TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT,

AND DEPOT MAINTENANCE MANUAL

INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS

MAINTENANCE KIT,

ELECTRONIC EQUIPMENT

MK-673/MPQ-4A [FSN 6625-064-6013]

HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1973

CHANGE
NO. 2

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 9 June 1977

Operator's, Organizational, Direct Support, General Support,
and Depot Maintenance Manual
Including Repair Parts and Special Tools Lists
MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-673/MPQ-4A
(NSN 6625-00-064-6013)

TM 11-6625-520-15, 1 April 1973, is changed as follows:

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6-9 through 6-12	6-9 through 6-12
A-1	A-1

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ARNG: State AG (3).
USAR: None.
For explanation of abbreviations used, see AR 310-50.

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
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Operator's, Organizational, Direct Support, General Support,

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Including Repair Parts and Special Tools Lists

MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-673/MPQ-4A (FSN 6625-064-6013)

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6-9 through 6-12	6-9 through 6-
7-3 and 7-4	7-3 and 7-4
8-15 and 8-16	8-15 and 8-16
8-21 through 8-24	8-21 through 8-24
8-27 through 8-29	8-27 through 8-29
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*The supersession notice is corrected to read as follows: This manual supersedes TM 11-6625-520-12P, 17 June 1963; TM 11-6625-520-45P, 19 June 1963; TM 11-6625-361-12P, 5 December 1960; and TM 11-6625-361-35P, 5 December 1960, including all changes, and so much of TM 11-5840-208-30, 2 October 1959, as pertains to theory, troubleshooting, and repair of Test Facilities Kit MK-387/MPM-49.

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NG : State AG (3)

USAR: None

For explanation of abbreviations used, see AR 310-50.

TECHNICAL MANUAL
No. 11-6625-520-15

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 1 *April* 1973

Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual

Including Repair Parts and Special Tools Lists

MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-673/MPQ-4A (FSN 6625-064-6013)

Current as of 20 November 1972

☆ This manual supersedes TM 11-6625-520-12P, 17 June 1963; TM 11-6625-520-45P, 18 June 1963; TM 11-6625-361-12P, 5 December 1960; and TM 11-6625-361-35P, 5 December 1960, including all changes; and so much of TM 11–5840-208–30, 2 October 1969, as pertains to direct support maintenance on Radar Set AN/MPQ-4A and as pertains to theory, troubleshooting and repair of Test Facilities Kit MK-387/MPQ-4A.

LIST OF ILLUSTRATIONS

LIST OF TABLES

CHAPTER 1
INTRODUCTION AND DESCRIPTION

Section I. INTRODUCTION

1-1. Scope

a. This manual describes Maintenance Kit, Electronic Equipment MK-673/MPQ-4A (figs. 1-1 through 1-5) and provides operating and maintenance instructions for components that are not covered in other manuals. Detailed operating procedures for using the MK-673/MPQ-4A during maintenance and bench testing of Radar Set AN/MPQ/4A are given in TM 11-5840-208-30 and TM 11-5840-208-45. Also included are the repair parts and special tools lists.

b. The following components of the MK-673/MPQ-4A are covered in detail in this manual:

(1) Attenuator, Variable CN/491/G.

(2) Attenuator, Variable CN-492/G.

(3) Coupler, Directional CU-673/U

(4) Dummy Load, Electrical DA-205/MPQ-4A.

(5) Dummy Load, Electrical DA-206/MPQ-4A.

(6) Box, Interconnecting J-982/MPM-49.

(7) Cabinet for Power Supply PP-1588/MPQ-4A.

(8) Cabinet for Control — Power Supply C — 2014/MPQ-4A.

(9) Cover, Power Supply CW-475/MPM-49.

(10) Cover, Power Supply CW-476/MPM-49.

(11) Maintenance Kit, Electronic Equipment MK-399/MPQ-4A.

(12) Toolkit, Radar Repair TK-94/MPQ-4A.

c. A brief description of the following components is covered in this manual. For more detailed information refer to the following manuals:

(1) *Simulator, Anteuna Position* SM-154/MPQ-4A.

TM 11-6625-541-12
TM 11-6625-541-20P
TM 11-6625-541-45

(2) *Motor Generator PU-20C/C.*

TM 11-6125-200-10
TM 11-6125-200-20
TM 11-6125-200-20P
TM 11-6125-200-35
TM 11-6125-200-35P

(3) *Motor Generator PU-335/MPM-25.*

TM 11-5840-208-45
TM 11-6125-217-14P

(4) Power *Supply PP-1588/MPQ-4A, and Control Power Supply C-2014/MPQ-4A.*

TM 11-5840-208-10
TM 11-5840-208-20
TM 11-5840-208-20P
TM 11-5840-208-30
TM 11-5840-208-35P
TM 11-5840-208-45

1-2. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new additions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders *(MWO's)* pertaining to the equipment.

1-3. Forms and Records

a. *Reports of Maintenance and Unsatisfactory Equipment.* Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/ NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A, and DSAR 4145.8.

c. *Discrepancy in Shipment Report (DISREP) (SF 361).* Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33A/AFR 75-18/MCO P461O.19B and DSAR 4500.15.

d. Reporting of Errors.

The reporting of errors, omissions, and recommendations for improving this manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to COMMANDER, US Army Electronics Command, ATTN; DRSEL-MA-Q Fort Monmouth, NJ. 07703.

e. *Reporting Equipment Improvement Recommendations (EIR).* EIR's will be prepared using DA Form 2407, Maintenance Request. Instructions for preparing EIR's are provided in TM 38-750, the Army Maintenance Management System. EIR's should be mailed direct to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703. A reply will be furnished direct to you.

1-4. Administrative Storage

For procedures, forms and records, and inspections required during administrative storage of this equipment, refer to TM 740-90-1.

Section II. DESCRIPTION AND DATA

1-5. Purpose and Use

Maintenance Kit, Electronic Equipment MK-673/MPQ-4A is a group of test equipments, components, and tools used to facilitate bench testing of Radar Set AN/MPQ-4A. This kit consists of several independent and interdependent equipments such as a Simulator, Antenna Position SM-154/MPQ-4A, Variable Attenuators CN-491/G and CN-492/G, Directional Coupler CU-673/U, Dummy Loads, Electrical DA-205/MPQ-4A and DA-206/MPQ-4A, Motor Generator PU-20C/C, Motor Generator PU-335/MPM-25, Test Facilities Kit MK-387/MPM-49, Maintenance Kit, Electronic Equipment MK-399/MPQ-4A, and Toolkit, Radar Repair TK-94/MPG-4A. These units and multipart assemblies provide intereconnection points and switching; furnish and distribute alternating current (ac) and direct current (dc) operating voltages; make voltage standing wave ratio (vswr) and attenuation measurements; make boresight measurements; and provide simulated antenna positioning signals for bench servicing and testing various units of Radar Set AN/MPQ-4A.

1-6. Technical Characteristics

a. Simulator, Antenna Position SM-154/MPQ-4A.

Input requirements:
- Ac . . . . . 115 volts, 1Ø, 400 Hz, 23 watts; 208/115 volts, 3Ø, 400 Hz, 14 watts.
- DC . . . . . + 220 volts, 10 watts; — 220 volts, 1 watt.

Pulse outputs:
- Deadtime pulses . . . . . Pairs of negative pulses, 3,000 microseconds apart, recurring at 30,000 microsecond intervals. Width — 175 microseconds ± 25. Amplitude — 0.5 volt (min.).
- Azimuth strobe pulse . . . . Positive pulse. Manually positioned between alternate pairs of deadtime pulses. Width — 175 microseconds ± 25. Amplitude — 0.5 volt (min.).
- Trigger pulse . . . . . Positive pulse train. Rate — 8,600 pps. Width — 175 microseconds ±0.25. Amplitude — 20 to 40 volts (adjustable).

Synchro-data outputs:
- Azimuth . . . . . .400 Hz, two-speed, handwheel control. Coarse-fine ratio 1-9.
- Elevation . . . . . .400 Hz, single-speed. Handwheel control.
- Azimuth strobes . . . . . 400 Hz, single speed. Servosystem control.

b. Motor Generator PU-20C/C.

- Type motor . . . . . Capacitor start; induction **run.**
- Horsepower . . . . . .4.
- Speed . . . . . 3,450 rpm.
- input voltage . . . . . 115/220 v. 60 Hz, single, phase.
- Input current . . . . . 11.2 amperes@ 115 v; 21.5 **amperes @ 230 v.**
- Input voltamperes . . . . . 4,945.

Ac output:
- Voltage . . . . . .120 v, 400 Hz, single phase.
- Current . . . . . .11.7 amperes.
- Power . . . . . .1,400 watts.

Dc output:
- Voltage . . . . . .28 v dc.
- Current . . . . . .14.3 amperes.
- Power . . . . . .400 watts.
- Dimensions . . . . . $35\frac{3}{4}$ in. lg. $28\frac{1}{2}$ in. wd. x 20 in. d; weight - 362 lb.

c. Motor *Generator PU-335/MPM-25.*

- Type motor . . . . . .Induction.
- Horsepower . . . . . 1.
- Speed. . . . . 3450 rpm.
- Input voltage . . . . . 115 v ± 5, 60 Hz, single phase.
- Input current (full load) . . . . .11.2 amperes @ 115 v.

Ac output:
Voltage:
- Each line-to-neutral. . . . . .120 v ± 1.

Line-to-line----------220 v ±2.
Frequency ---------- 400 Hz ±20.
Current (max.) ----------3 amperes, each line to neutral @ 120 v ±1.

d. Attenuator, Variable CN-491/G.

Attenuation range ---------- 0 to 50 db.
Frequency range ----------12.4 to 18 GHz.
Power dissipation --------5 watts.
Residual attenuation ---------less than 1 db.
Reflection coefficient ----------less than 0.07 db.
Dial accuracy ----------± *2%.*

e. Attenuator, Variable CN-492/G.

Attenuation range ----------0 to 20 db.
Frequency range ----------12.4 to 18 GHz.
Power dissipation ----------1 watt.
Reflection coefficient----------0.07 db.
Dial accuracy:
0 to 10 db ----------±1 db.
10 to 20 db ---------- ±2 db.

f. *Coupler, Directional CU-673/U.*

Frequency range ----------12.4 to 18 GHz.
Directivity ----------More than 40 db.
Coupling factor ----------10 db.
Coupling accuracy ----------± 0.4 db.
Power dissipation --------1.0 watt.

g. *Electrical Dummy Load DA-205/MPQ-4A.*

Input	*Load* resistance
–300 vdc	10,000 ohms normal.
+300vdc	3,500 ohms normal.
+150 vdc	800 ohms normal.
6.4 vac	7 ohms.
6.4 *vac*	3.1 ohms.
6.4 vac	2.5 ohms.

h. *Electrical Dummy Load* DA–206/MPQ-4A.

Input	*Load* resistance
–220 vdc	3300 ohms normal.
+220vdc	500 ohms normal.
+440 vdc	8000 ohms normal.
+28 vdc	10 ohms.

i. Test Facilities Kit MK-387/MPM-49.

(1) *Control-Power Supply C-2014/MPQ-4A.*

Power requirement ----------120v ±10: 400 Hz ±5%.
Dc output ----------±440 v ±2, 0.25 ampere.
±220 v ±1, 0.50 ampere.
–220 v (adjustable), 0.25 ampere. +27 v ±1, 5.0 ampere.
+27 v ±1, 5.0 amperes.
Output ripple ----------15 mv (max.).

(2) *Cabinet* for *C-2014/MPQ-4A. Power* required for cabinet for the C–2014/MPQ-4A is 115 volts 60 Hertz (Hz).

(3) *Power Supply PP-1588/MPQ-4A.*

Ac output ----------6.4 v ac ±1%. @ 2.6 amperes.
Dc output ---------- +300 v ±10@85ma.+150 v ±5 @ 190 ma. —300 v ±10 v @ 30 ma.
Keep-alive voltage ----------+620 ±20, @ 100 microamperes.
Output ripple ----------1-5 mv *(max.).*

(4) Box, Interconnecting J-982/MPM-49.

Relay voltage ----------+27.
Lamp voltage ----------+110.

j. Maintenance Kit, Electronic Equipment MK000/MPQ-4A.

(1) Antenna Group OA-1967/MPQ-4A.

Antenna type ----------Target with parabolic reflector and waveguide feedborn.
Frequency range----------12.4 to 18 GHz.
Beam width:
H-plane ----------2.5°.
E-plane ----------2.5°.
Side lobe levels (max.):
H-plane ----------16 db.
E-plane ----------16 db.
Gain ----------35 db.
Vswr (max.) ----------1.5 db.

(2) *Frequency Mixer Stage CV-662/G.*

Input frequency ----------12.4 to 18 GHz.
Output frequency ----------30 MHz.

(3) *Flexible Waveguide CG-539/U.*

Frequency range----------12.4 to 18 GHz.
Length ----------2 feet.

(4) *Probe, Waveguide RF-74/U.*

Frequency range ----------12.4 to 18 GHz.
Detector ----------1N26 or 1N78.

1-7. Items Comprising an Operable Equipment (FSN 6625-064-6013)

FSN	Item	Qty	Dimensions (in.) Height	Depth	Width	Weight (lb.)	Fig. No.
59o5-752-3222	Attenuator, Variable CN-491/G	1	7.75	4.75	12.50	6	1-4
5985-636-8405	Attenuator, Variable CN-492/G	1	7.75				1-4
5985-892-3732	Directional Coupler CU-673/U	1			12.25	2	1-4
5840-792-3550	Dummy Load, Electrical DA-205/MPQ-4A	1	5.8	9.62	15.76		1-4
5840-892-3749	Dummy Load, Electrical DA-206/MPQ-4A	1	7.75	13.12	20.00		
	Maintenance Kit, Electronic Equipment	1					
6625-064-6012	MK-399/MPQ-4A containing:	1					
	Antenna Group OA-1967/MPQ-4A consisting of:	1					1-3
6625-889-3846	Antenna AS-1312/MPQ-4A	1	13.60		24.75 (dia.)		1-3
6625-086-7653	Target, Antenna, Alignment MX-4390/MPQ-4A			15.5	25.90		1-3
6625-086-7652	Tripod, Antenna MT-2775/MPQ-4A	1	52.5		55.88 (dia.)		1-3
6625-086-7841	Case, Accessories CY-3684/MPQ-4A	1	17 19/32	29 1/2	47 5/8		1-3
	Stake, guy	3	15				1-3
	Guy assembly	1			216 1/2		1-3
	Guy assembly	1			84 1/2		1-3
6625-064-6011	Mixer Stage, Frequency CV-662/G	1			24		1-3
5895-892-5549	Probe, Waveguide RF-74/U	1					1-3
5895-501-0832	Waveguide, Flexible CG-539/U	1					1-3
5995-889-0746	Cable Assembly, Radio Frequency CG-426G/U (2 FT)	1			24		1-3
5995-889-0745	Cable Assembly, Radio Frequency CG-426G/U (6 FT)	1			72		1-3
6625-812-5289	Cable Assembly, Radio Frequency CG-1657/U (6 FT)	2			72		1-3
5995-889-0762	Cable Assembly, Radio Frequency CG-1658/U (12 FT)	1			144		1-3
5995-889-0763	Cable Assembly, Radio Frequency CG-1658/U (4 FT)	1			48		1-3
	Motor Generator PU-20C/C	1	20	28 1/2	35 3/4	362	1-4
6125-823-2257	Motor Generator PU-335/MPM-25	1	12 1/4	17 1/4	10 1/4	51	1-4
6625-786-4136	Test Facilities Kit MK-387/MPM-49 consisting of:	1					
4130-883-7994	Control—Power Supply C-2014/MPQ-4A	1	16.60	18.75	24.34	111	1-1
5840-542-6253	Power Supply PP-1588/MPQ-4A	1	14.10	24.00	8.30	46.5	1-1
	Interconnecting Box J-982/MPM-49	1					1-1
5995-130-5823	Cable Assembly, Radio Frequency CG-426G/U (1 FT 8¼ IN.)	1			20 1/4		1-2
5995-889-0746	Cable Assembly, Radio Frequency CG-426G/U (2 FT)	3			24		1-2
5995-926-8343	Cable Assembly, Radio Frequency CG-426G/U (4 FT 6 IN.)	4			54		1-2
5995-889-0745	Cable Assembly, Radio Frequency CG-426G/U (6 FT)	2			72		1-2
	Cable Assembly, Radio Frequency CG-530C/U (2 FT 4 IN.)	2			28		1-2
6625-812-5289	Cable Assembly, Radio Frequency 1CG-1657/U (1 FT 6 IN.)	1			18		1-2
6625-752-2408	Cable Assembly, Power, Electrical CX-4447/U (17 FT)	1			204		1-2
6625-811-5713	Cable Assembly, Power, Electrical CX-447/U (6 FT)	1			72		1-2
6625-811-5711	Cable Assembly, Power, Electrical CX-4448/U (6 FT)	1			72		1-2
6625-811-5712	Cable Assembly, Power, Electrical CX-4449/U (6 FT)	1			24		1-2
6625-811-5720	Cable Assembly, Power, Electrical CX-4450/U (2 FT)	1			24		1-2
6625-752-2409	Cable Assembly, Power, Electrical CX-4451/U (2 FT)	1			24		1-2
	Cable Assembly, Power, Electrical CX-4452/U (2 FT)	1			24		
6625-812-1848	Cable Assembly, Power, Electrical CX 4453/U (1 FT)	1			12		1-2

FSN	Item	Qty	Dimensions (in.)			Weight (lb.)	Fig. No.
			Height	Depth	Width		
6625-812-1849	Cable Assembly, Power, Electrical CX-4454/U (12 FT)	1			144		1-2
6625-812-1846	Cable Assembly, Power, Electrical CX-4455/U (12 FT)	1			144		1-2
6625-812-1850	Cable Assembly, Power, Electrical CX-4456/U (6 FT)	1			72		1-2
6625-812-1851	Cable Assembly, Power, Electrical CX-4457/U (6 FT)	1			72		1-2
6625-811-6879	Cable Assembly, Power, Electrical CX-4458/U (6 FT)	1			72		1-2
6625-752-2345	Cable Assembly, Power, Electrical CX-4459/U (3 FT 4 IN.)	1			40		1-2
6625-752-2376	Cable Assembly, Power, Electrical CX-4460/U (3 FT 5 IN.)	1			41		1-2
6625-752-2446	Cable Assembly, Power, Electrical CX-4461/U (3 FT)	1			36		1-2
6625-752-2281	Cable Assembly, Power, Electrical CX-4462/U (16 FT 5 IN.)	1			197		1-2
6625-811-5710	Cable Assembly, Power, Electrical CX-4463/U (6 FT)	1			72		1-2
6625-752-2438	Cable Assembly, Power, Electrical CX-4464/U (3 FT)	2			36		1-2
6625-752-2440	Cable Assembly, Power, Electrical CX-4465/U (3 FT 4 IN.)	2			40		1-2
6625-752-2439	Cable Assembly, Power, Electrical CX-4466/U (3 FT 4 IN.)	2			40		1-2
5840-542-6253	~~Cabinet for~~ Power Supply PP-1588/MPQ-4A	1	9 3/4	25 1/2	15 1/4		1-1
4130-883-7994	Cabinet for C-2014/MPQ-4A	1	25 5/8	17 1/2	10 3/8		1-1
6625-752-2375	Cover, Power Supply CW-475/MPQ-49	1	8 7/8	3 23/32	14 3/8		1-1
6625-752-2374	Cover, Power, Supply CW-476/MPQ-49	1	24 3/4	2 27/32	17		1-1
6625-064-6010	Simulator, Antenna Position SM-154/MPQ-4A	1				75	1-4
5180-064-5048	Toolkit, Radar Repair TK-94/MPQ-4A consisting of:	1					
5120-060-2004	Screwdriver, cross tip (4 in. lg. blade)	1					1-5
5120-277-9075	Wrench, spanner, adj 1¼ to 3 in.	1					1-5
5120-293-2243	Key, socket head screw	1					1-5
5120-277-9076	Wrench, spanner 2 to 4¾ in. adj	1					1-5
5120-242-3249	Wrench, pipe ⅛ to 2 in.	1			12		1-5
5120-449-8083	Wrench, open end, adj	1			10		1-5
5120-560-2238	Wrench, socket ¼ in. T-handle	1			2.76		1-5
5120-050-8637	Strap, webbing 0.16 in. thick x 1¼ in. wide (for pipe wrench)	1					1-5

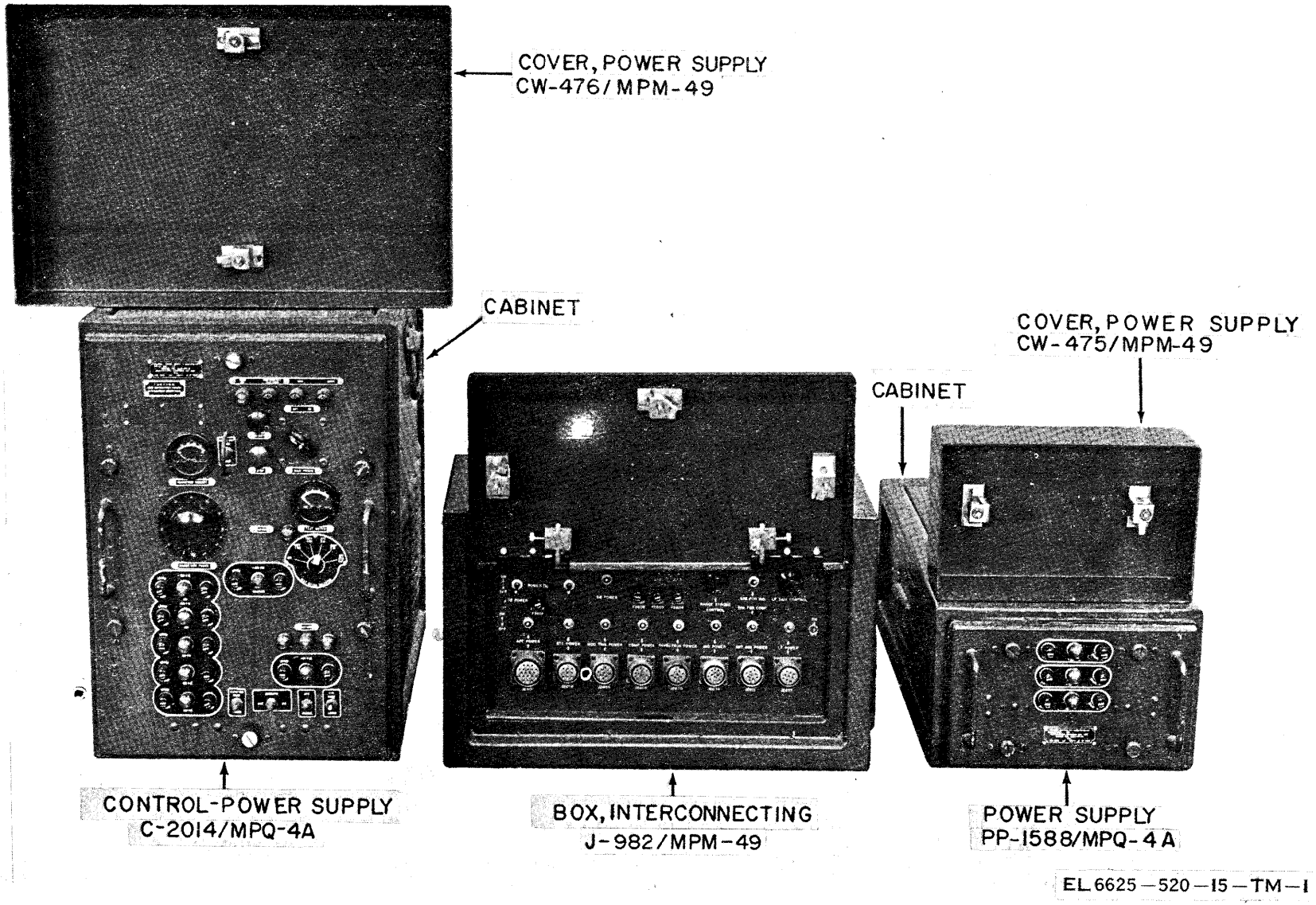


Figure 1-1. Test Facilities Kit MK-387/MPM-49 less cables.

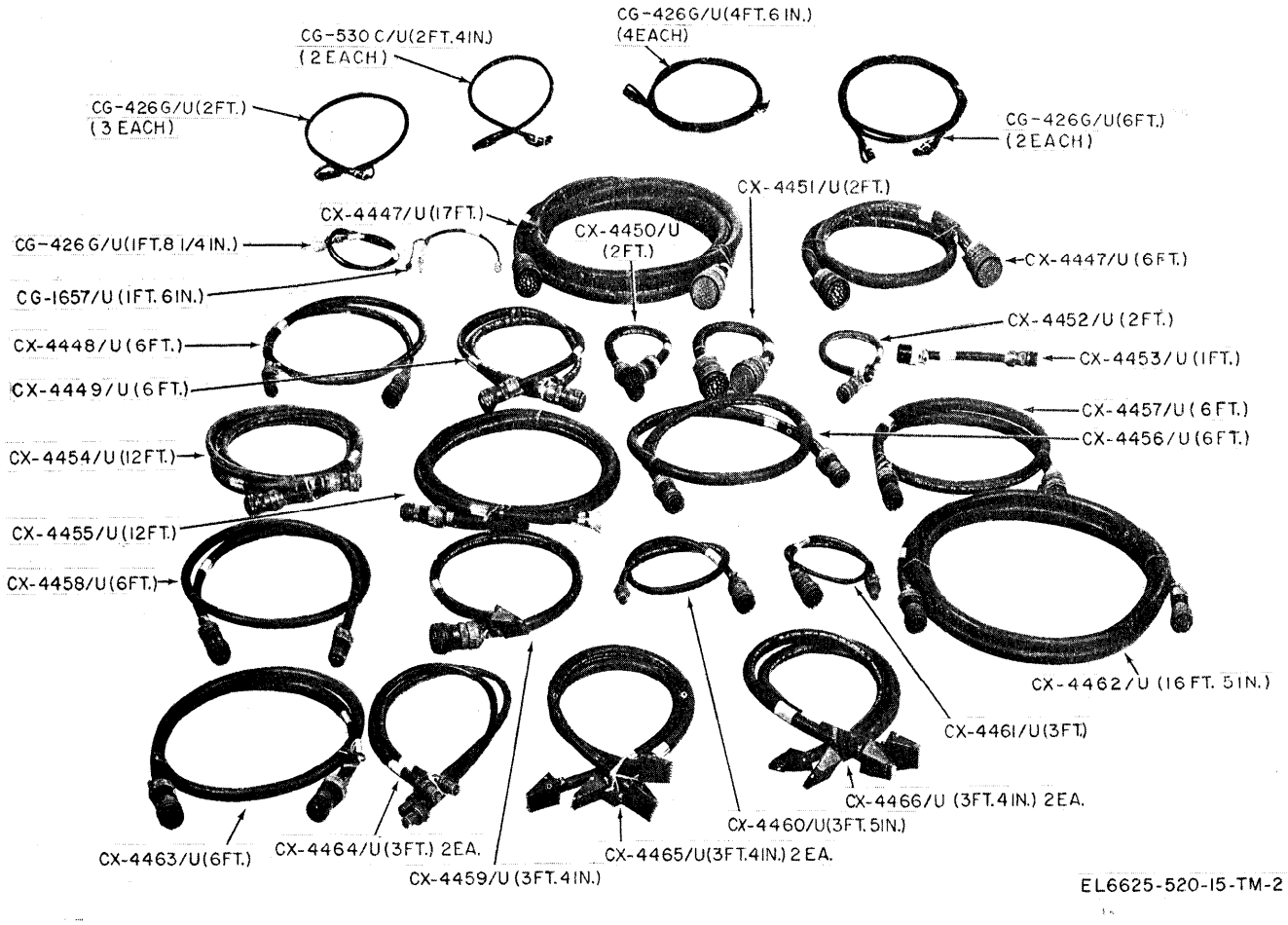


Figure 1-2. *Cables, part of Test Facilities Kit MK–387/MPM–49.*

1-8. Description Maintenance Kit, Electronic Equipment MK-673/MPQ-4A

The MK-673/MPQ-4A consists of some stand-alone and interdependent equipments for bench servicing and testing Radar Set AN/MPQ–4A. Maintenance Kit, Electronic Equipment MK-673/MPQ–4A includes the components and equipment described in paragraphs 1–9 through 1–19.

1-9. Test Facilities Kit MK-387/MPM-49 (figs. 1-1 and 1-2)

a. *General.* Test Facilities Kit MK-387/MPM-49 furnishes ac and dc operating voltages, interconnections, and switching between components of Radar Set AN/MPQ–4A and the various items of test equipment used when bench servicing Radar Set AN/MPQ-4A, The MK-387/MPM-49 includes the following equipment:

(1) Control—Power Supply C-2014/MPQ-4A.

(2) Power Supply PP-1588/MPQ-4A.

(3) Interconnecting Box J-982/MPM-49.

(4) Interconnecting power and signal cables.

(5) Transit cabinets for the power supplies.

b. Power Supplies, Control—Power Supply C-2014/MPQ-4A and Power Supply PP-1588/MPQ-4A are provided as operational components of Radar Set AN/MPQ-4A. These components are duplicated in the MK–387/MPM–49 to permit independent bench servicing and testing the AN/MPQ-4A. Subparagraphs (1) through (6) below describe the basic function of these components as used in Test Facilities Kit MK–387/MPM–49.

(1) *Control-Power Supply C-2014/MPQ-4A.* The C–2014/MPQ–4A is a panel and chassis-type construction. All the C–2014/MPQ–4A controls are mounted on the front panel.

(2) *Cabinet for Control~Power Supply C-*

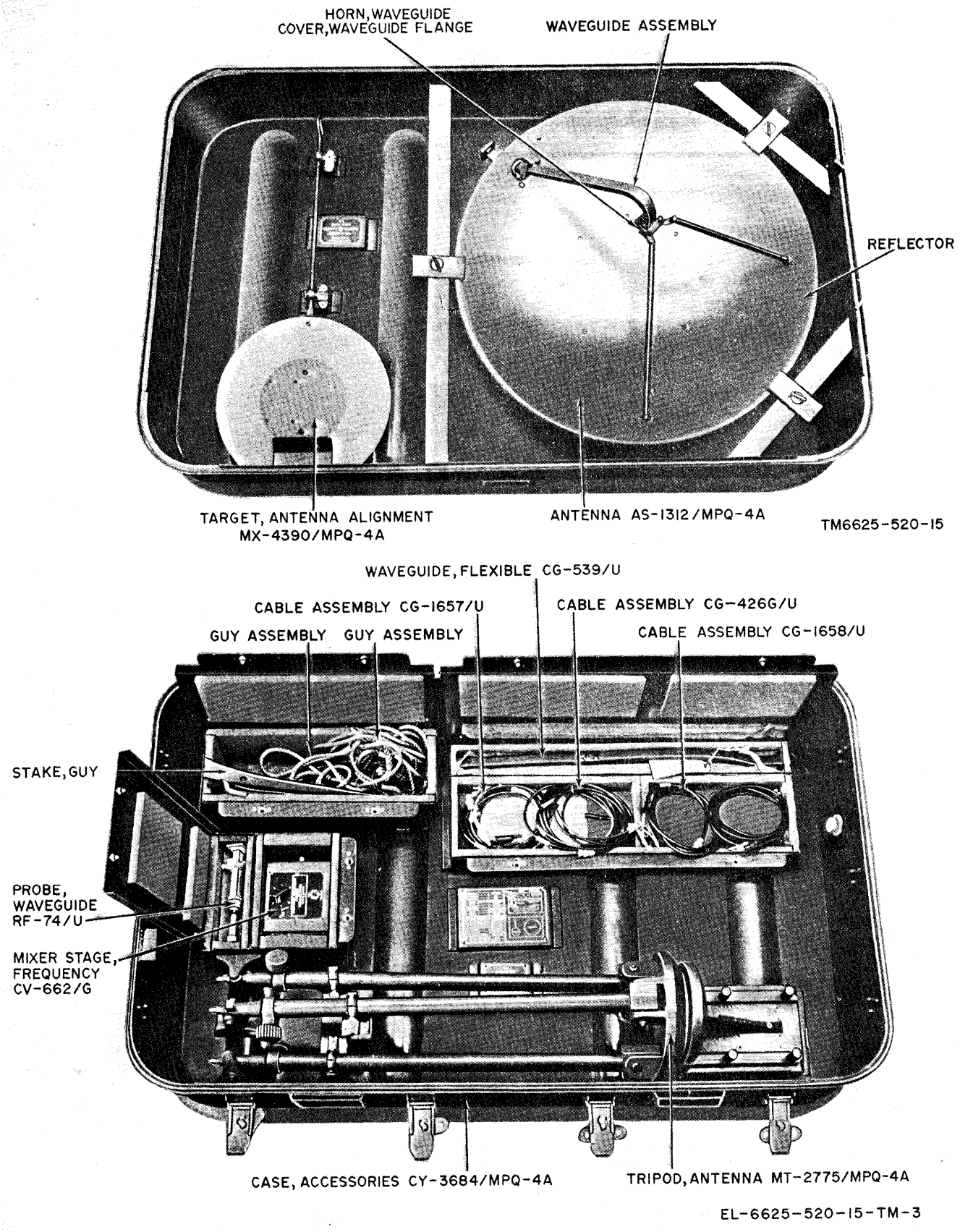


Figure 1-3. Maintenance Kit, Electronic Equiptment MK-399/MPQ-4A.

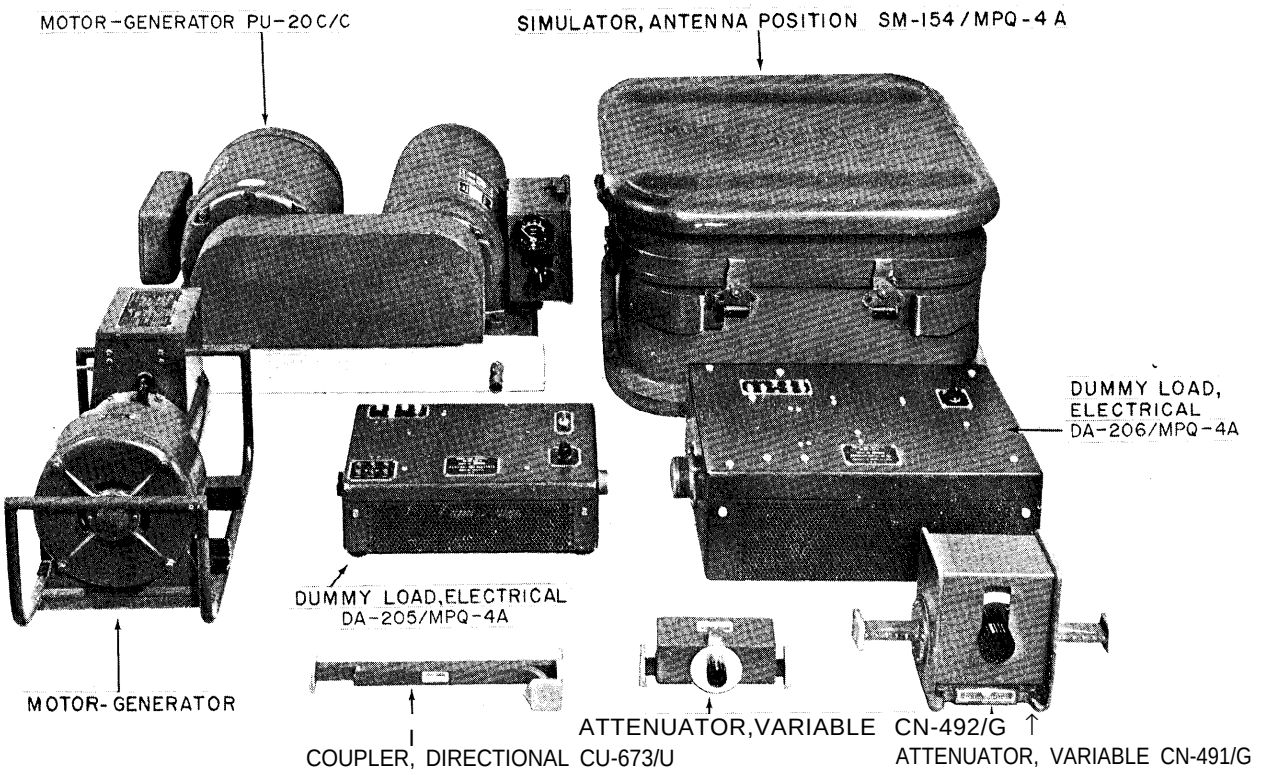


Figure 1-4. Maintenance Kit, Electronic Equiptment MK-673/MPQ-4A, additional major components.

2014/MPQ-4A. The steel cabinet contains a blower which is used to cool the C-2014/MPQ-4A. A connector (J2632) on the rear of the cabinet is used for connecting power to the fan through blower switch S2613, A switch (S2613) on the rear of the cabinet is used to turn blower power on and off and a light (.12607) indicates when power is applied. The blower circuit is fused by 0.125-ampere fuse F2605. A gasket is located around the front edge.

(3) Cover, *Power Supply* CW-476/MPM-49. The CW-476/MPM-49 protests the front panel controls of the C–2014/MPQ–4A. Pawl-type fasteners attach the CW-476/MPM-49 to the cabinet.

(4) *Power Supply PP-1588/MPQ-4A.* The PP-1588/MPQ–4A is a panel and chassis-type construction. All controls are mounted on the front panel.

(5) *Cabinet for PP-1588/MPQ-4A. The* steel cabinet houses the PP–1588/MPQ–4A. A gasket is located around the front edge.

(6) Cover, Power Supply CW-475/MPM--49. This cover protects the front panel controls of the PP--I588/MPQ–4A. Pawl-type fasteners attach the cover to the cabinet.

c. *Box, Interconnecting J–982/MPM-49.* Box, Interconnecting J-982/MPM-49 is a self-contained junction box that provides interconnection points and switching for bench testing various chassis of the AN/MPQ–4A. This unit contains dummy mixers and terminations, and distributes prime power and de operating voltages to the other elements of the MK–387/MPM-49 and to the AN/MPQ–4A components under test. The J–982/MPM–49 is mounted in a portable cabinet with carrying handles at the top. The top is secured to the cabinet by pawl fasteners and is readily removable for maintenance purposes. Hinged doors at the front and each side of the junction box are also secured with pawl fasteners and permit access to the front and side panel controls, indicators, and interconnection jacks.

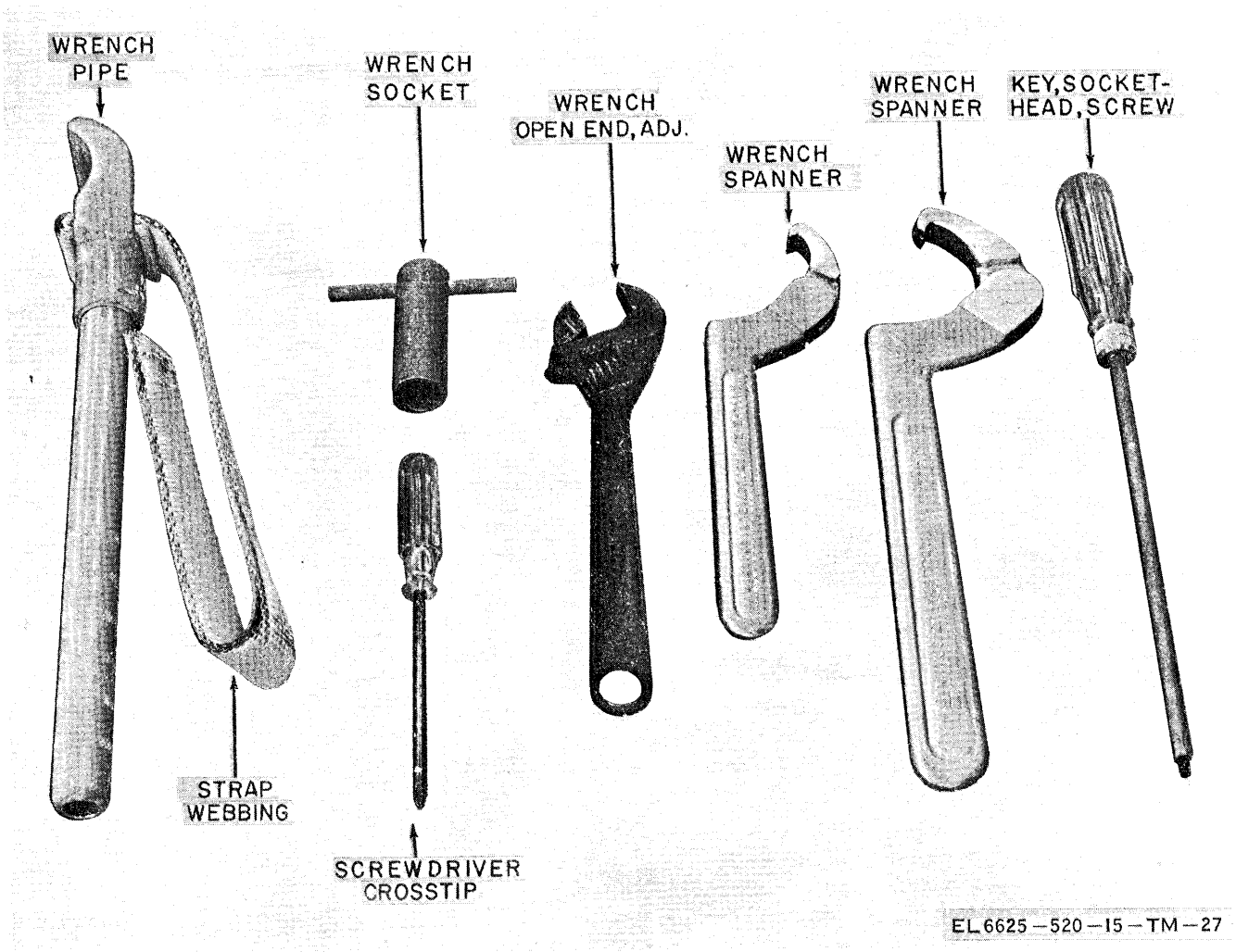


Figure 1-5. Toolkit, Radar Repair TK-94/MPQ-4A.

d. Cables. The cables which are part of the Maintenance Kit, Electronic Equipment MK-399/MPQ-4A (para 1-10f) Test Facilities Kit MK-387/MPM-49 are, for purposes of this manual, divided into two categories, single use and multiple use. The single use cables are used only for conection between specific jacks of Radar Set AN/MPQ–4A and/or jacks of certain components of Maintenance Kit, Electronic Equipment MK-673/MPQ-4A, The plugs of these cables are identified by a P-number corresponding to the J-number of the jack to which they mate (i.e., P2610 mates with jack J2610 on the AN/MPQ-4A). The multiple use cables can be connected to more than one jack on the AN/MPQ-4A and therefore do not have corresponding plug (P-) numbers. All cables are identifiable by the type cable, its length, and the type connectors used. Some lots of the cables (depending on the particular procurement) are further identified by W-numbers marked on the cables, however some lots do not have the W-–numbers. Figure 1–2 shows the physical appearance of the cables, and figures 7–5 and FO–2 show the schematic diagrams of the cables with the pertinent maintenance information (i.e., color codes, P- and W-numbers, if any, etc.). The cables which are part of the MK–387/MPM-49 are described below.

(1) *Cable Assembly, Radio Frequency CG-426G/U (1 ft* 8 1/4 *in.)* (W2619). This cable assembly uses a type RG-59C/U coaxial cable with Connector, Electrical UG-260D/U (P1301, P2619) on each end.

(2) *Cable Assembly, Radio Frequency CG-*426G/U (2 ft 0 in.) (W2617). This cable assembly uses type RG-59C/U coaxial cable with a UG-260D/U (P1206, P2629) on each end, Three of these cables assemblies are supplied.

(3) Cable *Assembly, Radio Frequency CG-426G/U (4 ft 6 in.) (W2613).* This cable assembly uses type RG-59C/U coaxial cable with a UG–260D/U on each end. Four of these cable assemblies are supplied.

(4) Cable Assembly, *Radio Frequency CG-*426G/U (6 ft 0 in.) (W2623). This cable assembly uses type RG–59C/U coaxial cable with a UG–260D/U on each end. Two of these cables are supplied.

(5) Cable Assembly, *Radio Frequency CG-*530C/U (2 ft 4 in.) (W2611). This cable assembly uses type RG-62A/U coaxial cable with connector UG-260D/U (P2611, P2612) and (P1201, P1202) on each end. Two of these cable assemblies are supplied.

(6) Cable Assembly, *Power, Electrical CX–*4447/U (6 ft 0 in.) (W2632). This cable assembly uses a 14-conductor cable type CO-14 HGF (9/12-5/16) 1100 with connector MS3106A-36-9P (P2904) on one end and connector MS3106A-40–9S (P601) on the second end.

(7) Cable *Assembly, Power, Electrical CX-4447/1' (17 ft 0 in.) (W2608).* This cable assembly roses a 14-conductor cable type CO-14 HGF (9/12-5/16) 1100 with connector MS3106A-36-9P (P2608) on one end and connector MS3106-A–40–9S (P601) on the second end.

(8) Cable *Assembly, Power, Electrical CX-4448/U (6 ft 0 in.) (W2630).* This cable assembly uses a 7-conductor cable type CO-07HGF (7/16) 0660 with connector AN 3106A-22-2OP (P2630) on one end and connector MS3106A-16S–1S (P4801) on the second end.

(9) *Cable Assembly, Power, Electrical CX-4449/U (6 ft 0 in.) (W2621).* This cable assembly uses a 9-conductor cable type CO-09MGF (9/16) 0650 with connector MS3106A-22-2OPX (P2621) on one end and connector MS3106A-22–20SX (P2701) on the second end.

(10) *Cable Assembly, Power, Electrical CX-4450/U (2 ft 0 in.) (W2620).* This cable assembly uses a 19-conductor cable type CO-19HGF (19/16) 0818 with connector MS3106A-14-22P (P2606) on one end and connector MS3106A-22–14SX (P2902) on the second end.

(11) Cable *Assembly, Power, Electrical CX-4451/U (2 ft 0* in.) (W2618). This cable assembly uses a 14-conductor cable type CO–14HGF (5/16–9/12) 1100 with connector MS-3106A–36–9P (P2608) on one end and connector MS3106A–36–9SX (P2901) on the second end.

(12) *Cable Assembly, Power, Electrical CX-4452/U (2 ft 0 in.) (W2616).* This cable assembly uses a 2-conductor cable type CO-02HGF (2/12) 0605 with connector H. Hubbel No. 9937 (P2A) on one end and connector AN3106A-18–10SX (P2610) on the second end.

(13) Cable *Assembly, Power, Electrical CX-4453/U (1 ft 0 in.) (W2615).* This cable assembly uses a 2-conductor cable type CO–02HGF (2/12) 0605 with connector H. Hubbell No. 9955 (P2A) on one end and connector AN-3101A–18–1OP (P2610A) on the second end.

(14) *Cable Assembly, Power, Electrical CX-4454/U (12 ft. 0 in.) (W2610).* This cable assembly uses a 2-conductor cable type CO–02HGF (2/12) 0605 with connector AN3106A–20–4P (Pi) on one end and connector AN/3106-A–18–10SX (P2610) on the second end.

(15) Cable *Assembly, Power, Electrical CX–4455/U (12 ft 0 in.) (W2609).* This cable assembly uses a 4-conductor cable type CO–04HGF (4/12) 0680 with connector MS3106A–18–10S (P2609) on one end and four terminals No, 32417 (L1A, L2A, L3A, LN) on the second end.

(16) *Cable Assembly, Power, Electrical CX–4456/U (6 ft 0* in.) (W2605). This cable assembly uses a 14-conductor cable type CO–14HGF (14/16) 0913 with connector AN3106A-22–19PW (P2605) on one end and connector MS3106A–20–27S (P852) on the second end.

(17) *Cable Assembly, Power, Electrical CX–4457/U* (6 *ft 0* in.) (W2604). This cable assembly uses a 14-conductor cable type CO–14AGF (14/16 0913 with connector MS3106A-22–19P (P2604) on one end and connector MS-3106A–28–2S (P106) on the second end,

(18) *Cable Assembly, Power, Electrical CX–4458/U (6 ft 0 in.) (W2603).* This cable assembly uses a 7-conductor cable type CO–07MGF (7/16) 0660 with connector AN3106A-22–20PW (P2603) on one end and connector MS-3106A–16S–1SW (P1153) on the second end.

(19) *Cable Assembly, Special Purpose, Electrical CX-4459/U (3 ft* 4 in.) (W2601). This cable assembly uses a 20-ccmductor cable type CO–20HGF (20/20) 0813 with connector AN3106A–28–16P (P2601) on one end and connector MRE–20S–G (P1303) on the second end.

(20) *Cable Assembly, Special Purpose, Electrical CX-4460/U (3 ft 5 in.) (W2602).* This cable assembly uses a 9-conductor cable type CO-

09MGF (9/20) 0550 with connector MS3106A-22–20P (P2602) on one end and connector M9S–LS (P4703) on the second end.

(21) *Cable Assembly, Special Purpose, Electrical* CX–,4461/U (3 *ft 0* in.) (W2607). This cable assembly uses a 3-conductor cable type CO-03HGF (3/20) 0375 with connector MS3106-A-22-20PY (P2607) on one end and connector M9S–LS (P1205) on the second end.

(22) Cable Assembly, Special Purpose. Electrical CX-4462/U (16 ft 5 in.) (W2606). This cable assembly uses a 19-conductor cable type CO-19HGF (19/16) 0813 with connector MS-3106A–22–14P (P2606) on one end and connector MS3106A-22–14A (P1601) on the second end.

(23) Cable Assembly, Power, Electrical CX–4463/U (6 ft 0 in.) (W2622). This cable assembly uses a 17-conductor cable type CO–17HGF (17/16) 0820 with connector AN3106A-22–14P (P2702) on one end and connector AN-3106A–2O–29S (P853) on the second end.

(24) Cable Assembly, Special Purpose, Electrical CX–4464/U (3 ft *0 in.) (W2626).* This cable assembly uses a 9-conductor cable type CO-09MGF (9/20) 0550 with connector M9P-LR on one end and connector M9S–LS on the second end. Two of these cable assemblies are supplied.

(25) *Cable Assembly, Special Purpose, Electrical CX–4465/U (3 ft 4 in.) (W2627).* This cable assembly uses a 14-connector cable type CO–14HGF (14/20) with connector MRE-14P-G on one end and connector MRE–14S–G on the second end. Two of these cable assemblies are supplied.

(26) *Cable Assembly, Special Purpose, Electrical CX–4466/U (3 ft* 4 in.) (W2628). This cable assembly uses a 20-conductor cable type CO–20HGF (20/20) 0813 with connector MRE-20P–G on one end and connector MRE–20S–G on the second end. Two of these cable assemblies are supplied,

(27) *Cable Assembly, Radio Frequency CG–1657/U (1 ft 6 in.) (W2624).* This cable assembly uses cable type RG–59C/U with connector UG–260D/U on one end and two alligator clips on the second end. The clip on the center conductor has a red sleeve and the other clip has a black sleeve.

1–10. Maintenance Kit, Electronic Equipment MK-399/MPQ-4A (fig. 1-3)

a. *General.* Maintenance Kit, Electronic Equipment MK-399/MPQ–4A provides the components required for boresighting and aligning the AN/MPQ-4A. This kit includes the following equipment:

(1) Antenna Group OA-1967/MPQ-4A.

