TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

ANTENNA ROTATOR GROUP OE-154/G CONSISTING OF ANTENNA ROTATOR TG-218/G CONTROL INDICATOR C-9238/G

HEADQUARTERS. DEPARTMENT OF THE ARMY

SEPTEMBER 1975

WARNING

HIGH VOLTAGE
is used in the operation
of this equipment
DEATH ON CONTACT
may result if personnel fail
to observe safety precautions

Be careful not to contact 115 and/or 208-volt ac connections when working on this equipment.

Before working inside the equipment, turn power off and ground points of high potential before touching them.

For artificial respiration, refer to FM21-11.

TECHNICAL MANUAL

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 15 September 1975

OPERATOR, ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) ANTENNA ROTATOR GROUP OE-154/G CONSISTING OF ANTENNA ROTATOR TG-218/G, CONTROL INDICATOR C-9238/G

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope.

a. This technical manual contains operator, organizational, direct and general support maintenance instructions with repair parts and special tools list for Antenna Rotator Group OE-154/G (antenna rotator system).

b. Appendix A contains a list of current references.

c. Appendix B contains the Maintenance Allocation Chart

d. Appendix C contains the Repair Parts and Special Tools List.

1-2. Maintenance Forms and Records.

Department of the army forms and procedures used for equipment maintenance will be those prescribed by TM38-750.

1-3. Destruction of Army Material to Prevent Enemy Use.

Destruction of Army Material to prevent enemy use is not applicable to the antenna group equipment.

1-4. Administrative Storage.

Refer to TAM740-90-1 for instructions on preparing the equipment for administrative storage.

1-5. Equipment Serviceability Criteria.

Equipment serviceability criteria are not applicable.

1-6. Reporting of Errors.

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commander, U.S. Army Security Agency Materiel Support Command, ATTN: IAMNMNIP, Warrenton, Virginia, 22186.

Section II. DESCRIPTION AND DATA

1-7. Purpose and Use.

The antenna rotator system is designed to interface with and to position Log-Periodic Antenna AS-1604/G, and similar antennas.

1-8. Description.

The antenna rotator system consists of Antenna Rotator TG-218/G (rotator), Control Indicator C-9238/G (control unit), an electronic equipment shelter feed through panel and a set of cables.

a. The rotator is a mast mountable unit capable of rotating an attached antenna in both azimuth and polarization. Heaters, within the rotator, maintain an interior temperature of from 92 to 102 degrees F (33.3 to 38. 9 degrees C). The enclosure is sufficiently watertight to prevent the entrance of driven rain or dust. Operating power for the rotator is supplied from the control unit.

b. The control unit is rack mountable and contains a de power supply, an inverter, illuminated position indicators, and controls for the system. All fuses are accessible from the front panel and spare fuses are mounted on the rear of the unit.

c. The electronic equipment shelter feed through panel allows the interconnecting cabling from the antenna and the rotator to be brought into an electronic equipment shelter while retaining the watertight integrity of the electronic equipment shelter. Two control cables are provided to connect the rotator to the feed through panel and the feed through panel to the control unit. Two RF cables are provided to connect the antenna (not part of the system) to the feed through panel and from the feed through panel to the equipment inside the shelter. A power cable is provided to connect control unit to the 115/230 volt power source.

1-9. Tabulated Data.

a. General.

Input Voltage	115 volts ±10% or 230 volts ±10%
Input Frequency	48 to 62 Hz
Input Current @115 volts	
Standby	1.6 amps
Heaters Only	0.9 amps
Maximum	5.4 amps
Phase	single
Operating Temperature Range	0 to 131 degrees F
	-17.8 to 35 degrees C
Storage Temperature Range	-65 to 160 degrees F
	-53.9 to 71. 1 degrees C
Operating Altitude	10, 000 feet above sea level, max.
Storage Altitude	50, 000 feet above sea level, max.

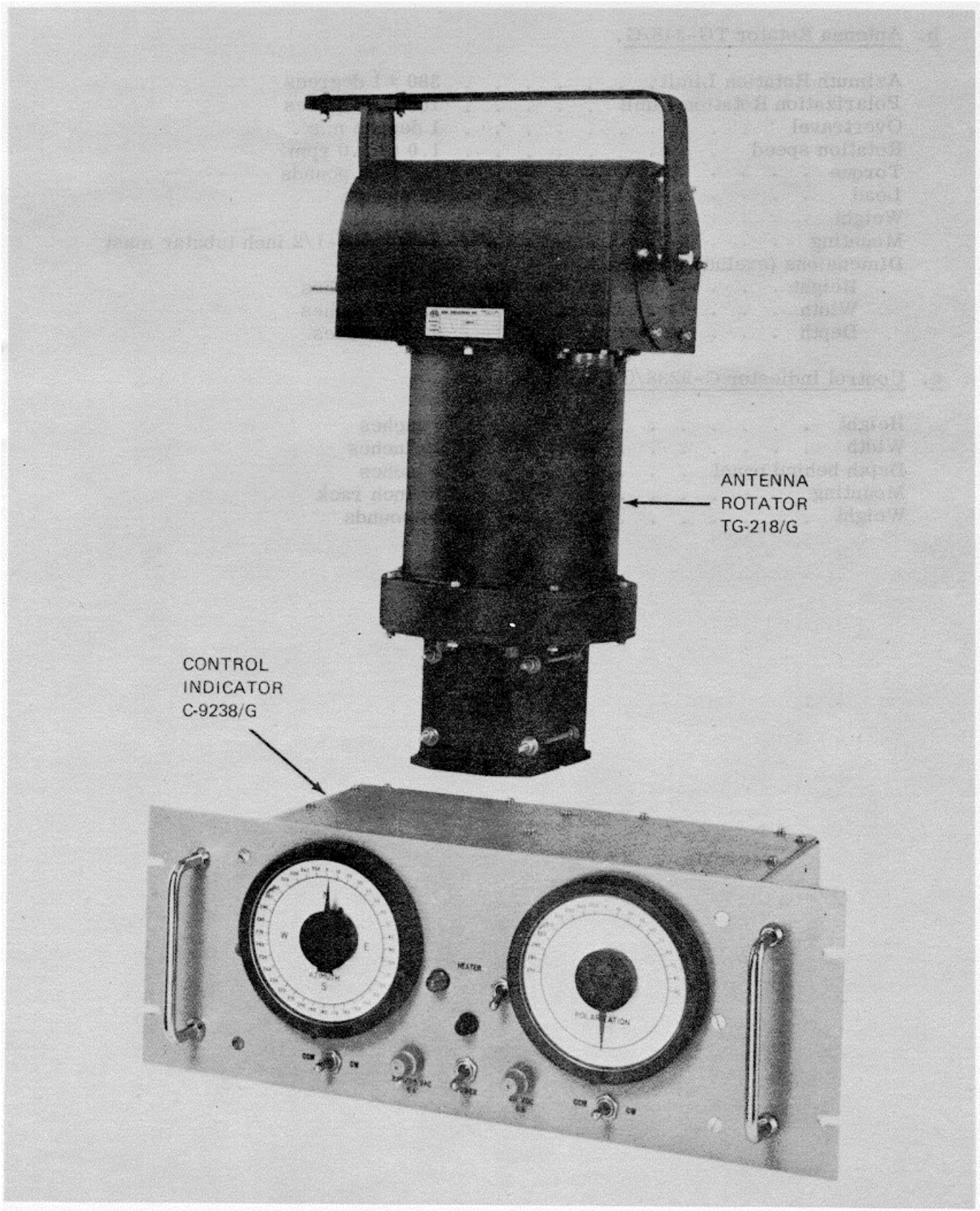


Figure 1-1. Antenna Rotator System

b. Antenna Rotator TG-218/G.

Azimuth Rotation Limit-	380 ±1 degrees
Polarization Rotation Limit	180 ±1 degrees
Overtravel	1 degree max.
Rotation speed	1.0 to 3.0 rpm
Torque	550 inch pounds
Load	75 pounds
Weight	50 pounds
Mounting	2-3/4 to 3-1/2 inch tubular mast
Dimensions (excluding bracket)	
Height	22-1/2 inches
Width	12-1/2 inches
Depth	9-1/2 inches

c. Control Indicator C-9238/G.

Height	7 inches
Width	19 inches
Depth behind panel	9 inches
Mounting	19 inch rack
Weight	34 pounds

CHAPTER 2

SERVICE UPON RECEIPT AND INSTALLATION

Section I. SYSTEMS PLANNING

2-1. Installation Factors.

a. When installing the mast, be sure there is enough clearance for the antenna to rotate 360 degrees. If Log-Periodic Antenna AS-1604/G is being used, the antenna will require a 12 foot diameter circle for clearance. If half of Log-Periodic antenna AS-1604/G is installed, the clearance circle must be 6 feet in diameter.

b. The control unit will normally be installed in a transportable shelter. However, any type of shelter may be used. If the transportable shelter is used, the feed through panel should be installed on the shelter.

c. Two control cables are supplied with the equipment. One cable is 20 feet ± 6 inches long and is intended to connect the control unit to the feed through panel, the other control cable is 50 feet ± 6 inches long and is intended to connect the rotator to the feed through panel. When the feed through panel is not used, the two cables may be connected together or the 50 foot cable may be used alone. Two RF cables are supplied for connecting the antenna to the receiver. The RF cables are the same length as the control cables and are installed in the same manner.

d. The power cable is 6 feet ± 3 inches long. When installing the control unit, a power outlet capable of supplying 115 volts, 50 to 60 Hz at 8 amperes or 236 volts, 50 to 60 Hz at 4 amperes must be within range of the power cable. Refer to the schematic diagram (figure FO-2) and check that the jumpers are connected for the proper voltage.

Section II. SITE AND SHELTER REQUIREMENTS

2-2. Siting.

Siting considerations are described in Section I, Systems Planning.

2-3. Shelter Requirements.

Any type of permanent or transportable shelter may be used. Space required will depend upon the type of antenna attached to the rotator. Refer to paragraph 1-9 for weight and dimensions of the rotator.

Section III. SERVICE UPON RECEIPT OF MATERIAL

2-4. Checking Unpacked Equipment.

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para. 1-2).

b. Check the equipment against the component listing in the operator's manual and the packing slip to see if the shipment is complete. Report all discrepancies in accordance with paragraph 1-2. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

c. Check to see whether the equipment has been modified. (Equipment which has been modified will have the MWO number on the front panel, near the nomenclature plate.) Check also to see whether all currently applicable MWO's have been applied. (Current MWO's applicable to the equipment are listed in USASA PAM 310-6 or DA PAM 310-7 as applicable.)

Section IV. INSTALLATION INSTRUCTIONS

2-5. Tools, Test Equipment and Materials Required for Installation.

Only common hand tools are required for installation. Refer to Appendix C for a complete list of tools.

2-6. Installation Instructions.

a. Rotator Installation.

(1) Position the mast clamp, on the base of the rotator to accept the size mast being used. Secure the mast clamp to the base of the rotator with four screws (85, figure C-2 sheet 3 of 4), lock washers (86) and flat washers (87). Insert four setscrews (82) in the four mast clamp mounting holes not used.

(2) Place the rotator on the mast. Be sure the rotator is firmly seated on the square end of the mast so that the vertical loading is even. Tighten the 1/-1-20 hex nuts (51) to secure the mast clamp to the mast, do not tighten to the point where the mast clamp warps.

(3) Tighten the 3/8 inch socket head screws (85) to secure the mast clamp to the rotator base.

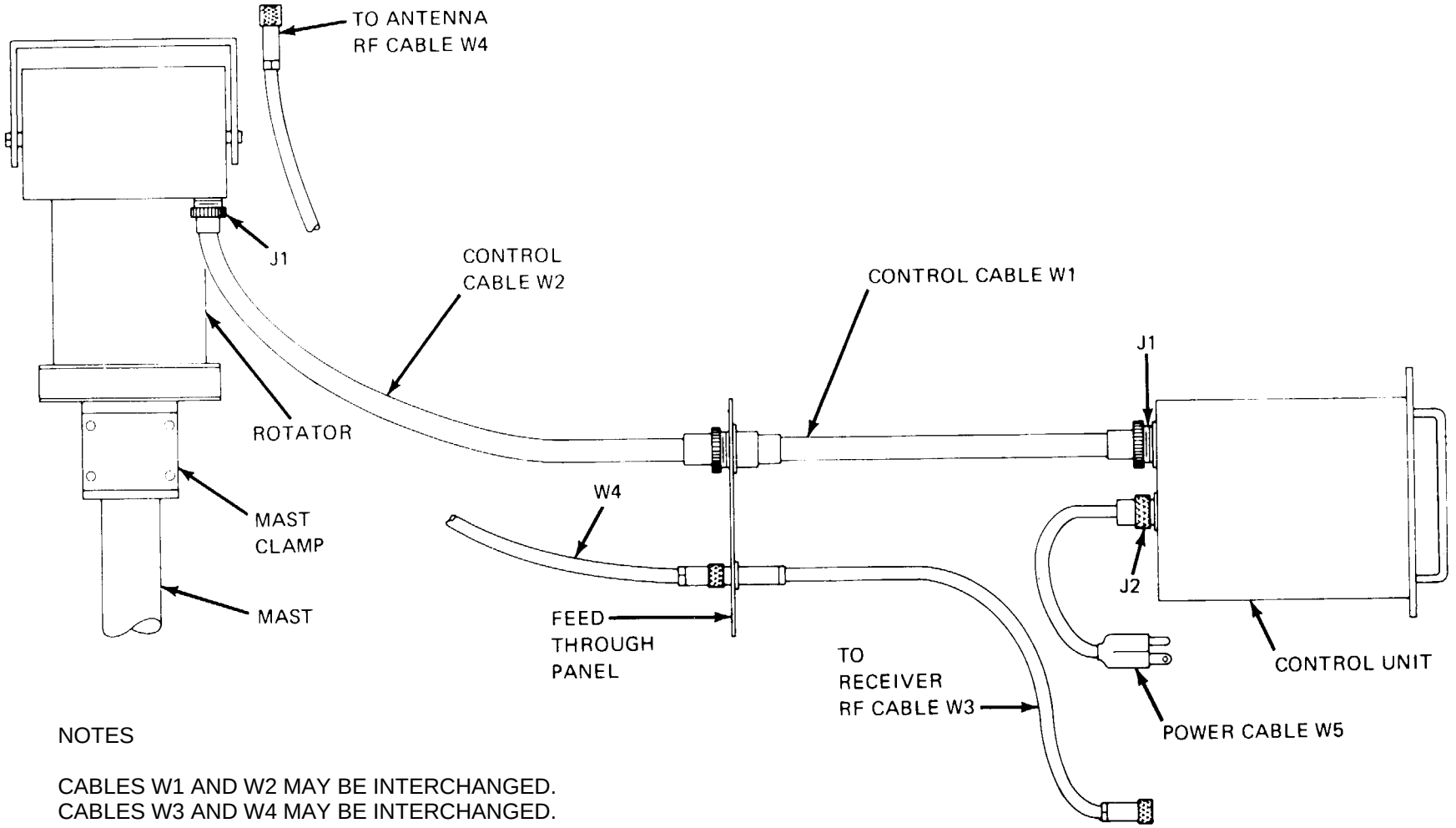
(4) Mount the antenna to the rotator with the captive 1/4 turn fasteners (2 and 3, figure C-2, sheet 1 of 4) on the bracket.

b. Control Unit Installation. Position the control unit in the equipment rack (if provided) and secure with four screws. If access to the rear of the rack is restricted, connect the cables to the rear of the control unit (figure 2-1) before mounting the control unit in the rack.

2-7. Interconnections.

a. Refer to figure 2-1 for equipment interconnections. Be sure that jumpers are connected for the correct source voltage before connecting to primary power.

b. Clamp the cables to the mast at periodic intervals along the mast. Place the last cable clamp 6 feet below the rotator base. Allow sufficient slack in the cables, between the last clamp and the rotator, to allow for the movement of the rotator.



NOTES

CABLES W1 AND W2 MAY BE INTERCHANGED.
CABLES W3 AND W4 MAY BE INTERCHANGED.
IF THE FEED THROUGH PANEL IS OMITTED.
CONNECT W1 TO W2 AND W3 TO W4.

Figure 2-1. Interconnections

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INDICATORS

3-1. Operator's Controls.

Operator's Controls and indicators are shown in figure 3-1. The function of each control and indicator is listed in table 3-1.

Section II. OPERATION UNDER USUAL CQNDITIONS

3-2. Preliminary Starting Procedure.

Set the POWER switch to the up position. POWER indicator will illuminate. The equipment is now in the standby position.

3-3. Initial Adjustments.

Set the AZIMUTH indicator to indicate the direction the antenna is facing with respect to arbitrary zero. Set the POLARIZATION indicator to indicate the polarization angle of the antenna.

3-4. Operating Procedure.

a. Rotate the antenna to the desired azimuth heading by holding the Azimuth CCW"/CW switch in the direction you w ant the antenna to move. When the AZIMVUTH pointer indicates the desired heading, release the Azimuth CCW/CW switch. The antenna will stop when the switch is released. The antenna will stop automatically when the travel limit is reached. Hold the Azimuth CCW/CW switch in the opposite direction to move the antenna off of the travel limit.

b. Set the antenna polarization by holding the Polarization CCW/CW switch in the direction you want the antenna to move. When the POLARIZATION pointer reaches the desired angle, release the Polarization CCW/CW switch. The antenna will stop when the switch is released. The antenna will stop automatically when the travel limit is reached. Holding the Polarization CCW/CW switch in the opposite direction will move the antenna off of the travel limit.

3-5. Stopping Procedure for Shutdown.

To stop the equipment for shutdown, set the POWER switch to the down position.

