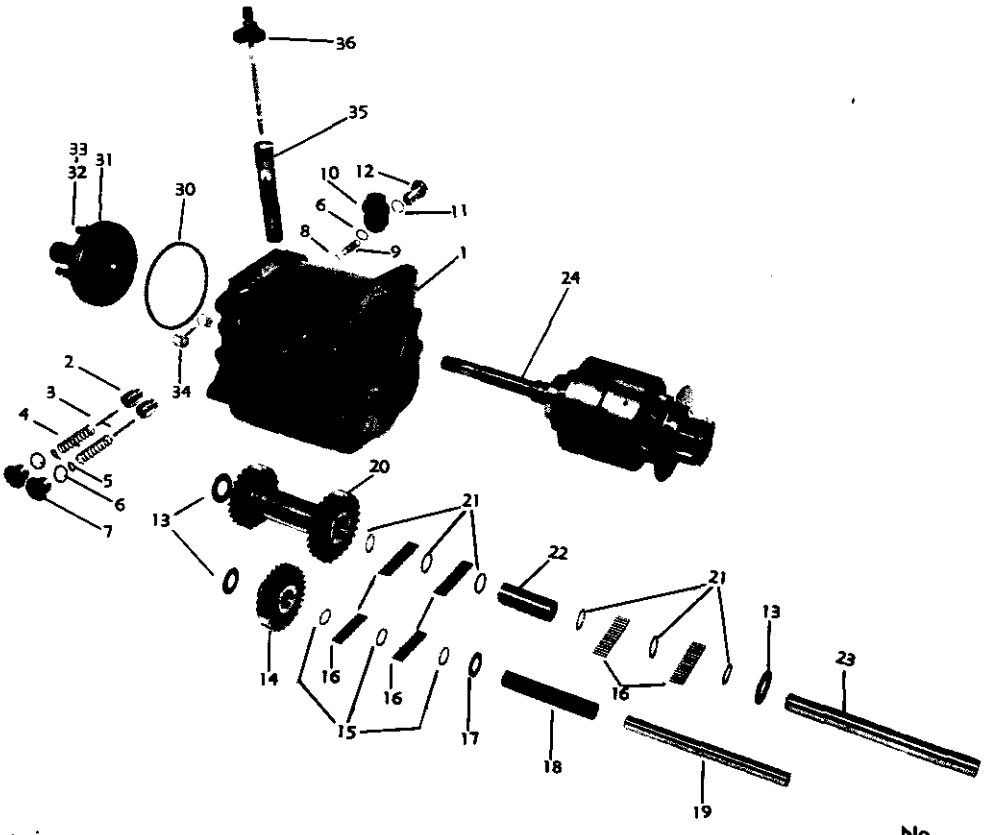
Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4045013	Race (outer)	1
2	4045010	Sprag (one way clutch)	1
3	4045012	Race (inner)	1
4	4045009	Washer - Stator Thrust	2
5	4045025	Stator Assembly	1
6	4045011	Snap Ring	2
7	4045003	Hub - Impeller	1
8	4045006	Gasket - Hub to Impeller	1
9	4045029	Impeller Assembly	1
10	4045004	Cap Screw	8
11	4045005	Lock Washer	8
12	4045024	Turbine Assembly	1
13	4045016	Washer - Turbine Thrust	1
14	4045028	Cover Assembly - Front	1
15	4045017	"O" Ring Gasket	1
16	4045018	Bolt - Cover to Impeller	10
17	4045019	Lock Nut	10
18	4045015	Drain Plug	2

ASSEMBLY NO. 4045031

(11¾) Converter Without Drive Ring

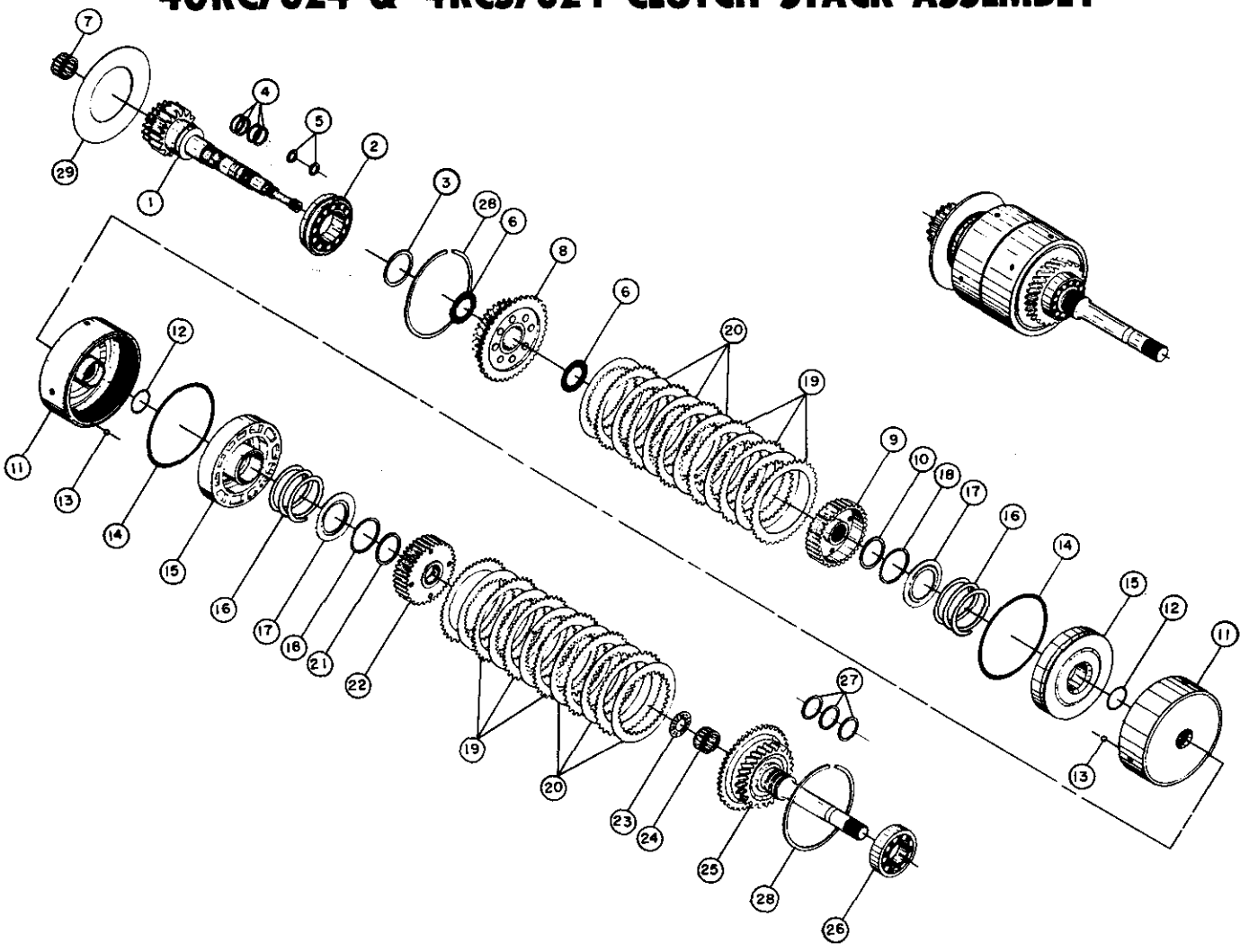
Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4045013	Race (outer)	1
2	4045010	Sprag (one way clutch)	1
3	4045012	Race (inner)	1
4	4045009	Washer - Stator Thrust	2
5	4045025	Stator Assembly	1
6	4045011	Snap Ring	2
7	4045003	Hub - Impeller	1
8	4045006	Gasket - Hub to Impeller	1
9	4045029	Impeller Assembly	1
10	4045004	Cap Screw	8
11	4045005	Lock Washer	8
12	4045024	Turbine Assembly	1
13	4045016	Washer - Turbine Thrust	1
14	4045026	Cover Assembly - Front	1
15	4045017	"O" Ring Gasket	1
16	4045018	Bolt - Cover to Impeller	10
17	4045019	Lock Nut	10
18	4045015	Drain Plug	2

REVERS-O-MATIC DRIVE 4RC23-7004



Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	40RC-7799	Case Assembly (Per Spec.) (left hand)	1 of 2
	40RC-7800	Case Assembly (Per. Spec.) (right hand)	
2	4TRC-7227-C	Valve Regulator, 80/160#	2
3	F 56790	Pin, Regulator Guide	2
4	4TRCB-7223	Spring, Regulator 80/160# 2¼	2
5	F 17030-616	Washer, Pressure Adjusting	As req.
6	F 37020-116	"O" Ring	3
7	4TRC-7225	Cap Reg. Valve	2
8	4TRC-7221	Valve, Regulator, 10#	1
9	4TRCB-7222A	Spring, Regulator Valve 10# (1¾ Long)	1
10	40RC-7666	Block, Reg. Valve	1
11	F 37010-20	"O" Ring - Outer	1
12	4TRC-7232-D	Cap Regulator	1
13	40RC-7798	Washer, Gear Thrust 57/64 x 1¾ x .062	3
14	4TRC-7142G	Gear Idler (24 Teeth)	1
15	4TRCB-7148-2	Washer, Idler Gear Bearing .757 x 1.101 x .067 Spacer	3
16	4TRCB-7148	Roller, Countershaft & Idler Gear Bearing (1815 x 750)	100
17	4TRC-7143-2E	Washer, Idler Gear (.760 x 1.5 x .057)	1
18	4TRC-7143-1E	Tube Spacer, Idler Gear (.772 x .937 x 5.637)	1
19	4TRC-7149B	Shaft, Idler Gear	1
20	4TRCB-7141D	Gear, Counter Shaft (25 and 27 teeth)	1
21	4TRCB-7146-2	Washer, Counter Shaft Gear, Bearing Spacer (8.52 x 1.147 x .067)	6
22	4TRCB-7146-1	Spacer, Counter Shaft Gear Bearing (.875 x 1.125 x 3.057)	1
23	4TRCB-7147	Shaft, Counter Shaft Gear	1
24	40RC-7624	Clutch Stack Assembly (with 17 T. Input Shaft Spline)	1 of 2
	4RCS-7624	Clutch Stack Assembly (with 29 T. Input Shaft Spline)	
30	4TRC-7009	Gasket, Oil Pump	1
31	40RC-7702	Pump Assembly Oil	1 of 2
	4000583	Pump Assembly Oil (For Model RCS)	
	F 65037	Oil Seal, Serviceable Part of Oil Pump Only	
32	F 10020-28	Cap Screw (5/16 x 1¾" N.C. Hex)	2
	F 10020-32	Cap Screw (5/16 x 2" N.C. Hex)	2
33	F 18002	Washer (5/6 Sealing)	4
34	F 87107	Cork (¾")	2
35	4TRC-7105	Screen, Oil Strainer	1
36	4TRC-7104	Filler Cap and Oil Level Gauge Assembly	1