(2) Frequency Mixer Stage CV-662/U.

(3) Waveguide Probe RF-74/U.

(4) Flexible Waveguide CG-539/U.

(5) Test cable assemblies.

b. Antenna Group OA-1967/MPQ-4A. The OA–1967/MPQ–4A consists of a target antenna and facilities for remotely mounting and securing the AS–1312,/MPQ-4A when boresighting the *AN/MPQ–4A and an accessories case* for storing all components of the MK–399/MPQ–4A.

(1) Antenna AS-1312/MPQ-4A. The AS-1312/MPQ-4A consists of a parabolic reflector and a waveguide feedhorn that operate in the 12,4– to 18 GigaHertz (GHz) frequency range. The antenna is 24.75 inches in diameter and has a depth of 13.6 inches (with feedhorn mounted). It has a mounting plate at the rear of the reflector which provides facilities for securing the antenna to Tripod, Antenna MT-2775/MPQ-4A. The feedhorn is secured to the antenna with readily removable brackets. Th mouth of the feedhorn is aligned with the centerline of the parabolic reflector and can be adjusted for proper positioning. A clamp near the bottom of the feedhorn provides facilities for mounting the alignment target.

(2) Target, Antenna Alignment MX-4390/MPQ–4A. The MX–4390/MPQ-4A is a round metal disk with a handle that is attached to the tripod. It is used in boresighting the antenna.

(3) Tripod, Antenna MT-2775/MPQ-4A. The MT-2775/MPQ-4A has folding legs and can be collapsed into a compact package for storage in the accessories case. The pedestal that mounts the AS–1312/MPQ–4A can be rotated to position the antenna and target in relation to the AN ‘ MPQ–4A antenna. The pedestal has a locking device to insure against inadvertent repositioning. A swivel eye (beneath the pedestal) provides facilities for securing the MT-2775/MPQ-4A with the guy assemblies.

(4) Case, Accessories CY-3684/MPQ-4A.

The wooden Accessories Case CY-3684/MPQ-4A is waterproof and moistureproof. It has brackets and clamps to hold all components of the MK-399/MPQ-4A.

(5) Two nylon rope guy assemblies are used to secure the MT-2775/MPQ-4A.

(6) Three steel guy stakes are used to anchor the guy assemblies in the ground.

c. *Frequency Mixer Stage CV–662/G.* The CV-662/G is a panel and metal box construction. One switch and one control are mounted on the front panel. Three connectors are on the right side and one connector is on the left side.

d. *Probe, Waveguide RF-74/U.* The RF-74/U is a waveguide line section with a micrometer adjustment for moving the pickup probe into the line section.

e. *Waveguide, Flexible CG–539/U.* The CG–539/U is a waveguide section which can be bent.

f. *Cables. Six* cables of five types are provided. They are W3501; W3502; W3503 and W3504; W3505; and W3506. Refer to figure 7–5 for the schematic and connector information.

(1) *Cable Assembly, RF CG-425G/U (2 ft 0 in.) (W3501).* This cable assembly uses type RG–59C/U coaxial cable with connector WG-260 D/U (P3501) on each end.

(2) *Cable Assembly, Radio Frequency CG-426 G/U (6 ft 0 in.) (W3502).* This cable assembly uses type RG-59C/U coaxial with a UG-260 D/U (P3502) on each end.

(3) *Cable Assembly RF CG-1657/U (16 ft 0 in.) (W3503, W3504).* This cable assembly uses type RG–59C coaxial cable with connector UG-260D/U (P3503) on one end and two alligator clips (E3506, E3507) on the second end. The clip on the center conductor has a red sleeve and the other clip has a black sleeve, Two of these cable assemblies are supplied.

(4) *Cable Assembly, RF CG-1658 (4 ft* 0 in.) (W3505). This cable assembly uses type RG–59C/U coaxial cable with connector UG–260 D/U (P3504) on one end and connector 274-MB (P3505) on the second end,

(5) *Cable Assembly, RF CG-1658/U (12 ft 0 in.) (W3506).* This cable assembly uses type RG-59C/U coaxial cable with connector UG-260 D/U (P3506) on one end and connector 274-MB (P3505) on the second end.

1-11. Attenuator, Variable CN-491 /G *(fig. 3-1)*

The CN–491/G is a direct-reading, precision waveguide attenuator. It provides accurate attenuation from O to 50 decibels (db) and is used for adjusting waveguide power levels when bench testing radiofrequency (RF) components of the AN/MPQ-4A.

1-12. Attenuator, Variable CN–492/G (fig. 3-2)

The CN–492/U is a variable flat attenuator and is used for adjusting waveguide power levels or isolating the signal source when bench testing components of the AN/MPQ-4A. The CN–492/U consists of a slotted waveguide section and an adjustable resistive strip and a calibrated dial that provides adjustment and readout from O to 20 db.

1–13. Coupler, Directional CU–673/U *(fig. 3-4)*

The CU–673/U has an overall directivity better than 40 db and a coupling factor of 10 db. The CU–673/U is used for bench testing and performing (voltage standing wave ratio) (vswr) measurements of waveguide components of the AN/MPQ-4A. The directional coupler consists of a straight waveguide section and an auxiliary arm with an E-bend. The straight section is terminated in standard flanges at each end. The auxiliary arm has a match load termination at one end and terminates in a standard flange at the other end. The two waveguide sections share a common wall and are electrically coupled using slot coupling (a series of holes in the common wall).

1-14. Dummy Load, Electrical DA–205/MPQ-4A (fig. 1-4)

The DA–205/MPQ–4A is a front panel and metal box-type construction. All controls are mounted on the front panel. One connector is on the right side and one connector is on the left side.

1–15. Dummy Load, Electrical DA–206/MPQ-4A (fig. 1-4)

The DA–206–MPQ–4A is a front panel and metal box-type construction. All controls are mounted on the front panel, One connector is on

the right side and one connector is on the left side.

1-16. Motor Generator PU–20C/C

Generator Set PU-20C/C supplies 120 volts, 400 Hertz (Hz), single-phase ac and 28 volts dc operating voltages for bench servicing Radar Set AN/MPQ-4A. The PU–20C/C consists of an ac motor and a belt-driven generator mounted on a common base.

1–17. Motor Generator PU–335/MPM–25

The PU-335/MPM–25 provides power for bench testing Radar Data Computer CP-319/MPQ-4A of the AN/MPQ–4A. The PU–335/MPM-25 consists of a l-horse-power induction motor and a generator. The 115-volt, 60-Hertz, 12-ampere, single-phase motor drives the 14-pole, three-phase, four-wire generator at 3,450 revolutions per minute. The ac output of the generator is 120 volts, 400 Hertz, 1 ampere.

1-18. Simulator, Antenna Position SM–154/MPQ–4A

The SM–154/MPQ–4A provides the signals (normally generated in Radar Set AN/MPQ–4A) required when bench servicing Azimuth and Range Indicator IP-375/MPQ–4A and Radar Data Computers CP–319/MPW-4A of the AN/MPQ–4A. The SM–154/MPQ–4A may also be used as a pulse generator when servicing Trigger Pulse Amplifier AM–1537/MPQ–4A and Receiver Control C–2015/MPQ–4A.

1–19. Toolkit, Radar Repair TK-94/MPQ-4A (fig. 1-5)

The TK–94/MPQ–4A provides the tools required during the maintenance and repair of the AN/MPQ-4A, The TK–94/MPQ–4A includes a screwdriver, an Allen wrench, three adjustable wrenches, two socket wrenches, and a web strap.

CHAPTER 2

INSTALLATION

2–1. Unpacking

a. *Packaging Data.* When packed for shipment, Maintenance Kit, Electronic Equipment MK–673/MPQ–4A is packed in nine separate wooden shipping boxes. These boxes are lined with waterproof paper and padded with filler material. Figures 2–1 through 2–4 are packaging diagrams illustrating the typical packaging methods for the various components. Each shipment is designated by set number and box number. Box number designations start at 1/9 (number 1 in the set) and end at 9/9 (number 9 in the set). In addition to the equipment in each box, two packing lists are included. These packing lists must be retained (at least temporarily) for verifying receipt of the packaged contents and for record purposes. Table 2--1 specifies the contents of each box of the shipment of 9 boxes.

Table 2-1. Con trots of Shipping Containers for Maintenance *Kit, Electronic Equiptment* MK–673/MPQ-4A

Box No.	Outside dimensions	Volume (cu ft)	Unit weight (lb)	Contents of box
1/9	34 1/4 X 31 1/2 X 18 1/2	11.5	85	1 Simulator, Antenna Position SM-154/MPQ-4A. 2 TM 11-6625-541-12 2 TM 11-6625-520-15
2/9	31 X 29 1/2 X 18 1/4	*9.58*	45	1 Attenuator, Variable CN-491/G 1 Attenuator, Variable CN-492/G 1 Coupler, Directional CU-673/U 1 Dummy Load, Electrical DA-205/MPQ–4A 1 Dummy Load, Electrical DA-206/MPQ-4A
3/9	35 1/2 x 20 1/2 x 33	13.9	115	1 Control—Power Supply C-2014/MPQ-4A Cover, Power Supply CW-476/MPM-49 Cabinet for Control—Power Supply C-2014/MPQ-4A.
4/9	13 3/4 x 22 x 37	6.5	50	1 Power Supply PP-1588/MPQ-4A Cover, Power Supply CW-475/MPM-49 Cabinet for Power Supply PP-1508/MPQ-4A
5/9	32 1/2 x 18 1/2 x 19 1/2	6.8	35	1 Box, Interconnecting J-982/MPM-49
6/9	30 X 28 1/2 X 28 1/2	14.1	37	1 Cable Assembly, Radio Frequency CG-426G/U (1 ft 8 1/4 in.) (W2619). 3 Cable Assembly, Radio Frequency CG-426G/U (2 ft) (W2617). 4 Cable Assembly, Radio Frequency CG-426G/U (4 ft 6 in.) (W2613). 2 Cable Assembly, Radio Frequency CG-426/U (6 ft) (W2623). 2 Cable Assembly, Radio Frequency CG-530C/U (2 ft 4 in.) (W2611). 1 Cable Assembly, Radio Frequency CG-1657/U (1 ft 6 in.) (W2624). 1 Cable Assembly, Power, Electrical CX-4447/U (6 ft) (W2632). 1 Cable Assembly, Power, Electrical CX-4447/U (17 ft) (W2608).

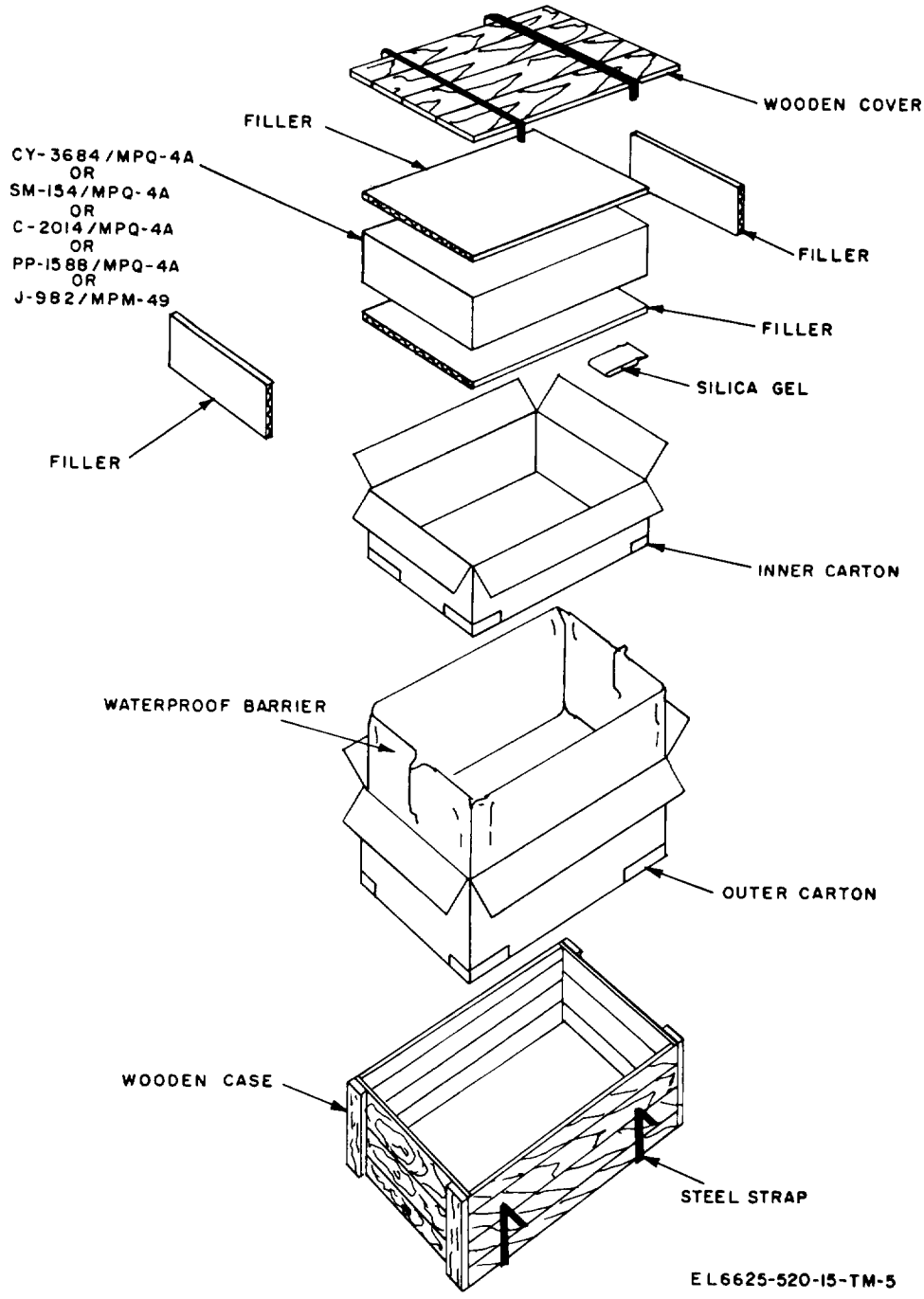


Figure 2–1. *Typical packaging of single* unit in wooden box.

Table 2–1. Contents of Shipping Containers for Maintenance Kit, Electronic Equipment MK–673/MPQ-4A—Continued

Box No.	Outside dimensions (in.)	Volume (cu ft)	Unit weight (lb)	Contents of box
				1 Cable Assembly, Power, Electrical CX-4448/U(6 ft) (W2630).
				1 Cable Assembly, Power, Electrical CX-4449/U(6 ft) (W2621).
				1 Cable Assembly, Power, Electrical CX-4450/U (2 ft) (W2620).

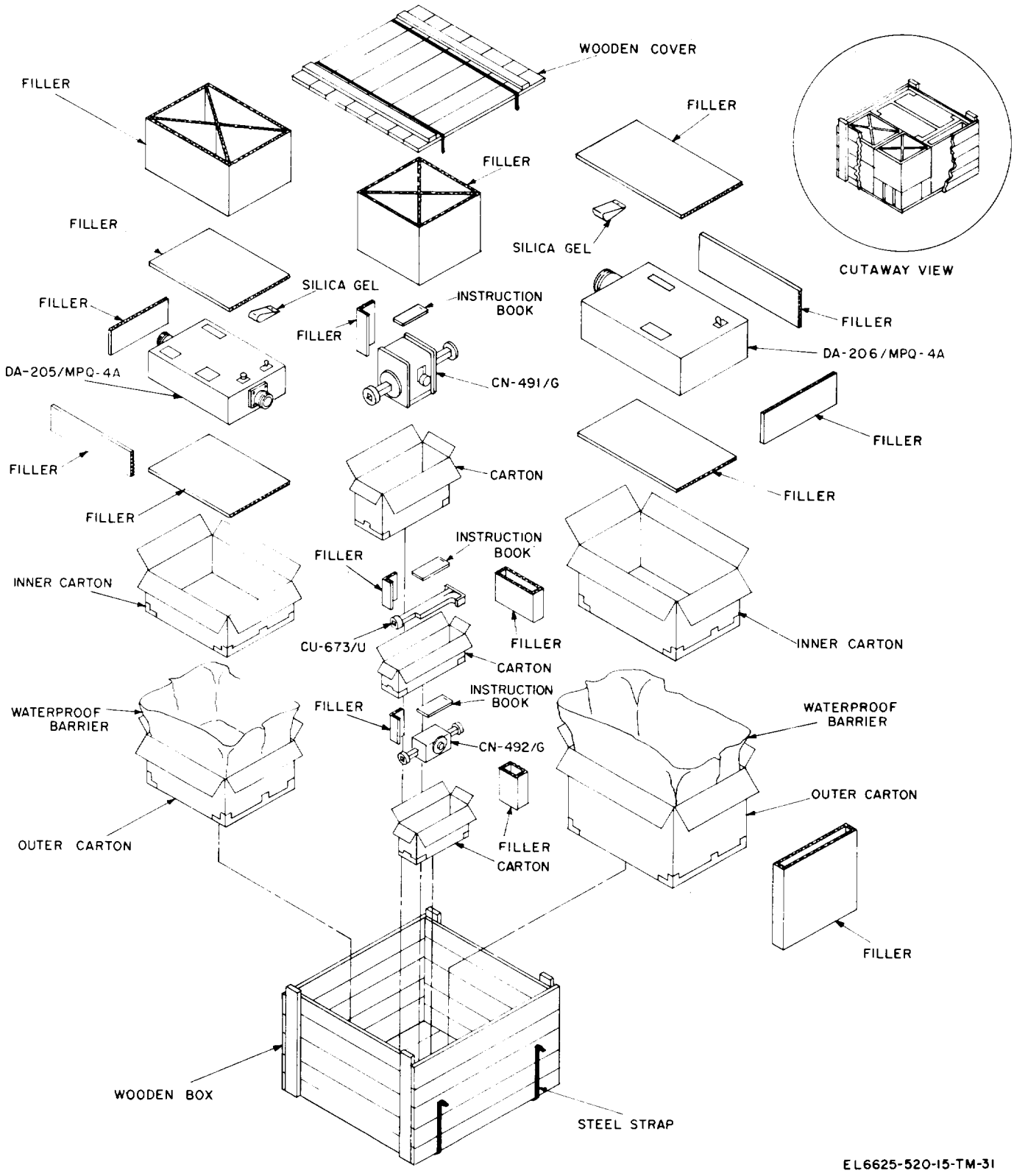


Figure 2-2. Packaging of DA-205/MPQ-4A, DA-206/MPQ-4A CM-491/G,CN-492/G, and CU-673/U.

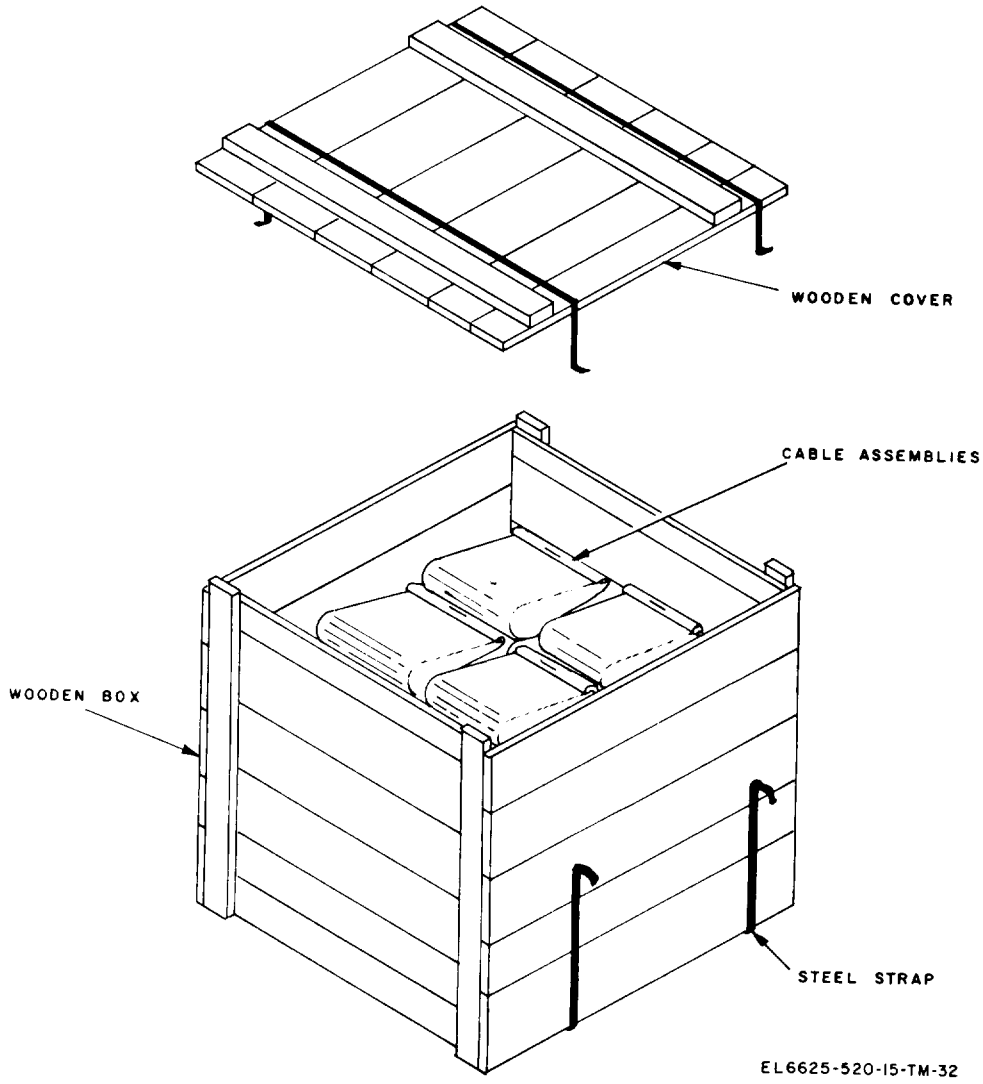


Figure 2–3. Packaging of cables assemblies.

Table 2-1. Contents of Shipping Containers for *Maintenance Kit, Electronic Equipment MK-678/MPQ-4A—Continued*

Box No.	Outside dimensions (in.)	Volume (cu ft)	Unit weight (lb)	Contents of box
				1 Cable Assembly, Power, Electrical CX-4451/U (2ft) (W2618). 1 Cable Assembly, Power, Electrical CX-4452/U (2ft) (W2616). 1 Cable Assembly, Power, Electrical CX-4453/U (1 ft) (W2615). 1 Cable Assembly, Power, Electrical CX-4454/U (12 ft) (W261O). 1 Cable Assembly, Power, Electrical CX-4455/U (12 ft) (W2609). 1 Cable Assembly, Power, Electrical CX-4456/U (6 ft) (W2605). 1 Cable Assembly, Power, Electrical CX-4457/U (6 ft) (W2604). 1 Cable Assembly, Power, Electrical CX-4458/U (6 ft) (W2603).

Table 2–1. Contents of Shipping Containers for Maintenance Kit, Electronic Equipment MK-673/MPQ-4A A-Continued

Box No.	Outside dimensions	Volume (cu ft)	Unit weight (lb)	Contents of box
				1 Cable Assembly, Special Purpose, Electrical CX-4459/U (3 ft 4 in.) (W2601).
				1 Cable Assembly, Special Purpose, Electrical CX-4460/U (3 ft 5 in.) (W2602).
				1 Cable Assembly, Special Purpose, Electrical CX-4461/U (3 ft) (W2607).
				1 Cable Assembly, Power, Electrical CX-4462/U (16 ft 5 in.) (W2606).
				1 Cable Assembly, Power, Electrical CX-4463/U (6 ft) (W2622),
				2 Cable Assembly, Special Purpose, Electrical CX-4464/U (3 ft) (W2626).
				2 Cable Assembly, Power, Electrical CX-4465/U (3 ft 4 in.) (W2627).
				2 Cable Assembly, Power, Electrical CX-4466/U (3 ft 4 in.) (W2628).
7/9	*55 x 37 x 25*	*29.4*	*85*	1 Maintenance Kit, Electronic Equipment MK-399/MPQ-4A.
				1 Toolkit, Radar Repair TK-94/MPQ-4A (in CY-3684/MPQ-4A).
8/9	*39 1/2 x 35 1/2 x 25*	*20.3*	400	1 Motor Generator PU-20C/C; 2 TM 11-6125-200-10.
9/9	*24 x 15 1/2 x 17*	*3.65*	100	1 Motor Generator PU-335/MPM-25; 2 TB 11-6125-217-12/1.
	Total weight		952	

b. General Unpacking Procedure. Before opening the packing boxes, identify each box in the set and then, open box 1 for that set. While unpacking box 1, locate and retain the packing list. Use this packaging data as a checklist to verify the received goods. Note that the only other boxes (in a given set) containing a packing list are boxes 2 (components) and 6 (cables). In each case, retain the packing slip for verification and record purposes,

c. *Removing Contents of Typical Packing Box (fig. 2-1).* Open each box of a set as follows:

(1) Cut and fold back metal straps.

(2) Using a nailpuller, pry the nails from the wooden top and remove the top,

(3) Remove the outer carton and open.

(4) Open the waterproof paper wrapping and remove the inner carton,

(5) Remove the top and side filler pads and remove the equipment from the inner carton.

NOTE

In the case of box 2 (components), additional filler material and wrappings are provided as required. In the case of box 6 (cables) only, the outer carton and waterproof paper wrapping (with filler material) is provided,

2–2. Opening Units of MK–673/MPQ-4A

a. General. The following subparagraphs describe the methods (as applicable) to gain access to the various units for inspection, installation, and operation. Only those units in transit cases, or having front and side doors or covers are described. Procedures for opening units that are immediate] y accessible (when unpacked) or units covered in other publications (as previously referenced) are not described.

b. Control-Power Supply C-2014/MPQ-4A (fig. 1-1). Disengage the four cover fasteners and remove the cover to gain access to the interior of the unit; disengage the six knurled fasteners on the front panel; grasp the panel mounted handles; and slide the chassis to the fully extended position.

c. *Power Supply PP–1588/MPQ–4A (fig. 1-1).* Disengage the two cover fasteners and remove the cover. To gain access to the interior of the unit, disengage the four knurled fasteners on the front panel, grasp the panel-mounted handles, and slide the chassis to the fully extended position.

d. Interconnecting Box J-982/MPM-49 (fig. 1-1).

(1) Disengage three fasteners on the f rent

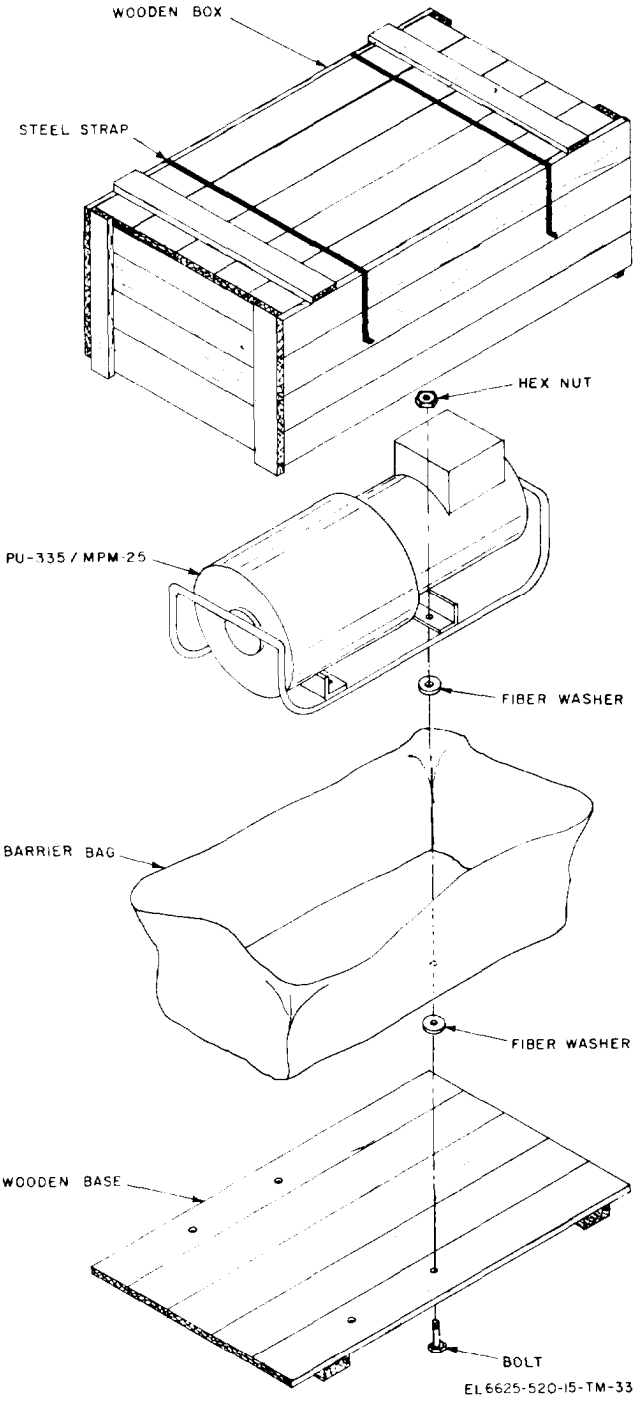


Figure 2-4. Packaging of PU-335/MPM-25.

door and raise the door as high as it will go (do not force). Secure the door in the open position with the two hooks at the top.

(2) Disengage the fasteners at each side and swing the side doors to the open position.

e. Accessories Case CY–3684/MPQ-4A (fig. 1–3). The CY–3684/MPQ–4A provides storage for assemblies of Maintenance Kit, Electronic Equipment MK–399/MPQ–4A and Toolkit, Radar Repair TK–94/MPQ–4A. Open the case and remove the contents as follows:

(1) Open the eight latches that secure the cover as follows:

(a) Pull each spring-loaded tab out to its f u]] y extended position.

(b) Turn each tab one-half turn clockwise and release it. The latch will fall away from the lip of the latch in the lower case half.

(c) Raise the upper half of case from the bottom half and rest it on its feet.

(2) Observe the location of components stored in the upper half of the case for ease of replacement. Remove the contents from the top half of the case as follows:

(a) Turn the tabs on the three clamps that secure the AS–1312/MPQ-4A 1/4 turn clockwise to release the AS–1312/MPQ-4A.

(b) Disengage each clamp from the outer edge of the AS–1312/MPS–4A and lift it out of the cover. Be extremely careful to avoid damaging the waveguide feedhorn.

(c) Disengage the two clamps that secure the MX–4390/MPQ–4A, slide the target out of the clip, and lift the MX-4390/MPQ-4A from case.

(3) Remove the contents from the bottom half of the case as follows:

(a) Turn the tabs on the three clamps (securing the MT–2775/MPQ-4A) to the vertical position.

(b) Pivot each clamp so that it is parallel with the tripod leg and disengage the legs.

(c) Raise the tripod assembly out of the bottom half of the case.

(d) Remove the covers over each storage area by loosening the two fasteners on each, and sliding the cover out from under the associated clip.

(e) Note the location and method of stowing each item, and then remove the contents of each compartment.

2-3. Checking Unpacked Equipment

a. Inspect all units of the MK–673/MPQ–4A for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para 1–3b).

b. Check to see that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against

the items comprising an operable equipment (para 1-7). Report all discrepancies in accordance with TM 38–750. Shortage of a minor assembly or part that does not effect proper functioning of the equipment should not prevent use of the equipment.

c. If any unit of the MK–673/MPQ–4A has been used or reconditioned, check to see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MWO number will appear near the nonmenclature plate on the unit under question. If a piece of equipment has been modified, insure that any operational instruction changes resulting from the modification have been entered in the equipment manual.

NOTE

Current MWO'S applicable to the MK-673/MPQ–4A are listed in DA Pam 310-7.

d. Check the latest issue of DA Pam 310-4 (never more than 1 year old) and its latest changes (never more than 6 months old) to see whether the latest edition of all applicable maintenance literature is available. (Equipment issued by depots may have been in stock for some time and may contain superseded manuals.)

2-4. Installation Procedures

a. *General.* Except for Antenna Group OA–1967/MPQ-4A, components of the MK–673/MPQ-4A do not require any special installation procedures, Place the component or components (to be used when testing the AN/MPQ-4A) on any convenient level surface. Approximately 36 square feet of bench space is. required for the units of the MK–673/MPQ–4A. Interconnect the units as required in the test setup specified in the AN/MPQ-4A maintenance manuals. In the case of the antenna group, specific assembly and installation instructions must be followed to place the OA–1967/MPQ–4A in service. The required procedures are described in *b* through e below.

b. Site Selection. The OA–1967/MPQ–4A is used when boresighting the AN/MPQ–4A and can be installed on the radar van, a prefabricated platform, or on the ground in almost any convenient location. Observe the following:

(1) Antenna installation must be at least 300 feet from radar scanner.

(2) View must be unobstructed and within height and angle limitations of the scanner.

(3) If mounted on van or platform, suitable facilities for securing guy wires must be provided.

(4) If installed on the ground, selected site must be relatively flat and level.

c. *Installation of Tripod.* Install Antenna Tripod MT–2775/MPQ–4A at the selected site as follows:

(1) Loosen the knurled locking rings on each leg of the MT-2775/MPQ-4A and pull each leg out to its fully extended position.

(2) Tighten each knurled locking ring to secure the legs.

(3) Unfold the MT-2775/MPQ-4A legs and stand the MT–2775/MPQ-4A on a mounting surface.

(4) Position the MT 2775/MPQ-4A so that one of the legs is pointing directly at the scanner.

(5) If mounting the MT-2775/MPQ-4A on a hard surface (such as the top of a van or a prefabricated platform), pivot the feet to the horizontal position.

(6) If mounting the MT-2775/MPQ-4A on the ground, pivot the feet to the vertical position.

(7) Connect one end of each guy to the swivel eye under the base of the MT–2775/MPQ–4A.

(8) Extend both guys to their full length and at right angles to the forward leg of the MT–2775/MPQ-4A. Mark the point at which the guy end touches the ground or mounting platform.

(9) Measure back (on a direct line) for a distance from 6 to 10 inches and mark the spot.

(10) If this is a ground setup, drive the guy stakes into the ground at the marked point, Install stakes approximately 120° apart and secure each guy to its stake. Tension each guy as required,

(11) If the MT-2775/MPQ–4A is mounted on a platform, secure hookeyes or eyebolts to the platform at the point measured in (9) above.

(12) After the guys are installed and tensioned, pivot the locking lever (on the antenna mounting plate) to the vertical (unlocked) position.

(13) Rotate the plate, as required, so that the face of the plate is aligned with the scanner.

d. Installing Antenna AS–1312/MPQ-4A. Place the base of the AS–1312/MPQ-4A against the

face of the antenna mounting plate and secure the AS–1312/MPQ–4A with the four knurled screws. Check the tension of guys and following the procedures in c(12) and (13) above, reposition the antenna as required to point it directly at the scanner.

e. Installation of Target, Antenna Alignment MX-4390/MPQ-4A. The MX-4390/MPQ-4A is fitted with a screwhook. To install the MX–4390/MPQ–4A, install the target holder clamp and hang the hook on the U-clamp near the bottom of the MT–2775/MPQ–4A. Measure the distance from the centerline of MX–4390/MPQ-4A to the centerline of the AS–1312/MPQ–4A. This distance must be 31.5 inches +0.38 inch. Coarse adjustment is made by positioning the clamp at the appropriate distance. Fine adjustment is made by turning the threaded screwhook in the base of the target support rod.

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS, INDICATORS, AND CONNECTORS

3-1. Operator's Controls, Indicators, and Connectors

The controls, indicators, connectors, and fuses found on the front panels and control boxes of the components comprising Maintenance Kit, Electronic Equipment MK–673/MPQ-4A are listed in paragraphs 3-2 through 3–8. Since the components of the MK-673/MPQ–4A are primarily used in maintenance operations, all pertinent jacks, terminals, test points, and connectors are also listed and functionally described.

NOTE

The controls and indicators for Antenna Position Simulator SM-154/MPQ-4A, Motor-Generator PU–20C/C, Motor Generator PU-335/MPM/25, Power Supply PP–1588/MPQ–4A, and Control—Power Supply C–2014/MPQ-4A are described in other publications. Refer to appendix A for a list of references.

3-2. Attenuator, Variable CN-491/G, Controls (fig. 3-1)

Control	Function
Attenuator knob	Adjusts waveguide power levels read off the standing wave indicator meter.
Calibrated dial	Provides direct readout of attenuator setting in the range from 0 to 50 db. Attenuation inserted in 2-db steps.

3-3. Attenuator, Variable CN492/G, Controls (fig. 3-2)

Control	*Function*
Attenuator knob	Adjusts waveguide power levels read off the standing wave indicator meter.
Calibrated dial	Provides direct readout of attenuator settings in two

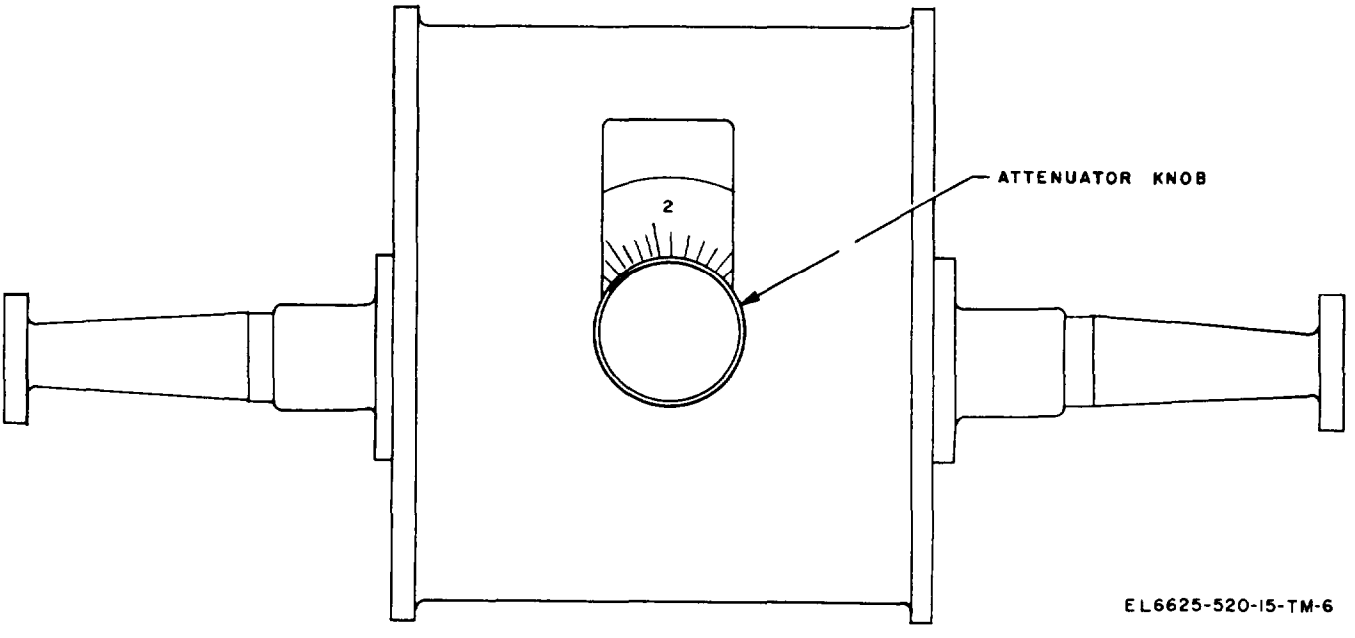


Figure 3-1. Attenuator, Variable CN-491/G, controls.

Control	Function
	ranges (0 to 10 db and 10 to 20 db). Attenuation inserted in 2-db step.

3-4. Dummy Load, Electrical DA-205/MPQ-4A, Controls and Connectors (fig. 3-3)

a. *Controls.*

Controls	Pos	Function
ON-OFF toggle switch (S2901).	OFF	Removes prime power and relay voltage from Power Supply PP-1588/MPQ-4A.
	ON	Connects prime power and relay voltage to PP-1588/MPQ-4A
25% UNLD-NOR-25% OVLD switch (S2902) (load selector switch).		A three-position rotary switch for selecting load values to test the PP-1588/MPQ-4A for operation with underload normal load, and over load conditions.

b. Connectors.

Connector	*Function*
+ 28VDV (J2916) 28V RET (J2915)	Jack pair for testing dc output of PU-20C/C.
LN (J2918) L1 (J2917)	Jack pair for testing ac output of Pu-20C/C.
+ 150VDC (J2907) . . .	. . . . . Used to test + 150 vdc output of PP-1588/MPQ-4A
+300VDC (J2906)	.For testing +300 vdc output of PP-1588/MPQ-4A
—.300 VDC (J2905)	For testing -300 vdc output of PP-1588/MPQ-4A
POWER INPUT (J2902).	Multipin connector for interconnecting with J-982/MPM-49 to provide prime power and relay voltage for testing PP-1588/MPQ-4A
GND (J2914)	.. For use in conjunction with J2905, J2906, and J2907 for testing dc outputs of PP-1588/MPQ-4A.
6.4 VAC (J2908, J2609) (J2910, J2911) (J2912, J2913)	Jack pairs for testing filament voltage output of PP-1588/MPQ-4A
LV SUPPLY (J2903)	Multipin connector for interconnecting with power sup ply to route prime power to PP-1588/MPQ-4A and outputs of the PP-1588/MPQ-4A to the dummy load.

3-5. Dummy Load, Electrical DA-206/MPQ-4A, Controls, Connectors, and Test Points (fig. 3-4)

a. Controls.

Control	*Function*
25% UNLD-NOR-25% OVLD switch (S2903) (load selector switch).	A three-position rotary switch for selecting load values for testing Control-Power Sup ply C-2014/MPQ-4A under normal load, overload, and underload conditions.
ON-OFF switch	.. Applies or removes power.

b. Connectors.

Connector	Function
POWER INPUT (J2901).	Multipin connector for electrical interconnection of J-982/MPM-49 for power cable to provide power for testing Control-Power Sup ply C-2014/PMQ-4A.
POWER SUPPLY (J2904).	Multipin connector for connecting to the C-2014/MPQ-4A to route power to the dummy load.

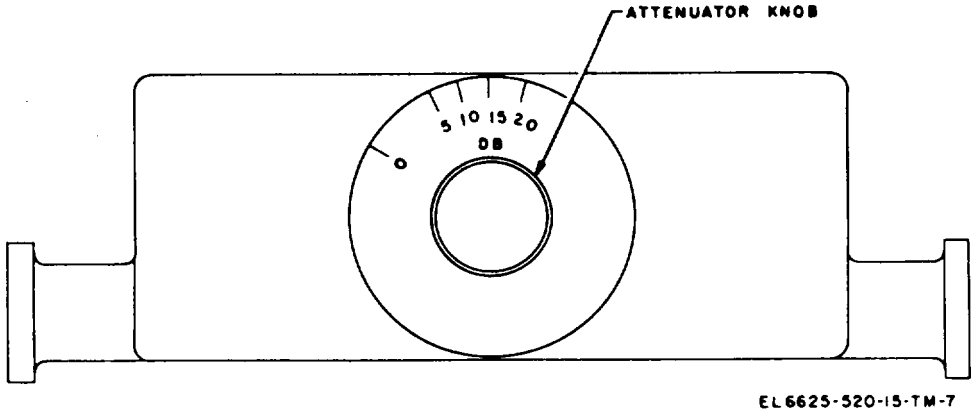


Figure 3-2. Attenuator, Variable CN-492/G controls.

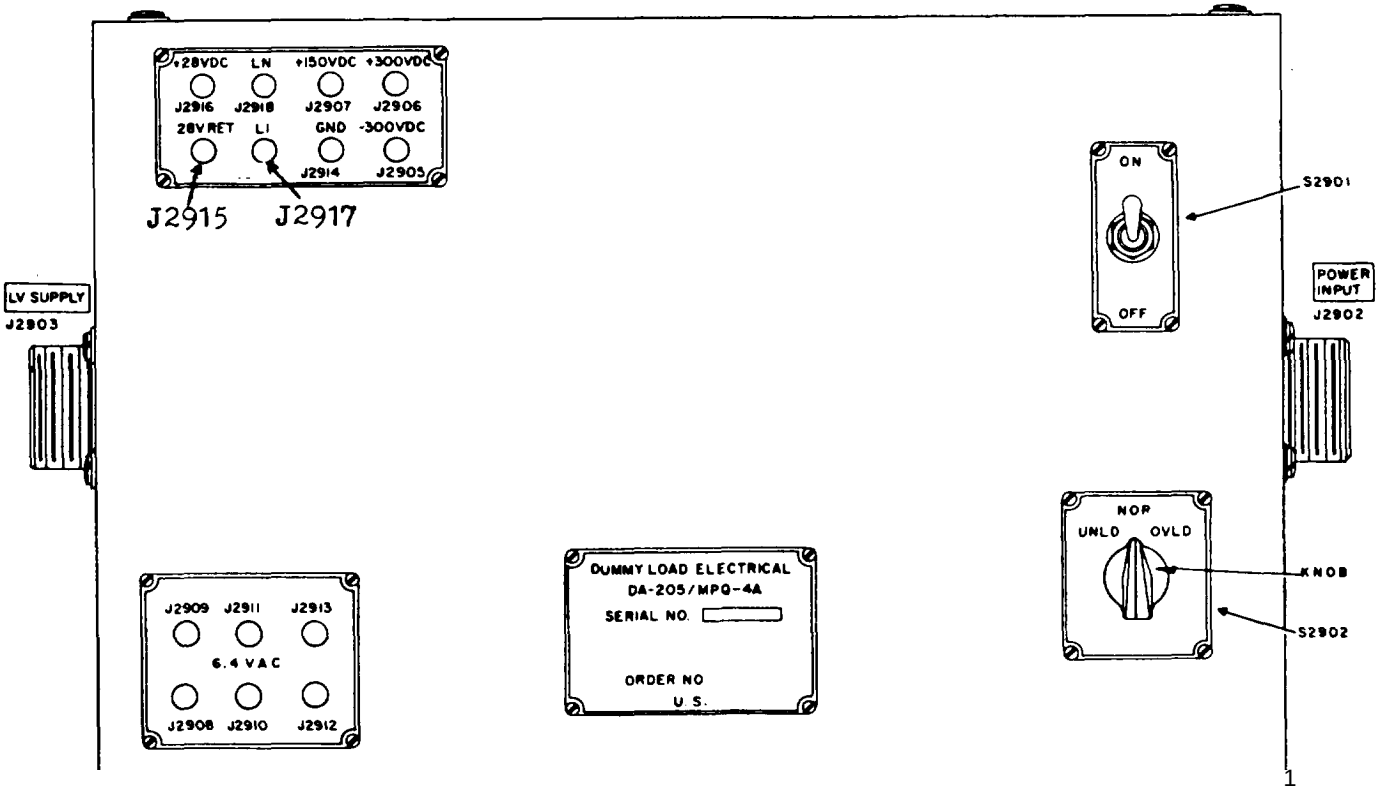


Figure 3-3. *Dummy Load,* Electrical DA-205/MPQ-4A, controls and *connectors.*

c. *Test Points.*

Connector	Function
SYS GND (J2928) test connector	Common test point for grounding DA-206/'MPQ-4A to other units as required.
DC COM (J2925) test	Test point for use in conjunction with jacks J2919, J2920, and J 2921 for measuring dc outputs of G2014/MPQ-4A.
AFC MAN(J2924)	Test point for use in conjunction with jack J2928 for measuring + 28V afc manual voltage
+ 28VDC (J2922) and + 28V RET (J2923) test connectors.	Jack pair for use in conjunction with test points + 440V, + 223V, and —220V for measuring dc output of Pu-20C/C.
+ 440VDC (J2921) test connector.	Test point for measuring + 440V output of Pu-20C/C.
+ 220VDC (J2920) test connector.	Test point for measuring + 220 v output of Pu-20C/C.
—220VDC (J2919) test connector.	Test point for measuring —220 v output of Pu-20C/C.

3-6. Box, Interconnecting J-982/MPM-40 (figs. 3-5, 3-6, and 3-7)

a. Controls.

Control	*Function*
POWER ON indicator Lamp (I2606).	Indicates that 10 POWER switch is set to ON and power is applied.
RANGE MARKS RELAY & STC. switch (S2612).	Applies 27 vdc for operation of AN/MPQ-4A range relay.
3Ø POWER switch (S2602).	Applies three-phase power to the power distribution circuits of the J-982/MPM-49.
COMP. POWER switch (S2604).	When up (ON), applies power to the computer. When down (OFF), applies power to RANGE STROBE CONTROL R2614
Blown-fuse indicators (12602, I2603, and 12604).	When lamps light, indicate that corresponding fuse (F2602, F2603, or F2604) has blown.
RANGE STROBE CONTROL (R2614).	Provides an adjustable output to simulate the operation of the range handwheels on the AN/MPQ-4A computer.

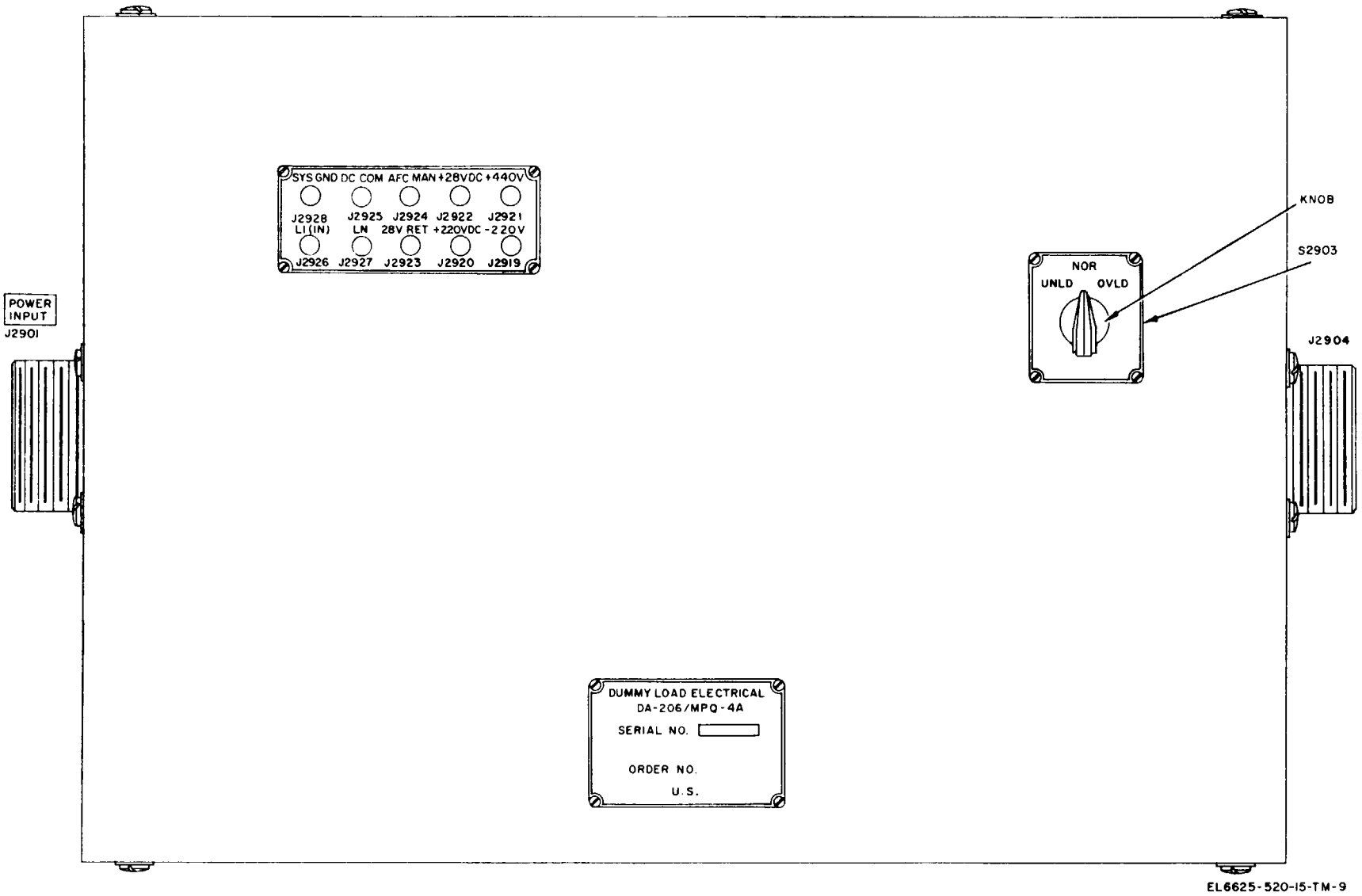


Figure 3-4. Dummy Load, Electrical DA-206/MPQ-4A, controls and connections.

control	*Pos*	*Function*
SIM. FOR IND./ SIM. FOR COMP. switch (S2610)	SIM. FOR IND.	Applies 6.4 vat, +220 vdc, and –220 vdc to J2621 for operation of the SM-154/MPQ-4A.
	SIM. FOR COMP.	Removes 6.4 vac and dc voltages from J2621.