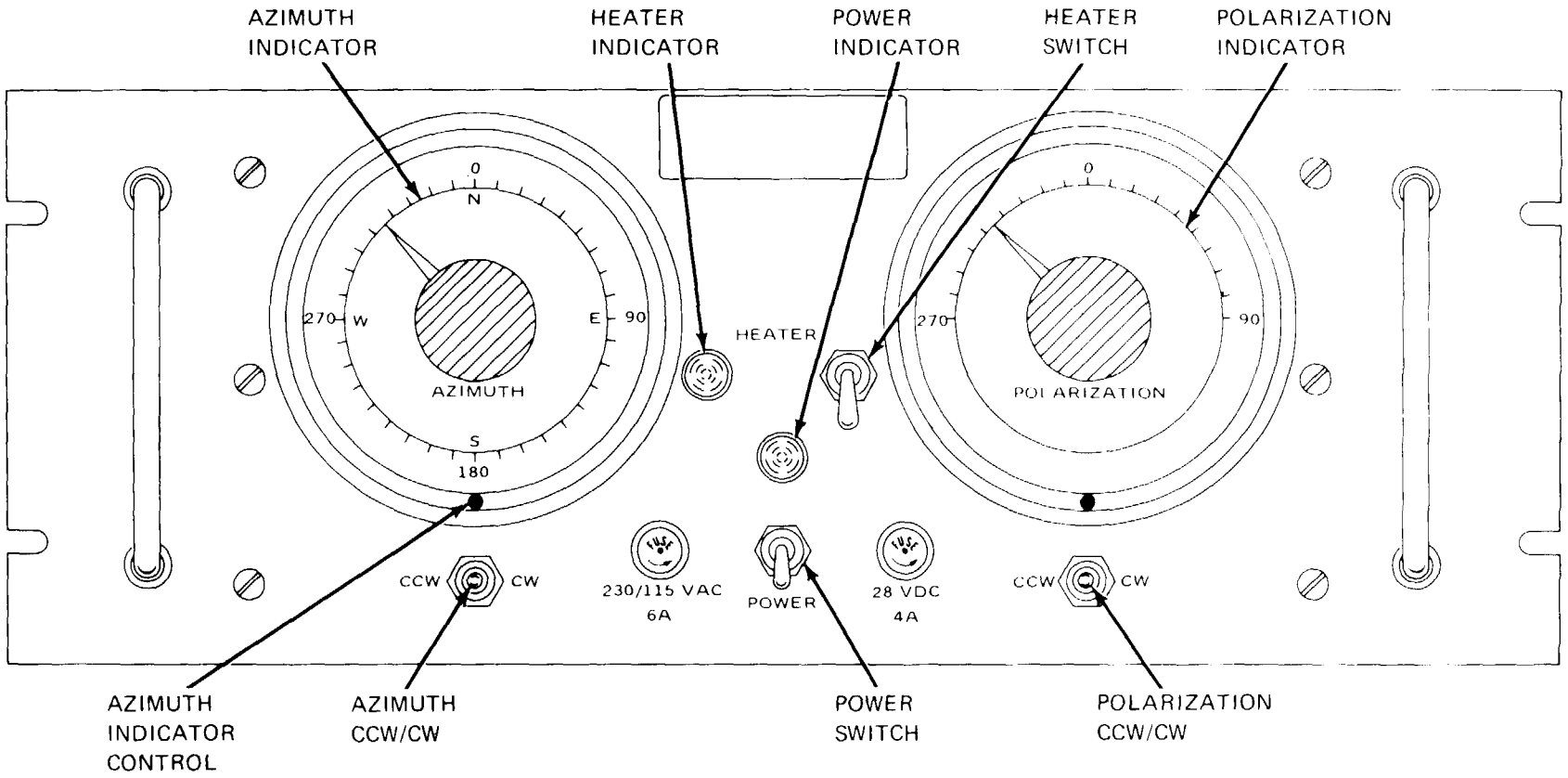


Figure 3-1. Operator's Controls

Table 3-1. Operator's Controls

Control, Indicator	Function
AZIMUTH Indicator	Indicates direction in which antenna is pointing.
Azimuth Indicator Control	Sets AZIMUTH indicator.
Azimuth CCW/CW (springloaded, center off toggle switch)	Causes antenna rotator to be driven in the direction indicated. AZIMUTH pointer moves in same direction while antenna rotator is moving.
HEATER Indicator	Indicates when heater power is being applied. Heater power can be left on when equipment power is off.
HEATER Switch (2-position toggle switch)	Up position applies power to heaters in antenna rotator. Down position removes power from heaters. Heaters are independent of operating power.
POWER Indicator	Indicates when operating power is being applied.
POWER Switch (2-position toggle switch)	Up position applies operating power to equipment. Down position removes power. Does not affect power to heaters.
POLARIZATION Indicator	Indicates polarization angle of the antenna.
POLARIZATION Indicator	Sets POLARIZATION indicator.
Control Polarization CCW/CW (Springloaded, center off toggle switch)	Causes antenna rotator to be driven in the direction indic ated, POLARIZATION pointer moves in same direction while antenna rotator is moving.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

3-6. Operation Under Cold Conditions.

Set the HEATER switch to the up position when operating the equipment in cold temperatures. If there is a possibility of ice forming on the rotator, leave the HEATER switch in the up position when turning the equipment off. The heaters swill remain on with the POWER switch off.

3-7. Operation Under Humid Conditions.

Set the IIEATER switch to the up position when operating the equipment under humid conditions. If there is a possibility of condensation forming in the rotator, leave the HEATER switch in the up position when turning the equipment off.

3-8. Operation Under Emergency Conditions.

a. The equipment may be safely operated with any of the indicator or illumination lamps not operating.

b. The equipment may be safely operated with the AZIMIUTH or POLARIZATION indicators not working. Antenna position may be determined visually or by determining relative signal strength.

c. If there is a short circuit in the illumination lamps circuits or in the AZIMUTH or POLARIZATION indicator circuits, remove the 28 VDC 4A fuse. The AZIMIUTH and I'OLI.ARIZATION indicators will not operate with the fuse removed.

CHAPTER 4

OPEPRATOR/CRE'W MIAINTENANCE INSTRUCTIONS

Section I. TOOLS AND EQUIPMIENT

4-1. Tools and Equipment.

Repair parts, tools, test equipment, and accessories issued with or authorized for use by the operator for the OE-154/G Antenna Rotator Group are listed in the basic issue items list, appendix C of this manual.

Section II. LUBRICATION INSTRUCTIONS

4-2. General.

Lubrication is performed annually and during reassemble after the rotator has been disassembled. Instructions for lubrication are contained within the reassemble instructions.

Section III. PREVENTIVE MIAINTENANCE CHECKS AND SERVICES

4-3. General.

To insure that the OE-154/G Antenna Rotator Group is always ready for operation, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services to be performed are listed and described in table 4-1. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit will be noted for future correction to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment. Record all deficiencies together with the corrective action taken.

Table 4-1. Preventive Maintenance Checks and Services

B - Before Operation **D - During Operation** **A - After Operation**
Time Required: 0.1 **Time Required: 0.2**

Interval and Sequence No.			Item to be inspected and procedure	Work time (M/H)
B	D	A		
			NOTE **If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced disturbing operation; make the complete checks and services when the equipment can be shut down.**	
1			INTERCONNTECTIONS	
			Secure or replace as necessary accessible cables which are insecurely mounted.	0.1
	2		AZIMUTH INDICATOR	
			Set azimuth indicator to direction antenna is facing with respect to arbitrary zero.	0.1
	3		POLARIZATION INDICATOR	
			Set polarization indicator to indicate the polarization angle of the antenna.	0.1

Section IV. TROUBLESHOOTING AND MAINTENANCE

4-4. General.

Troubleshooting and maintenance of this equipment is not authorized by operator/crew personnel. Refer all troubleshooting and maintenance to organizational maintenance.

CHAPTER 5

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. TOOLS AND EQUIPMENT

REFER TO APPEINDIX C

Section II. REPAINTING AND REFINISHING INSTRUCTIONS

5-1. Paints and Finishes.

Refer to TB746-10, Field Instructions for Painting and Preserving Electronics Command Equipment and TM9-213 Painting Instructions for Field Use for specific instructions on the use of the paints and finishes listed in a. and b. below.

a Control Unit.

(1) Passivate with chemical film per MIL-C-5541.

(2) Prime with one coat of zinc chromate primer, 0.04 to 0.06 mils thick per MIL-P-8585.

(3) Paint with one coat of semi-gloss enamel, light gray (color chip number 26307, FED STD-595) per MIL-E-15090, Class 2.

(4) Fill engraving with black pigment per TT-F-325, Type I.

b Rotator.

(1) Passivate with chemical film per MIL-C-5541.

(2) Prime with one coat of zinc chromate primer, 0.04 to 0.06 mils thick per MIL-P-8585.

(3) Paint with one coat of lustreless enamel, olive drab (color chip number X34087, FED STD-595) per TT-E-527.

Section III. LUBRICATION INSTRUCTIONS

5-2. General.

a. The rotator is lubricated annually and each time the rotator is disassemble. Specific instructions for the lubrication of the rotator are contained in the reassembly procedures.

b. The control unit does not require lubrication.

5-3. Lubricants Required.

a. Use hi-low temperature, aviation #55 grease (MIL-G-7711A) on the azimuth bearing and the azimuth drive bushing.

b. Use DOW Corning DC-4 silicon grease, or equivalent, on all preformed packing and penetrating screws.

CAUTION

Dow Corning DC-4 silicon grease can damage painted surfaces.

Section IV. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

5-4. General.

To insure that the OE-154/G Antenna Rotator Group is always ready for operation, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services to be performed are listed and described in table 5-1. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit will be noted for future correction to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment. Record all deficiencies together with the corrective action take.

Table 5-1. Preventive Maintenance Checks and Services

D - Daily **M - Monthly**
Time required: 0.6

Interval and Sequence No.		Item to be Inspected Procedure	Work Time (M/H)
D	**M**		
		NOTE **If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation; make the complete checks services when the equipment can be shut down.**	
1		EQUIPMIENT SURFACES	
		Repair or replace as necessary visibly damaged surfaces on parts. See paragraph 5-1 for painting instructions.	0.2
		INTERCONNECTIONS	
		Secure, repair or replace as necessary accessible cables which are insecurely mounted or damaged.	0.1
3		TRAVEL LIMITS POSITION INDICATORS	
		Operate rotator to its travel limits. Refer to direct support to ,repair or replace parts as necessary. Driving antenna bracket against stop pins can damage polarization gears.	0.2
		Organizational Maintenance Category	
	4	CONDENSATION	
		Remove drain plug (89, figure C-2 sheet 3 of 4)	0.1

Section V. TROUBLESHOOTING

5-5. Scope.

This section contains troubleshooting information and tests for locating and correcting some of the troubles that can develop. Any trouble that is beyond the scope of organizational maintenance shall be referred to direct support maintenance. All references to cables also include the mating connectors.

Table 5-2. Troubleshooting

Malfunction	Probable cause	Corrective action
1. POWER indicator will not light.	a. No ac power available at power outlet.	a. Check for ac power. Repair power source as required.
	b. Defective power cable W5.	b. Repair or replace power cable.
	c. Defective RFI filter RFI.	c. Replace RFI filter.
	d. Defective ac fuse F1.	d. Replace fuse.
	e. Defective POWER indicator DS1.	e. Replace indicator.
	f. Defective POWER switch S1.	f. Replace switch.
	g. Defective transformer T1.	g. Replace transformer.
2. HEATER indicator will not light. POWER indicator lit.	a. Defective HEATEH indicator DS6.	a. Replace indicator.
	b. Defective HEATER switch S4.	b. Replace switch.
3. AZIMUTH and POLARIZATION indicators do no operator and not illuminated.	a. Defective dc use F2.	a. Replace fuse.
	b. Defective rectifier CR1.	b . Replace rectifier.
	c. Defective resistor R1.	c. Replace resistor.
	d. Defective capacitor C1.	d. Replace capacitor.

Table 5-2. Troubleshooting - Continued

Malfunction	Probable cause	Corrective action
4. AZIMUTH and POLARIZATION indicators do not operate and are illuminated. Or Rotator operates.	a. Defective DC/AC inverter A1.	a. Replace inverter.
	b. Defective control cable W1 W2.	b. Repair or replace control cable.
5. AZIMUTH indicator does not operate. POLARIZATION indicator does operate. Rotator operates.	a. Defective azimuth synchro B1 in control unit or in rotator.	a. Replace defective synchro.
	b. Defective control cable W1 or W2.	b. Repair or replace control cable.
	c. Defective gear in rotator.	c. Replace gear.
6. POLARIZATION indicator does not operate. AZIMUTH indicator does operate. Rotator operates.	a. Defective polarization synchro B2 in control unit or in rotator.	a. Replace defective synchro.
	b. Defective control cable W1 or W2.	b. Repair or replace control cable.
	c. Defective gear in rotator.	c. Replace gear.
7. Heaters not operating. HEATER indicator lit.	a. Defective thermostat TS1.	a. Replace thermostat.
	b. Defective heater H1 and/or H2.	b. Replace heater.
	c. Defective control cable W1 or W2.	c. Repair or replace control cable.
8. Rotator does not operate in azimuth.	a. Defective azimuth CCW/CW switch S2.	a. Replace switch.
	b. Defective control cable W1 or W2.	b. Repair or replace control cable.
	c. Defective limit switch S1 or S2.	c. Replace switch.
	d. Defective relay K1.	d. Replace relay.
	e. Defective capacitor C3 or C5.	c. Replace capacitor.

Table 5-2. Troubleshooting - Continued

Malfunction	Probable cause	Corrective action
8. Rotator does not operate in Azimuth - continued	f. Defective crossover module A2.	f. Replace defective module.
	g. Defective servomotor B3-B4.	g. Replace servomotor.
9. Rotator does not operate in polarization.	a. Defective polarization CCW/CW switch S3.	a. Replace Defective switch.
	b. Defective control cable W1 or W2.	b. Repair or replace control cable.
	c. Defective limit switch S3 or S4.	c. Replace switch.
	d. Defective relay K2.	d. Replace relay.
	e. Defective capacitor C1 or C3.	e. Replace capacitor.
	f. Defective crossover Module A1.	f. Replace defective module.
	g. Defective servomotor B5-B6.	g. Replace servomotor.
10. Rotator can be driven past azimuth travel limit.	a. Defective limit switch S1 or S2.	a. Replace switch.
	b. Defective spring.	b. Replace spring.
11. Rotator can be driven past Polarization travel limit.	a. Defective limit switch S1 or S2.	a. Replace switch.
	b. Defective gear.	b. Replace gear.
12. Rotator does not stop within 1 degree when CCW/ CW switch is released.	a. Defective servomotor B3-B4.	a. Replace servomotor.
	b. Defective servomotor B5-B6.	b. Replace servomotor.

Section VI. MIAINT'ENANCE OF CONTROL UNIT C-9238/G

5-6. General.

Maintenance of the control unit is limited to the adjustment of the inverter output voltage and the replacement of defective parts.

5-7. Adjustment.

a. Remove the top cover (4, figure C-1 sheet 1 of 2) from the control unit by removing 13 screws (1), lock washers (2) and flat washers (3).

b. Inverter A1 has a screw type adjustment. The output voltage from the inverter can be adjusted from approximately 24 volts to 28 volts, 400 Hz. Set the output voltage of inverter A1 to 26 volts, 400 Hz.

5-8. Repair.

a. General. The following paragraphs contain instructions for the replacement of defective parts. It is advisable to remove both the top and bottom covers before attempting to replace parts. Removal of the top and bottom covers is identical, perform the procedure for both.

b. Removal of Covers (figure C-1, sheet 1 of 2). Remove the cover from the control unit by removing 13 screws (1), lock washers (2) and flat washers (3).

NOTE

Tag all wires before disconnecting them. Disconnect wires before removing the part to which they are attached. Reconnect wires after reinstalling the part.

c. Synchro Replacement (figure C-1, sheet 1 of 2).

(1) Remove preformed packing (6) (used as a pulley belt), pulley (7), shaft (8) and five nylon flat washers (9).

(2) Remove four screws (10), lock washers (11) and flat washers (12).

(3) Remove the rest of the AZIMUTH or POLARIZATION indicator as an assembly by pulling the unit out from the front of the front panel.

(4) Remove retainer (18), dial (19 or 20) and pointer (21).

(5) Remove mechanical stop (22) by removing two screws (13) and lock washers (11).

(6) Remove clamp (23) by removing two screws (13), lock washers (11) and flat washers (12).

(7) Remove synchro (24) from bearing (26) and install new synchro. Do not connect wires.

(8) Secure clamp (23) to new synchro (24) with two screws (13), lock washers (11) and flat washers (12).

(9) Secure mechanical stop (22) with tow screws (13), lock washers (11) and flat washers (12). Rotate synchro until mechanical stop is at) degrees. Connect synchro wires.

(10) Install pointer (21), dial (19 or 20) and retainer (18).

(11) Install indicator, as an assembly, in the front panel and secure with four screws (10), lock washers (11) and flat washers (12).

(12) Install five nylon flat washers (9), shaft (8) and pulley (7). Install preformed packing (6) in grooves on synchro (24) and pulley (7).

d. POLARIZATION or AZIMUTH Indicator Illumination Lamp Replacement (figure C-1, sheet 1 of 2).

(1) Perform steps (1), (2) and (3) of c above.

(2) Remove screw (13), lock washer (11), flat washer (12), component clamp (14) and fiber spacer (15). The lamp (16) and socket (17) will stay with component clamp (14).

(3) Replace lamp (16) and reinstall fiber spacer (15) and component clamp (14). Secure with screw (13), lock washer (11) and flat washer (12).

(4) Perform steps (11) and (12) of c above.

e. Transformer Replacement (figure C-1), sheet 2 of 2).

(1) Remove transformer (4) by removing four nuts (37), lock washers (38) and flat washers (39).

(2) Install new transformer (40) and secure with four nuts (37), lock washers (38) and flat washers (39).

f. Rectifier Replacement (figure C-1, sheet 2 of 2).

(1) Remove rectifier (43) by removing two screws (41), flat washers (12), lock washers (11) and nuts (42).

(2) Install new rectifier (43) and secure with two screws (41), flat washers (12), lock washers (11) and nuts (42).

g. Capacitor Replacement (figure C-1, sheet 2 of 2). Capacitor (48) is secured by a clamp (47). Loosen the screw clamping the capacitor in place and remove the capacitor. Install the new capacitor and tighten the screw.

h. Resistor Replacement (figure C-1, sheet 2 of 2)

(1) Remove resistor (52) by removing two screws (48), flat washers (49), lock washers (50) and nuts (51).

