

TM 11-5820-510-35

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

FIELD AND DEPOT

MAINTENANCE MANUAL

RADIO SET AN/PRC-41

HEADQUARTERS, DEPARTMENT OF THE ARMY
JANUARY 1964

AGO 10215A

This copy is a reprint which includes current pages from Change 1.

WARNING

In fixed installations, when using Power Supply PP-3700/PRC-41, be careful when working on the 115- or 230-volt line terminals. Serious injury or death can result from contact with these terminals.

DON'T TAKE CHANCES!

CHANGE }
No. 2 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 29 May 1980

**Field and Depot Maintenance Manual
RADIO SET AN/PRC-41
(NSN 5820-00-104-0351)**

TM 11-5820-510-35 January 1964, is changed as follows:
The title of this manual is changed as shown above.

Page 1-1.1. Paragraph 1-1.2 is superseded as follows:

1-1.2. Maintenance Forms, Records and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

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 DLAR 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 4610.33B/AFR-75-18/MCO P4610.19C and DLAR 4500.15.

Paragraph 1-1.3 is superseded as follows:

1-1.3. Reporting Errors and Recommending Improvements

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), direct to: Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. A reply will be furnished direct to you.

Paragraph 1-1.4 is superseded as follows:

1-1.4. Reporting Equipment Improvement Recommendations (EIR)

If your Radio Set AN/PRC-41 needs improvement, let us know. Send us an EIR. You, the user, are the only one

who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications and Electronics Materiel Readiness and, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. We'll send you a reply.

Page 5-10. Figure 5-9, STEP NO. M5. REFERENCE STANDARD column is superseded as follows: 2.25 watts minimum below 258 MHz, 3 watts average at 258 MHz and above.

Page 5-30. Paragraph 5-3. Subparagraph g(1)(a)5 is superseded as follows:

5. Adjust potentiometer 1A3R1 until the voltage begins to rise as indicated on the TS-505/U.

Page 5-31. Paragraph 5-3. Sub-paragraph g(1)(c)4 is superseded as follows:

4. Turn 1A7R46 until the guard receiver module is squelched off with Signal Generator AN/USM-44A set at 2- μ v input.

Page 5-39. TABLE 5-4 is superseded as follows:

Table 5-4. 3rd IF and Squelch Module, Voltage Measurement

TRAN-SISTOR	EMITTER	BASE 1	COL-LECTOR	BASE 2
Q1	5.0	4.5	14.5	5.7
Q2	4.8	4.5	15.0	5.6
Q3	4.9	5.5	15.0	
Q4	0.15	0.45	11.0	
Q5	7.2	7.8	15.0	
Q6	15.0	14.5	11.0	
Q7	7.0	6.4	-0.1	
Q8	0.85	1.6	0.9	
Q9	1.6	2.3	1.75	

Connect 3rd IF Amplifier and Squelch Module to Radio Receiver-Transmitter RT-695/PRC-41 by using extender cable W4.

By Order of the Secretary of the Army:

Official:

E. C. MEYER
General, United States Army
Chief of Staff

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-51, Direct Support and General Support Maintenance requirements for AN/PRC-41.

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HEADQUARTERS,
DEPARTMENT OF THE ARMY
Washington, DC 29 November, 1976

CHANGE }
NO. 1 }

**Field and Depot Maintenance Manual
RADIO SET AN/PRC-41**

TM 11-5820-510-35, 15 January 1964, is changed as follows:

Page 1-1.1. Paragraphs 1-1.1 and 1-1.2 are superseded as follows:

1-1.1. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, 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.

1-1.2. 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 P4610.19B, and DSAR 4500.15.

1-1.3. Reporting of Errors

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

1-1.4. Reporting Equipment Improvement Recommendations (EIR)

EIR 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 directly to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703.

1-1.5. Administrative Storage

Administrative storage of equipment issued to and used by Army activities shall be in accordance with TM 740-90-1.

1-1.6. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

Page 4-1, paragraph 4-1b(1). The last two sentences are superseded as follows: When the CN-315/URM-26 is used with the AN/USM-44A, the attenuator dial on the AN/USM-44A is read in terms of microvolts across 50 ohms and the indication must be multiplied by 2. (The CN-315/URM-26 is a 6-db pad.) When the CN-315/URM-26 is not used, the attenuator dial indication (in microvolts) is unchanged.

Page 5-2. Table 5-1, add the following NOTE after the last item.

NOTE

In all tests using the AN/USM-44A in which the CN-315/URM-26 (a 6-db pad) is used, set the AN/USM-44A attenuator to indicate twice the microvolts specified in the test procedure. *For example,* in step M3 (fig. 5-7), the AN/USM-44A attenuator will be set to 10 microvolts to produce the 5 microvolts signal output specified in the test. (see para 4-1b(1).)

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

PAUL T. SMITH
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-51, Direct and General Support maintenance requirements for AN/PRC-41.

LIST OF EFFECTIVE PAGES

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1-0 to 1-19	Original	i-0 to i-2	Original
4-0 to 4-49	Original		

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA,
Contract: Nobsr 87474

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HEADQUARTERS
 DEPARTMENT OF THE ARMY
 WASHINGTON, D.C., 15 January 1964

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RADIO SET AN/PRC-41

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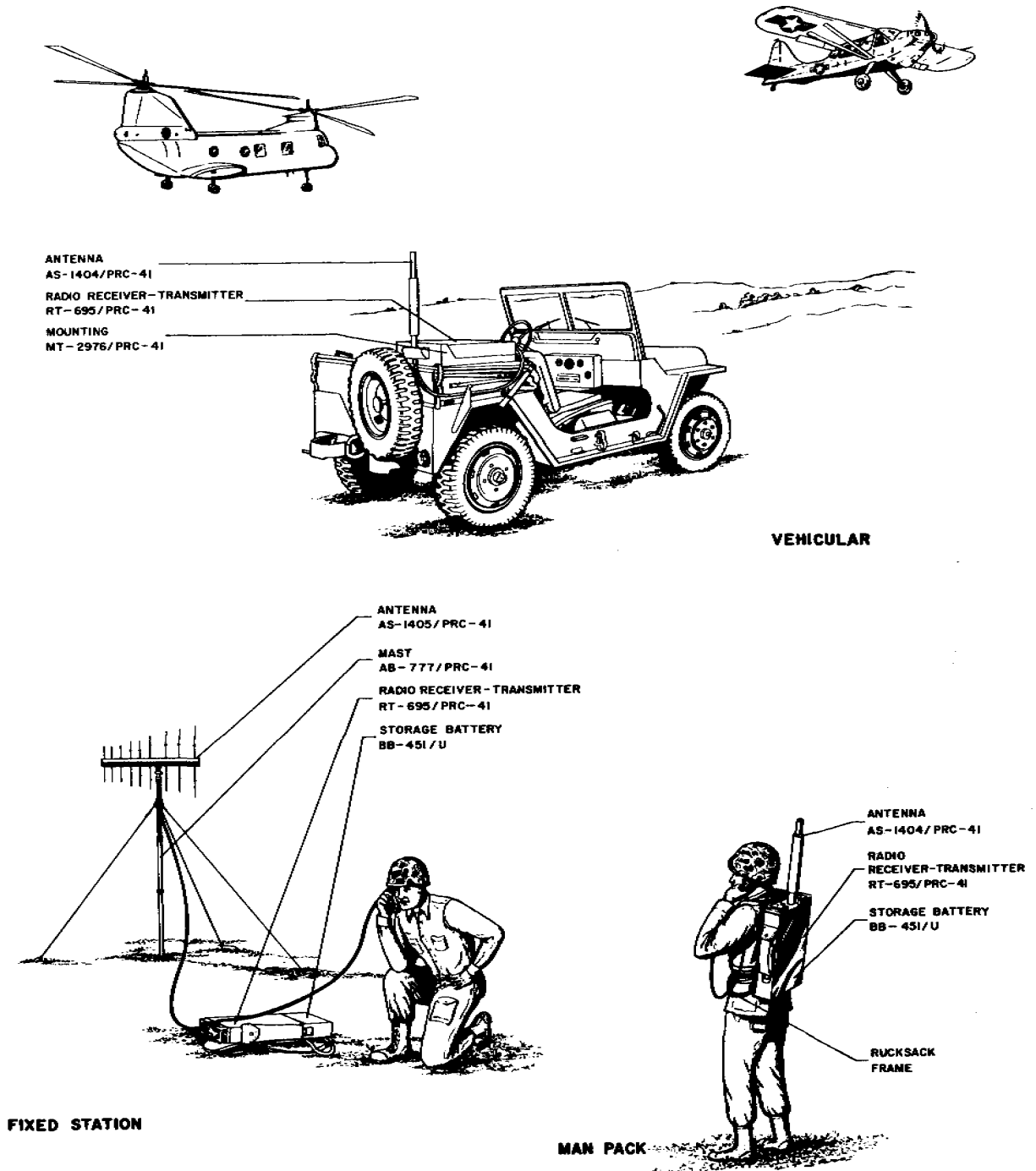


Figure 1-1. Radio Set AN/PRC-41, Operating Configurations

SECTION 1

GENERAL INFORMATION

1-1. SCOPE

This manual covers field and depot maintenance of Radio Set AN/PRC-41. Operator and organizational maintenance is covered in TM 11-5820-510-12. The format and content of these manuals is in accordance with the requirements of Military Specification MIL-M-15071E(SHIPS) and Contract NObsr 87474. TM 11-5820-510-12 includes sections 1, 2, 3, 7, and 8. This manual includes sections 1, 4, 5, and 6. These manuals are applicable to the items and accessories of Radio Set AN/PRC-41. Section 1 contains a general description, provides reference data, lists the applicable items and accessories, and provides information required for the preparation for reshipment of the Radio Set AN/PRC-41 equipment. Section 2 provides installation information such as unpacking, power requirements for operation, site selection, inspection and adjustment, and interference reduction. Section 3 contains operating instructions. Section 4 provides a theoretical description and test data of the functional sections and subordinate circuits of the equipment. Section 5 provides general preventive maintenance instructions, repair information, and illustrations which are applicable to all sections such as part location, exploded views, connection diagrams, and over-all equipment schematics. Section 6 lists the detail parts of the items and accessories of Radio Set AN/PRC-41. Section 7 is preventive maintenance. Section 8 covers troubleshooting. These technical manuals are in effect upon receipt. Extracts from this publication may be made to facilitate the preparation of other Department of Defense publications.

1-1.1. INDEX OF PUBLICATIONS

Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment. Department of the Army Pamphlet No. 310-4 is an index of current technical manuals, technical bulletins, lubrication orders, and modification work orders which are available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc) and the latest changes to and revisions of each equipment publication.

1-1.2. FORMS AND RECORDS

a. **REPORTS OF MAINTENANCE AND UNSATISFACTORY EQUIPMENT.** Use equipment forms and records in accordance with instructions in TM 38-750.

b. **REPORT OF DAMAGED OR IMPROPER SHIPMENT.** Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71-4 (Air Force).

c. **REPORTING OF EQUIPMENT MANUAL IMPROVEMENTS.** The direct reporting, by the individual user, of errors, omissions, and recommendations for improving this equipment manual is authorized and encouraged. DA Form 2028 will be completed using pencil, pen, or typewriter. DA Form 2028 will be completed in triplicate and forwarded by the individual using the manual. The original and one copy will be forwarded direct to: Commanding Officer, U. S. Army Electronics Materiel Support Agency, ATTN: SELMS-MP, Fort Monmouth, New Jersey, 07703. One information copy will be furnished to the individual's immediate supervisor (officer, noncommissioned officer, supervisor, etc).

1-2. EQUIPMENT SUPPLIED

Radio Set AN/PRC-41 consists of the equipment contained in Radio Set Case CY-3883/PRC-41. Refer to table 1-1 and figure 1-2. Radio Set Accessory Kit MK-706/PRC-41 consists of the equipment contained in Electronic Equipment Case CY-3885/PRC-41. Refer to table 1-2 and figure 1-3. Refer also to figure 1-1.

TABLE 1-1. RADIO SET AN/PRC-41, EQUIPMENT SUPPLIED

ITEM	QTY	NOMENCLATURE		OVER-ALL DIMENSIONS (in.)			VOL (cu in.)	WT (lb)
		NAME	DESIGNATION	H	W	D		
1	1	Radio Set Case (less contents)	CY-3883/PRC-41	15-1/2	35	26-1/2	14,376	79
2	1	Radio Receiver- Transmitter (without CY-3884/ PRC-41)	RT-695/PRC	14	11-5/16	4-9/16	812	18.5
3	1	Receiver- Transmitter Case	CY-3884/PRC-41	12-5/8	11-3/16	4-15/32	635	3.6
4	3	Storage Battery	BB-451/U	7-11/16	11-9/16	4-9/64	402	16
5	1	Antenna	AS-1404/PRC-41	23-1/2	1-3/4 dia			0.7
6	1	Handset	H-33E/PT (GFE)	2	8	3-3/8		1.2

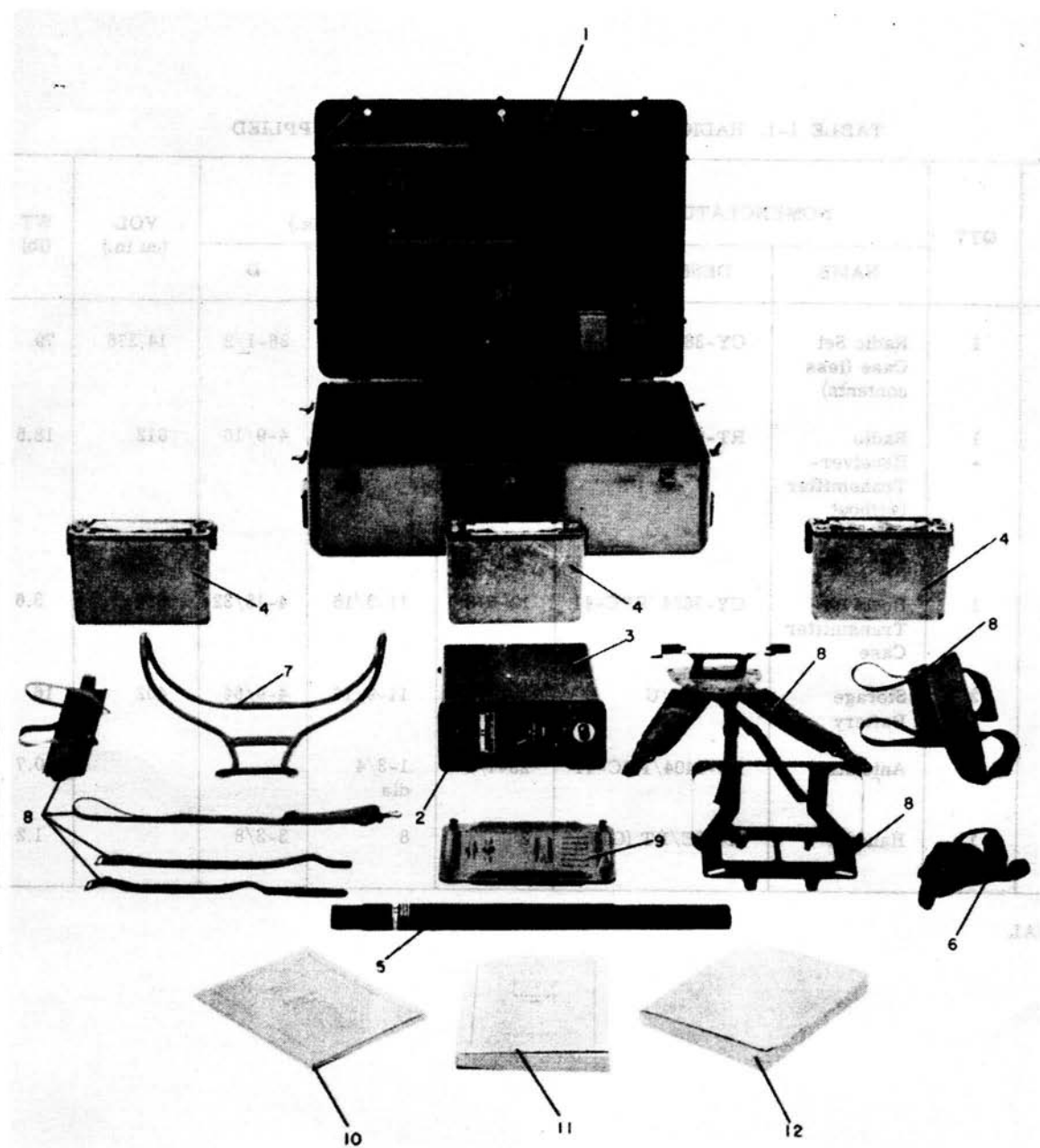


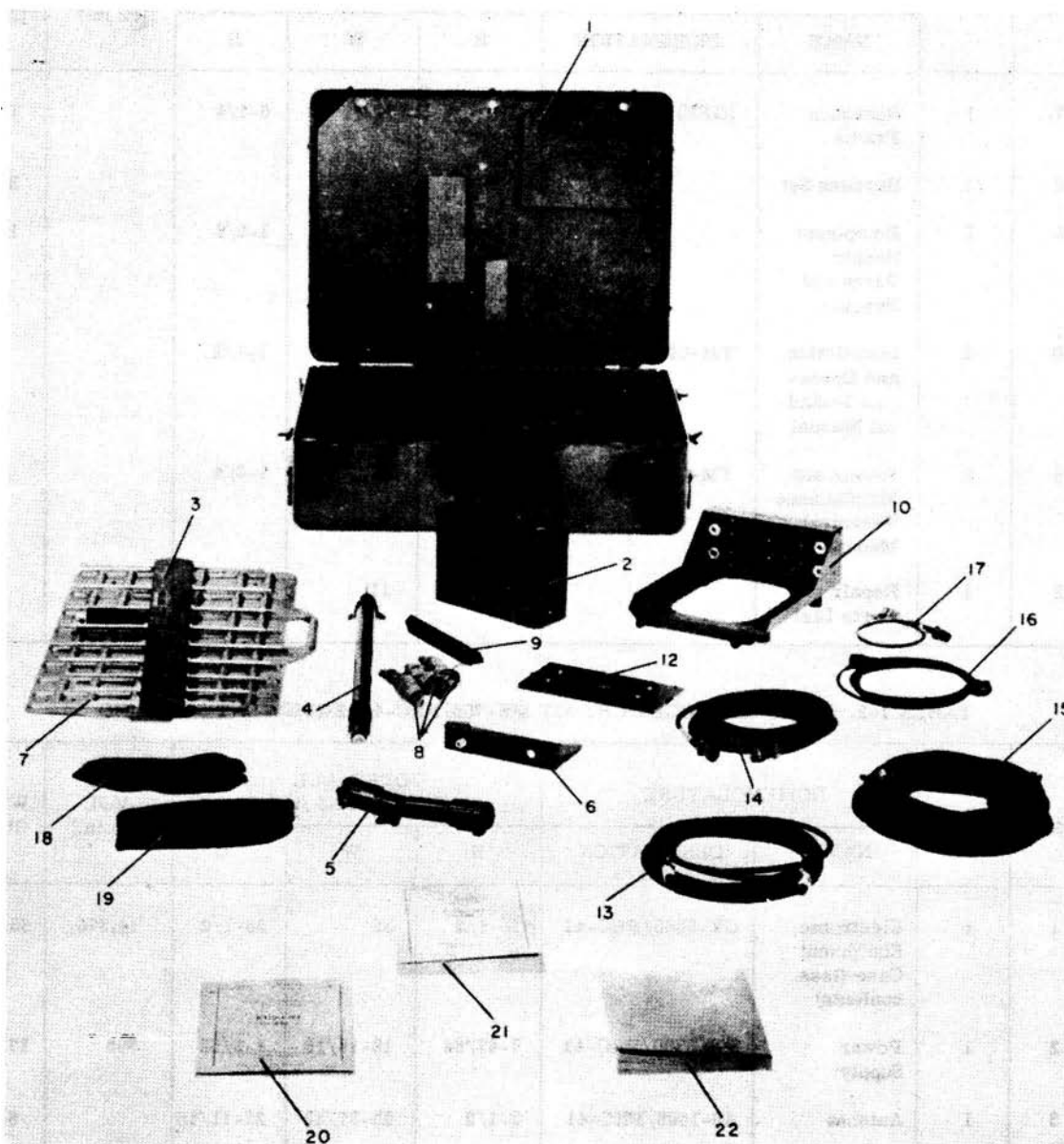
Figure 1-2. Radio Set AN/PRC-41, Equipment Contents
of Radio Set Case CY-3883/PRC-41