Control	*Function*
IF GAIN CONTROL (R2617).	Provides an adjustable output to control gain of IF amplifier when bench servicing the AN/MPQ-4A.
THYRATRON POWER switch (S2611).	Applies single-phase ac power to J2630 for bench testing AN/MPQ--4-A thyratron voltage regulator.
IF POWER switch (S2607).	Applies +150 v to J2607 for bench servicing the AN/ MPQ-4A IF amplifier.
ANT. SIM. POWER switch (S2609).	Applies three-phase ac power to J2621 for operating Antenna Position Simulator SM-154/MPQ-4A.
IND. POWER switch (S2608).	Applies +27, +220, –220, and + 440 operating voltages to J2604 for bench servicing the AN/MPQ–4A indicator system.
MOD. TRIG. POWER switch (S2603).	Applies single-phase ac power and + 300 vdc to J2603 for bench servicing the AN/ MPQ–4A trigger amplifier.
AFC POWER switch (S2606).	Applies single-phase ac power, and + 150 and –300 operating voltages to J2601 for bench servicing the AN/ MPQ-4A afc assembly.
STC POWER switch (S2605).	Applies +300 v to J2602 for bench servicing the AN/ MPQ–4A stc assembly.
1Ø POWER switch (S2601).	Applies single-phase power (from J2610) to the J-982/MPM-49 for distribution.
3Ø POWER indicator (12605).	When lighted, indicates that 3Ø POWER switch is at ON and power *is* applied.

b. Connectors.

Connector	*Function*
LV POWER SUPPLY REC TRANS (J2606).	Input-output termination for use with C–2014/MPQ–4A.
SCOPE (J2631)	Scope signal input termination for bench testing the AN/MPQ–4A trigger amplifier.
MOD. TRIG. LOAD (J2614).	Dummy load termination for bench servicing the AN/ MPQ-4A trigger amplifier.
IND. RANGE (J2623)	Range strobe control termination for bench servicing the AN/MPQ-4A computer range circuits. Used in conjunction with COMP. POWER SWITH S2604 and RANGE STROBE CONTROL R2614.
IF GAIN (J2629)	IF gain control termination for testing the AN/MPQ-4A IF amplifier.
IND. IF LOAD (J2625).	Dummy load for bench testing AN/MPQ-4A indicator system and IF amplifier.
TEST EQUIP INPUT (J2613).	Signal generator input termination for bench servicing the AN/MPQ-4A IF amplifier. Used in conjunction with J2611 and J2612.
IF SIGNAL (J2611 and J2612).	Terminations for connecting output of IF assembly to test equipment when bench servicing. Used in conjunction with J2613.
TEST EQUIP INPUT (J2620).	Signal generator RF output termination for bench servicing afc assembly. Used in conjunction with J2619.
A.F.C. SIGNAL (J2619).	RF signal input termination for bench servicing afc assembly. Used in conjunction with J2620.
IF POWER (J2607)	Multipin connector associated with switch S2607 to apply operating voltage to the IF assembly when bench servicing.
ANT. SIM. POWER (J2621) .	Multipin connector associated with switch ANT. SIM. POWER SWITCH (S2609) to apply operating voltages to the antenna simulator.
IND. POWER (J2604)	Receptacle associated with switch S2608 to apply operating voltages to the AN/MPQ-4A indicating system.
THYRATHRON POWER (J2630) .	Receptacle associated with switch S2611 to apply operating voltages to the thyratron voltage regulator.
COMP. POWER (J2605).	Receptacle associated with switch S2604 to apply operating voltages to the AN/ MPQ–4A data computer.
MOD. TRIG. POWER (J2603).	Receptacle associated with switch S2603 to apply operating voltages to the trigger assembly.
STC POWER (J2602)	Receptacle associatcd with switch S2605 to apply operating voltages to the stc assembly.
AFC POWER (J2601)	Receptacle associated with switches S2606 and S2607 to apply operating voltages to the afc assembly.
Low voltage power Supply (J2608) .	Input/output connector for use with C–2014/MPQ-4A.

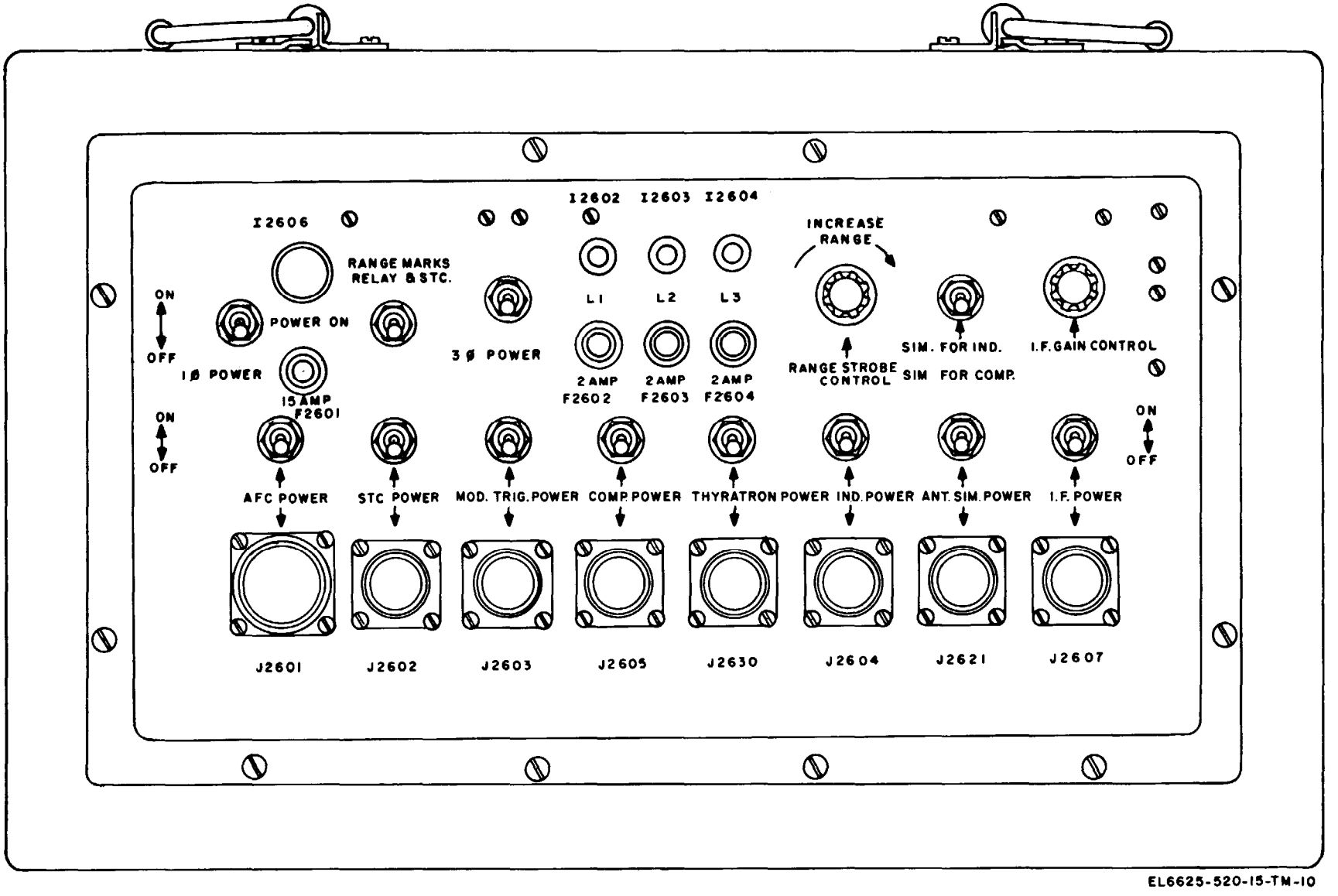


Figure 3-5. Box, Interconnectiong J-982/MPM-49, controls, indicators, and connectors, front view.

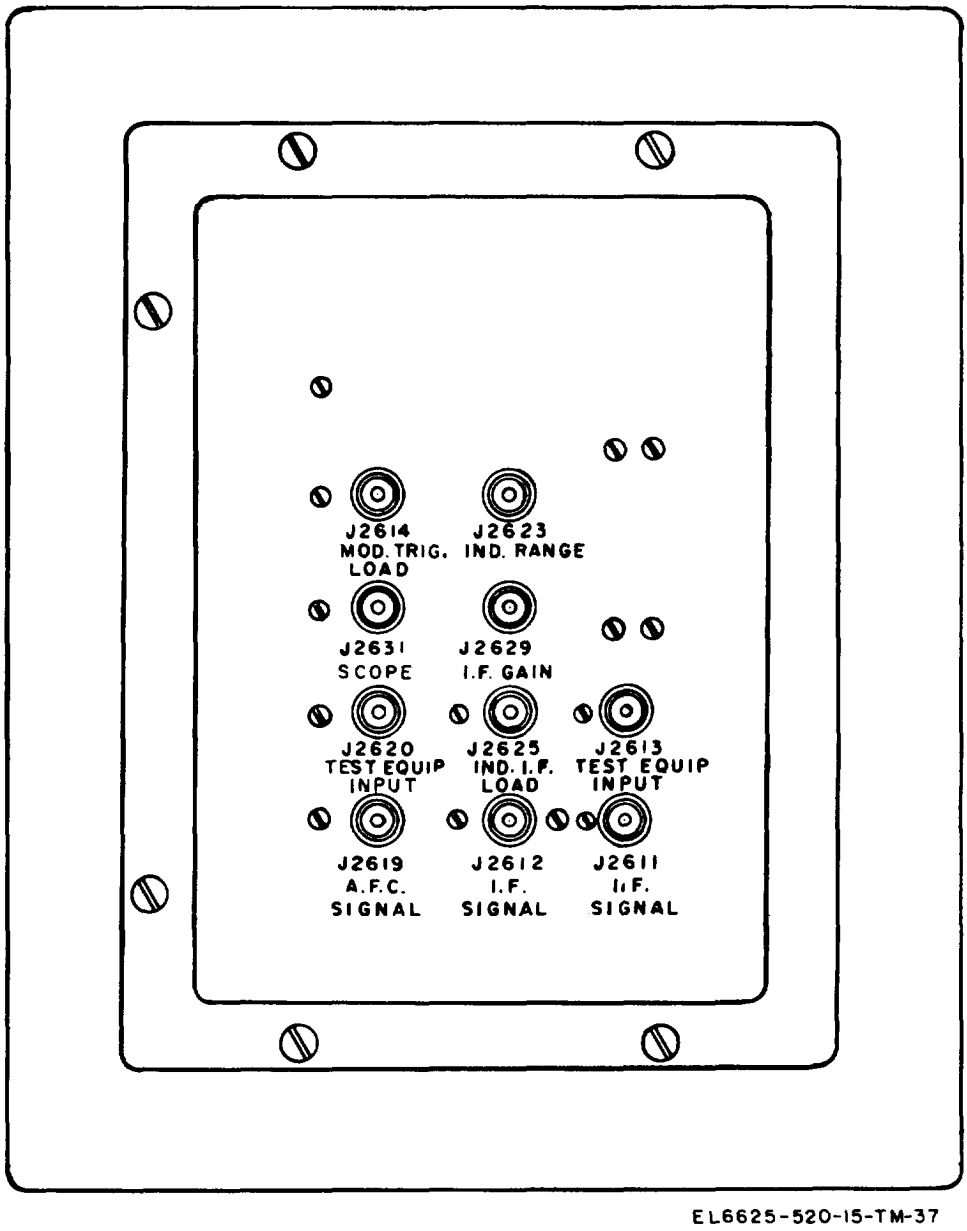


Figure 3-6. *Box, Interconnecting* J–982/MPM-49, *controls, indicators, and* connectors, *right* view.

Connector	Function
10 power connector (J2610) .	Input termination for single-phase prime power output of PU-20C/C.
30 power connector (J26O9).	Input termination for connecting three-phase prime power output of PU–335/MPM–25.

3-7. Mixer Stage, Frequency CV-662/G (fig. 3-8)

a. Controls.

Control	Function
GAIN (input level) control (RI).	When boresighting AN/MPQ-4A, selects input signal level from indicator system.
SCANNER-TRIG switch (S1).	When boresighting AN/MPQ-4A, selects input applied at J1 or J3.

b. *Connectors,*

Connector	*Function*
TO TP513 (J1)	Provides termination for azimuth and range indicator system output.
SCANNER INPUT (J2).	Terminates output of scanner. Used in conjunction with J1.
TO TP511 (J3)	Receptacle used to check azimuth and range indicator trigger output waveform.

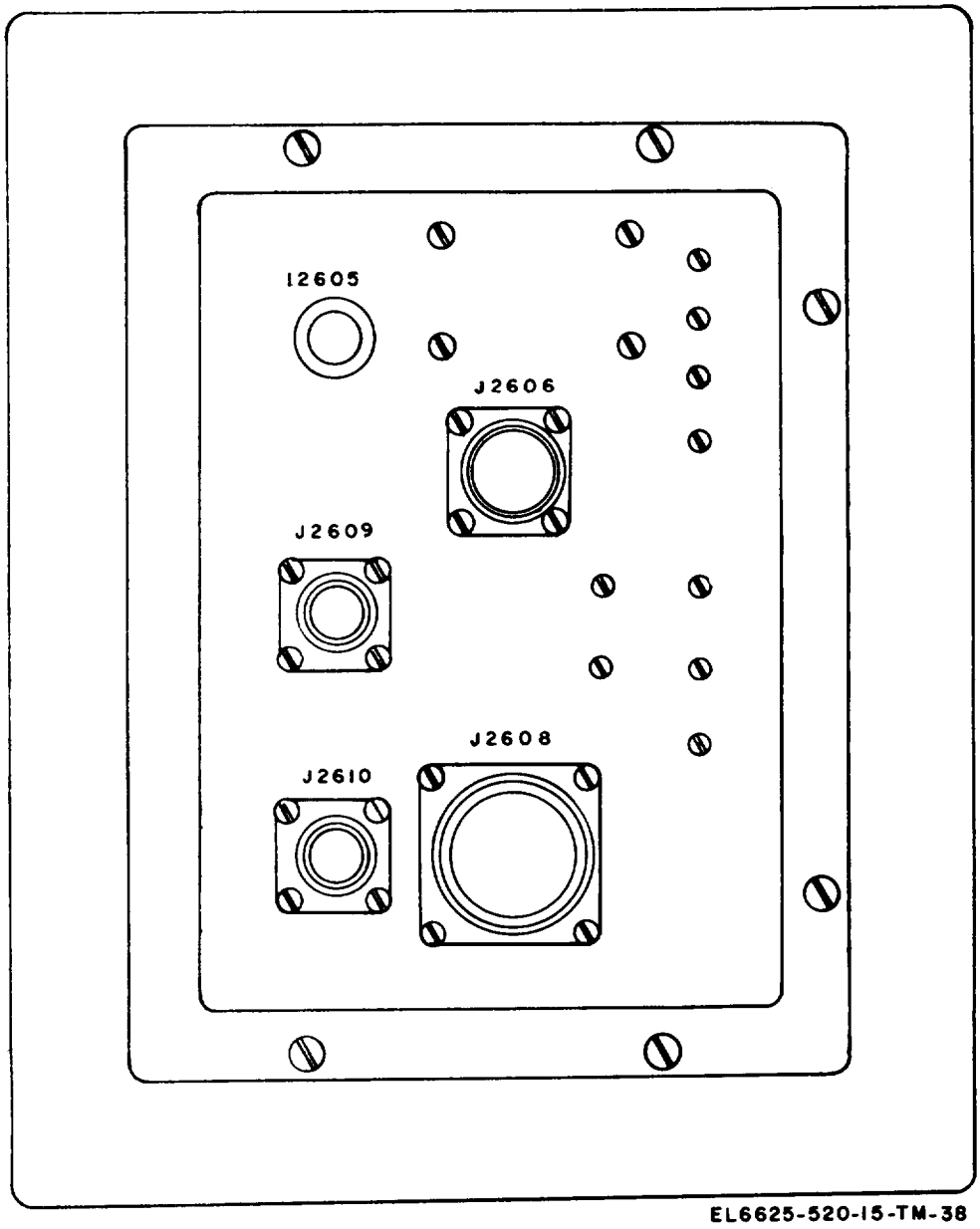


Figure 3-7. Box, Interconnecting J–982/MPM-49, controls, indicators and connectors, *left view.*

Connector	*Function*
SCOPE (J4)	Termination for applying test signals to oscilloscope.

3-8. Cabinet for Control–Power Supply C–2014/MPQ-4A (fig. 3-9)

a. Controls.

Control	*Function*
Blower switch, S2613	Applies power to the blower motor in the case.

h. Indicators.

Indicator	Function
Blower on (12607)	Lights when blower switch S2613 is set to on to indicate power is applied to the blower motor.

c. Connectors.

Connector	*Function*
10 power (J2632) ----	Used to connect single phase 110 vac power to the case.

d. Fuses.

Fuse	*Function*
F2605 ------	Fuses blower motor in case.

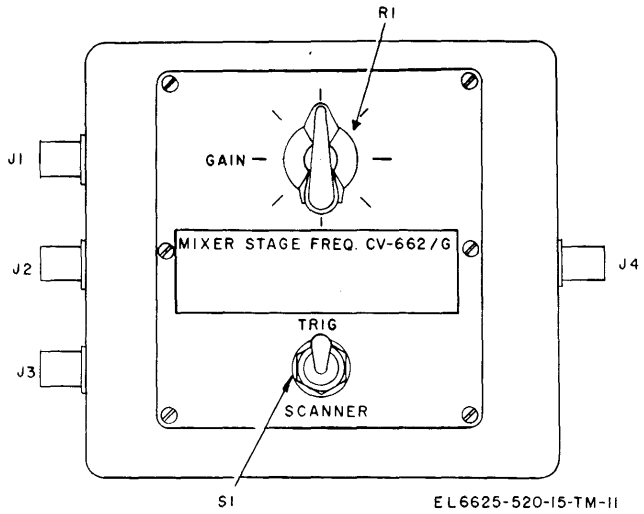


Figure 3-8. *Mixer Stage, Frequency CV-662/G, controls, and connectors.*

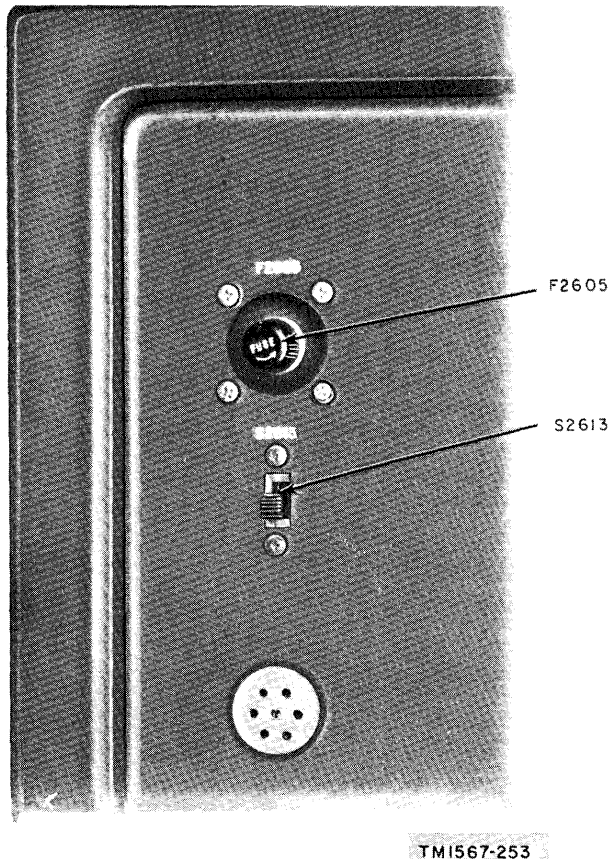


Figure 3-9. Cabinet for Control—Power Supply C-2014/ MPQ–4A, controls and indicators.

Section II. OPERATION UNDER USUAL CONDITIONS

3-9. Type of Operation

a. Maintenance Kit, Electrical Equipment MK-673/MPQ–4A consists of various test units in addition to power sources for energizing the circuits with the various voltage levels required. It also provides an accessory kit that contains cables and couplings for making interconnections. Depending on the component of Radar Set AN/MPQ-4A being bench-tested, the MK-673/MPQ-4A furnishes varying interconnecting points, control, and cabling. Refer to figure 4-1 for a typical test setup.

b. Procedures for testing the various components of Radar Set AN/MPQ–4A are included in the technical manuals for the radar set (TM 11-5840–208–30 and TM 11-5840–208–45). The components of the AN/MPQ-4A that are tested by using the MK–673/MPQ–4A are—

(1) Control-Indicator Group OA-1256/MPQ-4A, including:

(a) Azimuth and Range Indicator IP-375/MPQ-4A.

(b) Radar Data Computer CP-319/MPQ-4A.

(c) Control-Power Supply C-2014/MPQ-4A.

(2) Receiver-Transmitter Group OA-1257/MPQ-4A, including:

(a) Intermediate Frequency Amplifier AM-1538/MPQ-4A (if. amplifier).

(b) Trigger Pulse Amplifier AM-1537/MPQ-4A (trigger amplifier).

(c) Receiver Control C-2016/MPQ-4A (aft assembly).

(d) Receiver Control C-2015/MPQ-4A (stc assembly).

(e) Power Supply PP-1588/MPQ-4A.

3-10. Starting Procedures

a. Preparation for Operation. Some components of the MK–673/MPQ-4A do not require a starting procedure as such. However, the following basic rules should be observed whenever placing the MK–673/MPQ-4A in use.

(1) Insure that all switches on operational units of the MK–673/MPQ-4A that are to be used in the test setup are at OFF before presetting them at the positions outlined in *b* below.

(2) When applicable, insure that operating controls of the AN/MPQ-4A units under test are properly set. Refer to the appropriate technical manuals of the AN/MPQ-4A.

(3) With all power removed, connect the PU–20C/C in the test setup as prescribed in the AN/MPQ-4A manual (app. A) for the particular test to be performed. DO NOT start the PU–*20C/C* until all other connections have been made.

(4) Using the designated cable assemblies and/or waveguide components, interconnect the units of the AN/MPQ-4A, the MK–673/MPQ-4A, and any specified test equipment as prescribed in the applicable technical manual (app. A).

(5) As applicable, energize those components of the MK–673/MPQ-4A that are connected in the test setup as prescribed in c below.

b. Preliminary Control Settings.

Unit/assembly	*Control* setting/OperatiOn	*Figure No.*
Simulator Antenna Position SM-154/MPQ-4A ---	Refer to TM 11-6625–541–12	
Motor Generator PU-20C/C ----------	Refer to TM 11-6125-200-10	
Motor Generator PU-335/MPM-25 ----------	Refer to TM 11-5840-208-45	
Dummy Load, Electrical DA-206-MPQ-4A----------	ON-OFF switch at OFF. 25% UNLD-NOR- . . . . . 25% OVLD switch at NOR.	3-4
Control—Power Supply C-2014/MPQ-4A ----------	Refer to TM 11-5840-208-10	
Power Supply PP-1588/MPQ-4A ----------	Refer to TM 11–5840–208-10	
Box, Interconnecting J–982/MPM-49 ----------	SIM, FOR IND./SIM FOR COMP. switch at . . . . . SIM FOR COMP. All other switches set to off.	3-5, 3-5, 3-7
Mixer Stage Frequency CU–662/G ----------	Level input control at midposition	3-8

c. Energizing Equipment. After all preliminary control settings have been made *(b* above), energize those components of the MK-673/MPQ-4A that are connected in the test setup as follows:

(1) Turn on the PU-20C/C (TM 11-6125-200–10) and PU–335/MPM–25, and allow them to come up to full power.

(2) Energize the J-982/MPM-49 as follows:

(a) Set *1Ø* POWER switch to on and observe that 1Ø POWER ON indicator illuminates.

(b) Set 3Ø POWER switch to on and observe that 3Ø POWER indicator illuminates.

(3) Energize Control—Power Supply C-2014/MPQ-4A as described in TM 11–5840-208-10, and set blower switch S2613 to on.

(4) Energize Power Supply PP-1588/MPQ-4A as described in TM 11–5840–208-10.

(5) Set ON-OFF switch on DA-205/MPQ-4A at ON.

(6) Energize SM-154/MPQ-4A (TM 11-6625-541-12).

3-11. Preparation for System Test Operation

Operation of the MK-673/MPQ-4A is facilitated by connecting the required test setup, energizing the appropriate units, selecting the test circuit by turning on the associated switch on the J-982/MPM-49, and performing the required operations in accordance with Radar Set AN/MPQ-4A technical manuals (app. A).

3–12. Stopping Procedure

Shut down the test facilities components after use as follows:

a. Set 1Ø and 3Ø POWER switches on the J–982/MPM-49 to off positions.

b. Turn off PU–20C/C and PU-335/MPH-25. Refer to TM 11-6125-200-10 for the PU-20C/C.

c. Return all other controls (on MK-673/MPQ-

4A units used) to the initial conditions listed in paragraph 3–10b.

d. If the MK-673/MPQ-4A is not to be used immediately, remove all cables and disconnect all other test equipment.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

3–1 3. Operation Under Arctic Conditions

The MK–673/MPQ-4A is not affected by exposure to arctic temperatures. However, the various units must be protected against frost deposits which might prevent the use of switches and controls or obstruct contact openings in connectors and jacks, thereby interfering with the proper mating of interconnection cables.

3-14. Operation Under Tropical Conditions

Protect the equipment from excessive condensation on the surface or interior components. Wipe away any moisture that could cause electrical leakage to develop between points where voltage differences exist. insure that the interior of waveguide elements (such as the variable attenuator and directional coupler) do not show signs of condensation prior to placing them in use.

3–1 5. Operation in Desert Climates

Protect the equipment against sand and dust. As often as necessary, use a vacuum cleaner and soft brush to remove all traces of sand or grit; especially in waveguide components, connectors and test jacks. Be extremely careful when cleaning waveguide components. Scratches or residue on the inside walls or flanges will have an adverse effect on the performance of these units.

CHAPTER 4

OPERATOR AND ORGANIZATIONAL MAINTENANCE

4–1. Scope of Maintenance

Components of Electronic Equipment Maintenance Kit MK–673/MPQ–4A are primarily used during maintenance operations for the AN/MPQ–4A; therefore, this chapter provides combined operator and organizational maintenance instructions. The duties assigned to operator and organizational maintenance for components of the MK–673/MPQ–4A are indicated in a through e below. References to the paragraphs covering the specific maintenance function are also noted,

NOTE

Antenna Position Simulator SM-154/MPQ-4A, Motor Generator PU-20C/C, Motor Generator PU–335/MPM–25, Power Supply PP–1588/MPQ–4A, and Control—Power Supply C-2014/MPQ-4A are described in other publications and referenced in chapter 1; therefore, detailed operator and organization] maintenance procedures for these units are not described in this chapter.

a. Preventive maintenance checks and services as follows:

(1) Daily (para 4-5).

(2) Weekly (para 4-6).

(3) Monthly (para 4-7).

b. Cleaning (para 4-8).

c. Touchup painting (para 4–9).

d. Troubleshooting (para 4-12).

e. Repair and adjustments (para 4-13).

4-2. Test Equipment Required

The only test equipment required for operator and organizational maintenance of the MK-673/MPQ-4A is Multimeter TS-352B/U.

4-3. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to insure that the equipment is serviceable.

a. Systematic Care. The procedures given in paragraphs 4–5 through 4–10 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (paras 4-5, 4–6, and 4–7) outline maintenance functions to be performed at specific intervals. These checks and services are designed to maintain Army electronic equipment in a combat-serviceable condition ; that is good general (physical) and operating condition. As a guide in maintaining combat serviceability, the charts indicate what to check, how to check it, and list the normal conditions or indications. The *Reference* column lists the illustrations, paragraphs, or publications that contain detailed repair or replacement procedures. If the defect cannot be remedied by performing the recommended corrective actions, a higher category of maintenance or repair is required. Records and reports of these checks and services must be made in accordance with TM 38–750.

4-4. Preventive Maintenance Checks and Service Periods

Preventive maintenance checks and services of the MK–673/MPQ–4A are required on a daily, weekly, and monthly basis.

a. Paragraph 4–5 specifies checks and services that must be accomplished daily and under the special conditions listed below.

(1) When the equipment is initially installed.

(2) When the equipment is reinstalled after being out of service for any reason.

(3) At least once each week if the equipment is maintained in a standby condition.

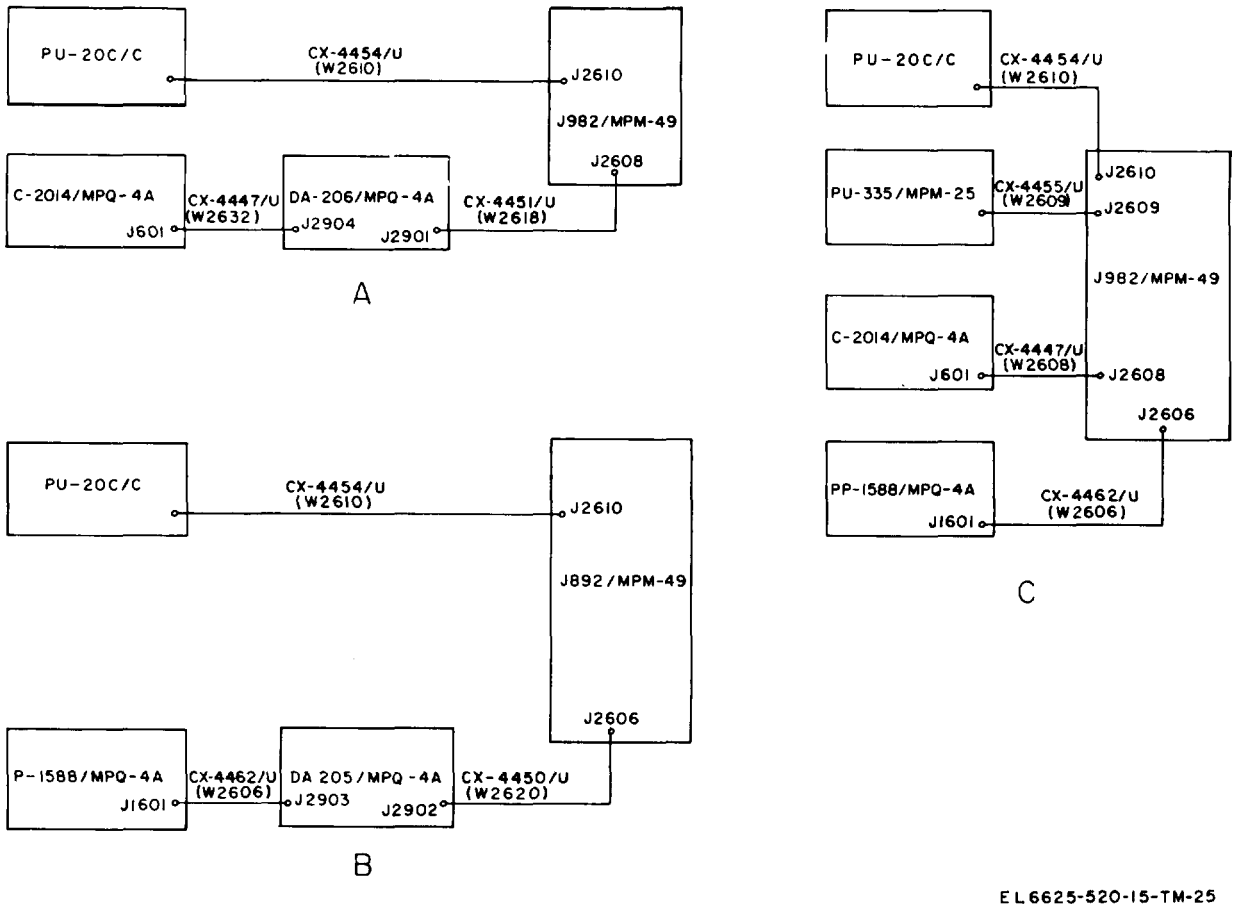


Figure 4-1. Typical test setup.

b. Paragraphs 4–6 and 4–7, specify those checks that must be performed on a weekly and monthly basis, respectively. The major components of the MK–673/MPQ-4A can be checked using a test setup made while checking the AN/MPQ-4A components, or using the basic test setup shown in figure 4–1.

4-5. Daily Preventive Maintenance Checks and Services Chart

Sequence	Item to be inspected	Procedure	Reference
1	General inspection	Inspect external surfaces of all units for dust, dirt, rust and corrosion.	Para 4–8.
2	Damage inspection	Inspect exposed component for damage. Inspect flanges on variable attenuators, flexible waveguide, directional coupler, and target antenna feedhorn for scratches or nicks.	Figs. 1-1 through 1-5.
3	Controls	During operation, check action of switches, potentiometers, and calibrated dials for smooth response without binding, backlash, or looseness. AH knobs must be secure.	Paras 3-2 through 3-7.
4	Preoperational	a. Connect basic test setup *b.* Set all controls at preliminary settings	Fig. 4-1. Para 3-8b.
5	Operational: *a.* PU-20C/C *b.* PU-335/MPM-25 C. J–982/MPM–49	a. Turn on PU-20C/C and observe that it comes up to full power. *b.* Turn on PU-335/MPM–25 and observe that it comes up to full power. c. Energize the junction box and observe that the 10 POWER ON and 30 POWER indi-	a. TM 11-6126-200-10. b. None. c. Para 3–8c, step 2; fig. 3-5.

Sequence	Item to be Inspected	Procedure	Reference
		cators light and that none of the blown-fuse indicators lights.	
	d. C-2014/MPQ-4A	*d.* Turn on control power supply and observe indicators for normal operation.	*d. TM* 11-5840-206-10.
	e. PP-1588/MPQ-4A	e. Turn on power supply and observe indicators for normal operation,	e. TM 11-5840-208-10.
	f. Cabinet for C-2014/MPQ-4A	f. On rear of cabinet, set switch on. Observe that indicator lamp lights and blower stints.	f. None.
	g. SM-154/MPQ-4A	Turn on simulator and observe indicators for normal operation.	g. TM 11-6625-541-12.

4-6. Weekly Preventive Maintenance Checks and Services Chart

Sequence	Item to **be inspected**	Procedure	Reference
1	Completeness	Check for completeness of equipment	Para 1-7.
2	Accessories	Inspect all cords and cables for kinks, breaks, cuts, crushing, and fraying. Replace if necessary.	Fig. 1-2.
3	External items	Inspect external items such as mounting screws, latches, handles, and hinges for looseness, loss or breakage. Tighten or replace as required.	Figs. 1-1 and 1-5.
4	Metal surfaces	Inspect exposed metal surfaces for rust and corrosion. Clean and touchup paint as required. *Caution:* Do not attempt to paint the flanged surfaces or interior of any waveguide component. This includes the variable attenuators, flexible waveguide, directional coupler, and the target antenna feedhorn. Failure to observe this precaution may result in permanent damages to these components, and will impair operation.	Paras 4-8 and 4-9.

4-7. Monthly Preventive Maintenance Checks and Services Chart

Sequence	Item to be Inspected	Procedure	Refernce
1	CN-491/G, CN-492/G, and CU-673/U.	Clean flanges and remove dust particles from interior walls.	Para *4-8b.*
2	DA-205/MPQ-4A and DA-206/MPQ-4A.	a. Remove cover from each dummy load and clean interior of cover and dummy load chassis.	a. Para 4-8b and d.
		b. Replace covers and clean electrical connectors.	b. None.
3	J-982/MPM49	a. Remove top cover from cabinet and clean interior of cabinet and chassis.	a. None.
		b. Replace junction box cover and clean electrical connectors.	b. Para *4-8b.*
4	Cable assemblies	Clean connector contacts ----------	Para *4-8b.*
5	CY-3684/MPQ-4A	Remove all components from case and clean interior of case and cover.	
6	OA-1967/MPQ-4A	a. Clean all components of antenna group	a. Para *4-8b.*
		b. Lubricate the movable parts of the tripod . .	*b.* None.
7	CV-662/G	Remove cover from mixer and clean interior of cover and mixer chassis.	Para 4-8b and *f.*
8	RF-74/U	Clean slide assembly and probe termination carefully.	Para *4-8b.*
9	CG-539/U	Clean waveguide *flanges* and interior of waveguide walls.	Para *4-8b.*

4-8. Cleaning

a. General. Examine both the exterior and interior surfaces of all units of the MK–673/MPQ–4A. All surfaces should be clean and free from dust, dirt, grease, and fungus.

b. Cleaning Methods.

(1) Remove loose dirt with a clean, soft cloth. Where access is restricted, use a shop vacuum cleaner equipped with a soft, brush-type nozzle.

(2) Remove dirt from plugs or jacks using either a brush or vacuum cleaner.

WARNING

The fumes of trichloroethane are toxic, Provide thorough ventilation whenever used. DO NOT use near an open flame. Trichloroethane is not flammable, but exposure of the fumes to an open flame converts the fumes to highly toxic, dangerous gases.

(3) Remove grease, fungus, or ground-in dirt with a cloth dampened (not wet) with trichloroethane.

(4) Effective cleaning can also be accomplished by using a soft clean cloth dampened (not saturated) with a solution of mild soap and water. Be careful to prevent moisture from entering connector contact openings, or any other openings in the equipment.

c. *Disassembly for Cleaning.* Access to the interior of some units of the MK–673/MPQ-4A is gained by removing the unit from its cabinet or case. Other units merely require cover removal. No further disassembly is required unless specified in the publications referenced in the preventive maintenance checks and services charts (paras 4–5, 4-6, and 4-7). Do not disassemble waveguide components such as the CN-491/G and CN–492/G. Subparagraphs *d, e,* and *f* below describe the disassembly procedures required for cleaning and general maintenance of those components of the MK–673/MPQ–4A that are not described in other publications.

d. DA-205/MPQ-4A and DA-206/MPQ-4A Cover Removal. Place the DA-205/MPQ-4A, DA-206/MPQ–4A on a flat surface and in the normal operating position. Remove the four retaining screws (two on each end, front and rear) and carefully lift the main assembly out of the bottom cover.

e. J–982/MPM–49 Cover Removal. To gain access to the J-982/MPM–49 for inspection and cleaning, disengage the four fasteners on the top and remove the cover. Further disassembly of the junction box requires a higher category of maintenance.

j. CV-662/G. Place CV-662/G on edge on a flat surface and remove the six machine screws that secure the bottom cover plate. Remove the bottom plate carefully so as not to damage the gasket.

4-9. Touchup Painting

Remove rust and corrosion from metal surfaces by sanding them lightly with fine sandpaper. Brush two thin coats of enamel on the bare metal to protect it from further corrosion. Refer to applicable cleaning and refinishing practices specified in TB 746–10.

4-10. Lubrication

Unless specified in the publications previously referenced in paragraphs 4–5, 4–6, and 4–7, the only element of the MK–673/MPQ-4A requiring periodic lubrication is the antenna tripod. Lubricate each movable part of the tripod including pivot pins, swivel, etc., with lightweight oil. Wipe off excess oil.

4-11. General Troubleshooting Information

Operator and organizational troubleshooting of components of the MK–673/MPQ-4A is based on the operational checks in the daily preventive maintenance checks and services chart (para 4–5). To troubleshoot these components, perform all functions starting with item 4 in the chart. When an abnormal condition or result is observed, perform the checks and corrective measures indicated in the troubleshooting chart (para 4–12). If the corrective measures do not clear the trouble, a higher category of maintenance is required. Refer to chapter 6, or the referenced publications for additional and higher categories of maintenance. Faults in components of the MK–673/MPQ–4A that are not included in the basic test setup, or listed in the troubleshooting chart, can be readily detected when used in a test setup to checkout the AN/MPQ-4A components. These unlisted components require a higher category of maintenance and therefore are not described here.

4-12. Troubleshooting Chart

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
1	Pu-20C/C	Any	Refer to TM 11-6125-200-10.
2	PU-335/MPM-25	Any	Refer to operator's manual.
3	On the J-982/MPM-49, with 1Ø POWER switch at ON, 1Ø POWER ON lamp does not light.	Defective lamp	Replace lamp (para 4-13b).
	With 3Ø POWER switch at ON, 3Ø POWER ON lamp does not light.	Defective lamp	Replace lamp (para 4-13b).
	Lamp I1, I2, or I3 is lighted	Fuse F2602, F2603, or F2604 is blown.	Replace applicable fuse.
4	C-2014/MPQ-4A	Any	Refer to TM 11-5840-208-20.
5	PP-1588/MPQ-4A	Any	Refer to TM 11-5840–208-20.
6	On cabinet for C-2014/MPQ-4A, when power switch is turned to ON, lamp does not light or fan does not start.	Defective lamp	Replace lamp.
		Defective fan	Check and replace fan if defective.
7	SM–154/MPQ-4A	Any	Refer to TM 11–6625-541–12.

4-13. Repairs and Adjustments

a. *General.* Applicable operator and organizational repair and adjustment procedures for the PU-20C,/C,PU-335/MPM-25, C-2014/MPQ-4A, PP–1588/MPQ-4A, and SM–154/MPQ-4A are described in other publications (app. A). Refer to the checks and corrective measures column of the troubleshooting chart (para 4–12) for specific references to these publications. Except for the J–982/MPM-49, repairs to all remaining units of the MK–673/MPQ–4A require a higher category of maintenance; therefore, the following procedures apply only to the J–982/MPM-49.

b. Replacement of Indicator Lamps.

(1) Grasp the knurled ring around the lens cap. Rotate the lens cap counterclockwise and remove the lens cap.

(2) Replace the lamp and cap, screwing the unit clockwise until fingertight.

c. Replacement of Fuses.

(1) Press the fuse holder cap and twist it clockwise. Remove the cap and fuse.

(2) Insert the replacement fuse in the fuse holder. Press and rotate the cap counterclockwise until it is secured.

CHAPTER 5

FUNCTIONING OF MK-673/MPQ-4A

5-1. General

Maintenance Kit, Electronic Equipment MK-673/MPQ-4A consists of a group of test equipments, components, and accessories used to facilitate bench testing and servicing units of Radar Set AN/MPQ-4A. The MK–673/MPQ-4A contains power supplies identical with those in the AN/MPQ–4A. These power supplies provide convenient voltage sources for energizing components removed from Radar Set AN/MPQ-4A for maintenance purposes. Test jacks on the dummy loads and the junction box provide access to critical test points; connectors and an assortment of test cables provide interconnection between the MK–673/MPQ–4A, extraneous test equipment, and the AN/MPQ-4A components under test. This chapter *covers* only units of the MK–673/MPQ-4A not covered in other publications referenced in chapter 1.

5–2. Interconnecting Box J–982/MPM-49

a. *General.* Interconnecting Box J–982/MPM-49 provides ac power distribution, and distributes dc voltages from the PP–1588/MPQ-4A and C–2014/MPQ–4A to the AN/MPQ-4A components being bench-tested through the interconnecting cables of MK–673/MPQ–4A. The J–982/MPM-49 also provides dummy load terminations, dummy mixers, and switching required when bench servicing the various components of the AN/MPQ-4A. A schematic diagram of the J-982/MPM-49 is shown in figure FO–2. Simplified schematic diagrams showing ac and dc distribution are illustrated in figures 5-1 through 54.

b. Three-Phas Power Distribution (fig. 5-1). Three-phase, 400-cycle, 120-volt ac is furnished by Motor Generator PU-335/MPM-25 through power connector J2609. Application of three-phase power is controlled by 30 POWER switch S2602. Fuses F2602, F2603, and F2604 protect the PU–335/MPM–25 from an external overload. Indicators 12602, 12603, and 12604 light to indicate the corresponding line fuse (F2602, F2603, or F2604) has blown. Resistors R2602, R2603, and R2604 are voltage-dropping resistors for the respective indicator lamps. Resistors R2605, R2606, and R2607, and capacitor C2601 form a phase sequence network. If the three-phase input at J2609 is of the correct phase and amplitude, indicator lamp 12605 will light. Three-phase power is applied to the SM–154/MPQ-4A through switch S2609 and connector J2621 and the AN/MPQ–4A computer through connector J2605.

c. *Single-Phase Power Distribution (fig. 5–2).* Single-phase, 120-volt, ac power is delivered to the J–982/MPM-49 from Motor Generator PU-20C/C through connector J2610. Single-phase power is controlled by 1Ø POWER switch S2601. Fuse F2601 protects the PU–20C/C from overload, and POWER ON indicator lamp 12606 lights when power is applied and switch S2601 is turned on, Distribution of power to the C–2014/MPQ-4A, PP–1588/MPQ-4A, and AN/MPQ-4A components to be tested is illustrated in figures FO–2 and 5–1.

d. *Dc Distribution.* Dc voltages from Control—Power Supply C–2014/MPQ–4A and Power Supply PP–1588/MPQ–4A are distributed to the connectors for each chassis by the J-982/MPM-49. Figure 5-3 illustrates the dc distribution for the PP–1588/MPQ-4A. Distribution of Control—Power Supply C–2014/MPQ-4A outputs are illustrated in figure 5–4. Complete schematic details for dc distribution of both supplies are shown in figure F0–2.

e. *IF Amplifier Dummy Mixer.* The intermediate frequency (IF) amplifier dummy mixer provides impedance matching and signal mixing when bench servicing the AN/MPQ-4A IF amplifier. A signal from a sweep generator is applied to the mixer network at J2613. Resistor R2610 provides impedance matching, and in combination with resistor R2609, applies balanced signals to the input of the IF amplifier through jacks J2611 and J2612.

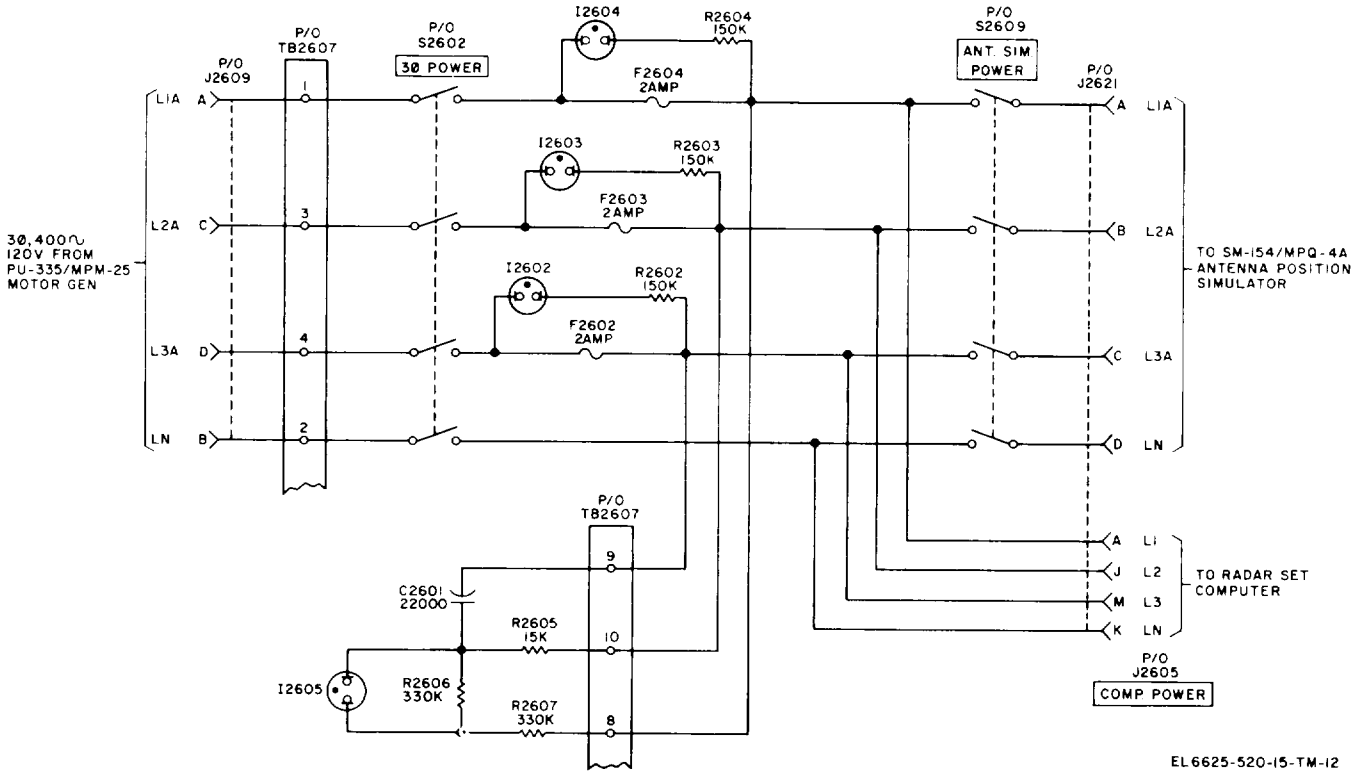


Figure 5-1. *Three-phase power distribution, schematic diagram.*

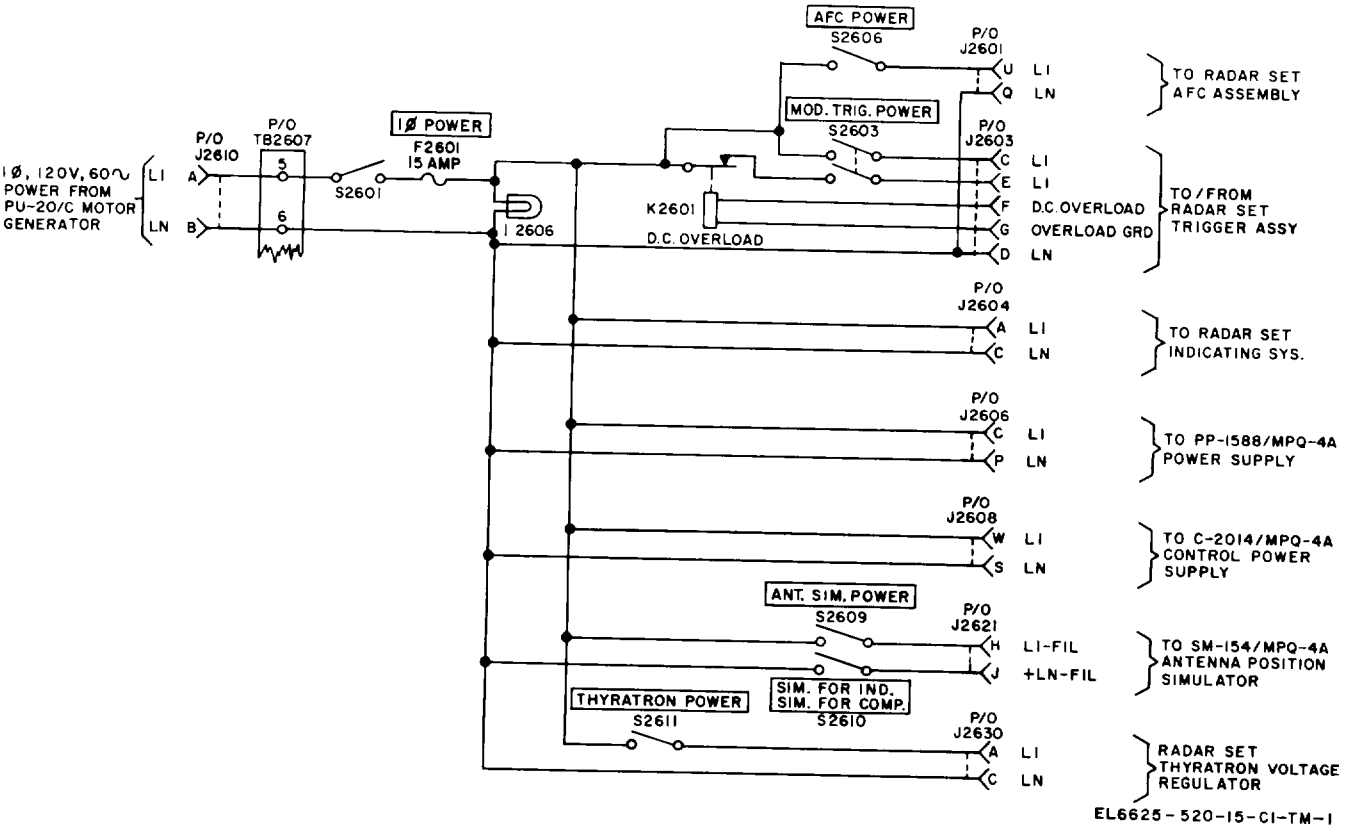


Figure 5-2. Single-phase power distribution, schematic diagram.