(2) Install new resistor (52) and secure with two screws (48), flat washers (49), lock washers (50) and nuts (51).

i. Inverter Replacement (figure C-1, sheet 2 of 2).

(1) Remove inverter (57) by removing four screws (53), lock washers (54) and flat washers (55). Heatsink (56) is secured by the same hardware that attaches the inverter, and will come off at the same time.

(2) Install new inverter, (57). Put heatsink (56) in place and secure both with four screws (53), lock washers (54) and flat washers (55).

j. RFI Filter Replacement (figure C-1 sheet 2 of 2).

(1) Remove RFI filter (61) by removing four screws (58), lock washers (59) and flat washers (60).

(2) Install new RFI filter (61) and secure with four screws (58), lock washers (59) and flat washers (60).

k. Connector J2 Replacement (figure C-1, sheet 2 of 2).

(1) Remove connector (64) by removing one screw (62), three screws (63) and four flat washers (3), lock washers (2) and nuts (45).

(2) Install new connector (64) and secure with one screw (62), three screws (63) and four flat washers (3), lock washers (2) and nuts (45).

Section VII. MAINTENANCE OFI ROTATOR TG-218/G

5-9. General.

Maintenance of the rotator is limited to draining moisture.

a. Remove pipe plug (89, figure C-2, sheet 3 of 1) from the base of the rotator and allow all moisture to drain out of the rotator.

b. Insert pipe plug (89) in the base of the rotator.

CHAPTER 6

FUNCTIONING OF EQUIPMENT

Section I. GENERAL

6-1. General.

a. The mechanical and electrical operation of the antenna rotator system are directly related and are discussed at the same time.

b. The discussion refers to the block diagram (figure FO-1). A schematic diagram (figure FO-2) is provided for additional information.

c. The azimuth and polarization circuitry are identical. The discussion applies equally to both.

6-2. Heater Operation.

With the HEATER switch in the on position, input power is applied through the RFI filter and the fuse to the thermostat. The operating range of the thermostat is from 92 to 102 degrees F (33.3 to :38.9 degrees C). When the interior temperature of the rotator is below the operating temperature of the thermostat, the thermostat contacts are closed and the heaters draw current. The raises the interior temperature of the rotator. When the interior temperature is above the operating point of the thermostat, the thermostat opens shutting off the heaters. The heaters are connected in parallel for 115 vac operation and in series for 230 vac operation.

6-3. Positioning Operation .

a. With the power switch in the on position, input)power is applied through the RFI filter and the fuse to the insulation transformer. When the input power is 230 vac, jumper connections on the transformer are changed to maintain an output of 115 vac from the transformer.

b. The 115 vac from the transformer is rectified by the dc power supply. The 25 to 30 vdc output from the dc power supply provides power for the AZIMIUTH and POLAIIZATION indicators illumination lamps 1(id for the, inverter. The inverter converts the 25 to 30 vdc from the de power supply to 26 volts, 400 Hz for the synchros.

c. The limit switches are normally closed, with the CCW/CW switch held in either position, 115 vac is supplied to the crossover module. The crossover module converts the 115 vac to 135 vdc. The 135 vde is filtered by the capacitors and al))lied to the motors thru the limit switches and the contacts of the reversal relay. 'The dc voltage releases the break and drives the dc servomotor.

d. When the CCW/CW switch is held in the opposite direction, the 115 vac input is applied to the relay coil as well as to the crossover module. When the relay is energized voltage is applied to the servo motor inverted causing the servo motor to drive in the opposite.

e. The servomotor mechanically drives the synchro. The position of the synchro is electrically coupled to the synchro in the AZIMUTH or POLARIZATION indicator, driving the indicator to the same relative position as the servomotor.

f. When the servomotor has been driven to its travel limit (azimuth 380 ±1 degree, polarization 180 ±1 degree), it mechanically actuates one of the limit switches. Actuating the limit switch removes power from the servomotor and the brake. This deenergizes the motor and mechanically engages the brake with the housing. The servomotor may be driven in the opposite direction by applying power through the outer limit switch.

CHAPTER 7

DIRECT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

7-1. General.

a. This chapter is primarily concerned with maintenance of the rotator. Maintenance instructions for the control unit are contained in Chapter 5.

b. Refer to figure 6-2 for the schematic diagram of the equipment.

c. Table 7-1 contains voltage and resistance measurements. All readings are taken with the equipment connected for 115 vac source voltage. Azimuth voltages and resistances are the same as the readings shown for polarization. S3 is the polarization CCW /CW switch.

Table 7-1. Voltage and Resistance Measurements

Meter Connections		Resistance	Voltage		
From (+)	To (-)	ohms	105 vac in	129 vac in	Notes
			Control Unit		
T1-5	T1-6	0.6	110 vac	133 vac	
T1-7	T1-8	0.4	30 vac	31.5 vac	
A1-1	A1-2	15	25 vdc	33 vdc	
A1-3	A1-4	.2	27 vac	27 vac	
			Rotator		
TB3-2	TB3-3	0	0 vac	0 vac	S5 closed
TBi-1	TB1-12	.5	112	vdc135 vdc	
TB1-11	TB1-12	15	112	vdc135 vdc	S3 closed
TB1-8	TB1-7	12	117	vdc150 vdc	S3 CW"
TB1-7	TB1-8	35	117	vdc150 vdc	S3 CCWV
TB3-2	TB3-6	55	105	vac129 vac	

Section II. TOOLS AND EQUIPMENT

Section III. TROUBLESHOOTING

7-2. General.

Table 7-2 contains troubleshooting checks. All voltage readings are given with 105 vac source voltage. Refer to table 7-1 for voltages readings with 129 vac source voltage. Connect the equipment is shown in figure 2-1.

Table 7-2. Troubleshooting

Item of check	Test conditions	Meter connect ions	Normal readings
RFI filter		FL1-A to FL1-C	10)5 vac
POWER switch		S1-1 to S1-2	0 vac
T1		T1-5 to T 1-6 T1-7 to T1 1-8	110 vac 30 vac
CR1, R1, C1		A1-1 to A1-2	25 vdc
A1		A1-3 to A1-4	26 vac
S3 S3	S3 CW CCW	S3-6 to S3-3 S3-4 to S3-1	110 vac 110 vac
S2 S2	S2 CW CCW	S2-6 to S2-3 S2-4 to S2-1	110 vac 110 vac
S5	Temperature less than 92 F	TB3-1 to TB3-:3	0 vac
	Temperature more than 105 °F	TB3-1 to TB3-:3	110 vac
A1, C1, C2	S3 C W or CCW	C1+ to C1-	130 vdc
S4, K2	S3 CCW	TB1-7 to TB1-8	+130 vdc
S3, K2	S3 CW	TB1-8 to TB1-7	-130 vdc

Table 7-2. Troubleshooting - Continued

Item of Check	Test conditions	Meter connection	Normal readings
A1, C3, C4	S2 CW or CCW	C3+ to C3-	130 vdc
S1, K1	S2 CCW	TB1-3 to TB1-4	+130 vdc
S2, K1	S2 CW	TB1-4 to TB1-3	-130 vdc

Section IV. MAINTENANCE OF ROTATOR TG-217/G

7-3. General.

Maintenance of the rotator is limited to the adjustment of the limit switches, the replacement of defective parts and lubrication. Lubrication instructions are included in the reassembly procedures.

7-4. Adjustment.

a. Polarization Limits (figure C-2, sheet 1 of 4). The polarization limit switches (50) are individually actuated by the two setscrews (26) on gear (29). The gear shall rotate 180 ±1 degrees in between actuating the polarization limit switches. The actuation point of the switches is adjusted as follows:

(1) Remove six screws (18) and washers (11).

(2) Remove synchro access cover (19).

(3) Adjust the depth of setscrews (26) to actuate switches 180 +1 degrees apart.

(4) Coat the threads of screws (18) with Dow Corning DC-4 silicon grease or equivalent.

CAUTION

Do not get grease on painted surfaces. Dow Corning DC-4 silicon grease can damage paint.

(5) Replace synchro access cover (19) and secure with screws (18) and washers (11).

b. Azimuth Limits (figure C-2 sheet 3 of 4). The azimuth limit switches (50) are activated when the pin (95) in the-drive base (98) moves the spring (106) against the switch, actuators (51). Azimuth switch spacers (104) are positioned to allow the rotator to turn 360 ±1 degrees. The actuation point of the switches is adjusted as follows:

(1) Remove eight screws (90), flat washers (5), lock washers (22) and nuts (6).

(2) Remove mast clamps (88) bearing clamp (91), bearing (94), bushing (97), drive base (98) and associated hardware as an assembly.

(3) Loosen four screws (103)and position azimuth switch spacers (104) to allow the rotator to turn 380 ±1 degrees. Tighten screws (103).

(4) Inspect gasket (100) and replace if required. Lubricate bushing (97) per paragraph 5-3. Reinstall the parts removed as an assembly in step (2).

(5) Secure with eight screws (90), flat washers (5), lock washers (22) and nuts (6).

7-5. Disassembly.

a. General. Disassembly should be accomplished only to the extent necessary to accomplish repair. The rotator can be separated into three sections: the polarization housing section (figure C-2, sheet 1 of 4), the component bracket section (figure C-2, sheet 2 of 4) and the azimuth housing section (figure C-2, sheet 3 of 4). The sections must be separated prior to the removal of any electrical or electronic components from the azimuth housing section or to perform any work on the component bracket assembly. The polarization housing section may be worked on without separating the sections. The heater strips (38, figure C-2 sheet 1 of 4) are not removed during disassembly. To replace a heater strip, see paragraph 7-4.

CAUTION

The terminal board screws, on the component bracket section, are not captive. When disconnecting wires with the component bracket section in place, be careful not to drop screws into the housings.

b. Separation into Sections.

(1) Remove eight screws (20, figure C-2 sheet 3 of 4), lock washers (22), and flat washers (21).

(2) Separate the azimuth and polarization housings as much as the wiring w ill allow.

(3) Using an offset open end wrench, reach in from the underside of the polarization housing section and remove two screws (52, figure C-2 sheet 2 of 4) lock washers (15) and flat washers (53).

(4) Carefully slide the component bracket section out of the polarization housing section.

(5) Tag and disconnect the wires that run from the azimuth housing section to the component bracket section.

(6) If the component bracket section is to be removed from the polarization housing section, tag and disconnect the wires that run from the polarization housing section to the component bracket section.

c. Polarization Housing Section Disassembly (figure C-2 sheet 1 of 4).

CAUTION

The terminal board screws, on the component bracket section, are not captive. When disconnecting wires with the component bracket section in place, be careful not to drop screws into the housings.

(1) Remove turnlock fastener stud (2).

(2) turnlock fastener stud (3).

(3) Remove two screws (4), flat washers (5) and nuts (6).

(4) Remove antenna bracket (7). Remove bushing (8).

(5) two screws (9), lock washers (10), flat washers (11), and springs (12).

(6) screw (14), lock washer (15) and flat washer (16). Loosen two setscrews (13) and remove antenna bracket (17).

(7) Remove six screws (18) and flat washers (11). Remove synchro access cover (19).

(8) Remove eight screws (20), lock washers (21) and flat washers (22). Remove polarization plate (23) with shaft (24) attached. Removed preformed packing (25).

(9) Remove two setscrews (26).

(10) Remove nut (27) and flat washer (11). Loosen two setscrews (28) and remove gear (29)

(11) Remove four screws (14), lock washers (15), flat washers (30) and preformed packings (31)

(12) Pull servomotor assembly (35) from azimuth housing as far as wires will allow. Tag and disconnect servomotor wires from component bracket section.

(13) Remove preformed packing (32).

(14) Remove retaining ring (33) and gear (34) from servomotor assembly (35).

(15) Tag and disconnect synchro (37) wires. Remove two clamps and screws (36) and synchro (37)

(16) Tag and disconnect connector (43) wires from component bracket section. Remove four screws (39) lock washers (40) and flat washers (41). Remove connector dust cap (42), connector (43) and gasket (44).

(17) Tag and disconnect switches (50) wires from component bracket section. Remove two screws (39), lock washers (40) and flat washers (41). Remove bracket (49) with switches attached.

(18) Remove two screws (45), flat washers (46), lock washers (47) and nuts (50). Separate two switches (50) and switch actuators (51) from bracket (49).

d. Component Bracket Section Disassembly (figure C-2, sheet 2 of 4).

(1) Perform the procedures outlined in b. above.

(2) Remove and/or replace parts as necessary. The diodes and resistors on terminal boards (75) can be removed without removing the terminal boards.

e. Azimuth Housing Section Disassembly (figure C-2, sheet 3 of 4).

(1) Perform the procedures outlined in b. above.

(2) Remove four setscrews (82).

(3) Remove four threaded rods (83) by removing eight nuts (84), lock washers (15) and flat washers (52)

(4) Remove two mast clamps (88) by removing four screws (85), lock washers (86) and flat washers (87)

(5) Remove pipe plug (89).

(6) Remove eight screws (90), flat washers (5), lock washers (22) and nuts (6). Remove bearing clamp (91) preformed packing (92), two gaskets (100) and spacer ring (101).

(7) Remove eight screws (93), lock washers (22) and flat washers (5). Remove bearing (94)

(8) Remove four screws (96), lock washers (22), flat washers (5) and bushing (97).

(9) Remove nut (27) and flat washer (11). Loosen two setscrews (28) and remove gear (29)

(10) Remove four screws (102), lock washers (47) and flat washers (46). Remove two switches (50) and switch actuators (51).

(11) Remove four screws (103), lock washers (40) and flat washer (41). Remove two switch spacers (104).

(12) two setscrews (105) and remove spring (106).

(13) two screws (107) and block (108).

(14) two clamps and screws (36) and synchro (37).

(15) retaining ring (33) and gear (34).

(16) four screws (14), lock washers (15) and flat washers (30). Remove servomotor assembly (35).

7-6. Inspection.

Inspect all gaskets and preformed packings before performing reassembly. Replace all worn or distorted gaskets and preformed packings.

7-7. Reassembly.

a. General. Perform the adjustment procedures outlined in paragraph 7-4 after completing reassembly.

b. Azimuth Housing Section Reassembly (figure C-2, sheet 3 of 4).

(1) Install servomotor assembly (35) and secure with four screws (14), lock washers (15) and flat washers (30).

(2) Place gear (34) in position on shaft of servomotor assembly and secure with retaining ring (33).

(3) Install synchro (37) and secure with two clamps and screws (36).

(4) Insert spring (106) in block(108) and tighten setscrews (105). Install block (108) and secure with two screws (107).

(5) Put one switch (50) and switch actuator (51) in position on each of two switch spacers (104) and secure each switch two screws (102), lock washers (47) and flat washers (46).

(6) Place the two switch spacers, with switches attached, in position and secure each one with two screws (103), lock Mashers (40) and flat washers (41). Do not tighten.

(7) Place gear (29) in position on the shaft of synchro (37). Adjust for good mesh with gear (34). Align mark on gear (29) with mark on gear (34). Secure with nut (27) and flat washer (11). Tighten two setscrews (28).

(8) Lubricate bushing (97) as outlined in paragraph 5-3. Insert bushing in drive base (98) and secure with four screws (96), lock washers (22) and flat washers (5).

(9) Lubricate bearing (94) as outlined in paragraph 5-3. Place bearing in position on drive base (98) and secure with eight screws (93), lock washers (22) and flat washers (5).

(10) Insert eight screws (90) in holes in flange of azimuth housing. Install gasket (100), spacer ring (101) and second gasket (100) on screws. Place drive base in position. Lubricate preformed packing (89) as outlined in paragraph 5-3 and place in position on drive base. Place bearing clamp (91) in position on screws (90) and secure with eight flat w(5), lock washers (22) and nuts(6).

(11) Install pipe plug (89).

(12) Place two mast clamps (88) in position and secure each one with two screws (85), lock washers (86) and flat washers (87).

(13) Install four threaded rods (83) and eight nuts (84), lock washers (15) and flat washers (52).

(14) Install four setscrews (82).

CAUTION

The terminal board screws, on the component bracket section, are not captive. Be careful not to drop screws into housings.

c. Polarization Housing Section Reassembly (figure C-2, sheet 1 of 4).

(1) Place two switches (50) and switch actuators (51) in position in bracket (49) and secure with two screws (45), flat washers (46), lock washers (47) and nuts (50).

(2) Place bracket (49) in position in housing (55), switch actuators must penetrate housing wall. Secure with two screws (39), lock washers (40) and flat washers (41). Connect switch wires to terminals on component bracket section.

(3) Place gasket (44) on connector (43). Lubricate threads of screws (39) as outlined in paragraph 5-3. Install connector (43) and dust cap (42). Secure with four screws (39), lock washers (40) and flat washers (41). Connect connector wires to terminals on component bracket section.

(4) Place synchro (37) in position and secure with two clamps and screws (36). Connect synchro wires.

(5) Lubricate preformed packing (32) as outlined in paragraph 5-3. Install preformed packing in housing (55).

(6) Put gear (34) in position on shaft of servomotor assembly (35) and secure with retaining ring (33). Connect servomotor wires to terminals on component bracket section.

(7) Lubricate four screws (14) and preformed packings (31) as outlined in paragraph 5-3. Install servomotor (35) in housing (55) and secure with four screws (14), lock washers (15), flat washers (30) and preformed packings (31).

(8) Place gear (29) in position on the shaft of synchro (37). Adjust for good mesh with gear (34). Align mark on gear (29) with mark on gear (34). Secure with nut (27) and flat washer (11). Tighten two setscrews (28).

(9) Lubricate eight screws (20) and preformed packing (25) as outlined in paragraph 5-3. Install preformed packing (25) and polarization plate (23). Secure with eight screws (20), lock washers (21) and flat washers (22).

(10) Install two setscrews (26) and adjust as outlined in paragraph 7-4 a. steps (3) through (5).

(11) Install two springs (12) on antenna bracket (17) and secure with screws (9), lock washers (10) and flat washers (11).