TABLE 1-1. (Continued)

ITEM	QTY	NOMENCLATURE		OVER-ALL DIMENSIONS (in.)			VOL (cu in.)	WT (lb)
		NAME	DESIGNATION	H	W	D		
7	1	Rucksack Frame	(GFE)	19	17	6-1/4		1.5
8	1	Harness Set						3.1
9	1	Equipment Repair Parts and Bracket		8-1/2	11	1-5/8		1.0
10	2	Installation and Operation Technical Manual	TM-03816A-12/1	8-1/2	11	1-1/2		
11	2	Repair and Maintenance Technical Manual	TM-03816A-35/2	8-1/2	11	1-3/4		
12	1	Repair Parts List		8-1/2	11			

TABLE 1-2. RADIO SET ACCESSORY KIT MK-706/PRC-41, EQUIPMENT SUPPLIED

ITEM	QTY	NOMENCLATURE		OVER-ALL DIMENSIONS (in.)			VOL (cu in.)	WT (lb)
		NAME	DESIGNATION	H	W	D		
1	1	Electronic Equipment Case (less contents)	CY-3885/PRC-41	15-1/2	35	26-1/2	14,376	65
2	1	Power Supply	PP- 3700/PRC -41	7-47/64	10-15/16	4-5/32	355	17.6
3	1	Antenna	AS-1405/PRC-41	3-1/2	30-27/32	27-11/16		6.3
4	1	Mast	AB-777/PRC-41	78-1/4 28-1/4	3-1/2 open, 3-1/2 closed			3.0
5	1	Adjustable Antenna Mast Adapter		10-3/4	1-7/8			1.0



*Figure 1-3. Radio Set Accessory Kit MK-706/PRC-41 Accessory Contents
of Electronic Equipment Case CY-3885/PRC-41*

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TABLE 1-2. (Continued)

ITEM	QTY	NOMENCLATURE		OVER-ALL DIMENSIONS (in.)			VOL (cu in.)	WT (lb)
		NAME	DESIGNATION	H	W	D		
6	1	Antenna Mounting Bracket		4-13/16	8-5/8	1-7/8		0.7
7	1	Directional Antenna Carrying Bracket		19-23/32	31-17/32	1-3/4		4.8
8	3	Guy Rope Accessory		10 ft				1.5
9	3	Guy Stake		10	1	1		2.1
10	1	Bag (for Guy Stake)		12	5			0.1
11	1	Mounting	MT-2976/PRC-41	6-1/8	17-3/4	11-13/16	1230	6.6
12	1	Mounting	MT-2977/PRC-41	17/32	11-1/2	5-3/8	31	2.1
13	1	Radio Frequency Cable Assembly	CG-55G/U	20 ft				2.4
14	1	Power Electric Cable Assembly	CX-8686/PRC-41	20 ft				2.8
15	1	Power Electric Cable Assembly	CX-8687/PRC-41	50 ft				5.4
16	1	Special Purpose Electrical Cable Assembly	CX-8688/PRC-41	10 ft				1.0
17	1	D-C Adapter Cable		27				0.3
18	1	Maintenance Cable Kit		12	5			
19	1	Tool Kit		7-1/4	3-1/2			0.8
20	2	Installation and Operation Technical Manual	TM-03816A-12/1	8-1/2	11	1-3/4		

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TABLE 1-2. (Continued)

ITEM	QTY	NOMENCLATURE		OVER-ALL DIMENSIONS (in.)			VOL (cu in.)	WT (lb)
		NAME	DESIGNATION	H	W	D		
21	2	Repair and Maintenance Technical Manual	TM-03816A-35/2	8-1/2	11	1-3/4		
22	1	Repair Parts List		8-1/2	11			

*Unless otherwise stated, all overall dimensions are in inches.

1-3. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

The equipment required for maintenance of the Radio Set AN/PRC-41 equipment is listed in table 1-3.

TABLE 1-3. EQUIPMENT REQUIRED BUT NOT SUPPLIED

QTY PER EQUIP	NOMENCLATURE		REQUIRED USE	RADIO SET AN/PRC-41 EQUIPMENT CHARACTERISTICS
	NAME	DESIGNATION		
1	Signal Generator	AN/USM-44A or AN/URM-26B	Guard and main receiver functional section troubleshooting and maintenance procedures.	Frequency range: 225 to 400 mc. Type of signal: AM. Modulation: 1000 cps internal with external provisions.
1	Signal Generator	AN/URM-25D	Troubleshooting and maintenance procedures.	Frequency range: 10 cps to 50 mc. Type of signal: AM. Output voltage: 0.1 to 100.000 microvolts.
1	R-F Wattmeter	AN/URM-43C or TS-1389	Power output measurements.	Power output: 0 to 5 watts. Impedance: 50 ohms.
1	Oscilloscope	AN/USM-105A	Troubleshooting and maintenance procedures.	General purpose.
1	Output Power Meter or Output Meter	ME-2/U or ME-184 TS-585B/U	Audio output measurements.	Power output: 0 to 1 watt. Impedance: 300 ohms.
1	Audio Oscillator	TS-382B/U or AN/URM-127	Troubleshooting and maintenance procedures.	Frequency: 100 to 10,000 cps. Output: 0 to 2 volts.
1	Fuse	MX-1730/U (P/O AN/USM-44)	Attenuator protection for signal generator.	R-f fuse: 225- to 400-mc range.
1	Multimeter	AN/PSM-4C	Troubleshooting and maintenance procedures.	Voltage ranges: 0-250 volts dc. 0 to 250 volts ac. Ohmmeter section.

TABLE 1-3. (Continued)

QTY PER EQUIP	NOMENCLATURE		REQUIRED USE	RADIO SET AN/PRC-41 EQUIPMENT CHARACTERISTICS	
	NAME	DESIGNATION			
1	Electronic Multimeter	TS-505/U or AN/USM-116	Troubleshooting and maintenance procedures.	Voltage ranges: 0 to 250 volts dc. 0 to 250 volts act Ohmmeter section. Measure frequencies in 20- to 30- mc and 225- to 400- mc ranges.	
1	Frequency Counter	AN/USM-122 or CAQI-524D	Frequency measurement.		
1	Electronic Frequency Converter	CV-394/USA-5 or CAQI-525C	Used with AN/USM-122 to extend the frequency measuring capabilities.		
1	Transfer Oscillator	CM-102/USM-73	Used with AN/USM-122 to extend the frequency measuring capabilities.		
1	Adjustable Attenuator	DA-233 or CAG-874-GA	An attenuator and T- connector used for modu- ration and signal meas- urements.		R-f attenuator to provide attenuation for high level outputs.
1	Signal Generator Pad	CN-315/URM-26 (P/O AN/URM-26B) or CBSH-50-6	Used for impedance matching between signal generator and radio equipment.		Pad attenuation: 6 db. Impedance: 50-ohm input and output. Fre- quency range: 225 to 400 mc.
1	Power Resistor		Used for loading Power Supply PP-3700/PRC-41 when performing tests.		Variable 0- to 20-ohm resistor, 100 watt.
1	Transistor Test Set	TS-110GA/U	Used for checking transistors.		
1	Electron Tube Test Set	TV-7D/U	Used for checking electron tubes.		
1	Coaxial Crys- tal Detector	HP-420A (Hewlett- Packard)			R-f crystal for detection of mod- ulated r-f signals.
1	Junction Box	To be fabricated. Refer to paragraph 5-2a(3).			

1-4. GENERAL DESCRIPTION.

Radio Set AN/PRC-41 is a lightweight, portable uhf receiver-transmitter equipment. The versatility of this equipment permits man-pack, fixed station, or vehicular operation. Refer to figure 1-1. The items and accessories of Radio Set AN/PRC-41 are listed in table 1-1. This equipment is stored for transit in Radio Set Case CY-3883/PRC-41 and Electronic Equipment Case CY-3885/PRC-41. Refer to figures 1-2 and 1-3. Radio Set Case CY-3883/PRC-41 contains the items necessary for man-pack operation. Electronic Equipment Case CY-3885/PRC-41 contains the accessory items required for fixed station or vehicular operation, and maintenance items such as tools and extender cables. Radio Receiver-Transmitter RT-695/PRC-41 of Radio Set AN/PRC-41 may be operated on any one of 1750 channels, spaced 100 kc in the 225.0- to 399.9-mc range. In transmit operation, the equipment uses type A3 (AM voice) emission and provides an average of 3 watts across the frequency range. All controls are an integral part of the front panel of Radio Receiver-Transmitter RT-695/PRC-41. These controls provide frequency selection, application of power, and adjustment of volume and squelch levels. Automatic relay operation may be provided when two Radio Receiver-Transmitter RT-695/PRC-41 equipments are operated together. Cabling is provided to permit remote operation. Primary power may be provided by either Storage Battery BB-451/U or Power Supply PP-3700/PRC-41. The equipment may use directional Antenna AS-1405/PRC-41 or omnidirectional Antenna AS-1404/PRC-41.

1-5. DESCRIPTION OF UNITS.

a. GENERAL. - Radio Set AN/PRC-41 is considered to include Radio Set Case CY-3883/PRC-41 and its contents. Refer to figure 1-2 Radio Set Accessory Kit MK-706/PRC-41 is considered to include Electronic Equipment Case CY-3885/PRC-41 and its contents. Refer to figure 1-3. The following paragraphs of this subsection provides physical, electrical, and functional descriptions of Radio Set Case CY-3883/PRC-41, Electronic Equipment Case CY-3885/PRC-41, and their contents.

b. RADIO SET AN/PRC-41.

(1) RADIO SET CASE CY-3883/PRC-41. Radio Set Case CY-3883/PRC-41 is a compartmentalized aluminum transit case used for storage of the items of Radio Set AN/PRC-41 which are required for man-pack operation. It measures 15-1/2 by 35 by 26-1/2 inches and weighs 45 pounds. Refer to figure 1-2.

(2) RADIO RECEIVER-TRANSMITTER RT-695/ PRC-41. - Radio Receiver-Transmitter RT-695/PRC-41 consists of a main chassis with eight plug-in modules, a control panel, and a waterproof dust cover (Receiver-Transmitter Case CY-3884/PRC-41). Refer to figure 1-4. The modules are removable from the main chassis by loosening captive screws on each module. All electrical connections between the modules and the main chassis are made through multipin connectors on

each module to jacks mounted on the main chassis. The coaxial cables and the connectors which are integral with the multipin connectors conduct the r-f signals between the plug-in modules. Mechanical coupling for tuning functions is achieved by a mechanical gear train and couplers mounted on the main chassis, and the couplers of the mechanically tuned modules. The main chassis gear train is driven by the frequency selector controls on the front panel. Pressure contacts located at the rear of the main chassis provide the electrical connections for supplying the primary 26.5-volt d-c supply from either Storage Battery BB-451/U or Power Supply PP-3700/PRC-41. A coaxial connector located on the front panel mates with Antenna AS-1404/PRC-41 (omnidirectional) or with Radio Frequency Cable Assembly CG-55G/U when using Antenna AS-1405/PRC-41 (directional). The front panel also mounts a function switch for application of power, a volume control, a squelch control, three frequency selector controls, a window which indicates the frequency to which the component is tuned, and two Handset H-33E/PT audio output connectors.

(3) RECEIVER-TRANSMITTER CASE CY-3884/PRC-41. - Receiver-Transmitter Case CY-3884/PRC-41 is a dust cover for Radio Receiver-Transmitter RT-695/PRC-41. Refer to figure 1-4. The CY-3884/PRC-41 is secured to the RT-695/PRC-41 by four captive screws which are located at the rear of the CY-3884/PRC-41. With the CY-3884/PRC-41 in place on the RT-695/PRC-41, primary power is applied through pressure contacts located at the rear corners to the contacts centrally located on the inside rear of the CY-3884/PRC-41. The power is then available to the pressure contacts at the rear of the main chassis of the RT-695/PRC-41 and hence to the power distribution circuits of the RT-695/PRC-41.

(4) STORAGE BATTERY BB-451/U. - Refer to figure 1-5.

(a) GENERAL. - Storage Battery BB- is a silver-zinc alkaline 24-volt (nominal) 25-ampere-hour (nominal) rechargeable storage battery. It is used to provide primary power to Radio Receiver-Transmitter RT-695/PRC-41 in a man- operation or where no other suitable power source is available. Three Storage Battery BB-451/U units are contained in Radio Set Case CY-3883/PRC-41.

(b) CONSTRUCTION. - The BB-451/U is contained in a watertight fiber glass case with a stainless steel cover plate. After removing the cover plate, the cells may be removed in groups of four using only ordinary hand tools. A plastic sheet for recording charging history is bonded to the underside of the cover plate. To avoid a long formation and activation period, the BB-451/U is supplied in a dry charge condition.

(c) CELLS. - The battery consists of 16 series-connected silver-zinc cells constructed in blocks of four cells each. Nominal open circuit voltage of a fully charged cell is 1.86 volts per cell. The minimum voltage per cell under specified load is 1.375 volts at - 11 °C

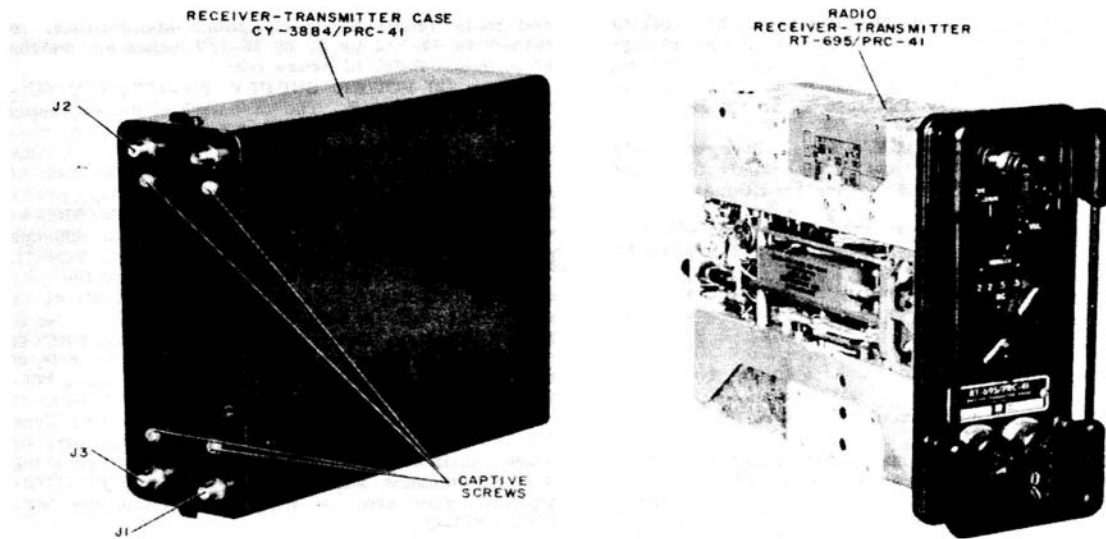


Figure 1-4. Radio Receiver-Transmitter RT-695/PRC-41, Receiver-Transmitter Case CY-3884/PRC-41 Displaced.

-11°C (+12°F) and above and 1.250 volts from -10°C to -25°C (+14°F to -13°F).

(d) CHARGE RETENTION (DRY). - Charge retention of a dry, charged cell over the specified periods will be in accordance with the minimum values indicated below:

2 years at +30°C (+86°F) and below 98% (19.6 ampere-hours)

1 year at +50°C (+122°F) and below - 80% (16 ampere-hours)

3 months at +65°C (+149°F) and below - 50% (10 ampere-hours)

(e) ACTIVATION. - The cells of the silver-zinc battery will deliver the specified ampere-hour capacity after a 24-hour "soak" in the electrolyte, a 40-percent solution of potassium hydroxide and other additives furnished by the manufacturer. A booster charge is permissible if the temperature and storage limits of paragraph 1-5b(4)(d) above have been exceeded.

(f) CHARGE ACCEPTANCE. - The battery cells will perform according to specifications after charging at a modified constant current of 2.5 amperes average with voltage cutoff at 2.03 volts. Emergency charging of the cells is possible by charging at a constant potential of 2.03 volts per cell with charge acceptance as follows: a 0.5-hour charge period replaces 50 percent of

ORIGINAL

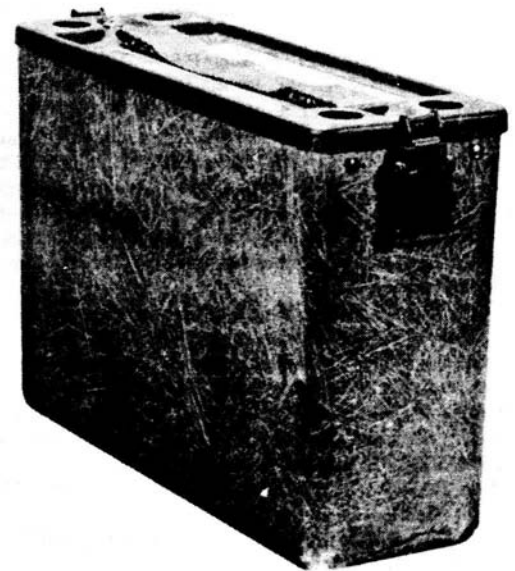


Figure 1-5. Storage Battery BB-451/U, Oblique View.

the capacity removed on previous discharge; a four-hour charge period replaces 60 percent of the capacity removed on the previous discharge. All recharging must be with Battery Charger PP-3240/U or its exact replacement.

(g) STORAGE. - Dry, charged cells are filled with an inert gas by the manufacturer and may be stored under the following conditions:

Temperature range	-65°C to +65°C (-85°F to +140°F)
Relative humidity	100 percent
Attitude	any
Altitude	40,000 ft

Wet, charged cells should be stored in an upright position.

For further detailed information concerning Storage Battery BB-451/U see TM-04072A-15/1.

(5) ANTENNA AS-1404/PRC-41. - Refer to figure 1-6. Antenna AS-1404/PRC-41 is an omnidirectional antenna for use with Radio Receiver-Transmitter RT-695/PRC-41. The AS-1404/PRC-41 is used for transmission and reception of signals in the 225- to 399.9- mc range without electrical or physical adjustments. It may be mounted directly on antenna connector 1A9J28 on the front panel of Radio Receiver-Transmitter RT-695/PRC-41 or the connector on the antenna mounting bracket; or, when mounted on Mast AB-777/PRC-41, it must be connected through Adapter UG-29B/U and Radio Frequency Cable Assembly CG-55G/U to the RT-695/PRC-41.

(6) HANDSET H-33E/PT. - Refer to figure 1-6. Handset H-33E/PT is made up of a hand piece, a length of cable, and a connector which mates with either AUDIO connector on the front panel of Radio Receiver-Transmitter RT-695/PRC-41. The H-33E/ PT contains a transmitter, a receiver, and a press- button. In operation, pressing the press-to-talk button places the RT-695/PRC-41 equipment in transmit operation; releasing returns the equipment to receive operation.

(7) RUCKSACK FRAME. - Refer to figure 1-6. The rucksack frame is a government furnished equipment. The rucksack frame and associated straps and harness provide a back pack frame for carriage of Radio Receiver-Transmitter RT-695/PRC-41. Storage Battery BB-451/U, and Antenna AS-1404/PRC-41 in man-pack operation.

c. RADIO SET ACCESSORY KIT MK-706/PRC-41.