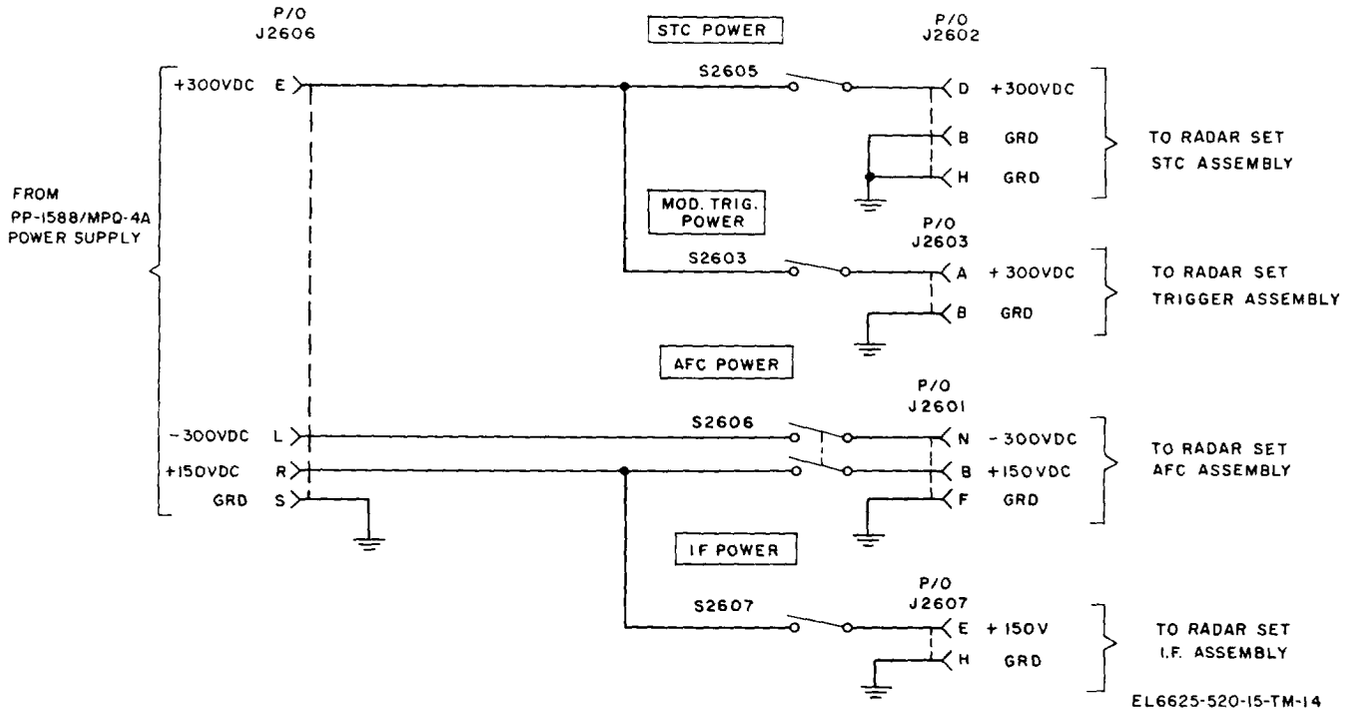


Figure 5–3. Dc power distribution from PP–1588/MPQ–4A, schematic diagram.

f. IF Amplifier and Indicator Termination, When the AN/MPQ-4A IF amplifier or indicator system is being bench serviced, resistor R2613 terminates the circuit under test in its characteristic impedance (68 ohms). Depending on the specific test setup, J2625 is connected to the output termination of either the IF amplifier or the indicator system.

g. *Afc Assembly Dummy Mixer.* Resistors R-2615 and R2616 offer an impedance matching and mixing network between the sweep generator used, and the automatic frequency control (aft) assembly. The sweep generator is terminated at J2620 and the afc assembly at J2619.

h. Trigger Amplifier Dummy Mixer. When bench servicing the AN/MPQ-4A trigger amplifier, the pulsed output of a pulse generator is required for the trigger amplifier input. The pulses are applied to the dummy mixer network (R2611, C2605, and C2605, and C2604) through J2618.

i. *Trigger Amplifier Termination.* The trigger amplifier output is applied at J2614. Resistors R2612 and R2621 terminate the trigger amplifier in its own characteristic impedance. The output of resistor R2621 matches the input impedance of the test oscilloscope and connects the trigger amplifier to the oscilloscope through connector J2631.

j. Controls. The J-982/MPM–49 includes two manual controls for use when bench servicing the AN/MPQ–4A IF assembly and the range indicator circuits. Manual control of the IF assembly is provided by IF GAIN CONTROL potentiometer R2617. This potentiometer operates from the 150-volt dc input at J2607, pin E. This voltage is applied to a voltage divider consisting of R2601 and R2617 through IF POWER switch S2607. The low-level output at the wiper of potentiometer R2617 is applied to J2629 through a decoupling network consisting of C2608, R2618, and CR2601. RANGE STROBE CONTROL potentiometer R2614 furnishes manual range strobe voltages to the indicator system when COMP. POWER switch S2604 is at the off position and IND. POWER switch S2608 is at on. With the switches positioned as described, the potentiometer is connected between + 150 volts dc common. The wiper of R2614 is connected to the indicator through J2623.

5-3. Dummy Load, Electrical DA-205/MPQ-4A (fig. 5-5)

a. General. Dummy Load, Electrical DA–205/MPQ–4A provides fixed-load terminations, a load selector switch, and test points for bench servicing the PP-1588/MPQ-4A.

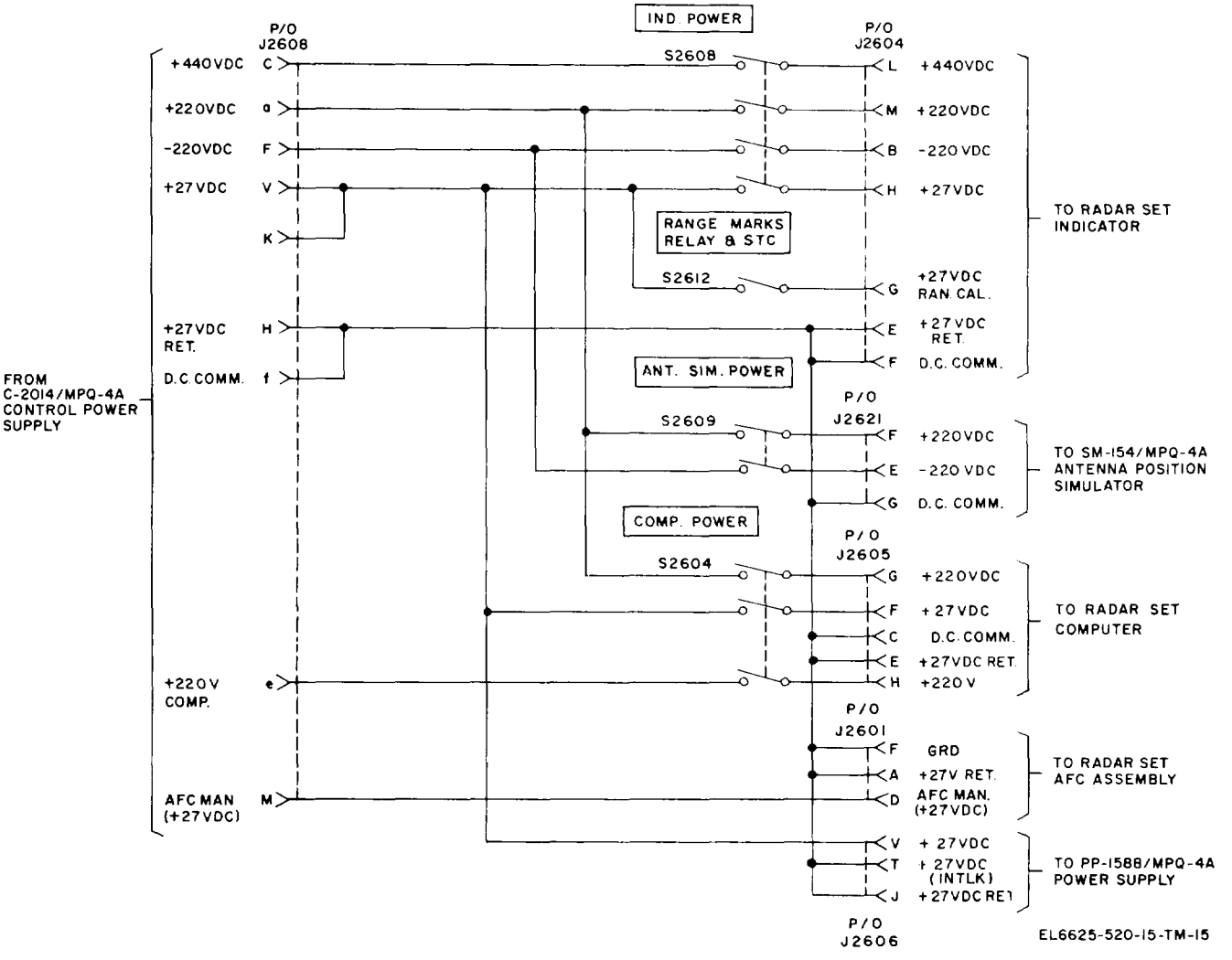
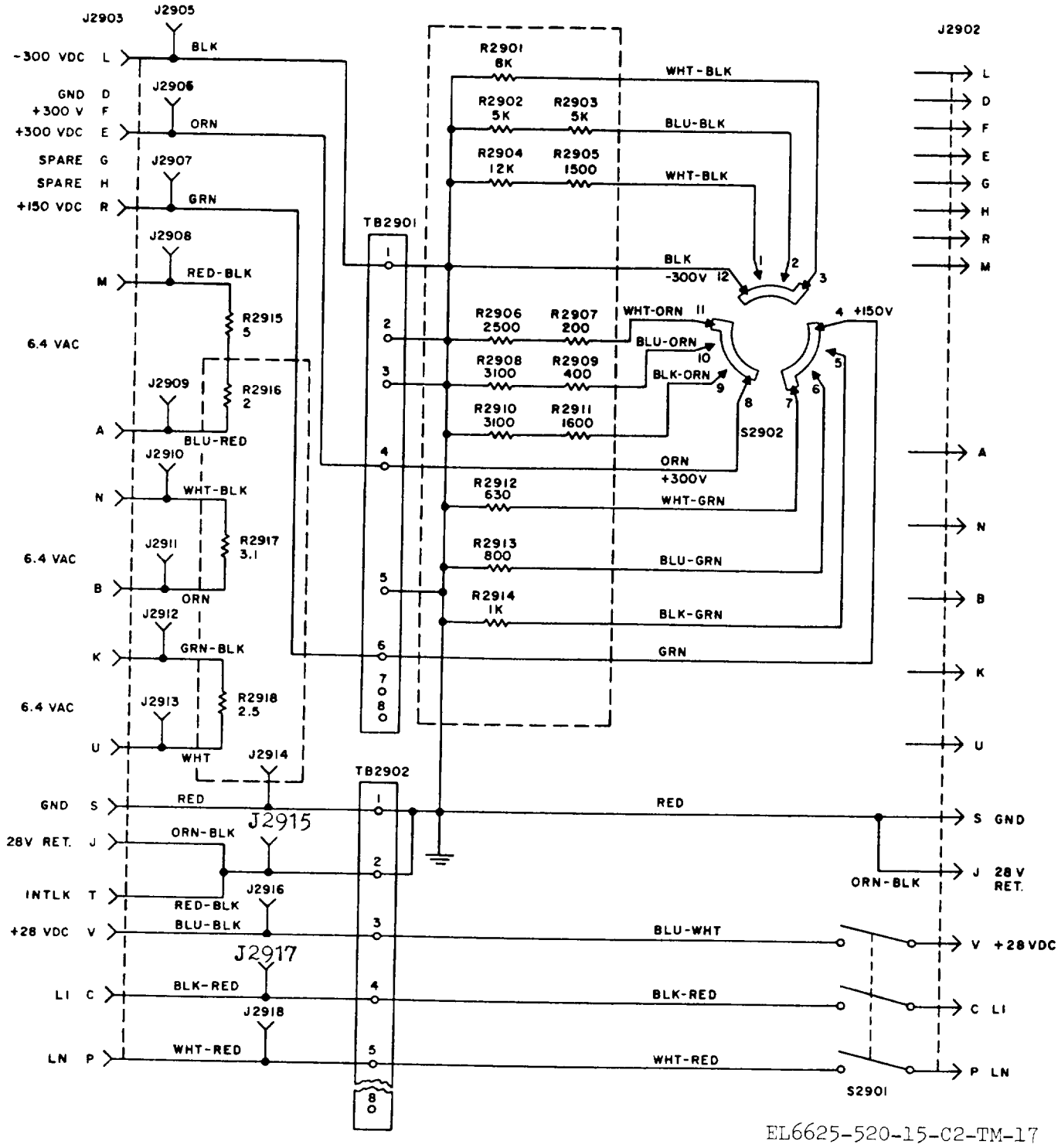


Figure 5–4. Dc power distribution from C-2014/MPQ-4A, schematic diagram.

b. *Power Input.* When placed in a test setup, POWER INPUT connector J2902 receives single phase ac power (L1 and LN) from J2606 of the J-982/MPM-49. Power is routed to the PP-1588/MPQ–4A through J2902. ON-OFF switch S2901 permits removal and application of primary power from the PP–1588/MPQ–4A as required during testing. Test jacks J2917 and J2918 provide convenient terminations for testing the primary power input.

c. *Power Supply Terminations.* Outputs from the PP–1588/MPQ–4A are applied at J2903 as shown in figure 5–5. The three 6.4-volt ac filament voltage outputs are terminated in fixed loads in the DA–205/MPQ–4A. Each filament voltage input has a pair of associated test jacks. Plus and minus 300-volt dc and + 150-volt dc power supply outputs are terminated in an adjustable load network through load selector switch S2902. This three-position rotary switch permits selecting network load resistors for testing the regulated outputs of the PP–1588/MPQ–4A under 25-percent overload, normal, and 25-percent underload conditions. Each dc input from the PP–1588/MPQ–4A is provided with a corresponding test jack (J2905 through J2907). These jacks are used to test the PP-1588/MPQ-4A regulated outputs under each selected load condition, and are referenced to ground.

d. Local Networks. The following chart will simplify the circuit description of the DA–205/MPQ-4A. It lists the resistors forming the load network for each input from the PP–1588/MPQ–4A; the corresponding setting of load selector switch S2902 (where applicable) ; and the associated test jacks used when taking voltage measurements. Refer to figure 5–5 to identify each circuit.



EL6625-520-15-C2-TM-17

Figure 5-5. *Dummy Load, Electrical DA-205/MPQ-4A, schematic diagram.*

J2903 input	S2902 position	Load network	Test jacks
6.4 vac	N/A	R2915, R2916	J2908, J2909
	N/A	R2917	J2910, J2911
	N/A	R2918	J2912, J2913
+ 150 vdc	25% UNLD	R2914	J2907, J2914
	NOR	R2918	

J2903 input	S2902 position	Load network	Test jacks
	25% OVLD	R2912	
+300 vdc	25% UNLD	R2911, R2910	J2906, J2914
	NOR	R2908, R2909	
	25% UNLD	R2906, R2907	
−300 vdc	25% OVLD	R2904, R2905	J2905, J2914
	NOR	R2902, R2903	
	25% OVLD	R2901	

5-4. Dummy Load, Electrical DA-206/MPQ-4A (fig. 5-6)

a. General. Dummy Load, Electrical DA–206/MPQ–4A provides fixed-load terminations, a load selecting switch, and test points for bench servicing the C–2014/MPQ–4A.

b. *Power Input.* When placed in a test setup, POWER INPUT connector J2901 receives single-phase, ac power (L1 and LN) from J2608 of J–982/MPM-49. Power is connected to the C-2014/MPQ–4A through connector J2904. Test jacks (J2926 and J2927) provide convenient terminations for testing the primary power input.

c. *C–2014/MPQ-4A Terminations.* Outputs from the C-2014/MPQ-4A are applied at J2904 as shown in figure 5–6. The +28-volt dc Control-Power Supply C-2014/MPQ–4A output is terminated in fixed-load resistor R2931. The +440-+220-, and -220-volt dc inputs are terminated in an adjustable load network through load switch S2903. This three-position rotary switch permits selecting load resistor networks for testing the regulated outputs of the C-2014/MPQ-4A during 25-percent overload, normal, and 25-percent underload conditions. Each regulated dc input from the C–2014/MPQ–4A is provided with a corresponding test jack (J2919 through J2921). These jacks are used to test the regulated input voltages under each selected load condition.

d. Load Networks. The following chart is provided to simplify the circuit description of the DA–206/MPQ–4A. This chart lists the resistors forming the load network for each input; the corresponding setting of load selector switch S2903 (where applicable) ; and the associated test jacks used when taking voltage measurements. Refer to figure 5–6 to identify each circuit.

J2903 input	S2903 position	Load network	Test jacks
+28 vdc	N/A	R2931	J2922, J2923
+220 vdc	25% UNLD	R2927	J2920, J2925
	NOR	R2926	
	25% OVLD	R2925	
−220 vdc	25% UNLD	R2923, R2924	J2919, J2925
	NOR	R2921, R2922	
	25% OVLD	R2919, R2920	
+440 vdc	25% UNLD	R2930	J2921, J2925
	NOR	R2929	
	25% OVLD	R2928	

5-5. Mixer Stage, Frequency CV-662/G (fig. 5-7)

a. *General.* Mixer Stage, Frequency CV–662/G is used in the test setup for boresighting the AN/MPQ-4A. The mixer includes a frequency mixing network, three coaxial input terminations (J1, J2, and J3), an output scope termination (J4), a selector switch, and a potentiometer.

b. Circuit Description. As an aid in describing the operation of the CV–662/G, a simplified block

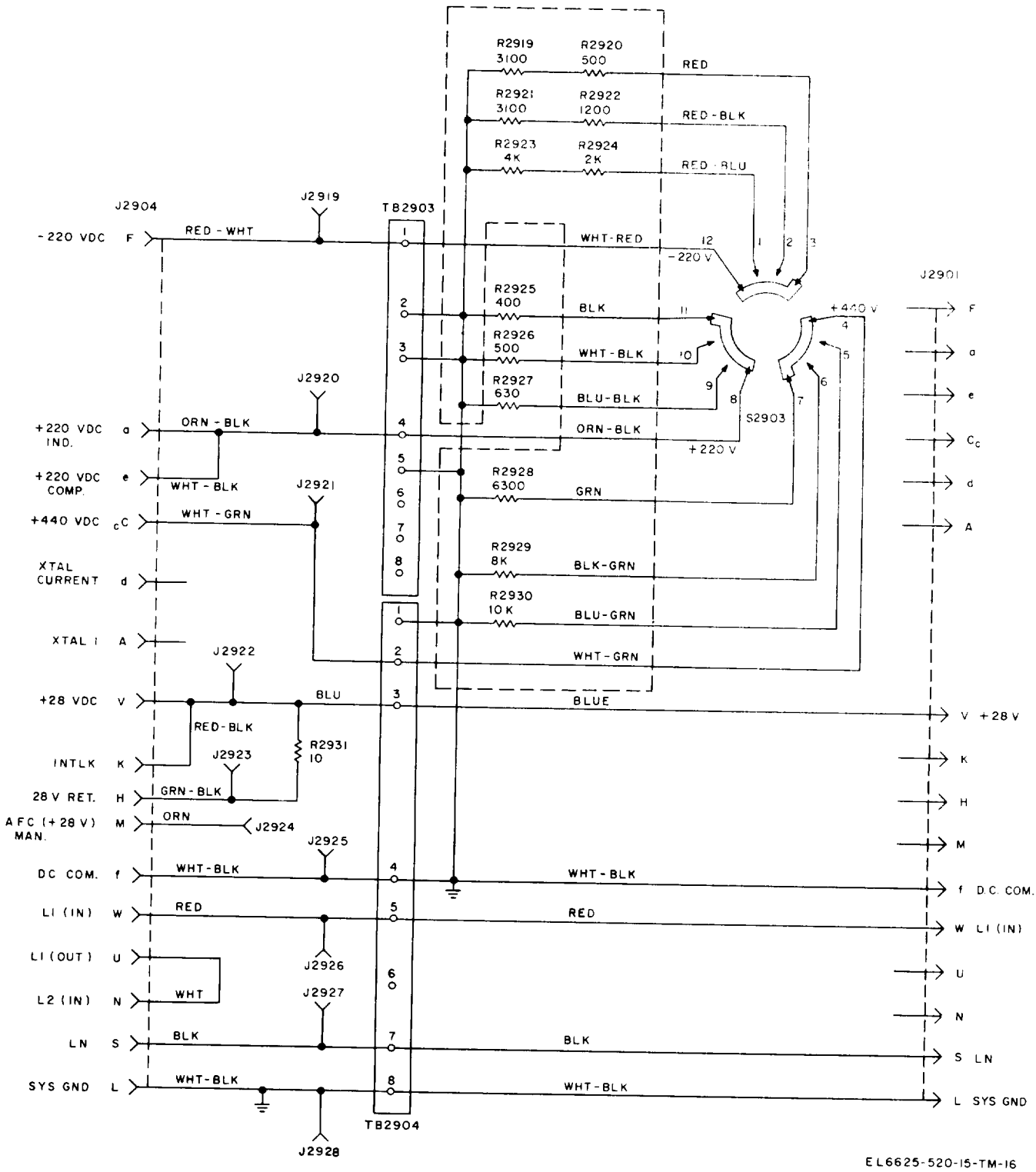


Figure 5-6. *Dummy Load, Electrical DA–206/MPQ–4A, schematic diagram.*

diagram of the basic test setup for boresighting the AN/MPQ–4A is illustrated in figure 5–7. Refer to figure 5–8 for complete circuit details. A strobe signal from the azimuth and range indicator is applied at J1. Capacitor C1 and resistor R3 couple this signal to diode CR1, where it is rectified and applied to load resistor R2. Potentiometer R1 permits adjustment of this input to a level suit-

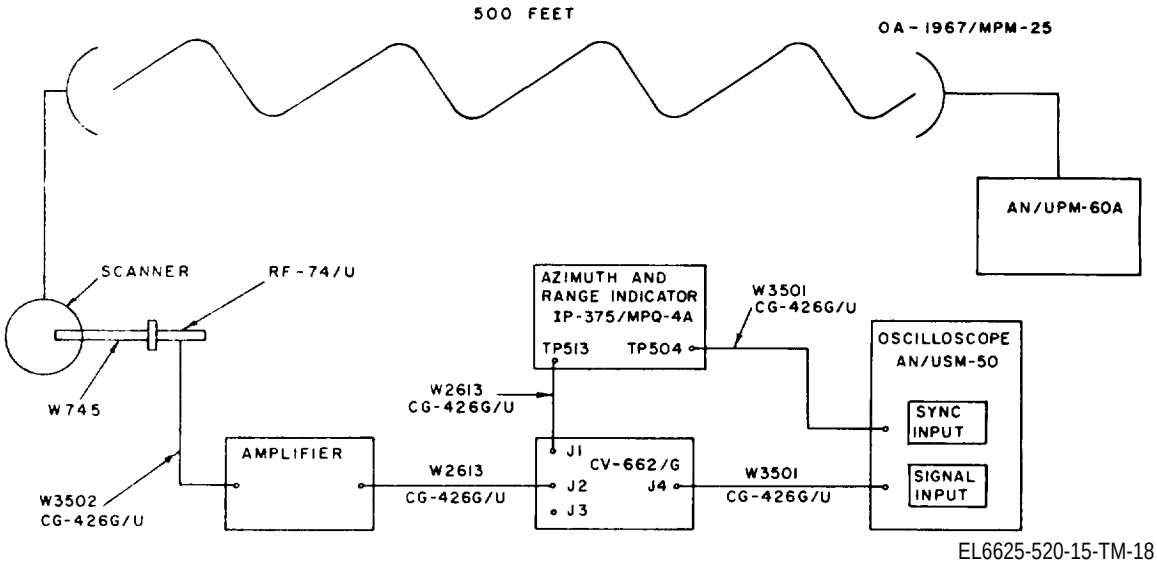


Figure 5–7. Boresighting.

able for display on the test oscilloscope connected at J4. The received signal from the radar scanner is connected to J2 through an external amplifier. The amplifier output is detected by diode CR2 and is also applied to load resistor R2, where it is mixed with the strobe signal. With switch S1 at the SCANNER position, the composite output across R2 is displayed on the oscilloscope. The input at J3 (TO TP511) is used to check the azimuth and range indication trigger output. This signal can be observed on the oscilloscope when S1 is at the TRIGGER position.

5–6. Attenuator, Variable CN-491/G

a. General. Attenuator, Variable CN–491/G is a precision waveguide attenuator that provides calibrated attenuation from O to 50 db at any frequency in the 12.4- to 18- GigaHertz (GHz) range. The CN–491/G is used for adjusting waveguide power levels in various test setups when bench servicing RF components of the AN/MPQ-4A. A knob is used to set the attenuation and is read direct on the calibrated dial. A white background strip moves behind the dial window and flags the range of attenuation to be read. Setting the calibrated dial at *MAX* provides a maximum attenuation of at least 70 db.

b. *Principles of Operation.*

(1) Basically, the CN–491/G consists of three sections of waveguide in tandem. In each section, a resistive film is placed across the guide. The middle section is a short length of round guide and is free to rotate radially with respect

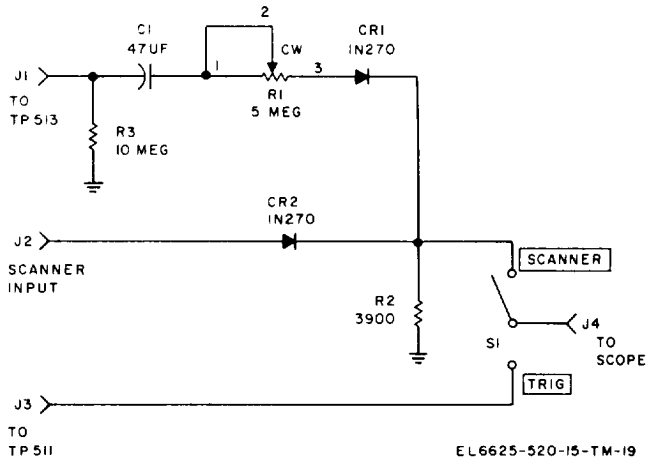


Figure 5-8. Mixer *Stage, Frequency CV-662/G, schematic diagram.*

to the two fixed end sections. The end sections are rectangular-to-round waveguide transitions in which the resistive films are normal to the E-field of the applied wave. The construction is symmetrical and the device is bidirectional.

(2) When all films are aligned, the E-field of the applied field is normal to all films. When this occurs, no current flows in the films and no attenuation occurs. If the center film is rotated to some angle/Ø, the E-field can be considered to be split into two orthogonal components: E sin Ø in the plane of the film, and E cos 0 at right angles to it. The E sin Ø component is absorbed by the film, while the E cos Ø component, oriented at an angle Ø with respect to the original wave, is passed unattenuated to the third section.

When it encounters the third film, the E cos Ø component is absorbed, and the E cost 2Ø component emerges at the same orientation as the original wave. The attenuation is thus ideally proportional only to the angle to which the center film is rotated and is completely independent of frequency. In db terms, the attenuation is equal to 40 log cos Ø.

(3) Maximum attenuation of the attenuator exceeds the 50-db calibrated range by at least 20 db, but the characteristics in this range are not controlled. Theoretically, the attenuator is capable of high attenuation. In practice, this property is modified by the fact that the resistive film in the middle section cannot completely absorb the E sin Ø component. Hence, a small leakage component is passed to the output. For high attenuation (above 50 db), the leakage component begins to approach the magnitude of the desired output of the attenuator. Ultimate attenuation of this device thus becomes limited by the attenuation of the center rotating film which is 70 db or more.

(4) The accuracy of the attenuator does not depend on the stability of the resistive films; as long as their attenuation is high and remains high, performance is not affected.

5-7. Attenuator, Variable CN-492/G

a. General Attenuator, Variable CN–492/G is a direct reading variable flap attenuator that provides calibrated attenuation from O to 20 db at any frequency in the 12.4- to 18-GHz range, The CN–492/G is used for adjusting waveguide power levels or isolating the signal source when bench servicing RF components of the AN/MPQ-4A.

b. Principles of Operation. The CN–492/G consists of a slotted waveguide section into which a matched resistive strip is inserted. Attenuation is accomplished by varying the depth of penetration of the resistive material into the waveguide E-field. Basically, this causes a current to flow in the resistive material which absorbs power from the waveguide (causes attenuation). When penetration is greatest attenuation is maximum. Zero db attenuation is provided when the resistive strip is removed from the field, Setting the value of attenuation is performed by use of the calibrated dial. When fully clockwise, the attenuator is at 0 db. When the dial is turned fully counterclockwise (penetration is greatest), the attenuator is set at 20 db.

5-8. Coupler, Directional CU-673/U

a. General. Coupler, Directional CU–673/U is used for bench servicing, and performing vswr measurements of RF components of the AN/NPQ–4A. The directional coupler consists of a main waveguide, which is a straight length of guide terminated in standard flanges and joined to an auxiliary arm, and an auxiliary arm which is a length of waveguide with one end terminated in a standard flange (for extracting or applying power) and the other end terminated in a matched load. The guides are joined (coupled) through their common wall by an array of coupling holes which provide the directional properties.

b. *Principles of Operation.* The directional coupler can extract a known fraction of power flowing in a transmission line or introduce power into a line without disturbing the line characteristics. Output power from the auxiliary arm depends only on the power flowing in one direction in the main guide section. Conversely, power applied to the auxiliary arm will induce power flow into the main guide in one direction only. Therefore, the directional coupler is used in various test setups to measure and monitor power and frequency, and because of the high directional characteristics is used when performing vswr measurements. The amount of power coupled into the auxiliary guide depends upon the coupling factor. Coupling is the ratio of power applied to the main line in the forward direction versus power delivered at the auxiliary line. The power coupled into the auxiliary guide in the CN–673/U is 10 percent (10 db) of the power entering the main guide. Ideally, all power coupled into the auxiliary guide flows to the main guide. However, a small fraction flows in the opposite direction and is absorbed by the termination. The ratio (in db) of forward power to reverse power flow in the auxiliary guide is the directivity of the coupler, The minimum directivity (attenuation of reverse flow) of the CU–673/U is 40 db.

5-9, Cabinet for Control–Power Supply C-2014/MPQ-4A (fig. 5-9)

Single-phase, 120-volt ac power is applied to connector J2632 on the back of the cabinet for Control-Power Supply C–2014/MPQ-4A. The ac line is fused by F2605 (0.125 ampere). Single-pole switch S2613 controls power to blower motor B2601, and lights indicator I2607.

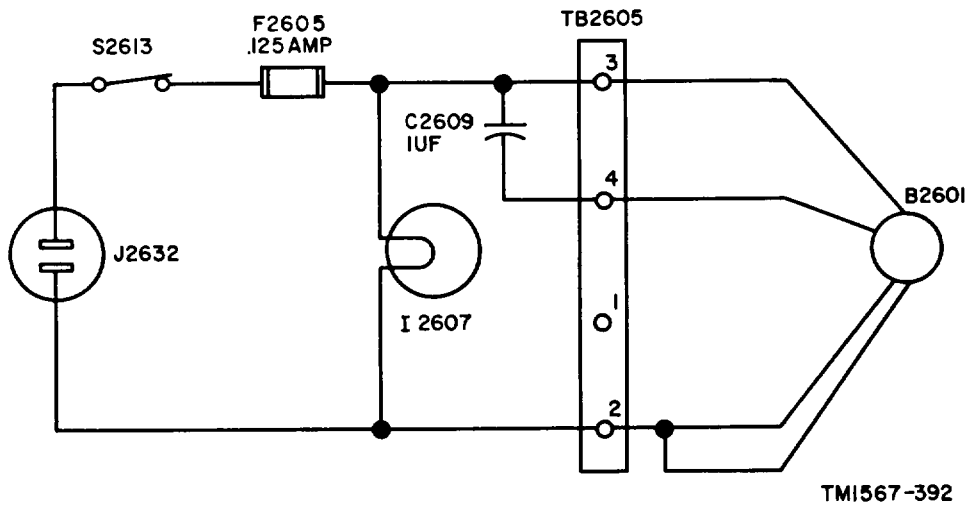


Figure 5-9. *Cabinet for Control-Power Supply C–2014/MPQ–4A, schematic diagram.*

CHAPTER 6

TROUBLESHOOTING

Section I. GENERAL TROUBLESHOOTING INFORMATION

WARNING

High voltages are present in units of the MK–673/MPQ–4A, and safety precautions should be observed. Potentials up to 230 volts ac and +440 volts de exist at several points throughout the equipment when power is applied,

6-1. General Instructions

Troubleshooting at genera] support and depot categories includes all of the techniques outlined at operator and organizational categories of maintenance, and any special or additional techniques required to isolate a defective part and affect restoration of the equipment to service. Sections II and III of this chapter describe the test procedures and troubleshooting methods required for Dummy Loads, Electrical DA-205/MPQ-4A and DA–206/MPQ–4A. Test and troubleshooting procedures for Box, Interconnecting J–982/MPM-49 and Mixer Stage, Frequency CV–662/G are described in sections IV and V. All other units of the MK–763/MPQ–4A are described in other publications (app. A). Refer to chapter 1 for a *com*-plete listing of those units and their associated publications.

6-2. Organization of Troubleshooting Procedure

a. General. The initial requirement for a logical service procedure is to isolate the faulty unit or area of operation. This may be determined by the nature and type deficiency or abnormality, Next, isolate or locate the specific cause. This may be a defective component, or the result of some mechanical failure. For the most part, normal operational use of the MK-673/MPQ-4A will indicate the location and probable nature of the defect, In some cases, isolation of a fault to a given component will require voltage and/or resistance measurements.

b. Localization. Maintenance Kit, Electronic Equipment MK-673/MPQ-4A consists of test equipment and power sources for bench servicing and testing units of Radar Set AN MPQ–4A. The MK–673/MPQ–4A also provides stitching facilities, terminations, and cables for interconnecting units of the MK-673/MPQ–4A to the AN/MPQ-4-A and other test equipment. Each unit of the MK–673/MPQ-4A is virtually independent; therefore, localization of faults to a unit is generally self-evident during operational use and ‘or during maintenance checkout of the equipment.

c. *Isolation.* Refer to paragraphs 6–4 through 6–9 and the associated troubleshooting charts for specific resistance and voltage measurements that should be obtained at significant points in each unit. Deviations from the norm will define the circuit and finally, tile component or other circuit element causing a malfunction. Frequently, visual inspection will disclose a source of trouble as indicated by thermal discoloration or evidence of mechanical failure.

d. Resistance Measurements. No special precautions are required when using an ohmmeter with respect to polarity or range unless stated, However, be certain all power is removed from a unit before using an ohmmeter. Additionally, disconnect external units that may cause loading effects when taking resistance measurements. Failure to do so may result in an incorrect fault isolation,

e. *Voltage Measurements.* Unless otherwise specified, voltage readings may be taken using a multimeter set at the appropriate voltage range,

f. Test Points. To prevent needless disassembly of the equipment, most of the test points specified in any procedure use either built-in test jacks or connector pins available at the external plug con-

nectors. Appropriate references are made to illustrations showing the specified test point.

g. Intermittent Troubles. Trouble of an intermittent nature is occasionally encountered. When trying to isolate the cause, it may be necessary to induce the condition by tapping, jarring, or probing the equipment. A cold solder joint or resin connection may be the cause. Visual inspection with a magnifying glass may aid in locating the defect.

6–3. Test Equipment Required

The only test equipment required for troubleshooting DA–205/MPQ-4A and DA–206/MPQ-4A, J–982/MPM–49, and mixer stage is Multimeter TS–352B/U (TM 11–6625–366–15).

Section II. TROUBLESHOOTING DUMMY LOAD, ELECTRICAL DA–205/MPQ-4A

6-4. Fault localization and Isolation

Faulty functioning of the DA-205/MPQ-4A *may* or may not become apparent while bench servicing the PP–1588/MPQ–4A. *For example,* if a load resistor in the DA–205/MPQ–4A opens, the voltage measured at the test points on the DA–205/MPQ–4A (associated with that particular load circuit) will be significantly larger than normal. However, because of the regulating qualities of the PP–1588/MPQ-4A, a resistance value change beyond tolerance, but not excessive) may go unnoticed. The only way to detect this type of fault is by arcurate resistance measurements. In general, a simple voltage measurement can indicate a faulty DA–205/MPQ–4A. However, this is not entirely conclusive and should be followed by a corresponding resistance check to verify that a fault does or does not exist. Fault isolation procedures using voltage measurements are given in the voltage measurement fault isolation chart (para 6–5). Isolation procedures using resistance measurements are given in the resistance measurement fault isolation chart (para 6–6). To simplify voltage measurement fault isolation, disconnect the DA–205/MPQ–4A from the AN/MPQ-4A test circuit (if still connected), and using only operational components of the MK-673/MPQ–4A, connect the test setup illustrated in B, figure 4–1. After all desired voltage measurements have been made, perform the corresponding resistance measurements (as required) to isolate the faulty component. The resistance measurement procedures are set up so that a circuit is checked to verify a fault without disassembling the unit. After the fault is verified, the DA–205/MPQ–4A cover mut be removed for final measurements and repair.

6–5. DA–205/MPQ–4A Voltage Measurement Fault Isolation Procedures

Step No.	Test point	Load selector switch (S2902) setting	Voltage indication	Isolation procedure
1	DA–205/MPQ–4A	None		*a.* Connect test setup (B, fig. 4–1). *b.* Turn on Motor Generator PU–20C/C (TM 11–6125–200–10). *c.* Set 1ø POWER switch (on J–982/MPM–49) at down (ON) position. *d.* Energize PP–1588/MPQ–4A (TM 11–5840–208–10). *e.* On DA–205/MPQ–4A, set ON–OFF switch (S2–901) to ON. *f.* Make all desired voltage measurements as prescribed in steps 2 through 7.
2	J2905 to J2914 (–300–VDC).	*a.* 25% UNLD	*a.* –300 vdc ± 5	*a.* If voltage is abnormal and all desired voltage measurements have been obtained, remove all power.
		b. NOR	*b.* –300 vdc ±5	*b.* Disconnect cable at J2903.
		c. 85% OVLD	*c.* –300 vdc ±5	*c.* Take applicable measurements given in the resistance measurement chart (para 6–6, step 1).
3	J2906 to J2914 (+300–VDC).	*a.* 25% UNLD	*a.* +300 vdc ±5	*a.* Same as 2*a*.
		b. NOR	*b.* +300 vdc ±5	*b.* Same as 2*b*.
		c. 25% OVLD	*c.* +300 vdc ±5	*c.* Take applicable measurements given in resistance measurement chart (para 6–6, step 2).
4	J2907 to J2914 (+150–VDC).	*a.* 25% UNLD	*a.* +150 vdc ±3	*a.* Same as 2*a*.
		b. NOR	*b.* +150 vdc ±3	*b.* Same as 2*b*.
		c. 25% OVLD	*a.* +150 vdc ±3	*c.* Take applicable measurements given in resistance measurement chart (para 6–6, step 3).
5	J2908 to J2909 (6.4–VAC).	NOR	6.4 ±0.32 vac	*a.* Same as 2*a*. *b.* Same as 2*b*. *c.* Take measurements given in resistance measurement chart (para 6–6, step 4).
6	J2910 to J2911 (6.4–VAC).	NOR	6.4 vac ±0.32	*a.* Same as 2*a*. *b.* Same as 2*b*. *c.* Take measurements given in resistance measurement chart (para 6–6, step 5).
7	J2912 to J2913 (6.4–VAC).	NOR	6.4 vac ±0.32	*a.* Same as 2*a*. *b.* Same as 2*b*. *c.* Take measurement given in resistance measurement chart (para 6–6, step 6).
8	J2916 to J2914	NOR	27.5 vdc	*a.* Same as 2*a*. *b.* Disconnect cables at J2902 and J2903. *c.* Check continuity of ON–OFF switch S2901.
9	J2918 to J2917)	NOR	120 vac	*a.* Same as 2*a*. *b.* Same as 8*b*. *c.* Same as 8*c*.

NOTE

The following resistance measurements are taken with all power and cables removed.

Step No.	Initial test point	Load selector switch S2902 setting	Normal indication	Isolation procedure
1	J2905 to J2914 (−300-VDC).	*a.* 25% UNLD	*a.* 13,500 ohms ±5%	*a.* If abnormal, measure resistance (1,500 ohms ± 5%) from J2905 to junction of R2904 and R2905. If normal, replace R2904. If abnormal, check continuity from J2905 to S2902, pin 1. If zero resistance, replace R2905. If other than zero, repair or replace switch.
		b. NOR	*b.* 10,000 ohms ±5%	*b.* If abnormal, measure resistance (5,000 ohms ± 5%) from J2905 to junction of R2902 and R2903. If normal, replace R2902. If abnormal, check continuity from J2905 to S2902, pin 2. If zero resistance, replace R2903. If other than zero, repair or replace switch.
		c. 25% OVLD	*c.* 8,000 ohms ±5%	*c.* If abnormal, measure resistance (8,000 ohms ± 5%) across R2901. If normal, repair or replace switch S2902. If abnormal, replace R2901.
2	J2906 to J2914 (+300-VDC).	*a.* 25% UNLD	*a.* 4,700 ohms ±5%	*a.* If abnormal, measure resistance (1,600 ohms ± 5%) from J2906 to junction of R2910 and R-2911. If normal, replace R2910. If abnormal, check continuity from J2905 to S2902, pin 9. If zero resistance, replace R2911. If other than zero, repair or replace switch.
		b. NOR	*b.* 3,500 ohms ±5%	*b.* If abnormal, measure resistance (400 ohms ±5%) from J2906 to junction of R2908 and R2909. If normal, replace R2908. If abnormal, check continuity from J2905 to S2902, pin 10. If zero resistance, replace R2909. If other than zero, repair or replace switch.
		c. 25% OVLD	*c.* 2,700 ohms ±5%	*c.* If abnormal, measure resistance (200 ohms ±5%) from J2906 to junction of R2906 and R2907. If normal, replace R2906. If abnormal, check continuity from J2905 to S2902, pin 11. If zero resistance, replace R2907. If other than zero, repair or replace switch.
3	J2907 to J2914 (±150-VDC).	*a.* 25% UNLD	*a.* 1,000 ohms ±5%	*a.* If abnormal, measure resistance (1,000 ohms ± 5%) across R2914. If normal, repair or replace switch S2902. If abnormal, replace R2914.
		b. NOR	*b.* 800 ohms ±5%	*b.* If abnormal, measure resistance (800 ohms ±5%) across R2913. If normal, repair or replace switch S2902. If normal, replace R2913.

		c. 25th OVLD	*c.* 630 ohms ±5%	*c.* If abnormal, measure resistance (630 ohms ± 5%) across R2912. If normal, repair or replace switch S2902. If abnormal, replace R2912.
4	J2908 to J2909 (6.4-VAC).	Not applicable	7 ohms ±5%	If abnormal, measure resistance (5 ohms ±5%) from J2908 to junction of resistors R2915 and R2916. If normal, replace R2916. If abnormal, replace R-2915.
5	J2910 to J2911 (6.4-VAC).	Not applicable	3.1 ohms ±5%	If abnormal, replace R2917.
6	J2912 to J2913 (6.4-VAC).	Not applicable	2.5 ohms ±5%	If abnormal replace R2918.

Section III. TROUBLESHOOTING DUMMY LOAD, ELECTRICAL DA-206/MPQ-4A

6-7. Fault Localization and Isolation

In general, fault localization and isolation procedures for the DA–206/MPQ-4A are the same as those described for the DA–205/MPQ-4A (para 6–4), except that the DA–206/MPQ-4A is used in conjunction with Control—Power Supply C-2014/MPQ-4A, and the test setup is shown in A, figure 4-1. Voltage measurement fault isolation procedures are given in paragraph 6-8. Corresponding resistance measurement fault isolation procedures are given in paragraph 6-9.

6-8. DA-206/MPQ-4A, Voltage Measurement Fault Isolation Procedures

Step No.	Test point	Load selector switch S2903	Voltage indication	Isolation procedure
1	DA-206/MPQ-4A	Not applicable	Not applicable	*a.* Connect test setup (fig. 4-1). *b.* Turn on Motor Generator PU-335/MPM-25. *c.* Set 3Ø POWER switch (on J-982/MPM-49) at down (ON) position. *d.* Energize C-2014/MPQ-4A (TM 11-5840-208-10). *e.* Make all desired voltage measurements as described in steps 2 through 5.
2	J2919 to J2925 (−220-VDC).	*a.* 25% UNLD	*a.* −220 ±3 vdc	*a.* If voltage is abnormal and all desired voltage measurements have been taken, remove all power.
		b. NOR	*b.* −220 ±3 vdc	*b.* Disconnect cable at J2904.
		c. 25% OVLD	*c.* −220 ±3 vdc	*c.* Take applicable measurements given in the resistance measurement chart (para 6-9, step 1).
3	J2920 to J2925 (+220-VDC).	*a.* 25% UNLD	*a.* +220 ±3 vdc	*a.* Same as 2*a*.
		b. NOR	*b.* +220 ±3 vdc	*b.* Same as 2*b*.
		c. 25% OVLD	*c.* +220 ±3 vdc	*c.* Take applicable measurements given in resistance measurement chart (para 6-9, step 2).
4	J2921 to J2925 (+440-VDC).	*a.* 25% ONLD	*a.* +440 ±5 vdc	*a.* Same as 2*a*.
		b. NOR	*b.* +440 ±5 vdc	*b.* Same as 2*b*.
		c. 25% OVLD	*c.* +440 ±5 vdc	*c.* Take applicable measurements given in resistance measurement chart (para 6-9, step 3).
5	J2922 to J2923 (+28-VDC).	Any position	+28 +2V	*a.* Same as 2*a*. *b.* Same as 2*b*. *c.* Take applicable measurements given in resistance measurement chart (para 6-9, step 4).

6-9. DA-206/MPQ-4A, Resistance Measurement Fault Isolation Procedures

NOTE

The following resistance measurements are taken with all power and cables removed.

Step No.	Initial test point	S2903 setting	Normal indication	Isolation procedure
1	J2919 to J2925 (−220-VDC).	*a.* 25% UNLD	*a.* 6,000 ohms ±5%	*a.* If abnormal, measure resistance (2,000 ohms ± 5%) from J2919 to junction of R2923 and R-2924. If normal, replace R2923. If abnormal, check continuity from J2919 to S2903, pin 1. If more resistance, replace R2924. If other than zero repair or replace switch.
		b. NOR	*b.* 4,300 ohms ±5%	*b.* If abnormal, measure resistance (1,200 ohms ± 5%) from J2919 to junction of R2921 and R2922. If normal, replace R2921. If abnormal, check

Step No.	Initial test point	S2903 setting	Normal indication	Isolation procedure
				continuity from J2919 to S2903, pin 2. If zero resistance, replace R2922. If other than zero, repair or replace switch.
		c. 25% OVLD	*c.* 3,600 ohms ±5%	*c.* If abnormal, measure resistance (500 ohms ±5%) from J2919 to junction of R2919 and R2920. If normal, replace R2919. If abnormal, check continuity from J2919 to S2903, pin 3. If zero resistance, replace R2920. If other than zero, repair or replace switch.
2	J2920 to J2925 (+220-VDC).	*a.* 25% UNLD	*a.* 630 ohms ±5%	*a.* If abnormal, measure resistance (630 ohms ± 5%) across R2927. If normal, repair or replace switch S2903. If abnormal, replace R-2927.
		b. NOR	*b.* 500 ohms ±5%	*b.* If abnormal, measure resistance (500 ohms ±5%) across R2926. If normal, repair or replace switch S2903. If abnormal, replace R2926.
		c. 25% OVLD	*c.* 400 ohms ±5%	*c.* If abnormal, measure resistance (400 ohms ± 5%) across R2925. If normal, repair or replace switch S2903. If abnormal, replace R2925.
3	J2921 to J2925 (+440-VDC).	*a.* 25% UNLD	*a.* 10,000 ohms ±5%	*a.* If abnormal, measure resistance (10,000 ohms ±5%) across R2930. If normal, repair or replace switch S2903. If abnormal, replace R2930.
		b. NOR	*b.* 8,000 ohms ±5%	*b.* If abnormal, measure resistance (8,000 ohms ± 5%) across R2929. If normal, repair or replace switch S2903. If abnormal, replace R2929.
		c. 25% OVLD	*c.* 6,300 ohms ±5%	*c.* If abnormal, measure resistance (6,300 ohms ± 5%) across R2928. If normal, repair or replace switch S2903. If abnormal, replace R2928.
4	J2922 to J2923 (+28-VDC).	Not applicable	10 ohms ±5%	If abnormal, replace R2931.

