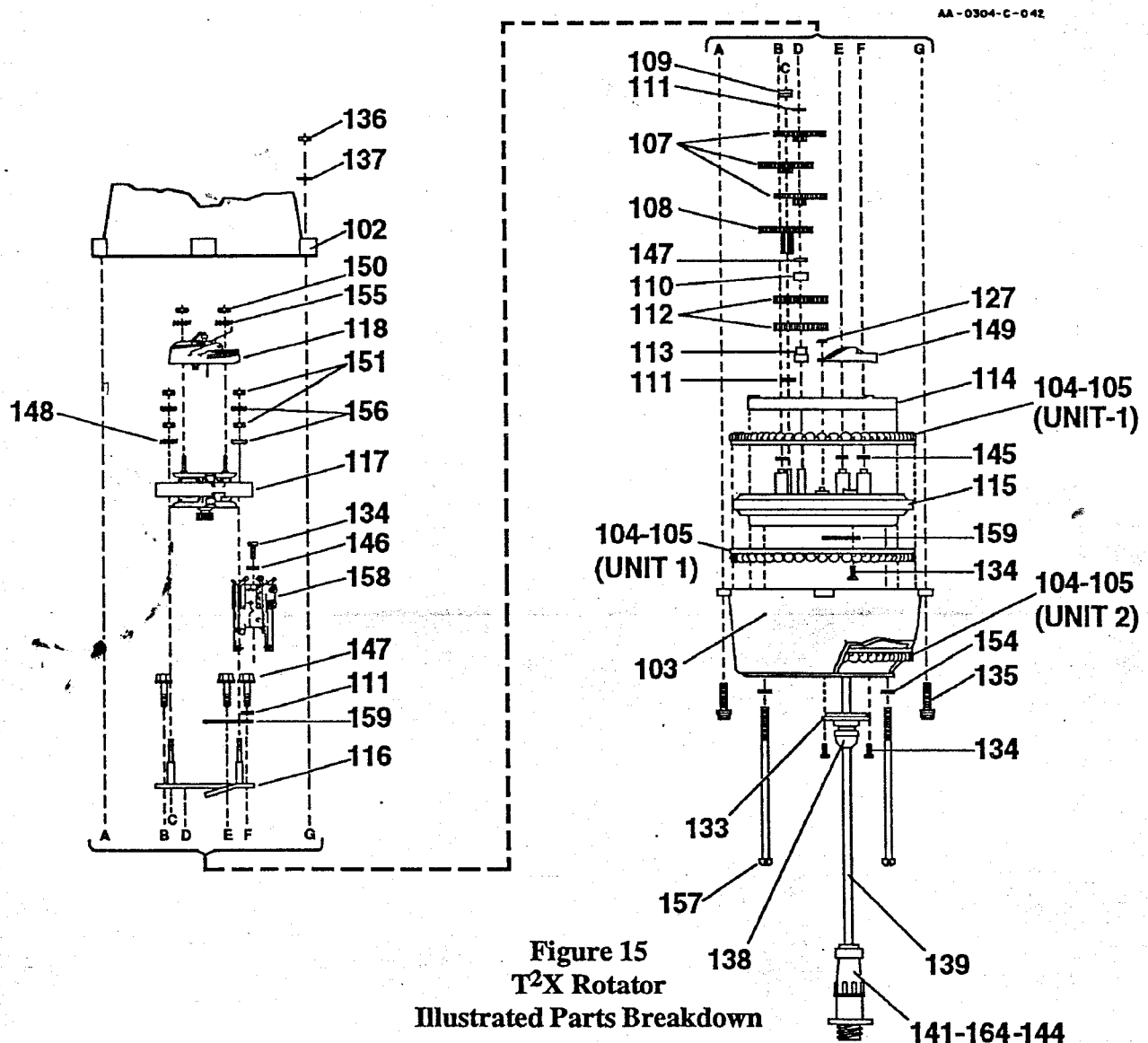


Figure 12  
Inside View of T-2X Rotator

# T<sup>2</sup>X Rotator Replacement Parts (Continued)

ITEM NO.	PART NO.	DESCRIPTION	QTY
159	5031100	Lug, Solder.....	40
	5142210	Kit, Accessory.....	34.00
160	5137000	Plate, Mast Clamp.....	16.00
161	5136900	U-Bolt, 5/16"-18 x 3 1/4" x 4".....	4.70
140	5149600	Bolt, Hex Head, 5/16"-18 x 1 5/8", SS.....	1.90
162	5142400	Bolt, Hex Head, 5/16"-18 x 3 1/2", SS.....	2.25
136	555747	Nut, Hex, 5/16"-18, SS.....	.40
137	564792	Lockwasher, Split, 5/16", SS.....	.40
	870598	Parts Pack, Connector.....	34.50
163	650181	Plug, 9 pin.....	10.80
164	650180	Receptacle shell.....	9.90
165	650293	Contact.....	.84
166	640077	Plug, 8 pin Cinch.....	10.00
167	890014	Ferrite bead, Type 73.....	.40
168		Grease, Special Kit (Quantity for one overhaul).....	.90



## H. CHECKING THE CONTROL UNIT

### 1. VOLTAGES WITH UNIT PLUGGED IN.

To check the control unit, plug the line cord into 120 volt AC power. With no connections to the terminals turn the on-off switch to the "on" position, the meter light will illuminate. The meter needle will remain on the left hand "S". Terminals 1 and 2 should show 30 volts AC (approximately) when the brake lever is depressed.

Terminals 1 and 5 should show 30 volts AC with brake release lever depressed and CW lever depressed.

Terminals 1 and 6 should show 30 volts AC with brake release lever depressed and CCW lever depressed.

Terminals 3 - 7 should show approximately 13 VDC.

### 2. RESISTANCES WITH UNIT NOT PLUGGED IN

Disconnect the AC power source and remove the eight wire control cable. Be sure to tag each wire with the corresponding terminal number.