(1) ELECTRONIC EQUIPMENT CASE CY-3885/PRC-41. - Electronic Equipment Case CY-3885/PRC-41 is a compartmentalized aluminum transit case used for storage of accessories of Radio Set AN/PRC-41. The contents of Electronic Equipment Case CY-3885/PRC-41 permit operation of the AN/PRC-41 equipment in a fixed station or vehicular configuration, and provide extender cables and tools required for equipment maintenance. It measures 15-1/2 by 35 by 26-1/2 inches and weighs 45 pounds. Refer to figure 1-3.

(2) POWER SUPPLY PP-3700/PRC-41. - Refer to figure 1-7. The circuitry of Power Supply PP-3700/PRC-41 is contained in an aluminum case having the same dimensional configuration as Storage Battery BB-451/U. Power Supply PP-3700/PRC-41 is used to provide the 26.5-volt d-c primary power for Radio Receiver-Transmitter RT-695/PRC-41 where either 115- or 230- volt, 50- to 400-cps power is available. Refer to paragraph 2-5b(1). This component may be clamped directly to the rear of Radio Receiver-Transmitter RT-695/PRC-41 or its primary power may be made available by use of Power Electric Cable Assembly CX-8686/PRC-41 connected between the d-c connector on the side of the PP-3700/PRC-41 and the rear of Mounting MT-2976/PRC-41. When operating the RT-695/PRC-41 on the test bench with Receiver-Transmitter Case CY-3884/PRC-41 removed, primary power may be made available to the RT-695/PRC-41 by use of the d-c maintenance adapter. Power Supply PP-3700/PRC-41 may also be mounted on Mounting MT-2977/PRC-41.

(3) MOUNTINGS MT-2976/PRC-41 AND MT-2977/PRC-41.- Refer to figure 1-8. Mounting MT-2976/PRC-41 is used to mount Radio Receiver- RT-695/PRC-41. This is normally used for a vehicular installation. Power Electric Cable Assembly CX-8686/PRC-41 may be connected to the input connector at the rear of the MT-2976/PRC-41. Mounting MT-2976/PRC-41 contains circuitry to prevent voltage polarity reversal from damaging the RT-695/PRC-41 and filter circuits for input filtering of the primary power voltage. Primary power is taken from the input connector at the rear of the MT-2976/PRC-41, fed through the mounting circuit and made available to the connectors at the front of the rear bracket of the MT-2976/PRC-41. These connectors mate with those at the rear of Receiver-Transmitter Case CY-3884/PRC-41. Two take-up fasteners are located at the front of the MT-2976/PRC-41 which clamp over the protection handles on the front panel of the RT-695/PRC-41 and hold the contacts at the rear of the CY-3884/PRC-41 in contact with the contacts at the front of the rear bracket of the MT-2976/PRC-41. Mounting MT- is used normally for a fixed station installation for mounting Power Supply PP-3700/PRC-41.

(4) ANTENNA AS-1405/PRC-41 AND ACCESSORIES. - Refer to figure 1-9. Antenna AS-1405/PRC-41 is a directional antenna for use with Radio Receiver-Transmitter RT-695/PRC-41. The AS-1405/PRC-41 is used for transmission and reception of signals in the 225- to 399.9-mc range. The elements of Antenna AS-1405/PRC-41 are made collapsible for storage. The AS-1405/PRC-41 is a planer log periodic dipole array which provides unidirectional directivity characteristics. Antenna AS-1405/PRC-41 mounts on an adjustable antenna mast adapter and Mast AB-777/PRC-41. Guy ropes and stakes permit Mast AB-777/PRC-41 to be staked in place in a fixed station installation.

ORIGINAL

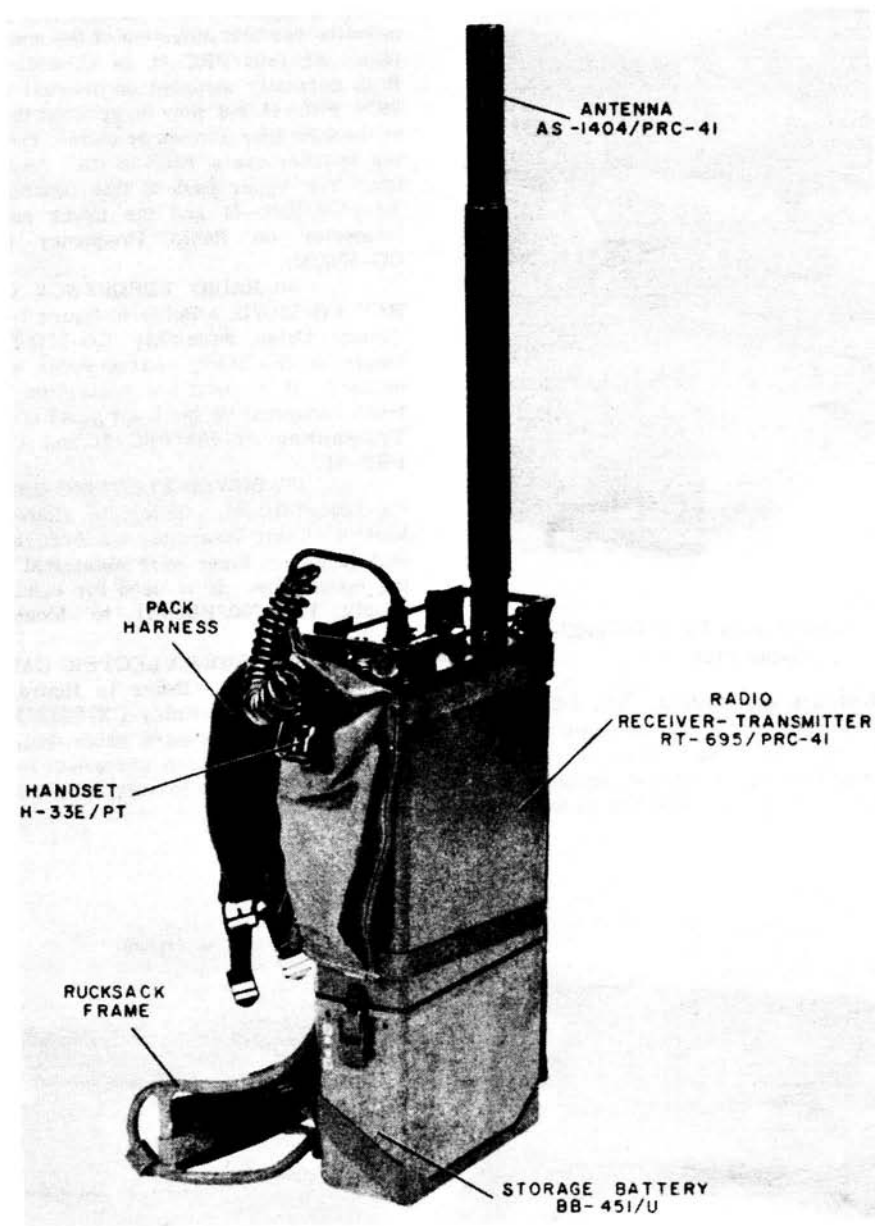


Figure 1-6. Radio Set AN/PRC-41, Man-Pack Operation Configuration

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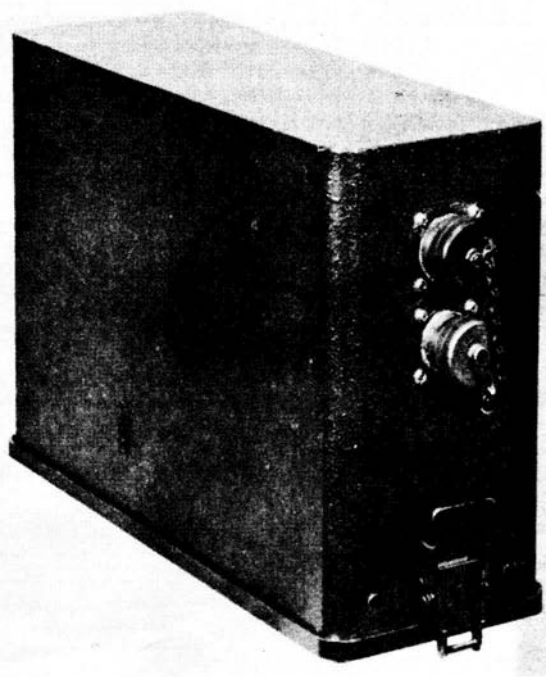


Figure 1-7. Power Supply PP-3700/PRC-41,
Oblique View

The adjustable antenna mast adapter permits elevation orientation of Antenna AS-1405/PRC-41. Radio Frequency Cable Assembly CG-55G/U connects between Antenna AS-1405/PRC-41 and the antenna connector on the front panel of Radio Receiver-Transmitter RT-695/PRC-41. The AS-1405/PRC-41 may be stored in the directional antenna carrying bracket.

(5) ANTENNA MOUNTING BRACKET. - Refer to figure 1-10. The antenna mounting bracket permits vertical mounting of the omnidirectional Antenna AS-1404/PRC-41 in a vehicular installation. It is normally mounted on the rear of Mounting MT-2976/PRC-41 but may be secured to any flat vertical surface by four screws or bolts. The antenna mounting bracket has a BNC-to-BNC feedthrough connector. The upper part of this connector fits Antenna AS-1404/PRC-41 and the lower part mates with a connector on Radio Frequency Cable Assembly CG-55G/U.

(6) RADIO FREQUENCY CABLE ASSEMBLY CG-55G/U. - Refer to figure 1-11. Radio Frequency Cable Assembly CG-55G/U is a 20-foot length of RG-213/U coaxial cable with mating connectors. It is used for connection between the antenna connector on the front panel of Radio Receiver Transmitter RT-695/PRC-41 and Antenna AS-1405/PRC-41.

(7) POWER ELECTRIC CABLE ASSEMBLY CX-8686/PRC-41. - Refer to figure 1-11. Power Electric Cable Assembly CX-8686/PRC-41 is a 20-foot length of three-wire electrical cable with mating connectors. It is used for connection of Power Supply PP-3700/PRC-41 to Mounting MT-2976/PRC-41.

(8) POWER ELECTRIC CABLE ASSEMBLY CX-8687/PRC-41. - Refer to figure 1-11. Power Electric Cable Assembly CX-8687/PRC-41 is a 50-foot length of three-wire cable with suitable mating connectors. It is used to connect Power Supply PP-3700/PRC-41 to a 115-volt, 50- to 400-cps primary supply.

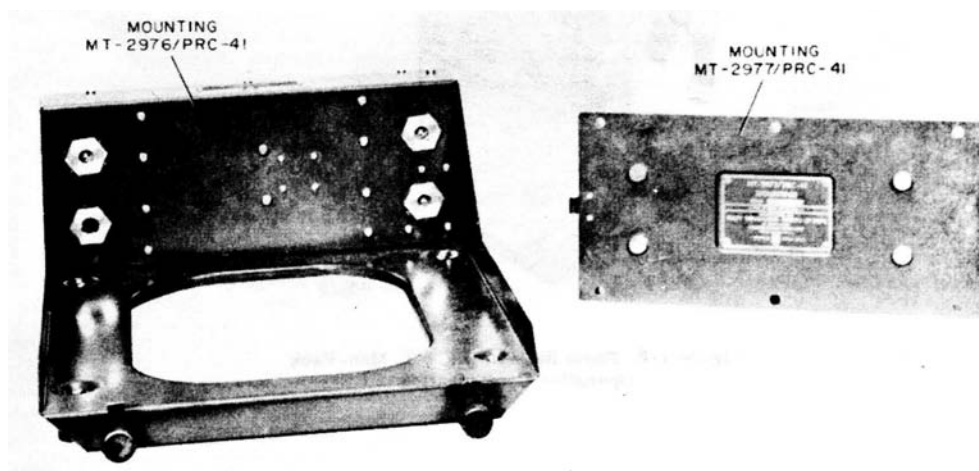


Figure 1-8. Mounting MT-2976/PRC-41 and MT-2977/PRC-41, Oblique Views

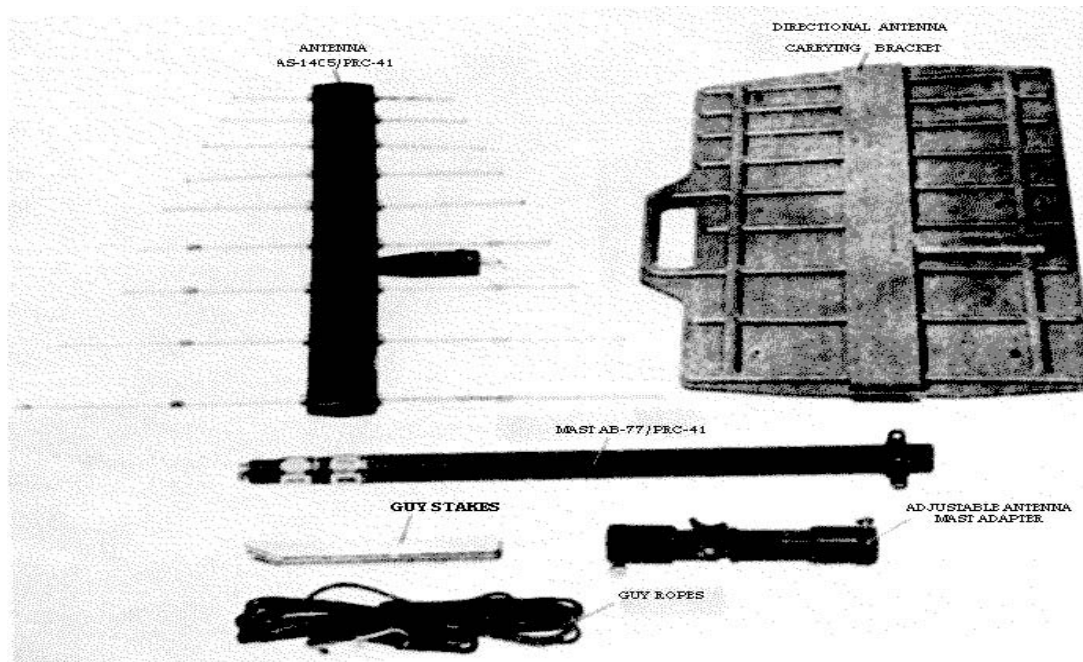


Figure 1-9. Antenna AS-1405/PRC-41, Mast AB-777/PRC-41, and Accessories

(9) SPECIAL PURPOSE ELECTRICAL CABLE ASSEMBLY CX-8688/PRC-41. - Refer to figure 1-11. Special purpose Electrical Cable Assembly CX-8688/PRC-41 is a 10-foot length of seven-conductor cable having suitable mating connectors. It is used to connect one of the AUDIO connectors on one Radio Receiver-Transmitter RT-695/PRC-41 to one of the AUDIO connectors on another RT-695/PRC-41 for automatic relay operation. Refer to paragraph 2-4d.

(10) D-C ADAPTER CABLE. - Refer to figure 1-11. The d-c adapter cable is a two-wire cable used in a vehicular installation to connect power between the vehicle d-c power source and the rear connector of Mounting MT-2976/PRC-41 through Power Electric Cable Assembly CX-8688/PRC-41.

(11) MAINTENANCE CABLE KIT.- Refer to figure 1-12. The maintenance cable kit is composed of five multipin cables, two Conhex cables, a BNC-to-Conhex connector, a Conhex-to-Conhex connector, and

a d-c maintenance adapter. The multiwire and Conhex cables are used for operating the modules of Radio Receiver-Transmitter RT-695/PRC-41 extended from the main chassis while performing maintenance procedures. The BNC-to-Conhex and Conhex-to-Conhex connectors provide adaptations for connection of test equipment. With Receiver-Transmitter Case CY-3884/PRC-41 removed from Radio Receiver-Transmitter RT-695/PRC-41, the d-c maintenance adapter may be secured to the rear of the RT-695/PRC-41. This permits application of primary power while performing maintenance procedures. The d-c maintenance adapter is a three-wire pressure contact to connector adapter. Refer to table 1-4.

(12) TOOL KIT. - Refer to figure 1-13. The tool kit contains the special tools supplied for adjustment and maintenance of Radio Receiver- RT-695/PRC-41. Refer to table 1-5.