Section IV. TROUBLESHOOTING BOX, INTERCONNECTING J-982/MPM-49

6-10. Fault Localization and Isolation

Faulty functioning of the J-982/MPH-49 is readily apparent during normal operational use, This unit is primarly an all interconnection and power distribution device, and contains few active circuit elements. Component failures, such as resistors used in termination ciruits can be detected when attempting a test required these components. The failure of these components can be verified by taking simple resistance measurement. Failure to distribute applied voltages can be detected when trying to operate the external circuit or unit. To aid in locating a faulty component or circuit, three troubleshooting charts are provided. These charts cover each major function of the J-982/MPM-49 and include troubleshooting three-phase power distribution circuits, one-phase power distribution circuits, and de power distribution circuits. To assist in detecting a fault or verifying that that above circuits are functioning properly, cor--responding power distribution (both ac and de) voltage measurement procedures are also given.

6-11. Troubleshooting 30 Power Distribution Circuits

a. 3Ø Power Distribution Troubleshooting Chart.

Item No.	Trouble syptom	Probable cause	Corrective measure
1	One or more blown-fuse indicators (I2602, I2603, or I2604) light.	Corresponding fuse (F2602, F2603, or F25604) blown.	Replace blown fuse.
2	3Ø POWER indicator I2605 does not light. Blown-fuse indicators are extinguished.	a. Faulty indicator	a. Replace indicator I2605.
		b. 3Ø POWER switch S2602 defective.	b. Check continuity of S2602. Replace if defective.
		c. Phase sequence network (R2605, R2606, R2607, and C2601).	c. Check phase sequence network (para 6-11c) and replace family component
3	Blown-fuse indicator I2602 does not light when fuse F2603 is removed from socket.	a. Faulty indicator	a. Replace I2602.
		b. Open series dropping resistor.	b. ReplaceR2602.
4	Blown-fuse indicator I2603 does not light when F2603 is removed from socket.	a. Faulty indicator	a. Replace I2603.
		b. Open series droping resitor.	b. Replace R2603.
5	Blown-fuse indicator I2604 does not light when F2604 is removed from socket.	a. Faulty indicator	a.Replace I2604.
		b. Open series droppiing resistor.	b.Replace R2604.
6	One or more legs of 120 volts 3Ø power (L1, L2, L3,LN) are not available at ANT, SIM, POWER connector J2621. 3Ø POWER indicator is lighted.	ANT: SIM POWER switch S-2609 is defective.	Check continuity of S2609. Replace if defective.

b. Checking Ac Voltages. Ac voltage measurements may be used to verify that 30 power is applied and properly distributed. The present or lack of voltage at significant points in the J-982/MPM-49 indicates possible trouble. Refer to the the troubleshooting chart (a above) for more specific troubleshooting information. Refer to figures 5-1 and FO--2 for circuit details. Perform ac voltage measurements as follows:

(1) Connect test setup (C, fig. 4-1).

(2) Turn on Motor Generator PU-335/MPM-25 (TM 11-5840-208-30).

(3) Set 3Ø POWER switch S2602 to the on position.

(4) Set ANT. SIM. POWER switch S2609 to the on position.

(5) Check voltage from each line to neutral (120 volts ac) and from line-to-line (208 volts ac) at each point listed below. Start with TB2607.

Power/line	TB2607	J2621	J2605
L1(Ø1)	1	A	A
L2(Ø2)	3	B	J
L3(Ø3)	4	C	M
LN (neutral)	2	D	K

c. Checking Phase Sequence Network. The phase sequence network consists of resistors R2605, R2606, and R2607; capacitor C2601; and neon indicator I2605. This circuit is used to indicate that 3Ø power is applied and that each phase is properly sequenced. To check operation of this circuit, connect power as described in b above. If indicator I2605 does not light

and the power input is known to be operating, replace I2605. If this does not cure the problem, remove all power and disconnect the three-phase inputs (L1, L2, and L3) at TB2607 (terminals 8, 10, and 9 respectively). Remove indicator I2605 from its socket and check each resistor and C2601 with al ohmmeter. Replace the defective component.

6-12. Troubleshooting 10 Power Distribution Circuits

a. 1Ø Power *Distribution Troubleshooting Chart.*

Item No.	Trouble symptom	Probable cause	Corrective measure
1	1Ø POWER indicator I2606 does not light.	a. Blown fuse F2601	a. Remove fuse, and check continuity. Replace F2601 if defective.
		b. Indicator I2606 open	b. Remove indicator and check continuity. Replace I2606 if open.
		c. Faulty switch S2601	c. Check switch continuity. Replace S2601 if defective.
2	120-volt, single-phase power (L1, LN) is not available at AFC POWER connector J2601.1Ø POWER indicator lights.	AFC POWER switch S2606 is defective.	Check switch continuity. Replace if defective.
3	120-volt single-phase (L1, LN) is not available at MOD. TRIG. POWER connector J2603. 1Ø POWER indicator lights.	a. DV OVLD relay K2601 defective.	a. Check K2601 (para 6-12c) and replace if defective.
		b. MOD. TRIG. POWER switch S2603 faulty.	b. Check continuity of S2603. Replace if defective.
4	120-volt, single-phase power (LN FIL, L1 FIL) is not available at ANT. SIM. Power connector J2621. 10 POWER indicator lights.	c. Switch settings incorrect. See note.	a. Check settings of S2609 and S2610.
		b. Switch S2609 faulty	b. Check continuity of S2603. Replace if defective.
	NOTE. To apply 120-volt filament voltage to J2621 ANT. SIM. POWER switch S2609 must be at down (ON) position, and SIM. FOR IND/SIM. FOR COMP. switch S2610 must be set at SIM. FOR IND.	c. Switch S2601 faulty	c. Check continuity of S2610. Replace if defective.
5	120-volt, single-phase power (LX, I1) not available at THYRATRON POWER connector J2630. 1Ø POWER indicator lights.	THYRATRON POWER switch S2611 faulty.	Check continuity of S2611. Replace if defective.

b. Checking Ac Voltages. Ac voltage measurements may be used to verify that 1Ø power is applied and is properly distributed. The presence or lack of voltage at significant points in the J-982/MPM-49 indicates possible trouble. Refer to the troubleshooting chart in *a* above for more specific troubleshooting information. Refer to figures 5-2 and FO-2. Perform single-phase voltage measurements as follows:

(1) Connect test setup (C, fig. 4-1).

(2) Turn on Motor Generator PU-335/MPM-25.

(3) Set 1Ø POWER switch S2601 to the on position.

(4) Set AFC POWER switch S2606 to the on position.

(5) Set MOD. TRIG. POWER switch S2603 to the on position.

(6) Set ANT. SIM. POWER switch S2609 to the on position.

(7) Set SIM. FOR IND/SIM. FOR COMP. switch S2610 at SIM. FOR IND.

(8) Set THYRATRON POWER switch S2611 to the on position.

(9) Check voltage from L1 to LN (120 volts ac) at each point listed below. Start with TB-2607.

Connector	Terminal of pin
TB2607	6-5
J2601	U-Q
J2603	C-D
J2603	E-D
J2604	A-C
J2606	C-P
J2608	W-S
J2621	A-D
J2621	H-J
J2630	A-C

c. Checking Dc overload Relay K2601, Check relay K2601 for faulty operation as follows:

(1) Connect test set up as shown in C, figure 41.

(2) With power off, connect jumpers from TB2601 to TB2602, as follows: TB2601-7 to TB2602-7; and TB2601-1 to TB2602-6.

(3) Turn on Motor Generator PU-20C/C, (TM 11-6125-200-10).

(4) Turn on Motor Generator PU-335/MPM-25.

(5) Set 30 POWER switch S2602 to the on position.

(5.1) Set 10 POWER switch S2601 to the on position.

(6) Energize Control — Power Supply C-2014/ /MPQ-4A (TM 11-5840-208-10).

(7) Set MOD. TRIG. POWER switch C2603 to the on position.

(8) Using a multimeter, check for 120 volts ac between pins E and D of J2603. If voltage is not present, relay K2601 is functioning. If 120-volt ac is present, the relay is faulty. Remove power and replace relay K2601. Be sure to remove jumpers installed in (2) above.

6-13. Troubleshooting Dc Power Distribution Circuits

a. *Dc Power Distribution Troubleshooting Chart.*

Item No.	Trouble symptom	Probable cause	Corrective measure
1	+300 volts dc not available at STC POWER connector J2602	STC POWER switch S2605 faulty.	Check switch continuity. Replace S2605 if defective.
2	+300 volts dc not available at MOD. TRIG. POWER connector.	MOD. TRIG. POWER switch S2603 faulty.	Check switch continuity. Replace S2603 if defective.
3	—300 volts dc and/or + 150 volts dc not available at AFC POWER connector J2601.	AFC POWER switch S2606 faulty.	Check switch continuity. Replace S2606 if defective.
4	+ 150 volts dc not available at IF POWER connector J2607.	IF POWER switch S2607 faulty.	Check switch continuity. Replace S2607 if defective.
5	+440, +220, —220, and +27 volts dc (any one, all, or any combination) not available at ND POWER connector J2604.	IND. POWER switch S2608 faulty.	Check switch continuity. Replace S2608 if defective.
6	+27 volts dc range calibration not available at IND. POWER connector J2604.	RANGE MARKS RELAY & STC switch S2612 faulty.	Check switch continuity. Replace S2612 if defective.
7	+ 220 and/or —220 volts dc not available at ANT. SIM. POWER connector J2621.	ANT. SIM. POWER switch S2609 faulty.	Check switch continuity Replace S2609 if defective.
8	+220 and /or +27 volts dc not available at COMP. POWER connector J2605.	COMP. POWER switch S2604 faulty.	Check switch continuity. Replace S2604 if defective.

b. Checking Dc Voltage Distribution. Dc voltage measurements may be used to verify that all dc operating voltages are applied and properly distributed. The presence or lack of dc voltages at significant points in the J-982/MPM-49 indicates possible trouble. Refer to the troubleshooting chart in a above for more specific troubleshooting information. Refer to figures 5-4, 5-5, and FO-2. Check dc voltage distribution as follows:

(1) Connect test setup shown in C, figure 4-1.

(2) Turn on Motor Generator PU-20C/C (TM 11-6125-200-10).

(3) Turn on Motor Generator PU-335/MPM-25 (TM 11-5840-208-45).

(4) Set 3Ø POWER switch S2602 to the on position and energize Control—Power Supply C2014/MPQ-4A (TM 11-5840-208-10).

(5) Set 1Ø POWER switch S2601 to the on position and energize Power Supply PP-1588/MPQ-4A (TM 11-5840-208-10).

(6) Set all remaining switches on front panel of J-982/MPM-49 to the on position.

(7) Use the following chart to check each specified dc voltage.

Vdc being checked	Point of test
+300	J2602-Pins D to B
	J2603- Pins A to B
-300	J2601 -Pins N to F
+150	J2601-Pins B to F
	J2607- Pins E to H
+440	J2604-Pins L to F
+220	J2604-Pins M to F
	J2621- Pins F to G
	J2605- Pins G to C; and Pins H to C
—220	J2604 -Pins B to F
	J2621- Pins E to G
+27	J2604- Pins H to E; and Pins G to E
	J2605- Pins F to E
	J2606-Pins V to T

Section V. TROUBLESHOOTING MIXER STAGE, FREQUENCY CV-662/G

6-14. Fault Localization and Isolation

Faulty functioning of the CV-662/G is apparent during normal operational use. If the CV-662/G is suspected of being faulty, a quick point-to-point resistance check can be made to isolate the defective component.

6-15. Resistance Measurements

a. J1 input resistor R3, mixer load resistor R2, and SCANNER INPUT diode CR2 can be checked (using resistance measurements) without removing the CV-662/G cover. The cover must he removed to check the remaining components (C1, R1, and CR1).

b. To check diode CR2, place SCANNER_TRIG switch S1 at SCANNER position. Connect an ohmmeter to J4and J2. Observe meter polarity and check forword and reverse resistance of diode.

c. To check mixer load resistor R2, set SCANNER-TRIG switch at SCANNER position. Connect an ohmmeter to J4 and chassis ground. Resistance should be 3,900 ohms.

d. To check J1 input resitor R3, connect ohmmeter to J1 and chassis ground. Resistance should be 10 megohms.

CHAPTER 7

REPAIRS AND ADJUSTMENTS

Section I. REPAIRS

7-1. General Parts Replacement Techniques

a. No unusual procedures are involved in the replacement of parts in the MK–673/MPQ–4A. Be careful when replacing diodes. Avoid excessive heat when soldering; use a 25-watt, pencil-type solder iron. If possible, use a heat sink or clamp a pair of long-nosed pliers between a solder joint and the diode. Do not use a soldering gun in the vicinity of diodes as inductive voltages may cause possible damage to those components. Make certain that the unit undergoing repair is disconnected from all power sources.

b. When replacing components, avoid creating mechanical stresses or strain that may cause ultimate, if not immediate, breakdown. In general, the components of the MK-673/MPQ-4A are readily accessible; therefore, component replacement presents no major problems, and standard dismounting, remounting, and soldering techniques are used.

7-2. Replacement of Parts

a. Simulator, Antenna *Position SM–154/MPQ-*4A. Test and repair procedures for this unit ap-Fear in TM 11–6625–541-45. If tests disclose a fault, dismantle and repair the unit in accordance with the procedures given in TM 11–6625–541-45.

b. Motor Generator PU–20C/C. Test and repair procedures for this unit appear in TM 11-6125–200–35. If tests disclose a fault, dismantle and repair the unit in accordance with the procedures given in TM 11–6125–200-35.

c. *Motor Generator PU-935/MPM-25.* Test and repair procedures for this unit appear in TM 11–5840–208-45. If tests disclose a fault, dismantle and repair the unit in accordance with the procedure given in TM 11–5840–208-45.

d. Power Supply PP–1588/MPQ–4A and Control-Power Supply C-2014/MPQ–4A. Test and repair procedures for these units appear in TM 11-5840-208-30 and TM 11-5840-208-45, respectively. If tests disclose a fault, remove these units from their respective cabinets and repair the defective unit in accordance with the procedures given in the referenced publications.

e. Dummy Load, Electrical DA-205/MPQ–4A. Test procedures for this unit are given in chapter 6. To gain access to the chassis for repair, remove the bottom cover as described in paragraph 4-8d. Note that the internal resistor networks are mounted on a double-sided component board (fig. 7–1) with solder post terminals. To gain access to resistors on the underside of the component board, use the following procedure:

(1) Remove the four nuts and lockwashers that secure the component board to the mounting spacers.

(2) Because of lead length, board movement is limited. Carefully raise the component board clear of the spacers and tilt the board as required to gain access to the desired resistor.

(3) If the procedure in (2) above does not provide sufficient workspace, disconnect each lead that has a connection external to the board, and remove the board (with components mounted) from the chassis. This may be accomplished by disconnecting the leads at terminal boards TB-2901 and TB2902 (as required), and if necessary, unsoldering the connection at the appropriate solder post on the component board.

(4) To remove a resistor from the component board, unsolder the pigtails from the solder posts and remove the resistor from the spring clips.

f. Dummy Load, Electrical DA-206/MPQ-4A.

(1) Test procedures. Test procedures for this unit are given in chapter 6. To gain access to the chassis for repair, remove the bottom cover as described in paragraph *4–8d.* Note that resistors R2925, R2926, R2927, and R2931 are secured to the chassis (fig. 7–2) with angle

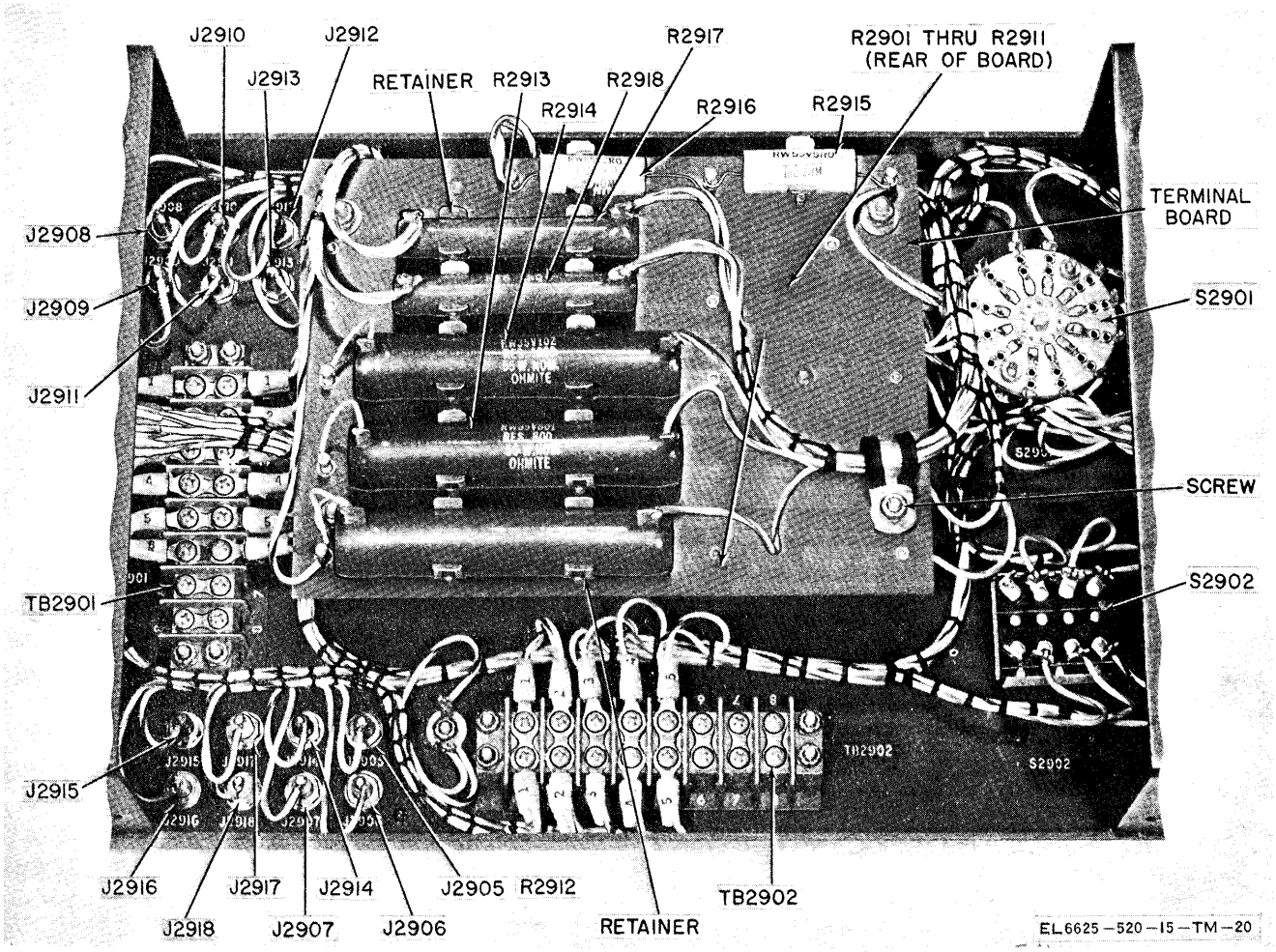


Figure 7-1. Dummy Load, Electrical DA-205/MPQ-4A location of parts.

brackets and a stud that passes through the hollow center of the wire-wound resistor. Also note that resistors R2919 through R2924, and resistors R2928, R2929, and R2930 are mounted on a vertical component, board. To remove bracket-mounted resistors, proceed as instructed in (2) below. To remove resistors on the component board, unsolder the lead in the tab at each end of the resistor and remove.

(2) Removal of bracket-mounted resistors (fig. 7-2). Unsolder the leads in the tabs at each end of the resistor that is to be removed. Next, remove the self-locking nut securing one end of the stud to the angle bracket. Grasp the resistor and withdraw the stud (and attached locking nut) from the other end of the resistor. Remove the resistor and bushings from the chassis. Remove the bushings from the resistor. If the bushings are cracked or otherwise deteriorated, replace them with new ones when installing a replacement resistor.

g. Box, Interconnecting J–982/MPM-49. Test procedures for this unit are given in chapter 6. To gain access to the interior of the unit for repair, remove the top cover as described in paragraph 4–8a. Removal and replacement of components is straightforward and does not require any special techniques. When it is difficult to gain access to a component for removal and replacement purposes, it may be necessary to disassemble further the J–982/MPM-49 (figs. 7–3 and 7–4): This would require partial disassembly of the front or end panels as necessary to facilitate the repair. Front panel removal is described in (1) below and end panel removal is described in (2) below.

(1) Front panel removal. To gain access to components mounted on back of the front panel (that are not readily accessible with the top cover removed), proceed as follows: Raise the door on the front panel to the fully open position. Remove the 10 self-tapping screws that se-

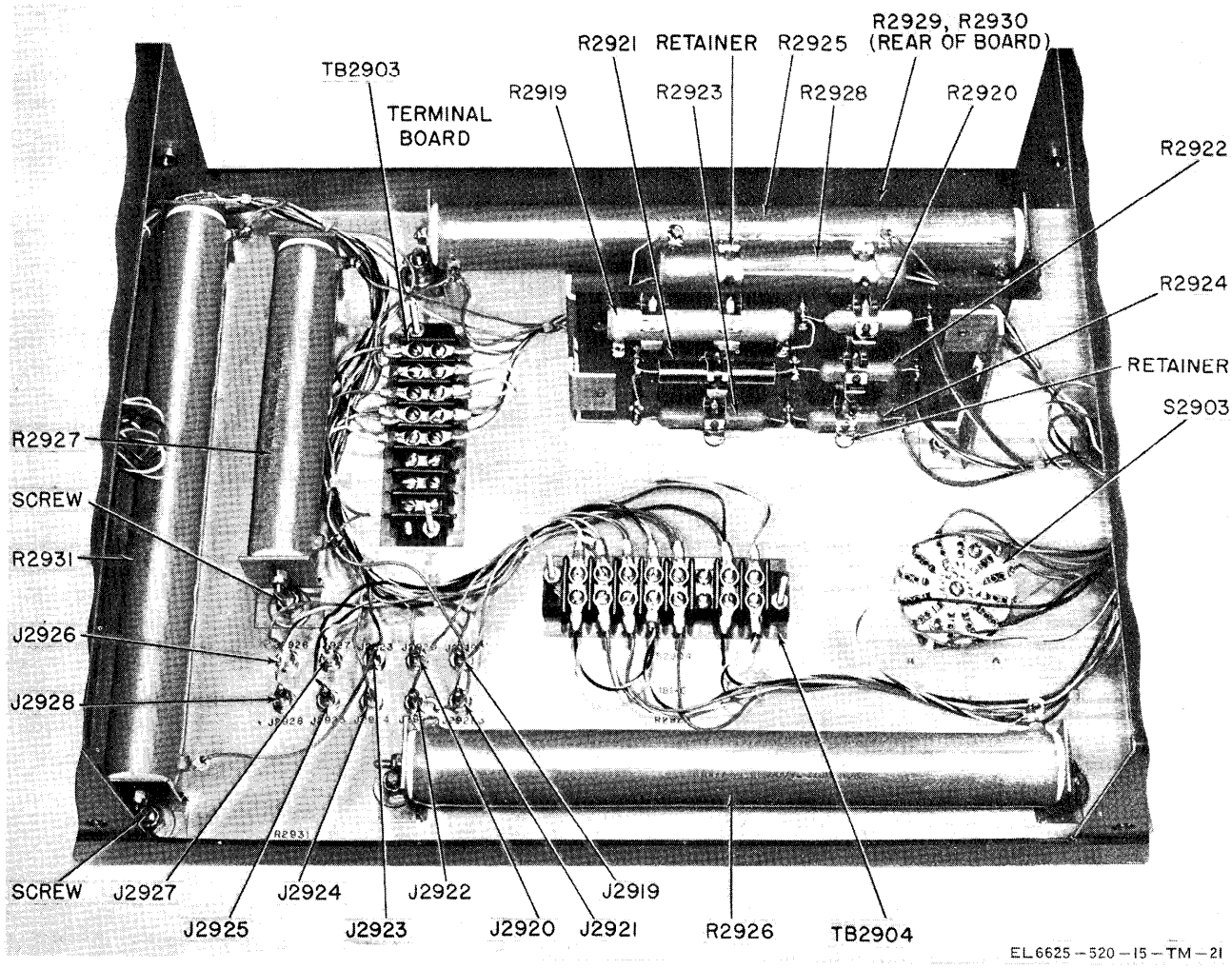


Figure 7-2. *Dummy Load, Electrical DA-206/MPQ-4A, location of parts.*

cure the hinge assemblies to the front panel and remove the door with hinges attached. Next, remove the 12 self-tapping screws (four upper, four lower, and two at each edge) that secure the front panel to the interconnection box assembly. Hold the bottom edge of the panel, and carefully tilt the top outward and away from the chassis. Be extremely careful not to place undue strain or stress on the harness assemblies and wired terminations. The panel can now be tilted out of the chassis and into a horizontal position. Support the panel as necessary to prevent undue strain on the harness assemblies and wired connections.

(2) *End panel removal.* End panel (both left and right) removal is nearly identical to the front panel removed ((1) above). The major difference being that the doors open outward, the hinges are secured with three screws each, and the panels are secured with eight screws,

h. *Mixer Stage, Frequency CV-662/G. (fig. 7-*7). Test procedures for this unit are given in chapter 6. To gain access to the interior of the unit for a repair, remove the bottom cover plate as described in paragraph 4–8f. Replacement of parts in the CV–662/G does not require any unusual procedures. However, be sure to observe the normal precautions for soldering and handling diodes (para 7-1a).

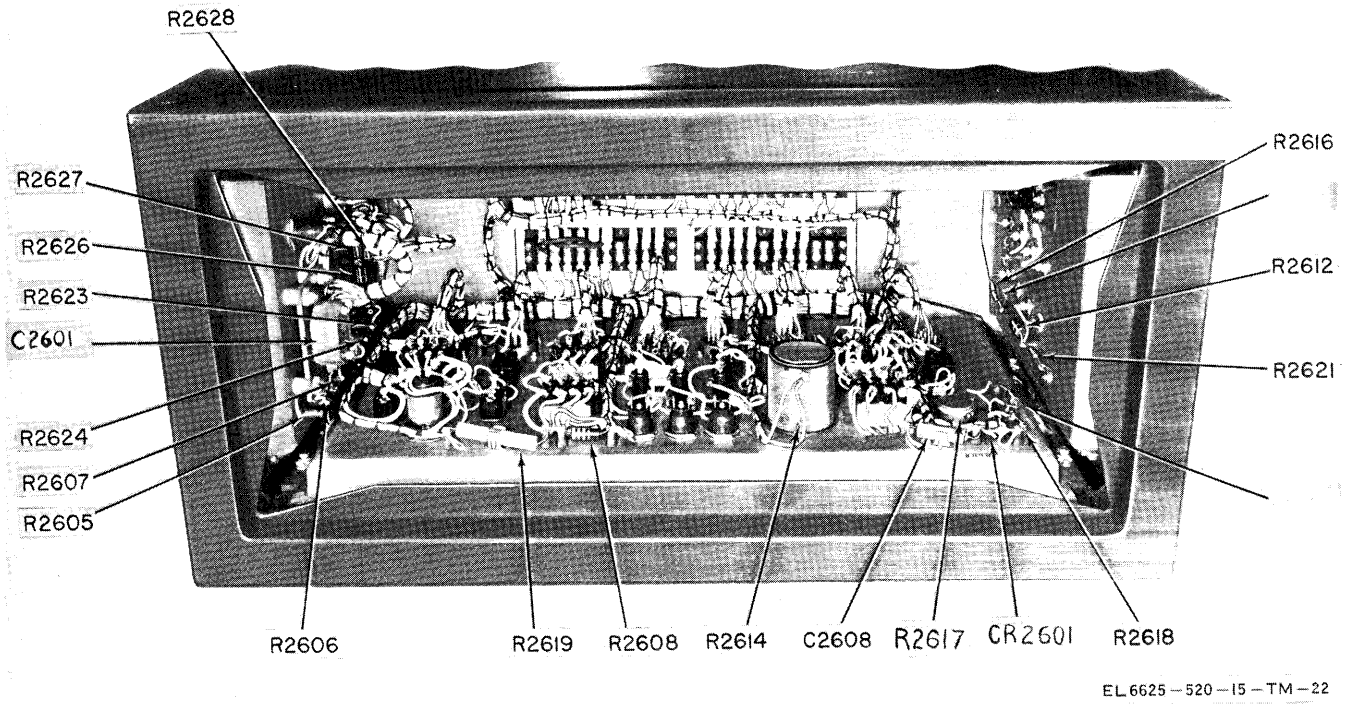


Figure 7-3. *Box, Interconnecting J-982/MPM-49, front interior view.*

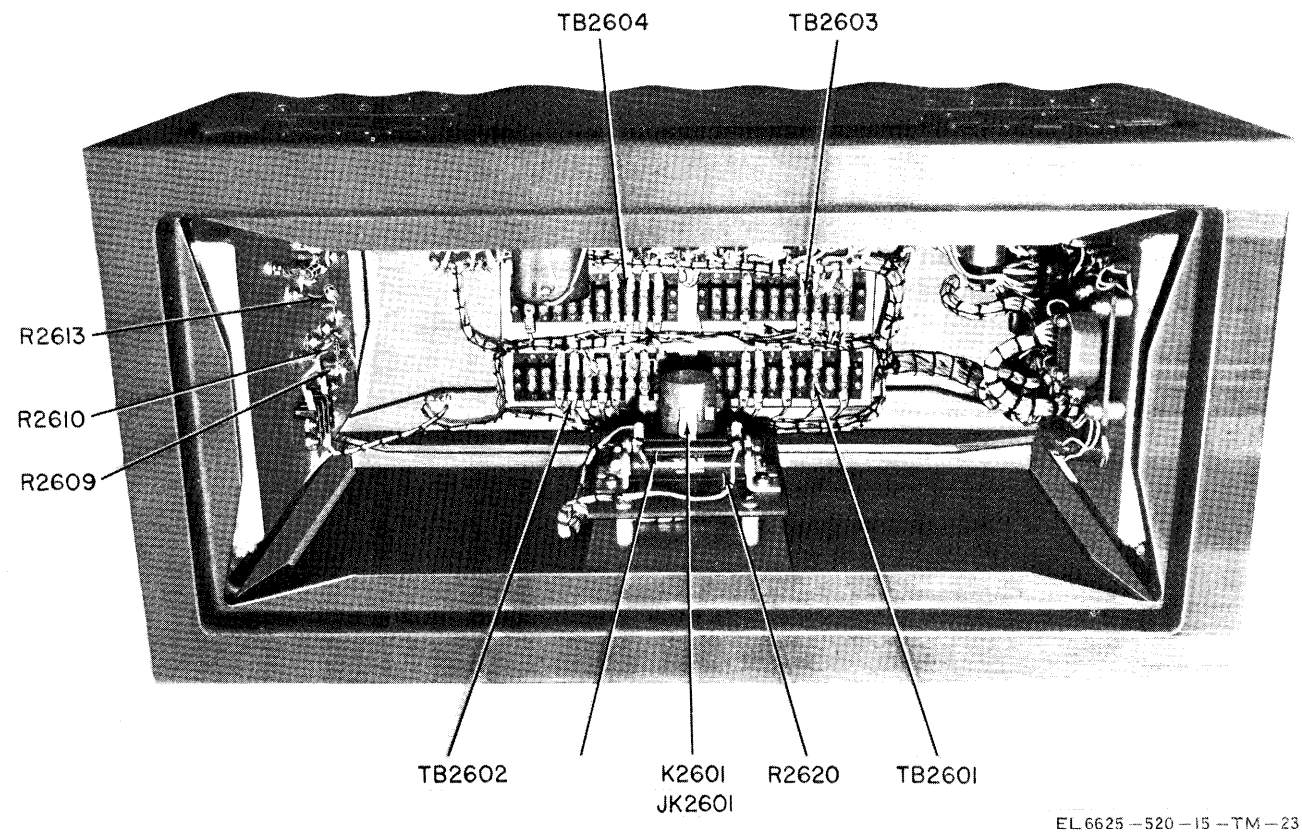


Figure 7-4. *Box, Interconnecting J-982/MPM-49, rear interior view.*

Section II. CABLE REPAIRS

NOTE

Refer to TM 55-1500-323-25 for additional information concerning cable repair.

7-3. General Instructions

a. If cable repair is necessary, be careful not to damage any reusable portion of the assembly. Do not use excessive heat when unsoldering leads, and avoid spattering solder over connector surface. Insure that connector pins are not bent or distorted. After making any repair and prior to returning the cable to service, use an ohmmeter and carefully check the cable and connectors for correctness, continuity, and shorts.

b. Detailed procedures for repairing cable assemblies are given in paragraphs 7-4 through 7–13. A total of 43 cables is provided with the MK–673/MPQ–4A, and many of these cables have different type connectors at each end; therefore, the repair procedures are oriented toward the type of cable connector. If a cable is to be replaced, refer to paragraph 1–6a and *b* for the required cable lengths. Figures 7–5 and FO–3 show schematic diagrams of all cables.

7-4. Cable Assemblies With Connectors UG-260D/U

a. Connector Replacement. Detach UG-260-D/U type connector from cable as follows:

(1) Cut cable as close to connector as possible.

(2) Cut cable off square.

(3) Strip cable outer jacket down to braid for a distance of 1/2 inch from cable end.

(4) Slip clamp nut, washer, gasket, and a second washer onto cable end.

(5) Smooth braid out and over washers, bend braid back.

(6) With knife, chamfer end of dielectric.

(7) Insert flange sleeve between braid and cable dielectric until flange rests firmly against braid.

(8) Trim braid to diameter slightly smaller than flange.

(9) Trim cable dielectric and center conductor to a distance of 3/4 inch from flange.

(10) Trim dielectric to *3/8* inch from flange.

(11) Slip insulator over dielectric until it rests against flange.

(12) Slip contact over center conductor, and solder using minimum heat.

(13) Slip body over pin, and press washers, gasket, and clamp into body. Tighten clamp nut.

b. Cable. If the cable is being replaced, proceed as follows:

(1) Remove damaged cable from connector by disassembling connector and unsoldering center conductor contact.

(2) Remove excess solder from center contact and install new cable on connector (a(2) through (13) above).

7-5. Cable Assemblies With Sleeve Clips Type SM-B-432635( )

a. Sleeve Clip Replacement. Replace either clip on Cable Assembly, Radio Frequency CG–1657/U as follows:

(1) Push sleeve up over body of clip.

(2) Unsolder conductor from clip body and withdraw conductor from clip.

(3) Remove excess solder from conductor and make certain it is properly trimmed.

(4) Insert wire end into sleeve and solder lead to clip.

(5) Push sleeve back over clip.

b. *Cable.* If the cable is being replaced, proceed as follows:

(1) Strip outer jacket of coaxial cable to braid for a distance of 5 1/8 inches.

(2) Trim braid back to 1/2 inch from jacket.

(3) Strip dielectric from center conductor back to a distance of 5/8 inch.

(4) Install red sleeve clip on the center conductor as described in a(3) through (5) above.

(5) Cut a piece of black stranded hookup wire to a length of 8 5/8 inches to construct ground lead for black sleeve clip.

(6) Strip black lead back’ 15/8 inch at one end and 5/8 inch at other end. Tin both ends.

(7) Lay this lead along the main body of the replacement cable. Wrap three to four turns of the 1 5/8 inch end of tinned wire around the exposed braid near the clip end.

(8) Carefully solder the hook up wire to the braid using low heat.

(9) Using 3/4-inch wide electrical tape, insulate the exposed metal surfaces at the junction of the coaxial cable and hookup wire. Tape the lead back onto main body of cable for a distance of approximately 1 inch.

(10) Install black sleeve clip on ground lead as described in *a(3)* through (5) above.

(11) Prepare other end of cable and install the type UG–260D/U as described in paragraph 7–4a.

7-6. Cable Assemblies With Double Plug Type 274-MB

a. *Plug Replacement.* Replace the double plug on Cable Assembly, Radio Frequency CG–1658/U as follows:

(1) Remove insulated cover from back of plug.

(2) Unsolder both connections at back of plug.

(3) Insure that wires are trimmed and neat.

(4) Disassemble the new plug and slip the back cover over the lead ends.

(5) Insert each lead (in turn) into plug terminals and solder.

(6) Secure back cover to plug base.

b. Cable. Repair of the cable assembly is the same as that described in paragraph *7–5b* except for the following:

(1) The clip end is terminated in the double plug.

(2) Length of hookup wire is 6 5/8 inches rather than 8 5/8 inches.

7-7. Cable Assemblies With Connector Types MS3106A-(-) and AN3106A-(-)

a. Connector Replacement. Replace MS3106A and AN3106A type connectors as follows:

(1) Loosen two strain clamp screws on cable adapter.

(2) Unscrew plug adapter and slip both adapters back along main body of cable.

(3) Slip the plastic sleeves (that cover each terminal) back along wires. This will expose the terminals.

(4) Carefully unsolder each lead from its terminal and withdraw cable from dismantled plug assembly.

(5) Separate sections of replacement connector as indicated in (1) and (2) above.

(6) Make sure that wire ends are clear of surplus solder, and are neat and trim.

(7) Feed cable through loosened strain clamp opening of cable adapter, and through connector adapter.

(8) With plastic sleeve retracted on wire leads, insert wire ends into designated terminals on connector body, soldering each lead as inserted.

(9) Slip plastic sleeves along wire and over terminals.

(10) Reassemble connector; make certain that strain clamp is tightened.

b. Cable. If the cable is being replaced, proceed as follows:

(1) Strip cable jacket back 1 1/4 to 2 inches, depending on exact model of connector to be used. Use the old cable assembly as a guide.

(2) Strip end of each wire back 1/4 inch and tin.

(3) Insert cable end through cable adapters starting at strain clamp end.

(4) Slide 3/8-inch plastic sleeves over each wire. Retract sleeves to keep stripped end of wire clear.

(5) Insert wire ends into designated terminals on connector body, soldering each *wire* as inserted.

(6) Slip plastic sleeves along wire and over terminals.

(7) Reassemble connector; make certain that strain clamp is tightened.

(8) If cable uses same type connector at other end, repeat (1) through (7) above to install other connector. If a different type connector is used, perform the cable repair procedure for that type connector as referenced in the list.

7-8. Cable Assemblies With Ac Plug No. 9937

a. Plug Replacement. Replace the ac plug on Cable Assembly, Power, Electrical CX-4452/U as follows:

(1) Loosen screws that secure strain clamp.

(2) Pry insulator off contact side of plug.

(3) Loosen screws that secure power leads to terminals.

(4) Remove leads from terminals and slip plug off cable end.

(5) Loosen strain clamp on replacement plug and remove insulator,

(6) Feed cable through base of plug.

(7) Make certain that lead ends are neat, trim, and tinned.

(8) Wrap wire ends around base of prong following direction of copper at base.

(9) Secure wire ends under screw terminals, tighten strain clamp, and replace insulator.

b. Cable. If the cable is being replaced, proceed as follows:

(1) Strip cable jacket back to 1 inch from the cable end.

(2) Strip both leads back 3/4 inch from wire end.

(3) Tin each lead.

(4) Connect plug to cable using procedures in a(5) through (9) above.

(5) Prepare other end of cable and install connector as prescribed in paragraph 7-7.

7-9. Cable Assemblies With Type AN3101A Connectors

a. *Connector Replacement.* Replace AN3101A type connector on Cable Assembly, Power, Electrical CX-4453/U as follows:

(1) Loosen strain clamp screws on cable to plug adapter.

(2) Unscrew adapter and slip it back along main body of cable.

(3) Expose terminals by slipping plastic sleeves back along wires.

(4) Carefully unsolder each lead from its terminal and withdraw cable from dismantled plug assembly.

(5) Separate sections of replacement connectors indicated in (1) and (2) above.

(6) Make sure that wire ends are clear of surplus solder, and are neat and trim.

(7) Feed cable through loosened strain clamp of adapter.

(8) With plastic sleeves retracted on wire ends, insert wires into designated terminals on connector body, soldering each as inserted.

(9) Slip plastic sleeves along wire and over terminals.

(10) Reassemble connector making certain that strain clamp is tightened.

b. Cable. If the cable is being replaced, proceed as follows:

(1) Strip cable jacket back 1 1/4 inch.

(2) Strip insulation from each wire back 1/4 inch.

(3) Twist wire ends and tin.

(4) Insert cable end through disassembled connector, starting at strain clamp end.

(5) Slide 3/8-inch plastic sleeves over each wire. Retract to keep stripped end of wire clear.

(6) Insert wires into designated terminals on connector body, soldering each wire as inserted.

(7) Slip plastic sleeves along wire and over terminals.

(8) Reassemble connector, making certain that strain clamp is tightened.

(9) Prepare other end of cable and install type 9955 connector as described in paragraph 7-10.

7-10. Cable Assemblies With Type 9955 Connector

a. Connector *Replacement.* Replace type 9955 ac power connector on Cable Assembly, Power, Electrical CX–4453/U as follows:

(1) Loosen screws that secure strain clamp.

(2) Unscrew cover at back of plug and slide cover along main body of cable.

(3) Loosen screws that secure leads to terminals and disconnect wires.

(4) Slip plug cover off end of cable.

(5) Disassemble replacement plug as instructed in (1) and (2) above.

(6) Insure that wire ends are trim, neat, and tinned.

(7) Slip plug cover over end of cable strain clamp end first.

(8) Loosen screws on terminals at back of plug body.

(9) Connect wires to terminals, reassemble connector, and tighten strain clamp,

b. *Cable.* If the cable is being replaced, proceed as follows:

(1) Strip cable jacket back 1 1/2 inch.

(2) Strip insulation from each wire back 1/2 inch.

(3) Twist wire ends and tin.

(4) Insert cable through disassembled connector, starting at strain clamp end.

(5) Connect wires to terminals, reassemble connector, and tighten strain clamp.

(6) Prepare other end of cable and install connector type MS3101A as described in paragraph 7-9.

7-11. Cable Assemblies With Type 32417 Terminals

a. Terminal Replacement. Replace the type 32417 spade lugs on Cable Assembly, Power, Electrical CX-4455/U as follows:

(1) Cut lead as close to base of terminal as possible.

(2) Strip lead end back 1/4 inch.

(3) Twist wire and tin.

(4) Insert end of wire in base of terminal, crimp, and solder.

b. Cable. If cable is being replaced, proceed as follows:

(1) Strip cable jacket back 1 3/4 inch,

(2) Slip identification tags (L1A, L2A, L3-A, and LN) onto designated leads.

(3) Strip each lead end back 1/4 inch,

(4) Twist and tin each lead.

(5) Insert tinned wire into base of terminal, Crimp each terminal as lead is inserted.

(6) Solder terminals to leads.

(7) Prepare other end of cable and install connector type MS3106A as described in paragraph 7–7.

7-12. Cable Assemblies With MRE-(-) Type Connectors

a. *Connector Replacement.* Replace MRE–(–) type connectors as follows:

(1) Loosen two strain clamp screws.

(2) Molded plastic connector body is retained by male and female locator pins at each end of connector face. Unscrew to remove. Note relative location to retain proper orientation with mating connector.

(3) Withdraw molded connector body from hood while feeding the cable along through hood. Avoid strains.

(4) With connector body and attached cable clear of hood, slip plastic sleeves along wires to expose terminal.

(5) Carefully unsolder each lead from its terminal.

(6) Withdraw cable from hood.

(7) Disassemble replacement connector as described in (1) and (2) above,

(8) Make sure cable ends are neat, trimmed, and free of surplus solder.

(9) Feed cable through strain clamp and cable opening in hood.

(10) With plastic sleeves retracted, insert wire ends into designated connector terminals and solder each wire as inserted.

(11) Slip plastic sleeves along wire and over terminal ends.

(12) Reassemble connector, making certain orientation is correct and strain clamp is tightened.

b. Cable. If cable is being replaced, proceed as follows:

(1) Strip outer cable jacket back 1 1/4 inch.

(2) Strip each lead back 1/8 inch.

(3) Twist each lead and tin,

(4) Slip plastic sleeves over wire ends and back along wire.

(5) Using disassembled connector, feed cable through strain clamp and cable opening in hood.

(6) With plastic sleeve retracted, insert wire ends into designated terminals and solder each wire as inserted.

(7) Slip plastic sleeves along wire and over terminal ends.

(8) Reassemble connector, making certain orientation is correct and strain clamp is tightened.

(9) If cable uses same type connector at other end, repeat (1) through (8) above to install other connector. If a different type connector is used, perform the cable repair procedure specified for that type connector.

7-13. Cable Assemblies With M9P-(-) and M9S-(-) Connectors

a. *Connector Replacement.* Replace M9P and M9S type connectors as follows:

(1) Loosen two strain clamp screws and slip clamp and bushing back along cable.

(2) Be careful not to cause undue strain on connector and leads, and unscrew adapter from connector.

(3) Slide adapter back along cable and slip plastic sleeves back along wire ends to expose terminals.

(4) Unsolder each lead and withdraw cable from strain clamp, bushing, and adapter.

(5) Disassemble replacement connector as described in (1) and (2) above.

(6) Slip bushing, strain clamp, and adapter (in that order) over cable end.

(7) Make certain cable ends are neat, trimmed, and free of surplus solder.

(8) With plastic sleeves retracted, insert lead ends into designated terminals and solder each lead as inserted.

(9) Slip plastic sleeves along wire and over terminal ends.

(10) Secure adapter to connector and slip bushing along cable until seated against cable end of adapter.

(11) Slip clamp along cable (over bushing) until firmly seated against back of adapter, and tighten screws.

b. Cable. If cable is being replaced, proceed as follows:

(1) Strip outer cable jacket back 3/4 inch.

(2) Strip each lead back 3/16 inch.

(3) Twist and tin each wire.

(4) Install plastic sleeves on each lead sliding them back so as to expose the wires.

(5) Assemble the cable to the connector as described in a(6) through (11) above.

(6) If cable uses same type connector at other end, repeat above steps (1) through (5) to install other connector. If a different type connector is used, perform the cable repair procedure specified for that type connector.

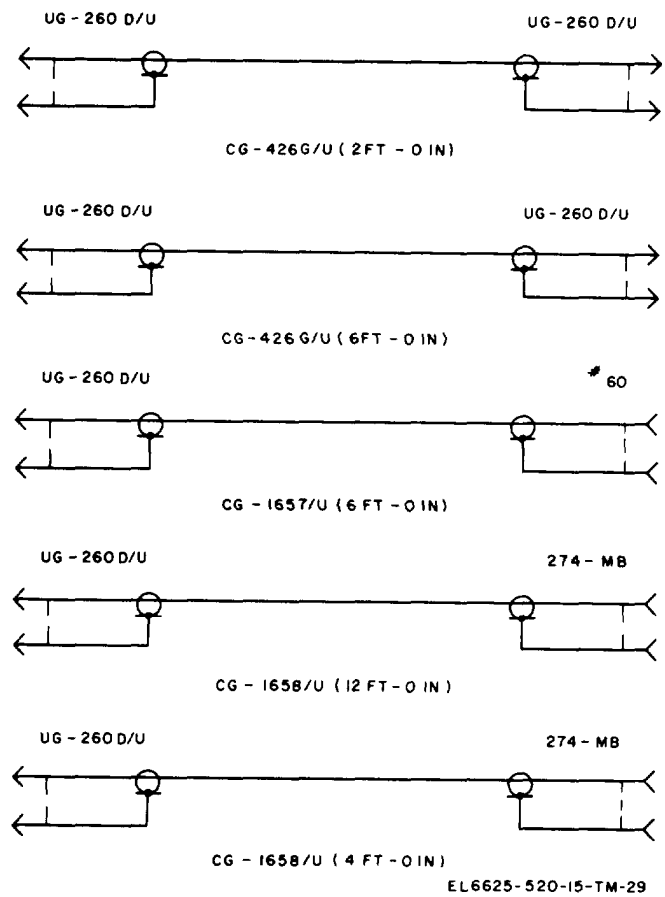


Figure 7-5. MK-399/MPQ-4A cables, schematic diagram.

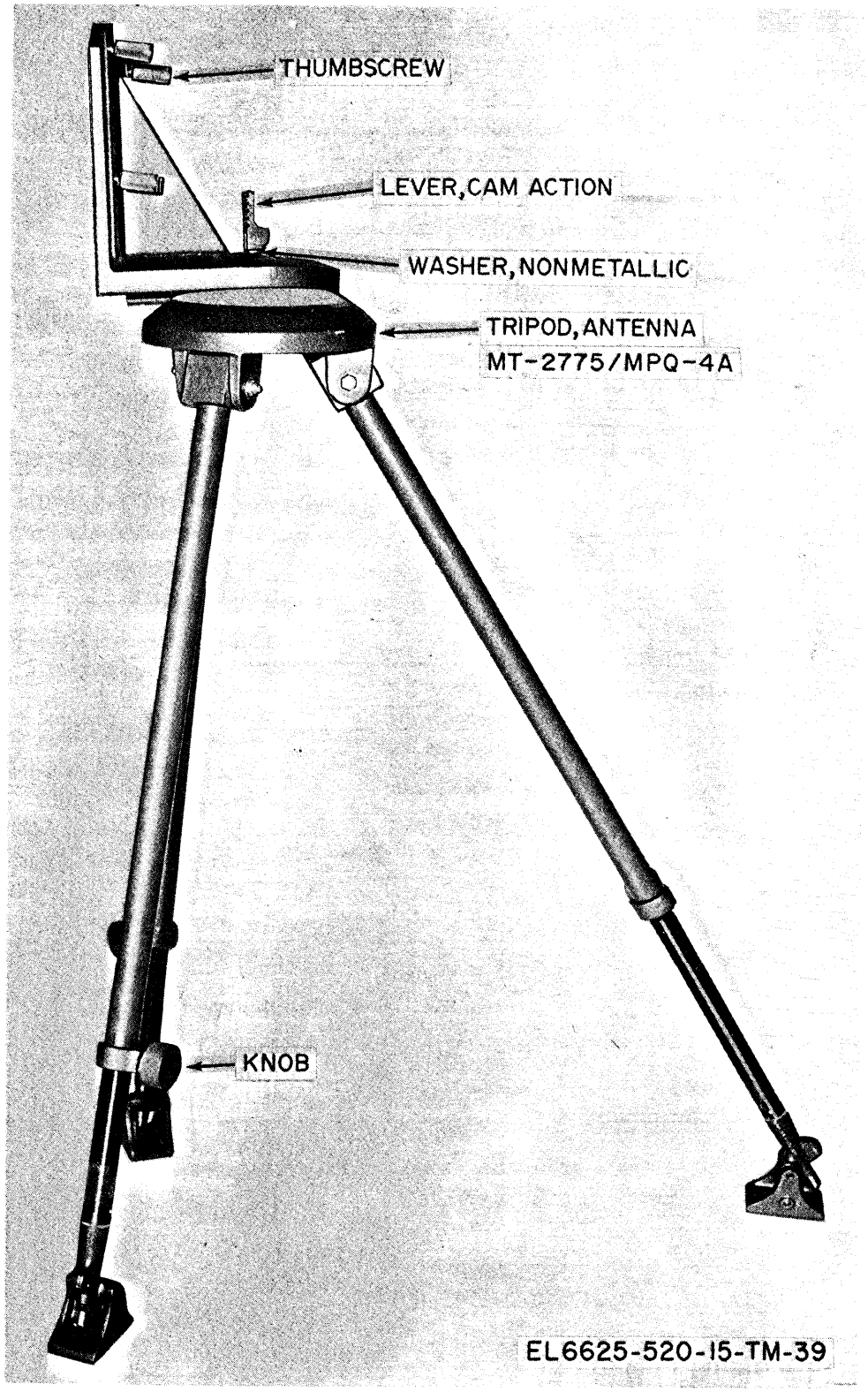


Figure 7-6. Tripod, location of parts.