The control box can be checked without removing the cover by using a volt-ohmmeter to check values across terminals. Resistance across terminals No. 1-2 should read .4 Ohms. Read same value across terminals No. 1-5 with clockwise switch lever (right-hand) depressed and across terminals No. 1-6 with counter clockwise switch lever (left-hand) depressed. Resistance across input line cord with on-off switch in the "on" position and the brake lever depressed should read 3.8 Ohms.

## I. CHECKING THE ROTATOR FROM THE GROUND

You may possibly avoid bringing the rotator down by making electrical checks from the control box position. This is done by disconnecting the 8 wires from the screw terminals and tagging them carefully No. 1 through No. 8 to correspond with the terminal numbers from which they were removed. From the schematic diagram it is apparent that the resistance of the lead wires will be added to the resistance of the motor windings and potentiometer strip in making the resistance checks as shown in Table 1. All readings taken at OTHER than end of rotation.

To Check	Read Resistance	Between Terminals
Brake Solenoid	.75 ohms + leads	1-2
½ Motor Winding	2.5 ohms + leads	1-8
½ Motor Winding	2.5 ohms + leads	1-4 <i>op</i>
½ Motor + Switch	2.5 ohms + leads	1-5
½ Motor + Switch	2.5 ohms + leads	1-6
Entire Motor	5 ohms + leads	8-4
Right Limit Switch	0 ohms + leads	8-5
Left Limit Switch	0 ohms + leads	4-6
Entire Pot	500 ohms	3-7
Pot Arm to + End	0 to 500 ohms	3-1
Pot Arm to — End	0 to 500 ohms	1-7

Table 1

## IV. DISASSEMBLY OF THE ROTATOR

In order to service the rotator, the unit must be disassembled. We recommend the following procedure:

1. Set the rotator on a flat surface.
2. Remove the six 5/16-18 bolts and hex nuts and carefully raise the top casting to expose the potentiometer and drive mechanism.
3. Carefully remove the upper ball retaining ring. Keep it circular, and lay it on clean paper.