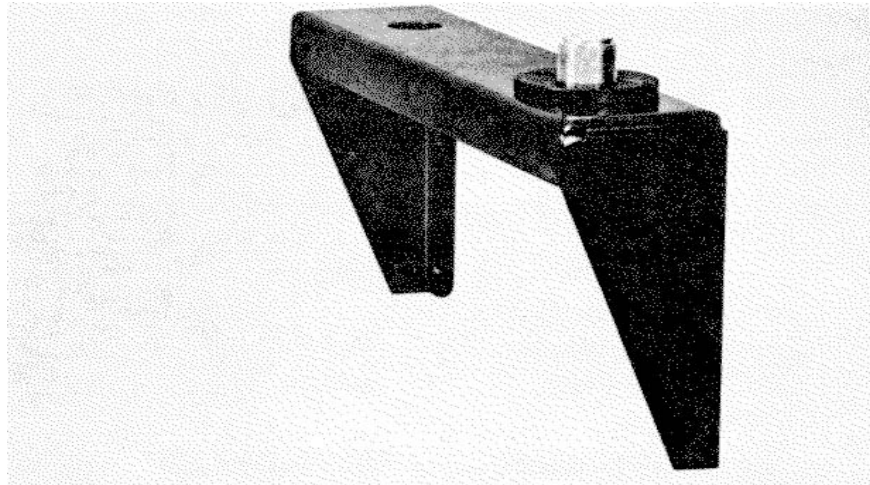


Figure 1-10. Antenna Mounting Bracket

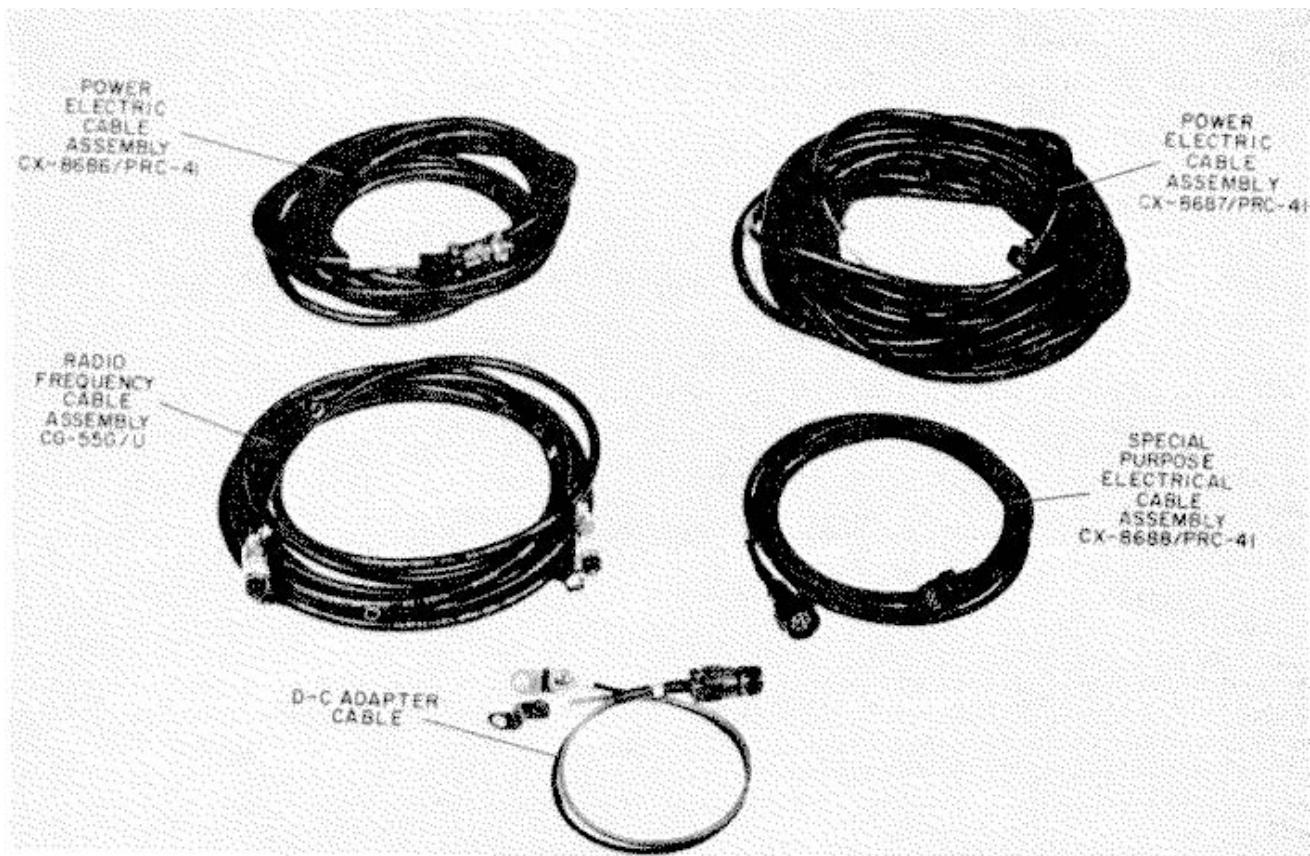


Figure 1-11. Cable Assemblies

TABLE 1-4. CONTENTS OF MAINTENANCE CABLE KIT

ITEM NUMBER	DESCRIPTION AND PURPOSE
1	Canvas bag, container for cables and adapters.
2	Extension cable W2 is an 18-inch cable terminated in Cannon DBM-F13C3P(C27) and Cannon DBMF-K13C3S(C27)-1, having 10 plus and three coaxial connections. Extension cable W2 is used with 1st and 2nd i-f amplifier module.
3	Extension cable W3 is an 18-inch cable terminated in Cannon DAM-H11C1P(C27) and Cannon DAMF-K11C1S(C27)-1, having 10 pins and one coaxial connection. Extension cable W3 is used with spectrum generator and guard receiver modules.
4	Extension cable W1 is an 18-inch cable terminated in Cannon DBM-A17C2P(C27) and Cannon DBM-53513-15, having 15 pins and two coaxial connections. Extension cable W1 is used with r-f and power amplifier module.
5	Extension cable W4 is an 18-inch cable terminated in Cannon DA-15P-C7 and Cannon DAF-15S-C7 connectors, having 15 pins. Extension cable W4 is used with 3rd i-f and squelch module.
6	Extension cable W5 is an 18-inch cable terminated in Cannon DE-9P and Cannon DEF-9S, having 9 pins. Extension cable W5 is used with d-c power supply, modulator, and audio modules.
7	Adapter A1 is a BNC-to-Conhex adapter required for connection of test equipment to equipment.
8	Adapter A2 is a Conhex-to-Conhex adapter required for connection of Conhex cables to extend their length.
9	Extension cable W7 is an 8-inch Conhex cable terminated in one Conhex 33-01 connector.
10	Extension cable W6 is an 8-inch Conhex cable terminated in two Conhex 33-01 connectors.
11	Extension cable W8 is an 18-inch coaxial cable terminated in one Microdot 51-258 connector and one Microdot 3242 connector.
12	D-c maintenance adapter A3 is used to provide power to RT-695/PRC-41 when operated with CY-3884/PRC-41 removed. Adapter A3 secures to rear of RT-695/PRC-41 by use of two captive screws. Electrically, d-c maintenance adapter has three pressure contacts like those in rear of CY-3884/PRC-41. These make contact with three pressure contacts on rear of RT-695/PRC-41 and are connected to three-pin plug on opposite side of d-c maintenance adapter bracket. This plug mates with CX-8686/PRC-41.
13	Adapter UG-29B/U permits connection of Radio Frequency Cable Assembly CG-55G/U to Antenna AS-1404/PRC-41 when used with Mast AB-777/PRC-41.

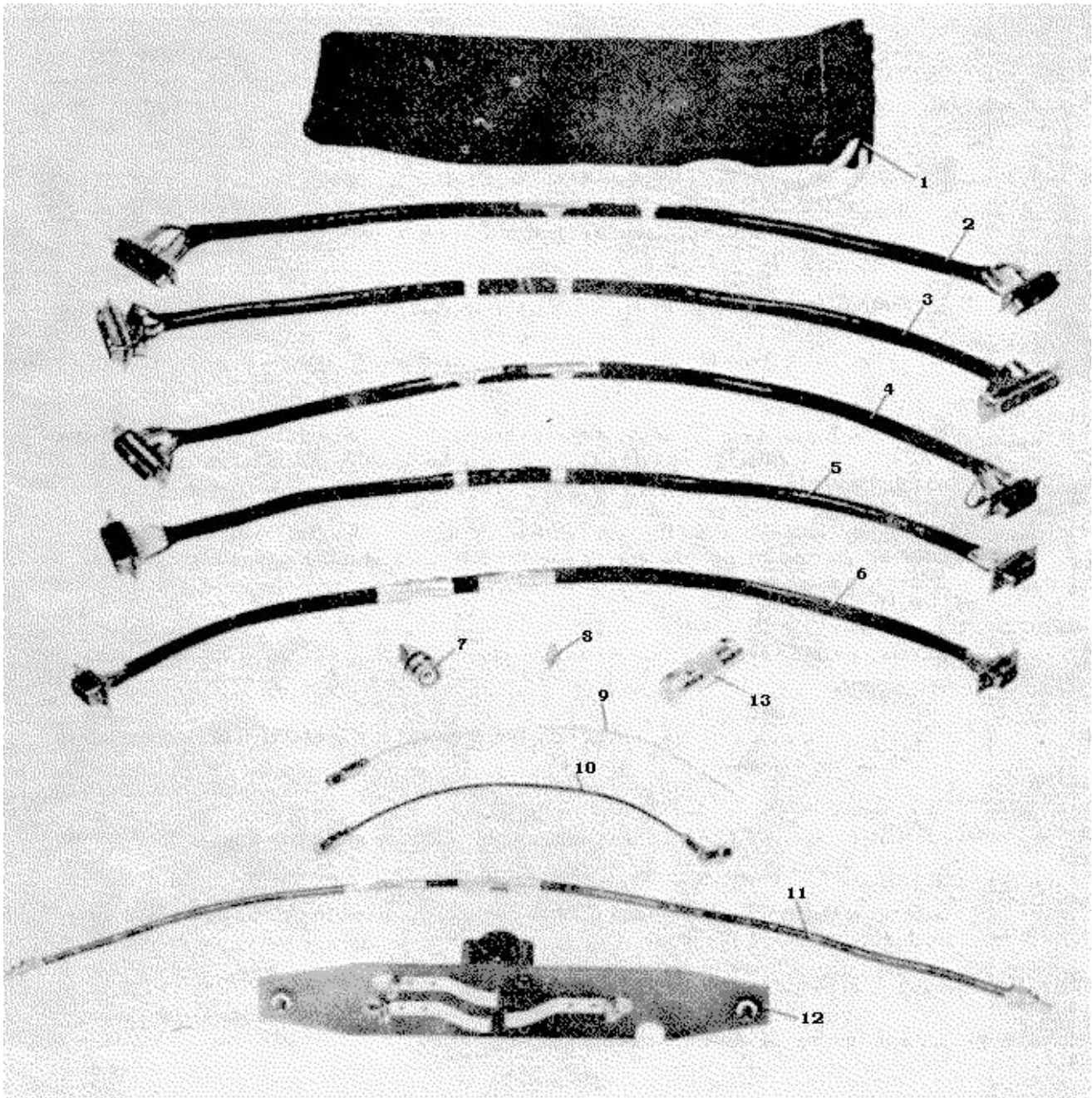


Figure 1-12. Maintenance Cable Kit

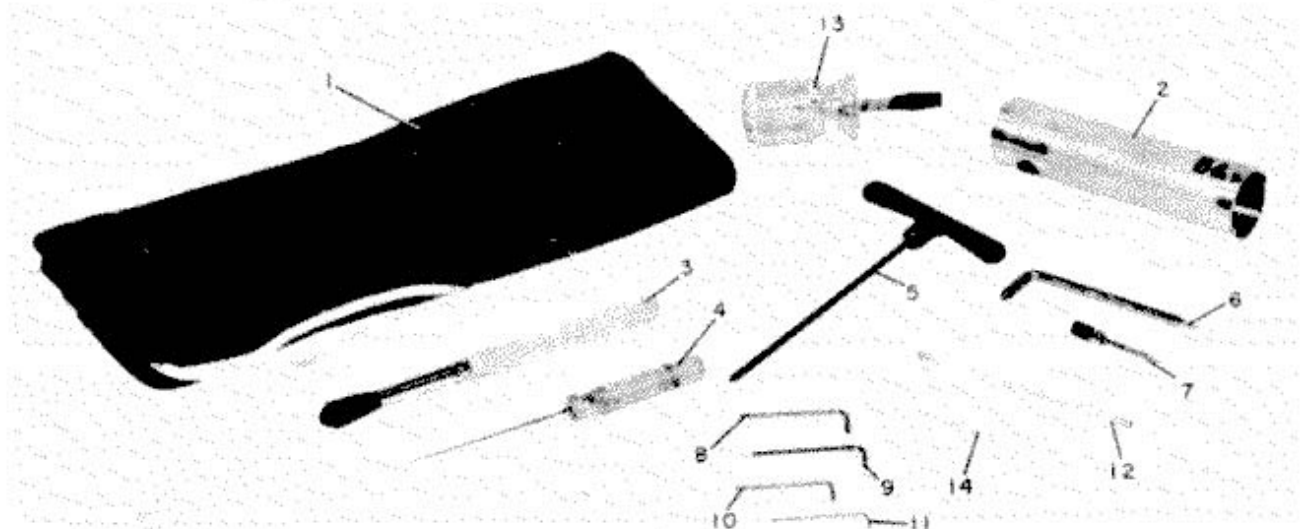


Figure 1-13. Tool Kit

TABLE 1-5. CONTENTS OF TOOL KIT

ITEM NUMBER	NAME	PURPOSE
1	Canvas bag	Container for tools.
2	Spanner wrench	Used for removing antenna connector 1A9J28 and AUDIO connectors on front panel of Radio Receiver-Transmitter RT-695/PRC-41, and antenna connector on antenna mounting bracket.
3	Brush	Used to clean connectors.
4	Screwdriver	Used for adjustment of trimpots and tuning capacitor of 1st and 2nd i-f amplifier, 3rd i-f and squelch, guard receiver, spectrum generator, modulator, and audio modules.
5	T-handle wrench	Used for loosening redheaded captive screws on modules of Radio Receiver-Transmitter RT-695/PRC-41.
6	Cross-recessed screwdriver	Used for removal and replacement of module side cover screws and for removal of main chassis back plate of Radio Receiver-Transmitter RT-695/PRC-41.
7	Screwdriver	Used for adjustment of capacitor 1A2C30 of 1st and 2nd i-f amplifier module.
8	Multiple spline socket wrench #8	Used to tighten all coupler clamps on main chassis gear train.
9	Multiple spline socket wrench #6	Used for setscrews on all knobs on front panel and setscrews in gears of main chassis of RT-695/PRC-41.

TABLE 1-5. (Continued)

ITEM NUMBER	NAME	PURPOSE
10	Multiple spline socket wrench #4	Used for setscrews in main chassis gear train, as required.
11	Multiple spline socket wrench #2	Used for adjustment of rotor and hub setscrews in r-f and power amplifier, and spectrum generator modules.
12	Alignment tool	Used for adjusting trimmer capacitors of r-f and power amplifier module.
13	Screwdriver	Used for loosening and tightening redheaded captive screws of dust cover of Power Supply PP-3700/PRC-41 and Storage Battery BB-451/U, and Receiver-Transmitter Case CY-3884/PRC-41.
14	Alignment tool	Used for tracking r-f and power amplifier, and spectrum generator modules.

1-6. REFERENCE DATA.

a. **POWER REQUIREMENTS.**- 26.5 volts dc ± 10 percent (equipment will operate with an input voltage as low as 22 volts d-c) or 115 or 230 volts ± 10 percent, 50- to 400-cps single phase. Equipment is normally connected for 115 volts; cable fabrication is required for operation from a 230 volt source. Refer to section 2 of the Installation and Operation Technical Manual for Radio Set AN/PRC-41.

b. **FREQUENCY DATA.**

- (1) Range: 225.0 to 399.9 mc.
- (2) Channels: 1750 spaced at 100-kc intervals over the range.
- (3) Stability: ± 15 kc.
- (4) Type of frequency control: Crystal.
- (5) Number of crystals: 39 crystals.
- (6) Type of transmission and reception. A3.

c. **TRANSMITTER DATA.**

- (1) Power output: 3 watts average unmodulated power into a 50-ohm load.
- (2) Modulation: AM.
- (3) Modulation sensitivity: Carbon microphone input of 1.0 volt.
- (4) Modulation capability: 80 percent minimum (adjusted to clip between 70 to 90 percent).
- (5) Transmitter fidelity: +1, -3db, 300 to 3500 cps (from 1000-cps reference).
- (6) Transmitter distortion: Less than 10 percent with modulation 3 db below clipping level.
- (7) Duty cycle: 1-minute transmit, 9-minute receive.

d. **RECEIVER DATA.**

- (1) Sensitivity: A signal having an average level of 3 uv modulated 30 percent at 1000 cps produces 7 mw at a signal-plus-noise to noise ratio of 10 db or greater.
- (2) Selectivity: 6 db, 47 kc minimum; 60 db, 120 kc maximum.
- (3) Images and spurious responses: 70 db
- (4) I-f rejection: 80 db down.
- (5) Avc characteristics: Output within ± 3 db from 10 to 100,000 uv (from 1000-microvolt reference).
- (6) Blocking: No blocking for input signals up to 0.5 volt.
- (7) Squelch operation: A change in audio output of at least 10 db is effected by a 1-db change in input signal.
- (8) Ultimate S+N/N ratio: At least 36 db (measured at 1000 uv).
- (9) Audio output: 50 mw into a 300-ohm load with 30-percent modulation, 1000 uv.
- (10) Audio fidelity: +1, -3 db from 300 to 3500 cps (from 1000-cps reference).
- (11) Audio distortion: Less than 10 percent at 50-mw output.

e. **GUARD RECEIVER DATA.**

- (1) Sensitivity: A signal having an average level of 5 uv into the guard receiver modulated 30 percent at 1000 cps, produces 7 mw at a signal-plus- to noise ratio of 10 db or greater.
- (2) Selectivity: 6 db, 50 kc minimum; 60 db, 200 kc maximum.

- (3) Images and spurious responses: 60 db down.
- (4) I-f rejection: 80 db down.
- (5) Avc characteristics: Output within ± 3 db from 10 to 100,000 uv (from 1000-microvolt reference).
- (6) Blocking: No blocking for input signals up to 0.5 volt.
- (7) Squelch operation: A change in audio output of at least 10 db is effected by a 1-db change in input signal.
- (8) Ultimate S+N/N ratio: At least 35 db (measured at 1000 uv).
- (9) Audio output: 50 mw into a 300-ohm load with 30-percent modulation, 1000 uv.
- (10) Audio fidelity: +1, -3 db from 300 to 3500 cps (from 1000-cps reference).
- (11) Audio distortion: Less than 10 percent at 50-mw output (1000-microvolt input, 1000 cps, 30 percent modulated).

1-7. FACTORY OR FIELD CHANGES.

Effective the date of this technical manual, there have been no factory or field changes of Radio Set AN/PRC-41 or Radio Set Accessory Kit MK-706/PRC-41.

1-8. PREPARATION FOR RESHIPMENT.

To prepare Radio Set AN/PRC-41 and Radio Set Accessory Kit MK-706/PRC-41 for reshipment, return all items and accessories to their respective cases. Refer to figures 2-1 and 2-2. Replace Radio Set Case CY-3883/PRC-41 and Electronic Equipment Case CY-3885/PRC-41 in their packing boxes and carefully nail the crate planking in place. Properly mark the packing boxes for reshipment or storage.

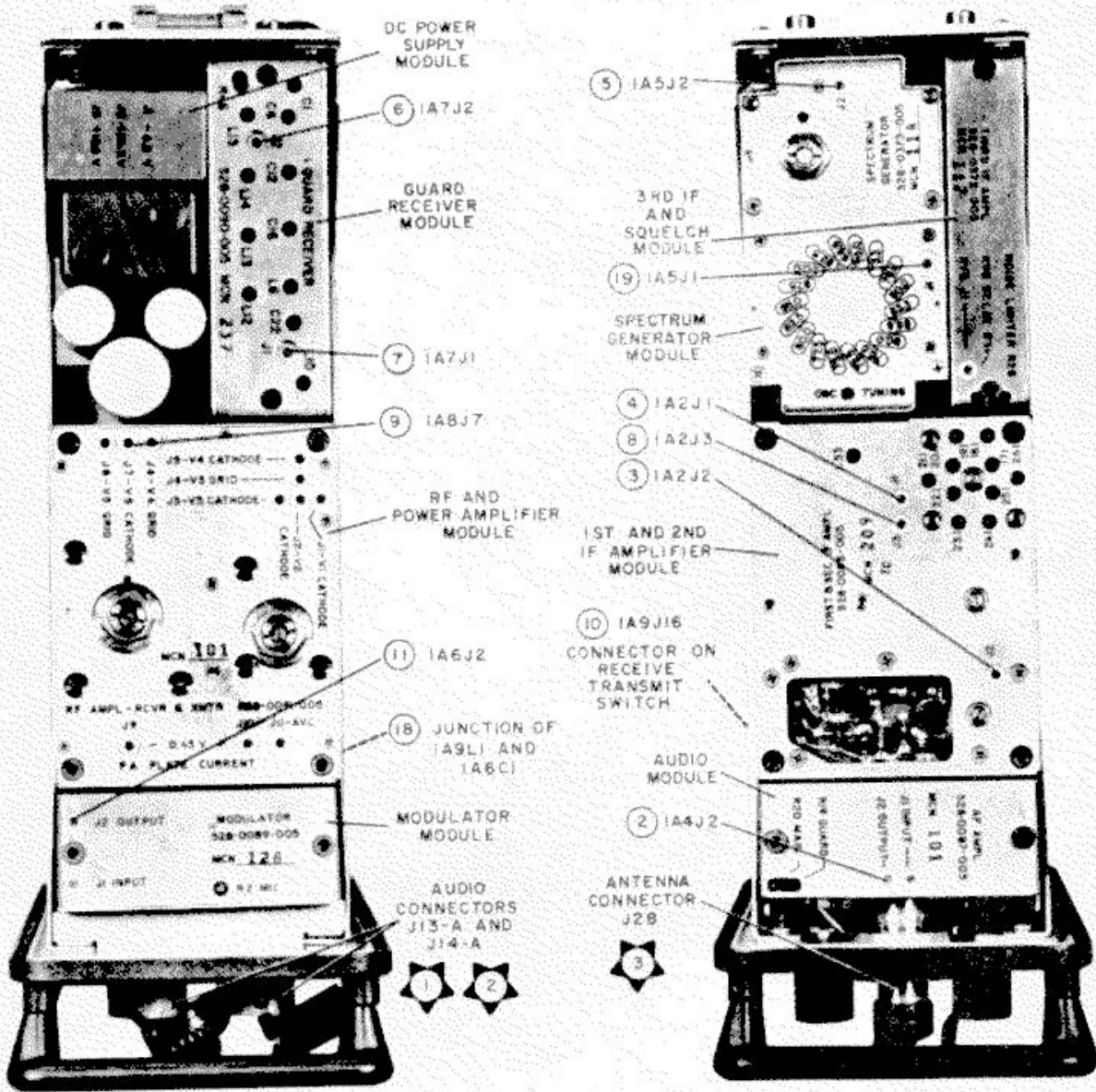


Figure 4-1. Radio Receiver-Transmitter RT-695/PRC-41, Module and Test Point Locations

SECTION 4

TROUBLE SHOOTING

4-1. LOGICAL TROUBLE SHOOTING.

a. **HISTORICAL DATA AVAILABILITY.** - When adequate historical data is not available, troubleshooting procedures should be based on the following six logical steps.