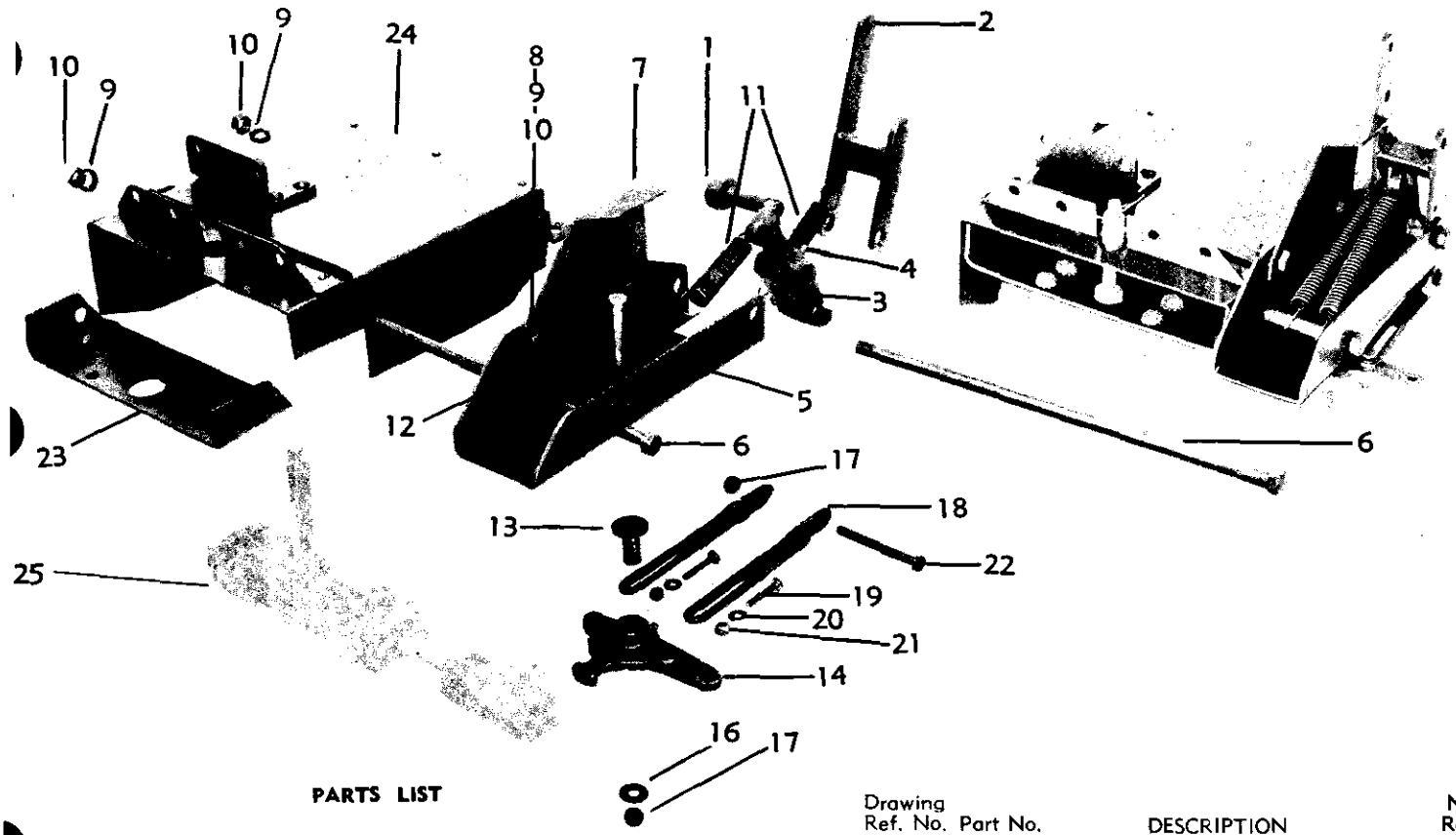
40RC7624 & 4RCS7624 CLUTCH STACK ASSEMBLY



Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	40RC7689	Shaft - Output	1
2	F 41210-RH	Bearing	1
3	F 39010-196	Snap Ring	1
4	4TRC7159A	Ring Seal	4
5	4TRC7154	Ring Seal	2
6	4TRC7175	Washer - Thrust	2
7	F 52072-15	Bearing - Pilot	1
8	4TRC7140-C	Asm. Gear Output	1
9	40RC7155	Hub, Clutch Rear	1
10	F 39010-106	Snap Ring	1
11	40RC7160	Asm. Cyl. Clutch	2
12	F 37030-222	"O" Ring	2
13	F74000-8D	Ball	2
14	40RC7167	Seal - Piston Outer	2
15	40RC7165B	Piston - Clutch	2
16	40RC7169	Spring	2
17	40RC7631	Retainer	2
18	F 80500-175	Snap Ring	2
19	40RC7727	Plate - Separator	12
20	4TRC7174	Plate - Clutch	12
21	F 39010-102	Snap Ring	1
22	40RC7156	Hub, Clutch Front	1
23	40RC7798	Washer, Gear Thrust	1
24	F 52071-73	Bearing - Pilot	1
25	40RC7719	Asm. Shaft Input (17-Tooth Spline) } 1 of 2	
	40RC7720	Asm. Shaft Input (29-Tooth Spline)	
26	F 41207	Bearing - Ball	1
27	4TRC7136A	Ring - Seal	3
28	4TRC7171	Snap Ring	2
29	4023495	Spacer Ring	1

4RC23-7250 CONTROL ASSEMBLY

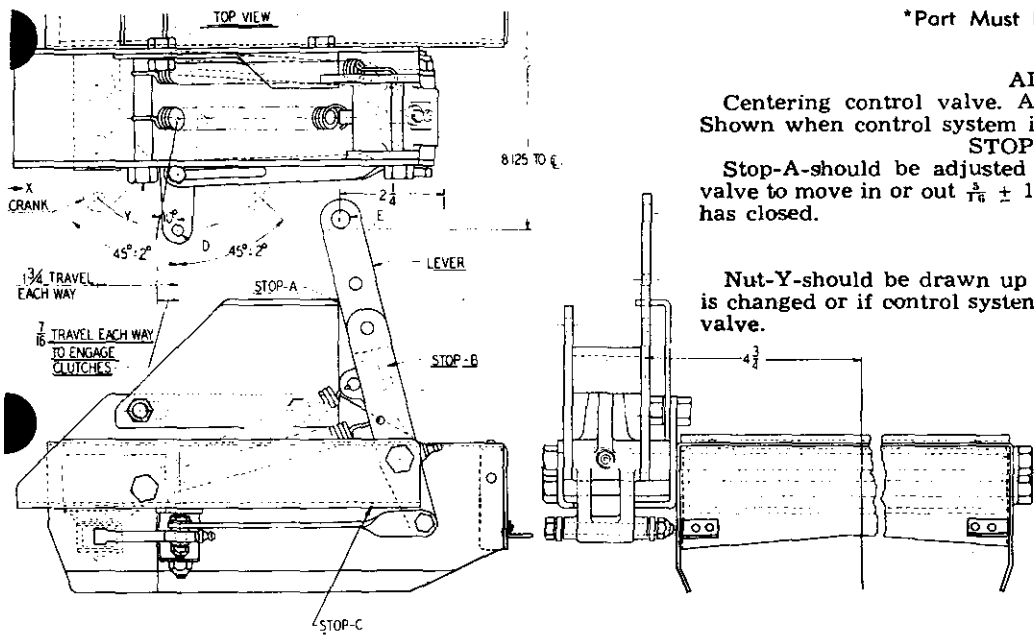
(LEFT HAND ASSEMBLY SHOWN)



PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4TRC-7272	Bushing, Lever to Rocker	1
*2	4TRCB-7278 LH	Lever, Throttle (left hand control)	1 of 2
	4TRCB-7278 RH	Lever, Throttle (right hand control)	1 of 2
3	4TRCB-7271	Rocker, Throttle	1
4	F66010	Grease Fitting	2
*5	4TRC-7268 LH	Bracket, Control (left hand control)	1 of 2
	4TRC-7268 RH	Bracket, Control (right hand control)	1 of 2
6	F10030-192	Tee Bolt (3/8 x 12 N. C. Machine Head)	2
*7	4TRCB-7277 LH	Stop, Control (left hand control)	1 of 2
	4TRCB-7277 RH	Stop, Control (right hand control)	1 of 2
8	F 10030-16	Bolt (3/8 x 1 NC Hex.)	2
9	F 16202	Washer (3/8 Lock)	4
10	F 13005	Nut (3/8 NC Hex.)	4
11	4TRCB-7279	Spring, Throttle Lever	2
12	F 10201-16	Bolt (1/4 x 1-3/4 NF Hex.)	1
13	4TRC-7262	Bushing, Bellcrank	1
14	4TRC-7261	Bellcrank	1
15	F 17001-N	Washer (1/4 Std. Flat)	1
16	F 17000-36	Washer (3/16 Std. Flat)	1
17	F 78125-28	Nut (1/4" NF Hex. Fibrelock)	2
18	4TRC-7263	Link, Bellcrank to Rocker	2
19	F 10200-10	Bolt (#10-32 x 1 Hex.)	2
20	F 17000-36	Washer (#10 Flat)	2
21	F 78110-32	Nut (#10-32 Hex. Fibrelock)	2
22	F 10201-25	Bolt (1/4 x 2-5/8 N.F. Hex.)	1
23	4TRC-7269	Base	1
24	4RC23-7267	Air Scoop (per spec.)	1
25 (Ref)	4TRC-7200	Control Valve Assembly	1

*Part Must Be Ordered For Left or Right Hand Control.