4. See that the potentiometer strip is clean and not burned at either end and that the arm is clean at the point of contact. Use only fine rouge cloth to polish the contact arm.
5. If the drive ring happens to be near the end of rotation, hold the unit horizontal, operate the top spur gear to rotate the mechanical stop on the drive ring away from the area of the limit switch. See that the mechanical stop lever (which is positioned between the two limit switches) will open each electrical contact before it hits the corresponding mechanical stop. Also see that the stop lever has not been deformed and that the electrical contacts are clean and uncorroded. Rotate the top spur gear several revolutions to determine that the motor and its bearings are operating freely. Look for broken teeth in any of the gears.
6. Lift the motor and brake mechanism out of the brake housing. Carefully remove the lower ball bearing retainer and place it on a clean piece of white paper.
7. Remove the ring gear from the motor base. This is accomplished by first pulling up on the side opposite the gear train. Then raise the entire ring slightly upward with the side away from the gear train so that it will slide out from under the gears. Examine closely for evidence of broken or worn teeth.
8. Examine the inside of the screw terminal strip to see that there is proper clearance between the solder lugs and frame and that there are no breaks in the insulation. Pay particular attention to the insulation at the point where the wires are held in the metal clip.
9. Examine the teeth in the brake casting.
10. To separate the motor, pot, and gear assembly from the brake assembly, unsolder the solenoid leads from the terminals 1 and 2. Remove the screws holding the terminal board to the casting. Then remove the four large screws in the base. Be careful to clear the wires and the terminal strip through the opening.
11. Carefully remove the ball bearing retaining ring from the lower portion of the brake housing.
12. To remove the potentiometer, remove the hex nuts and unsolder the leads. The mounting studs are integral to the motor and bell. In replacing the pot be sure the connections are on the side which overhangs the motor.
13. To replace the motor, first remove the pot per Paragraph 12, then unsolder the black motor lead from the screw terminal 1, the red lead from the inside left limit switch lug, and the blue lead from inside the right limit switch lug. The fastenings holding the motor on the studs may then be removed and the motor pulled up and out. In replacing a motor, be sure to see that the round hole in the motor is next to the limit switch. Use a double lock nut on this stud near the limit switch, to provide clearance for the leads. Use special internal-external lockwasher over the stud that works in the slotted hole in the motor. Be sure that the pinion is snug against the spur gear before tightening this fastening over the slot.
14. When it is necessary to closely inspect or replace gears, it is possible to remove the motor, limit switch, pot, and terminal strip without unsoldering more than the solenoid leads from terminals 1 and 2. Remove the motor fastenings from the mounting studs. Work the motor up and out, exercising care in pulling the leads and terminal strip through the window in the gear housing. Remove the plate to expose the gears. Carefully note the positions for proper replacement.

## V. RE-ASSEMBLY OF THE ROTATOR

It is assumed in the following instructions that the brake mechanism is assembled and operative. The motor and gear train along with the potentiometer and the limit switches are likewise