(1) **SYMPTOM RECOGNITION.**- This is the first step in the trouble-shooting procedure and is based on a complete knowledge and understanding of equipment operating characteristics. All equipment troubles are not the direct result of component failure. Therefore, a trouble in an equipment is not always easy to recognize, since all conditions of less than peak performance are not always apparent. This type of equipment trouble is usually discovered while accomplishing preventive maintenance procedures. It is important that the not so apparent troubles, as well as the apparent troubles, be recognized.

(2) **SYMPTOM ELABORATION.** - After an equipment trouble has been recognized, all the available aids designed into the equipment should be used to further elaborate on the original trouble symptom. Use of front panel controls should provide a better identification of the original trouble symptom. Also, checking or otherwise manipulating the operating controls may eliminate the trouble.

(3) **LISTING PROBABLE FAULTY FUNCTION.** - The next step in logical trouble shooting is to formulate a number of logical choices as to the cause and likely location (functional section) of the trouble. The logical choices are mental decisions which are based on knowledge of the equipment operation, a full identification of the trouble symptom, and information contained in this manual. The overall functional description and its associated block diagram should be referred to when selecting possible faulty functional sections.

(4) **LOCALIZING THE FAULTY FUNCTION.** For the greatest efficiency in localizing trouble, the functional sections which have been selected by the logical choice method should be tested in an order that will require the least time. This requires a mental selection to determine which section to test first. The selection should be based on the validity of the logical choice and the difficulties in making the necessary tests. If the tests do not prove that functional section to be at fault, the next selection should be tested, and so on until the faulty functional section is located. As an aid to this process, the manual contains a functional description and a servicing block diagram of the functional sections. Pertinent indications are included at significant check points on the servicing block diagram to aid in isolating the faulty section. Also, test data (such as information on control settings, critical adjustments, and required test equipment) are supplied to augment the functional

description and servicing block diagram of the functional sections.

(5) **LOCALIZING TROUBLE TO THE CIRCUIT.** - After the faulty functional section has been isolated, it is often necessary to make additional logical choices as to which group of circuits or circuit (within the functional section) is at fault. The servicing block diagram of the functional sections and the individual functional circuit groups (where required) provide the signal flow and test location information needed to bracket and then isolate the faulty circuit. Functional descriptions, simplified schematics, and pertinent test data for individual circuits or groups of circuits comprising the functional section are all placed together in one area of the manual. Information which is too lengthy in nature to be included in this arrangement is readily referenced from the test data portion of the troubleshooting information.

(6) **FAILURE ANALYSIS.** - After the trouble (faulty component, misalignment, etc) has been located (but prior to performing corrective action), the procedures followed up to this point should be reviewed to determine exactly why the fault affected the equipment in the manner it did. This review is usually necessary to make certain that the fault discovered is actually the cause of the malfunction and not just the result of the malfunction

b. **GENERAL TROUBLE ISOLATION.** - Except where noted, a Radio Receiver-Transmitter RT-695/PRC-41, which is being subjected to the test procedures of this section, shall be connected according to the preliminary test setup illustrated in figure 5-20. When trouble has been isolated to a particular module of Radio Receiver-Transmitter RT-695/PRC-41 the defective module may be replaced by a like module known to be operative and the equipment returned to tactical service. Refer to paragraph 5-4b for removal and 5-4g for replacement procedures of the modules of the RT-695/PRC-41, as required.

(1) **USE OF SIGNAL, GENERATOR PAD CN-315/URM-26.** - Test procedures of this section and section 5 make reference to the use of Signal Generator Pad CN-315/URM-26. When the CN-315/URM-26 is used with Signal Generator AN/USM-44A the attenuator dial on the AN/USM-44A is read directly in terms of open circuit microvolts. If this pad is not used, the dial reading must be multiplied by 2.

(2) **TRANSISTOR SERVICING.**- Because the transistor is a relatively new electronic device it is necessary that certain techniques and precautions of the servicing of these devices be pointed out to the technician. Although transistors are expected to operate indefinitely, they are subject to abuse and unless special maintenance techniques are used, they will be ruined.

(a) Surface barrier and drift transistors which can operate at high frequencies are becoming widely used and are especially sensitive to certain kinds of overload during routine servicing.

Transistors are like semiconductor diodes in this respect, except that the circuitry is more complex, and because of the interaction between circuits even more understanding is required. Parts can be burned out when measuring resistances with a multimeter- even when the power supply is turned off. This means that personnel must not indiscriminately measure parts values, as has been a practice with electron tube circuits. An additional complexity results because the circuits normally use bypass and coupling capacitors designed for the lower voltages and they may also be damaged by the usual multimeter.

(b) Because a simple slip can ruin many costly transistors, all personnel using or servicing transistorized equipment should know the transistor's limitations. Before applying any test signal (even a multimeter) to a transistor circuit, the technician should check the maximum allowable current, voltage, and

power dissipation ratings of each transistor. Since the resistance of a transistor changes with the magnitude and polarity of applied voltages, it is sometimes useful to consider the transistor as a simple switch or matched impedance when computing an ultra safe maximum signal which may be applied to a particular element. The effect on associated circuits should be considered.

(c) Special instructions for each equipment should be followed since transistors and circuits are not all alike. Table 4-1, although necessarily general, will, in most cases, provide adequate information for the technician who services transistorized equipment. Figure 4-2 provides an outline and locates the base, collector, and emitter leads of the various transistor types which are used in Radio Receiver-Transmitter RT-695/PRC-41 and Power Supply PP-3700/PRC-41.

TABLE 4-1. HOW TO AVOID DAMAGE TO TRANSISTORS WHILE SERVICING CIRCUITS

SOURCE OF ABUSE	SUGGESTIONS
<p>a. Basic Failure Voltage Breakdown or "Punch Through".</p> <p style="text-align: center;">Note</p> <p>Voltage breakdown is especially critical in surface barrier types of transistors.</p> <p>Cause: Safe voltage is exceeded in the nonconducting direction. Allowable values for surface barrier transistors are on the order of 15 volts from collector to emitter and 0.5 volt from base to emitter. Sometimes 0.1 volt can be excessive.</p>	
<p>Short circuiting series parts, such as the load resistor, with test prods, screwdriver, or soldering iron--thus permitting the voltage on the transistor to rise.</p> <p>Using multimeter on high resistance measuring range (22.5 volts of Multimeter AN/PSM-4C, for instance, is far too high for surface barrier transistors.)</p> <p>Using soldering iron which connects ac from line by leakage, or capacitance.</p> <p>Connecting leads from ungrounded test set to transistor, causing RF filter to connect voltage to transistor.</p>	<p>Do not short parts with voltages present. Use very small test prods. Insulate prods to the tips. If a screwdriver is used near active transistor circuits, it should be small and well insulated. Turn off power to transistors before using soldering iron or uninsulated tools. Keep transistor away from high voltage circuits.</p> <p>Avoid use of resistance measuring circuits unless safe. Remove batteries from multimeter or use series and parallel resistors to limit current and voltages to safe values.</p> <p>Use 6-volt iron or isolation transformer. Always turn transistor circuits off and, observing safety precautions, connect a common ground before soldering.</p> <p>Ground all cases together using short ground connections. Use all safety precautions necessary.</p>

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TABLE 4-1. (Continued)

SOURCE OF ABUSE	SUGGESTIONS
<p>Using transformerless ac sets or test sets.</p> <p>Using equipment with faulty power supply.</p> <p>Accidentally connecting other voltages to transistor.</p>	<p>Not recommended. However, if necessary to use them, connect an electrostatically shielded isolation transformer (1:1 ratio) in the power line of the transformerless set for safety, and use common ground. Check voltages before connecting test leads between equipments to assure safe values.</p> <p>Repair power supply.</p> <p>Keep "haywire" away. Check for test lead voltage that might damage transistor, and if evident, eliminate it before connecting. Ground and short probes and test leads to discharge any test set capacitors before connecting, when applicable.</p>
<p>b. Basic Failure-Burnout or "Runaway".</p> <p>Cause: Allowable power dissipation is exceeded in any part of the transistor.</p>	
<p>Shorting out, shunting, or grounding the transistor input resistor with power applied, causing inadequate bias.</p> <p>Connecting the collector voltage without the proper emitter to base bias voltage.</p> <p>Using multimeter (battery) on the "low" resistance range.</p> <p>Shorting any parts that cause excessive power to be applied to the transistor.</p> <p>Using an ungrounded soldering iron, thus connecting leakage current into the transistor circuit.</p>	<p>Use extreme care to avoid shorts or shunts. Insulate test prods to the tip.</p> <p>Do not connect test leads to transistor if ends of leads are free to short circuit. Use only insulated prods or the power off. Include d-c isolation (suitable capacitor) between signal source and transistor.</p> <p>Avoid connecting transistors or plugging them into sockets unless the power supply voltages are off.</p> <p>Check on allowable currents and voltages for transistor elements. Restrict resistance measuring ranges to safe ones or use limiting resistances (series and parallel as necessary).</p> <p>Do not use a voltmeter of low resistance or other device that will radically affect circuit resistance or voltages, in either the base or collector circuits.</p> <p>(1) Do not solder, connect, or disconnect with voltages on transistor. (2) Ground iron tip (through shank) to transistor circuit- ground, in a safe manner; use isolation (1:1) transformer or use 6-volt iron. (3) Disconnect heated iron before touching it to circuit if iron is large enough to hold necessary heat.</p>

TABLE 4-1. (Continued)

SOURCE OF ABUSE	SUGGESTIONS
<p>Inadvertently connecting voltages or currents (such as radio interference filter current, or leakage from the power line, r-f pickup, external batteries, power supply voltages, or test oscillator voltages).</p> <p>Inducing current by magnetic field of a soldering gun (such as the transformer type).</p> <p>Subjecting transistor to power line transients.</p>	<p>Ground chassis or cases using all necessary safety precautions. Reduce stray fields (use insulated shield, if necessary). Before connecting, check test lead voltage compared to that of transistor circuit with Electronic Multimeter AN/USM-116 to assure low enough voltage. Do not connect low impedance device across equipment voltage or current supplies or loads.</p> <p>Do not use high-current-carrying conductor or soldering device near wiring.</p> <p>Use a suitable supply and power source.</p>

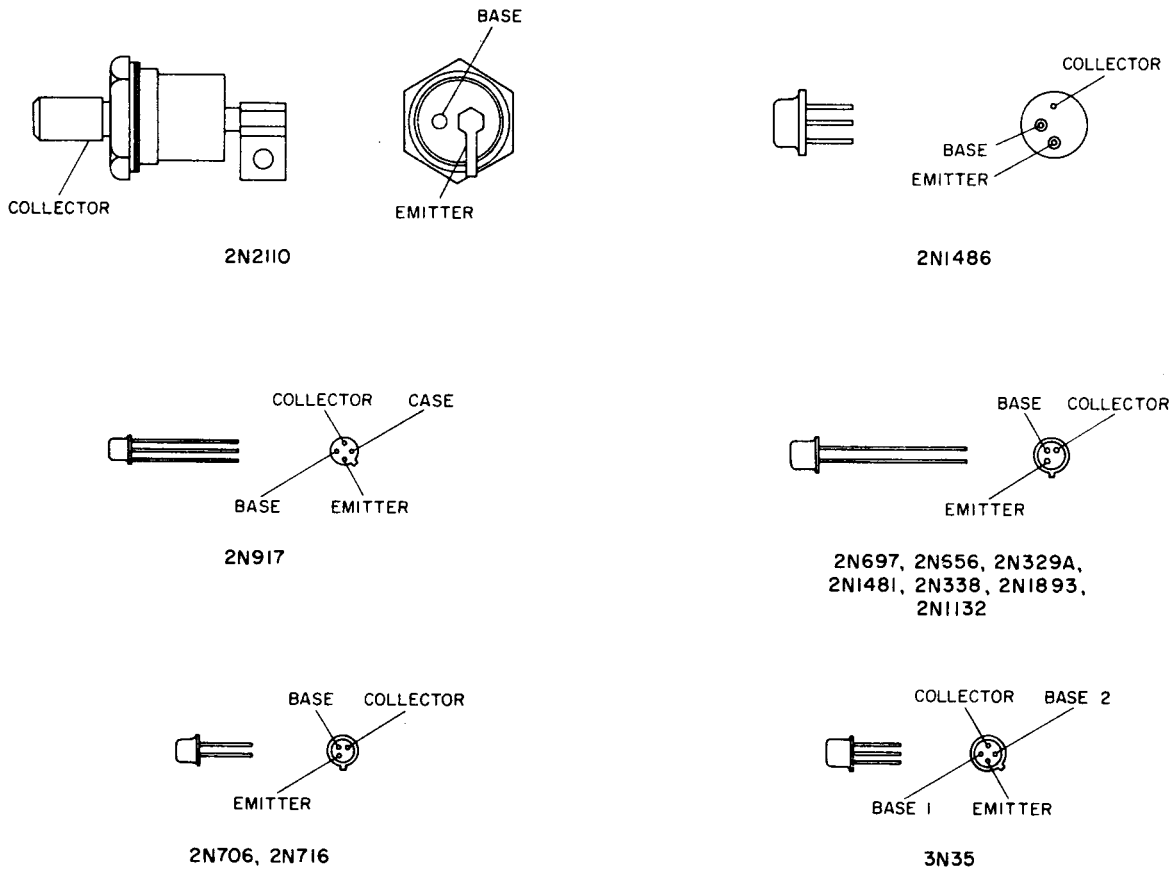


Figure 4-2. Transistor Base Diagrams

4-2. OVER-ALL FUNCTIONAL DESCRIPTION.

a. RADIO SET AN/PRC-41. - Radio Receiver-Transmitter RT-695/PRC-41 is composed of eight plug-in modules and a main chassis. Refer to figure 4-1 for relative module location and identification. Radio Receiver-Transmitter RT-695/PRC-41 is a receiver-transmitter which provides radio telephone (A3) communication from ground to air and ground to ground. There are 1,750 channels, spaced 100 kilocycles apart in the frequency range of 225.0- to 399.9-mc, available to the operator by use of three selector knobs and a frequency indicator which are located on the front panel of the RT-695/PRC-41. A second fixed-tuned receiver is incorporated to permit monitoring of a predetermined frequency, known as the guard channel, in the 238.0 to 248.0-mc range (usually tuned to 243.0 mc). The primary power for operating Radio Receiver-Transmitter RT-695/PRC-41 may be provided by Storage Battery BB-451/U, Power Supply PP-3700/PRC-41, or by a vehicle or aircraft power source. Power Supply PP-3700/PRC-41 is used in an aircraft installation where a-c power is available, to provide the primary power for the RT-695/PRC-41. The choice of primary power source is dependent on the

requirements of the particular operational configuration. Reception and transmission is made and controlled by use of Handset H-33E/PT. The equipment is placed in transmit operation by depressing the press-to-talk switch on Handset H-33E/PT. Releasing the press- switch places the equipment in receive operation. Radio Receiver-Transmitter RT-695/PRC-41 utilizes triple conversion superheterodyne circuits. A received or transmitted signal is mixed with three separate but successive injection frequencies to obtain the intermediate frequencies (if.) and final audio or radio frequency signals. The over-all frequency scheme for the main receiver and transmitter functional sections of Radio Receiver-Transmitter RT-695/PRC-41 is illustrated by figure 4-10. Switching from receive to transmit or from transmit to receive is accomplished by a receive-transmit switch and receive-transmit relays. When the press- switch on the H-33E/PT is pressed, the transmit relay of the receive-transmit switch becomes energized and rotates the receive-transmit switch to place the equipment in transmit operation. When the press-to-talk switch is released, the receive relay of the receive-transmit switch is energized, the receive-transmit switch is then rotated in the opposite

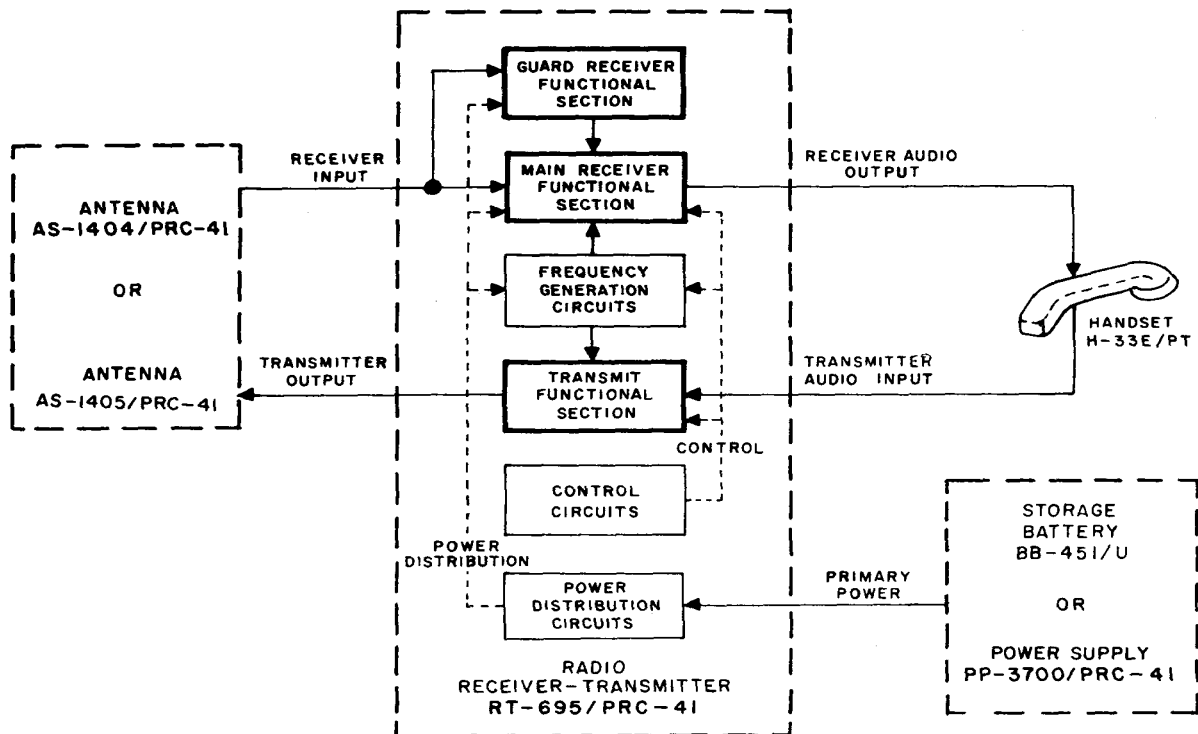


Figure 4-3. Radio Set AN/PRC-41, Over-all Functional Block Diagram

the opposite direction, and the equipment is placed in receive operation.

(1) Since, other than Radio Receiver- RT-695/PRC-41 and Power Supply PP-3700/PRC-41, the units and accessories of AN/ PRC-41 are not electronic in nature, the description and test information of this section is limited to RT-695/PRC-41 and PP-3700/PRC-41. It may be necessary to check an antenna or cable assembly for continuity; however, damage to masts, mountings, harness, cases, etc. is obvious from visual inspection. No test information for these items is contained in this section. Radio Receiver-Transmitter RT-695/PRC-41 functions in three ways; it provides transmission and reception on 1,750 channels in the 225.0- to 399.9-mc range, and reception on a single frequency, 243.0 mc, known as the guard channel. The functional sections are therefore identified as the main receiver, guard receiver, and transmitter functional sections. Refer to figure 4-3. Primary power, power distribution, frequency generation, control, and antenna circuits are considered subordinate and common to both the main receiver and transmitter functional sections. The guard receiver functional section contains its own frequency generation circuits. Power distribution circuits are common to all functional sections. Radio Receiver- RT-695/PRC-41 may be used with either Antenna AS-1404/PRC-41 or Antenna AS-1405/PRC-41. The receiver output is applied to Handset H-33E/PT.