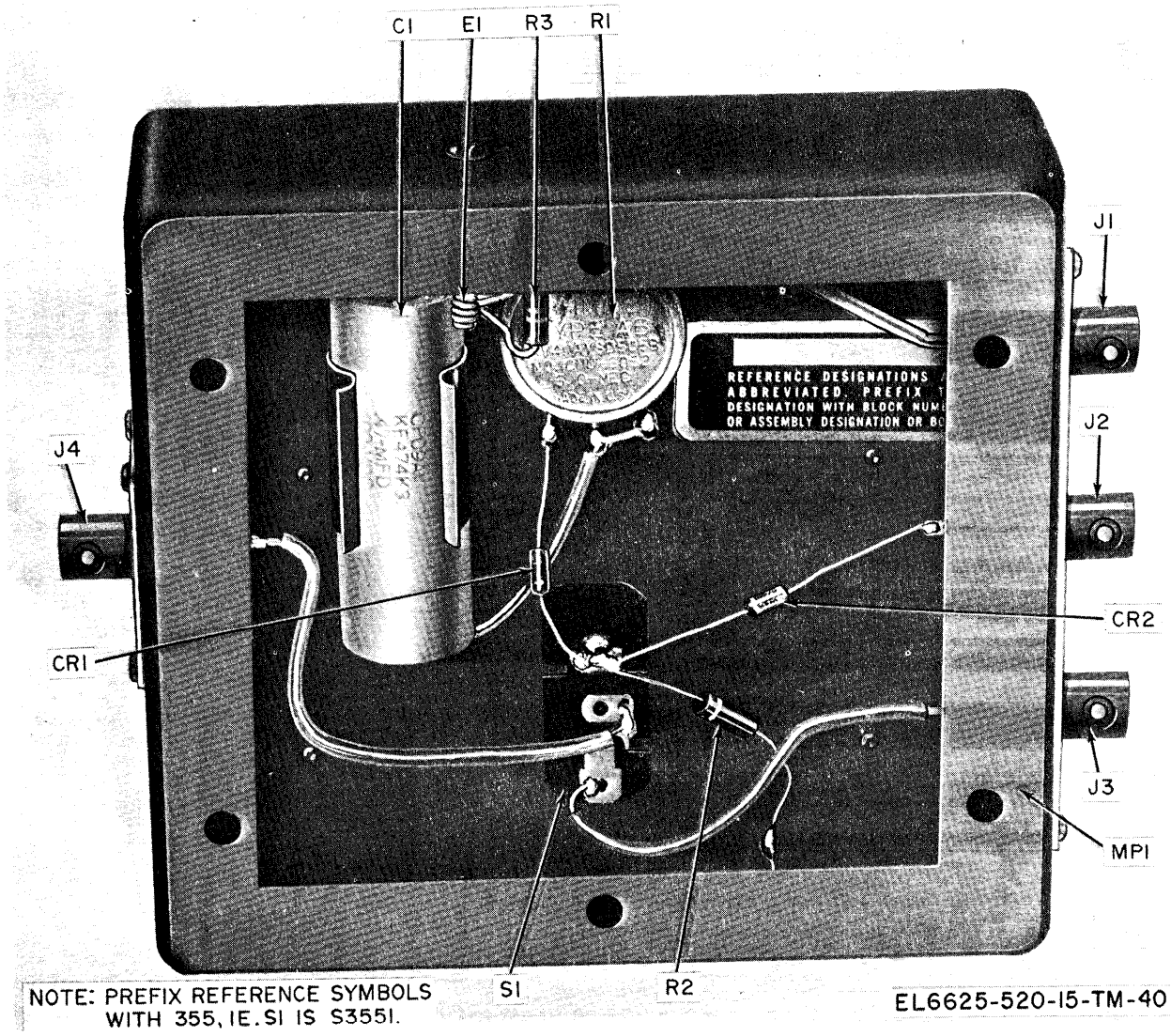


Figure 7-7. CV-662/G,location of parts.

Section III. ADJUSTMENT

7-14. General

The only units of the MK-673/MPQ-4A that require preset adjustments are the Simulator, Antenna Position SM–154/MPQ–4A, Motor Generator PU–335/MPM–25, Motor Generator PU–20C/C, Power Supply PP–1588/MPQ-4A, and Control—Power Supply C-2014/MPQ-4A.

7-15. Reference Publications

Repair and adjustment of units that require preset adjustments are covered in other publications. Refer to paragraph 1-1c for a list of associated manuals for each of these units.

CHAPTER 8

DEPOT OVERHAUL STANDARDS

Section I. GENERAL INSTRUCTIONS

8-1. Scope of Depot Overhaul Standards

This chapter contains depot overhaul standards for components of Maintenance Kit, Electronic Equipment MK–673/MPQ-4A not covered in other publications (para 1–1 and app. A). It also lists the tools and test equipment required to perform the tests.

8-2. Applicability of Depot Overhaul

The components of Maintenance Kit, Electronic Equipment MK–673/MPQ–4A must be tested after rebuild or repair to insure that they meet adequate performance standards for return to stock and for reissue. It is mandatory that repaired equipment to be reissued, or returned to stock for reissue, meet all the performance standards given in this chapter.

8-3. Applicable References

a. Repair Standards. Applicable procedures of the depot performing these tests and the general standards for repaired electronic equipment given in TB SIG 355–1, TB SIG 355–2, and TB SIG 355–3 form a part of the requirements for testing this equipment.

b. Technical Publication. Refer to chapter 1 and appendix A for the technical publications applicable to the equipment to be tested.

c. *Modification Work Orders.* Perform all modification work orders applicable to this equipment before making the tests specified. DA Pam 310-7 lists all available MWO'S.

Section II. TESTS

8-4. General

The procedures in the following sections may be performed in any sequence, or they may be performed individually, depending on the number and type of components of Maintenance Kit, Electronic Equipment MK–673/MPQ-4A to be tested. Assemble all the test equipment required for the tests before proceeding with the tests.

8-5. Visual Inspection

Visually inspect the components of Maintenance Kit, Electronic Equipment MK–673/MPQ-4A for completeness, appearance, and construction which conforms to good workmanship standards. Perform this inspection prior to performing the detailed tests.

8-6. Attenuator, Variable CN-492/G (Standing Wave Ratio Test)

a. Test Equipment Required.

(1) Sweep Oscillator HP 8690B.

(2) RF Unit HP 8695A.

(3) Attenuator, Variable CN-492/G (TE) used as test equipment, and identified on figure 8–1 and procedural tables by (TE) following the nomenclature.

(4) Attenuator, Variable C! N-491/G (TE) used as test equipment, and identified on figure 8–1 and procedural tables by (TE) following the nomenclature.

(5) Crystal Detector HP P424A (2 required).

(6) Ratio Meter HP 416B.

(7) Directional Coupler HP P752D.

(8) Directional Coupler CU-673/U (TE) used as test equipment, and identified on figure 8-1 and procedural tables by (TE) following the nomenclature,

(9) Frequency Meter HP P532A.

(10) X-Y Recorder, Moseley Model 135.

(11) Adjustable Short HP P920B.

(12) Low Pass Filter HP P362A.

(13) Standing Wave Ratio Indicator HP 415D.

(14) Moving Load HP P914A.

(15) All cables—4 ft of RG–58C/U cable with UG–88E/U connector on each end.

b. Test Connections and Conditions (fig. 8-1). Connect the test equipment as shown in figure 8–1, and apply power.

c. *Procedure.* Perform the test procedure given in table 8–1 to test Attenuator, Variable CN–492/G.

Table 8-1. Test Procedure for Attenuator, Variable CN-492/G

Step No.	Control settings: Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	Sweep Oscillator HP 8690B MOD SELECTOR :INT CATHODE CURRENT :NORMAL RF LEVELER :ON FREQUENCY :18 GC RF SWEEP RATE :Set for desired recorder sweep speed. CN-492/G (TE) Attenuator, Variable Dial :ODB	None	*a.* Adjust CN-491/G (TE) for a reflection coefficient (p) of 0.081 on the HP 416B.	*a.* None.
			b. On the HP 8690B, adjust INT SQUARE WAVE control for maximum closure of tuning indicator on the HP 416B.	*b.* None.
			c. On the HP 8690B, push the MANUAL TRIGGER button and adjust the dial on the CN-491/G (TE) so that the shadow area on the HP 416B indicator is about 1/16 inch throughout the sweep.	*c.* None.
			d. Adjust X-Y recorder controls so that the ppn is near the top of the scale.	*d.* None.
			e. Set HP P532A for 18 GHz	*e.* None.
			f. On HP 8690B, push MANUAL TRIGGER button and adjust SWEEP RATE and VERNIER control to position the 18 GHz marker near the left edge of the X-Y recorder.	*f.* None.
			g. Set HP P532A for 12.4 GHz	*g.* None.
			h. On HP 8690B, push MANUAL TRIGGER button and adjust SWEEP RATE and VERNIER control to position the 12.4 marker near the right edge of the X-Y recorder.	*h.* None.
			i. Adjust CN-491/G (TE) for a reflection coefficient (p) of 0.061 on the HP 416B.	*i.* None.
			j. Replace the HP P920B by CN-492/G under test, terminated by HP P914A.	*j.* None.
			k. Set CN-491/G (TE) at ODB	*k.* None.
			l. Set CN-492/G (TE) at 20DB	*l.* None.
			m. On HP 8690B, push MANUAL TRIGGER and observe trace on the X-Y recorder.	*m.* If the trace falls below the calibration trace in *h* above, the swr is better than required (1.15).
2	Sweep Oscillator HP 8690B MOD SELECTOR :INT CATHODE CURRENT	None	*a.* Repeat step 1*a* through *f*	*a.* None.
			b. Set CN-491/G (TE) at 29DB. On HP 8690B, push MANUAL	*b.* On X-Y recorder, this is the 29-db trace.

Step No.	Control settings: Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
	:NORMAL RF LEVELER :ON FREQUENCY :15GC RF SWEEP RATE :For desired record sweep speed.		TRIGGER button. *c.* Set CN-491/G (TE) at 30DB. On HP 8690B, push MANUAL TRIGGER button. *d.* Set CN-491/G (TE) at 31DB. On HP 8690B, push MANUAL TRIGGER button. *e.* Disconnect the test setup at the junction of the two directional couplers. *f.* Insert CN-492/G between the two directional couplers. *g.* Set CN-492/G to ODB on the dial. *h.* Set CN-491/G (TE) at 30DB on the dial. *i.* On HP-8690B, push MANUAL TRIGGER button. *j.* Set CN-491/G (TE) at 25DB and CN-492/G at 5DB and repeat *i* above. *k.* Set CN-491/G (TE) at 20DB and CN-492/G at 10DB and repeat *i* above. *l.* Set CN-491/G (TE) at 15DB and CN-492/G at 15DB and repeat *i* above. *m.* Set CN-491/G (TE) at 10DB and CN-492/G at 20DB and repeat *i* above.	*c.* On X-Y recorder, this is the 30-db trace. *d.* On X-Y recorder, this is the 31-db trace. *e.* None. *f.* None. *g.* None. *h.* None. *i.* Trace must fall between 29 and 31-db traces. *j.* Same as in *i* above. *k.* Same as in *i* above. *l.* Same as in *i* above. *m.* Same as in *i* above.

8-7. Attenuator, Variable CN-491/G (SWR Test)

a. Test Equipment Required. Same as in paragraph 8-6a.

b. Test Connections and Conditions (fig. 8–1). Connect test equipment as shown in figure 8–1.

c. *Procedure.* Perform the test procedure given in table 8–2 to test Attenuator, Variable CN–491/G.

Table 8-2. Test Procedure for Attenuator, Variable CN-491/G

Step No.	Control settings: Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	Sweep Oscillator HP 8690B MOD SELECTOR :INT CATHODE CURRENT :NORMAL RF LEVELER :ON FREQUENCY :18GC RF SWEEP RATE :Set for desired recorder sweep speed. CN-492/G Attenuator Dial :ODB	None	*a.* Repeat step 1*a* through *i* in table 8-1. *b.* Replace HP P920B by CN-491/G terminated by HP P914A. *c.* Set CN-491/G (TE) at ODB *d.* Set CN-492/G (TE) at 20DB *e.* On HP 8690B, push MANUAL TRIGGER button and observe the trace on X-Y recorder.	*a.* None. *b.* None. *c.* None. *d.* None. *e.* If the trace falls below the calibration trace, the swr is better than required (1.15).
2	Same as step 1 above	None	*a.* Repeat step 2*a* through *f* in table 8-1. *b.* Set CN-491/G (TE) at 49DB. On HP 8690B, push MANUAL TRIGGER button. *c.* Set CN-491/G (TE) at 50DB. On HP 8690B, push MANUAL TRIGGER button. *d.* Set CN-491/G (TE) at 51DB. On HP 8690B, push MANUAL TRIGGER button. *e.* Disconnect the test setup at the junction of the two directional couplers. *f.* Insert the CN-491/G between the two directional couplers. *g.* Set CN-491/G (TE) at 50DB *h.* Set CN-491/G at ODB *i.* On HP 8690B, push MANUAL TRIGGER button. *j.* Set CN-491/U (TE) and CN-491/G as shown below. At each pair of settings, push MANUAL TRIGGER button. *CN-491/G (TE)* — *CN-491/G* 40DB — 10DB 30DB — 20DB 20DB — 30DB 10DB — 40DB 0DB — 50DB	*a.* None. *b.* On X-Y recorder, this is the 49-db trace. *c.* On X-Y recorder, this is the 50-db trace. *d.* On X-Y recorder, this is the 51-db trace. *e.* None. *f.* None. *g.* None. *h.* None. *i.* On X-Y recorder, trace must fall between 40- and 51-db traces. *j.* On X-Y recorder trace must fall between 49- and 51-db traces for each pair of settings.

8-8. Waveguide Assembly CG-539/U Tests (Insertion Loss Test)

a. Test Equipment Required. Same as in paragraph *8–6a.*

b. Test *Connections and Conditions (fig.* 8-1). Connect test equipment as shown in figure 8-1.

c. *Procedure.* Perform the test procedure given in table 8-3 to test Waveguide Assembly CG-539/U.

Table 8-3.. Test Procedure for Waveguide Assembly CG-539/ U

Step No.	Control settings: Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	Sweep Oscillator HP 8690B MOD SELECTOR :INT CATHODE CURRENT :NORMAL RF LEVELER :ON FREQUENCY :18GC RF SWEEP RATE :Set for desired recorder sweep speed. CN-492/G (TE) :ODB	None	*a.* Set CN-491/G (TE) at 30DB *b.* On HP 8690B, push MANUAL TRIGGER button. *c.* Set CN-491/G (TE) at 29.6DB and repeat *b* above. *d.* Set CN-491/G (TE) at 30.4DB and repeat *b* above. *e.* Disconnect the test setup at the junction of the two directional couplers. *f.* Insert CG-539/U between the two couplers. *g.* Set CN-491/G (TE) at 30DB and repeat *b* above.	*a.* None. *b.* On X-Y recorder, this is the 30-db trace. *c.* None. *d.* On X-Y recorder, this is the 30.4-db trace. *e.* None. *f.* None. *g.* If the trace is within the 29.6- and 30.4-db traces, the CG-539/U is good.

8-9. Probe, Waveguide RF-74/U, Detector Test

a. *Test Equipment Required.* Same as in paragraph 8-6a.

***b. Test* Connections *and Conditions (fig.* 8-1).** Connect test equipment as shown in figure 8-1.

c. *Procedure.* Perform the test procedure given in table 8-4 to test Probe, Waveguide RF–74/U.

Table 8-4. *Test Procedure for Probe, Waveguide RF-74/U*

Step No.	Control settings: Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	Sweep Oscillator HP 8690B MOD SELECTOR :INT CATHODE CURRENT :NORMAL RF LEVELER :ON FREQUENCY :18GC RF SWEEP RATE :Set for desired recorder sweep speed. HP 375A Attenuator Dial :ODB	None	*a.* Remove cable W2 from HP 416B *b.* Tune the HP P532A for a peak on the HP 416B. *c.* Remove HP P424A from the HP P532A and replace it with the RF-74/U. *d.* Adjust the RF-74/U to obtain the same reading as in *b* above.	*a.* None. *b.* Record reading. *c.* None. *d.* RF-74/U is good if reading in *b* above is obtained.

8-10. Directional Coupler CU-673/U (Attenuation Test)

a. Test Equipment Required. Same as in paragraph 8-6a.

b. Test Connections and Conditions (fig. 8-1). Connect the test equipment as shown in figure 8-1.

c. *Procedure.* Perform the test procedures given in table *8-5* to test Directional Coupler CU-673/U.

Table 8-5. Test Procedure for Directional coupler CU-673/U

Step No.	Control settings: Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	Sweep Oscillator HP 8690B MOD SELECTOR :INT CATHODE CURRENT :NORMAL RF LEVELER :ON FREQUENCY :18GC RF SWEEP RATE :Set for desired recorder sweep speed. CN–492/G (TE) Attenuator dial :ODB	None	*a.* Replace CU–673/U (TE) with the CU–673/U under test terminated in HP P424A. *b.* Connect output of HP P424A to HP 415D. *c.* Remove cable W2 from HP 416B and connect it to HP 415D.	*a.* None. *b.* Record reading on HP 415D. *c.* The reading must be at least 40db less than the reading recorded in *b* above.

8-11. Maintenance Kit, Electronic Equipment MK-399/MPQ-4A Physical Inspection and Antenna Tests

Paragraphs 8-11 through 8-19 provide the physical inspection procedures and electrical tests for Maintenance Kit, Electronic Equipment MK-399/MPQ-4A.

8-12. Physical Inspection

a. *Test Equipment and Material.* None required.

b. Test Connections and Conditions. Maintenance Kit. Electronic Equipment MK-399/MPQ-4A is in its case, closed and latched.

c. *Procedure.* Perform the inspection procedures given in table 8-6.

Table 8-6. Physical Test and Inspections for Maintenance Kit, Electronic Equipment MK-399/MPQ-4A

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1			Check exterior of case for damage and missing parts.	Exterior will be clean. Fiber glass will not be cracked or weakened. The following will not be damaged or missing: 10 latches, 2 carrying handles, 2 identification plates. Identification plates will be legible.
2			Open latches by pulling latch tabs out and turning them counterclockwise one-half turn.	As each latch tab is turned ccw, latch hooks will move down from latch groove and will pop away from case. Each latch tab (when released) will snap down against case.
3			Remove top half of case and place it on its feet. Unsnap fasteners on each compartment cover and remove covers. Inspect interior of case and compartments to insure all accessories are present or accounted for.	Interior of case will be clean and orderly. Snap fasteners will not be damaged or missing. Covers will raise freely and will not be damaged. Inside of compartments will be clean and nameplates and labels will not be damaged or missing. All items listed on LIST OF CASE CONTENTS will be present or accounted for. Contents will not be damaged.
4			Remove antenna tripod from bottom half of case and inspect for damaged or missing parts.	Painted surfaces will not be scratched to bare metal. Knurled rings (securing telescopic legs) and the knurled fasteners on the antenna mounting plate will not be missing or damaged.
5			*a.* Pivot tripod legs to open position and fully extend them. Secure legs with knurled rings and stand tripod on its feet. *b.* Rotate antenna mounting plate and check operation of locking mechanism.	*a.* All knurled fasteners will work freely. Legs and feet will pivot freely. Tripod will be firm and will not wobble. *b.* Antenna mounting plate will rotate a full 360° without excessive force, securing the lock will inhibit movement.
6			Remove antenna and attached waveguide feedhorn from upper half of case. Inspect antenna and waveguide for any signs of damage (especially dents or deep scratches). Check waveguide mounting hardware.	All hardware will be secure. Antenna and feedhorn will have no nicks or dents that may affect performance.

	Remove antenna target from upper half of case. Inspect for damaged or missing parts.	Painted surfaces will not be scratched or scraped to bare metal. All mounting hardware will be secure and none will be missing.

8-13. Antenna Tests

Paragraphs 8–15 through 8-19 provide the test procedures used to check the components of Antenna Group OA–1967/MPQ–4A. All the tests must be performed to verify completely the operation of the antenna.

8-14. Test Equipment Required

The following test equipment is required to perform the antenna tests. Assemble all test equipment (or suitable equivalents) prior to beginning tests.

a. Test Set Radar AN/UPM-60.

b. Transmitter dish and standard gain horn for KU band (AT-531/UPM, part of AN/UPM-60) or equivalent.

c. Slotted Line, Waveguide CG–1555/U.

d. Crystal Detector HP P424A.

e. Frequency Meter HP P532A.

f. Record Set, Radiation Pattern RF AN/GPM-25.

g. Coupler, Directional CU-673/U.

h. Probe, Waveguide RF–74/U.

i. Attenuator, Variable CN-491/G(TE).

j. Measuring Set, Standing Wave Ratio AN/USM-37A.

k. Standard gain horn (10 db) for KU band.

1. Suitable pedestal, amplidyne, and control unit to mount antenna under test.

m. Carriage HP P809C.

8–15. Beam Width and Side Lobe Level Measurement, H-Plane

a. Test Connections. Connect test equipment as shown in figure 8–2.

b. Procedure. Perform the procedure given in table *8-7* to check the beamwidth and side lobe level, H-plane.

Table 8-7. Beam Width and Side Lobe Level Measurment Test, H-Plane

Step No.	Control settings		Test procedure	Performance standard
	Test equipment	Equipment under test		
1	AN/UPM–60 **FREQ :15.84 KMHz**	None	*a.* Cut an H-plane pattern out to 24° on each side of the beam center and record the beamwidth at the half-power point (3 db).	*a.* The beamwidth shall be less than 2.5°.
			b. Record the highest side lobe level	*b.* Highest side lobe shall be less than 16 db.
			c. Repeat *a* above with the AN/UPM–60 set at 16.0 kMHz.	*c.* Same as in a above.
			d. Record the highest side lobe level	*d.* Same as in *b* above.
			e. Repeat *a* above with the AN/UPM–60 set at 16.16 kMHz.	*e.* Same as in *a* above.
			f. Record the highest side lobe level	*f.* Same as in *b* above.

8-16. Beamwidth and Side Lobe Level Measurement, E-Plane

a. *Test* Connections and *Conditions (fig. 8-2).* Connect the test equipment as shown in figure 8-2.

b. Procedure. Perform the procedures given in table 8-8 to check the beamwidth and side lobe level, E-plane.

Table 8-8. Beamwidth and Side Lobe Level Measurements, E-Plane

Step No.	Control settings		Test procedure	Performance standard
	Test equipment	Equiptment under test		
1	Set the AN/UPM-60 to 15.84 kMHz.	None	a. Cut an E-plane pattern out to 24° on each side of beam center and record the beamwidth at the half-power point (3 db).	a. The beamwidth shall be less than 2.5°.
			b. Record the highest side lobe level	*b.* Highest side lobe shall be less than 16 db.
			c. Repeat a above with the transmitter set at 16.0 kMHz.	c. Same as in a above.
			d. Record the highest side lobe level	d. Same as in *b* above.
			e. Repeat a above with the transmit ter set at 16.16 kMHz.	e. Same as in *a* above.
			f. Record the highest side lobe level	j. Same as in b above.

8–17. Beam Symmetry

a. *Test Connections and Conditions (fig. 8–2).* Connect the test equipment as shown in figure 8-2.

b. Procedure. Perform the procedure given in table 8-9 to check the beam symmetry.

Tables 8–9. Antenna Beam Symmetry

Step No.	Control settings: Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	AN/UPM–60: 15.8 kMHz	None	*a.* Check the H- and E-plane beamwidths at the 3-db point found in paragraphs 8–15 and 8–16 at 15.84 kMHz.	*a.* The beamwidths shall be within 0.5°.
			b. Repeat *a* above at 16.0 kMHz	*b.* Same as in *a* above.
			c. Repeat *a* above at 16.16 kMHz	*c.* Same as in *a* above.

8–18. Boresight H-Plane

a. Test Connections and Conditions (fig. 8-2). Connect the test equipment as shown in figure 8-2.

b. Procedure. Perform the procedure given in table 8–10 to boresight the antenna H-plane.

Table 8-10. Antenna Boresight H-Plane and Antenna Gain Check

Step No.	Control settings: Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	AN/UPM-60: 16.0 kMHz	None	*a.* Peak the beam in azimuth and elevation.	*a.* None.
			b. Cut an H-plane pattern down 10 db on each side of beam center. Measure the beamwidth at the 3-db point and center the antenna on the beam.	*b.* None.
			c. Adjust the optical sight on the antenna so that it is looking within the 5-foot target area at the transmitting antenna.	*c.* Antenna boresight satisfactorily performed.

8-19. Voltage Standing Wave Ratio

a. Test Connections *and Conditions (fig. 8-3).* Connect the equipment as shown in figure 8-3.

b. Procedure. Perform the procedure given in table 8–11 to check the vswr.

Table 8–11. Voltage Standing Wave Ratio Check

Step No.	Control settings		Test procedure	Performance standard
	Test equipment	Equipment under test		
1	AN/UPM–60: 15.84 kMHz	Antenna should be pointed into free space.	*a.* Adjust the HP P532A for a peak indication on the AN/USM–37A. *b.* Set the AN/UPM–60 frequency at 16.0 kMHz and repeat *a* above. *c.* Set the AN/UPM–60 frequency at 16.16 kMHz and repeat *a* above.	*a.* The vswr indicated shall be less than 1.5 db. *b.* Same as in *a* above. *c.* Same as in *a* above.

8-20. Maintenance Kit, Electronic Equipment MK-673/MPQ-4A Cable Assemblies, Physical and Electrical Tests

Paragraphs 8–21 and 8–22 give the physical and electrical tests to be performed on the cable assemblies of Maintenance Kit, Electronic Equipment MK–673/MPQ–4A. Perform the physical inspections prior to the continuity checks.

8–21. Physical Tests and Inspection

a. Test Equipment and Material. None.

b. Test Connections *and* Conditions. None.

c. Procedure. Inspect each cable assembly as follows:

(1) All cable assemblies will be present or accounted for (para 1–6).

(2) Cables will not be damaged (cut, broken, or frayed), and will not show signs of stress,

(3) Connectors will not be damaged, covers and strain clamps will be secure.

(4) Connector pins and female contacts will not be bent, broken, or in any way damaged. Pins and contacts will be clean.

8-22. Continuity Checks

a. Test Equipment and Material. Multimeter TS-352B/U.

b. Test Connections and *Conditions.*

(1) Set FUNCTION switch at OHMS.

(2) Plug test leads (red and black) into both OHMS jacks.

(3) Set RANGE switch to RX1.

(4) Touch test probes to connectors at each end of cable and measure point-to-point continuity as prescribed in c below.

c. Procedure. Measure continuity of each cable listed below by touching one of the meter test probes to a pin (or female contact) at one end of the cable, and then touching the other probe to the corresponding pin (or female contact) at the other end of the cable. Repeat this procedure for each contact pair on each cable assembly.

NOTE

Point-to-point connections for each cable are given in figures 7-5 and F0-3. The following list gives the cable assembly number and refers to the appropriate figure in which the point-to-point connections are specified:

Cable assembly	*Fig. ref.*
CG-426/U	7-5
CG-1567/U	7-5
CG-1568-U	7-5
CX-4447/U through CX-4466/U	FO-3

8–23. Mixer Stage, Frequency CV-662/U

Perform the procedures given in paragraph 6-15.

8-24. Dummy Load, Electrical DA-205/MPQ-4A

Perform the procedures given in paragraph 6–6.

8–25. Dummy Load, Electrical DA–206/MPQ-4A

Perform the procedures given in paragraph 6–9.

8-26. Interconnecting Box J–982/MPQ-4A

Perform the procedures given in paragraphs 6-11b and c, 6-12b and c, and 6–13b.

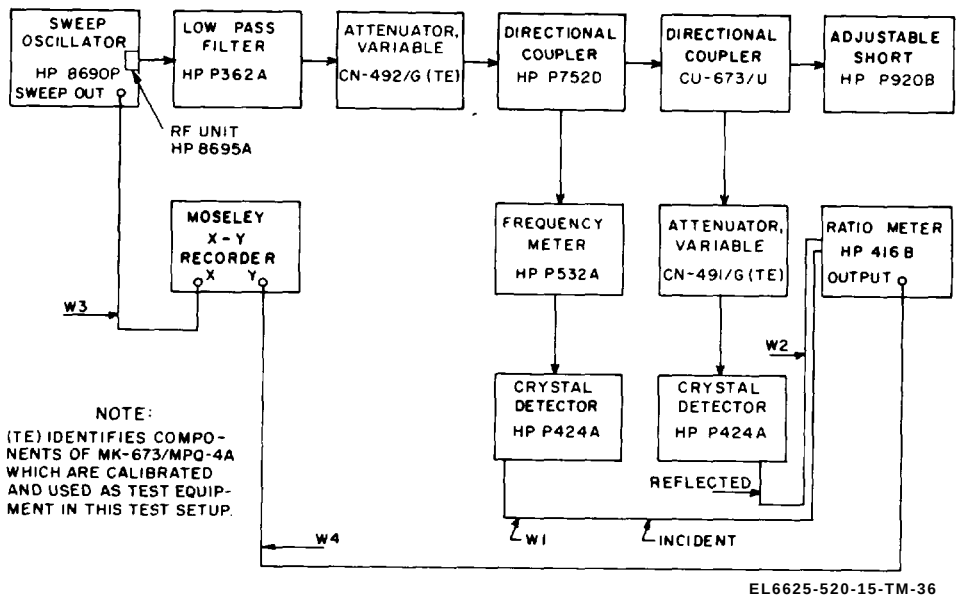


Figure 8-1. Microwave components test setup.

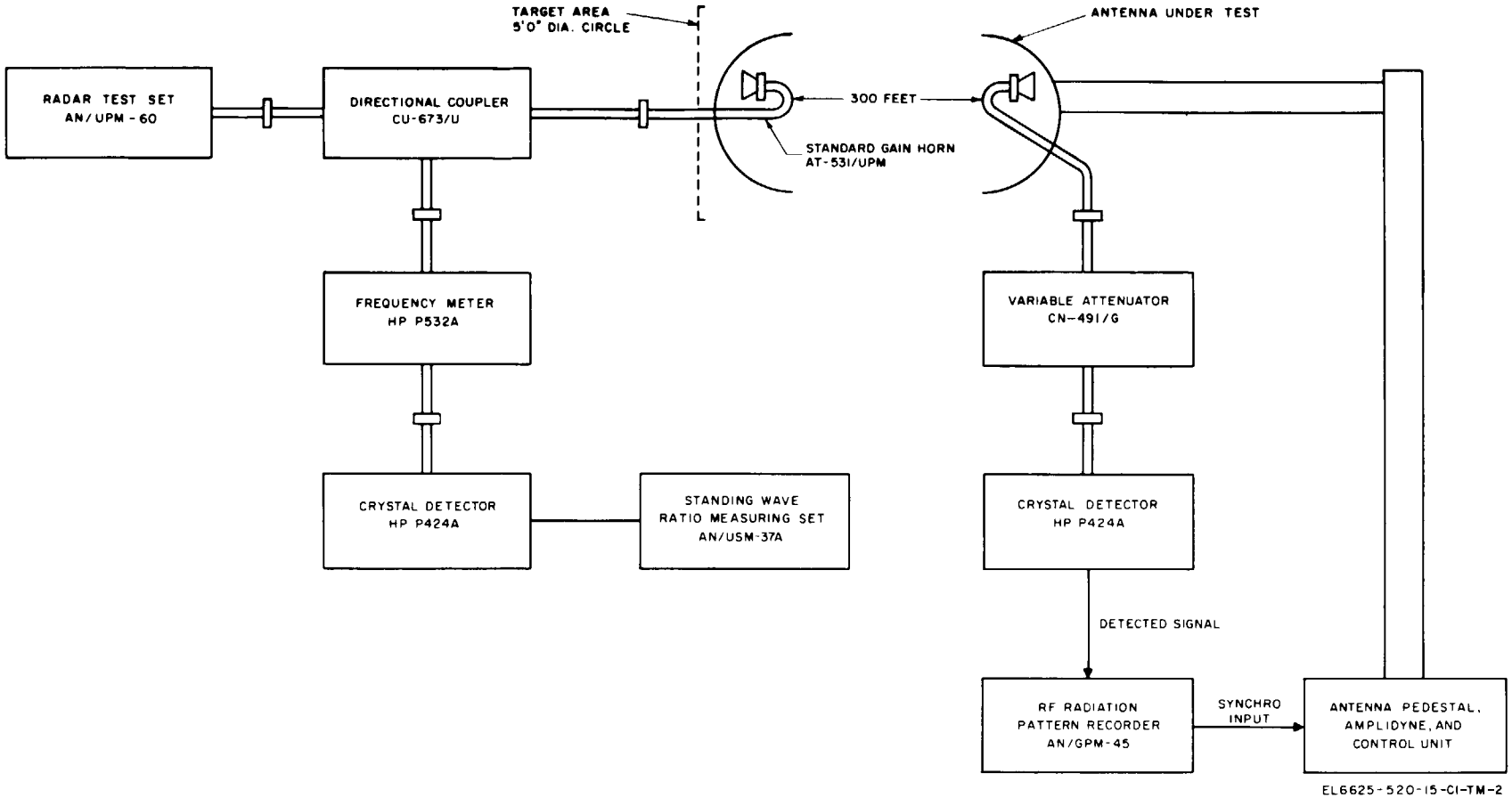


Figure 8-2. Antenna test setup.

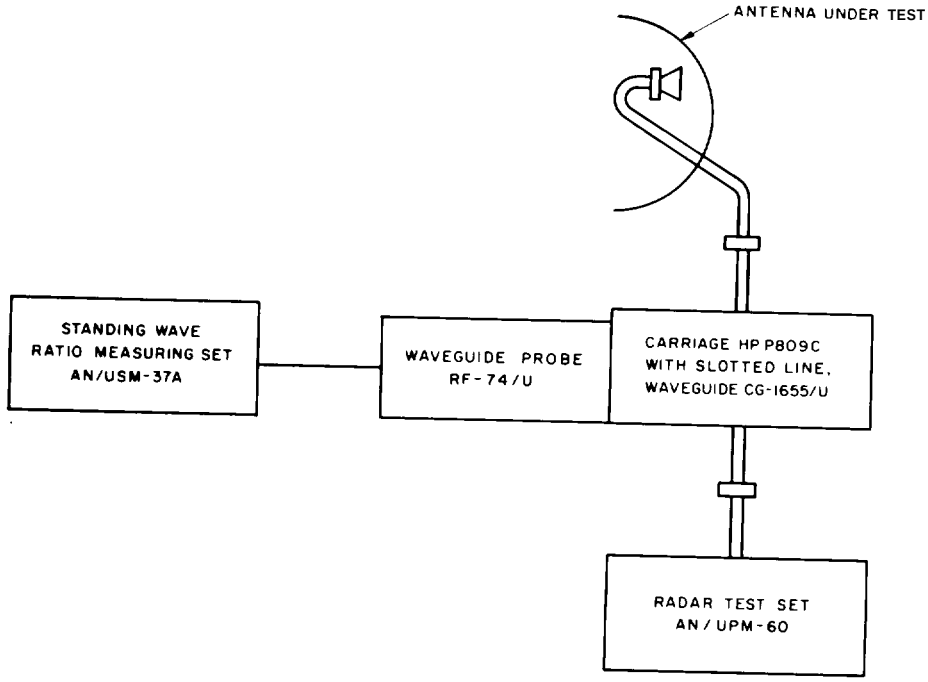


Figure 8-3. Antenna VSWR, test setup.

CHAPTER 9

SHIPMENT, LIMITED STORAGE, AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

9-1. General Information

When preparing units of Maintenance Kit, Electronic Equipment MK–673/MPQ–4A for shipment or limited storage, check each unit for physical and operating condition (para 4–5). Stow all components in nine separate wooden packing boxes as described in paragraph 9-3.

9-2. Stowing Units of MK-673/MPQ-4A

After each unit of the MK-673/MPQ–4A has been checked (para 4-5) and all components are at hand or accounted for (refer to packaging data, para 2–1a), proceed as follows:

a. As applicable, insure that all items listed below are properly installed in their respective cabinets, and that all covers are on (or closed) and secured.

Item	*Figure reference*
Control—Power Supply C-2014/MPQ-4A	1-1
Power Supply PP-1588/MPQ–4A	1-1
Box, Interconnecting J-982/MPM-49	1-1
Simulator, Antenna Position SM-154/MPQ-4A	1-4

b. Stow and secure all components of Maintenance Kit, Electronic Equipment MK–399/MPQ–4A in Case, Accessories CY–3684/MPQ-4A as illustrated in figure 1–3. Close and secure all eight latches.

9-3. Repackaging Units of Maintenance Kit, Electronic Equipment MK-673/MPQ-4A

The exact procedure for repackaging depends on the materials available and the conditions under which the equipment is to be shipped or stored. If the original packing boxes, cartons, and filler material have been retained, they should be used. If not, and wherever possible, adapt the following materials and procedures:

a. Materials. If the original packaging materials are not available, the materials listed in the following chart are required. Refer to SB 38-100 for stock numbers of those materials listed.

b. Repackaging Procedure. If the original packing materials are still available, repackage units of the MK-673/MPQ4A are repackaged using the reverse order of procedure for unpacking (para 2-1). Repack units in original cartons and wooden cases (by number) as designated in the chart in paragraph 2–1a. Be sure to use adequate filler material. If the original materials are not available, repackage the MK–673/MPQ-4A as follows:

(1) Obtain or construct nine wooden packing boxes (fig. 2–1) with the dimensions listed in paragraph 2–1a and number each box accordingly.

(2) Line the inside of each box with waterproof paper secured to the inside with liquid tar.

Materials	Size	QTY (ft)
Wood (pine)	3/4" x 6"	200
Wood (pine)	1" x 2"	150
Wood (fir)	2" x 4"	100
Nails	Eightpenny	10 lb
Metal strap	1/2" side	75
Filler	2" thick by 30" wide	100
Filler	1" thick by 30" wide	100
Filler	3" thick by 30" wide	100
Waterproof paper	30" wide	100
Waterproof adhesive tape	2" wide	150

(3) Place 3-inch thick pad of fillermaterial in the bottom of each box.

(4) Using the chart in paragraph 2-1a, place the components of the MK–673/MPQ-4A in their corresponding boxes.

(5) Fit 2-inch thick filler pads around the sides of the units in each box. In boxes containing more than one unit, use filler materials as required to prevent undue movement and to insure that all units are adequately separated by the padding.

(6) Fit a 1-inch filler pad over the top of the equipment.

(7) Fold the waterproof paper ,over the top pad and secure the folds with waterproof tape.

(8) Nail (or screw) the wooden cover in place.

(9) Double-band the box with metal straps.

(10) Mark box (topside, contents, and destination) as required.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

9-4. Authority for Demolition

Demolition of the equipment will be accomplished only upon order of the commander. Use the destruction procedures in TM 750–244–2 to prevent further use of the equipment.

9–5. Priorities for Destruction

The following order of priority is suggested for units of Maintenance Kit, Electronic Equipment MK-673/MPQ-4A.

a. All units of Test Facilities Kit MK–387/MPM–49.

b. All components of Electronic Equipment Maintenance Kit MK–399/MPQ–4A.

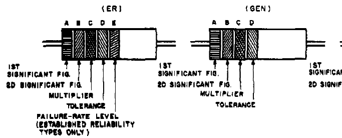
c. Simulator, Antenna Position SM–154/MPQ–4A.

d. Motor Generator PU–20C/C and Motor Generator PU–335/MPM–25.

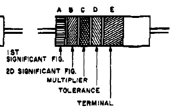
e. Dummy Loads, Electrical DA-205/MPQ-4A and DA-206/MPQ-4A.

j. Attenuators, Variable CN-491/G and CN-492/G.

g. Directional Coupler CU–673/U.



COLOR CODE MARKING FOR COMPOSITION TYPE RESISTORS.



COLOR-CODE MARKING FOR FILM-TYPE RESISTORS.

TABLE I
COLOR CODE FOR COMPOSITION TYPE AND FILM TYPE RESISTORS.

BAND A		BAND B		BAND C		BAND D		BAND E		
COLOR	FIRST SIGNIFICANT FIGURE	COLOR	SECOND SIGNIFICANT FIGURE	COLOR	MULTIPLIER	COLOR	RESISTANCE TOLERANCE (PERCENT)	COLOR	FAILURE RATE LEVEL	TERM.
BLACK.....	0	BLACK......	0	BLACK.....	1			BROWN...	M=1.0	
BROWN.....	1	BROWN.....	1	BROWN....	10			RED......	P=0.1	
RED.......	2	RED........	2	RED.......	100			ORANGE..	R=0.01	
ORANGE....	3	ORANGE....	3	ORANGE...	1,000			YELLOW..	S=0.001	
YELLOW....	4	YELLOW...	4	YELLOW...	10,000	SILVER.	±10 (COMP. TYPE ONLY)	WHITE...	....	SOLDERABLE
GREEN.....	5	GREEN.....	5	GREEN....	100,000	GOLD...	±5			
BLUE......	6	BLUE......	6	BLUE.....	1,000,000	RED....	±2 (NOT APPLICABLE TO ESTABLISHED RELIABILITY).			
PURPLE.... (VIOLET)	7	PURPLE.... (VIOLET)	7							
GRAY......	8	GRAY......	8	SILVER...	1.01					
WHITE....	9	WHITE.....	9	GOLD	0.1					

BAND A — THE FIRST SIGNIFICANT FIGURE OF THE RESISTANCE VALUE (BANDS A THRU D SHALL BE OF EQUAL WIDTH.)

BAND B — THE SECOND SIGNIFICANT FIGURE OF THE RESISTANCE VALUE.

BAND C — THE MULTIPLIER (THE MULTIPLIER IS THE FACTOR BY WHICH THE TWO SIGNIFICANT FIGURES ARE MULTIPLIED TO YIELD THE NOMINAL RESISTANCE VALUE.)

BAND D — THE RESISTANCE TOLERANCE.

BAND E — WHEN USED ON COMPOSITION RESISTORS, BAND E INDICATES ESTABLISHED RELIABILITY FAILURE-RATE LEVEL (PERCENT FAILURE PER 1,000 HOURS). ON FILM RESISTORS, THIS BAND SHALL BE APPROXIMATELY 1-1/2 TIMES THE WIDTH OF OTHER BANDS, AND INDICATES TYPE OF TERMINAL.

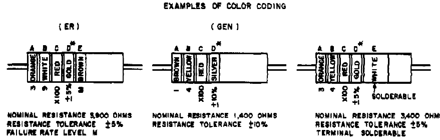
RESISTANCES IDENTIFIED BY NUMBERS AND LETTERS
(THESE ARE NOT COLOR CODED)

SOME RESISTORS ARE IDENTIFIED BY THREE OR FOUR DIGIT ALPHA NUMERIC DESIGNATORS. THE LETTER R IS USED IN PLACE OF A DECIMAL POINT WHEN FRACTIONAL VALUES OF AN OHM ARE EXPRESSED. FOR EXAMPLE:

2R7 = 2.7 OHMS 10R0 = 10.0 OHMS

FOR WIRE-WOUND-TYPE RESISTORS COLOR CODING IS NOT USED, IDENTIFICATION MARKING IS SPECIFIED IN EACH OF THE APPLICABLE SPECIFICATIONS.

EXAMPLES OF COLOR CODING



NOMINAL RESISTANCE 3,900 OHMS
RESISTANCE TOLERANCE ±5%
FAILURE RATE LEVEL M

NOMINAL RESISTANCE 1,400 OHMS
RESISTANCE TOLERANCE ±10%

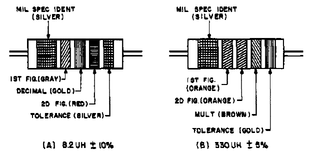
NOMINAL RESISTANCE 3,400 OHMS
RESISTANCE TOLERANCE ±5%
TERMINAL SOLDERABLE

COMPOSITION-TYPE RESISTORS

FILM-TYPE RESISTORS

* IF BAND D IS OMITTED, THE RESISTOR TOLERANCE IS ±20% AND THE RESISTOR IS NOT MIL-STD.

A. COLOR CODE MARKING FOR MILITARY STANDARD RESISTORS.



(A) 8.2 UH ± 10%

(B) 330 UH ± 5%

COLOR CODING FOR TUBULAR ENCAPSULATED R.F. CHOKES. AT A, AN EXAMPLE OF OF THE CODING FOR AN 8.2UH CHOKE IS GIVEN. AT B, THE COLOR BANDS FOR A 330 UH INDUCTOR ARE ILLUSTRATED.

TABLE 2
COLOR CODING FOR TUBULAR ENCAPSULATED R.F. CHOKES.

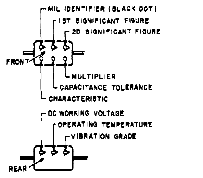
COLOR	SIGNIFICANT FIGURE	MULTIPLIER	INDUCTANCE TOLERANCE (PERCENT)
BLACK	0	1	
BROWN	1	10	1
RED	2	100	2
ORANGE	3	1,000	3
YELLOW	4		
GREEN	5		
BLUE	6		
VIOLET	7		
GRAY	8		
WHITE	9		
NONE			20
SILVER			10
GOLD	DECIMAL POINT		5

MULTIPLIER IS THE FACTOR BY WHICH THE TWO COLOR FIGURES ARE MULTIPLIED TO OBTAIN THE INDUCTANCE VALUE OF THE CHOKE COIL.

B. COLOR CODE MARKING FOR MILITARY STANDARD INDUCTORS.

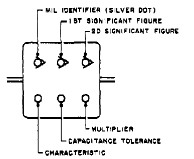
CAPACITORS, FIXED, VARIOUS-DIELECTRICS, STYLES CM, CN, CY, AND CB.

CM



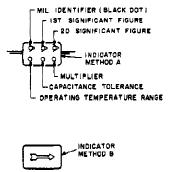
MICA-DIELECTRIC

CN



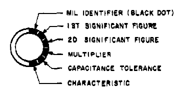
PAPER-DIELECTRIC

CY

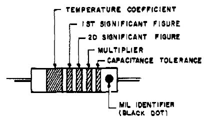


GLASS-DIELECTRIC, GLASS CASE

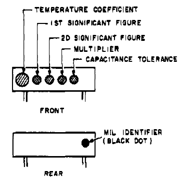
CB



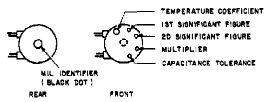
MICA, BUTTON TYPE



AXIAL LEAD



RADIAL LEAD



DISK-TYPE

C. COLOR CODE MARKING FOR MILITARY STANDARD CAPACITORS

TABLE 3 — FOR USE WITH STYLES CM, CN, CY AND CB.

COLOR	MIL ID	1ST SIG FIG.	2D SIG FIG.	MULTIPLIER[1]	CAPACITANCE TOLERANCE				CHARACTERISTIC[2]			DC WORKING VOLTAGE	OPERATING TEMP. RANGE	VIBRATION GRADE
					CM	CN	CY	CB	CM	CN	CB	CM	CY, CM	CM
BLACK	CM, CY CB	0	0	1			±20%	±20%		A			-55° TO +70°C	10-55 HZ
BROWN		1	1	10					B	E	B			
RED		2	2	100	±2%		±2%	±2%	C				-55° TO +85°C	
ORANGE		3	3	1,000		±30%			D		D	300		
YELLOW		4	4	10,000					E				-55° TO +125°C	10-2,000Hz
GREEN		5	5		±5%				F			500		
BLUE		6	6										-55° TO +150°C	
PURPLE (VIOLET)		7	7											
GREY		8	8											
WHITE		9	9											
GOLD				0.1			±5%	±5%						
SILVER	CN				±10%	±10%	±10%	±10%						

TABLE 4 — TEMPERATURE COMPENSATING, STYLE CC.

COLOR	TEMPERATURE COEFFICIENT[4]	1ST SIG FIG.	2D SIG FIG.	MULTIPLIER[1]	CAPACITANCE TOLERANCE		MIL ID
					CAPACITANCES OVER 10 UUF	CAPACITANCES 10 UUF OR LESS	
BLACK	0	0	0	1		± 2.0 UUF	CC
BROWN	-30	1	1	10	±1%		
RED	-80	2	2	100	±2%	±0.25 UUF	
ORANGE	-150	3	3	1,000			
YELLOW	-220	4	4				
GREEN	-330	5	5		±5%	± 0.5 UUF	
BLUE	-470	6	6				
PURPLE (VIOLET)	-750	7	7				
GREY		8	8	0.01			
WHITE		9	9	0.1	±10%		
GOLD	+100					±1.0 UUF	
SILVER							

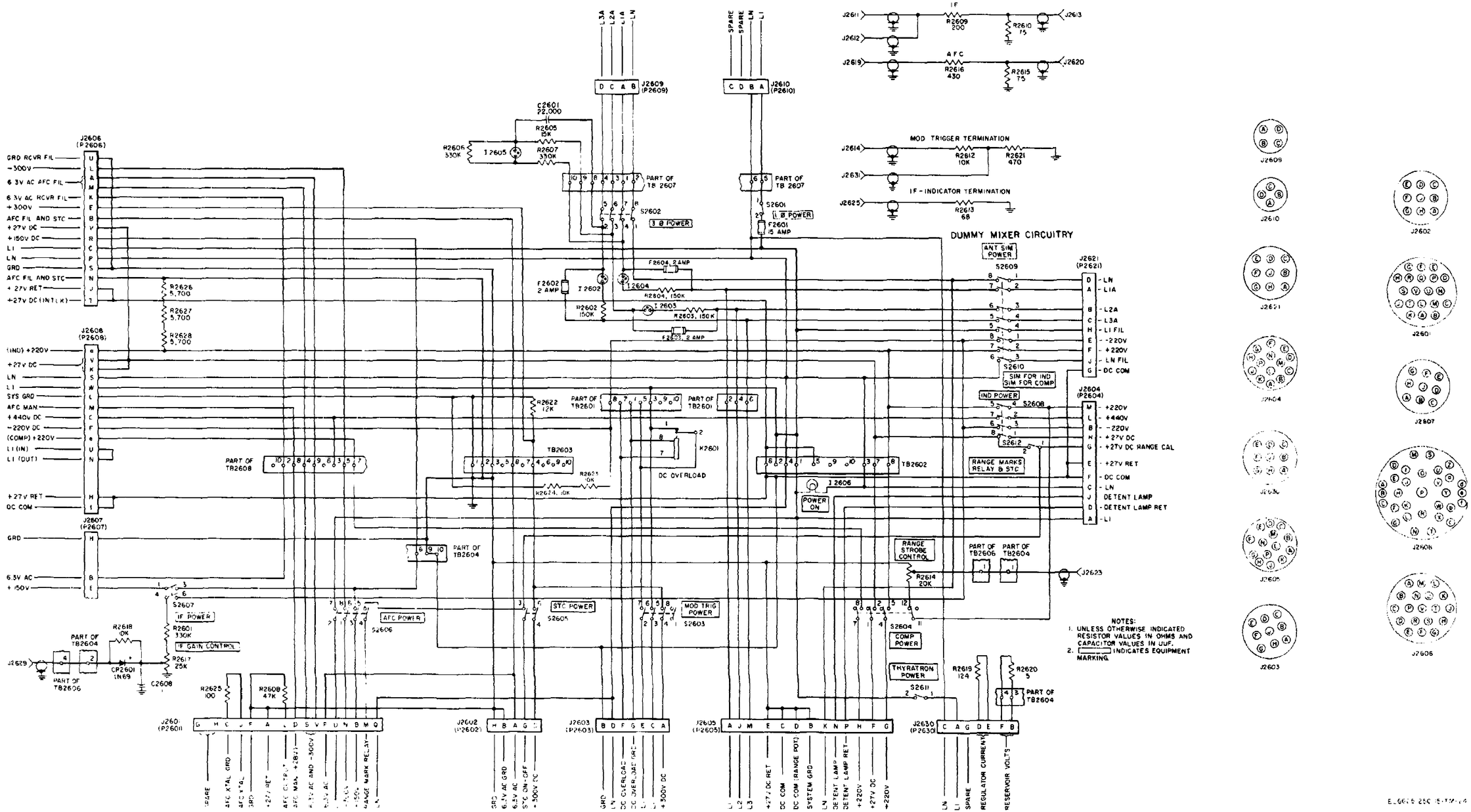
1. THE MULTIPLIER IS THE NUMBER BY WHICH THE TWO SIGNIFICANT (SIG) FIGURES ARE MULTIPLIED TO OBTAIN THE CAPACITANCE IN UUF.