# T<sup>2</sup>X ROTATOR PARTS KITS IDENTIFICATION

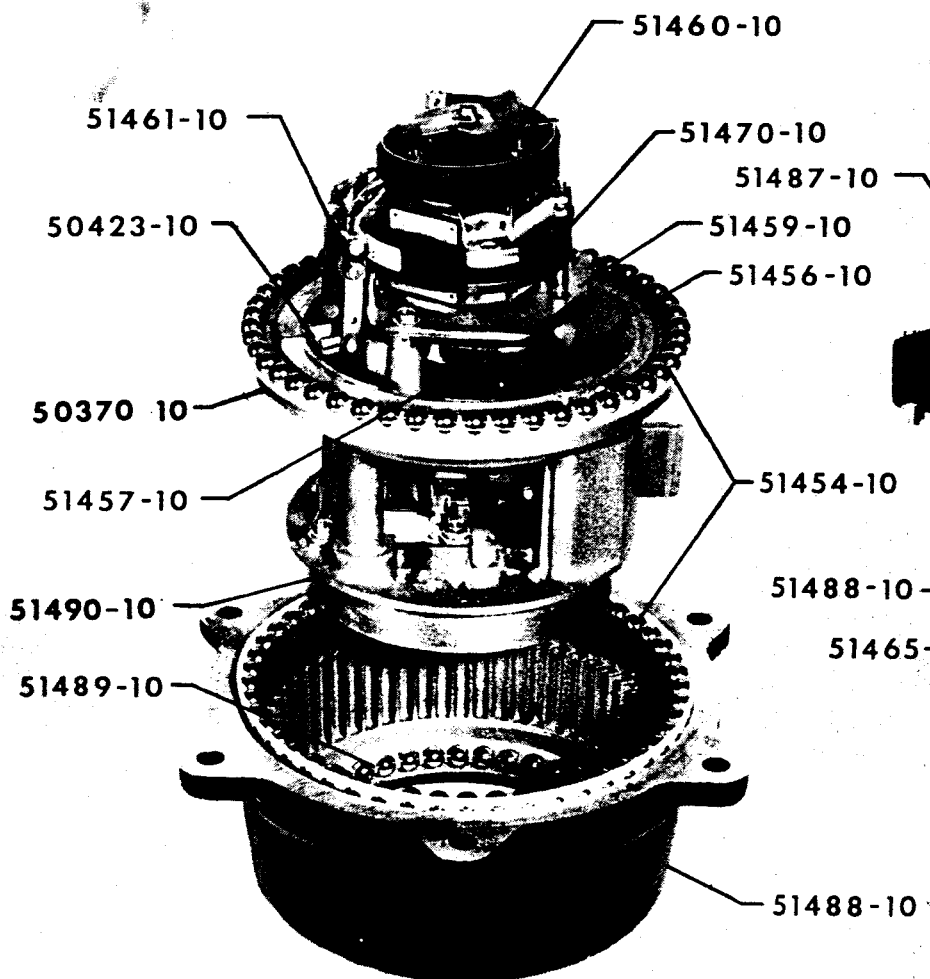


Fig. 13

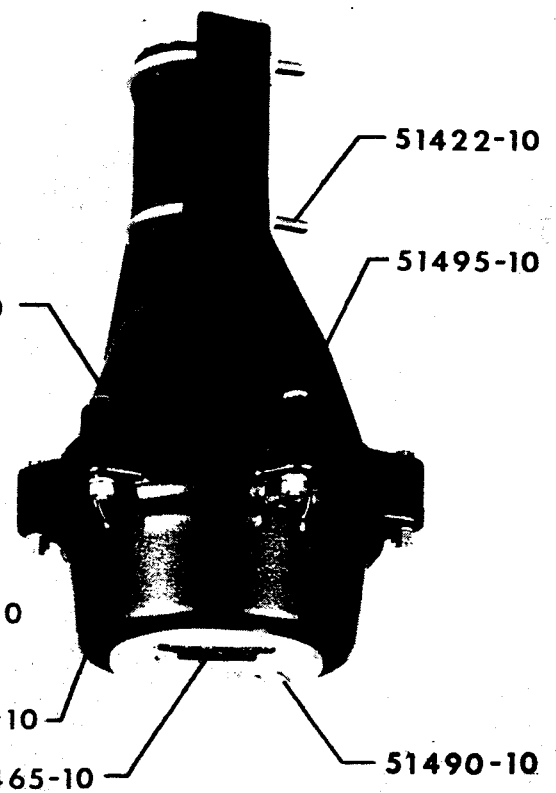


Fig. 11

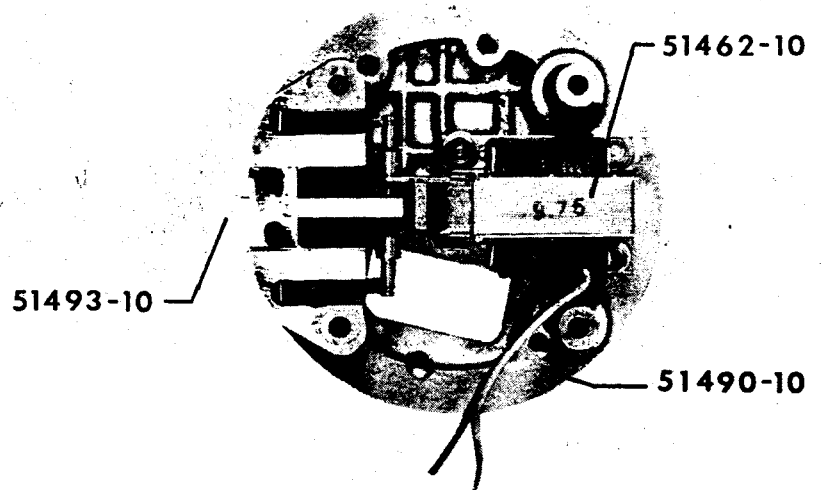


Fig. 12