(12) Put antenna bracket (17) on shaft of servomnotor (25). Secure with screw (14), lock washer (15) and flat washer (16). Tighten two setscrews (13).

(13) Install bushing (8) and antenna bracket (7)' on shaft (24). Secure with two screws (4), flat washers (5) and nuts (6). Install turnlock fastener studs (2 and 3).

d. Reassembly of Sections.

(1) Connect the wires from the polarization housing section and from the azimuth housing section to the terminals on the component bracket section.

(2) Carefully slide the component bracket section into the polarization housing section. Using an offset open end wrench, secure with two screws (52, figure C-2, sheet 2 of 4), lock washers (15) and flat washers (53).

(3) Lubricate preformed packing (25, figure C-2, sheet 3 of 4) and eight screws (20) as outlined in paragraph 5-3. Set preformed packing (25) in position on azimuth housing section.

(4) Position azimuth housing section so that component bracket section will fit inside and mounting holes in flange of azimuth housing (109) are in line with holes in polarization housing (55, figure C-2, sheet 1 of 4). Carefully slide azimuth housing section into position against polarization housing section. Secure smith eight screws (20, figure C-2, sheet 3 of 4), lock washers (22) and flat washers (21).

7-8. Heater Strip Replacement.

a. Perform steps (1), (3), (4), (6), (7), (8), and (10) through (13) in paragraph 7-5 c. Do not disconnect servomotor wires.

b. Using a sharp knife carefully cut defective heater strip (38) away from housing (55). Clean excess adhesive from housing.

c. Disconnect defective heater strip wires from terminals on electrical component section and connect wires from new heater strip.

d. Coat one side of new heater strip with silicon rubber adhesive (General Electric RTV 103 or equivalent) and put heater strip in p)lace on housing. Allow to air dry until heater strip is secure (approximately 4 hours).

e. Inspect all preformed packings. Replace preformed packings that are sworn or distorted.

f. Perform steps (7), (8), (9y, (10), (12) and (13) in paragraph 7-7 c.

Section V. TESTING PROCEDURES

7-9. General.

a. Inspect the equipment for loose or missing screws, bolts and nuts. Check for dust, rust, corrosion, excessive lubricants, damaged surfaces and scratched or peeling paint.

b. Mount the rotator on a stationary tubular mast 2-3/4 inches to 3-1/2 inches in -diameter. (See paragraph 2-4 a.) The rotator shall be mounted where it may be easily seen and where the top of the housing may easily be touched.

c. Place the control unit on a bench and connect the equipment as shown in figure 2-1. Do not use RF cables W3 and W 4. Coil excess cable out of the way.

d. Mount a 75 pound load on the antenna bracket.

7-10. Tests and Performance Standards.

a. Set the HEATER switch to the up position. HEATER indicator will illuminate.

b. Set the POWER switch to the up position POWER AZIMUTH and POLARIZATION indicators will illuminate.

c. Hold the Azimuth CCW/CW switch in the CCW position until the rotator stops rotating. The AZIMUTH indicator shall track with the rotator.

d. Set the AZIMUTH indicator to indicate 350 degrees.

e. Hold the Azimuth CCW/CW switch in the CW position until the rotator stops moving: Rotator shall move smoothly through 380 degrees in less than 2 minutes. AZIMUTH indicator shall track with the rotator and shall stop at 10 ±1 degrees.

f. Hold the Polarization CCW /CW switch in the CCW position until the antenna bracket stops moving. The AZIMUTH indicator shall track with the rotator. Stop spring (12, figure C-2, sheet 1 of 3) shall not be compressed.

g. Set the POLARIZATION indicator to indicate 270 degrees.

h. Hold the Polarization CCW/CW switch in the CW position until the antenna bracket stops moving. Antenna bracket shall move smoothly through 180 degrees in less than 1 minute. POLARIZATION indicator shall track with the antenna bracket and shall stop at 90 ±1 degrees. Stop spring (12) shall not be compressed.

i. Momentarily hold the Azimuth CCW/CW switch in the CCW position. The rotator shall rotate in the counterclockwise direction while the switch is being held and shall stop moving when the switch is released.

j. Hold the Polarization CCW/CW switch in the CCW position until the POLARIZATION indicator indicates 310 degrees. The antenna bracket shall move while the switch is being held and shall stop moving when the switch is released. Monitor the POLARIZATION indicator for 5 minutes. The antenna bracket shall not move more than 1 degree.

k. Feel the polarization housing on the rotator. The housing shall feel warm to the touch.

Section VI. MAINTENANCE OF CONTROL INDICATOR C-9238/G

7-10. General.

Refer to chapter 5 for Direct and General Support Maintenance.

APPENDIX A

REFERENCES

Section I. INTRODUCTION

The following list identifies documents that supplement the information provided in this manual.

DA Form 2028	Recommended Changes to Publications
DA Pam 310-7	US Army Equipment Index of Modification Work Orders
DD Form 6	Report of Damaged or Improper Shipment
FED-STD-595	Color
MIL-E-15090	Enamel, Equipment, Light Gray (Formula No. 111)
MIL-C-5541	Chemical Films and Chemical Film Materials for Aluminum and Aluminum Alloys
MIL-G-7711A	Grease, Aircraft, General Purpose
MIL-P-8585	Primer Coating, Zinc Chromate, Low-moisture-sensitivity
TB746-10	Field Instructions for Painting and Preserving, Electronics Command Equipment
TM9-213	Painting Instructions for Field Use
TM38-750	Army Equipment Record Procedures

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. General.

The maintenance allocation chart (MAC) assigns authorized maintenance functions to each maintenance category. These functions are assigned to the lowest available maintenance category based on past experience in the following considerations:

a. Skills Available

b. Time Required

c. Tools and Test Equipment Authorized

If the maintenance function is a replacement function only, the item is not listed in the MAC. Such an item, if included in the Repair Parts and Special Tool List for the end item, is automatic authority to replace at the lowest maintenance level to which the part is authorized. Deviation from maintenance operations as allocated in the MAC is authorized only upon approval of the Army Commander representative.

B-2. Definitions.

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine serviceability of an item by comparing its physical, mechanical and electrical characteristics with established standards.

b. Test. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

c. Service. To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air.

d. Adjust. To rectify to the extent necessary to bring into proper operating range.

e. Align. To adjust specified variable elements of an item to bring to optimum performance.

f. Calibrate. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

g. Install. To set up for use in an operational environment such as an emplacement, site, or vehicle.

h. Replace. To replace unserviceable items with serviceable like items.

i. Repair. Those maintenance operations necessary to restore an item to serviceable condition through correction of material damage or a specific failure. Repair may be accomplished at each category of maintenance.

j. Overhaul. Normally, the highest degree of maintenance performed by the Army in order to minimize time work ill process is consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like new, zero mileage, or zero hour condition.

k. Rebuild. The highest degree of material maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other -paramount factors and then only at the depot maintenance category. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

l. Symbols. The uppercase letter placed in the appropriate column indicates the lowest level at which that particular maintenance function is to be performed.

B-3. Explanation of Format.

a. Column 1, group number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies and modules with the next higher assembly.

b. Column 2, functional group. Column 2 lists the noun names of components, assemblies, subassemblies and modules on which maintenance is authorized.

c. Column 3, maintenance functions. Lists the lowest level of maintenance authorized to perform the maintenance functions.

d. Use of symbols. The symbols used are defined as follows:

Symbol	Explanation
C	Operator/crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

e. Column 4, tools and equipment. This column shall be used to specify, by code, those tools and test equipment required to perform the designated function.

f. Column 5, remarks. Self-explanatory.

Nomenclature of End Item or Component

SECTION II - MAINTENANCE ASSIGNMENT

Component Assembly Nomenclature	Maintenance Function											Tools and Equipment	Remarks
	A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild		
1. Antenna Rotator System	O	O	O	O	O		O	O	F	O	O	1B, 1D, 1E, 1I, 1J, 1K	
1A Pedestal Unit	O	O	O	O	O		O	O	F	D	D	1B, 1D, 1E, 1I, 1J, 1K	
1A1. Drive Module	F	F	O	F	F		F	O	F			1B, 1D, 1E, 1I	Includes Brakes
1A2. Data Module	F	F	O	F	F		F	O	F			1B, 1D, 1E, 1I, 1J, 1K	
1B Control Unit	O	O	O	O	O		O	O	F	D	D	1B, 1D, 1E, 1I, 1J, 1K	
1B1 Inverter	O	O					O	O				1B	Potted
1B2 Transformer	O	O					O	O				1B	Potted
1B3 Synchros	O	O	O	O	O		O	O	F			1B, 1D, 1E, 1I	
1B4 Rectifier "See Note	O	O					O	O				1B	Encapsulated

Nomenclature of End Item or Component				
SECTION III - TOOL AND TEST EQUIPMENT REQUIREMENTS				
(1) Tool Or Test Equipment Reference Code	**(2) Maintenance Category**	**(3) Nomenclature**	**(4) FSN**	**(5) Tool Number**
1B, 1D, 1E,1I, 1J, 1K	O	Multimeter, ME 419/U	6625-897-4051	1

Nomenclature of End Item or Component	
SECTION IV - REMARKS	
Tolerance Code	**Remarks**
*** NOTE**	**Group Numbers were fabricated for MAC usage only. They are not reflected elsewhere.**

APPENDIX C

Section I. INTRODUCTION

C-1. Scope.

This appendix lists basic repair parts, and special tools required for the performance of operator/crew, organizational, direct support and general support of the antenna rotator system.

C-2. General.

This Repair Parts, and Special Tools List is divided into the following sections:

a. Repair Parts Section II. A list of repair parts authorized for the performance of maintenance at the operator/crew, organizational, direct support, and general support level.

b. Special Tools, Test and Support Equipment Section III. A list of special tools, test and support equipment authorized for the performance of maintenance at the operator/crew, organizational, direct support, and general support level.

c. National Stock Number and Reference Number Index Section IV. A list of National stock numbers in ascending numerical sequence, followed by a list of reference numbers appearing in all the listings, in ascending alpha-numeric sequence, cross-referenced to the illustration figure number and item number.

C-3. Explanation of Columns.

The following provides an explanation of columns in the tabular lists in Sections II and III:

a. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source Code. Indicates the selection status and source for the listed item. Source codes used are:

Code	Explanation
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purposes because essentiality dictates that a minimum quantity be available in the supply systems.

Code	Explanation
PC	Item procured and stocked and which otherwise would be coded PA except that is deteriorative in nature.
PD	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent of additional issues or outfittings. Not subject to automatic replenishment.
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which will not be stocked but which will be centrally procured on demand.
PG	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which because of probable discontinuance or shutdown of production facilities would prove uneconomical to reproduce at a later time.
KD	An item of depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.
KF	An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizations or direct support or general support levels of maintenance.
KB	Item included in both a depot overhaul/repair kit and a maintenance kit.
MO	Item to be manufactured or fabricated at organization level.
MF	Item to be manufactured or fabricated at direct support maintenance level.
MH	Item to be manufactured or fabricated at general support main' tenance level.
MD	Item to be manufactured or fabricated at depot maintenance level.
AO	Item to be assembled at organizational level.
AF	Item to be assembled at direct support maintenance level.
AH	Item to be assembled at general support maintenance level.
AD	Item to be assembled at depot maintenance level.
XA	Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	Item is not procured or stocked. If not available through salvage, requisition.
XC	Installation drawing, diagram instruction sheet, field service drawing, that is identified by manufacturer's part number.
XC	Support items listed in this RPSTL-TM assigned maintenance and recoverability codes and no source codes can be requisitioned with justification.

(2) Maintenance Code (third position). Indicates the lowest category of maintenance authorized to install the listed item. The maintenance level codes are:

Code	Explanation
C	Operator/crew
O	Organizational' maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

(3) Repair (fourth position). Indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete (i.e., all authorized maintenance functions). Codes are as follows:

Code	Explanation
O	The lowest maintenance level capable of complete repair of the support item is the organizational level.
F	The lowest maintenance level capable of complete repair of the support item is direct support.
H	The lowest maintenance level capable of complete repair of the support item is general support.
D	The lowest maintenance level capable of complete repair of the support items is the depot level.
L	Repair restricted to designated Specialized Repair Activity.
Z	Non-repairable. No repair is authorized.
B	No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.

(4) Recoverability Code. Indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are:

Code	Explanation
Z	Nonrepairable item. When unserviceable, condemn and dispose at the level indicated in the first digit of the maintenance code.
0	Repairable item. When uneconomically repairable, condemn and dispose at organizational level.
F	Repairable item. When uneconomically repairable, condemn and dispose at the direct support level.
H	Repairable item. When uneconomically repairable, condemn and dispose at the general support level.
D	Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.
L	Repairable item. Repair condemnation and disposal not authorized below/Specialized Repair Activity level.
A	Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material or hazardous material).

b. National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Description. Indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M). A 2 character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit. Indicates the quantity of the item used in the assembly group. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.).

f. Illustration.

(1) Figure Number. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number. Indicates the callout number used to reference the item in the illustration.

C-4. Special Information.

Parts which require manufacture or assembly at a category higher than that authorized for installation will indicate in the source column the higher category.

C-5. How to Locate Repair Parts.

a. When National stock number or reference number is unknown:

(1) First. Using the table of contents determine the assembly group within which the repair part belongs. This is necessary since illustrations are prepared for assembly groups, and listings are divided into the same groups.

(2) Second. Find the illustration covering the assembly group to which the repair part belongs.

(3) Third. Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) Fourth. Using the Repair Parts Listing, find the assembly to which the repair part belongs and locate the illustration figure and item number noted on the illustration.

b. When National stock number or reference number is known:

(1) First. Using the Index' of National stock numbers and reference numbers find the pertinent National stock number or reference number. This index is in ascending NSN sequence followed by a list of reference numbers in alpha-numeric sequence, cross-referenced to the illustration figure number and item number.

(2) Second. Using the Repair Part Listing, find the assembly group of the repair part and the illustration figure number and item number referenced in the Index of National Stock Numbers and Reference Numbers.

C-6. Federal Supply Codes for Manufacturers.

Codes	Manufacturer
02697	Parker Seal Co. Div. of Parkerhannifin Corp. Lexington, KY 40509
02728	Electroflex Heat Inc., Bloomfield, CO
02987	Bendix Corp., The Flight and Engine Instruments Div. South Montrose, PA 18843
04713	Motorola Semiconductor Products, Inc. Pheonix, AZ 85008
08484	Breeze Corporations, Inc. Union, NJ 07083
09026	Babcock Electronics Corp. Relays Div. Costa Mesa, CA 92626
14604	Elmwood Sensors, Inc. Cranston, RI 02907
14655	Cornell Dubilier Electronics Div. Federal Pacific Electric Co. Newark, NJ 07105
15755	Abbott Transistor Laboratories, Inc. Los Angeles, CA 90016
15849	Litton Precision Products, Inc. Useco Div. Litton, Ind. Van Nuys, CA
26795	ABA Industries, Inc. Pinellas Park, FL 33565
28480	Hewlett Packard Co Palo Alto, CA 94304

Codes	Manufacturer
29440	Winfred M. Berg, Inc. Rockaway, LI, NY 11518
32302	Tri Tech of Florida, Inc. St. Petersburg, FL 33733
32828	Keene Corp. Kaydon Bearing Div. Muskegon, MI 49943
37942	P.R. Mallory and Co., Inc. Indianapolis, IN 46206
46384	Penn Engineering and Mfg. Corp Doylestown, PA 18901
49956	Raytheon Corp. Lexington, MA
59730	Thomas and Betts Co. Elizabeth, NJ 07207
71002	Birnback Co. Inc. New York, NY 10014
71279	Cambridge Thermionic Corp. Cambridge, MA 02138
71286	Rex Chainbelt, Inc. Camloc Div. Paramus, NJ 07652
71744	Chicago Miniature Lamp Works Chicago, IL 60640
71785	Cinch Mfg Co and Howard B. Jones Div. Chicago, IL 60624
77820	Bendix Corp, The Electrical Components Div. Sidney, NY 13838
80131	Electronics Industried Association
81349	Military Specifications
83330	Herman H. Smith, Inc. Brooklyn, NY 11207

Codes	Manufacturer
90201	Mallory Capacitor Co. Indianapolis, IN 46206
91929	Honeywell Inc., Micro Switch Div. Freeport, IL 61032
96906	Military Standards