2. LETTERS INDICATE THE CHARACTERISTICS DESIGNATED IN APPLICABLE SPECIFICATIONS: MIL-C-5, MIL-C-25D, MIL-C-11272B, AND MIL-C-10950C RESPECTIVELY.

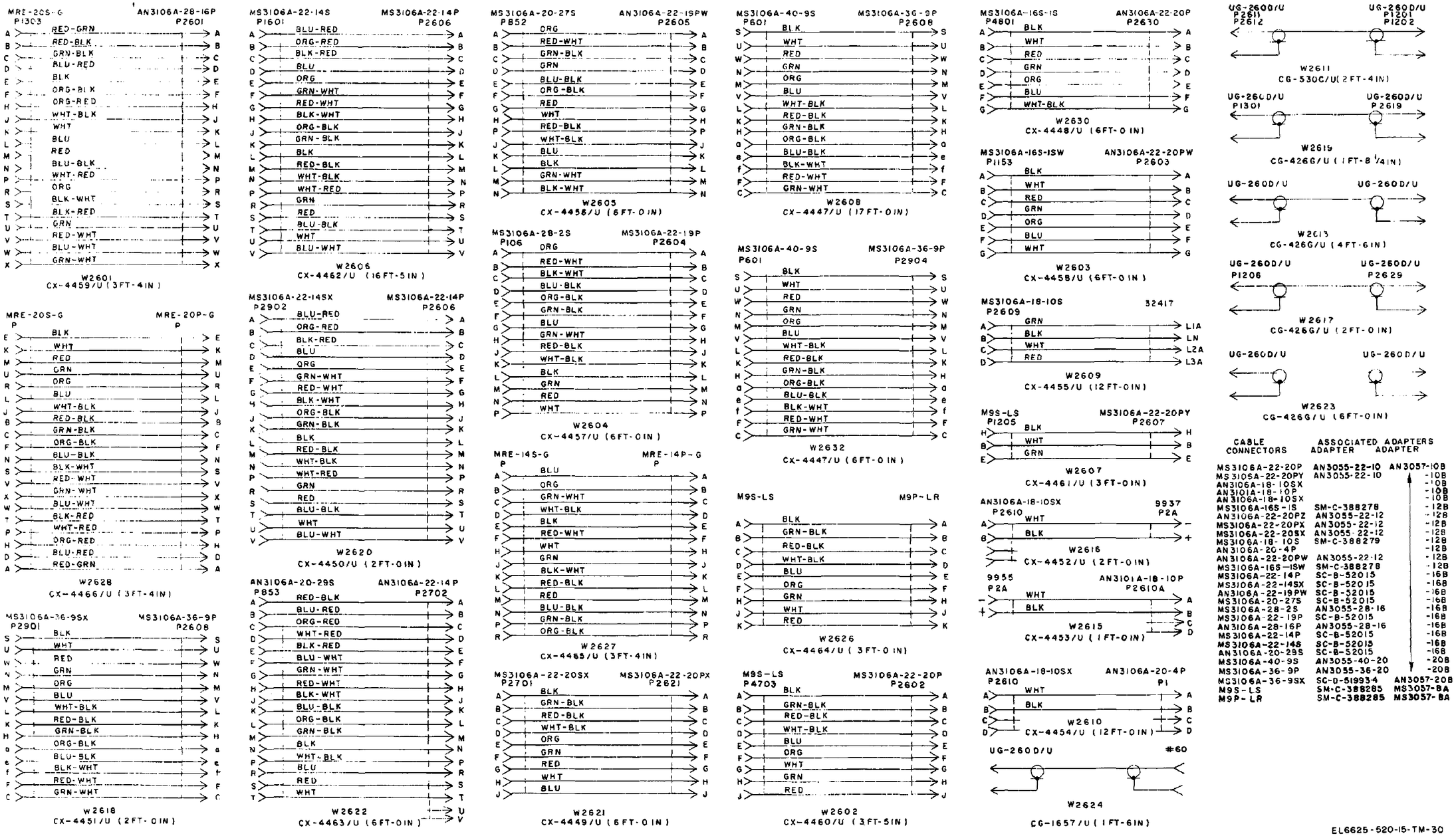
3. LETTERS INDICATE THE TEMPERATURE RANGE AND VOLTAGE-TEMPERATURE LIMITS DESIGNATED IN MIL-C-11015D.

4. TEMPERATURE COEFFICIENT IN PARTS PER MILLION PER DEGREE CENTIGRADE.

FO-1. Color code markings for MIL-STD resistors, inductors, and capacitors.



FO-2. Box, Interconnecting J-982/MPM-49, schematic diagram.



FO-3. Test Facilities Kit MK-387/MPM-49 cables, schematic diagram.

APPENDIX A
REFERENCES

DA Pam0 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	U.S. Army Index of Modification Work Orders.
SB 38-100	Preservation, Packaging, Packing and Marking Materials, Supplies, and Equipment Used by the Army.
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters.
TB SIG 355-1	Depot Inspection Standard for Repaired Signal Equipment.
TB SIG 355-2	Depot Inspection Standard for Refinishing Repaired Signal Equipment.
TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Resistant Treatment.
TM 11-5840-208-10	Operator's Manual: Radar Set AN/MPQ-4A.
TM 11-5840-208-30	DS Maintenance Manual: Radar Set AN/MPQ-4A.
TM 11-5840-208-45	GS and Depot Maintenance Manual: Radar Set AN/MPQ-4A.
TM 11-6125-200-10	Operator's Manual: Motor Generators PU-20/C, PU-20A/C, PU-20B/C, PU-20C/C and PU-33/C.
TM 11-6125-200-20	Organizational Maintenance Manual: Motor Generators PU-20/C, PU-20A/C, PU-20B/C, PU-20C/C, and PU-33/C.
TM 11-6125-200-20P	Organizational Maintenance Repair Parts and Special Tools List: Motor Generators PU-20/C, PU-20A/C, PU-20B/C, PU-20C/C and PU-33/C.
TM 11-6125-00-35	Field and Depot Maintenance Manual: Motor Generators PU-20/C, PU-20A/C, PU-20B/C, PU-20C/C, and PU-33/C.
TM 11-6125-200-34P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Motor Generators PU-20/C, PU-20A/C, PU-20B/C, PU-20C/C and PU-33/C.
TM 11-6125-217-14P	Operator's, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools): Motor Generator PU-335/MPM-25, (FSN 6125-823-2257).
TM 11-6625-366-15	Operator's, Organizational, DS, GS, and Depot Maintenance Manual: Multimeter TS-352B/U.
TM 11-6625-541-12	Operator and Organizational Maintenance Manual: Simulator, Antenna Position SM-154/MPQ-4A.
TM 11-6625-541-20P	Organizational Maintenance Repair Parts and Special Tool Lists: Simulator, Antenna Position SM-154/MPQ-4A, FSN 6625-064-6010.
TM 11-6625-541-45	General Support and Depot Maintenance Manual Including Repair Parts and Special Tool Lists: Simulator, Antenna Position SM-154/MPQ-4A.
TM 38-750	The Army Maintenance Management Systems (TAMMS).
TM 55-1500-323-25	Organizational, DS, GS, and Depot Maintenance Manual: Installation Practices for Aircraft Electric and Electronic Wiring.
TM 740-90-1	Administrative Storage of Equipment.
TM 750-244-2	Procedures for Destruction of Electronic Material to Prevent Enemy Use (Electronics Command).

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APPENDIX B

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

B-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Maintenance Kit, Electronic Equipment MK–673/MPQ–4A. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

B-2. Maintenance Functions

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 incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc. This is accomplished with external test equipment and does not include operation of the equipment and operator type tests using internal meters or indicating devices.

c. *Service.* To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. If it is desired that elements, such as painting and lubricating, be defined separately, they may be so listed.

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

e. *Align.* To adjust two or more components or assemblies of an electrical or mechanical system so that their functions are properly synchronized. This does not include setting the frequency control knob of radio receivers or transmitters to the desired frequency.

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 encampment, site, or vehicle.

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

i. *Repair.* To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function in. eludes, but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

j. Overhaul. Normally, the highest degree of maintenance performed by the Army in order to minimize time work in 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 materiel 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. Not applicable.

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.* Column 3 lists the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Code	*Maintenance category*
C.....	Operator/crew
O.....	Organizational maintenance
F.....	Direct support maintenance
H.....	General support maintenance
D.....	Depot maintenance

d. *Column 4, Tools and Test Equipment.* Column 4 specifies, by code, those tools and test equipments required to perform the designated function. The numbers appearing in this column refer to specific tools and test equipment which are identified in table I.

e. Column 5, *Remarks.* Self-explanatory.

B-4. Explanation of Format of Table I, Tool and Test Equipment Requirements

The columns in table I are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the *Tools and equipment column* of the maintenance allocation chart. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. *Nomenclature.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number of the specific tool or test equipment.

e. *Tool Number.* Not used.

SECTION II. MAINTENAMCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-673/MPQ-4A	C		O									18	Visual Preventive Maint
			O					O	O	O			1,2,18	
			D		D		D			D	D	D	1 through 18	Depot facilities
	ATTENUATOR, VARIABLE CN-491/G	C												Visual
				O									18	Preventive Maint
			O					O	O				18	
			D		D		D			D	D	D	1,11 through 18	Depot facilities
	ATTENUATOR, VARIABLE CN-492/G	C												Visual
				O									18	Preventive Maint
			O					O	O				18	
			D		D					D	D	D	1,11 through 18	Depot facilities
	COUPLER, DIRECTIONAL CU-673/U	C												Visual
				O									18	Preventive Maint
			O					O	O				18	
			D				D			D	D	D	1,11 through 18	Depot facilities
	DUMMY LOAD, ELECTRICAL DA-205/MPQ-4A	C												Visual
				O									18	Preventive Maint
			O					O	O	O			1,18	
			D							D	D	D	1,18	Depot facilities
	DUMMY LOAD, ELECTRICAL DA-206/MPQ-4A	C												Visual
				O									18	Preventive Maint
			O					O	O	O			1,18	
			D							D	D	D	1,18	Depot facilities

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	MK-673/MPQ-4A (cont)													
	TEST FACILITIES KIT MK-387/MPQ-49	C												Visual
				O									18	Preventive Maint
			O					O	O	O			1,18	
			D							D	D	D	1,18	Depot facilities
	INTERCONNECTING BOX J-982/MPQ-49	C												Visual
				O									18	Preventive Maint
			O					O	O	O			1,18	
			D							D	D	D	1,18	Depot facilities
	CABLES	C												Visual
				O									18	Preventive Maint
			O					O	O	O			1,18	
			D							D	D	D	1,18	Depot facilities
	MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-399/MPQ-4A	C												Visual
				O									18	Preventive Maint
			O					O	O	O			1,2,18	
			D		D		D			D	D	D	1 through 18	Depot facilities
	ANTENNA GROUP OA-1967/MPQ-4A	C												Visual
				O									18	Preventive Maint
			O					O	O				18	
			D							D	D	D	1,3 through 10,18	Depot facilities
	MIXER STAGE, FREQUENCY CV-662/U	C												Visual
				O									18	Preventive Maint
			O					O	O	O			1,18	
			D							D	D	D	1,18	Depot facilities

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	MK-673/MPQ-4A (cont)													
	PROBE, WAVEGUIDE RF-74/U	C												Visual
				O									18	Preventive Maint
			O					O	O	O			2,18	
			D		D		D			D	D	D	1,2,11 through 18	Depot facilities
	WAVEGUIDE ASSEMBLY CG-539/U	C												Visual
				O									18	Preventive Maint
			O					O	O				18	
			D							D	D	D	1,11 through 18	Depot facilities

TABLE I. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
		MK-673/MPQ-4A (cont)		
1	O,F,H,D	MULTIMETER TS-352B/U	6625-553-0142	
2	O,F,H,D	TEST SET, CRYSTAL UNIT QUARTZ TS-268E/U	6625-669-1215	
3	D	TEST SET, RADAR AN/UPM-60A	6625-569-0226	
4	D	FREQUENCY METER HP P532A	6625-691-6598	
5	D	CRYSTAL DETECTOR HP P424A	6625-980-9302	
6	D	MEASURING SET, STANDING WAVE RATIO AN/USM-37A	6625-814-8357	
7	D	STANDARD GAIN HORN SCIENTIFIC ATLANTIC MODEL 12-12		
8	D	RECORDER SET, RADIATION PATTERN R.F. AN/GPM-45	6625-752-8352	
9	D	ANTENNA PEDESTAL, AMPLIDYNE, AND CONTROL UNIT, DEPOT FACILITIES	Depot Only	
10	D	SLOTTED LINE, WAVEGUIDE CG-1655/U	6625-752-7887	
11	D	SWEEP OSCILLATOR HP 8690B	6625-442-3470	
12	D	RF UNIT HP 8695A	6625-928-0368	
13	D	LOW-PASS FILTER HP P362A	5915-888-4295	
14	D	DIRECTIONAL COUPLER HP P752D	5985-562-8870	
15	D	ADJUSTABLE SHORT HP P920B	6625-629-1990	
16	D	RATIO METER P 416B	6625-812-1046	
17	D	X-Y PLOTTER MOSELEY, MODEL 136A		
18	O,F,H,D	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-605-0079	

APPENDIX C

ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

C–1. Scope

This appendix lists repair parts required for the performance of organizational, general support, and depot maintenance of the MK–673/MPQ–4A.

NOTE

No special tools, test, or support equipment are required.

C-2. General

This repair parts list is divided into the following sections:

a. *Repair Parts for Organizational Maintenance-Section II.* A list of repair parts authorized for the performance of maintenance at the organizational level.

b. Repair Parts for Direct Support, General Support, and Depot Maintenance—Section III. A list of repair parts authorized for the performance of maintenance at the general support and depot level. No parts authorized for stockage at direct support.

c. *Inder-Federal Stock Number* and *Reference Number Cross-Reference to Figure Item Number or Reference Designation-Section IV.* A list of Federal stock numbers in ascending numerical sequence, followed by a list of reference numbers appearing in ascending alphanumeric sequence, cross-referenced to the figure number and reference designation.

d. *Index—Reference Designation Cross-Reference to Page Number—Section V.* A list of reference (designations cross-referenced to page numbers.

C–3. Explanation of Columns

The following provides an explanation of columns in the tabular lists:

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

(1) Source code. Indicates the manner of acquiring support items for maintenance, repair, or overhaul of end items, Source codes 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.

PC—Item procured and stocked and which otherwise \vould be coded PA, except that it is deteriorative in nature.

PD—Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or 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—Items 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—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

Code *Explanation*

can be replaced at organizational, 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 organizational level.

MF—Item to be manufactured or fabricated at direct support maintenance level.

MH—Item to be manufactured or fabricated at general support maintenance 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, or field service drawing, that is identified by manufacturers' part number.

BLANK—Support items listed in this RPSTL-TM assigned maintenance and recoverability codes and no source codes can be requisitioned with justification.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded XB and aircraft support items as restricted by AR 700–42.

(2) *Maintenance code.* The first digit of the maintenance code indicates the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position indicates one of the following levels of maintenance:

Code *Application/Explanation*

O—Support items is removed, replaced, used at the organizational level of maintenance.

NOTE

A code "C" may be used in this position to denote crew or operator maintenance performed within organizational maintenance.

Code *Application,/Explanathn*

F—Support item is removed, replaced, used at the direct support maintenance level.

H—Support item is removed, replaced, used at the general support maintenance.

D—Support items that are removed, replaced, used at depot only.

(3) *Maintenance code.* The second digit of the maintenance code indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions).

Code *Application/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 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 item is the depot level.

L — Repair restricted to designated Specialized Repair Activity.

Z—Nonrepairable. 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 the disposition action on unserviceable items.

Code *Definition*

Z—Nonrepairable item. When unserviceable, condemn and dispose at the level indicated in the first digit of the maintenance code.

O—Repairable item. When uneconomically repairable, condemn and dispose at organizational level.

Code Definition

F—Repairable item. When unecónomomically 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. Federal Stock Number. Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. Indicates the Federal item name and a minimum description required to identify the item. The last line indicates the reference number followed by the applicable Federal supply code for manufacturer (FSCM) in parentheses. The FSCM is used as an element in item identification to designate manufacturer or distributor or Government agency, etc., and is identified in SB 708-42.

d. Unit of Measure (U/M). Indicates the standard or basic quantity by which the listed item is used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation, e.g., ea, in., pr, etc., and is the basis used to indicate quantities and allowances in subsequent columns. When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

e. Quantity Incorporated in *Unit.* Indicates the quantity of the item used in the breakout shown on the figure, which is prepared for a functional group, subfunctional group, or an assembly.

f. *15-Day Organizational Maintenance Allowances.*

(1) The repair parts indicated by an asterisk in the allowance columns represent those authorized for use at the organizational category and will be requisitioned on as "as required" basis until stockage is based on demand in accordance with AR 710–2.

(2) Major Army commanders are authorized to approve reduction in range of support items authorized for use in units within their commands, Recommendation for increase in range of items authorized for use will be forwarded to the Commander, US Army Electronics Command, ATTN: AMSEL-MA-S, Fort Monmouth, NJ 07703. Any changes approved will be reflected in a revision to the RPSTL.

(3) Allowance quantities are indicated in the special tools list section for special tools, TMDE, and other support equipment.

g. *30-Day DS/GS Maintenance Allowances.*

NOTE

Allowances in GS column are for GS maintenance only.

(1) The repair parts indicated by asterisk entries in separate allowance columns for DS and GS represent those authorized for use at that category of maintenance to be requisitioned on an "as required" basis until stockage is based on demand in accordance with AR 710-2.

(2) Allowance quantities are indicated in the special tools list section for special tools, TMDE, and other support equipment.

h. One-Year Allowances per 100 Equipment/ Contingency Planning Purposes. This column indicates that the item identified with an asterisk is authorized to be requisitioned as required.

i. Depot Maintenance Allowance per 100 Equipments. This column indicates that the item identified with an asterisk is authorized to be requisitioned as required.

j. Illustration. This column is divided as follows:

(1) Figure number. Indicates the figure number on which the item is shown.

(2) *Item number or reference designation.* Indicates the reference designation used to reference the item on the illustration,

C-4. Location of Repair Parts

a. This appendix contains two cross-reference indexes (sees. IV and V) to be used to locate a repair part when either the Federal stock number, reference number (manufacturer's part number), or reference designation is known. The first column in each index is prepared in numerical

or alphanumeric sequence in ascending order. Where a Federal stock number is not listed, refer to the reference number (manufacturer's part numbers) immediately following the Federal stock number.

b. When the Federal stock number or reference number is known, follow the procedures given in (1) and (2) below.

(1) Refer to the index of Federal stock numbers (sec. IV) and locate the Federal stock number. The FSN is cross-referenced to the applicable figure and reference designation,

(2) When the reference designation is determined, refer to the reference designation index (sec. V). The reference designations are listed in alphanumeric ascending order and are cross-referenced to the page number on which they appear in the repair parts list (sees. II and III). Refer to the page number noted in the index and locate the reference designation in the repair part list (col. 7b and 10 b).

c. When the reference designation is known, follow the procedures given in b(2) above.

d. When neither the FSN, reference number, nor reference designation is known, identify the part in the illustration and follow directions given in c above, or scrutinize column 3 of the repair parts list (secs. II and III).

[Next page is C-5]

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code — USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
	6625-064-6013	TEST FACILITIES KIT, ELECTRONIC EQUIPMENT MK-673/MPM-4A (THIS ITEM IS NONEXPENDABLE)								
PAOOD	6625-786-4136	TEST FACILITIES KIT MK-387/MPM-49 (80058)	EA	1	*	*	*	*		
PAOZZ	5975-231-5892	ADAPTER, CABLE TO CONNECTOR AN3055-22-10 (88044)	EA	4	*	*	*	*		
PAOZZ	5975-231-5893	ADAPTER, CABLE TO CONNECTOR AN3055-22-12 (88044)	EA	5	*	*	*	*		
PAOZZ		ADAPTER, CABLE TO CONNECTOR AN3055-28-12 (88044)	EA	1	*	*	*	*		
PAOZZ	5975-231-5896	ADAPTER, CABLE TO CONNECTOR AN3055-28-16 (88044)	EA	1	*	*	*	*		
PAOZZ	5975-231-5912	ADAPTER, ELECTRICAL CONDUIT AN3055-36-20 (88044)	EA	4	*	*	*	*		
PAOZZ	5975-231-5916	ADAPTER, ELECTRICAL CONDUIT AN3055-40-20 (88044)	EA	2	*	*	*	*		
PAOZZ	5935-283-3394	ADAPTER, CABLE TO CONNECTOR AN3057-12B (88044)	EA	7	*	*	*	*		
PAOZZ	5935-280-1936	ADAPTER, CABLE TO CONNECTOR AN3057-10B (88044)	EA	10	*	*	*	*		
PAOZZ	5935-280-1935	ADAPTER, CABLE TO CONNECTOR AN3057-16B (88044)	EA	7	*	*	*	*		
PAOZZ	5935-259-2578	ADAPTER, CABLE TO CONNECTOR AN3057-20B (88044)	EA	6	*	*	*	*		
PAOZZ		ADAPTER, CABLE TO CONNECTOR MEC-4655-9052 (74082)	EA	3	*	*	*	*		
PAOZZ		ADAPTER, CABLE TO CONNECTOR MEC-4655-9057 (74082)	EA	6	*	*	*	*		
PAOZZ		BUSHING, RUBBER AN3420-10A (88044)	EA	1	*	*	*	*		
PAOZZ		CABLE, RADIOFREQUENCY RG59A/U (81349)	FT	27	*	*	*	*		
PAOZZ		CONNECTOR, PLUG, ELECTRICAL UG-260B/U (81349)	EA	14	*	*	*	*	FO-3	P101, P103, P1201, P1202, P1204, P1206, P1301, P1302, P2611, P2612, P2619, P2623, P2625, P2629
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-16S-1S (88044)	EA	1	*	*	*	*	FO-3	P1901
PAOZZ	5935-199-2622	CONNECTOR, PLUG, ELECTRICAL AN3101A-18-10P (88044)	EA	1	*	*	*	*	FO-3	P2610A
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-18-10SX (88044)	EA	2	*	*	*	*	FO-3	P2610
PAOZZ	5935-199-2626	CONNECTOR, PLUG, ELECTRICAL AN3106A-20-4P (88044)	EA	1	*	*	*	*	FO-3	P1
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-20-27S (88044)	EA	1	*	*	*	*	FO-3	P852
PAOZZ	5935-283-3837	CONNECTOR, PLUG, ELECTRICAL AN3106A-22-14P (88044)	EA	2	*	*	*	*	FO-3	P2606, P2702
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-22-14S (88044)	EA	1	*	*	*	*	FO-3	P1601
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-22-14SX (88044)	EA	1	*	*	*	*	FO-3	P2902
PAOZZ	5935-259-0022	CONNECTOR, PLUG, ELECTRICAL AN3106A-22-19P (88044)	EA	2	*	*	*	*	FO-3	P2604, P2605
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-22-20PW (88044)	EA	1	*	*	*	*	FO-3	P2603

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-[illegible]-[illegible] (88044)	EA	1	*	*	*	*	FO-3	
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-[illegible] (88044)	EA	1	*	*	*	* F	FO-3	P2621
PAOZZ	5935-186-2786	CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-[illegible] (88044)	EA	1	*	*	*	*		
PAOZZ	5935-222-7814	CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-[illegible] (88044)	EA	1	*	*	*	*	FO-3	P2601
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-22-20PX (88044)	EA	1	*	*	*	*	FO-3	P2701
PAOZZ	5935-669-4061	CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible] (88044)	EA	3	*	*	*	*	FO-3	P2608, P2904
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-[illegible]X (88044)	EA	1	*	*	*	*	FO-3	P2903
PAOZZ	5935-258-0323	CONNECTOR, PLUG, ELECTRICAL MRP (81312)	EA	2	*	*	*	*		
PAOZZ	5935-258-9003	CONNECTOR, PLUG, ELECTRICAL 9937 (74545)	EA	1	*	*	*	*	FO-3	P2A
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-[illegible]-[illegible]W (88044)	EA	1	*	*	*	*	FO-3	P1153
PAOZZ	5935-259-0042	CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-[illegible]-10S (88044)	EA	1	*	*	*	*	FO-3	P2609
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL MRE20[illegible]-G (81312)	EA	3	*	*	*	*	FO-3	P1303
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-20-[illegible] (88044)	EA	1	*	*	*	*	FO-3	P853
PAOZZ	5935-222-7785	CONNECTOR, PLUG, ELECTRICAL AN3106A-22-20P (88044)	EA	1	*	*	*	*	FO-3	P2602
PAOZZ	5935-844-5791	CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-[illegible]-2[illegible] (88044)	EA	1	*	*	*	*	FO-3	P106
PAOZZ	5935-552-3029	CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-40-[illegible] (88044)	EA	2	*	*	*	*	FO-3	P601
PAOZZ	5935-257-9581	CONNECTOR, RECEPTACLE, ELECTRICAL M[illegible]-L[illegible] (81312)	EA	4	*	*	*	*	FO-3	
PAOZZ	5935-198-9608	CONNECTOR, RECEPTACLE, ELECTRICAL MRE-14[illegible]-G (81312)	EA	2	*	*	*	*	FO-3	
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL MRE20[illegible]-G (81312)	EA	2	*	*	*	*	FO-3	
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL 9955 (74545)	EA	1	*	*	*	*	FO-3	P2A
PAOOD	5840-543-0536	CONTROL POWER SUPPLY C-2014/MPQ-4A (80058)	EA	1	*	*	*	*	1-1	
PAOOD	5840-542-6253	POWER SUPPLY PP-1588/MPQ-4A (80058)	EA	1	*	*	*	*	1-1	
PAOOD	6625-612-6110	INTER-CONNECTING BOX J-982/MPM-49 (80058)	EA	1	*	*	*	*	1-1	
PAOZZ		CAPACITOR, FIXED, MICA DIELECTRIC CM60B223K (81349)	EA	1	*	*	*	*	7-3	C2601
PAOZZ		CAPACITOR, FIXED, PAPER DIELECTRIC P09ALKC104K (81349)	EA	1	*	*	*	*	7-3	C2608
PAOZZ	5935-853-7596	CONNECTOR, RECEPTACLE, ELECTRICAL UG-1094A/U (81349)	EA	10	*	*	*	*	3-6	J2611 thru J2614, J2619, J2620, J2623, J2625, J2629, J2631
PAOZZ	5935-810-9768	CONNECTOR, PLUG, ELECTRICAL AN3102A-18-10P (88044)	EA	2	*	*	*	*	3-7	J2609, J2610

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ	5935-686-0271	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-14S (88044)	EA	1	*	*	*	*	3-7	J2606
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-19S (88044)	EA	2	*	*	*	*	3-5	J2604, J2605
PAOZZ	5935-932-3140	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-20S (88044)	EA	5	*	*	*	*	3-5	J2602, J2603, J2607, J2621, J2630
PAOZZ	5935-992-7408	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-28-16S (88044)	EA	1	*	*	*	*	3-5	J2601
PAOZZ	5935-821-4647	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-36-9S (88044)	EA	1	*	*	*	*	3-7	J2608
PAOZZ		FUSEHOLDER HCM (71400)	EA	4	*	*	*	*	3-5	XF2601 thru XF2604
PAOZZ		FUSE, CARTRIDGE AGC-2 (71400)	EA	3	*	*	*	*	3-5	F2602, F2603, F2604
PAOZZ		FUSE, CARTRIDGE ABC (71400)	EA	1	*	*	*	*	3-5	J2601
PAOZZ		KNOB MEC-4655-8034 (74082)	EA	2	*	*	*	*		
PAOZZ	6240-223-9100	LAMP, GLOW NE-51 (81349)	EA	4	*	*	*	*	3-5 3-7	I2602, I2603, I2604 I2605
PAOZZ	6240-132-5351	LAMP, INCANDESCENT S-6 (24446)	EA	1	*	*	*	*	3-5	I2606
PAOZZ	6210-500-0169	LENS, INDICATOR LIGHT 82-137 (72619)	EA	4	*	*	*	*	3-5 3-7	I2602, I2603, I2604 I2605
PAOZZ		LENS, INDICATOR LIGHT 80-511 (72619)	EA	1	*	*	*	*	3-5	I2606
PAOZZ		LIGHT, INDICATOR 822210-1 (72619)	EA	4	*	*	*	*	3-5	I2602 thru I2605
PAOZZ		LIGHT, INDICATOR 80202-51 (72619)	EA	1	*	*	*	*	3-5	I2606
PAOZZ	5945-752-5358	RELAY, SOLENOID KS-4005 (12300)	EA	1	*	*	*	*	7-4	K2601
PAOZZ	5905-279-3525	RESISTOR, FIXED, COMPOSITION RC42GF680J (81349)	EA	1	*	*	*	*	7-4	R2613
PAOZZ	5905-116-8567	RESISTOR, FIXED, COMPOSITION RC20GF750J (81349)	EA	2	*	*	*	*	7-4 7-3	R2610 R2615
PAOZZ	5905-141-0727	RESISTOR, FIXED, COMPOSITION RC20GF201J (81349)	EA	1	*	*	*	*	7-4	R2609
PAOZZ	5905-121-9922	RESISTOR, FIXED, COMPOSITION RC20GF431J (81349)	EA	1	*	*	*	*	7-3	R2616
PAOZZ	5905-111-4858	RESISTOR, FIXED, COMPOSITION RC20GF471J (81349)	EA	1	*	*	*	*	7-3	R2621
PAOZZ	5905-190-8867	RESISTOR, FIXED, COMPOSITION RC42GF512J (81349)	EA	3	*	*	*	*	7-3	R2626, R2627, R2628
PAOZZ	5905-141-0591	RESISTOR, FIXED, COMPOSTION RC20GF103J (81349)	EA	2	*	*	*	*	7-3	R2612, R2618
PAOZZ		RESISTOR, FIXED, COMPOSITION RC42GF103J (81349)	EA	2	*	*	*	*	7-3	R2623, R2624
PAOZZ	5905-642-1680	RESISTOR, FIXED, WIRE WOUND RW33G123 (81349)	EA	1	*	*	*	*	7-4	R2622
PAOZZ	5905-106-1273	RESISTOR, FIXED, COMPOSITION RC20GF153J (81349)	EA	1	*	*	*	*	7-3	R2605
PAOZZ	5905-195-6754	RESISTOR, FIXED, COMPOSITION RC42GF473J (81349)	EA	1	*	*	*	*	7-3	R2608

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ	5905-106-9348	RESISTOR, FIXED, COMPOSITION RC20GF154J (81349)	EA	3	*	*	*	*	FO-2	R2602, R2603, R2604
PAOZZ	5905-104-8346	RESISTOR, FIXED, COMPOSITION RC20GF334J (81349)	EA	2	*	*	*	*	7-3	R2606, R2607
PAOZZ	5905-259-3767	RESISTOR, FIXED, COMPOSITION RC42GF334J (81349)	EA	1	*	*	*	*	7-3	R2601
PAOZZ	5905-878-4999	RESISTOR, VARIABLE LINEAR 810-203 (02111)	EA	1	*	*	*	*	7-3	R2614
PAOZZ		RESISTOR, FIXED, FILM RN60BF1240F (81349)	EA	1	*	*	*	*	7-3	R2619
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW33V5R0 (81349)	EA	1	*	*	*	*	7-4	R2620
PAOZZ	5905-539-1559	RESISTOR, VARIABLE RV4NAYSD253A (81349)	EA	1	*	*	*	*	7-3	R2617
PAOZZ	5960-284-5834	RECTIFIER, ELECTRON TUBE SM-C-2092585-5 (80063)	EA	1	*	*	*	*		H2061
PAOZZ	5935-935-2231	SOCKET, ELECTRON TUBE TS101P02 (81349)	EA	1	*	*	*	*		XK2601
PAOZZ	5930-655-1514	SWITCH, TOGGLE ST42A (81349)	EA	3	*	*	*	*	FO-2	S2601, S2611, S2612
PAOZZ	5930-577-2523	SWITCH, TOGGLE MS25068-24 (96906)	EA	6	*	*	*	*	FO-2	S2602, S2603, S2606, S2608, S2609, S2610
PAOZZ	5930-655-1507	SWITCH, TOGGLE ST26K (81349)	EA	2	*	*	*	*	FO-2	S2605, S2607
PAOZZ		SWITCH, TOGGLE 7665K3 (15605)	EA	1	*	*	*	*	FO-2	S2604
PAOZZ	5961-669-6884	SEMICONDUCTOR, DEVICE DIODE 1N69A (81349)	EA	1	*	*	*	*	7-3	CR2601
PAOZZ	6625-752-2375	COVER, POWER SUPPLY CW-475/MPM-49 (80058)	EA	1	*	*	*	*	1-1	
PAOZZ	6625-752-2374	COVER, POWER SUPPLY CW-476/MPM-49 (80058)	EA	1	*	*	*	*	1-1	
PA000	5995-752-2459	CABLE ASSEMBLY, RADIOFREQUENCY CG-530C/U (80058)	EA	2	*	*	*	*	1-2	
PA000	6625-812-5269	CABLE ASSEMBLY, RADIOFREQUENCY CG-1657/U (80058)	EA	1	*	*	*	*	1-2	
PA000	6625-752-2408	CABLE ASSEMBLY, POWER ELECTRICAL CX-4447/U 6 FT (80058)	EA	1	*	*	*	*	1-2	
PA000	6625-811-5713	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4447/U 17 FT (80058)	EA	1	*	*	*	*	1-2	
PA000	6625-811-5711	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4448/U (80058)	EA	1	*	*	*	*	1-2	
PA000	6625-811-5712	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4449/U (80058)	EA	1	*	*	*	*	1-2	
PA000	6625-811-5720	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4450/U (80058)	EA	1	*	*	*	*	1-2	
PA000	6625-752-2409	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4451/U (80058)	EA	1	*	*	*	*	1-2	
PA000	6625-812-1847	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4452/U (80058)	EA	1	*	*	*	*	1-2	
PA000	6625-812-1848	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4453/U (80058)	EA	1	*	*	*	*	1-2	

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PA000	6625-812-1849	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4454/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-812-1846	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4455/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-812-1850	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4456/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-812-1851	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4457/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-811-6879	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4458/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-752-2281	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4462/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-811-5710	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4463/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-752-2345	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4459/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-752-2376	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4460/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-752-2446	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4461/U (80058)		EA	1	*	*	*	*	1-2	
PA000	6625-752-2438	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4464/U (80058)		EA	2	*	*	*	*	1-2	
PA000	6625-752-2440	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4465/U (80058)		EA	2	*	*	*	*	1-2	
PA000	6625-752-2439	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4466/U (80058)		EA	2	*	*	*	*	1-2	
PA000		CORD CG-426D/U (80058)		EA	3	*	*	*	*	1-2	
PA000	5995-577-3408	CORD CG-426D/U (80058)		EA	4	*	*	*	*	1-2	
PA000	5995-752-2466	CORD CG-426L/U (80058)		EA	2	*	*	*	*	1-2	
PA000	5995-130-5823	CABLE ASSEMBLY RFCG-462D/U (80058)		EA	1	*	*	*	*	1-2	
PA00L	6625-064-6012	MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-399/MPQ-4A (80058)		EA	1	*	*	*	*	1-3	
PAOZZ	6145-661-0191	CABLE, RADIOFREQUENCY RG-59I/U (81349)		FT	36	*	*	*	*		
PAOZZ		CLIP, ELECTRICAL SM-B-432635-1 (80063)		EA	2	*	*	*	*		
PAOZZ		CLIP, ELECTRICAL SM-B-432635-2 (80063)		EA	2	*	*	*	*		
PAOZZ		CONNECTOR, PLUG, ELECTRICAL UG-260D/U (81349)		EA	8	*	*	*	*		P3501 thru P3504, P3506
PAOZZ	5935-892-8988	CONNECTOR, PLUG, ELECTRICAL 7226689P001 (24446)		EA	2	*	*	*	*		P3505
PAODD		ANTENNA GROUP OA-1967/MPQ-4A (80058)		EA	1	*	*	*	*	1-3	
PAODD		ANTENNA AS-1312/MPQ-4A (80058)		EA	1	*	*	*	*	1-3	
PAOZZ		CLAMP, LOOP TA90B6-11R (84971)		EA	1	*	*	*	*		
PAOZZ	5840-973-3126	COVER, WAVEGUIDE FLANGE SM-C-432939 (80063)		EA	1	*	*	*	*		

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ	5840-973-3127	HORN, WAVEGUIDE SM-C-432558 (80063)		EA	1	*	*	*	*		
PAOZZ	5840-973-3128	REFLECTOR SUBASSEMBLY SM-C-432917-1 (80063)		EA	1	*	*	*	*		
PAOZZ	5840-973-3129	WAVEGUIDE ASSEMBLY SM-C-432914 (80063)		EA	1	*	*	*	*		
PAOZZ	6625-086-7653	TARGET, ANTENNA, ALIGNMENT MX-4390/MPQ-4A (80058)		EA	1	*	*	*	*	1-3	
PAOOD	6625-086-7652	TRIPOD, ANTENNA MT-2775/MPQ-4A (80058)		EA	1	*	*	*	*	1-3	
PAOZZ		KNOB: SCREW TYPE SM-B-432927 (80063)		EA	3	*	*	*	*	7-6	
PAOZZ	5840-973-3130	LEVER, CAM ACTION SM-B-432920 (80063)		EA	1	*	*	*	*	7-6	
PAOZZ		THUMBSCREW SM-B-432922 (80063)		EA	4	*	*	*	*	7-6	
PAOZZ		WASHER, NONMETALLIC SM-B-432933 (80063)		EA	1	*	*	*	*	7-6	
PAOZZ		CASE, ACCESSORIES CY-3684/MPQ-4A (80058)		EA	1	*	*	*	*	1-3	
PAOZZ	4030-243-0372	GUY, STAKE SM-B-432793 (80063)		EA	3	*	*	*	*	1-3	
PAOZZ		GUY, ASSEMBLY SM-B-469614 (80063)		EA	1	*	*	*	*	1-3	
PAOZZ	4010-937-7398	GUY, ASSEMBLY SM-B-469616 (80063)		EA	1	*	*	*	*	1-3	
PAOOD		MIXER STAGE, FREQUENCY CV-662/U (80058)		EA	1	*	*	*	*	1-3	
PAOZZ		CAPACITOR, FIXED, PAPER DIELECTRIC CP09A1KE474K (81349)		EA	1	*	*	*	*	7-7	C1
PAOZZ	5935-853-7596	CONNECTOR, RECEPTACLE, ELECTRICAL UG-1094A/U (81349)		EA	4	*	*	*	*	7-7	J1 thru J4
PAOZZ	5330-810-3501	GASKET SC-B-49254 (80063)		EA	1	*	*	*	*		
PAOZZ		KNOB, POINTER SHAPE 789613P1 (24446)		EA	1	*	*	*	*		
PAOZZ	5905-121-9859	RESISTOR, FIXED, COMPOSITION RC20GF106J (81349)		EA	1	*	*	*	*	7-7	R3
PAOZZ		RESISTOR, FIXED, COMPOSITION RC20GF392J (81349)		EA	1	*	*	*	*	7-7	R2
PAOZZ	5905-542-9981	RESISTOR, VARIABLE RV4NASD505A (81349)		EA	1	*	*	*	*	7-7	R1
PAOZZ	5961-669-6884	SEMICONDUCTOR DEVICE, DIODE 1N69A (81349)		EA	2	*	*	*	*	7-7	CR1, CR2
PAOZZ	5930-655-1515	SWITCH, TOGGLE MS35058 (96906)		EA	1	*	*	*	*	7-7	S1
PAOZZ	5940-665-9982	TERMINAL, STUD M3449-5C-HT-C (95076)		EA	1	*	*	*	*	7-7	
PAOOD	5985-892-5549	PROBE, WAVEGUIDE RF-74/U (80058)		EA	1	*	*	*	*	1-3	
PAOZZ	5961-838-4290	SEMICONDUCTOR DEVICE, DIODE 1N78 (81349)		EA	1	*	*	*	*		
PAOZZ	5985-501-0832	WAVEGUIDE, FLEXIBLE CG-539/U (80058)		EA	1	*	*	*	*	1-3	

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PA000		CABLE ASSEMBLY, RADIOFREQUENCY CG-426G/U 2 FT (80058)	EA	1	*	*	*	*	1-3	W3501
PA000	5995-889-0745	CABLE ASSEMBLY, RADIOFREQUENCY CG-426G/U 6 FT (80058)	EA	1	*	*	*	*	1-3	W3502
PA000	6625-889-0968	CABLE ASSEMBLY, RADIOFREQUENCY CG-1657A/U (80058)	EA	2	*	*	*	*	1-3	W3503, W3504
PA000	5995-889-0736	CABLE ASSEMBLY, RADIOFREQUENCY CG-1658/U 4 FT (80058)	EA	1	*	*	*	*	1-3	W3505
PA000	5995-889-0762	CABLE ASSEMBLY, RADIOFREQUENCY CG-1658/U 12 FT (80058)	EA	1	*	*	*	*	1-3	W3506
PA0ZZ	5985-752-3222	ATTENUATOR, VARIABLE CN-491/G (80058)	EA	1	*	*	*	*	1-4	
PA0ZZ	5985-636-8405	ATTENUATOR, VARIABLE CN-492/G (80058)	EA	1	*	*	*	*	1-4	
PA0ZZ	5985-892-3732	COUPLER, DIRECTIONAL CU-673/U (80058)	EA	1	*	*	*	*	1-4	
PA00D	5840-892-3750	DUMMY LOAD, ELECTRICAL DA-205/MPQ-4A (80058)	EA	1	*	*	*	*	1-4	
PA0ZZ		BUMPER, RUBBER 16 (82462)	EA	4	*	*	*	*		
PA0ZZ	5935-686-0271	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-14PX (88044)	EA	1	*	*	*	*	3-3	J2902
PA0ZZ		CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-14S (88044)	EA	1	*	*	*	*	3-3	J2903
PA0ZZ	5935-557-2939	JACK, TIP 105-601-9 (74970)	EA	2	*	*	*	*	7-1	J2917, J2918
PA0ZZ		JACK, TIP 105-602-9 (74970)	EA	3	*	*	*	*	7-1	J2906, J2907, J2916
PA0ZZ		JACK, TIP 105-603-9 (74970)	EA	2	*	*	*	*	7-1	J2914, J2915
PA0ZZ		JACK, TIP 105-604-9 (74970)	EA	1	*	*	*	*	7-1	J2905
PA0ZZ		JACK, TIP 105-608-9 (74970)	EA	6	*	*	*	*	7-1	J2908 thru J2913
PA0ZZ		KNOB 78961361 (24446)	EA	1	*	*	*	*	3-3	
PA0ZZ	5905-279-2530	RESISTOR, FIXED, COMPOSITION RC42GF152J (81349)	EA	1	*	*	*	*	7-1	J2905
PA0ZZ	5905-636-6742	RESISTOR, FIXED, WIRE WOUND RW31V162 (81349)	EA	1	*	*	*	*	7-1	R2911
PA0ZZ	5905-823-4013	RESISTOR, FIXED, WIRE WOUND RW33V2R4 (81349)	EA	1	*	*	*	*	7-1	R2918
PA0ZZ	5905-842-2978	RESISTOR, FIXED, WIRE WOUND RW33V3R0 (81349)	EA	1	*	*	*	*	7-1	R2917
PA0ZZ		RESISTOR, FIXED, WIRE WOUND RW33V312 (81349)	EA	1	*	*	*	*	7-1	R2910
PA0ZZ		RESISTOR, FIXED, WIRE WOUND RW33V802 (81349)	EA	1	*	*	*	*	7-1	R2901
PA0ZZ	5905-549-6965	RESISTOR, FIXED, WIRE WOUND RW35V102 (81349)	EA	1	*	*	*	*	7-1	R2914
PA0ZZ	5905-855-3712	RESISTOR, FIXED, WIRE WOUND RW35V252 (81349)	EA	1	*	*	*	*	7-1	R2906
PA0ZZ	5905-683-6566	RESISTOR, FIXED, WIRE WOUND RW35V312 (81349)	EA	1	*	*	*	*	7-1	R2908

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ	5905-853-1256	RESISTOR, FIXED, WIRE WOUND RW35V621 (81349)		EA	1	*	*	*	*	7-1	R2912
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW35V801 (81349)		EA	1	*	*	*	*	7-1	R2913
PAOZZ	5905-549-6195	RESISTOR, FIXED, WIRE WOUND RW55V2R0 (81349)		EA	1	*	*	*	*	7-1	R2916
PAOZZ	5905-878-6638	RESISTOR, FIXED, WIRE WOUND RW55V5R1 (81349)		EA	1	*	*	*	*	7-1	R2915
PAOZZ	5905-642-1980	RESISTOR, FIXED, WIRE WOUND RW55V201 (81349)		EA	1	*	*	*	*	7-1	R2907
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW55V401 (81349)		EA	1	*	*	*	*	7-1	R2909
PAOZZ	5905-257-9180	RESISTOR, FIXED, WIRE WOUND RW56G123 (81349)		EA	1	*	*	*	*	7-1	R2904
PAOZZ	5905-879-1163	RESISTOR, FIXED, WIRE WOUND RW56V502 (81349)		EA	2	*	*	*	*	7-1	R2902, R2903
PAOZZ	5910-667-7179	RETAINER, CAPACITOR 500-500-1129 (80033)		EA	16	*	*	*	*		
PAOZZ		RETAINER, CAPACITOR 500-750-1129 (80033)		EA	10	*	*	*	*		
PAOZZ		SCREW, SELF-LOCKING 1/4-20X5/8LG (72228)		EA	4	*	*	*	*		
PAOZZ		SCREW, SELF-LOCKING 1/4-20X7/16LG (72228)		EA	4	*	*	*	*		
PAOZZ		SWITCH, ROTARY 167934DE1C (76854)		EA	1	*	*	*	*	7-1	S2901
PAOZZ	5930-642-9251	SWITCH, TOGGLE 7660 (15605)		EA	1	*	*	*	*	7-1	S2902
PAOZZ		TERMINAL BOARD 8-141 (71785)		EA	2	*	*	*	*	7-1	TB2901, TB2902
PAOZZ		TERMINAL BOARD SC-D-857000001 (80063)		EA	1	*	*	*	*		
PAOOD	5840-892-3749	DUMMY LOAD, ELECTRICAL DA-206/MPQ-4A (80058)		EA	1	*	*	*	*	1-4	
PAOZZ		BUMPER, RUBBER 16 (82462)		EA	4	*	*	*	*		
PAOZZ		BUSHING, RUBBER 7209555P3 (24446)		EA	8	*	*	*	*		
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL MS3102A36-9PX (96906)		EA	1	*	*	*	*	3-4	J2901
PAOZZ	5935-821-4647	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-36-9S (88044)		EA	1	*	*	*	*	3-4	R2904
PAOZZ	5935-557-2939	JACK, TIP 105-601-9 (74970)		EA	2	*	*	*	*	3-4	J2926, J2927
PAOZZ		JACK, TIP 105-602-9 (74970)		EA	4	*	*	*	*	3-4	J2920, J2921, J2922, J2924
PAOZZ		JACK, TIP 105-603-9 (74970)		EA	3	*	*	*	*	3-4	J2923, J2925, J2928
PAOZZ		JACK, TIP 105-604-9 (74970)		EA	1	*	*	*	*	3-4	J2919
PAOZZ		KNOB 789613P1 (24446)		EA	1	*	*	*	*		
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW33V312 (81349)		EA	1	*	*	*	*	7-2	R2919

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ	5905-636-9915	RESISTOR, FIXED, WIRE WOUND RW35V103 (81349)	EA	1	*	*	*	*	7-2	R2930
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW35V632 (81349)	EA	1	*	*	*	*	7-2	R2928
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW35V802 (81349)	EA	1	*	*	*	*	7-2	R2929
PAOZZ	5905-643-7196	RESISTOR, FIXED, WIRE WOUND RW37V621 (81349)	EA	1	*	*	*	*	7-2	R2927
PAOZZ	5905-754-9122	RESISTOR, FIXED, WIRE WOUND RW47V100 (81349)	EA	1	*	*	*	*	7-2	R2931
PAOZZ	5905-846-1075	RESISTOR, FIXED, WIRE WOUND RW47V391 (81349)	EA	1	*	*	*	*	7-2	R2925
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW47V501 (81349)	EA	1	*	*	*	*	7-2	R2926
PAOZZ	5905-666-2553	RESISTOR, FIXED, WIRE WOUND RW55V122 (81349)	EA	1	*	*	*	*	7-2	R2922
PAOZZ	5905-642-3780	RESISTOR, FIXED, WIRE WOUND RW55V202 (81349)	EA	1	*	*	*	*	7-2	R2924
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW55V501 (81349)	EA	1	*	*	*	*	7-2	R2920
PAOZZ	5905-841-7446	RESISTOR, FIXED, WIRE WOUND RW56V312 (81349)	EA	1	*	*	*	*	7-2	R2921
PAOZZ	5905-882-7217	RESISTOR, FIXED, WIRE WOUND RW56V392 (81349)	EA	1	*	*	*	*	7-2	R2923
PAOZZ	5910-667-7179	RETAINER, CAPACITOR 500-500-1129 (80033)	EA	7	*	*	*	*		
PAOZZ		RETAINER, CAPACITOR 500-750-1129 (80033)	EA	6	*	*	*	*		
PAOZZ		SCREW, SELF-LOCKING 1/4-20X5/8LG (72226)	EA	4	*	*	*	*		
PAOZZ		SCREW, SELF-LOCKING 1/4-20X7/16LG (72228)	EA	4	*	*	*	*		
PAOZZ		SWITCH, ROTARY 167934DH1C (76854)	EA	1	*	*	*	*	7-2	S2903
PAOZZ		TERMINAL BOARD 8-141 (71785)	EA	2	*	*	*	*	7-2	TB2903, TB2904
PAOZZ		TERMINAL BOARD SC-D-49846G001 (80063)	EA	1	*	*	*	*		
PBOHD	6125-244-8451	MOTOR GENERATOR PU-20C/U (80058)	EA	1	*	*	*	*	1-4	
PBOHD	6125-823-2257	MOTOR GENERATOR PU-335/MPM-25 (80058)	EA	1	*	*	*	*	1-4	
PBOOO	5180-064-5048	TOOL KIT, RADAR REPAIR TK-94/MPQ-4A (80058)	EA	1	*	*	*	*	1-5	
PBOZZ		KEY, SOCKETHEAD SCREW B9432 (79000)	EA	1	*	*	*	*	1-5	
PBOZZ	5120-060-2004	SCREWDRIVER, CROSSTIP 7228423F1 (24446)	EA	1	*	*	*	*	1-5	
PBOOO		WRENCH, PIPE SC12 (50171)	EA	1	*	*	*	*	1-5	
PBOZZ	8305-050-8637	STRAP, WEBBING 12SCW (50171)	FT		*	*	*	*	1-5	
PBOZZ		WRENCH, SOCKET SM-LP-122071 (80063)	EA	1	*	*	*	*	1-5	
PBOZZ	5120-449-8083	WRENCH, OPENEND, ADJUSTABLE 91-10 (79000)	EA	1	*	*	*	*	1-5	