(2) Paragraphs 4-3 through 4-5 provide descriptions and test data for the functional sections.

Alignment and adjustment information references the procedures of section 5. Paragraph 4-6 provides descriptions and test data pertinent to the subordinate circuits. Each of the functional sections are broken down into circuits or groups of circuits and consequently into modules. A module is defined as being a plug-in subassembly. The lowest level in this breakdown process is the simplest functional block (for example, an audio amplifier stage). Only the circuits which are uncommon (those not covered in the Handbook of Electronic Circuits, NavShips 900,000.102) will be discussed. In all other cases, reference is made to Radio Receiver-Transmitter RT-695/PRC-41 schematic diagram of section 5 and the servicing block diagram of this section.

b. TEST POINTS. - Significant test points are identified on the functional section service block diagram and illustrated in figure 4-1 by use of star and circle test symbols. The star test point symbol identifies and locates test points which are used to isolate trouble to a functional section. Circled test point symbols identify and locate test points which are used to isolate trouble to a circuit within the functional section. The letter and number designations in parentheses following test jack designations refer to the test jack location reference designation of figure 5-82. For example, test jack designation 1A9J28(A45) is read jack J28 located in module (or subassembly) 1A9 at coordinates A45 in figure 5-82. Unless otherwise noted, all test point voltage measurements are with respect to ground. Refer to table 4-2 and figure 4-1.

TABLE 4-1. TEST POINTS

TEST POINT	LOCATION	FIGURE REFERENCE	TO ISOLATE TROUBLE TO	INDICATION
①	1A9J13-A(F47) OR 1A9J14-A(F50) AUDIO connectors on front panel RT-695/PRC-41.	4-1	Main receiver functional section	Audio output shall be 50 milliwatts minimum when measured according to procedures of paragraph 4-3b.
②	J13-A(F47) or 1A9J14-A(F50) AUDIO connectors on front panel of RT-695/PRC-41	4-1	Guard receiver functional section	Audio output shall be 50 milliwatts minimum when measured according to procedures of paragraph 4-3b.
③	Antenna connector 1A9J2(A45) on front panel of RT-695/PRC-41	4-1	Transmitter functional section	Transmitter power output shall be 3 watts average across 225- to 399.9-mc range.
①	Handset H-33E/PT connected to AUDIO on front panel of RT-695/PRC-41	4-1	Circuits of audio module	Signal should be heard at a reasonable level in H-33E/PT.

TABLE 4-2. (Continued)

TEST POINT	LOCATION	FIGURE REFER- ENCE	TO ISOLATE TROUBLE TO	INDICATION
②	1A4J2(B39)	4-1	Circuits of audio module	Normal audio signal should be observed on Oscilloscope AN/USM-105A.
③	1A2J2(C23)	4-1	Low frequency oscil- lator 1A2Q7 of 1st and 2nd i-f amplifier module	Measure -2.5 to -3.5 volts dc.
④	1A2J1(C19)	4-1	High frequency oscil- lator 1A2Q5 of 1st and 2nd i-f amplifier module	Measure -0.8 to -1.5 volt dc.
⑤	1A5J2(G21)	4-1	Circuit of spectrum generator module	Measure -2 to-8 volts dc.
⑥	1A7J2(H36)	4-1	Transistor stages 1A7Q5 through 1A7Q10 of guard receiver module	Normal audio signal should be observed on Oscilloscope AN/USM-105A.
⑦	1A7J1(G33)	4-1	Oscillator 1A7Q4 of guard receiver module	Measure -1.35 volts DC.
⑧	1A2J3(G17)	4-1	Transistor stages 1A2Q6, 1A2Q4, 1A2Q1, and 1A2Q2 of 1st and 2nd i-f amplifier module	Measure -2.8 volts dc.
⑨	1A8J7(A8)	4-1	R-f amplifiers 1A8V1 through 1A8V4 of r-f and power amplifier module	Measure +1.8 volts dc.
⑩	1a9J16(C42)	4-1	Receive-transmit switch 1A9S1 of RT-695/PRC-41 main chassis	Set OFF-T/R-T/R/G- DIAL LIGHT switch to OFF position with H-33E/ PT keyed. Measure zero resistance between 1A9J16(C42 and 1A9J21(A44).
⑪	1A6J2(G12)	4-1	Circuits of modulator module	Measure 10 volts ac.
⑫	Plugs P1 and P3, Power Supply PP-3700/PRC-41	4-7	Circuits of Power Sup- ply PP-3700/PRC-41	Measure 26.5 volts dc.
⑬	Junction of diodes CR@ and CR4 Of Power Supply PP-3700/PRC-41	4-7	Transformer T1, and diodes CR1 through CR4 of PP-3700/PRC-41	Measure 41 volts dc.
⑭	Terminals 4 and 6 of trans- former T1 of Power Supply PP-3700/PRC-41	4-7	Transformer T1 of PP-3700/PRC-41	Measure 45 volts ac.

TABLE 4-2. (Continued)

TEST POINT	LOCATION	FIGURE REFER-ENCE	TO ISOLATE TROUBLE TO	INDICATION
15	Red lead on inductor L1	4-7	Indicator L1, relay K1 diodes CR1 through CR4, and transformer T1 of PP-3700/PRC-41	Measure 41 volts 41 dc.
16	Emitter of transistor Q2	4-7	Inductor L1, capacitor C1, and resistor R1 of PP-3700/PRC-41	Measure 37 volts dc.
17	Collector of transistor Q2	4-7	Transistors Q1 through Q4 of PP-3700/PRC-41	Measure 27 volts dc.
18	Junction of 1A9L1 and 1A9C1 on RT-695/PRC-41 main chassis	4-1	Power distribution cir- cuits of RT-695/PRC-41	Measure 26.5 volts dc.
19	1A5J1	4-1	Spectrum oscillator 1A5V1 of spectrum generator module	Measure -12v to -20 volts d-c.

c. OVER-ALL TROUBLE ISOLATION. - If an equipment is known to be inoperative or if the preventive maintenance tests have indicated that it has less than adequate performance, perform the steps of procedures of table 4-3 to isolate the trouble to a functional subordinate section. Before beginning the trouble isolation procedures of table 4-3, inspect the units of Radio Set AN/PRC-41 for loose cables, charred or discolored insulation, broken wire, improper control settings, or other evidence of equipment malfunction. Check all fuses to be certain that they have not blown, and make certain primary power is available to the equipment. Attempt operation on several channels. Check to see that, in the DIAL LIGHT position of the OFF-T/R-T/R/G-DIAL LIGHT switch, the panel lights are lighted.

(1) TEST SETUP. - Perform the test procedures of steps 1 through 4 of table 4-3 with Radio Receiver-Transmitter RT-695/PRC-41 connected to a Power Supply PP-3700/PRC-41 known to be operative with Receiver-Transmitter Case CY-3884/ PRC-41 in place on the RT-695/PRC-41. If these steps of procedure do not reveal the source of difficulty, remove Receiver-Transmitter Case CY-3884/ PRC-41 and check the frequency generation circuits according to step 5 of table 4-3.

(2) TEST EQUIPMENT REQUIRED.

- (a) Signal Generator AN/USM-44A.
- (b) R-F Wattmeter AN/URM-43C.
- (c) Electronic Multimeter TS-505/U.
- (d) Signal Generator Pad CN-315/

URM-26.

- (e) Fuse MX-1730/U.

TABLE 4-3. OVER-ALL TROUBLE ISOLATION

STEP	PRELIMINARY ACTION	NORMAL INDICATION	IF INDICATION IS ABNORMAL
1	Connect Handset H-33E/PT to one of AUDIO connectors on front panel of RT-695/PRC-41. Set OFF-T/R-T/R/G-DIAL LIGHT switch to DIAL LIGHT position.	Dial lights light. Proceed to step 2.	Refer to paragraph 4-6d and check power distribution circuits.

TABLE 4-3. (Continued)

STEP	PRELIMINARY ACTION	NORMAL INDICATION	IF INDICATION IS ABNORMAL
2	Connect Signal Generator AN/USM-44A through Signal Generator Pad CN-315/URM-26, and Fuse MX-1730/U to antenna connector 1A9J28(A45)) set for 304.7 me modulated 30 percent at 1000 cps at 1000 microvolts. Set RT-695/PRC-41 to 304.7 me, and set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R position. Rotate VOL control fully clockwise and SQUELCH control full counter-clockwise.	A 1000-cps tone should be heard in H-33E/PT. Proceed to step 3.	Proceed to step 5. If performance of step 5 provides a normal indication, refer to paragraph 4-3 and check main receiver functional section. If step 5 is abnormal, refer to paragraph and check frequency generator circuits.
3	Set Signal Generator AN/USM-44A to 243.0 me modulated 30 percent at 1000 cps at 1000 microvolts. Leave RT-695/PRC-41 set to 304.8 mc. Rotate SQUELCH control fully clockwise. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R/G position.	A 1000-cps tone should be heard in H-33E/PT. Proceed to step 4.	Refer to paragraph 4-4 and check the guard receiver functional section.
4	Remove Signal Generator AN/USM-44A Signal Generator Pad CN-315/URM-26 and Fuse MX-1730/U from 1A9J28(A45). Connect R-F Wattmeter AN/URM-43C to antenna connector P8. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R position. Press press-to-talk switch on H-33E/PT and measure transmitter power output at several frequencies across range.	Measure 3 watts average across frequency range.	Proceed to step 5. If performance of step 5 provides a normal indication, refer to paragraph 4-5 and check transmitter functional. If step 5 is abnormal, refer to paragraph 4-6e and check frequency generator circuits.
5	Remove Receiver-Transmitter Case CY-3884/PRC-41 from Radio Receiver-Transmitter RT-695/PRC-41. Connect RT-695/PRC-41 into test setup illustrated in figure 5-20. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R position. Measure voltage at test jacks 1A2J1(C19) and 1A2J2(C23)) on 1st and 2nd i-f amplifier module and at test jack 1A5J2(G21)) on spectrum generator module.	Measure -2.5 volts dc at 1A2J2 Measure -0.7 volt dc at 1A2J1(C19). Measure 1.5 volts dc at 1A5J2(G21).	Refer to paragraph 4-6e and check frequency generator circuits.

4-3. OVER-ALL MAIN RECEIVER FUNCTIONAL SECTION.

a. DESCRIPTION.- Refer to figure 4-4. The main receiver functional section is composed of the circuits of the r-f and power amplifier, 1st and 2nd i-f amplifier, 3rd i-f and squelch, and audio modules along with the switching and interwiring of the main chassis of the RT-695/PRC-41. Incoming signals in the 225.0- to 399.9-mc The frequency range are amplified in the r-f amplifier stages of the r-f and power amplifier module. The frequency scheme of this equipment actually covers an input frequency of 220.0- to 399.9-mc; however, 225.0 is the lowest frequency used. Refer to figure 4-11.

The received signals in this range are mixed with a 200- to 379-me first injection signal in the diode mixer. The resulting 20- to 29.9-mc first i-f signal is amplified in the 1st and 2nd i-f amplifier module to produce a 2.9_ to 3.8-mc second i-f output. The second i-f signal is mixed with a 2.9to 3.8-mc third injection signal. In receive operation, crystals are chosen so the third injection signal is either 500 kc above or 500 kc below the second i-f signal frequency. The resulting 500-kc third i-f signal is applied to the 3rd i-f and squelch module where it is filtered, amplified, demodulated, and noise limited. Audio from the 3rd i-f and squelch module is fed through

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the volume control to the audio amplifiers of the audio module and to the H-33E/PT. In the 3rd i-f and squelch module, the avc detector and amplifier stages provide an avc output for two of the i-f amplifiers and the squelch circuits of the 3rd i-f and squelch module. The avc output is also fed to an i-f amplifier stage in the 1st and 2nd i-f amplifier module and to two r-f amplifier stages in the r-f and power amplifier module. The 1st and 2nd i-f amplifier module contains a high-frequency oscillator in the 17.1- to 26.1-mc range and a low-frequency oscillator in the 2.9- to 3.8-me range. The spectrum generator module provides output signals in the range of 200 to 370 mc. All tunable circuits in the receiver functional section are mechanically linked to the three control knobs located on the front panel of Radio Receiver- RT-695/PRC-41.

b. Test DATA. - In order to determine whether or not the main receiver functional section is faulty, perform the test procedure of paragraph 4-3b(3). If the results of the performance test prove the main receiver functional section to be operative, proceed to the next functional section performance test to locate the faulty functional section or sections. Paragraphs 4-3b(1) through 4-3b(3) provide the necessary test data to aid in pinpointing or eliminating the functional section under consideration. Refer to the main receiver functional section of the servicing block diagram (figure 4-19) for location of test points, signal flow, and auxiliary circuits such as power distribution, control, and frequency generation. The letter and number designations in parenthesis following test jack designations refer to the test jack location reference designations of figure 5-82. To determine whether or not the main receiver functional section is operative, connect Radio Receiver-Transmitter RT-695/PRC-41 into the test setup described in paragraph 4-3b(2) and subject the equipment to the main receiver functional section performance test.

- (1) TEST EQUIPMENT REQUIRED.
 - (a) Signal Generator AN/USM-44A.
 - (b) Signal Generator Pad CN-315/

URM- 26.

- (c) Fuse MX-1730/U.
- (d) Output Power Meter ME-2/U.

(2) TEST SETUP. - Set Radio Receiver- RT-695/PRC-41 on the test bench and connect Power Supply PP-3700/PRC-41 to provide the required primary power. Connect Signal Generator AN/USM-44A in series with Signal Generator Pad CN-315/URM-26, fuse MX-1730/U, and a length of RG-8/U coaxial cable to antenna connector 1A9J28 (A45) on the RT-695/PRC-41. Connect the junction box (refer to figure 5-1) to one of the AUDIO connectors on the front panel of the RT-695/PRC-51. Connect Output Power Meter ME-2/U to the AUDIO OUTPUT connector on the junction box (the same as AUDIO connector J13 or J14, pin A, on the front panel of RT-695/PRC-41, test point 1). Set the VOL control on the RT-695/PRC-41 to the maximum clockwise position and the SQUE LCH control to the maximum counterclockwise position.

(3) FUNCTIONAL SECTION PERFORMANCE TEST.

CAUTION

Be very careful not to key Radio Receiver- RT-695/PRC-41 with Signal Generator AN/USM-44A connected to antenna connector 1A9J28(A45). Fuse MX- provides protection for the signal generator attenuator in the event the RT-695/PRC-41 is accidentally keyed.

(a) Set Signal Generator AN/USM-44A to 225.0 mc at 1000-cps, 30-percent modulated with 1000-microvolt open circuit input.

(b) Set the OFF-T/R-T/R/G-DIAL LIGHT switch to the T/R position. Turn the Signal Generator AN/USM-44A on and allow the equipment time to warm up. Carefully adjust the AN/USM-44A signal output about the 225.0-mc point to obtain a maximum indication on Output Power Meter ME-2/U.

(c) The audio power output should be 50 millivolts minimum. Repeat this test on 304.7 and 399.9 mc. If these results are not obtained, the main receiver functional section is defective.

c. MAIN RECEIVER CIRCUIT DESCRIPTION. As a further aid in the explanation of the main receiver functional section, each circuit making up the functional section is discussed in the order of signal flow. Only the circuits which are uncommon (those not covered in the Handbook of Electronic Circuits, NavShips 900,000.102) will be discussed. Refer to the schematic diagrams of section 5 and the functional section or servicing block diagrams of this section. Test data is provided to aid in isolation of trouble to a circuit or group of circuits and consequently to a module. Refer to the applicable tuning and adjustment procedures of paragraph 5-3. Perform these procedures only when absolutely necessary or following repair as required.

(1) FUNCTIONAL DESCRIPTION. - The main receiver functional section is composed of the circuits of the r-f and power amplifier, 1st and 2nd i-f amplifier, 3rd i-f and squelch, and audio modules along with the switching and interwiring of the main chassis. The discussion of the circuits of the main receiver functional section is presented by module in the order of signal flow. Refer to the main receiver functional section block diagram, figure 4-4, as an aid in understanding the theory of operation of the main receiver functional section. A signal in the 225.0- to 399.9-mc range appearing on either Antenna AS-1404/PRC-41 or Antenna AS-1405/PRC-41 is fed through antenna connector 1A9J28(A45) to contact 2 of receive-transmit switch 1A9S1A and fed to the input of the r-f and power amplifier module.

(a) R-F AND POWER AMPLIFIER MODULE 1A8. - With exception of the avc amplifier, the same stages

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of the r-f amplifier module are used in both receive and transmit operations. In receive operation, signals in the 225.0- to 299.9- mc range are fed through the switch contacts of receive-transmit switch 1A9S1A to the r-f and power amplifier module. Four stages of r-f amplification, a power amplifier, and an avc amplifier of the r-f and power amplifier module are used in receiver operation. Refer to figure 5-82.

1. R-F AMPLIFIERS V1 THROUGH V4.

- Within the r-f and power amplifier module, the signal is applied to the cathode of grounded grid r-f amplifier V1. The output of first r-f amplifier V1 is coupled through grounded grid amplifiers V2 and V3 to r-f driver V4. The output from r-f driver V4 is capacitively coupled to the cathode of power amplifier V5.

2. POWER AMPLIFIER V5. Power amplifier stage V5 is a triode tube. In re- operation, the stage acts as a class A amplifier. The output is taken from the plate of power amplifier V5 and fed through the contacts of switch 1A9S1B to diode mixer 1A9CR1. Tuned circuits Z1 through Z5 of the r-f and power amplifier module are adjusted to the desired signal in the range of 225.0- to 399.9-mc. These tuned circuits are me- ganged to the frequency selector knobs and are adjusted when a new frequency is selected.

3. AVC AMPLIFIER Q1. - The avc from the 3rd i-f and squelch module is applied to the base of transistor avc amplifier Q1 in such a manner as to decrease the base current and thus increase the collector voltage of Q1. The amplified avc voltage is applied to the cathode circuits of r-f amplifiers V1, V2 V3 and V4. In transmit operation, there is no output from avc amplifier Q1 because the collector of Q1 is grounded by relay 1A9K1.

4. OUTPUT CONTROL RE LAY K1. - During receive operation, the plate voltage applied to tubes V4 and V5 is lowered by means of dropping resistors R25 and R26. This reduces the amplifier gain to prevent overloading first mixer diode 1A9CR1 when high level, off channel signals are applied to the receiver during transmit, the power amplifier output is applied to the antenna instead of 1A9CR1. Relay K1 is energized, applying full plate voltage to V4 and V5 through the relay contacts which provide maximum amplifier gain.

(b) 1ST AND 2ND I-F AMPLIFIER MODULE 1A2. - Some of the stages of the 1st and 2nd i-f amplifier module are used in both receive and transmit operation. Two i-f amplifier stages, 2nd and 3rd receiver mixer stages, and high- and low- oscillator stages of the 1st and 2nd i-f amplifier module are used in receive operation. Refer to figure 5-82.

1. I-F AMPLIFIERS Q1 AND Q2. With receive-transmit relay 1A2K1 in the receive position, the 20- to 29.9-mc i-f signal (the first intermediate frequency) from diode mixer 1A9CR1 is fed to two 20- to 29.9-mc i-f amplifiers. The 200- 370-mc output from the spectrum generator module is mixed with the received signal in the 225- to 389.9-mc range in diode mixer 1A9CR1. Refer to paragraph 4-6e for a discussion of the frequency generation

circuits. The difference frequency is selected to produce the 20- to 29.9-mc intermediate frequency. These amplifiers consist of three sets of capacitive coupled parallel-tuned circuits and transistor 1A2Q1 and 1A2Q2. The 20- to 29.9-mc signal is applied to two parallel-tuned circuits. The signal is then applied through coupling capacitor C4 to base number 1 of tetrode transistor i-f amplifier Q1. The output from the collector of Q1 is applied to two parallel-tuned circuits and to a coupling capacitor C56 to the base of transistor Q2. The output of Q2 is taken from its collector and coupled through capacitor C18 to second receiver mixer Q3, or, in transmit operation, through capacitor C21 to the contacts of receive-transmit switch 1A9S1B. The gain of first i-f amplifier Q1 is controlled by a positive increasing avc voltage applied to the base number 2 of Q1. Selectivity is determined by the three sets of parallel-tuned circuits at the inputs and output of i-f amplifiers Q1 and Q2. The inductances of these parallel-tuned circuits are mechanically ganged and are linearly positioned in 0.1-mc steps at 3.0 degrees per increment.