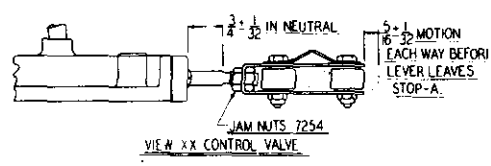
ADJUSTMENTS

Centering control valve. Adjust Jam Nuts to hold 3/4 ± 1/32 dim. Shown when control system is in neutral.

STOP ADJUSTMENTS

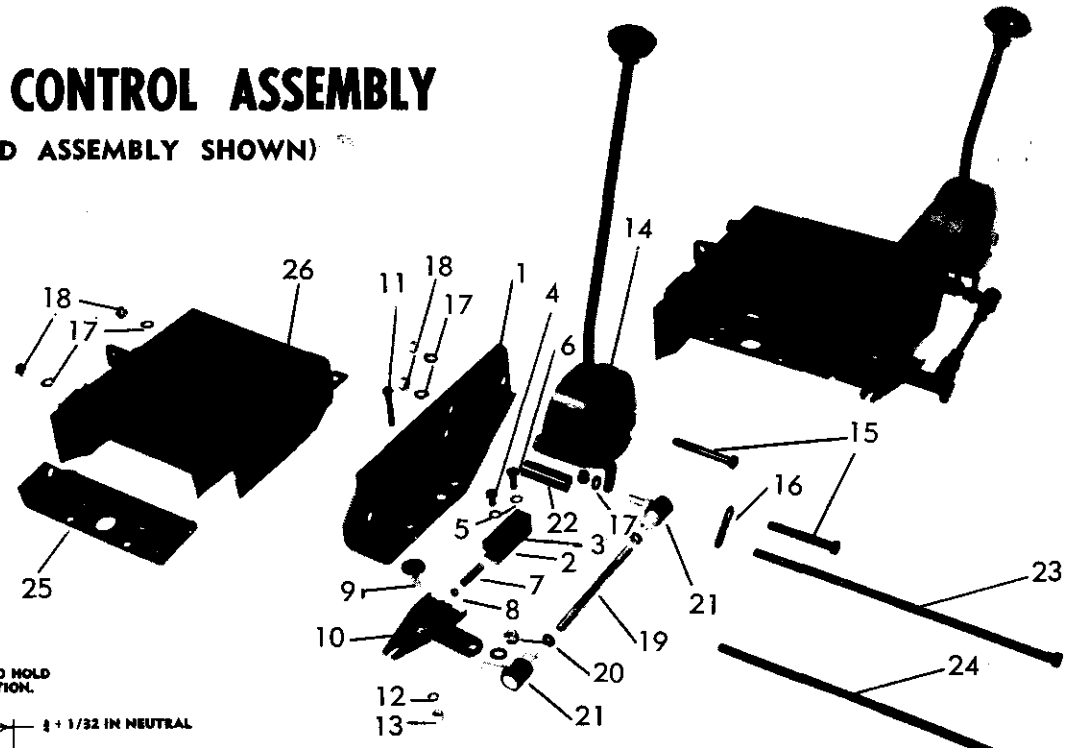
Stop-A-should be adjusted fore or aft to a position that will allow valve to move in or out 5/16 ± 1/32 before lever leaves stop-A-and-stop-B-has closed.

Nut-Y-should be drawn up snug but not tight—if tension on this nut is changed or if control system is replaced. Recheck centering of control valve.

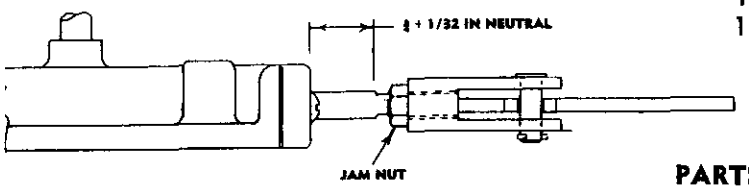


4RC237450B CONTROL ASSEMBLY

(LEFT HAND ASSEMBLY SHOWN)



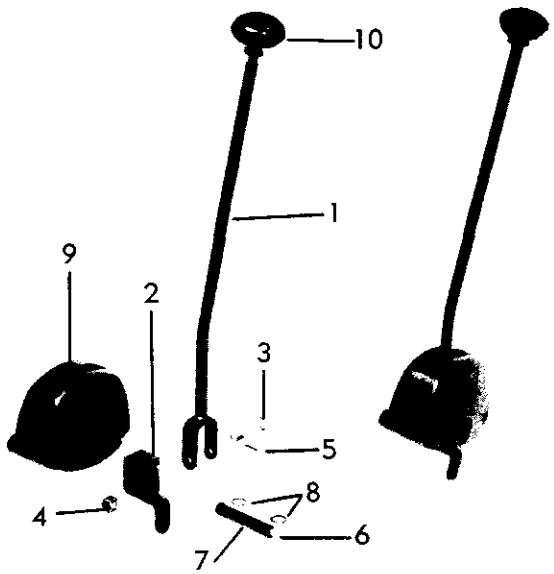
TO CENTER CONTROL VALVE, ADJUST JAM NUT TO HOLD DIM. + 1/32 WHEN CONTROL IS IN NEUTRAL POSITION.



PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
*1	40RC-7268B LH	Bracket (left hand control)	1 of 2
	40RC-7268B RH	Bracket (right hand control)	
2	4TRC-7281A	Block, Detent	1
3	F 66010	Grease Fitting	1
4	F 10020-8	Cap Screw	1
5	F 16201	Starwasher	2
6	F 10020-16	Cap Screw	1
7	40TR-7204	Spring	1
8	F 74000-12	Ball	1
9	4TRC-7262	Bushing Bellcrank	1
10	40RC7616	Bellcrank	1
11	F 10201-16	Bolt	1
12	F 17001-N	Washer	1
13	F 78125-28	Nut, Fiberlock	1
14	40RC-7620	Shifting Quadrant Ass'y.	1
15	F 10030-44	Bolt	2
16	40RC-7452	Brace Link	1
17	F 16202	Lockwasher	6
18	F 13005	Nut	4
19	40RC-7263C	Link Rod	1
20	F 79105	Nut	4
21	F 35100-3R	Rod End	2
22	40RC-7451	Spacer	1
23	F 10030-184	Tie Bolt	1
24	F 10030-176	Tie Bolt	1
25	4TRC-7269	Base	1
26	4RC23-7267	Air Scoop	1
27 (Ref)	TRCC-7200	Control Valve	1

*Part must be ordered for left or right hand control



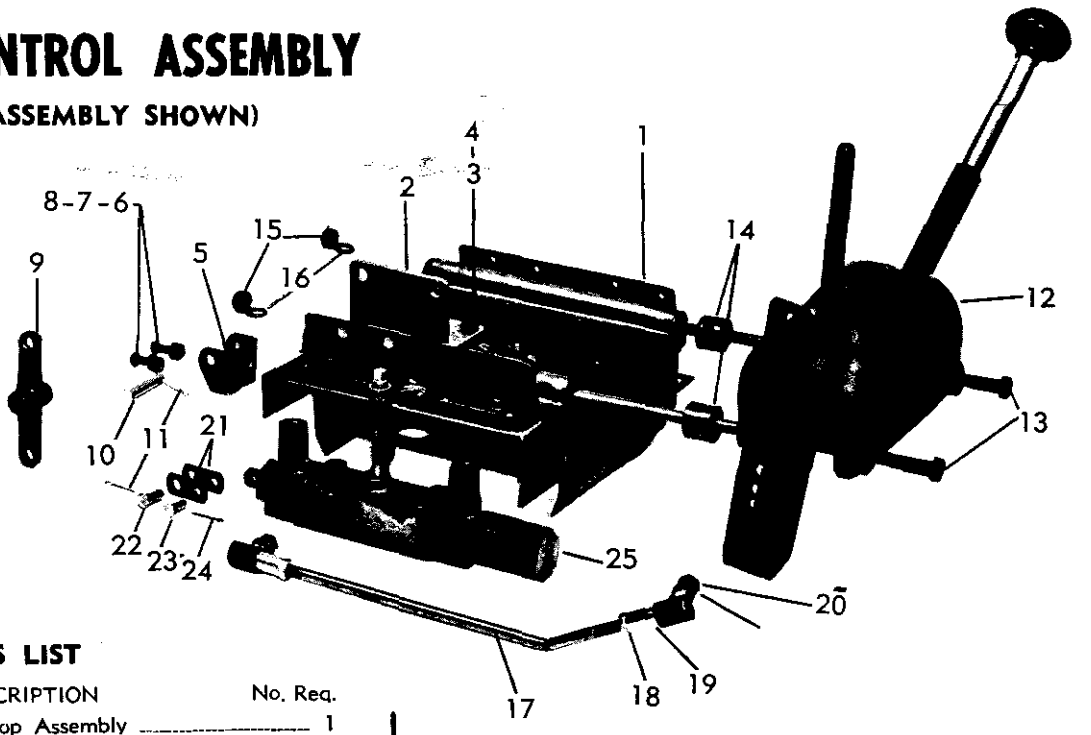
40RC-7620 QUADRANT ASSEMBLY

PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	40RC-7278B	Lever	1
2	40RC-7281B	Fulcrum	1
3	F 10203-16	Bolt	1
4	F 72006-F	Nut, Costle	1
5	F 26005-16	Cotter Pin	1
6	F 66010	Grease Fitting	1
7	40RC-7275	Shaft	1
8	F 39010-50	Snap Ring	2
9	40RC-7271A	Quadrant	1
10	F 83000	Hand Ball	1