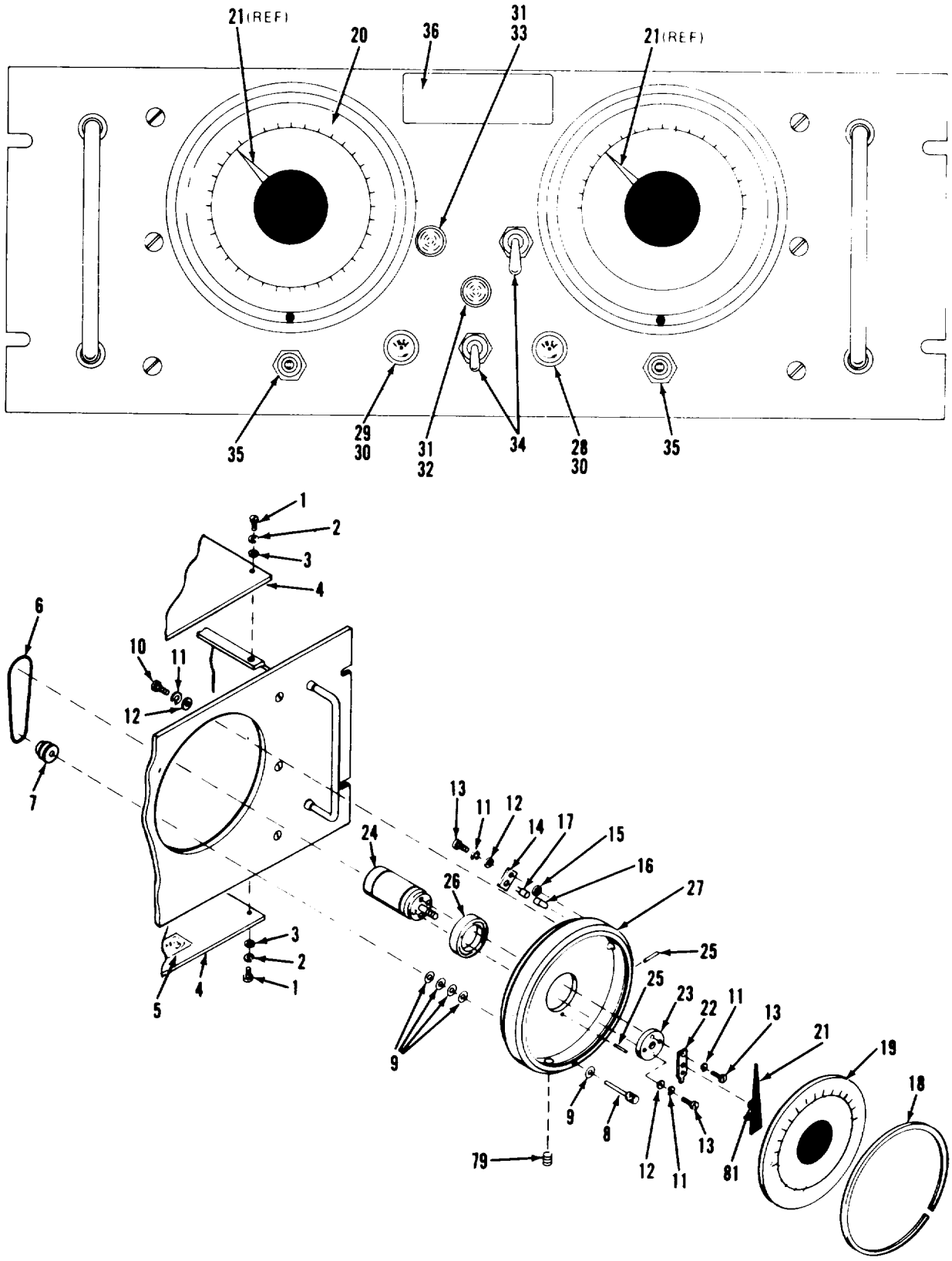


Figure C-1. Control Unit (Sheet 1 of 2)

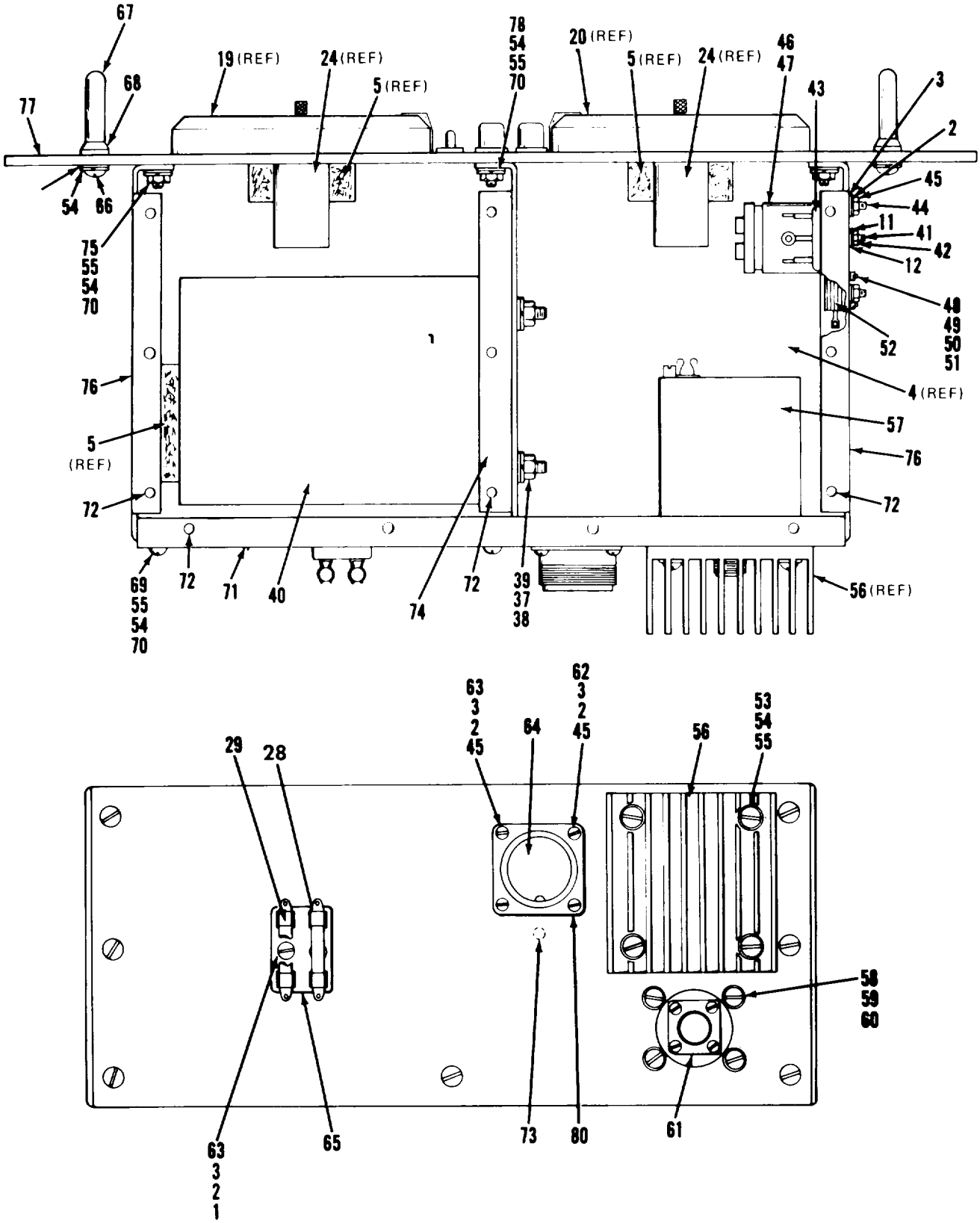


Figure C-1. Control Unit (Sheet 2 of 2)

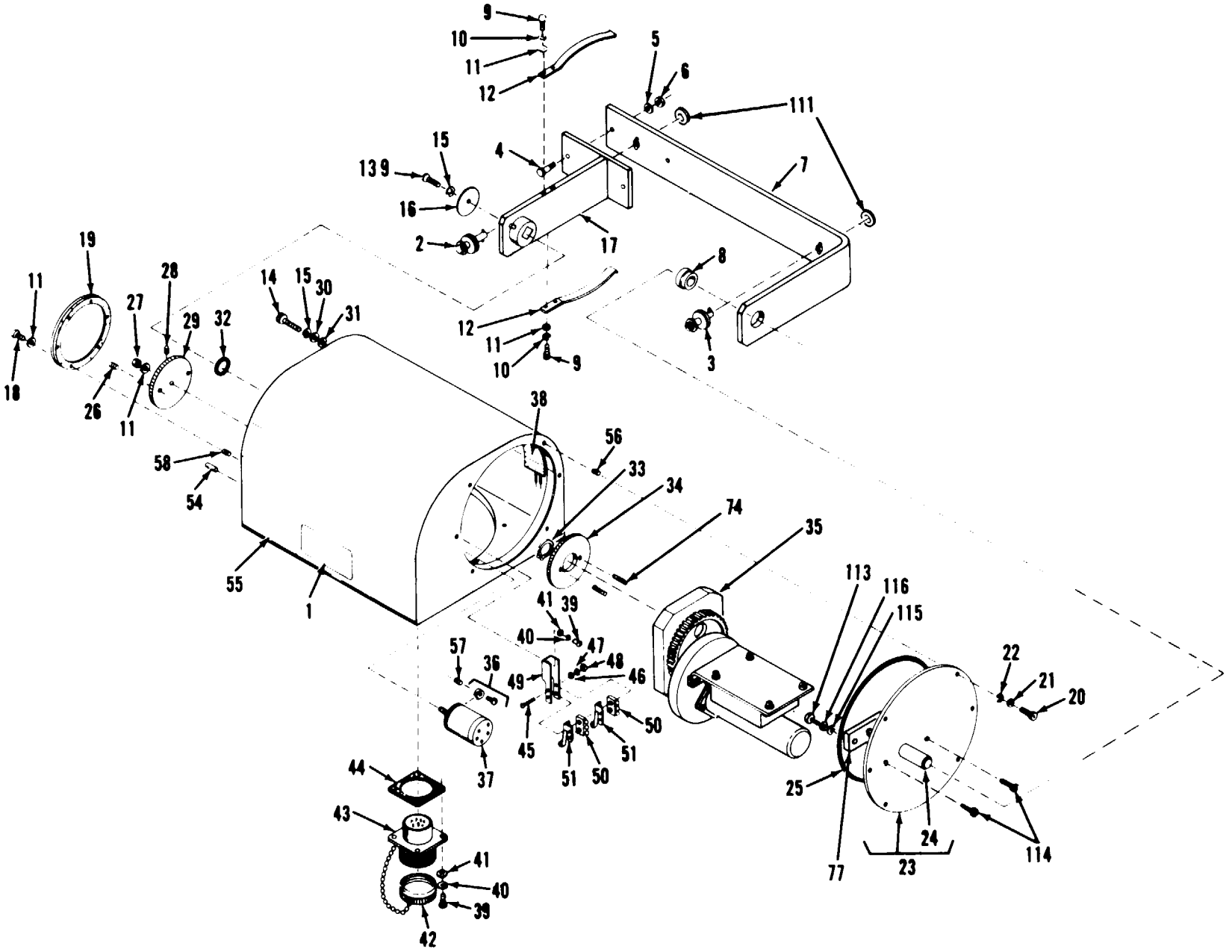


Figure C-2. Rotator (Sheet 1 of 4)

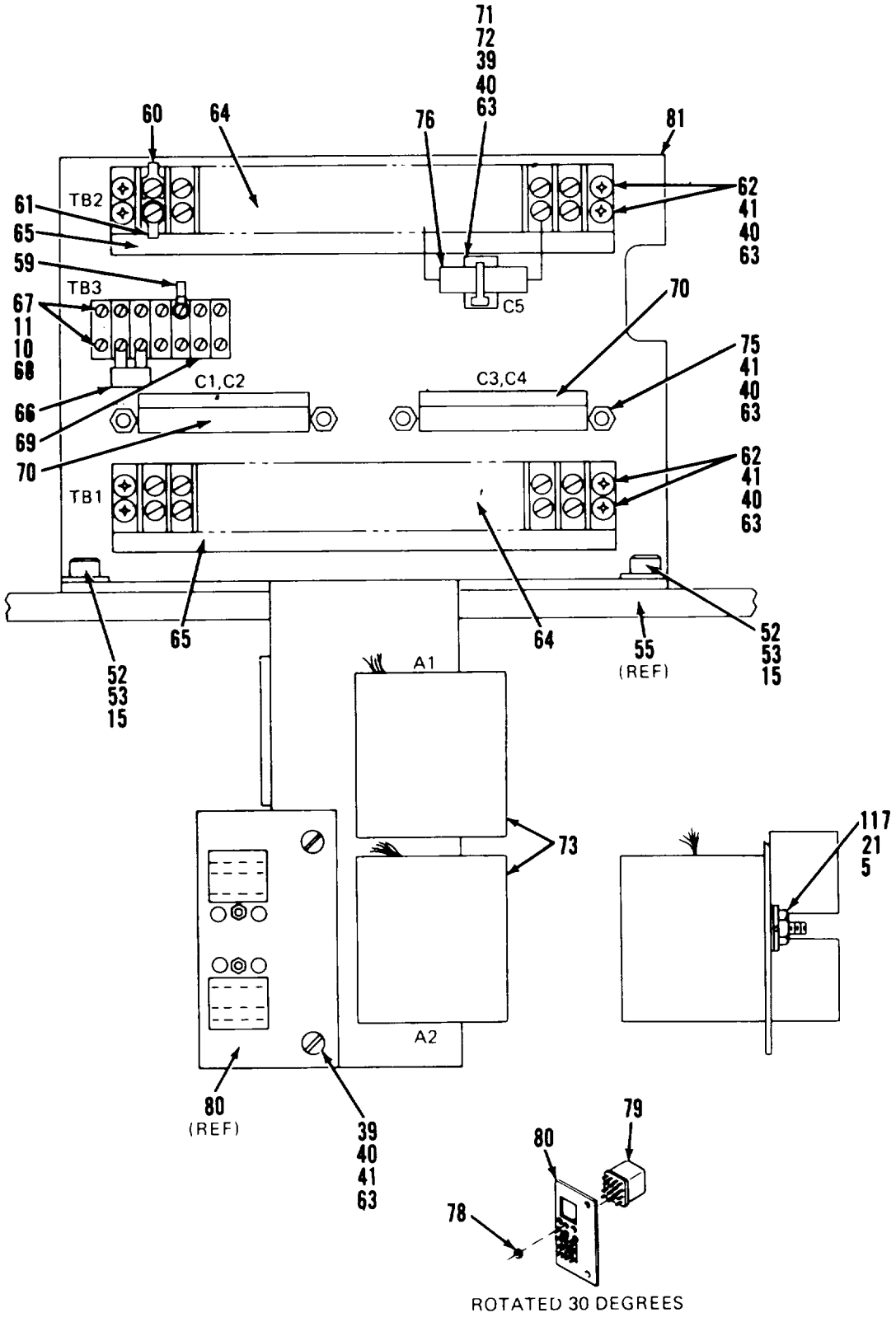


Figure C-2. Rotator (Sheet 2 of 4)

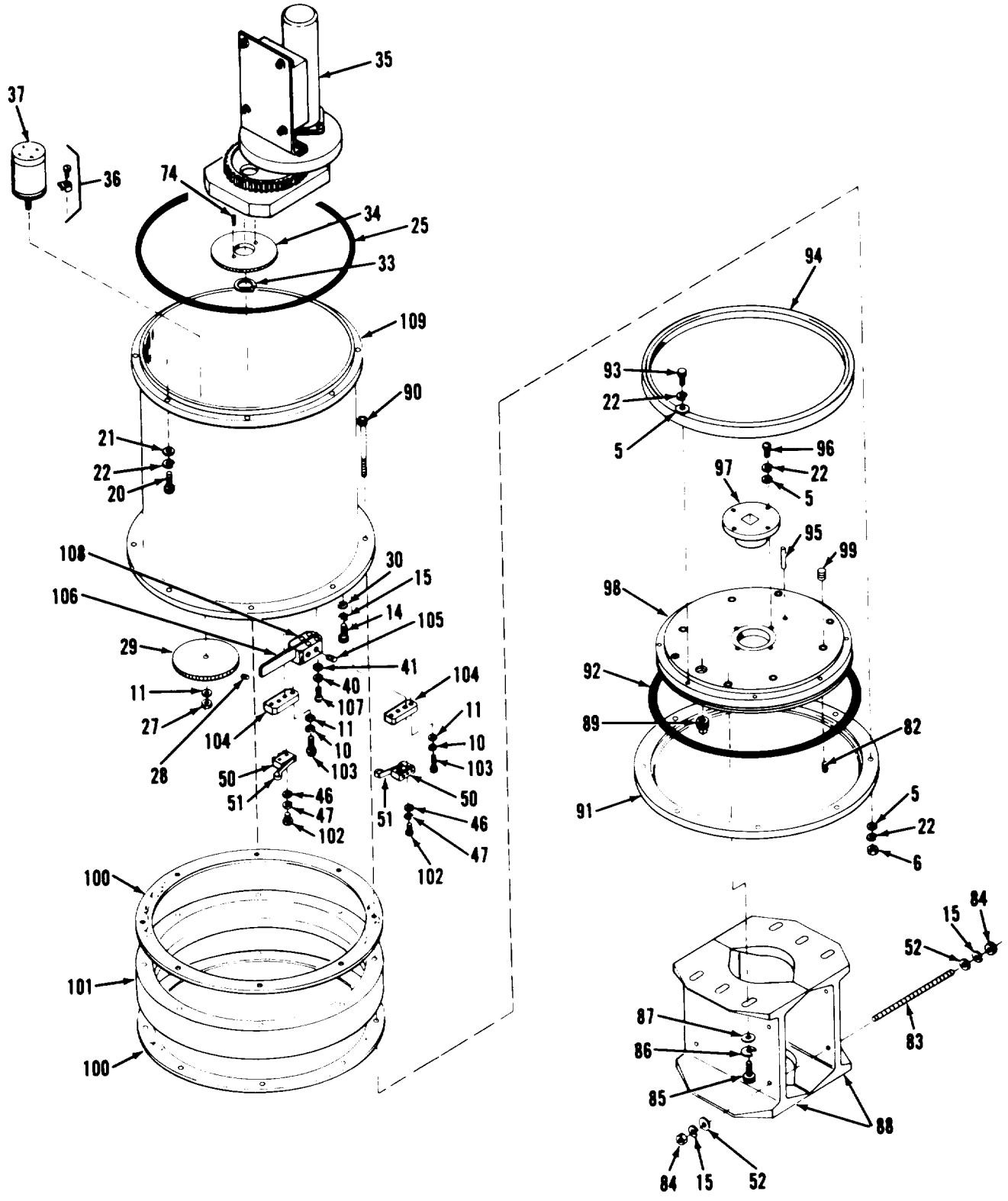


Figure C-2. Rotator (Sheet 3 of 4)