2. SECOND RECEIVER MIXER Q3. - During receive operation the high-frequency oscillator Q5 provides a 17.1- to 26.1-mc output to the emitter of second receiver mixer Q3 through resistor R28 and the contacts of relay K2. The first intermediate frequency (20 to 29.9 mc) is applied to base number 1 of tetrode transistor Q3. The differ frequency (2.9 to 3.8 mc) of the first intermediate frequency and high-frequency oscillator Q5 is selected by the tunable band-pass filters, consisting of inductors L19 through L24 and capacitors C24 through C28, C52, and C53. The difference frequency (2.9 to 3.8 mc) is the second intermediate frequency in receive operation. Inductors L19, L21, and L23 are ganged and are linearly positioned in 0.1-mc increments at 30 degrees per step. Inductors L20, L22, and L24 are inductive trimmers.

3 THIRD RECEIVER MIXER AND TRANSMITTER BUFFER Q6. - Third receiver mixer Q6 is similar in operation to Q3 in receive operation. The 2.9- to 3.8-mc second intermediate frequency is capacitively coupled to the emitter of third receiver mixer Q6 from the tunable band filter. The 2.9- to 3.8-mc low-frequency oscillator Q7 third injection frequency is applied to the base of receiver mixer Q6. The collector output of Q6 is capacitively coupled to the 500-kc filter 1A3FL1 of the 3rd i-f and squelch module. Refer to figure 5-82.

4. RELAY SWITCHING. - Relays K1, K2, and K3 are energized during transmit operation. When relay K1 operates, voltage is applied through L1 to the collector of Q4, capacitor C1 is removed from the input tuned circuit, and C33 is switched across the tuned circuit consisting of C2 and L1 Relay K2 switches the high-frequency oscillator output from receiver mixer Q3 to transmitter mixer Q4. By this operation, voltage is removed from the emitter of Q3 and its base is grounded, thus biasing off the transistor. Relay K3 switches S3. With K3 energized, the low-frequency oscillator frequency and center frequency of the second intermediate

frequency are the same. In order to reduce low-frequency oscillator harmonics, this Q6 output is fed back through the tunable band-pass filter to the base of transmitter mixer Q4. Transistor Q6 functions as a mixer in receiver operation. During transmit operation, low-frequency oscillator Q7 signal is applied to the base of Q6, the output is taken from the emitter, and Q6 operates as a common collector amplifier.

(c) THIRD I-F AND SQUELCH MODULE

1A3. - The 3rd i-f and squelch module consists of three 500-kc i-f amplifier stages, two detectors, two direct-coupled avc amplifiers and a two-transistor carrier operated squelch circuit. The 3rd i-f and squelch module receives an amplitude-modulated i-f signal from third receiver mixer 1A2Q6 in the 1st and 2nd i-f amplifier module and supplies a detected audio signal, properly noise limited and controlled by a carrier-operated squelch system, to impedance matching amplifier 1A4Q1 of the audio module. In addition, the 3rd i-f and squelch module supplies avc voltage for the avc amplifier of the r-f and power amplifier module, and a positive avc voltage to amplifiers 1A3Q1 and 1A3Q2 of the 3rd i-f and squelch module and to first i-f amplifier 1A2Q1 of the 1st and 2nd i-f amplifier module.

1. FILTER FL1 AND I-F AMPLIFIERS Q1, Q2, AND Q3. - The 500-kc i-f amplifier consists of an LC filter FL1 followed by broadband amplifiers Q1, Q2, and Q3. An amplitude- i-f signal is fed to LC filter FL1 from third receiver mixer Q6 of the 1st and 2nd i-f amplifier module. The band pass of filter FL1 is approximately 50 kc wide at the 6-db points and provides the necessary selectivity for the i-f amplifier. The output of the filter is amplified by three broadband amplifiers two identical NPN tetrode stages, Q1, and Q2, and NPN triode stage Q3. The three amplifiers stages are tuned by self-resonant tunable low Q inductor collector loads L1, L2, and L3. The over-all amplifier bandwidth is approximately 200 kc. A positive-going voltage is applied to number 2 bases of tetrode stages Q1 and Q2 for avc.

2. AUDIO DETECTOR Q4. - The output of third i-f amplifier Q3 is applied to detector Q4. The collector load of this stage develops the audio for a diode noise limiter which clips the positive peak of any signal modulated more than the limits set by clipping adjustment potentiometer R26.

3. AVC DETECTOR Q6. - The output of third i-f amplifier Q3 is also applied to the base of class B avc detector Q6. The collector load consists of a d-c load supplying the avc. Q6 is a silicon PNP transistor.

4. AVC AMPLIFIERS Q5 AND Q7. The avc circuits consist of two transistor d-c amplifiers- Q5 and Q7. Positive avc amplifier Q5 uses an NPN silicon transistor in a d-c emitter follower amplifier circuit. The base signal for Q5 is obtained from detector d-c load R21 and is a positive d-c voltage. This voltage increases as the i-f signal to the detector increases and a positive going avc voltage is developed at the emitter of Q5. This positive going avc voltage is fed to number 2 bases of Q1 and Q2 through

gating diode CR4 and to the first 20- to 29.9-mc i-f amplifier of the 1st and 2nd i-f amplifier module. A portion of the positive avc voltage is also applied to the base of negative avc amplifier Q7 through gating diode CR5. The negative avc amplifier uses a PNP silicon transistor in a common-emitter d-c amplifier circuit with a negative collector supply voltage and a positive emitter supply voltage. As the positive base voltage increases, Q7 approaches cutoff, and the collector voltage approaches zero. This negative-going avc voltage is fed through gating diode CR2 to avc am- Q1 of the r-f and power amplifier module.

5. D-C AMPLIFIER Q9 AND SQUELCH RELAY AMPLIFIER Q8.- The squelch circuit consists of d-c amplifier Q9, squelch relay amplifier Q8, and squelch relay K1. A portion of the positive avc emitter voltage, which is developed by positive avc amplifier Q5 when a carrier signal is being received, is applied to the base of d-c amplifier Q9 which is used as an impedance-matching device. The emitter of Q9 is direct coupled to the base of squelch relay amplifier Q8 which operates relay K1. The contacts of energized relay K1 removes the ground from the audio output of the 3rd i-f and squelch module. Without a carrier, the positive voltage is removed from the base of d-c amplifier Q9, and relay K1 is de-energized to ground the audio output of the 3rd i-f and squelch module.

(d) AUDIO MODULE 1A4. - The audio output from the 3rd i-f and squelch module and the guard receiver module are applied across the main and guard input level control potentiometers through volume control 1A9R4 on the front panel of Radio Receiver-Transmitter RT-695/PRC-41 to the base of audio amplifier Q1. The output of Q1 is fed through low-pass filter consisting of L2 and capacitor C4 to audio driver Q2 and transformer coupled by audio transformer T1 to push-pull class B common collector audio output transistors Q3 and Q4. The audio output from transistors Q3 and Q4 is fed through output transformer T2 to Handset H-33E/PT. Refer to figure 5-82.

(2) TEST DATA. - If the main receiver functional section has been determined to be defective, it is necessary to trace the signal path through the main receiver section. Perform the steps of procedure of table 4-4 to isolate the trouble to a defective circuit or circuit group. Refer to the servicing block diagram (figure 4-19) for location of test points and signal flow of the main receiver functional section. The letter and number designation in parenthesis following test jack designations refer to test jack location reference designations of figure 5-82.

(a) TEST EQUIPMENT REQUIRED.

1. Oscilloscope AN/USM- 105A.
2. Audio Oscillator TS-382B/U.
3. Signal Generator AN/USM-44A.
4. Signal Generator AN/URM-25D.
5. Multimeter TS-505/U.
6. Output Power Meter ME-2/U.
7. Signal Generator Pad CN-315/
URM-26

8. Fuse MX-1730/U.

(b) TEST SETUP. - Set Radio Re- RT-695/PRC-41 on the test bench with its dust cover removed, and connect Power Supply PP-3700/PRC-41 to provide the required primary power. Refer to figure 5-20.

(c) MAIN RECEIVER FUNCTIONAL SECTION CIRCUIT TROUBLE ISOLATION. - To determine which circuit or circuit group is defective, perform the steps of procedure of table 4-4 in sequence.

After each PRELIMINARY ACTION, compare the indications obtained with the expected result in the NORMAL INDICATION column. If the indications are normal, proceed to the next step. If abnormal indications are observed, follow the procedures outlined in the NEXT STEP column. Before performing the steps of procedure of table 4-4, set the VOL control on the RT-695/PRC-41 to the maximum clockwise position and the SQUELCH control to the maximum counterclockwise position.

TABLE 4-4. MAIN RECEIVER FUNCTIONAL SECTION, TROUBLE ISOLATION

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Handset H-33E/PT (test point ①) connected to RT-, test jack 1A4J2(B39, test point ②) and AUDIO OUT PUT connector on junction box.	Connect Oscilloscope AN/USM-105A to test jack 1A4J2 (B39). Connect Audio Oscillator TS-382b/u to test jack 1A4J1(C35),, set at 0.03-volt output at 1000 cps. Connect output Power Meter ME-2/U to AUDIO OUTPUT.	Signal should be heard in Hand set H-33E/PT and be observed on AN/USM-105A. The ME-2/U should read at least 50 milliwatts.	If indication is not obtained, make voltage measurements of audio module by use of table 5-5.
2	Same as step 1.	Remove Audio Oscillator TS-382D/U. Remove 1st and 2 nd i-f amplifier module, and connect Signal Generator AN/URM-25D set to 500 kc modulated 30 percent at 1000 cps with an output of 50 microvolts to coaxial connector of 1A9J6-A2 of the main chassis of RT-695/PRC-41.	The ME-2/U should read at least 10 million watts.	If indication is not obtained, make voltage measurements of 3rd i-f and squelch module by use of table 5-4.
3	Same as step 1.	Remove Signal Generator AN/URM-25D and replace 1st and 2nd i-f amplifier module. Remove plug 1A9P2 from jack 1A9J17(C42). Connect Signal Generator AN/USM-44A to 1A9P2. Set AN/USM-44A to 29.9 mc modulated 30 percent at 1000 cps with an output of 50 microvolts. (Cont)	The ME-2/U should read at least 20 million watts. Proceed to step 7.	If indication is not obtained, proceed to step 4.

TABLE 4-4. (Continued)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
3 (Cont)		(Cont) Set frequency		
4	Test jack 1A2J2 (C23, test point ③).	selector knobs on front panel of RT-695/PRC-41 to 229.9 mc Connect Multimeter TS-505/U between Test jack 1A2J2 (C23) and ground.	Measure -2.5 to -3.5 volts dc.	If indication is not Obtained, measure voltages of transistor 1A2Q7 by. Use of table 5-3. Visually Check switch 1A2S3 for bent contact arms. Proceed to step 5.
5	Test jack 1A2J1 (C19, test point ④).	Connect Multimeter TS-505/U between test jack 1A2J1(C19) and ground	Measure-0.8 to -1.5 volt dc.	If indication is not Obtained, use table 5-3 to measure voltage of transistor 1A2Q5. Check setting of. Inductor 1A2L18 according to alignment procedure of paragraph 5-3 of section 5 for 1st and 2nd i-f amplifier module.
6	None.	Remove covers from 1st and 2nd i-f amplifier module.	Measure volt-given in table 5-3.	If indication volt-ges of table 5-3 are not obtained, isolate defective detail part by indication of voltage measurement.
7	Same as step 1.	Replace plug 1A9P2 in jack 1A9J17(C42). Remove plug 1A9P6 from jack 1A9J16 (C42). Connect Signal Generator AN/USM-44A to 1A9J16 (C42). Set AN/USM-44A to 229.9 mc modulated 30 percent at 1000 cps at a level of 100 microvolts.	The ME-2/U should read at least 20 million watts. Proceed step 9.	If indication is not obtained, proceed step to 8.

TABLE 4-4. (Continued)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
8	Test jack 1A5J2 (G21, test point ⑤).	Connect Multimeter TS-505/U to test jack 1A5J2(G21).	Measure -2 to -8 volts dc.	If indication is not Obtained, check spectrum generator module. Refer to table 4-9.
9	None.	Remove Signal Generator AN/USM-44A and make visual check of receive-transmit switch actuator.	Listen for a click as receive-transmit switch is energized. (Receive-transmit switch rotates too rapidly to be observed.)	If indication is not obtained, check 26.5-volt d-c primary supply.
10	Same as step 1.	Replace plug 1A9P6 in jack 1A9J16(C42). Remove 1A9P7 from 1A9J19(C44). Connect Signal Generator AN/USM-44A to 1A9P7 set to 229.9 mc 30 percent modulated at 1000 cps with an output of 5 microvolts.	The ME-2/U should read at least 20 million watts.	If indication is not obtained, make voltage and resistance measurements by use of tables 5-10 and 5-11, and check coaxial cables for continuity.
11	Same as step 1.	Replace 1A9P7 on 1A9J19. Remove AN/USM-44A and connect it to antenna connector 1A9J28. Set AN/USM-44A to 229.9 mc modulated 30 percent at 1000 cps at a level of 5 microvolts.	The ME-2/U should read at least 20 million watts.	If indication is not obtained, check continuity of receive-transmit switch 1A9S1.

4-4. OVER-ALL GUARD RECEIVER FUNCTIONAL SECTION.

a. DESCRIPTION. - Refer to figure 4-19. The guard receiver functional section is composed of the circuits of the guard receiver module along with the switching and interwiring of the main chassis of Radio Receiver-Transmitter RT-695/PRC-41. The guard receiver module uses the same antenna and final audio amplifier stages as the main receiver functional section but has its own squelch, detector, first audio amplifier, and avc stages. A strong signal on the main channel will not affect the sensitivity of the guard receiver, providing the

main receiver is not set to 243.0 mc. The guard receiver frequency can be changed (in the range of 238 to 248 mc) by changing the guard injection oscillator crystal and retuning the r-f tuned circuits. The guard receiver module is a single-conversion superheterodyne receiver normally fixed tuned to 243.0 mc. The audio output is applied to the guard input level control potentiometer in the audio module, amplified by the stages of the audio module, and applied to Handset H-33E/PT. The r-f input signal from the contacts of receiver-transmit switch 1A9S1 is fed to two stages of r-f amplification. The output of the r-f amplifier stages is fed to transistor mixer Q3 where the

243.0- r-f is mixed with an injection of 222.45 mc from diode CR7, which acts as a frequency multiplier for oscillator Q4. The difference between these two frequencies is selected to provide the 20.55-mc intermediate signal. The output from transistor mixer Q3 is coupled through coupling capacitor C21 to first i-f amplifier Q5. The output of Q5 is coupled to the second i-f amplifier Q6 through crystal filter FL1. Q7, Q8, and Q9 are the third, fourth, and fifth i-f amplifiers. The output of these i-f amplifier stages is fed to detector Q10 which serves as both an audio detector and an avc amplifier. The audio output from the detector is applied to audio amplifier Q15. The output from audio amplifier Q15 is fed to the guard input level control in the audio module. The output from detector Q10 is applied to avc detector Q11. The output from Q11 provides avc voltage to the first, second, and third i-f amplifier stages and to squelch amplifier Q13.

b. TEST DATA. - In order- to determine whether or not the guard receiver functional section is faulty, perform the test procedures of paragraph 4-4b(3). If the results of the performance test prove the guard receiver functional section to be operative, proceed to the next functional section performance test to locate the faulty functional section or sections. Paragraphs 4-4b(1) through 4-4b(3) provide the necessary test data to aid in pinpointing or eliminating the functional section under consideration. Refer to the guard receiver functional section of the servicing block diagram (figure 4-19) for location of test points, signal flow, and auxiliary circuits such as power distribution, and control. The letter and number designations in parenthesis following test jack designations refer to the test jack location reference designations of figure 5-82. To determine whether the guard receiver functional section is operative, connect Radio Receiver-Transmitter RT-695/PRC-41 into the test setup described in paragraph 4-4b(2), and subject the equipment to the guard receiver functional section performance test.

(1) TEST EQUIPMENT REQUIRED.

- (a) Signal Generator AN/USM-4419.
- (b) Signal Generator Pad CN-315/ URM-26.
- (c) Fuse MX-1730/U.
- (d) Output Power Meter ME-2/U.

(2) TEST SETUP. - Set Radio Receiver- RT-695/PRC-41 on the test bench and connect Power Supply PP-3700/PRC-41 to provide the required primary power. Connect Signal Generator AN/USM-44A in series with Signal Generator Pad CN-315/URM-26, Fuse MX-1730/U, and a length of RG-8/U coaxial cable to antenna connector 1A9J28 (A45) on the RT-695/PRC-41. Connect the junction box (refer to figure 5_1) to one of the AUDIO connectors on the front panel of the RT-695/PRC-41 (the same point as AUDIO connector 1A8J13(F47) or 1A9J14(F50).), pin A on front panel of the RT-695/

PRC-41, test point 2). Connect Output Power

Meter ME-2/U to the AUDIO OUTPUT connector on the junction box. Set the VOL and SQUELCH controls to the maximum clockwise position.

(3) FUNCTIONAL SECTION PERFORMANCE TEST.

CAUTION

Be very careful not to key Radio Receiver- RT-695/PRC-51 with Signal Generator AN/USM-44A connected to antenna connector J28. Fuse MX-1730/U provides protection for the signal generator attenuator in the event the RT-695/PRC-41 is accidentally keyed.

(a) Set Signal Generator AN/USM-44A to 243.0 mc at 1000-cps, 30-percent modulated with 1000-microvolt input.

(b) Set the OFF-T/R-T/R/G-DIAL LIGHT switch to the T/R/G position. Turn Signal Generator AN/USM-44A on and allow the equipment time to warm up. Carefully adjust the AN/USM-44A signal output about the 243.0-mc point to obtain a maximum indication on Output Power Meter ME-2/U.

(c) The audio power output should be 50 milliwatts minimum. If this result is not obtained, the guard receiver functional section is defective.

c. GUARD RECEIVER CIRCUIT DESCRIPTION -As a further aid in the explanation of the guard receiver functional section, each circuit making up the functional section is discussed in the order of signal flow. Only the circuits which are uncommon (those not covered in the Handbook of Electronic Circuits, NavShips 900,000.102) will be discussed. Refer to the schematic diagram of section 5 and the servicing block diagram of this section. Test data is provided to aid in isolation of trouble to a circuit or group of circuits. Refer to the applicable tuning and adjustment procedures of paragraph 5-3a. Perform these procedures only when absolutely necessary or following repair as required.

(1) FUNCTIONAL DESCRIPTION. - The guard receiver functional section consists of the circuits of the guard receiver module and the switching and interwiring of the main chassis of the RT-.695/prc-41. The output of the guard receiver module is amplified by the audio module and applied to Handset H-33E/PT. The discussion of the circuits

of the guard receiver functional section is presented by circuit in the order of signal flow. Refer to the guard receiver functional section block diagram of the servicing block diagram, figure 4-19, as an aid in understanding the theory of operation of the guard receiver functional section. Refer also to figure 5-82.

(a) GUARD RECEIVER MODULE 1A7.- 243.0-mc signal appearing on either Antenna AS- or Antenna AS-1405/PRC-41 is fed through antenna connector J28 to contact 4 of Receive-transmit switch 1A9S1A and to the guard receiver module.