40RC7639 CONTROL ASSEMBLY

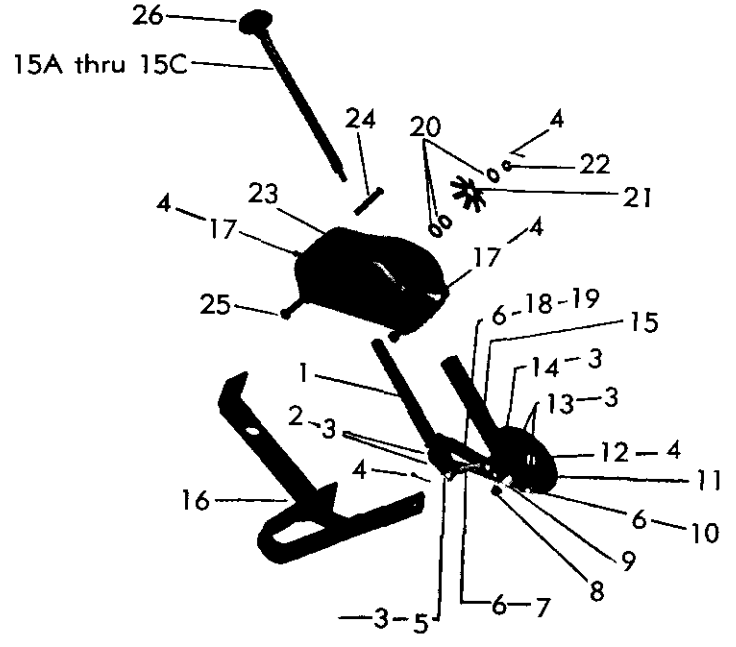
(LEFT HAND ASSEMBLY SHOWN)



PARTS LIST

Ref. No.	Part No.	DESCRIPTION	No. Req.
1	40RC7267C	Air Scoop Assembly	1
2	4012616	Oil Filter Bracket	1
3	F 10020-12	Capscrew	2
4	F 16201	Lockwasher	4
5	4012632	Fulcrum Bracket	1
6	F 11145-12	Capscrew	2
7	F 16200	Lockwasher	2
8	F 13001	Hex Nut	2
9	4012627	Crank	1
10	F 24003-49	Clevis Pin	1
11	F 26005-12	Cotter Pin	2
12	40121067	Control Assembly	1
13	F 10030-224	Bolt	2
14	40RC7652	Spacer	2
15	F 13005	Nut	2
16	F 16202	Lockwasher	2
17	40RC7638	Connecting Rod	1
18	F 79103	Hex Jam Nut	2
19	F 35100-3R	Ball Joint	2
20	F 13004	Hex Full Nut	2
21	4012640	Link, Model RC	2
22	F 24003-17	Clevis Pin	1
23	F 24002-19	Clevis Pin	1
24	F 26003-8	Cotter Pin	1
25	Ref. Per Spec.	Control Valve Assembly	1

40121067 HAND LEVER CONTROL ASSEMBLY

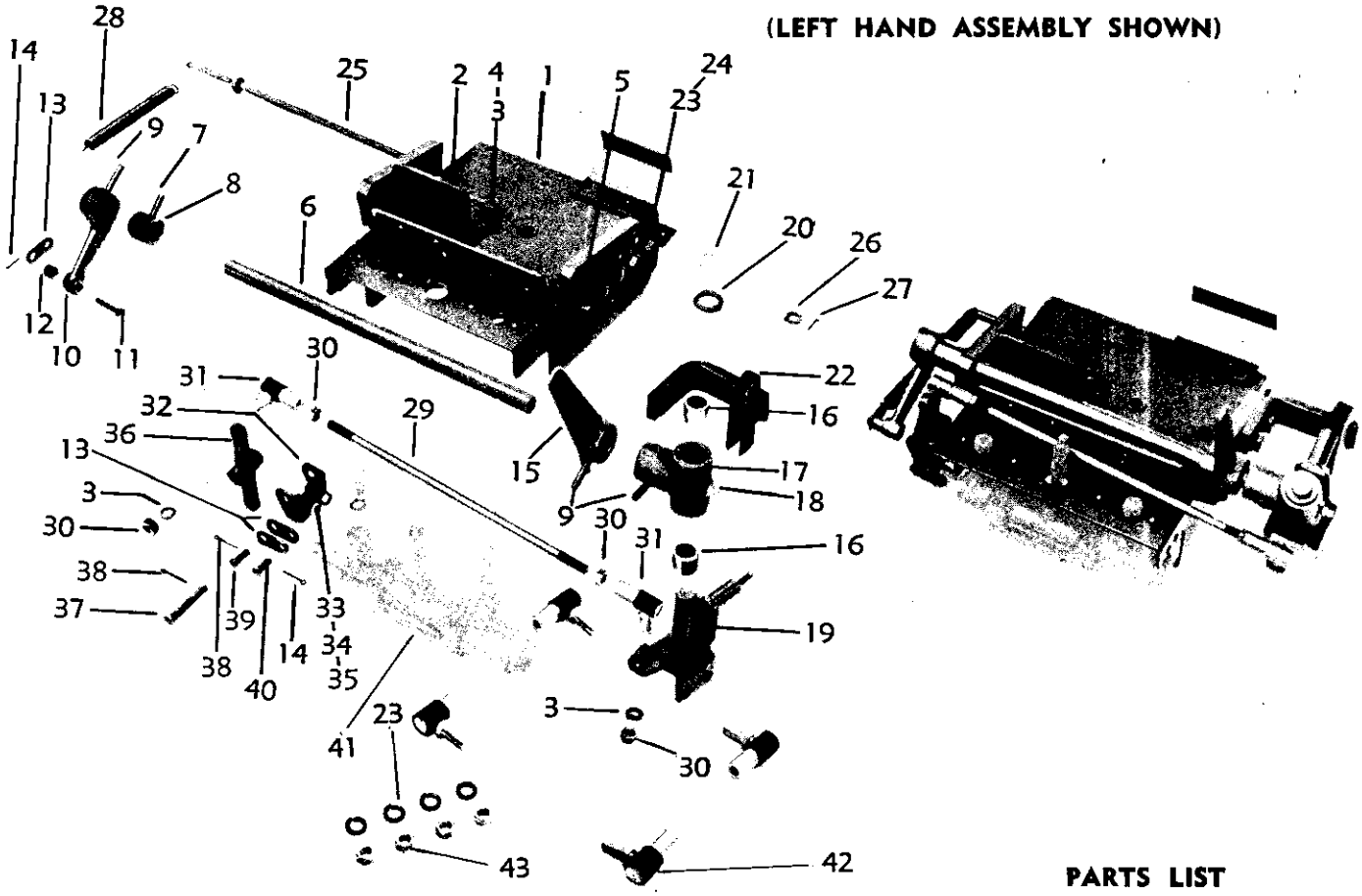


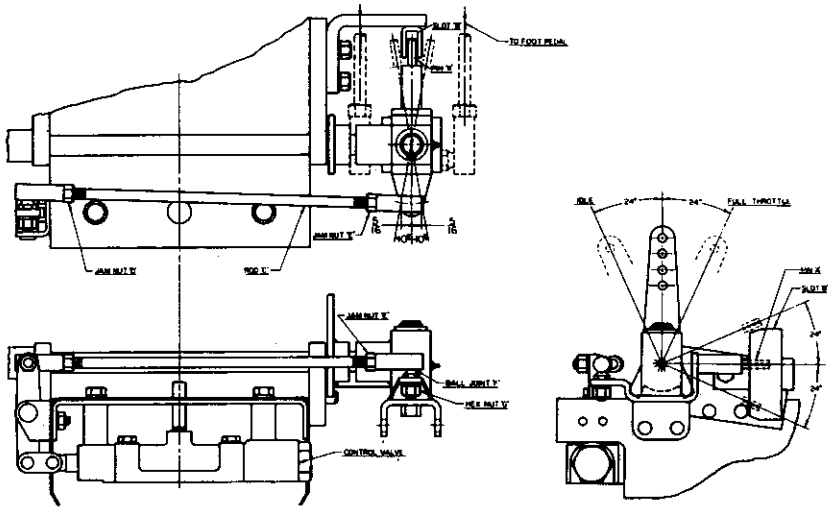
PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Req.
1	4012655	Lever, Throttle	1
2	F 24002-29	Pin, Clevis	1
3	F 26003-8	Pin, Cotter	6
4	F 26005-12	Pin, Cotter	5
5	F 24002-17	Pin, Clevis	1
6	4012656	Strut, Male	3
7	4012658	Strut, Female Forward	1
8	F 10010-16	Cap Screw Socket Hd. (H.T.)	1
9	4012654	Stud, Ball	1
10	4012659	Strut, Female Reverse	1
11	4012653	Plate, Friction	1
12	F 24004-66	Pin, Clevis	1
13	F 24002-20	Pin, Clevis	2
14	F 24002-37	Pin, Clevis	1
15	4012652	Hand Lever Bracket	1
15A	4012652-4-A	Hand Lever Ass'y, 12" Stick	1 of 3
15B	4012652-4-B	Hand Lever Ass'y, 18" Stick	1 of 3
15C	4012652-4-C	Hand Lever Ass'y, 24" Stick	1 of 3
16	40121066	Valve Lever Assembly	1
17	F 24004-29	Pin, Clevis	2
18	4012657	Strut, Female Balance	1
19	4012668	Spring, Balance Strut	1
20	F 17030-816	Washer, Flat	3
21	4012665	Washer Spring	1
22	F 75320-7	Nut, Castle Shear —N.F. Hex. Hd.	1
23	4012651	Body, Hand Lever Control	1
24	F 24004-65	Pin, Clevis	1
25	F 10030-68	Bolt, Hex. Hd. (H.T.)	2
26	F 83000	Ball, Hand Lever	1