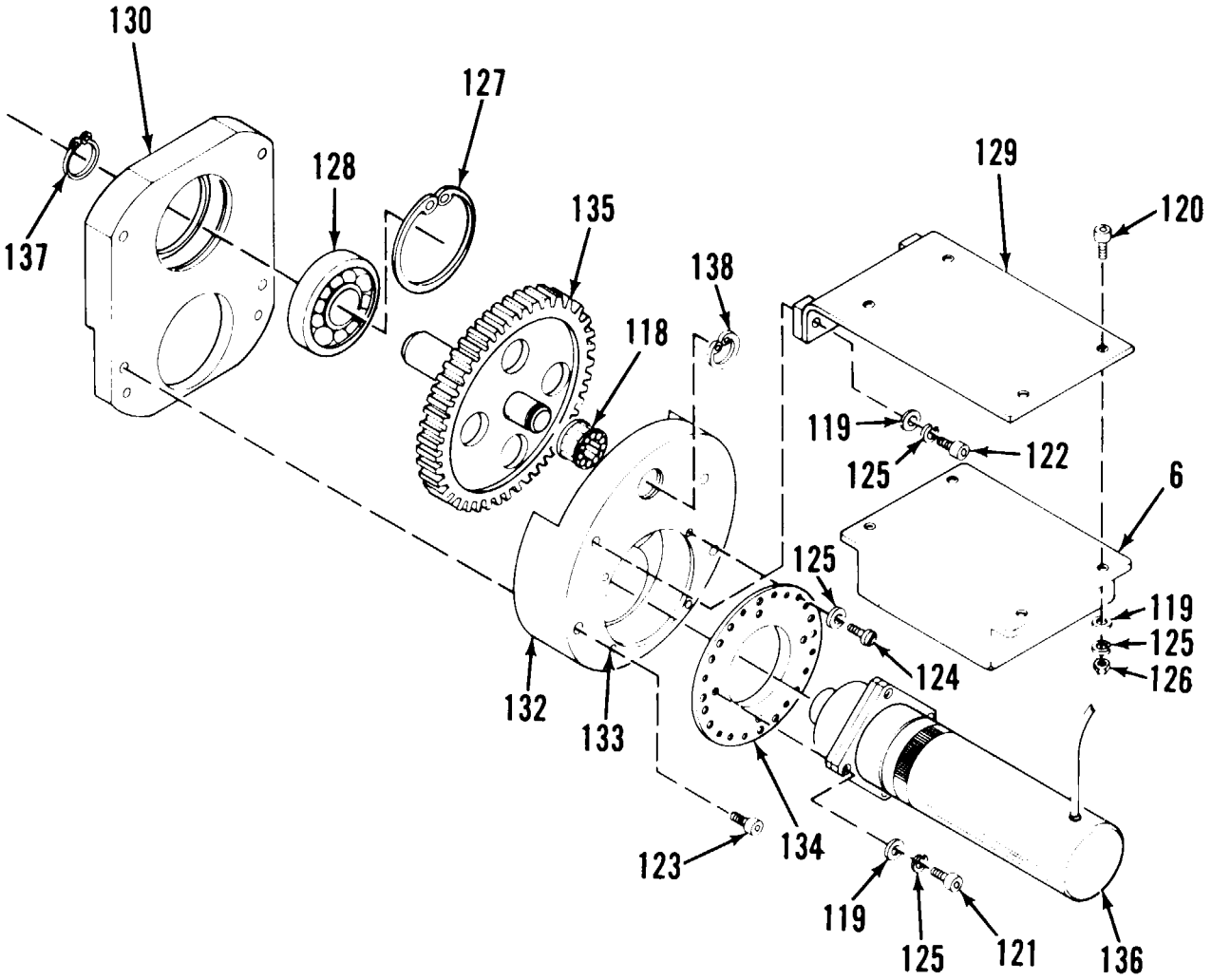


Figure C-2. Rotator (Sheet 4 of 4)

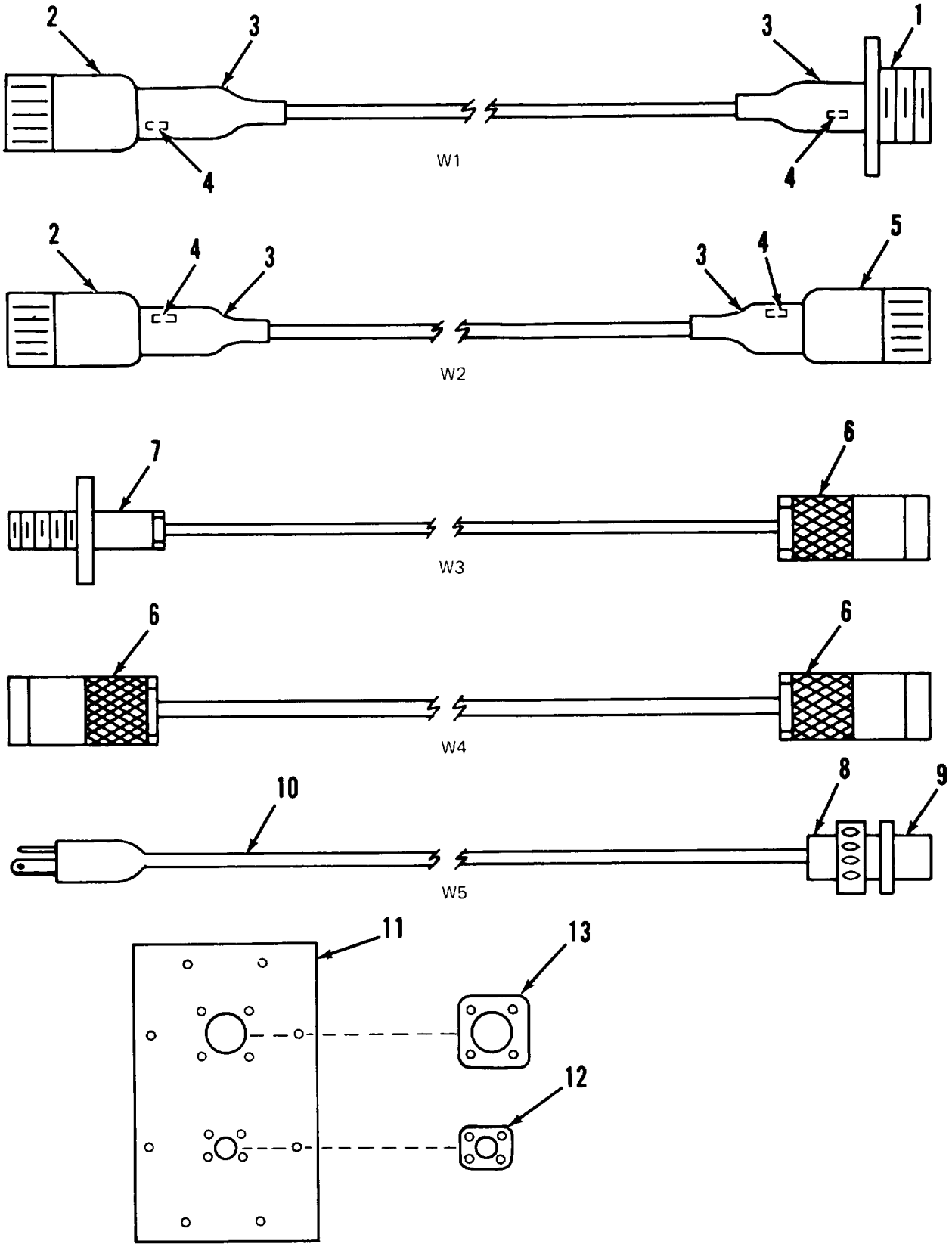


Figure C-3. Control Cables and Feedthru Plate

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C1		AFFHD		0110-1-4000	15942	ANT ROTATOR GP		
C1		AFFFD		0110-1-4003	15942	CONTINDICATOR		1
C1	1	PAFZZ	5305-00-054-6650	MS 35233-26	96906	SCREW, PAN HD		25
C1	2	PAFZZ	5312-00-929-6395	MS35338-136	96906	WASHER, LOCK		REF
C1	3	PAFZZ	5310-00-722-5998	MS15795-805	96906	WASHER, FLAT		REF
C1	4	XBFZZ		0110-1-4032	15942	COVER		2
C1	5	MFFZZ		1.5 X 2.0 X .06	32302	STRIP, NEOPRENE		1
C1	6	PAFZZ	5330-00-618-5899	2-34	02697	PKG, PREFMD		2
C1	7	XBFZZ		PG1-1	29440	PULLEY, GROOVED		2
C1	8	MHHZZ		0110-1-2038	15942	SHAFT		2
C1	9	PAFZZ	5310-00-461-5669	6593	71002	WASHER, NYLON		10
C1	10	PAFZZ	5305-00-054-5648	MS 35233- 14	96906	SCREW, PAN HD		6
C1	11	PAFZZ	5310-00-933-8118	MS 35338-135	96906	WASHER, LOCK		REF
C1	12	PAFZZ	5310-00-595-6211	MS 15795-803	96906	WASHER, FLAT		REF
C1	13	PAFZZ	5395-00-054-5649	MS 35233-15	96906	SCREW, PAN HD		14
C1	14	MFFZZ		0110-1-2050	15942	CLAMP, COMP		4
C1	15	PAFZZ	5970-00-350-4800	8880	83330	SPACER, FIBER		4
C1	16	PAFZZ	6242-80-555-6347	CM 7-7387	71744	LAMP, INCAND		4
C1	17	PAFZZ	6250-00-413-4482	CM 21-2	71744	LAMPHOLDER		4
C1	18	MFFZZ		0110-1-2039	15942	RETAINER		2
C1	19	XBFZZ		0110-1-4030	15942	DIAL, AZ		1

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C1	20	XBFZZ		0110-1-4031	15942	DIAL, POL		1
C1	21	MFFZZ		0110-1-2036	15942	POINTER		2
C1	22	MFFZZ		0110-1-2035	15942	STOP		2
C1	23	MFFZZ		0110-1-2037	15942	CLASP		2
C1	25	PAFZZ	5315-00-807-7684	MS 16555-603	96906	PIN, STR HDLS		4
C1	26	PAFZZ		KAA10XL	32828	BEARING		2
C1	27	XBFZZ		011-1-4041	15942	HOUSING		2
C1	28	PAFZZ	5920-00-557-2647	F0 2A250V4A	81349	FUSE, 4A		2
C1	29	PAFZZ	5920-0O-614-9281	ABC6	71400	FUSE, 6A		2
C1	30	PAFZZ	5920-00-875-4100	FHN26G2	96906	FUSEHOLDER		2
C1	31	PAFZZ	6240-00-892-4420	MS25252C7A	96906	LAMP. GLOW		2
C1	32	PAFZZ	6210-00-808-8604	MS25257-4	96906	LIGHT, INDICATOR		1
C1	33	PAFZZ	6210-00-809-4274	MS25257-2	96906	LIGHT, INDICATOR		1
C1	34	PAFZZ	5930-00-655-1514	MS35059-22	96906	SWITCH. TOGGLE		2
C1	35	PAFZZ	5932-00-615-7882	MS35059-27	96906	SWITCH. TOGGLE		2
C1	36	XBFZZ		0110-1-2040	15942	NAMEPLATE		1
C1	37	PAFZZ	5310-00-903-5966	MS51971-1	96906	NUT, HEX		REF
C1	38	PAFZZ	5310-00-933-8121	MS35338-139	96906	WASHER, LOCK		REF
C1	39	PAFZZ	5310-00-582-5677	MS15795-810	96906	WASHER, FLAT		REF
C1	40	PAFZZ		0110-1-2033	15942	TRANSFORMER		1
C1	41	PAFZZ	5305-00-254-5654	MS35233-20	96986	SCREW, PAN HD		2

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C1	42	PAFZZ	5310-00-934-9748	MS35649-244	96906	NUT, HEX		REF
C1	43	PAFZZ	5961-00-933-4989	MDA952-2	04713	SEMICONDUCTOR		1
C1	44	PAFZZ	5305-00-504-6652	MS35233-28	96906	SCREW, PAN HD		2
C1	45	PAFZZ	5310-00-934-9761	MS35649-264	96906	NUT, HEX		REF
C1	46	PAFZZ	5910-00-682-2543	VR3	37942	RETAINER, CAP		I
C1	47	PAFZZ	5910-00-852-2353	CG62U75A 1	90201	CAPACITOR, F XD		1
C1	48	PAFZZ	5305-00-054-5638	MS35233-4	96906	SCREW, PAN HD		2
C1	49	PAFZZ	5310-00-595-6761	MS15795-802	96906	WASHER, FLAT		REF
C1	50	PAFZZ	5310-00-928-2690	MS35338-134	96906	WASHER, LOCK		REF
C1	51	PAFZZ	5312-00-938-2013	MS35649-224	96906	NUT, HEX		REF
C1	52	PAFZZ	5905-00-211-1318	RER65F1R00R	81349	RESISTOR, FXDWW		1
C1	53	PAFZZ	5305-00-543-4358	MS35234-64	96906	SCREW, PAN HD		REF
C1	54	PAFZZ	5310-00-983-8120	MS35338-138	96906	WASHER, LOCK		REF
C1	55	PAFZZ	5310-00-619-1148	MS15795-808	96906	WASHER, FLAT		REF
C1	56	MHHZZ		0110-1-2052	15942	HEATSINK		1
C1	57	PAFZZ		N3027A400	15755	INVERTER		1
C1	58	PAFZZ	5305-00-054-6668	MS51957-43	96906	SCREW, PAN HO		4
C1	59	PAFZZ	5310-08-933-8119	MS35338-137	96906	WASHER, LOCK		4
C1	60	PAFZZ	5310-00-880-5978	MS15795-807	96906	WASHER, FLAT		4
C1	61	PAFZZ		0110-1-4034	15942	FILTER, RFI		1
C1	63	PAFZZ	5305-00-490-4581	MS51957-29	96906	SCREW ,PAN HO		5

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C1	64	PAFZZ	5935-00-721-0501	MS3102A24-28S	96906	CONNECTOR, RCPT		1
C1	65	PAFZZ	5910-00-221-5673	0510-0748	28480	FUSEHOLDER, ASSY		1
C1	66	PAFZZ	5305-00-059-3662	MS35234-66	96906	SCREW, PAN HD		4
C1	67	XBFZZ	5340-00-060-5386	MS39087-3	96906	HANDLE, BOW		2
C1	68	PAFZZ	5340-00-574-9476	1988-1	71279	FERRULE		4
C1	69	PAFZZ	5305-00-059-3659	MS51958-63	96906	SCREW, PAN HD		13
C1	70	PAFZZ	5310-00-934-9760	MS35649-204	96906	NUT, HEX		REF
C1	71	XBFZZ		0110-1-4028	15942	BACK, CHASSIS		1
C1	72	PAFZZ	5310-00-725-4719	CLS632-2	46384	NUT, PLO CLENCH		24
C1	73	PAFZZ	5310-00-725-8534	CLSS032-2	46384	NUT, PLO CLENCH		3
C1	74	XBFZZ		0110-1-4029	15942	SUPPORT, CHASSIS		1
C1	75	PAFZZ	5305-00-071-1323	MS35250-73	96906	SCREW, FLAT HD		6
C1	76	XBFZZ		0110-1-4027	15942	SIDE, CHASSIS		2
C1	77	XBFZZ		0110-1-4024	15942	PANEL, FRONT		1
C1	78	PAFZZ	5310-00-266-0517	CFHS032-8	46384	STUD, CLENCHING		2
C1	79	PAFZZ	5305-00-281-3122	MS51023-49	96906	SETSCREW		2
C1	80	PAFZZ	5305-00-054-6655	MS51957-3l	96906	SCREW, PAN HD		1
C1	81	PAFZZ	5310-00-266-0517	AN340C5	88044	NUT		2

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C2		AFFFD		0110-1-4002	15942	ANTENNA ROTATOR		1
C2	1	XBFZZ		0110-1-2044	15942	NAMEPLATE		1
C2	2	PAFZZ		9152-24	71286	STUD, TURNLOCK		1
C2	3	PAFZZ		9152-16	71286	STUD, TURNLOCK		1
C2	4	PAFZZ	5305-00-949-6184	MS51975-2	96906	SCREW, SHLDR		2
C2	5	PAFZZ	5310-00-619-1148	MS15795-808	96906	WASHER, FLAT		46
C2	6	PAFZZ	5310-00-934-9760	MS35649-204	96906	NUT, HEX		24
C2	7	MDDDD		0110-10-4047	15942	BRACKET, ANT		1
C2	8	PAFZZ		0110-1-2045	15942	BUSHING, ANTBRKT		1
C2	9	PAFZZ	5305-00-959-0379	MS16995-10	96906	SCREW, CAPSOCHD		8
C2	10	PAFZZ	5310-00-913-8118	MS35338-135	96906	WASHER, LOCK		26
C2	11	PAFZZ	5312-00-595-6211	MS15795-803	96906	WASHER, FLAT		38
C2	12	PAFZZ		0110-1-2048	15942	SPRING, STOP		2
C2	14	PAFZZ	5305-00-988-7614	MS16995-50	96906	SCREW, CAPSOCHD		4
C2	15	PAFZZ	5310-00-933-8121	MS35338-139	96906	WASHER, LOCK		31
C2	16	PAFZZ	5310-00-880-5977	MS15795-811	96906	WASHER, FLAT		1
C2	17	MDDDD		0110-1-4046	15942	BRACKET, ANTDR		1
C2	18	PAFZZ	5305-00-054-5649	MS51957-15	96906	SCREW, PANHD		6
C2	19	MFFZZ		0110-1-2025	15942	COVER		2
C2	20	PAFZZ	5305-00-989-3119	MS16995-37	96906	SCREW , CAPSOCHD		18

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C2	21	PAFZZ	5310-00-933-8120	MS35338-138	96906	WASHER, LOCK		62
C2	22	PAFZZ	5310-00-167-0801	AN 960C 10	96906	WASHER, FLAT		14
C2	23	XBFZZ		0110-1-4014	15942	PLATE, POL		1
C2	24	XBFZZ		0110-1-2060	15942	PIN, POL		1
C2	25	PAFZZ	5330-00-935-9202	MS29513-050	96906	PACKING, PREFMD		2
C22	26	PAFZZ	5305-00-853-4214	MS18064-11	96906	SETSCREW, NYLOK		2
C2	27	PAFZZ	5310-00-266-0517	AN344C 5	88044	NUT, HEX		2
C2	28	PAFZZ	5305-00-727-4791	MS51029-10	96906	SETSCREW, SOCHD		4
C2	29	MDDDD	3020-00-552-3918	0110-1-2019	15942	GEAR, SPUR		2
C2	30	PAFZZ	5310-00-531-9515	AN960C 416	969s6	WASHER, FLAT		4
C2	31	PAFZZ	5330-00-248-3850	MS28775-010	96906	PACKING, PREFMD		4
C2	32	PAFZZ	5330-00-248-3850	MS29513-116	96906	PACKING, PREFMD		1
C2	33	PAFZZ	5365-00-808-7913	MS16624-4075	96906	RING, RETAINER		2
C2	34	MDDDD		0110-1-2018	15942	GEAR, SPUR		2
C2	35	AFFHD	5910-00-101-2163	0110-1-4062	15942	GEARHEAD		2
C2	36	PAFZZ	5975-00-772-2090	214-1124P1	49956	CLAMPRING, OLEN		4
C2	37	PAFZZ		26V11TR4B	02987	SYNCHRO, TORRCVN		4
C2	38	PAFZZ	4540-00-533-3837	EFHSH2X10-25-115	02728	HEATER, STRIP		2