SECTION II. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PBOZZ	5120-277-9075	WRENCH STANNER 472 (65814)	EA	1	*	*	*	*	1-5	
PBOZZ	5120-277-9076	WRENCH, SPANNER 474 (65814)	EA	1	*	*	*	*	1-5	
PBOHD	6625-064-6010	SIMULATOR, ANTENNA POSITION SM-154/MPQ-4A (80058)	EA	1	*	*	*	*	1-4	

SECTION III. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
	6625-064-6013	TEST FACILITIES KIT, ELECTRONIC EQUIPMENT MK-673/MPQ-4A (THIS ITEM IS NONEXPENDABLE)												
PAOOD	6625-786-4136	TEST FACILITIES KIT MK-387/MPM-49 (80058)	EA	1				*	*	*	*	*		
PAOZZ	5975-231-5892	ADAPTER, CABLE TO CONNECTOR AN3055-22-10 (88044)	EA	4				*	*	*	*	*		
PAOZZ	5975-231-5893	ADAPTER, CABLE TO CONNECTOR AN3055-22-12 (88044)	EA	5				*	*	*	*	*		
PAOZZ		ADAPTER, CABLE TO CONNECTOR AN3055-28-12 (88044)	EA	1				*	*	*	*	*		
PAOZZ	5975-231-5896	ADAPTER, CABLE TO CONNECTOR AN3055-28-16 (88044)	EA	1				*	*	*	*	*		
PAOZZ	5975-231-5912	ADAPTER, ELECTRICAL CONDUIT AN3055-36-20 (88044)	EA	4				*	*	*	*	*		
PAOZZ	5975-231-5916	ADAPTER, ELECTRICAL CONDUIT AN3055-40-20 (88044)	EA	2				*	*	*	*	*		
PAOZZ	5935-283-3394	ADAPTER, CABLE TO CONNECTOR AN3057-12B (88044)	EA	7				*	*	*	*	*		
PAOZZ	5935-280-1936	ADAPTER, CABLE TO CONNECTOR AN3057-10B (88044)	EA	10				*	*	*	*	*		
PAOZZ	5935-280-1935	ADAPTER, CABLE TO CONNECTOR AN3057-16B (88044)	EA	7				*	*	*	*	*		
PAOZZ	5935-259-2578	ADAPTER, CABLE TO CONNECTOR AN3057-20B (88044)	EA	6				*	*	*	*	*		
PAOZZ		ADAPTER, CABLE TO CONNECTOR MEC-4655-9052 (74082)	EA	3				*	*	*	*	*		
PAOZZ		ADAPTER, CABLE TO CONNECTOR MEC-4655-9057 (74082)	EA	6				*	*	*	*	*		
PAOZZ		BUSHING, RUBBER AN3420-10A (88044)	EA	1				*	*	*	*	*		
PAOZZ		CABLE, RADIO FREQUENCY RG59A/U (81349)	FT	27				*	*	*	*	*		
PAOZZ		CONNECTOR, PLUG, ELECTRICAL UG-260B/U (81349)	EA	14				*	*	*	*	*	FO-3	P101, P103, P1201, P1202, P1204, P1206, P1301, P1302, P2611, P2612, P2619, P2623, P2625, P2629
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-16S-1S (88044)	EA	1				*	*	*	*	*	FO-3	P1901
PAOZZ	5935-199-2622	CONNECTOR, PLUG, ELECTRICAL AN3101A-18-10P (88044)	EA	1				*	*	*	*	*	FO-3	P2610A
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-18-10SX (88044)	EA	2				*	*	*	*	*	FO-3	P2610
PAOZZ	5935-199-2626	CONNECTOR, PLUG, ELECTRICAL AN3106A-20-4P (88044)	EA	1				*	*	*	*	*		P1
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-20-27S (88044)	EA	1				*	*	*	*	*	FO-3	P852
PAOZZ	5935-283-3837	CONNECTOR, PLUG, ELECTRICAL AN3106A-22-14P (88044)	EA	2				*	*	*	*	*	FO-3	P2606, P2702
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-22-14S (88044)	EA	1				*	*	*	*	*	FO-3	P1601
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-22-14SX (88044)	EA	1				*	*	*	*	*	FO-3	P2902
PAOZZ	5935-259-0022	CONNECTOR, PLUG, ELECTRICAL AN3106A-22-19P (88044)	EA	2				*	*	*	*	*	FO-3	P2604, P2605
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-22-20PW (88044)	EA	1				*	*	*	*	*	FO-3	P2603

SECTION III. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-PZ (88044)	EA	1				*	*	*	*	*	FO-3	
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-22-22PX (88044)	EA	1				*	*	*	*	*	FO-3	P2621
PAOZZ	5935-186-2786	CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-30P (88044)	EA	1				*	*	*	*	*		
PAOZZ	5935-222-7810	CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-16P (88044)	EA	1				*	*	*	*	*	FO-3	P2601
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-[illegible]X (88044)	EA	1				*	*	*	*	*	FO-3	P2701
PAOZZ	5935-665-4061	CONNECTOR, PLUG, ELECTRICAL AN3106A-36-9P (88044)	EA	3				*	*	*	*	*	FO-3	P2608, P2904
PAOZZ		CONNECTOR, PLUG, ELECTRICAL AN3106A-36-9X (88044)	EA	1				*	*	*	*	*	FO-3	P2903
PAOZZ	5935-258-0323	CONNECTOR, PLUG, ELECTRICAL MJF (81312)	EA	2				*	*	*	*	*		
PAOZZ	5935-258-9003	CONNECTOR, PLUG, ELECTRICAL 9937 (74545)	EA	1				*	*	*	*	*	FO-3	P2A
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-[illegible]-[illegible]SW (88044)	EA	1				*	*	*	*	*	FO-3	P1153
PAOZZ	5935-259-0040	CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-[illegible]-10S (88044)	EA	1				*	*	*	*	*	FO-3	P2609
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL MRE20S-G (81312)	EA	3				*	*	*	*	*	FO-3	P1303
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-20-29S (88044)	EA	1				*	*	*	*	*	FO-3	P853
PAOZZ	5935-222-7785	CONNECTOR, PLUG, ELECTRICAL AN3106A-[illegible]-20P (88044)	EA	1				*	*	*	*	*	FO-3	P2602
PAOZZ	5935-844-5791	CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-[illegible]-[illegible]S (88044)	EA	1				*	*	*	*	*	FO-3	P106
PAOZZ	5935-552-3025	CONNECTOR, RECEPTACLE, ELECTRICAL AN3106A-40-9S (88044)	EA	2				*	*	*	*	*	FO-3	P601
PAOZZ	5935-257-9581	CONNECTOR, RECEPTACLE, ELECTRICAL M9S-LS (81312)	EA	4				*	*	*	*	*	FO-3	
PAOZZ	5935-198-9608	CONNECTOR, RECEPTACLE, ELECTRICAL MRE-14S-G (81312)	EA	2				*	*	*	*	*	FO-3	
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL MRE20P-G (81312)	EA	2				*	*	*	*	*	FO-3	
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL 9955 (74545)	EA	1				*	*	*	*	*	FO-3	P2A
PAOOD	5840-543-0536	CONTROL POWER SUPPLY C-2014/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-1	
PAOOD	5840-542-6253	POWER SUPPLY PP-1588/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-1	
PAOOD	6625-812-6110	INTER-CONNECTING BOX J-982/MPM-49 (80058)	EA	1				*	*	*	*	*	1-1	
PAOZZ		CAPACITOR, FIXED, MICA DIELECTRIC CM60B223K (81349)	EA	1				*	*	*	*	*	7-3	C2601
PAOZZ		CAPACITOR, FIXED, PAPER DIELECTRIC P09A1KC104K (81349)	EA	1				*	*	*	*	*	7-3	C2608
PAOZZ	5935-853-7596	CONNECTOR, RECEPTACLE, ELECTRICAL UG-1094A/U (81349)	EA	10				*	*	*	*	*	3-6	J2611 thru J2614, J2619, J2620, J2623, J2625, J2629, J2631
PAOZZ	5935-810-9768	CONNECTOR, PLUG, ELECTRICAL AN3102A-18-10P (88044)	EA	2				*	*	*	*	*	3-7	J2609, J2610

SECTION III. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ	5935-686-0271	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-14S (88044)	EA	1				*	*	*	*	*	3-7	J2606
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-19S (88044)	EA	2				*	*	*	*	*	3-5	J2604, J2605
PAOZZ	5935-932-3140	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-20S (88044)	EA	5				*	*	*	*	*	3-5	J2602, J2603, J2607, J2621, J2630
PAOZZ	5935-952-7408	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-28-16S (88044)	EA	1				*	*	*	*	*	3-5	J2601
PAOZZ	5935-821-4647	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-36-9S (88044)	EA	1				*	*	*	*	*	3-7	J2608
PAOZZ		FUSEHOLDER HCM (71400)	EA	4				*	*	*	*	*	3-5	XF2601 thru XF2604
PAOZZ		FUSE, CARTRIDGE AGC-2 (71400)	EA	3				*	*	*	*	*	3-5	F2602, F2603, F2604
PAOZZ		FUSE, CARTRIDGE ABC (71400)	EA	1				*	*	*	*	*	3-5	F2601
PAOZZ		KNOB MEC-4655-8034 (74082)	EA	2				*	*	*	*	*		
PAOZZ	6240-223-9100	LAMP, GLOW NE-51 (81349)	EA	4				*	*	*	*	*	3-5 3-7	I2602, I2603, I2604 I2605
PAOZZ	6240-132-5351	LAMP, INCANDESCENT S-6 (24446)	EA	1				*	*	*	*	*	3-5	I2606
PAOZZ	6210-500-0169	LENS, INDICATOR LIGHT 82-137 (72619)	EA	4				*	*	*	*	*	3-5 3-7	I2602, K2603, I2604 I2605
PAOZZ		LENS, INDICATOR LIGHT 80-511 (72619)	EA	1				*	*	*	*	*	3-5	I2606
PAOZZ		LIGHT, INDICATOR 822210-1 (72619)	EA	4				*	*	*	*	*	3-5	I2602 thru I2605
PAOZZ		LIGHT, INDICATOR 80202-51 (72619)	EA	1				*	*	*	*	*	3-5	I2606
PAOZZ	5945-752-5358	RELAY, SOLENOID KS-4005 (12300)	EA	1				*	*	*	*	*	7-4	K2601
PAOZZ	5905-279-3525	RESISTOR, FIXED, COMPOSITION RC42GF680J (81349)	EA	1				*	*	*	*	*	7-4	R2613
PAOZZ	5905-116-8567	RESISTOR, FIXED, COMPOSITION RC20GF750J (81349)	EA	2				*	*	*	*	*	7-4 7-3	R2610 R2615
PAOZZ	5905-141-0727	RESISTOR, FIXED, COMPOSITION RC20GF201J (81349)	EA	1				*	*	*	*	*	7-4	R2609
PAOZZ	5905-121-1922	RESISTOR, FIXED, COMPOSITION RC20GF431J (81349)	EA	1				*	*	*	*	*	7-3	R2616
PAOZZ	5905-111-4858	RESISTOR, FIXED, COMPOSITION RC20GF471J (81349)	EA	1				*	*	*	*	*	7-3	R2621
PAOZZ	5905-190-8867	RESISTOR, FIXED, COMPOSITION RC42GF512J (81349)	EA	3				*	*	*	*	*	7-3	R2626, R2627, R2628
PAOZZ	5905-141-0591	RESISTOR, FIXED, COMPOSITION RC20GF103J (81349)	EA	2				*	*	*	*	*	7-3	R2612, R2618
PAOZZ		RESISTOR, FIXED, COMPOSITION RC42GF103J (81349)	EA	2				*	*	*	*	*	7-3	R2623, R2624
PAOZZ	5905-642-1680	RESISTOR, FIXED, WIRE WOUND RW33G123 (81349)	EA	1				*	*	*	*	*	7-4	R2622
PAOZZ	5905-106-1273	RESISTOR, FIXED, COMPOSITION RC20GF153J (81349)	EA	1				*	*	*	*	*	7-3	R2605

SECTION III. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

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PAOZZ	5905-195-6754	RESISTOR, FIXED, COMPOSITION RC42GF473J (81349)	EA	1				*	*	*	*	*	7-3	R2608
PAOZZ	5905-106-9348	RESISTOR, FIXED, COMPOSITION RC20GF154J (81349)	EA	3				*	*	*	*	*	FO-2	R2602, R2603, R2604
PAOZZ	5905-104-8346	RESISTOR, FIXED, COMPOSITION RC20GF334J (81349)	EA	2				*	*	*	*	*	7-3	R2606, R2607
PAOZZ	5905-259-3767	RESISTOR, FIXED, COMPOSITION RC42GF334J (81349)	EA	1				*	*	*	*	*	7-3	R2601
PAOZZ	5905-878-4999	RESISTOR, VARIABLE LINEAR 810-203 (02111)	EA	1				*	*	*	*	*	7-3	R2614
PAOZZ		RESISTOR, FIXED, FILM RN80BF1240F (81349)	EA	1				*	*	*	*	*	7-3	R2619
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW33V5R0 (81349)	EA	1				*	*	*	*	*	7-4	R2620
PAOZZ	5905-539-1559	RESISTOR, VARIABLE RV4NAYSD253A (81349)	EA	1				*	*	*	*	*	7-3	R2617
PAOZZ	5960-284-5834	RETAINER, ELECTRON TUBE SM-C-2092585-5 (80063)	EA	1				*	*	*	*	*		R2061
PAOZZ	5935-935-2231	SOCKET, ELECTRON TUBE TS101P02 (81349)	EA	1				*	*	*	*	*		XK2601
PAOZZ	5930-655-1514	SWITCH, TOGGLE ST42A (81349)	EA	3				*	*	*	*	*	FO-2	S2601, S2611, S2612
PAOZZ	5930-577-2523	SWITCH, TOGGLE MS25068-24 (96906)	EA	6				*	*	*	*	*	FO-2	S2602, S2603, S2606, S2608, S2609, S2610
PAOZZ	5930-655-1507	SWITCH, TOGGLE ST26K (81349)	EA	2				*	*	*	*	*	FO-2	S2605, S2607
PAOZZ		SWITCH, TOGGLE 7665K3 (15605)	EA	1				*	*	*	*	*	FO-2	S2604
PAOZZ	5961-669-6884	SEMICONDUCTOR, DEVICE DIODE 1N69A (81349)	EA	1				*	*	*	*	*	7-3	CR2601
PAOZZ	6625-752-2375	COVER, POWER SUPPLY CW-475/MPM-49 (80058)	EA	1				*	*	*	*	*	1-1	
PAOZZ	6625-752-2374	COVER, POWER SUPPLY CW-476/MPM-49 (80058)	EA	1				*	*	*	*	*	1-1	
PA000	5995-752-2459	CABLE ASSEMBLY, RADIO FREQUENCY CG-530C/U (80058)	EA	2				*	*	*	*	*	1-2	
PA000	6625-812-5289	CABLE ASSEMBLY, RADIO FREQUENCY CG-1657/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-752-2408	CABLE ASSEMBLY, POWER ELECTRICAL CX-4447/U 6 FT (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-811-5713	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4447/U 17 FT (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-811-5711	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4448/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-811-5712	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4449/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-811-5720	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4450/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-752-2409	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4451/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-812-1847	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4452/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-812-1848	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4453/U (80058)	EA	1				*	*	*	*	*	1-2	

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PA000	6625-812-1849	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4454/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-812-1846	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4455/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-812-1850	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4456/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-812-1851	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4457/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-811-6879	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4458/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-752-2281	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4462/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-811-5710	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4463/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-752-2345	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4459/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-752-2376	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4460/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-752-2446	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4461/U (80058)	EA	1				*	*	*	*	*	1-2	
PA000	6625-752-2438	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4464/U (80058)	EA	2				*	*	*	*	*	1-2	
PA000	6625-752-2440	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4465/U (80058)	EA	2				*	*	*	*	*	1-2	
PA000	6625-752-2439	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL CX-4466/U (80058)	EA	2				*	*	*	*	*	1-2	
PA000		CORD CG-426D/U (80058)	EA	3				*	*	*	*	*	1-2	
PA000	5995-577-3408	CORD CG-426D/U (80058)	EA	4				*	*	*	*	*	1-2	
PA000	5995-752-2466	CORD CG-426D/U (80058)	EA	2				*	*	*	*	*	1-2	
PA000	5995-130-5823	CABLE ASSEMBLY RFCG-462D/U (80058)	EA	1				*	*	*	*	*	1-2	
PA00D	6625-064-6012	MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-399/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-3	
PA0ZZ	6145-661-0191	CABLE, RADIO FREQUENCY RG-59B/U (81349)	FT	36				*	*	*	*	*		
PA0ZZ		CLIP, ELECTRICAL SM-B-432635-1 (80063)	EA	2				*	*	*	*	*		
PA0ZZ		CLIP, ELECTRICAL SM-B-432635-2 (80063)	EA	2				*	*	*	*	*		
PA0ZZ		CONNECTOR, PLUG, ELECTRICAL UG-260D/U (81349)	EA	8				*	*	*	*	*		P3501 thru P3504, P3506
PA0ZZ	5935-892-8988	CONNECTOR, PLUG, ELECTRICAL 7226689P001 (2446)	EA	2				*	*	*	*	*		P3505
PA0DD		ANTENNA GROUP OA-1967/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-3	
PA0DD		ANTENNA AS-1312/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-3	
PA0ZZ		CLAMP, LOOP TA9C8H6-11R (84971)	EA	1				*	*	*	*	*		
PA0ZZ	5840-973-3126	COVER, WAVEGUIDE FLANGE SM-C-432939 (80063)	EA	1				*	*	*	*	*		

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PAOZZ	5840-973-3127	HORN, WAVEGUIDE SM-C-432658 (80063)	EA	1				*	*	*	*	*		
PAOZZ	5840-973-3128	REFLECTOR SUBASSEMBLY SM-D-432917-1 (80063)	EA	1				*	*	*	*	*		
PAOZZ	5840-973-3129	WAVEGUIDE ASSEMBLY SM-B-432914 (80063)	EA	1				*	*	*	*	*		
PAOZZ	6625-086-7653	TARGET, ANTENNA, ALIGNMENT MX-4390/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-3	
PAODD	6625-086-7652	TRIPOD, ANTENNA MT-2775/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-3	
PAOZZ		KNOB: SCREW TYPE SM-B-432927 (80063)	EA	3				*	*	*	*	*	7-6	
PAOZZ	5840-973-3130	LEVER, CAM ACTION SM-B-432920 (80063)	EA	1				*	*	*	*	*	7-6	
PAOZZ		THUMBSCREW SM-B-432922 (80063)	EA	4				*	*	*	*	*	7-6	
PAOZZ		WASHER, NONMETALLIC SM-B-432933 (80063)	EA	1				*	*	*	*	*	7-6	
PAOZZ		CASE, ACCESSORIES CY-3684/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-3	
PAOZZ	4030-243-0372	GUY, STAKE SM-B-432793 (80063)	EA	3				*	*	*	*	*	1-3	
PAOZZ		GUY, ASSEMBLY SM-B-469614 (80063)	EA	1				*	*	*	*	*	1-3	
PAOZZ	4010-937-7398	GUY, ASSEMBLY SM-B-469616 (80063)	EA	1				*	*	*	*	*	1-3	
PAOOD		MIXER STAGE, FREQUENCY CV-662/U (80058)	EA	1				*	*	*	*	*	1-3	
PAOZZ		CAPACITOR, FIXED, PAPER DIELECTRIC CP09A1KE474K (81349)	EA	1				*	*	*	*	*	7-7	C1
PAOZZ	5935-853-7596	CONNECTOR, RECEPTACLE, ELECTRICAL UG-1094A/U (81349)	EA	4				*	*	*	*	*	7-7	J1 thru J4
PAOZZ	5330-810-3501	GASKET SC-B-49254 (80063)	EA	1				*	*	*	*	*		
PAOZZ		KNOB: POINTER SHAPE 789613P1 (24446)	EA	1				*	*	*	*	*		
PAOZZ	5905-121-9859	RESISTOR, FIXED, COMPOSITION RC20GF106J (81349)	EA	1				*	*	*	*	*	7-7	R3
PAOZZ		RESISTOR, FIXED, COMPOSITION RC20GF392J (81349)	EA	1				*	*	*	*	*	7-7	R2
PAOZZ	5905-542-9981	RESISTOR, VARIABLE RV4NASD505A (81349)	EA	1				*	*	*	*	*	7-7	R1
PAOZZ	5961-669-6884	SEMICONDUCTOR DEVICE, DIODE 1N69A (81349)	EA	2				*	*	*	*	*	7-7	CR1, CR2
PAOZZ	5930-655-1515	SWITCH, TOGGLE MS35058 (96906)	EA	1				*	*	*	*	*	7-7	S1
PAOZZ	5940-665-9982	TERMINAL, STUD M3449-5C-HT-C (95076)	EA	1				*	*	*	*	*	7-7	
PAOOD	5985-892-5549	PROBE, WAVEGUIDE RF-74/U (80058)	EA	1				*	*	*	*	*	1-3	
PAOZZ	5961-838-4290	SEMICONDUCTOR DEVICE, DIODE 1N78 (81349)	EA	1				*	*	*	*	*		
PAOZZ	5985-501-0832	WAVEGUIDE, FLEXIBLE CG-539/U (80058)	EA	1				*	*	*	*	*	1-3	

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PA000		CABLE ASSEMBLY, RADIOFREQUENCY CG-426G/U 2 FT (80058)	EA	1				*	*	*	*	*	1-3	W3501
PA000	5995-889-0745	CABLE ASSEMBLY, RADIOFREQUENCY CG-426G/U 6 FT (80058)	EA	1				*	*	*	*	*	1-3	W3502
PA000	6625-889-0968	CABLE ASSEMBLY, RADIOFREQUENCY CG-1657A/U (80058)	EA	2				*	*	*	*	*	1-3	W3503, W3504
PA000	5995-889-0736	CABLE ASSEMBLY, RADIOFREQUENCY CG-1658/U 4 FT (80058)	EA	1				*	*	*	*	*	1-3	W3505
PA000	5995-889-0762	CABLE ASSEMBLY, RADIOFREQUENCY CG-1658/U 12 FT (80058)	EA	1				*	*	*	*	*	1-3	W3506
PAOZZ	5985-752-3222	ATTENUATOR, VARIABLE CN-491/G (80058)	EA	1				*	*	*	*	*	1-4	
PAOZZ	5985-636-8405	ATTENUATOR, VARIABLE CN-492/G (80058)	EA	1				*	*	*	*	*	1-4	
PAOZZ	5985-892-3732	COUPLER, DIRECTIONAL CU-673/U (80058)	EA	1				*	*	*	*	*	1-4	
PA00D	5840-892-3750	DUMMY LOAD, ELECTRICAL DA-205/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-4	
PAOZZ		BUMPER, RUBBER 16 (82462)	EA	4				*	*	*	*	*		
PAOZZ	5935-686-0271	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-14PX (88044)	EA	1				*	*	*	*	*	3-3	J2902
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-22-14S (88044)	EA	1				*	*	*	*	*	3-3	J2903
PAOZZ	5935-557-2939	JACK, TIP 105-601-9 (74970)	EA	2				*	*	*	*	*	7-1	J2917, J2918
PAOZZ		JACK, TIP 105-602-9 (74970)	EA	3				*	*	*	*	*	7-1	J2906, J2907, J2916
PAOZZ		JACK, TIP 105-603-9 (74970)	EA	2				*	*	*	*	*	7-1	J2914, J2915
PAOZZ		JACK, TIP 105-604-9 (74970)	EA	1				*	*	*	*	*	7-1	J2905
PAOZZ		JACK, TIP 105-608-9 (74970)	EA	6				*	*	*	*	*	7-1	J2908 thru J2913
PAOZZ		KNOB 789613P1 (24446)	EA	1				*	*	*	*	*	3-3	
PAOZZ	5905-279-2530	RESISTOR, FIXED, COMPOSITION RC42GF152J (81349)	EA	1				*	*	*	*	*	7-1	R2905
PAOZZ	5905-636-6742	RESISTOR, FIXED, WIRE WOUND RW31V162 (81349)	EA	1				*	*	*	*	*	7-1	R2911
PAOZZ	5905-823-4013	RESISTOR, FIXED, WIRE WOUND RW33V2R4 (81349)	EA	1				*	*	*	*	*	7-1	R2918
PAOZZ	5905-842-2978	RESISTOR, FIXED, WIRE WOUND RW33V3R0 (81349)	EA	1				*	*	*	*	*	7-1	R2917
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW33V312 (81349)	EA	1				*	*	*	*	*	7-1	R2910
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW33V802 (81349)	EA	1				*	*	*	*	*	7-1	R2901
PAOZZ	5905-549-6965	RESISTOR, FIXED, WIRE WOUND RW35V102 (81349)	EA	1				*	*	*	*	*	7-1	R2914
PAOZZ	5905-855-3712	RESISTOR, FIXED, WIRE WOUND RW35V252 (81349)	EA	1				*	*	*	*	*	7-1	R2906
PAOZZ	5905-683-6566	RESISTOR, FIXED, WIRE WOUND RW35V312 (81349)	EA	1				*	*	*	*	*	7-1	R2908

SECTION III. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ	5905-853-1256	RESISTOR, FIXED, WIRE WOUND RW35V621 (81349)	EA	1				*	*	*	*	*	7-1	R2912
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW35V801 (81349)	EA	1				*	*	*	*	*	7-1	R2913
PAOZZ	5905-549-6195	RESISTOR, FIXED, WIRE WOUND RW55V2R0 (81349)	EA	1				*	*	*	*	*	7-1	R2916
PAOZZ	5905-878-6638	RESISTOR, FIXED, WIRE WOUND RW55V5R1 (81349)	EA	1				*	*	*	*	*	7-1	R2915
PAOZZ	5905-642-1980	RESISTOR, FIXED, WIRE WOUND RW55V201 (81349)	EA	1				*	*	*	*	*	7-1	R2907
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW55V401 (81349)	EA	1				*	*	*	*	*	7-1	R2909
PAOZZ	5905-257-9180	RESISTOR, FIXED, WIRE WOUND RW56G123 (81349)	EA	1				*	*	*	*	*	7-1	R2904
PAOZZ	5905-879-1163	RESISTOR, FIXED, WIRE WOUND RW56V502 (81349)	EA	2				*	*	*	*	*	7-1	R2902, R2903
PAOZZ	5910-667-7179	RETAINER, CAPACITOR 500-500-1129 (80033)	EA	16				*	*	*	*	*		
PAOZZ		RETAINER, CAPACITOR 500-750-1129 (80033)	EA	10				*	*	*	*	*		
PAOZZ		SCREW, SELF-LOCKING 1/4-20X5/8LG (72228)	EA	4				*	*	*	*	*		
PAOZZ		SCREW, SELF-LOCKING 1/4-20X7/16LG (72228)	EA	4				*	*	*	*	*		
PAOZZ		SWITCH, ROTARY 167934DH1C (76854)	EA	1				*	*	*	*	*	7-1	S2901
PAOZZ	5930-642-9251	SWITCH, TOGGLE 7660 (15605)	EA	1				*	*	*	*	*	7-1	S2902
PAOZZ		TERMINAL BOARD 8-141 (71785)	EA	2				*	*	*	*	*	7-1	TB2901, TB2902
PAOZZ		TERMINAL BOARD SC-U-857000G001 (80063)	EA	1				*	*	*	*	*		
PAOCD	5840-892-3749	DUMMY LOAD, ELECTRICAL DA-206/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-4	
PAOZZ		BUMPER, RUBBER 16 (82462)	EA	4				*	*	*	*	*		
PAOZZ		BUSHING, RUBBER 720955P3 (24446)	EA	8				*	*	*	*	*		
PAOZZ		CONNECTOR, RECEPTACLE, ELECTRICAL MS3102A36-9PX (96906)	EA	1				*	*	*	*	*	3-4	J2901
PAOZZ	5935-821-4647	CONNECTOR, RECEPTACLE, ELECTRICAL AN3102A-36-9S (88044)	EA	1				*	*	*	*	*	3-4	J2904
PAOZZ	5935-557-2939	JACK, TIP 105-601-9 (74970)	EA	2				*	*	*	*	*	3-4	J2926, J2927
PAOZZ		JACK, TIP 105-602-9 (74970)	EA	4				*	*	*	*	*	3-4	J2920, J2921, J2922, J2924
PAOZZ		JACK, TIP 105-603-9 (74970)	EA	3				*	*	*	*	*	3-4	J2923, J2925, J2928
PAOZZ		JACK, TIP 105-604-9 (74970)	EA	1				*	*	*	*	*	3-4	J2919
PAOZZ		KNOB 789613P1 (24446)	EA	1				*	*	*	*	*		
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW33V312 (81349)	EA	1				*	*	*	*	*	7-2	R2919

SECTION III. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS	
					(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PAOZZ	5905-636-9915	RESISTOR, FIXED, WIRE WOUND RW35V103 (81349)	EA	1				*	*	*	*	*	7-2	R2930
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW35V632 (81349)	EA	1				*	*	*	*	*	7-2	R2928
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW35V802 (81349)	EA	1				*	*	*	*	*	7-2	R2929
PAOZZ	5905-843-7196	RESISTOR, FIXED, WIRE WOUND RW37V621 (81349)	EA	1				*	*	*	*	*	7-2	R2927
PAOZZ	5905-754-9122	RESISTOR, FIXED, WIRE WOUND RW47V100 (81349)	EA	1				*	*	*	*	*	7-2	R2931
PAOZZ	5905-846-1075	RESISTOR, FIXED, WIRE WOUND RW47V391 (81349)	EA	1				*	*	*	*	*	7-2	R2925
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW47V501 (81349)	EA	1				*	*	*	*	*	7-2	R2926
PAOZZ	5905-666-2553	RESISTOR, FIXED, WIRE WOUND RW55V122 (81349)	EA	1				*	*	*	*	*	7-2	R2922
PAOZZ	5905-642-3780	RESISTOR, FIXED, WIRE WOUND RW55V202 (81349)	EA	1				*	*	*	*	*	7-2	R2924
PAOZZ		RESISTOR, FIXED, WIRE WOUND RW55V501 (81349)	EA	1				*	*	*	*	*	7-2	R2920
PAOZZ	5905-841-7446	RESISTOR, FIXED, WIRE WOUND RW56V312 (81349)	EA	1				*	*	*	*	*	7-2	R2921
PAOZZ	5905-882-7217	RESISTOR, FIXED, WIRE WOUND RW56V392 (81349)	EA	1				*	*	*	*	*	7-2	R2923
PAOZZ	5910-667-7179	RETAINER, CAPACITOR 500-500-1129 (80033)	EA	7				*	*	*	*	*		
PAOZZ		RETAINER, CAPACITOR 500-750-1129 (80033)	EA	6				*	*	*	*	*		
PAOZZ		SCREW, SELF-LOCKING 1/4-20X5/8LG (72228)	EA	4				*	*	*	*	*		
PAOZZ		SCREW, SELF-LOCKING 1/4-20X7/16LG (72226)	EA	4				*	*	*	*	*		
PAOZZ		SWITCH, ROTARY 16793ADH1C (76854)	EA	1				*	*	*	*	*	7-2	S2903
PAOZZ		TERMINAL BOARD 8-141 (71785)	EA	2				*	*	*	*	*	7-2	TB2903, TB2904
PAOZZ		TERMINAL BOARD SC-D-49846G001 (80063)	EA	1				*	*	*	*	*		
PEOHD	6125-244-8451	MOTOR GENERATOR PU-20C/U (80058)	EA	1				*	*	*	*	*	1-4	
PEOHD	6125-823-2257	MOTOR GENERATOR PU-335/MPM-25 (80058)	EA	1				*	*	*	*	*	1-4	
PEOOO	5180-064-5048	TOOL KIT, RADAR REPAIR TK-94/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-5	
PEOZZ		KEY, SOCKETHEAD SCREW B9432 (79000)	EA	1				*	*	*	*	*	1-5	
PEOZZ	5120-060-7004	SCREWDRIVER, CROSSTIP 7228423P1 (24446)	EA	1				*	*	*	*	*	1-5	
PEOOO		WRENCH, PIPE SC12 (50171)	EA	1				*	*	*	*	*	1-5	
PEOZZ	8305-050-8637	STRAP, WEBBING 12SCW (50171)	FT					*	*	*	*	*	1-5	
PEOZZ		WRENCH, SOCKET SM-LP-122071 (80063)	EA	1				*	*	*	*	*	1-5	

SECTION III. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
PEOZZ	5120-449-8083	WRENCH, OPENEND, ADJUSTABLE 91-10 (79000)	EA	1				*	*	*	*	*	1-5	
PEOZZ	5120-277-9075	WRENCH SPANNER 472 (65814)	EA	1				*	*	*	*	*	1-5	
PEOZZ	5120-277-9076	WRENCH, SPANNER 474 (65814)	EA	1				*	*	*	*	*	1-5	
PEOHD	6625-064-6010	SIMULATOR, ANTENNA POSITION SM-154/MPQ-4A (80058)	EA	1				*	*	*	*	*	1-4	

SECTION IV. INDEX-FEDERAL STOCK NUMBER AND REFERENCE NUMBER CROSS REFERENCE TO FIGURE AND ITEM NUMBER OR REFERENCE DESIGNATION (CONTINUED)

FEDERAL STOCK NUMBER	FIGURE NUMBER	ITEM NUMBER OR REF. DESIGNATION
5905-104-8346	7-3	R2606
5905-104-8346	7-3	R2607
5905-106-1273	7-3	R2605
5905-106-9348	F0-2	R2602
5905-106-9348	F0-2	R2603
5905-106-9348	F0-2	R2604
5905-111-4858	7-3	R2621
5905-116-8567	7-3	R2615
5905-116-8567	7-4	R2610
5905-121-9859	7-8	R3
5905-121-9922	7-3	R2616
5905-141-0591	7-3	R2612
5905-141-0591	7-3	R2618
5905-141-0727	7-4	R2609
5905-190-8867	7-3	R2626
5905-190-8867	7-3	R2627
5905-190-8867	7-3	R2628
5905 -195 -6754	7-3	R2608
5905-257-9180	7-1	R2904
5905-259-3767	7-3	R2601
5905-279-2530	7-1	R2905
5905-279-3525	7-4	R2613
5905-539-1559	7-3	R2617
5905-542-9981	7-7	R1
5905-549-6195	7-1	R2916
5905-549-6965	7-1	R2914
5905-636-6742	7-1	R2911
5905-636-9915	7-2	R2930
5905-642-1680	7-4	R2622
5905-642-1980	7-1	R2907
5905-642-3780	7-2	R2924
5905-666-2553	7-2	R2922
5905-683-6566	7-1	R2908
5905-754-9122	7-2	R2931
5905-823-4013	7-1	R2918
5905-841-7446	7-2	R2921
5905-842-2978	7-1	R2917
5905-843-7196	7-2	R2927
5905-846-1075	7-2	R2925
5905-853-1256	7-1	R2912
5905-855-3712	7-1	R2906
5905-878-4999	7-3	R2614
5905-878-6638	7-1	R2915
5905-879-1163	7-1	R2902
5905-879-1163	7-1	R2903
5905-882-7217	7-2	R2923
5930-577-2523	F0-2	s2602
5930-577-2523	F0-2	s2603
5930-577-2523	F0-2	s2606
5930-577-2523	F0-2	s2608
5930-577-2523	F0-2	s2609
5930-577-2523	F0-2	s2610
5930-642-9251	7-1	s2902
5930-655-1507	F0-2	s2605
5930-655-1507	F0-2	s2607
5930-655-1514	F0-2	s2601
5930-655-1514	F0-2	s2611
5930-655-1514	F0-2	s2612
5930-655-1515	7-7	s1
5935-199-2622	F0-3	P2610A
5935-199-2626		P1
5935-222-7785	F0-3	P2602
5935-222-7812	F0-3	P2601
5935-258-9003	F0-3	P2A
5935-259-0022	F0-3	P2604
5935-259-0042	F0-3	P2609
5935-283-3837	F0-3	P2606
5935-283-3837	F0-3	P2702
5935-552-3025	F0-3	P601
5935-557-2939	3-4	J2926

SECTION IV. INDEX-FEDERAL STOCK NUMBER AND REFERENCE NUMBER CROSS REFERENCE TO FIGURE AND ITEM NUMBER OR REFERENCE DESIGNATION (CONTINUED)

FEDERAL STOCK NUMBER	FIGURE NUMBER	ITEM NUMBER OR REF. DESIGNATION
5935-557-2939	3-4	J2927
5935-557-2939	7-1	J2917
5935-557-2939	7-1	J2918
5935-665-4061	F0-3	P2608
5935-665-4061	F0-3	P2904
5935-686-0271	3-3	J2902
5935-686-0271	3-7	J2606
5935-810-9768	3-7	J2609
5935-810-9768	3-7	J2610
5935-821-4647	3-4	J2904
5935-821-4647	3-7	J2608
5935-844-5791	F0-3	P106
5935-853-7596	3-6	J2611
5935-853-7596	3-6	J2612
5935-853-7596	3-6	J2613
5935-853-7596	3-6	J2614
5935-853-7596	3-6	J2619
5935-853-7596	3-6	J2620
5935-853-7596	3-6	J2623
5935-853-7596	3-6	J2625
5935-853-7596	3-6	J2629
5935-853-7596	3-6	J2631
5935-853-7596	7-7	J1
5935-853-7596	7-7	J2
5935-853-7596	7-7	J3
5935-853-7596	7-7	J4
5935-892-8988		P3505
5935-932-3140	3-5	J2602
5935-932-3140	3-5	J2603
5935-932-3140	3-5	J2607
5935-932-3140	3-5	J2621
5935-932-3140	3-5	J2630
5935-935-2231		XK2601
5935-952-7408	3-5	J2601
5945-752-5358	7-4	K2601
5960-284-5834		H2061
5961-669-6884	7-3	CR2601
5961-669-6884	7-7	CR1
5961-669-6884	7-7	CR2
5995-889-0736	1-3	W3505
5995-889-0745	1-3	W3502
5995-889-0762	1-3	W3506
6210-500-0169	3-5	I2602
6210-500-0169	3-5	I2603
6210-500-0169	3-5	I2604
6210-500-0169	3-7	I2605
6240-132-5351	3-5	I2606
6240-223-9100	3-5	I2602
6240-223-9100	3-5	I2603
6240-223-9100	3-5	I2604
6240-223-9100	3-7	I2605
6625-889-0968	1-3	W3503
6625-889-0968	1-3	W3504

REFERENCE NO.	MFG. CODE	FIG. NO.	ITEM NUMBER OR REF. DESIGNATION
ABC	71400	3-5	F2601
AGC-2	71400	3-5	F2602
AGC-2	71400	3-5	F2603
AGC-2	71400	3-5	F2604
AN3101A-18-10P	88044	F0-3	P2610A
AN3102A-18-10P	88044	3-7	J2609
AN3102A-18-10P	88044	3-7	J2610
AN3102A-22-14PX	88044	3-3	J2902
AN3102A-22-14S	88044	3-3	J2903
AN3102A-22-14S	88044	3-7	J2606
AN3102A-22-19S	88044	3-5	J2604
AN3102A-22-19S	88044	3-5	J2605
AN3102A-22-20S	88044	3-5	J2602
AN3102A-22-20S	88044	3-5	J2603
AN3102A-22-20S	88044	3-5	J2607

SECTION IV. INDEX-FEDERAL STOCK NUMBER AND REFERENCE NUMBER CROSS REFERENCE TO FIGURE AND ITEM NUMBER OR REFERENCE DESIGNATION (CONTINUED)

REFERENCE NO.	MFG. CODE	FIG NO.	ITEM NUMBER OR REF. DESIGNATION
AN3102A-22-20S	88044	3-5	J2621
AN3102A-22-20S	88044	3-5	J2630
AN3102A-28-16S	88044	3-5	J2601
AN3102A-36-9S	88044	3-4	J2904
AN3102A-36-9S	88044	3-7	J2608
AN3106A-16S-1SW	88044	F0-3	P1153
AN3106A-16S-1S	88044	F0-3	P1901
AN3106A-18-10SX	88044	F0-3	P2610
AN3106A-18-10S	88044	F0-3	P2609
AN3106A-20-27S	88044	F0-3	P852
AN3106A-20-29S	88044	F0-3	P853
AN3106A-20-4P	88044		P1
AN3106A-22-14P	88044	F0-3	P2606
AN3106A-22-14P	88044	F0-3	P2702
AN3106A-22-14SX	88044	F0-3	P2902
AN3106A-22-14S	88044	F0-3	P1601
AN3106A-22-19P	88044	F0-3	P2605
AN3106A-22-20PW	88044	F0-3	P2603
AN3106A-22-20PX	88044	F0-3	P2621
AN3106A-22-20P	88044	F0-3	P2602
AN3106A-22-20SX	88044	F0-3	P2701
AN3106A-28-2S	88044	F0-3	P106
AN3106A-28-16P	88044	F0-3	P2601
AN3106A-36-9P	88044	F0-3	P2608
AN3106A-36-9P	88044	F0-3	P2904
AN3106A-36-9SX	88044	F0-3	P2903
AN3106A-40-9S	88044	F0-3	P601
CG-1657A/U	80058	1-3	W3503
CG-1657A/U	80058	1-3	W3504
CG-1658/U 4 FT	80058	1-3	W3505
CG-1658/U 12 FT	80058	1-3	W3506
CG-426G/U 2 FT	80058	1-3	W3501
CG-426G/U 6 FT	80058	1-3	W3502
CM60B223K	81349	7-3	C2601
CP09A1KE474K	81349	7-7	C1
HCM	71400	3-5	XF2601
HCM	71400	3-5	XF2602
HCM	71400	3-5	XF2603
HCM	71400	3-5	XF2604
KS-4005	12300	7-4	K2601
MRE20S-G	81312	F0-3	P1303
MS25068-24	96906	F0-2	S2602
MS25068-24	96906	F0-2	S2603
MS25068-24	96906	F0-2	S2606
MS25068-24	96906	F0-2	S2608
MS25068-24	96906	F0-2	S2609
MS25068-24	96906	F0-2	S2610
MS3102A36-9PX	96906	3-4	J2901
MS35058	96906	7-8	S1
NE-51	81349	3-5	J2602
NE-51	81349	3-5	I2603
NE-51	81349	3-5	I2604
NE-51	81349	3-7	I2605
P09A1KC104K	81349	7-3	C2608
RC20GF103J	81349	7-3	R2612
RC20GF103J	81349	7-3	R2618
RC20GF106J	81349	7-7	R3
RC20GF153J	81349	7-3	R2605
RC20GF154J	81349	F0-2	R2602
RC20GF154J	81349	F0-2	R2603
RC20GF154J	81349	F0-2	R2604
RC20GF201J	81349	7-4	R2609
RC20GF334J	81349	7-3	R2606
RC20GF334J	81349	7-3	R2607
RC20GF392J	81349	7-7	R2
RC20GF431J	81349	7-3	R2616
RC20GF471J	81349	7-3	R2621
RC20GF750J	81349	7-3	R2615
RC20GF750J	81349	7-4	R2610
RC42GF103J	81349	7-3	R2623

SECTION IV. INDEX-FEDERAL STOCK NUMBER AND REFERENCE NUMBER CROSS REFERENCE TO FIGURE AND ITEM NUMBER OR REFERENCE DESIGNATION (CONTINUED)

REFERENCE NO.	MFG. CODE	FIG NO.	ITEM NUMBER OR REF. DESIGNATION
RC42GF103J	81349	7-3	R2624
RC42GF152J	81349	7-1	R2905
RC42GF334J	81349	7-3	R2601
RC42GF473J	81349	7-3	R2608
RC42GF512J	81349	7-3	R2626
RC42GF512J	81349	7-3	R2627
RC42GF512J	81349	7-3	R2628
RC42GF680J	81349	7-4	R2613
RN80BF1240F	81349	7-7	R2619
RV4NASD505A	81349	7-7	R1
RV4NAYSD253A	81349	7-3	R2617
RW31V162	81349	7-1	R2911
RW33G123	81349	7-4	R2622
RW33V2R4	81349	7-1	R2918
RW33V3R0	81349	7-1	R2917
RW33V312	81349	7-1	R2910
RW33V312	81349	7-2	R2919
RW33V802	81349	7-1	R2901
RW33V5R0	81349	7-4	R2620
RW35V102	81349	7-1	R2914
RW35V103	81349	7-2	
RW35V252	81349	7-1	R2906
RW35V312	81349	7-1	R2908
RW35V621	81349	7-1	R2912
RW35V632	81349	7-2	R2928
RW35V801	81349	7-1	R2913
RW35V802	81349	7-2	R2929
RW37V621	81349	7-2	R2927
RW47V100	81349	7-2	R2931
RW47V391	81349	7-2	R2925
RW47V501	81349	7-2	R2926
RW55V122	81349	7-2	R2922
RW55V201	81349	7-1	R2907
RW55V202	81349	7-2	R2924
RW55V2R0	81349	7-1	R2916
RW55V401	81349	7-1	R2909
RW55V501	81349	7-2	R2920
RW55V5R1	81349	7-1	R2915
RW56G123	81349	7-1	R2904
RW56V312	81349	7-2	R2921
RW56V392	81349	7-2	R2923
RW56V502	81349	7-1	R2902
RW56V502	81349	7-1	R2903
SM-C-2092585-5	80063		H2061
ST26K	81349	F0-2	S2605
ST26K	81349	F0-2	S2607
ST42A	81349	F0-2	S2601
ST42A	81349	F0-2	S2611
ST42A	81349	F0-2	S2612
S-6	24446	3-5	I2606
TS101P02	81349		XK2601
UG-1094A/U	81349	3-6	J2611
UG-1094A/U	81349	3-6	J2612
UG-1094A/U	81349	3-6	J2613
UG-1094A/U	81349	3-6	J2614
UG-1094A/U	81349	3-6	J2619
UG-1094A/U	81349	3-6	J2620
UG-1094A/U	81349	3-6	J2623
UG-1094A/U	81349	3-6	J2625
UG-109A/U	81349	3-6	J2629
UG-1094A/U	81349	3-6	J2631
UG-1094A/U	81349	7-7	J1
UG-1094A/U	81349	7-7	J2
UG-1094A/U	81349	7-7	J3
UG1094A/U	81349	7-7	J4
UG-260B/U	81349	F0-3	P101
UG-260B/U	81349	F0-3	P103
UG-260B/U	81349	F0-3	P1201
UG-260B/U	81349	F0-3	P1202
UG-260B/U	81349	F0-3	P1204
UG-260B/U	81349	F0-3	P1206
UG-260B/U	81349	F0-3	P1301

SECTION IV. INDEX-FEDERAL STOCK NUMBER AND REFERENCE NUMBER CROSS REFERENCE TO FIGURE AND ITEM NUMBER OR REFERENCE DESIGNATION (CONTINUED)

REFERENCE NO.	MFG. CODE	FIG NO.	ITEM NUMBER OR REF. DESIGNATION
UG-260B/U	81349	F0-3	P1302
UG-260B/U	81349	F0-3	P2611
UG-260B/U	81349	F0-3	P2612
UG-260B/U	81349	F0-3	P2619
UG-260B/U	81349	F0-3	P2623
UG-260B/U	81349	F0-3	P2625
UG-260B/U	81349	F0-3	P2629
UG-260D/U	81349		P2501
UG-260D/U	81349		P3502
UG-260D/U	81349		P3503
UG-260D/U	81349		P3504
UG-260D/U	81349		P3506
105-601-9	74970	3-4	J2926
105-601-9	74970	3-4	J2927
105-601-9	74970	7-1	J2917
105-601-9	74970	7-1	J2918
105-602-9	74970	3-4	J2920
105-602-9	74970	3-4	J2921
105-602-9	74970	3-4	J2922
105-602-9	74970	3-4	J2924
105-602-9	74970	7-1	J2906
105-602-9	74970	7-1	J2907
105-602-9	74970	7-1	J2916
105-603-9	74970	3-4	J2923
105-603-9	74970	3-4	J2925
105-603-9	74970	3-4	J2928
105-603-9	74970	7-1	J2914
105-603-9	74970	7-1	J2915
105-604-9	74970	3-4	J2919
105-604-9	74970	7-1	J2905
105-608-9	74970	7-1	J2908
105-608-9	74970	7-1	J2909
105-608-9	74970	7-1	J2910
105-608-9	74970	7-1	J2911
105-608-9	74970	7-1	J2912
105-608-9	74970	7-1	J2913
167934DH1C	76854	7-1	S2901
167934DH1C	76854	7-2	S2903
1N69A	81349	7-3	CR2601
1N69A	81349	7-7	CR1
1N69A	81349	7-7	CR2
7226689P001	24446		P3505
7660	15605	7-1	S2902
7665K3	15605	5-1	S2604
8-141	71785	7-1	TB2901
8-141	71785	7-1	TB2902
8-141	71785	7-2	TB2903
8-141	71785	7-2	TB2904
80-511	72619	3-5	I2606
82-137	72619	3-5	I2602
82-137	72619	3-5	I2603
82-137	72619	3-5	I2604
82-137	72619	3-7	I2605
80202-51	72619	3-5	I2606
810-203	02111	7-3	R2614
822210-1	72619	3-5	I2602
822210-1	72619	3-5	I2603
822210-1	72619	3-5	I2604
822210-1	72619	3-5	I2605
9937	74545	F0-3	P2A
9955	74545	F0-3	P2A

SECTION V. INDEX - REFERENCE DESIGNATION

CROSS REFERENCE PAGE NUMBER (CONTINUED)

SECTION V. INDEX- REFERENCE DESIGNATION

CROSS REFERENCE TO PAGE NUMBER (CONTINUED)

SECTION V. INDEX- REFERENCE DESIGNATION

CROSS REFERENCE TO PAGE NUMBER (CONTINUED)

REFERENCE DESIGNATION	PAGE NUMBER	REFERENCE DESIGNATION	PAGE NUMBER	REFERENCE DESIGNATION	PAGE NUMBER
W3503	C-11, C-21				
W3504	C-11, C-21				
W3505	C-11, C-21				
W3506	C-11, C-21				
XF2601	C-7, C-17				
XF2602	C-7, C-17				
XF2603	C-7, C-17				
XF2604	C-7, C-17				
XK2601	C-8, C-18				

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USACRREL (2)
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SAAD (30)
TOAD (14)
LEAD (7)
ATAD (10)
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29-136
29-307

NG: State AG (3).

USAR: None.

For explanation of abbreviations used, see AR 810-60.

* U.S. GOVERNMENT PRINTING OFFICE: 1978—114-691/801