4RC23-12602 CONTROL ASSEMBLY

(LEFT HAND ASSEMBLY SHOWN)





ADJUSTMENT

Centering foot pedal control—With the control valve in neutral position, pin 'A' should be over slot 'B', and free to pass through slot 'B' when both foot pedals are depressed simultaneously.

For positioning pin 'A': ball joint 'F' may be released by taking off nut 'G'. Rod 'C' may then be lengthened or shortened for the positioning of pin 'A'.

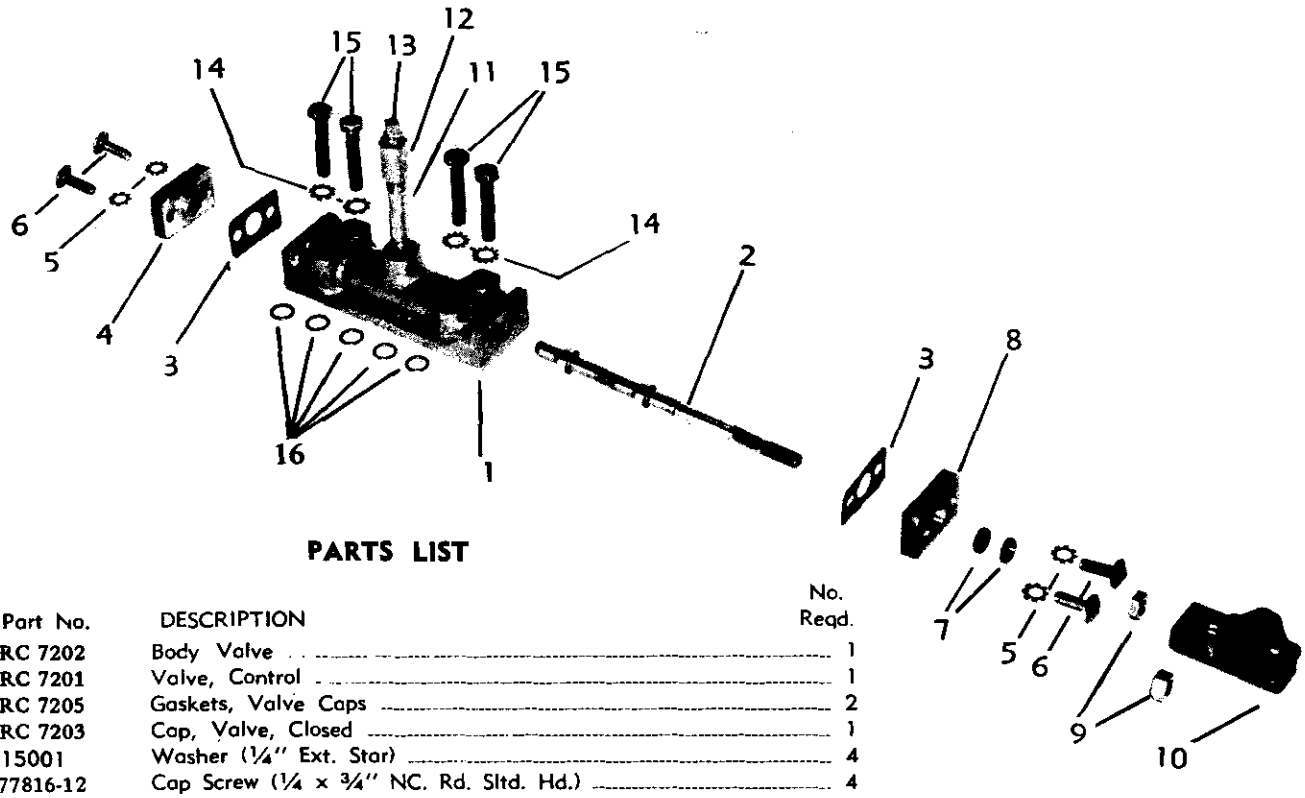
After adjustment, when pressure is applied to only one foot pedal, the pin assembly will swing 10° respectively.

While depressing the foot pedal, pin 'A' will move down, and should clear the outside of the slot.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION	No. Req.
1	4RC23-12630	Air Scoop	1
2	4012616	Oil Filter Bracket	1
3	F 16201	Lockwasher	1
4	F 10020-12	Cap Screw, Hex Head	2
5	F 25375-14	Roll Pin	1
6	4012617	Shaft	1
7	F 25250-16	Roll Pin	1
8	4012629	Spacer	1
9	F 25250-20	Roll Pin	3
10	4012628	Crank	1
11	F 24002-37	Clevis Pin	1
12	4012641	Spacer	1
13	4012640	Connecting Link	3
14	F 26003-8	Cotter Pin	2
15	4012635	Arm-Throttle Control	1
16	F 47010-12	Bearing - Needle	2
17	4012619	Control Block	1
18	F 66012-S	Grease Fitting	1
19	4012621	Bracket	1
20	4012622	Spacer	1
21	F 39010-62	Snap Ring	1
22	4012633	Guide Stop	1
23	F 16202	Lockwasher	6
24	F 10035-16	Cap Screw	2
25	4012611	Spring, Anchor	1
26	F 17003-W	Flat Washer	1
27	F 26005-12	Cotter Pin	1
28	4012606	Spring	1
29	4012625	Connector Rod	1
30	F 13004	Hex. Full Nut	4
31	F 35100-3R	Ball Joint	2
32	4012632	Fulcrum Bracket	1
33	F 11145-12	Cap Screw	2
34	F 16200	Lockwasher	2
35	F 13001	Nut	2
36	4012627	Crank	1
37	F 24003-49	Clevis Pin	1
38	F 26005-12	Cotter Pin	2
39	F 24003-19	Clevis Pin	1
40	F 24002-19	Clevis Pin	1
41	4012604	Control Valve Assembly	1
42	F 35100-4R	Ball Joint	4
43	F 13006	Hex, Full Nut	4

4TRC 7200 CONTROL VALVE ASSEMBLY

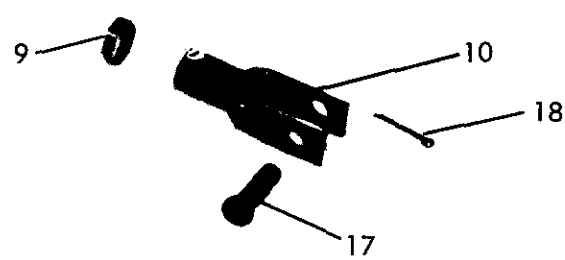


PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4TRC 7202	Body Valve	1
2	4TRC 7201	Valve, Control	1
3	4TRC 7205	Gaskets, Valve Caps	2
4	4TRC 7203	Cap, Valve, Closed	1
5	F 15001	Washer (¼" Ext. Star)	4
6	F 77816-12	Cap Screw (¼ x ¾" NC. Rd. Sltd. Hd.)	4
7	F 65133	Seal, Oil	2
8	4TRC 7204	Cap, Valve, Open (Takes Oil Seal)	1
9	F 79103	Nut (5/16" NF, Hex., Thin Jam)	2
10	4000488	Roller Cage Assy.	1
11	F 32610-16	Nipple, Pipe (⅛ x 2")	1
12	F 32720-2	Coupling (⅛" Pipe)	1
13	F 19001-2	Plug (⅛" Pipe, Sq. Hd.)	1
14	F 15002	Washer (5/16" Ext. Star)	4
15	F 10020-24	Cap Screw (5/16 x 1½" NC. Hex.)	4
16	F 37010-012	"O" Ring	5

4TRCC 7200 CONTROL VALVE

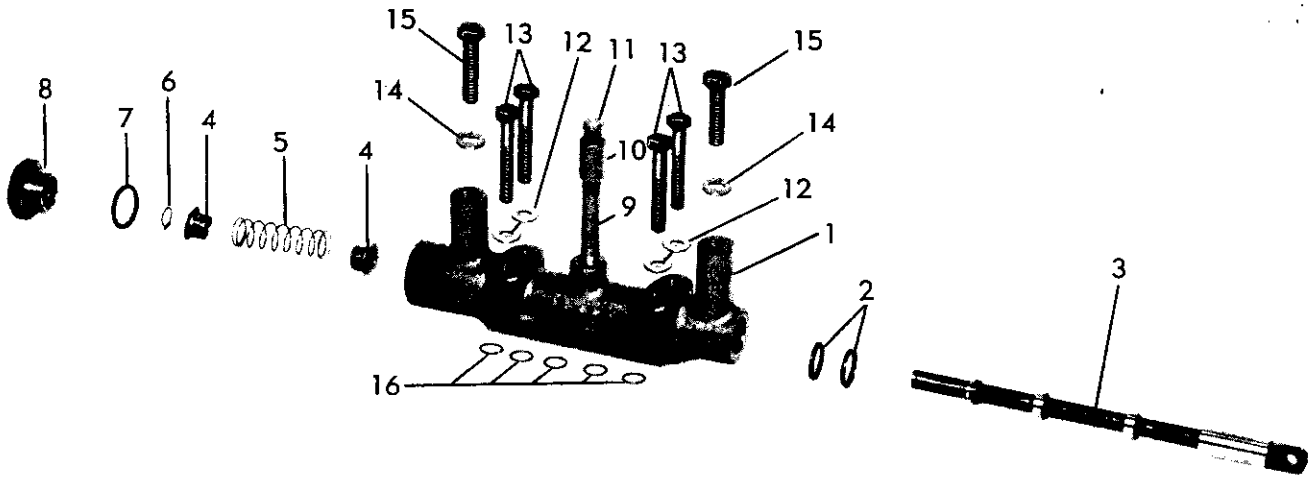
SAME AS ABOVE 4TRC-7200 ASSEMBLY EXCEPT FOR THE FOLLOWING ITEMS.



PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
9	F 79103	Nut	1
10	4TRC-7251A	Yoke	1
17	F 24002-23	Clevis Pin	1
18	F 26003-8	Cotter Pin	1

4012604 AND 4012604-A VALVE ASSEMBLIES

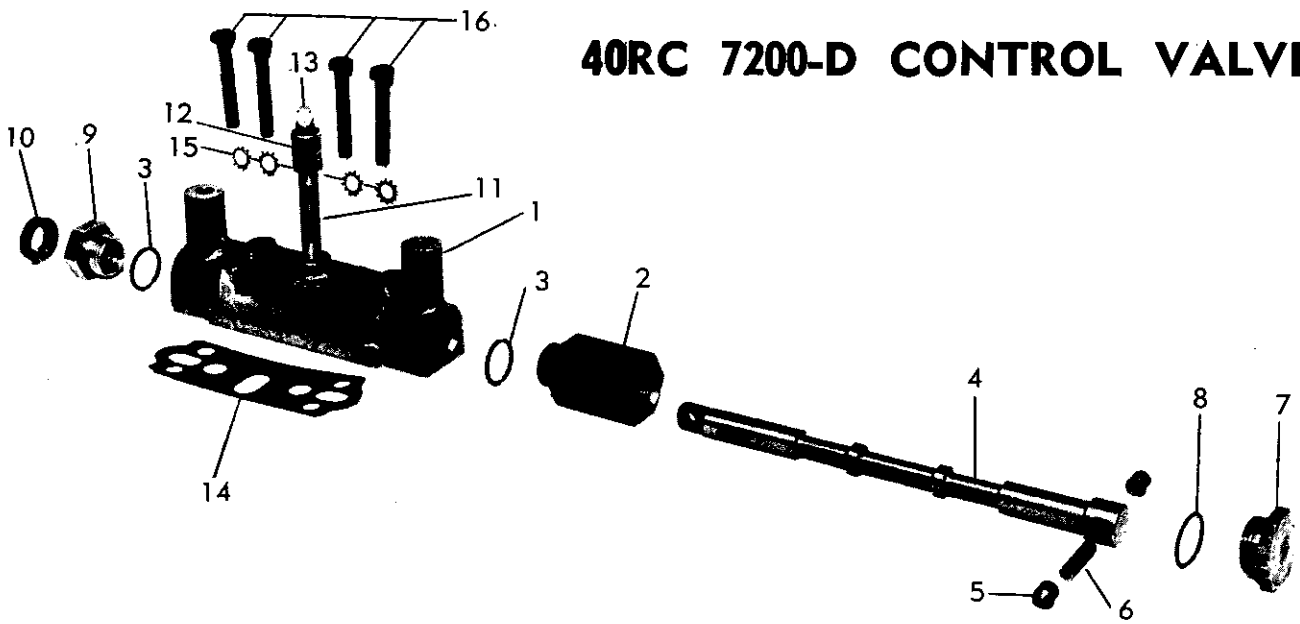


PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4012603	Valve, Body	1
2	F 65018	Oil Seal	2
3	4TRCL-7201	Valve	1
4	4RCF-7203	Spacer	2
*5	4RCF-7204	Spring Use with 12604 Valve	1
	400X-337	Spring Use with 12604A Valve	1
6	F 39010-37	Snap Ring	1
7	F 37020-116	"O" Ring	1
8	4RCF-7207	Cap	1
9	F 32610-20	Pipe	1
10	F 32720-2	Coupling	1
11	F 19001-2	Plug	1
12	F 15002	Star Washer	4
13	F 10020-28	Cap Screw	4
14	F 16202	Lockwasher	2
15	F 10030-16	Cap Screw	2
16	F 37010-012	"O" Ring	5

*Note—12604-A Valve Requires the heavier 400X-337 Spring

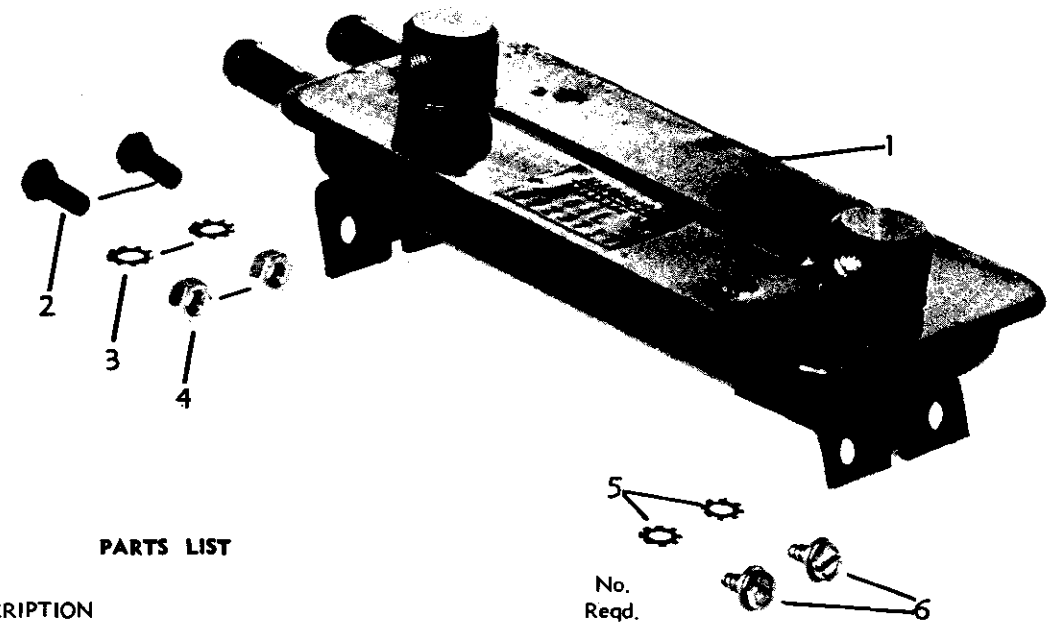
40RC 7200-D CONTROL VALVE



PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Req.
1	40RC-7202-D	Body Valve	1
2	X203-21	Barrel, 3 Pos. Valve	1
3	F 37060-910	"O" Ring	2
4	X203-18	Valve, 3 Positions	1
5	X203-19	Cup, Detent	2
6	X203-20	Spring, Detent	1
7	X203-22	Cap, Valve	1
8	F 37010-020	"O" Ring	1
9	X203-5	Cap, Valve Seal	1
10	F 65019	Oil Seal	1
11	F 32610-16	Pipe Nipple	1
12	F 32720-2	Coupling	1
13	F 19001-2	Plug, Sq. Hd.	1
14	X203-2	Gasket	1
15	F 15002	Starwasher	4
16	F 10020-32	Cap Screw	4

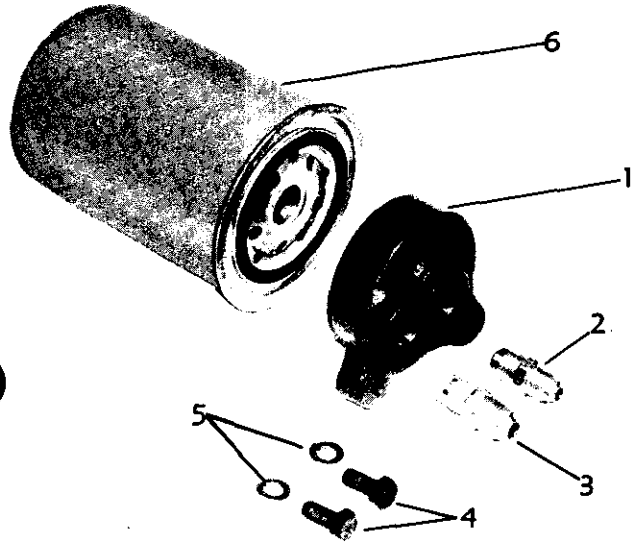
4TRCA 7230 HEAT EXCHANGER ASSEMBLY



PARTS LIST

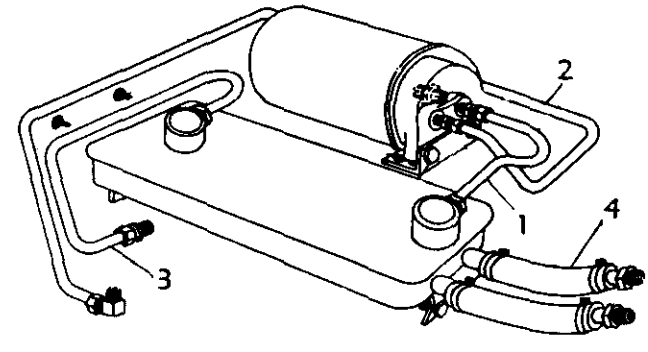
Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4TRCA 7236	Heat Exchanger (Oil Cooler)	1
2	F 10020-12	Bolt (5/16 x ¾ N.C. Hex Head)	2
3	F 16201	Washer (5/16 Lock)	2
4	F 13003	Nut (5/16 N.C. Hex. Head)	2
5	F 15001	Washer (¼ Ext. Star)	2
6	F 86014-6	Screw, Self Tapping (¼ x ⅜) Hex. Head	2