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C2	39	PAFZZ	5305-00-054-6653	MS51957-29	96906	SCREW, PANHD		7
C2	40	PAFZZ	5310-00-929-6395	MS35338-136	96906	WASHER, LOCK		56
C2	41	PAFZZ	531-00-722-5998	MS15795-805	96906	WASHER, FLAT		53
C2	42	PAFZZ	5306-00-177-5300	MS9760-24	96906	CAP, DUSTCONN		1
C2	43	PAFZZ	5935-00-721-7008	MS3102E24-28P	96906	CONNECTOR, ELEC .		1
C2	44	PAFZZ	5330-00-572-2841	10-6675-24	77820	GASKET		2
C2	45	PAFZZ	5305-00-054-5643	MS35233-9	96906	SCREW, PANHD		2
C2	46	PAFZZ	5310-00-595-6761	MS15795-802	96906	WASHER, FLAT		6
C2	47	PAFZZ	5310-00-928-2690	MS35338-134	96906	WASHER, LOCK		6
C2	48	PAFZZ	5310-00-938-2013	MS35649-224	96906	NUT, HEX		4
C2	49	MFFZZ		0110-1-2026	15942	BRACKET, POLSW		1
C2	50	PAFZZ	5939-00-999-4751	BL5577	08484	SWITCH, SENS		4
C2	51	PAFZZ	5930-0-296-9610	JS5	91929	ADAPTOR, SWACTR		4
C2	52	PAFZZ	5305-00-988-7613	MS16995-49	96906	SCREW, CAPSOCHD		6
C2	53	PAFZZ	5310-00-582-5677	MS15795-810,	96906	WASHER, FLAT		22
C2	54	PAFZZ	5315-00-060-7681	MS16555-662	96906	PIN, STRHDLS		2
C2	55	XBDDD		0110-1-4011	15942	HOUSING, POL		1
C2	56	PAFZZ	5340-00-597-3304	MS21208C-15	96906	INSERT, SORTHD		14
C2	57	PAFZZ	5340-00-826-4023	MS21208C0410	96906	INSERT, SORTHD		2
C2	58	PAFZZ	5340-00-842-5920	MS21208C0415	96906	INSERT, SORTHD		6

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C2	59	PAFZZ	5305-00-959-0382	MS25036-43	96906	LUG, TERM	9	
C2	60	PAFZZ	5940-00-315-5511	YAE1Z2	09922	LUG, TERM	31	
C2	61	PAFZZ	5940-20-813-0698	MS25036-1	96906	LUG, TERM	32	
C2	63	PAFZZ	5310-00-934-9761	MS35649-264	96906	NUT, HEX	24	
C2	64	PAFZZ	5940-00-983-6056	37TB15	81349	BOARD, TERM	2	
C2	65	XBFZZ		MS600-15	96906	MARKER, TERM	2	
C2	66	PAFZZ		3100-73-1	14604	THERMOSTAT	1	
C2	67	PAFZZ	5305-00-054-5651	MS35233-1	96906	SCREW, PANHD	4	
C2	68	PAFZZ	5310-00-934-9748	MS35649-244	96906	NUT, HEX	6	
C2	69	PAFZZ	5940-00-212-4982	351-21-06-001	71785	BOARD, TERM	1	
C2	70	PAFZZ	5910-00-101-2163	M39018-01-0637	81349	CAPACITOR, FXD	4	
C2	71	PAFZZ	5975-00-984-6582	MS3367-1-0	96906	TIE ,CABLE	1	
C2	72	XBFZZ		TM2S8-C	06383	BLOCK, CABLETIE	1	
C2	73	PAFZZ		32999-1023	26795	MODULE, CROSSOVER	2	
C2	74	PAFZZ	5315-00-847-3735	MS16562-190	96906	PIN, SPRING	4	
C2	75	PAFZZ	5940-00-993-9884	1418C	15849	STUD, TERM	4	
C2	76	PAFZZ	5961-00-936-1620	HI805-E	14433	CAPACITOR	1	
C2	77	XBFZZ		0110-1-2053	15942	HOLDER, PCLPIN	1	
C2	78	PAFZZ	5310-00-167-1374	AN340C3	88044	NUT, HEX	2	
C2	79	PAFZZ	5945-00-929-2964	KHS17A12-115VAC	77342	RELAY	2	
C2	80	XBFZZ		0110-1-2051	15942	BRACKET, RELAY	1	

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C2	81	XBFZZ		0110-1-4023	15942	BRACKET, COMP		1
C2	82	PAFZZ	5305-00-655-9434	MS51031-82	96906	SETSCREW, SOCHD		4
C2	83	PAFZZ		14-20X5-12	96906	ROD, THD		4
C2	84	PAFZZ	5310-00-903-5966	MS51971-1	96906	NUT, HEX		20
C2	85	PAFZZ	5305-00-068-8202	MS16996-40	96906	SCREW ,CAPSOCHD		4
C2	86	PAFZZ	5310-00-984-7042	MS35338-141	96906	WASHER, LOCK		4
C2	87	PAFZZ	5310-00-167-0804	AN960C616	96906	WASHER, FLAT		4
C2	88	XBFZZ		0110-1-4017	15942	CLAMP, MAST		2
C2	89	PFFZZ	4730-00-277-7693	MS20913-2J	96906	PLUG, PIPE		1
C2	90	PAFZZ		10-24X2-14	96906	SCREW, CAPSOCHD		8
C2	91	XBFZZ		0110-1-4013	15942	CLAMPRING, BRG		1
C2	92	PAFZZ		MS29513-172	96906	PACKING, PREFMD		1
C2	93	PAFZZ	5350-00-543-4358	MS35234-61	96906	SCREW, PANHD		12
C2	94	PAFZZ		KB080XP0	32828	BEARING		1
C2	95	PAFZZ	5315-55-951-3215	MS16555-648	96906	PIN, STRHDLS		1
C2	96	PAFZZ	5305-00-543-4358	MS35234-64	96906	SCREW, PANHD		REF
C2	97	MDDZZ		0110-1-1-2043	15942	BUSHING		1
C2	98	XBFZZ		0110-1-4015	15942	BASE, DRIVE		1
C2	99	PAFZZ	5340-00-291-3493	MS21208F6-10	96906	INSERT, SCRTHD		8
C2	100	MHHZZ		0110-1-2020	15942	GASKET		2
C2	101	XBFZZ		0110-1-4016	15942	RING, SPACER		1

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C2	102	PAFZZ	5305-00-054-5641	MS35203-7	96906	SCREW, PANHD		4
C2	103	PAFZZ	5305-00-068-5414	MS16995-11	96906	SCREW, CAPSOCHD		4
C2	104	MHHZZ		0110-1-2022	15942	SPACER, AZSW		2
C2	105	PAFZZ	5305-00-272-4123	MS51021-23	96906	SETSCREW, SOCHD		2
C2	106	XBFZZ		3/8X3-14X26GA	96906	SPRING, SS		1
C2	107	PAFZZ	5305-00-054-6657	MS5233-33	96906	SCREW, PANHD		2
C2	108	XBFZZ		0110-1-2049	15942	BLOCK, AZSW		1
C2	109	XBDDD		0110-1-4012	15942	CASE, AZ		1
C2	110	PAFZZ	5305-00-988-7607	MS16995-35	96906	SCREW, CAPSOCHD		1
C2	111	PAFZZ	5310-00-183-4355	AN960C-616L	96906	WASHER ,FLAT		2
C2	112	PAFZZ	5310-00-767-9425	MS15795-818	96906	WASHER, FLAT		2
C2	113	PAFZZ	5305-00-543-2784	MS35233-44	96906	SCREW, PANHD		1
C2	114	PAFZZ	5195-00-933-59-4	MS35249-50	96906	SCREW, FLAT		0002
C2	115	PAFZZ	5310-00-209-0357	MS15795-307	96906	WASHER, FLAT		1
C2	116	PAFZZ	5310-00-933-8119	MS35338-137	96906	WASHER, LOCK		1
C2	118	PAFZZ	0110-00-112-5883	GB88	60380	BEARING, NEEDLE		2
C2	119	PAFZZ	5310-00-619-1148	MS15795-308	96906	WASHER, FLAT		24
C2	120	PAFZZ	5305-00-959-1909	MS16996-11	96906	SCREW, CAPSOCHD		8
C2	121	PAFZZ	5305-00-958-6517	MS16996-12	96906	SCREW, CAPSOCHD		8
C2	122	PAFZZ	5305-00-068-8431	MS16996-13	96906	SCREW, CAPSOCHD		4
C2	123	PAFZZ		MS16996-54	96906	SCREW, CAPSOCHD		4

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C2	124	PAFZZ	5310-00-543-4358	MS35234-64	96906	SCREW, PAN HD		12
C2	125	PAFZZ	5310-00-933-8120	MS33338-138	96906	WASHER, LOCK		32
C2	126	PAFZZ	5310-00-934-9765	MS35650-304	96906	NUT, HE X		8
C2	127	PAFZZ	5365-00-804-7694	N5000-200	79136	RING, RETAINER		2
C2	128	PAFZZ	3110-00-293-9092	S10K	21335	BEARING, BALL		2
C2	129	XBFZZ		0110-1-4054	15942	BRACKET, FLU MTG		2
C2	130	MDDDD		0110-1-4056	15942	PLATE, BEARING		2
C2	131	PAFZZ	5340-00-754-0847	MS21209-C4-15	96906	INSERT, SCRTHD		12
C2	132	MDDDD		0110-1-4057	15942	PLATE, GEAR		2
C2	133	PAFZZ	5342-00-597-3302	MS21208-F1-15	96906	INSERT, SCRTHD		12
C2	134	MDDDD		0110-1-4058	15942	ADAPTOR, MOTOR		2
C2	135	MDDDD		0110-1-4059	15942	GEARSHAFT		2
C2	136	PAFDD		0110-1-4061	15942	GEARCASE, DCMCT		2
C2	137	PAFZZ	5365-00-530-7968	5100100MD	79136	RING, RETAINING		2
C2	138	PAFZZ	5365-00-803-7301	MS16624-1050	79136	RING, RETAINING		2
C2	139	PAFZZ	5305-00-990-6381	MS16995-19	96906	SCREW, CAPSCCHD		8

REPAIR PARTS LIST

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION UOC	(7) U/M	(8) QTY INC IN UNIT
C3	1	PAFZZ	5935-00-800-3971	MS3100R24-28S	96906	CONN, RECPT		1
C3	2	PAFZZ	5935- 00-229-2650	MS3106A24-28P	96906	CONN, PLUG		2
C3	3	PAFZZ	5970-00-485-5750	71-02-7007-1000	18565	SLEEVE		4
C3	4	PAFZZ	3439-00-427-1069	0142-52	08795	SLEEVE, SOLDER		24
C3	5	PAFZZ	5935-00-552-2668	MS3106A24-28S	96906	CONN, PLUG		1
C3	6	PAFZZ	5035-00-892-9863	UG21BU	96906	CONN, PLUG		3
C3	7	PAFZZ	5935-00-962-9848	UG1187-BU	96906	CONN, RFCPT		1
C3	8	XBFZZ	5935-00-240-0173	MS30574A	96906	CLAMP, CABLE		1
C3	9	PAFZZ	5935-00-539-2650	MS13106A10SL3SC	96906	CONN, PLUG		1
C3	W1	XBFFZ		0110-1-4004	15942	CABLE ,CONTROL		1
C3	W2	XBFFZ		0110-1-4005	15942	CABLE ,CONTROL		1
C3	W3	XBFFZ		0110-1-4006	15942	CABLE, RF		1
C3	W4	XBFFZ		0110-1-4007	15942	CABLE, RF		1
C3	W5	XBFFZ		0110-1-2042	15942	CABLE ,ASSY, PWR		1
C3	10	PAFZZ	6625-00-167-9314	615	92194	CABLE PWR		1
C3	11	XBFZZ		0112-1-2009	15942	PLATE, FEEDTHRU		1
C3	12	XBFZZ	5330-00-601-5468	10-36675-10	77820	GSKT, CONN		1
C3	13	PAFZZ	5330-00-572-2841	10-36675-24	17820	GSKT, CONN		1

SECTION IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.	NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.
3110-00-112-5883	C2	118	5310-00-167-1374	C2	78
3110-00-293-9092	C2	128	5310-00-183-4355	C2	111
3439-00-427-1069	C3	4	5310-00-209-0357	C2	115
4540-00-533-3837	C2	38	5310-00-266-0517	C2	27
4540-00-533-3837	C2	38	5310-00-531-9515	C2	30
4730-00-277-7693	C2	89	5310-00-543-4358	C2	124
5195-00-943-59-4	C2	114	5310-00-582-5677	C2	53
5305-00-054-5638	C1	48	5318-00-595-6211	C2	11
5305-00-054-5641	C2	102	5318-00-595-6761	C2	46
5305-00-054-5643	C2	45	5318-00-619-1148	C2	119
5305-00-054-5648	C1	10	5310-00-619-1148	C2	5
5305-00-054-5649	C1	13	5310-00-722-5998	C2	41
5305-00-054-5649	C2	18	5310-00-725-4719	C1	72
5305-00-054-5651	C2	67	5310-00-725-8534	C1	73
5305-00-054-5654	C1	41	5310-00-880-5977	C2	16
5305-00-054-6650	C1	1	5310-00-880-5978	C1	60
5305-00-054-6652	C1	44	5310-00-903-5966	C2	84
5305-00-054-6655	C1	80	5310-00-928-2690	C2	47
5305-00-054-6657	C2	107	5310-00-929-6395	C2	40
5305-00-054-6668	C1	58	5310-00-933-8118	C2	10
5305-00-059-3659	C1	69	5310-00-933-8119	C1	59
5305-00-059-3662	C1	66	5310-00-933-8120	C2	125
5305-00-068-5414	C2	103	5310-00-933-8120	C2	21
5305-00-068-8431	C2	122	5310-00-933-8121	C2	15
5305-00-071-1323	C1	75	5310-00-934-9748	C2	68
5305-00-272-4123	C2	105	5310-00-934-9760	C2	6
5325-00-281-3120	C1	79	5310-00-934-9761	C2	63
5305-00-490-4581	C1	63	5310-00-938-2013	C2	48
5305-00-543-2784	C2	113	5310-00-984-7042	C2	86
5375-00-543-4356	C2	93	5310-00-266-0517	C1	81
5305-00-655-9434	C2	82	5310-00-266-0517	C1	78
5305-00-727-4791	C2	28	5310-00-461-5669	C1	9
5305-00-853-4214	C2	26	5310-00-582-5677	C1	39
5305-00-949-6184	C2	4	5310-00-595-6211	C1	12
5305-00-958-6517	C2	121	5310-00-595-6761	C1	49
5305-00-959-0379	C2	9	5310-00-619-1148	C1	55
5305-00-959-0382	C2	59	5310-00-722-5998	C1	3
53?5-00-959-1909	C2	120	5310-00-767-9425	C2	112
5305-00-988-7613	12	52	5310-00-903-5966	C1	37
5305-00-989-3119	C2	28	5310-00-928-2690	C1	50
5305-00-998-6381	C2	139	5310-00-929-6395	C1	2
5305-00-054-6653	C2	39	5310-00-933-8118	C1	11
5305-00-068-8282	C2	85	5310-00-933-8119	C2	116
5305-00-543-4356	C2	96	5310-00-933-8121	C1	38
5305-00-543-4358	C1	53	5310-00-934-9748	C1	42
5305-00-988-7687	C2	110	5310-00-934-9760	C1	70
5305-00-988-7614	C2	14	5310-00-934-9761	C1	45
5306-00-177-5300	C2	42	5310-00-934-9765	C2	126
5318-00-167-0801	C2	22	5310-00-938-2813	C1	51
5318-00-167-0804	C2	87	5310-00-983-8120	C1	54

SECTION IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.
5315-00-060-7681	C2	54
5315-00-807-7684	C1	25
5315-00-847-3735	C2	74
5315-00-951-3215	C2	95
5330-00-248-3850	C2	32
5330-00-572-2841	C2	44
5330-00-584-0266	C2	31
5330-00-601-5468	C3	12
5330-00-618-5899	C1	6
5330-00-935-9202	C2	25
5330-00-572-2841	C3	13
5340-00-060-5386	C1	67
5340-00-291-3493	C2	99
5340-00-574-9476	C1	68
5340-00-597-3304	C2	56
5340-00-826-4023	C2	57
5340-00-842-5920	C2	58
5340-00-597-3302	C2	133
5340-00-754-0847	C2	131
5365-00-808-7913	C2	33
5365-00-530-7968	C2	137
5365-00-803-7301	C2	138
5365-00-804-7694	C2	127
5905-00-211-1318	C1	52
5910-00-221-5673	C1	65
5910-0P-682-2543	C1	46
5910-00-852-2353	C1	47
5910-00-101-2163	C2	35
5910-00-101-2163	C2	70
5920-00-875-4100	C1	30
5920-00-557-2647	C1	28
5920-00-614-9281	C1	29
5930-00-296-9610	C2	51
5930-00-615-7882	C1	35
5930-00-655-1514	C1	34
5930-00-999-4753	C2	50
5935-00-229-2650	C3	2
5935-00-240-0173	C3	8
5935-00-539-2650	C3	9
5935-00-552-2668	C3	5
5935-00-721-0501	C1	64
5935-00-721-0708	C2	43
5935-00-800-397l	C3	1
5935-00-892-9863	C3	6
5935-00-962-9848	C3	7
5935-00-892-9863	C3	6
5940-00-315-5511	C2	60
5940-00-813-0698	C2	61
5940-00-983-6056	C2	64
5940-00-993-9884	C2	75
5940-00-212-4982	C2	69
5945-00-929-2964	C2	79
5961-00-933-4989	C1	43
5961-00-936-1620	C2	76
5970-00-350-4800	C1	15
5970-00-485-5750	C3	3
5975-00-772-2090	C2	36
5975-00-984-6582	C2	71
6210-00-808-8604	C1	32
6210-00-809-4274	C1	33
6240-00-555-6347	C1	16
6240-00-892-4420	C1	31
6250-00-413-4482	C1	17
6625-00-167-9314	C3	10