4TRC 7240 OIL FILTER ASSEMBLY



PARTS LIST

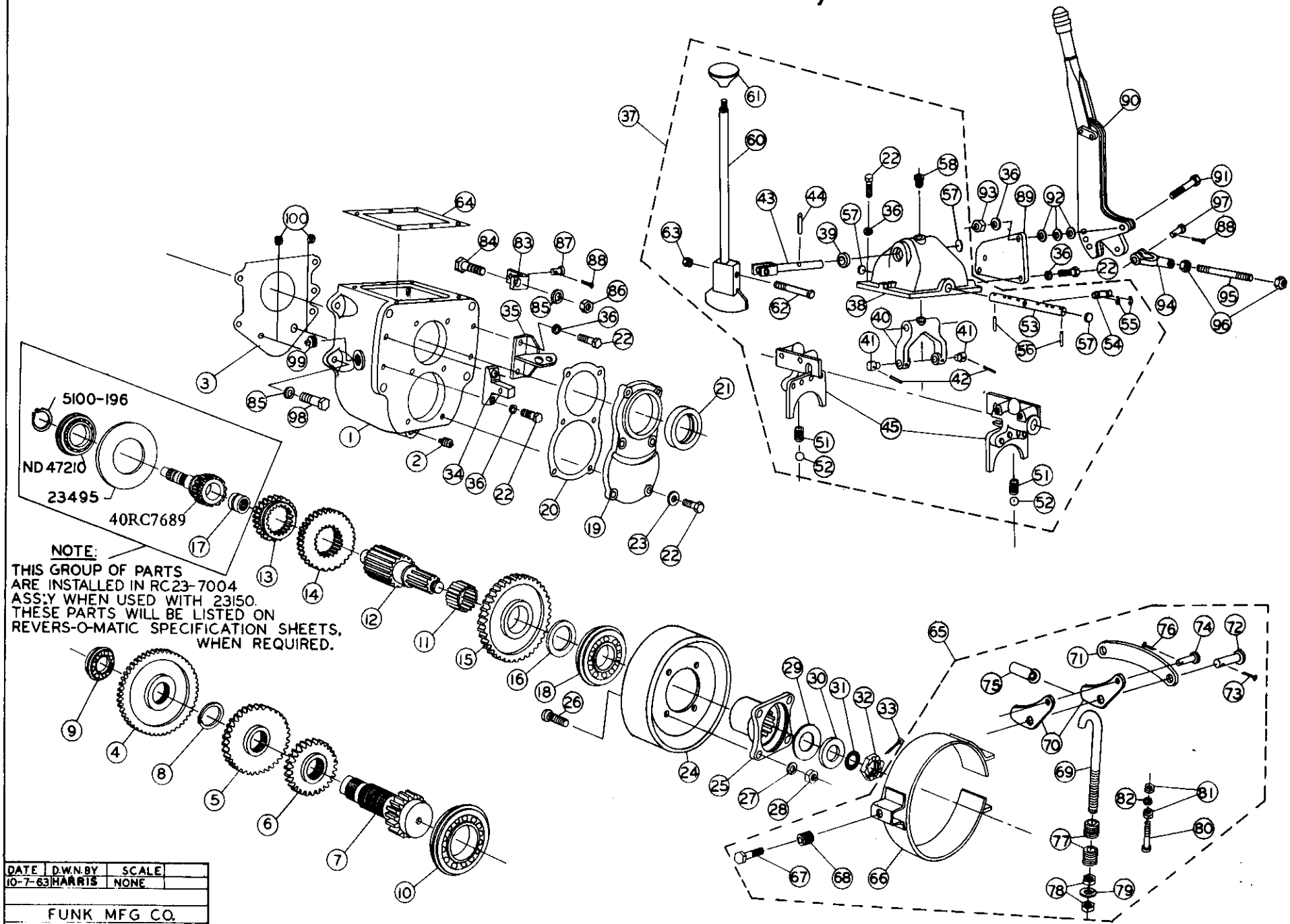
1	40RC 7607	Filter Cap Ass'y.	1
2	F 33007-5A	Fitting (5/16 x ¼) Per Spec.	1
3	F 33007-6	Fitting (⅜ x ¼) Per Spec.	1
4	F 10020-12	Cap Screw 5/16 x ¾ (N.C.)	2
5	F 16201	Washer 5/16 Lock	2
6	4TRC 7244	Oil Filter (AC Type PF-2 Cartridge)	1



Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	7246	Tube 5/16 Copper (heat exchanger to oil filter)	
2	7234	Tube 5/16 Copper (Regulator block to oil filter)	
3	7233	Tube 5/16 Copper (heat Exchanger to Case)	
4		Hose (⅝ ID) This Item is shown for reference only and is not supplied by the Funk Mfg. Co.	

NOTE:
Model No. & Specification No. MUST ALWAYS Be Shown When Ordering Tubes.

STANDARD 23150 TRANSMISSION 4-SPEED (Non-Synchronized)



DATE	D.W.N. BY	SCALE
10-7-63	HARRIS	NONE

FUNK MFG CO.
TRANSMISSION 4 SPD. 23150

STANDARD 23150 TRANSMISSION
4-SPEED (Non-Synchronized)