SECTION IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

MANUF. PART NO.	FSCM	FIG NO.	ITEM NO.	MANUF. PART NO.	FSCM	FIG NO.	ITEM NO.
ABC6	71400	C1	29	MS16995-19	96906	C2	139
AN340C3	88044	C2	78	MS16995-35	96906	C2	118
AN340C5	88844	C1	81	MS16995-37	96906	C2	20
AN340C5	88844	C2	27	MS16995-49	96906	C2	52
AN960C-616L	96906	C2	111	MS16995-58	96906	C2	14
AN960C10	96906	C2	22	MS16996-11	96906	C2	120
AN960C416	96906	C2	30	MS16996-12	96906	C2	121
AN960C616	96906	C2	87	MS16996-13	96906	C2	122
8L5577	88484	C2	50	MS16996-40	96906	C2	85
CFHS032-8	46384	C1	78	MS16996-54	96906	C2	123
CG62U75A1	90201	C1	47	MS18064-11	96906	C2	26
CLSS032-2	46384	C1	73	MS20913-2J	96906	C2	89
CLS632-2	46384	C1	72	MS21208C1-15	96906	C2	56
CM21-2	71744	C1	17	MS21208-F1-15	96906	C2	133
CM7-7387	71744	C1	16	MS21208C0410	96906	C2	57
D142-52	08795	C3	4	MS21208C0415	96906	C2	58
EFHSH2X10-25-115	02728	C2	38	MS21208F6-10	96906	C2	99
EFHSH2X10-25-115	02728	C2	38	MS21209-C4-15	96906	C2	131
FHN26G2	96906	C1	30	MS25036-1	96906	C2	61
F02A250V4A	81349	C1	28	MS25036-43	96906	C2	59
GB98	60380	C2	118	MS25252C7A	96906	C1	31
H1805-B	14433	C2	76	MS25257-2	96906	C1	33
JS5	91929	C2	51	MS25257-4	96906	C1	32
KAA10XL	32828	C1	26	MS28775-010	96906	C2	31
KB080XFC	32828	C2	94	MS29513-050	96906	C2	25
KHS17A12-115VAC	77342	C2	79	MS29513-116	96906	C2	32
MDA952-2	04713	C1	43	MS29513-172	96906	C2	92
MS15795-307	96906	C2	115	MS30574A	96906	C3	8
MS15795-308	96906	C2	119	MS3100R24-28S	96906	C3	1
MS15795-802	96906	C1	49	MS3100A24-28S	96906	C1	64
MS15795-802	96906	C2	46	MS3102E24-28P	96906	C2	43
MS15795-803	96906	C1	12	MS3106A10SL3SC	96906	C3	9
MS15795-803	96906	C2	11	MS3106A24-28P	96906	C3	2
MS15795-805	96906	C1	3	MS3106A24-28S	96906	C3	5
MS15795-805	96906	C2	41	MS3367-1-0	96906	C2	71
MS15795-807	96906	C1	60	MS35058-22	96906	C1	34
MS15795-808	96906	C1	55	MS35059-27	96906	C1	35
MS15795-808	96906	C2	5	MS35233-14	96906	C1	10
MS15795-810	96906	C1	39	MS35233-15	96906	C1	13
MS15795-810	96906	C2	53	MS35233-17	96906	C2	67
MS15795-811	96906	C2	16	MS35233-20	96906	C1	41
MS15795-818	96906	C2	112	M535233-26	96906	C1	1
MS16555-603	96906	C1	25	M535233-28	96906	C1	44
MS16555-648	96906	C2	95	MS35233-33	96906	C2	107
MS16555-662	96906	C2	54	MS35233-4	96906	C1	48
MS16562-190	96906	C2	74	MS35233-44	96906	C2	113
MS16624-1050	79136	C2	138	MS35233-7	96906	C2	182
MS16624-4075	96906	C2	33	MS35233-9	96906	C2	45
MS16695-10	96906	C2	9	MS35234-61	96906	C2	93
MS16695-11	96906	C2	103	MS35234-64	96906	C1	53

MANUF. PART NO.	FSCM	FIG NO.	ITEM NO.
MS35234-64	96906	C2	124
MS35234-64	96906	C2	96
MS35234-66	96906	C1	66
MS35249-50	96906	C2	114
MS35250-73	96906	C1	75
MS35338-134	96906	C1	50
MS35338-134	96906	C2	47
MS35338-135	96906	C1	11
MS53338-135	96026	C2	10
MS35338-136	96906	C1	2
MS35338-136	96906	C2	40
MS35338-137	96906	C1	59
MS35338-137	96906	C2	116
MS35338-138	96906	C1	54
MS35338-138	96906	C2	125
MS35338-138	96906	C2	21
MS35338-139	96906	C1	38
MS35338-139	96906	C2	15
MS35338-141	96906	C2	86
MS35649-204	96906	C1	70
MS35649-204	96906	C2	6
MS35649-224	96906	C1	51
MS35649-224	96906	C2	48
MS35649-244	96906	C1	42
MS53649-244	96906	C2	68
MS35649-264	96906	C1	45
MS35649-264	96906	C2	63
MS35650-304	96906	C2	126
MS39087-3	96906	C1	67
MS51021-23	96906	C2	105
MS51023-49	96906	C1	79
MS51029-10	96906	C2	28
MS51031-82	96906	C2	82
MS51957-15	96906	C2	18
MS51957-29	96906	C1	63
MS51957-29	96906	C2	39
MS51957-31	96906	C1	80
MS51957-43	96906	C1	58
MS51958-61	96906	C1	69
MS51971-1	96906	C1	37
MS51971-1	96906	C2	84
MS51975-2	96906	C2	4
MS600-15	96906	C2	65
MS9760-24	96906	C2	42
MS39018-01-0637	81349	C2	70
N3027A400	15755	C1	57
N5000-200	79136	C2	127
PG1-1	29440	C1	7
RER65F1R00R	81349	C1	52
S10K	21335	C2	128
TM2S8-C	06383	C2	72
UG1187R,	96906	C3	7
UG218U	96906	C3	6
UG218U	96906	C3	6
VR3	37942	C1	46
YAF18Z2	09922	C2	60
0110-1-2009	15942	C3	11
0110-1-2018	15942	C2	34
0110-1-2019	15942	C2	29
0110-1-2020	15942	C2	120
0110-1-2022	15942	C2	104
0110-1-2025	15942	C2	19
0110-1-2026	15942	C2	49
0110-1-2033	15942	C1	40
0110-1-2035	15942	C1	22
0110-1-2036	15942	C1	21
0110-1-2037	15942	C1	23
0110-1-2038	15942	C1	8
0110-1-2039	15942	C1	18
0110-1-2040	15942	C1	36
0110-1-2042	15942	C3	W5
0110-1-2043	15942	C2	97
0110-1-2044	15942	C2	1
0110-1-2045	15942	C2	8
0110-1-2048	15942	C2	12
0110-1-2049	15942	C2	108
0110-1-2050	15942	C1	14
0110-1-2051	15942	C2	80
0110-1-2055	15942	C1	56
0110-1-2053	15942	C2	71
0110-1-2060	15942	C2	24
0110-1-4000	15942	C1	A
0110-1-4002	15942	C2	
0110-1-4003	15942	C1	B
0110-1-4004	15942	C3	W1
0110-1-4005	15942	C3	W2
0110-1-4006	15942	C3	W3
0110-1-4007	15942	C3	W4
0110-1-2011	15942	C2	55
0110-1-4012	15942	C2	109
0110-1-4013	15942	C2	91
0110-1-4014	15942	C2	23
0110-1-4015	15942	C2	98
0110-1-4016	15942	C2	101
0110-1-4017	15942	C2	88
0110-1-4023	15942	C2	81
0110-1-4024	15942	C1	77
0110-1-4027	15942	C1	76
0110-1-4028	15942	C1	71
0110-1-4029	15942	C1	74

SECTION IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

MANUF. PART NO.	FSCM	FIG NO.	ITEM NO.	MANUF. PART NO.	FSCM	FIG NO.	ITEM NO.
0110-1-4030	15942	C1	19				
0110-1-4031	15942	C1	20				
0110-1-4032	15942	C1	4				
0110-1-4034	15942	C1	61				
0110-1-4041	15942	C1	27				
0110-1-4016	15942	C2	17				
0110-1-4047	15942	C2	7				
0110-1-4054	15942	C2	129				
0110-1-4056	15942	C2	130				
0110-1-4057	15942	C2	132				
0110-1-4058	15942	C2	134				
0110-1-4058	15942	C2	135				
0110-1-4061	15942	C2	136				
0110-1-4062	15942	C2	35				
0110-1-4062	15942	C2	35				
0510-0748	28482	C1	65				
1.5 X 2.0 X .06	32302	C1	5				
10-24X2-14	96906	C2	90				
10-36675--10	77820	C3	12				
10-36675-24	77820	C2	44				
10-36675-24	77820	C3	13				
14-20X5-12	96906	C2	83				
1418C	15849	C2	75				
1988-1	71279	C1	68				
2-34	02697	C1	6				
214-1124P1	49956	C2	36				
26V11TR48	02987	C2	37				
26V11TR48	02987	C2	37				
26V11TR48	02987	C2	37				
3/8X3-14X26GA	96906	C2	106				
3100-73-1	14604	C2	66				
32999-1023	26795	C2	73				
351-21-06-00I	71785	C2	69				
37TB15	81349	C2	64				
5100100MC	79136	C2	137				
615	92194	C3	10				
6593	71002	C1	9				
71-02-7007-1000	18565	C3	3				
8880	83330	C1	15				
9152-16	71286	C2	3				
9152-24	71286	C2	2				

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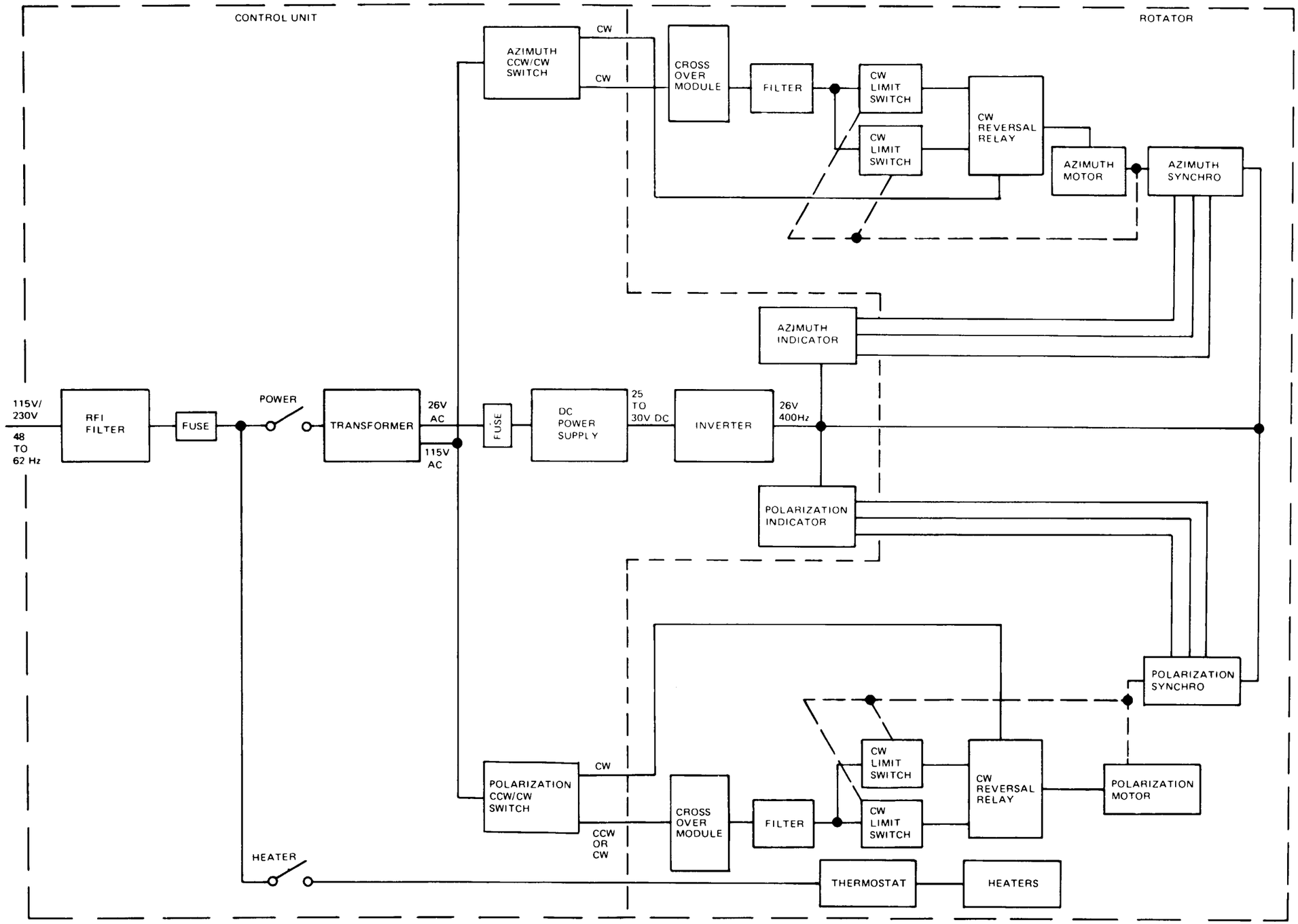

Figure FO-1. Antenna Rotator System Block Diagram

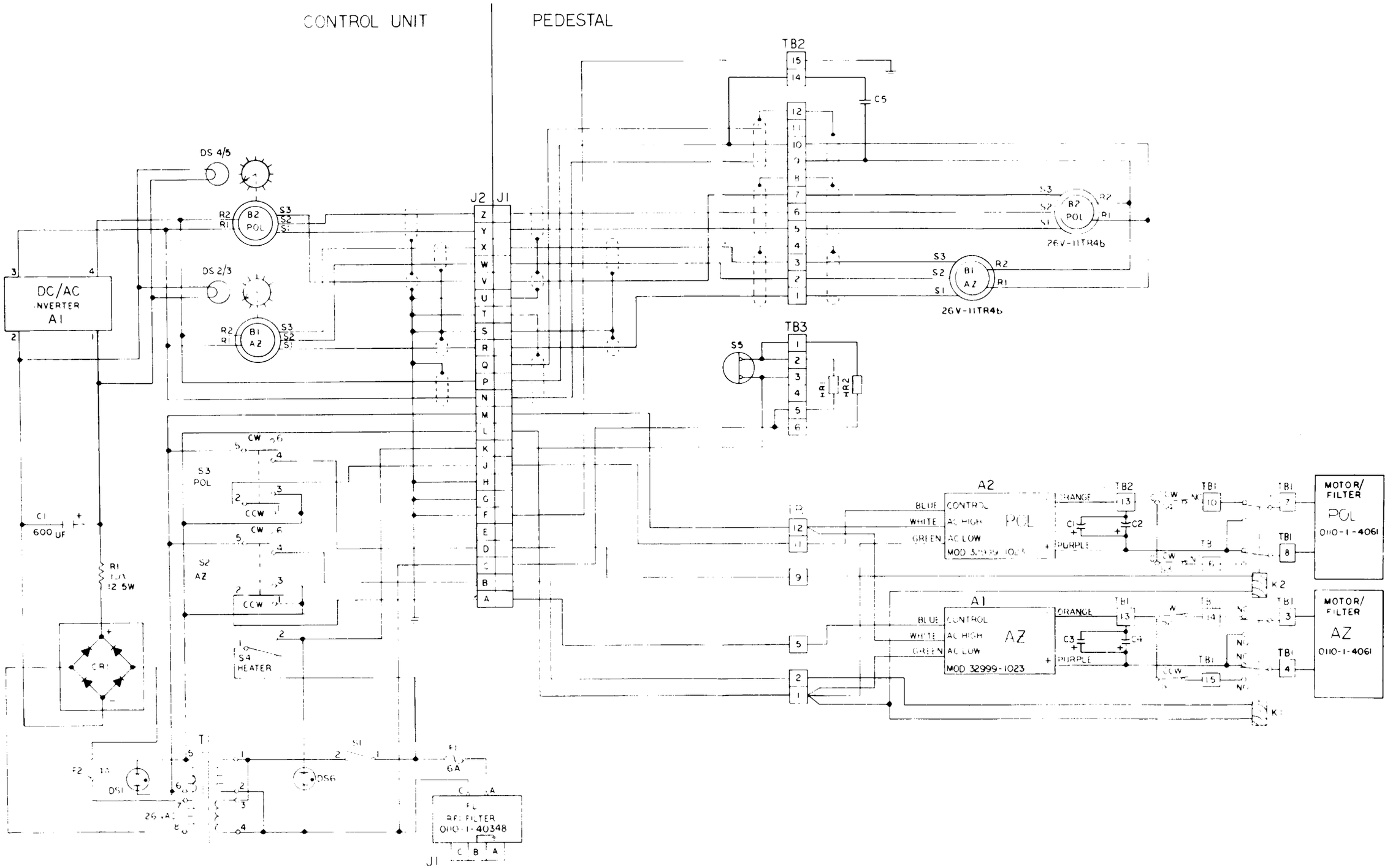

Figure FO-2. Antenna Rotator System Schematic Diagram

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