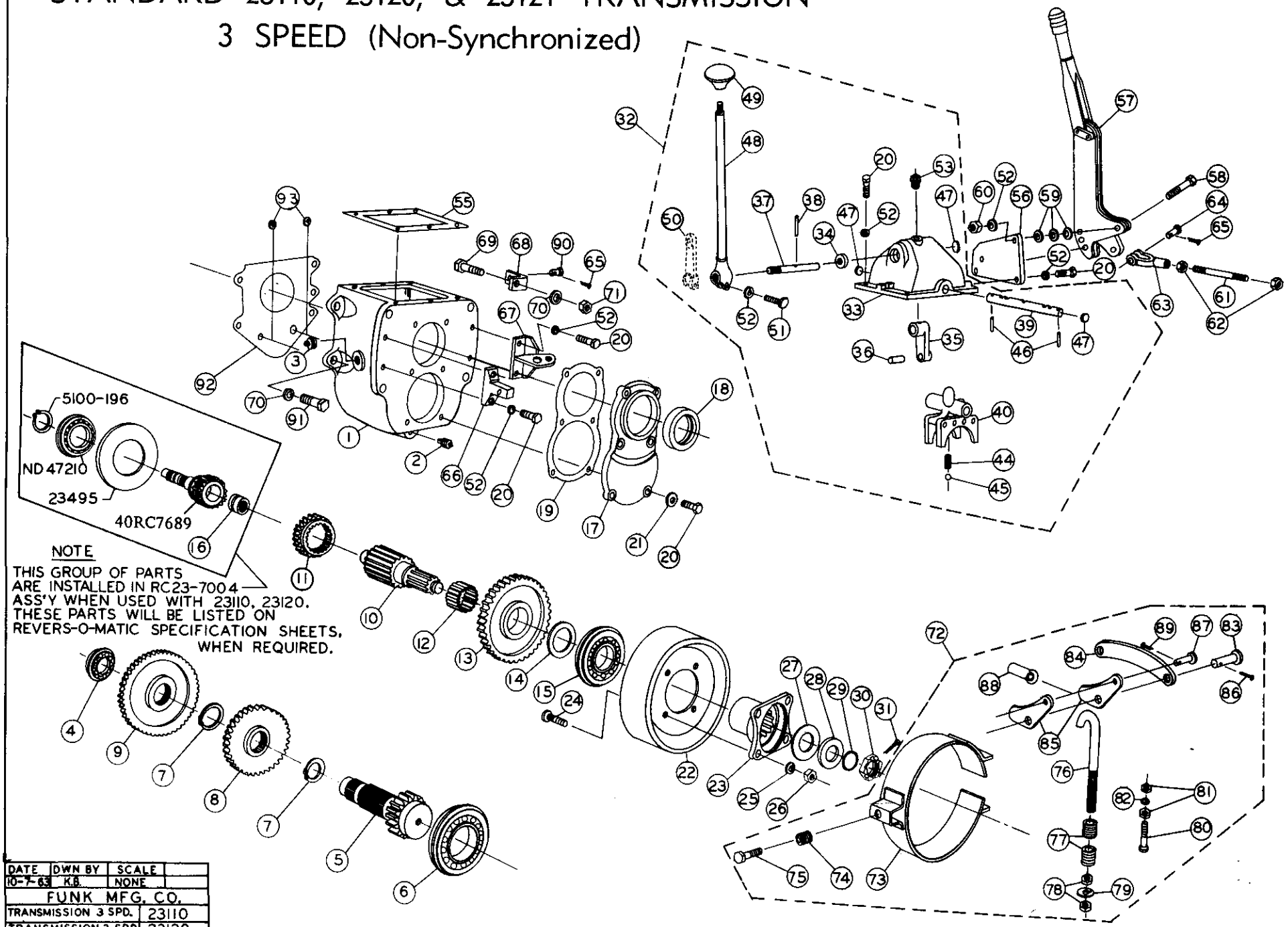
PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4023301B	Case	1
2	F 20000-2	Plug, Drain	1
3	4023306	Gasket, Front	1
4	4023307	Gear, Counter Driven	1
5	4023308	Gear, Counter 3rd	1
6	4023314	Gear, Counter 2nd	1
7	4023543	Gear, Counter Lo	1
8	F 39010-162	Snap Ring, Counter	1
9	F 40207-R	Brg., Counter Front	1
10	F 41211-R	Brg., Counter Rear	1
11	F 56770	Roller, Gear Bore	32
12	4023341	Shaft, Main	1
13	4023343	Gear, Main Shaft 3rd	1
14	4023349	Gear, Main Shaft 2nd	1
15	4023355	Gear, Main Shaft Lo	1
16	4023356	Washer, Lo Gear	1
17	F 52072-15	Bearing Pilot	1
18	F 40308-R	Bearing, Output	1
19	4023371	Cover, Rear	1
20	4023372	Gasket, Rear	1
21	F 65024	Oil Seal, Rear	1
22	F 10030-16	Cap Screw	16
23	F 18003	Washer, Dynaseal	6
24	4023382	Drum Brake	1
25	F 84302	Flange Brake	1
26	4023384	Bolt, Brake Flange	4
27	F 16203	Lockwasher	4
28	F 13008	Nut	4
29	4023488	Gasket, Flange	1
30	4000326	Washer, Flange	1
31	F 37020-118	"O" Ring, Flange	1
32	F 75320-14	Nut, Flange	1
33	F 26007-24	Cotter Pin, Flange	1
34	4023385	Anchor, Brake Band	1
35	4023386	Bracket, Brake Guide	1
36	F 16202	Lockwasher	12
37	4023402	Ass'y Shift Cap	
38	4023406	Cap	1
39	F 65022	Oil Seal	1
40	4023456	Lever, Inside	1
41	4023461	Pin, Lever	2
42	F 25187-16	Roll Pin	2
43	4023463	Shaft, Lever	1
44	F 24003-47	Clevis Pin	1
45	4023424	Fork Ass'y	2
51	4023453	Spring, Detent	2
52	F 74000-12	Ball, Detent	2
53	4023413	Rail Shift	1
54	4023451	Pin, Inhibiter	1
55	F 39013-37	Snap Ring	2
56	F 25250-22	Roll Pin	2
57	F 22010	Freeze Plug	3
58	F 19001-8	Plug	1
60	4023472	Lever, Hand	1
61	F 83000	Knob, Lever	1
62	F 10045-40	Bolt	1
63	F 82038-24	Locknut	1
64	4023481	Gasket, Cap	1
65	4000284	Ass'y Brake Band	1
66	4000276	Band & Lining Ass'y	1
67	4000192	Cap Screw, Anchor	1
68	4000268	Spring Anchor Clip	1
69	4000270	Bolt, Brake Adjust	1
70	4000269	Cam Lever	2
71	4000278	Link Brace	1
72	4000402	Pin Rod End	1
73	F 26007-16	Cotter Pin	1
74	4000193	Pin Rod End	1
75	4000272	Rod End	1
76	F 26005-12	Cotter Pin	1
77	4000279	Spring, Break Rel.	2
78	F 79106	Nut	2
79	F 16203	Lockwasher	1
80	4000254	Screw Filister Hd.	1
81	F 79100	Nut	2
82	F 16200	Lockwasher	1
83	4023388	Anchor, Brace Link	1
84	F 10060-24	Bolt	1
85	F 16205	Lockwasher	2
86	F 13011	Nut	1
87	F 24004-15	Clevis Pin	1
88	F 26005-16	Cotter Pin	2
89	4023387	Mtg. Brkt. Brake Lever	1
90	4023391	Brake Lever	1
91	F 10030-28	Bolt	2
92	F 17003-W	Washer, Flat Spacer	6
93	F 13005	Nut	2
94	F 34120	Adjustable Yoke End	1
95	4023389	Link Rod	1
96	F 79105	Jam Nut	2
97	F 24004-29	Clevis Pin	1
98	F 10060-24	Bolt	5
99	F 19001-6	Plug, Oil Level (When Req.)	1
100	4023302	Screen Plug	2
101	F 26005-8	Cotter Pin	1

GEAR RATIO DATA PAGE 4

STANDARD 23110, 23120, & 23121 TRANSMISSION

3 SPEED (Non-Synchronized)



DATE	DWN BY	SCALE	
10-7-63	K.B.	NONE	
FUNK MFG. CO.			
TRANSMISSION 3 SPD.	23110		
TRANSMISSION 3 SPD.	23120		

STANDARD 23110 - 23120 - 23121 TRANSMISSION

3-SPEED (Non-Synchronized)

MODEL 23110 PARTS LIST

Drawing Ref. No.	Part No.	DESCRIPTION	No. Reqd.
1	4023301B	Case	
2	F 20000-2	Plug, Drain	1
3	F 19001-6	Plug, Oil Level	1
4	F 40207-R	Bearing, Counter Front	1
*5	4023544	Gear, Counter Lo	1
6	F 41211-R	Bearing, Counter Rear	1
7	F 39010-162	Snap Ring	2
*8	4023310	Gear, Counter 2nd	1
9	4023307	Gear, Counter Driven	1
10	4023341	Shaft, Main	1
*11	4023345	Main Shaft 2nd Gear	1
12	F 56770	Bearing, Gear Bore	32
*13	4023354	Gear, Main Shaft Lo	1
14	4023356	Washer, Lo Gear	1
15	F 40308-R	Bearing, Output	1
16	F 52072-15	Bearing, Pilot	1
17	4023371	Cover, Rear	1
18	F 65024	Oil Seal, Rear	1
19	4023372	Gasket, Rear Cover	1
20	F 10030-16	Cap Screw	16
21	F 18003	Washer, Dynaseal	6
22	4023382	Drum, Brake	1
23	F 84302	Flange, Brake	1
24	4023384	Bolt, Brake Flange	4
25	F 16203	Lockwasher	4
26	F 13008	Nut	4
27	4023488	Gasket, Flange	1
28	4000326	Washer, Brake Flange	1
29	F 37020-118	"O" Ring, Flange	1
30	F 75320-14	Nut, Brake Flange	1
31	F 26007-24	Cotter Pin	1
32	4023400 A or B	Shift Cap Ass'y	
33	4023406	Cap	1
34	F 65022	Oil Seal	1
35	4023455	Lever, Inside	1
36	F 25375-16	Roll Pin	1
37	4023462	Shaft Lever	1
38	F 24003-41	Clevis Pin	1
39	4023411	Rail Shift	1
40	4023421	Fork Assembly	1
44	40TR-7204	Spring, Detent	1
45	F 74000-12	Ball, Detent	1
46	F 25250-22	Roll Pin	1
47	F 22010	Expansion Plug	2
¶48	4023471	Lever, Hand	1
49	F 83000	Knob	1
¶50	4023489	Lever, Remote	1
51	F 10030-24	Cap Screw	1
52	F 16202	Lockwasher	13
53	F 19001-8	Plug	1
55	4023481	Gasket, Cap	1
56	4023387	Bracket, Brake Lever	1
57	4023391	Lever, Brake	1
58	F 10030-28	Cap Screw	2
59	F 17003-W	Washer, Spacer	6
60	F 13005	Nut	2
61	4023389	Link, Brake Act.	1
62	F 79105	Jam Nut	2
63	F 34120	Yoke End	1
64	F 24004-29	Clevis Pin	1
65	F 26005-16	Cotter Pin	2
66	4023385	Anchor, Brake Band	1
67	4023386	Bracket, Brake Guide	1
68	4023388	Anchor, Brace Link	1
69	F 10060-24	Cap Screw	1
70	F 16205	Lockwasher	6
71	F 13011	Nut	1
72	4000284	Ass'y Brake Band	1
73	4000276	Band & Lining Ass'y	1
74	4000268	Spring, Anchor Clip	1
75	4000192	Cap Screw, Anchor	1
76	4000270	Bolt, Break Adj.	1
77	4000279	Spring, Break Rel.	2
78	F 79106	Nut	2
79	F 16203	Lockwasher	1
80	4000254	Screw, Filister Hd.	1
81	F 79100	Nut	2
82	F 16200	Lockwasher	1
83	4000402	Pin, Rod End	1
84	4000278	Link, Brace	1
85	4000269	Cam Lever	2
86	F 26007-16	Cotter Pin	1
87	4000193	Pin, Rod End	1
88	4000272	Rod End	1
89	F 26005-12	Cotter Pin	1
90	F 24004-15	Clevis Pin	1
91	F 10060-24	Bolt	5
92	4023306	Gasket, Front	1
93	4023302	Screen Plug	2
94	F 26005-8	Cotter Pin	1

NOTE: LEVERS MARKED ¶ ARE OPTIONAL

MODEL 23120 PARTS LIST

NOTE: Model 23120 is identical with model 23110 with exception of gear ratios. Items No. 5, 8, 11 and 13 for model 23120 is as listed below.

*5	4023543	Gear, Counter Lo	1	*11	4023346	Gear, Main Shaft 2nd	1
*8	4023311	Gear, Counter 2nd	1	*13	4023355	Gear, Main Shaft Lo	1

MODEL 23121 PARTS LIST

NOTE: Model 23121 is identical with Model 23120 with exception of gear ratios. Items No. 8 and 11 for the Model 23121 is as listed below.

No. 8 4023536 Gear, Counter 2nd

No. 11 4023537 Gear, Main Shaft 2nd

GEAR RATIO DATA ON PAGE 4

HYDRAULIC FLOW DIAGRAM

MODEL RC REVERS-O-MATIC (NEUTRAL)