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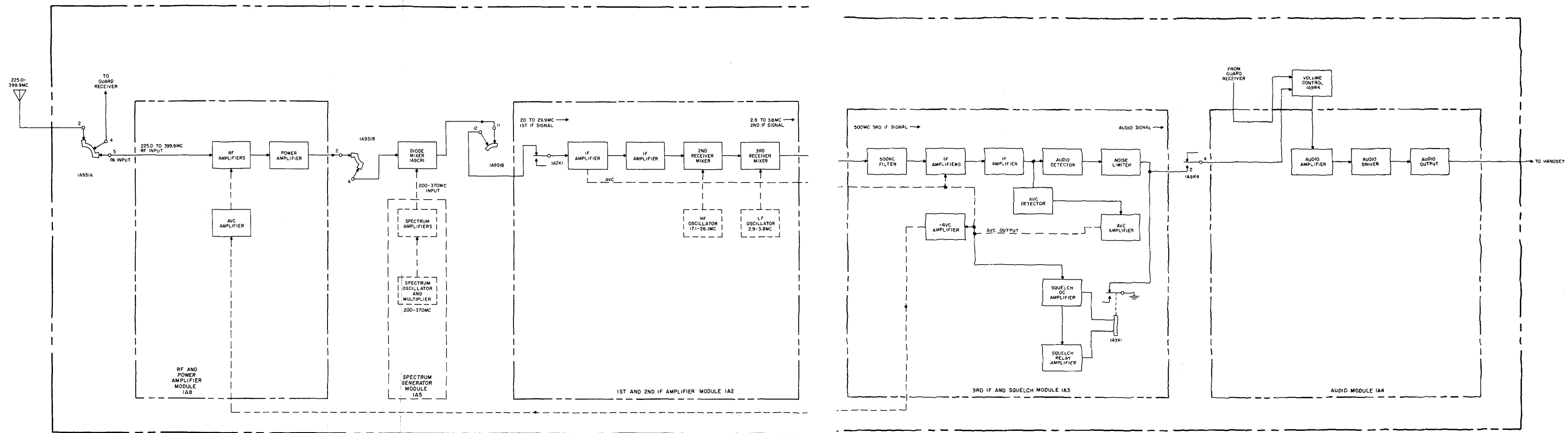


Figure 4-4. Radio Receiver-Transmitter RT-695/PRC-41,
 Receiver Functional Section Block Diagram

1. R-F AMPLIFIERS Q1 and Q2. The guard receiver module r-f amplifiers consist of two transistor stages, Q1 and Q2. The guard receiver r-f input signal is applied to the base of first r-f amplifier Q1 through a parallel-tuned circuit and coupling capacitor C4. The amplified output of Q1 is taken from its collector, applied to the tuned circuit consisting of inductor L2 and capacitors C6 and C7, and coupled through capacitor C9 to the base of second r-f amplifier Q2. The amplified r-f output is taken from the collector of Q2, applied to a par- capacitive coupled circuit, coupled through capacitor C14 to another parallel-tuned circuit, and coupled through capacitor C17 to the base of mixer Q3. The collectors of r-f amplifiers Q1 and Q2 are connected to the avc output which is taken from the collector of r-f avc amplifier Q12.

2. OSCILLATOR Q4. - The output of r-f amplifiers Q1 and Q2 is fed to mixer Q3 where the 243.0-mc r-f signal is mixed with the injection signal of 222.45 mc to obtain the 20.55-mc intermediate frequency signal. The injection signal is developed by grounded base crystal oscillator Q4 using a fifth overtone crystal. This frequency is doubled by frequency doubler CR7 and applied to mixer Q3. The mixer is followed by a five-stage tuned i-f amplifier using tetrode transistors.

3. I-F AMPLIFIERS Q5, Q6, Q7, Q8, AND Q9. - The 20.55-mc i-f signal is taken from transistor mixer Q3 and applied through a coupling capacitor C21 to the base of first i-f amplifier Q5. Resonating inductors L11 through L15, which are connected to the collectors of i-f amplifiers Q5 through Q9 respectively, are tuned to 20.55 mc. Intermediate amplifiers Q5, Q6, and Q7 are controlled by the positive avc which is connected to their number 2 bases. I-F amplifier Q9 output is capacitively coupled to the base of detector Q10.

4. DETECTOR Q10. - The amplifier i-f output from fifth i-f amplifier Q9 is detected by class B operated detector Q10. The detected audio signal is taken from the collector of Q10 and applied to the base of audio amplifier Q15 and to the collector of squelch amplifier Q13 through noise limiter diode CR2. The collector output from detector Q10 is also applied to the base of avc amplifier Q11 which provides a positive avc output.

5. AUDIO AMPLIFIER Q15 AND SQUELCH AMPLIFIER Q13 - The detected audio output from Q10 is amplified by audio amplifier Q15. The amplified output from audio amplifier, the collector of Q15, is applied to audio amplifier 1A4Q1 of the audio module. Squelch amplifier Q13 holds the audio amplifier transistor Q15 turned off when there is no carrier signal being received on the guard channel. The emitter of audio amplifier Q15 has a fixed bias of about 17 volts. Under the no-signal condition, the base bias of Q15 is about 18 volts. When a signal appears on the guard channel, the avc voltage from avc amplifier Q11 begins to rise. Due to the rise in avc voltage, the base bias voltage of squelch amplifier Q13 rises and overcomes the

fixed bias provided the emitter of squelch amplifier Q13 by Zener diode CRT. The squelch amplifier then is caused to conduct and draw collector current. This in turn lowers the base bias on audio amplifier Q15 and causes it to conduct. Audio amplifier Q15 collector current then raises the base bias of squelch amplifier Q13 to further hold the circuit on. When the carrier input is removed from the guard receiver module, the action is reversed. The avc voltage drops and squelch amplifier Q13 becomes biased off and stops conducting. This then makes the base bias of audio amplifier Q15 rise, and it stops conducting. The absence of collector current of Q15 then further lowers the base bias of squelch amplifier Q13 to further hold the circuit off.

6. AVC AMPLIFIERS Q11 AND Q12. - Two avc voltages are used to control the gain of the guard receiver module. The first is a positive avc voltage which is applied to three of the i-f amplifier stages and to the base of squelch amplifier Q13 to squelch the audio output to Q15 when no signal is being received. The second is a decreasing positive arc voltage which is applied to the collectors of the first and second r-f amplifiers, and mixer. Test jack 1A7J2(H36) provides a test point for measurement of avc amplifier Q11 avc voltage. Zener diode CR3 establishes a voltage reference level which must be exceeded by strength of input signal before avc amplifier Q12 is permitted to provide avc voltage to the r-i amplifiers.

(2) TEST DATA. - If the guard receiver functional section has been determined to be defective, trace the signal path through the guard receiver module to locate the defective circuit or circuit group. To isolate trouble within the guard receiver functional section, perform the steps of procedure of table 4-5. Refer to the servicing block diagram (figure 4-19) for location of test points and signal flow of guard receiver functional section. The letter and number designations in parenthesis following test point designations refer to test point location reference designations of figure 5-82.

(a) TEST EQUIPMENT REQUIRED.

1. Oscilloscope AN/USM- 105A.
2. Signal Generator AN/USM-44A.
3. Signal Generator Pad CN-315/ URM-26.
4. Fuse MX-1730/U.
5. Multimeter TS- 505/U.

(b) TEST SETUP. - Set Radio Receiver-Transmitter RT-695/PRC-41 on the test bench with its dust cover removed, and connect Power Supply PP-3700/PRC-41 to provide the required primary power. Refer to figure 5-20.

(c) GUARD RECEIVER FUNCTIONAL SECTION CIRCUIT TROUBLE ISOLATION. - To determine which circuit or circuit group is defective, perform the steps of procedure of table 4-5 in the sequence listed. After each PRELIMINARY ACTION, compare the indications obtained with the expected result in the NORMAL INDICATION column. If the indications are normal, proceed to the next step. If abnormal indications are observed, follow the procedures outlined in the NEXT STEP column.

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TABLE 4-5. GUARD RECEIVER FUNCTIONAL SECTION, TROUBLE ISOLATION

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Test jack 1A7J2(H36, test point ⑥) Handset H-33E/PT connected to RT-695/ PRC-41 (test point ①), and AUDIO OUTPUT connector on junction box.	Connect Oscilloscope AN/ USM-105A to test jack 1A7J2. Set function selector knobs of RT-695/ PRC-4 to 304.7 mc. Remove cover from guard receiver module. Connect Signal Generator AN/USM-44A through a 10-uuf capacitor to base number 1 of Q5. Adjust AN/USM-44A to 20.55 mc modulated 30 percent at 1000 cps with 500 microvolts output. Connect Output Power Meter ME-2/U to AUDIO OUTPUT.	Signal should be heard in H-33E/ PT and be observed on AN/ USM-105A. The ME-2/U should read at least 20 milliwatts.	If indication is not obtained, check operation of audio module according to step 1 of table 4-4. Make voltage measurements of transistors 1A7Q5 through 1A7Q10 by use of table 5-9.
2	Same as step 1.	Remove Signal Generator AN/USM-44A from base number 1 of Q5. Disconnect 1A9P4 from 1A9J20 (C44). Connect AN/ USM-44A to 1A9P4 Set AN/USM-44A to 243.0 mc modulated 30 percent at 1000 cps with an output of 10 microvolts.	Same as step 1.	If indication is not obtained, proceed to step 3.
3	Test jack 1A7J1(G33, test point ⑦).	Connect multimeter TS-505/U to test jack 1A7J1(G33).	measure -1.35 volts dc. Proceed to step 4.	If indication is not obtained, measure voltages of 1A7Q4 by use of table 5-9 and check setting of inductor 1A7L8 according to alignment procedure of section 5 for guard receiver module.
4	Voltage measurement points listed in table 5-9.	Use Multimeter to measure voltages listed for guard receiver module by use of table 5-9.	Voltages listed in table 5-9 are obtained.	Use voltage obtained to locate defective detail part.
5	Same as step 1.	Reconnect 1A9P4 to 1A9J20(C44).). Connect Signal Generator AN/ USM-44A to antenna connector 1A9J28(A45).). Set AN/USM-44A to 243.0 mc modulated 30 percent at 1000 cps with an output of 10 microvolts.	Same as step 1.	Measure continuity of receive-transmit switch 1A9S1.

4-5. OVER-ALL TRANSMITTER FUNCTIONAL SECTION.

a. DESCRIPTION. - Refer to figure 4-5. The transmitter functional section is composed of the circuits of the modulator, r-f and power amplifier, and 1st and 2nd i-f amplifier modules along with the switching and interwiring of the main chassis of the RT-695/PRC-41. The transmitting circuits use, with some switching differences in the 2.9- to 3.8-mc crystal circuits, the same crystal-controlled frequency generating circuits as the main receiver. Refer to figure 4-10. In transmit operation, the 2.9- to 3.8-mc injection frequency is the same as the second intermediate frequency. The 2.9- to 3.8-mc low-for 225.0 mc. frequency injection oscillator frequency of the 1st and 2nd i-f amplifier module is mixed with the high-frequency injection oscillator frequencies to produce r-f signals between 20 and 29.9 mc. The 20- to 29.9-mc signals are amplified in the 20- to 29.9-mc i-f amplifier stages of the 1st and 2nd i-f amplifier module and applied through the contacts of receive-transmit switch 1A9S1B to diode mixer 1A9CR1. The 20- to 29.9-mc signals are mixed with the 200- to 370-mc signals from the spectrum generator module in diode mixer 1A9CR1 to produce a carrier between 225.0 and 399.9 mc. An audio input signal from Handset H-33E/PT is applied to the input of the modulator module. The output from the modulator module is applied to the driver and power amplifier stages of the r-f and power amplifier module. The carrier is modulated in the driver and power amplifier of the r-f and power amplifier module by the audio from the modulator module and applied to the antenna for radiation. All tunable circuits in the transmitter functional section are mechanically linked to the three control knobs located on the front panel of Radio Receiver-Transmitter RT-695/PRC-41.

b. TEST DATA. - In order to determine whether the transmitter functional section is faulty, perform the test procedures of paragraph 4-5b(3). If the results of the performance test prove the transmitter functional section to be operative, proceed to the next functional section performance test to locate the faulty functional section or sections. Paragraphs 4-5b(1) through 4-5b(3) provide the necessary test data to aid in pin-pointing or eliminating the functional section under consideration. Reference is made to the transmitter functional section of the servicing block diagram (figure 4-19) for location of test points, signal flow, and auxiliary circuits such as control and frequency generation. The letter and number designations in parenthesis following test point designations refer to the test point location reference designations of figure 5-82. To determine whether the transmitter functional section is operative, connect Radio Receiver-Transmitter RT-695/PRC-41 into the test setup described in paragraph 4-5b(2) and subject the equipment to the transmitter functional section performance test.

- (1) TEST EQUIPMENT REQUIRED.
 - (a) R- F WATTMETER AN/URM-43C.

- (2) TEST SETUP. - Set Radio Receiver-Transmitter RT- 695/PRC-41 on the test bench with Receiver-Transmitter Case CY-3884/PRC-41 removed, and connect Power Supply PP-3700/PRC-41 to provide the required primary power. Refer to figure 5-20. Connect R-F Wattmeter AN/URM-43C to antenna connector 1A9J28(A45) on the RT-695/ PRC-41 (test point 3). Connect Handset H-33E/ PT to one of the AUDIO connectors on the front panel of the RT-695/PRC-41.

- (3) FUNCTIONAL SECTION PERFORMANCE TEST.

- (a) Set the OFF-T/R-T/R/G-DIAL LIGHT switch to the T/R position.

- (b) Set the frequency selector knobs

- (c) Press the press-to-talk switch on Handset H-33E/PT.

- (d) Measure the power output at 225.0 mc and then reset the RT-695/PRC-41 to 304.7 and 399.9 mc. The power output should be 3 watts average across the range.

c. TRANSMITTER CIRCUIT DESCRIPTION. further aid in the explanation of the transmitter functional section, each circuit making up the functional section is discussed in the order of signal flow. Only the circuits which are uncommon (those not covered in the Handbook of Electronic Circuits, NavShips 900,000.102) will be discussed. Refer to the schematic diagrams of section 5 and the transmitter functional section and servicing block diagrams of this section. Test data is provided to aid in isolation of trouble to a circuit or group of circuits and consequently to a module. Refer to the applicable tuning and adjustment procedures of paragraph 5-3. Perform these procedures only when absolutely necessary or following repair as required.

- (1) FUNCTIONAL DESCRIPTION. - The transmitter functional section is composed of the circuits of the modulator, r-f and power amplifier, and 1st and 2nd i-f amplifier modules along with the switching and interwiring of the main chassis. The discussion of the circuits of the transmitter functional section is presented by module in the order of signal flow. Refer to the transmitter functional section block diagram, figure 4-5, as an aid in understanding the theory of operation of the transmitter functional section.

- (a) 1ST AND 2ND I-F AMPLIFIER MODULE 1A2. - The 1st and 2nd i-f amplifier module has some of its stages used in both receive and transmit operation. With Radio Receiver-Transmit- RT-695/PRC-41 in transmit operation, the third receiver mixer and transmitter buffer, transmitter mixer, and two i-f amplifier stages of the 1st and 2nd i-f amplifier module are used. The low- and high oscillator stages provide the required injection frequencies. Refer to paragraph 4-6e for a description of the frequency generation circuits.

1. THIRD RECEIVER MIXER AND TRANSMITTER BUFFER Q6. - In transmit operation, low-frequency oscillator Q7 is shifted 500 kc in frequency from that of receive operation. Transistor Q6, which is used as the third receiver mixer in receive operation, acts as a common collector

amplifier in transmit operation and applies 2.9- to 3.8-mc low-frequency oscillator Q7 signal to a tunable band-pass filter. This filter consists of inductors L19 through L24 and capacitors C24 through C28, C52, and C53. The output from the band-pass filter is capacitively coupled to base number 1 of first transmitter mixer Q4. During transmit operation, relay 1A2K2 removes high-frequency oscillator Q5 injection from second receiver mixer Q3 and applies it to the emitter of first transmitter mixer Q4. Relay K2 removes the emitter voltage from the second receiver mixer Q3 and grounds the base of Q3 at the same time. This prevents feedback through Q3 from the collector to base number 1.

2. TRANSMITTER MIXER Q4. During transmit operation, transmitter mixer Q4 has voltage applied to its collector, high-frequency oscillator Q5 signal input (17.1 to 26.1 me) to its emitter, and low-frequency oscillator Q7 input (2.9 to 3.9 me) to its base. The sum of these mixed frequencies (20 to 29.9 me) is the first immediate frequency and is fed to the 20- to 29.9-mc i-f amplifiers consisting of transistors Q1 and Q2 and their associated parallel-tuned circuits. Capacitor C33 tunes the output of Q4 so the input circuit of Q1 is tuned in both receive and transmit operations (C1 is removed during transmit).

3. I-F AMPLIFIERS Q1 AND Q2 AND SECOND TRANSMITTER MIXER 1A9CR1. With receive-transmit relay 1A2K1 in the transmit position, the 20- to 29.9-mc i-f signal from transmitter mixer Q4 is fed to i-f amplifiers Q1 and Q2. These amplifiers consist of three sets of capacitive coupled parallel-tuned circuits and transistors Q1 and Q2. The 20- to 29.9-mc signal is applied to the parallel-tuned circuit, which consists of capacitor C2 and inductor L1 and is coupled by capacitor C3 to the second tuned circuit. The second tuned circuit consists of capacitor C5 and inductor L2. The signal is then applied through coupling capacitor C4 to base number 1 of tetrode transistor i-f amplifier Q1. The output from the collector of Q1 is applied to the parallel-tuned circuit, which consists of capacitors C8 and C9 and inductor L3. It is then coupled through capacitor C10 to the parallel-tuned circuit, which consists of capacitor C12 and inductor L4 and applied through coupling capacitor C56 to the base of i-f amplifier Q2. The output from the collector of Q2 is applied to the parallel-tuned circuit, which consists of capacitors C15 and C16 and inductor L5. It is then coupled through capacitor C17 to the parallel-tuned circuit consisting of capacitor C20 and inductor L6, through capacitor C21 to the output of the 1st and 2nd i-f amplifier module. This output is fed through the contacts of receive-transmit switch 1A9SIB to diode mixer 1A9CR1 (the second transmitter mixer). In diode mixer 1A9CR1, the 20- to 29.9-mc first transmitter intermediate frequency is mixed with the 200- to 370-mc output from the spectrum generator module (refer to paragraph 4-6e to produce the final output in the 225.0- to 399.9-mc range).

(b) R-F AND POWER AMPLIFIER MODULE 1A8. With the exception of the avc amplifier, the same stages of the r-f and power amplifier module are used in both receive

and transmit operations. In receive operation, the 225.0- to 399.9mc signals are applied through the contacts of receive-transmit switch 1A9SIB to the input of the r-f amplifier stages of the r-f power amplifier module. In transmit operation, output signals in the 225.0- to 399.9-mc range are taken from diode mixer 1A9CR1 and applied to first r-f amplifier V1. The signals in this range are amplified by V2, V3, and V4 and applied to power amplifier V5 in the same way as in receive operation. Refer to paragraph 4-3c(1)(a)1. The output from the modulator module is applied to the plates of r-f driver V4 and power amplifier V5. Power amplifier V5 output is fed through the contacts of receive-transmit switch 1A9SIA to the antenna. Refer to paragraph 4-3c(1)(a)2.

(c) MODULATOR MODULE 1A6. When the press-to-talk button on Handset H-33E/PT is pressed, Radio Receiver-Transmitter RT-695/ PRC-41 is switched to transmit operation and the audio signal from the microphone is applied to the input of the modulator module. The audio signal is coupled to the base of audio driver Q1. The amplified output from the collector of audio driver Q1 is transformer coupled through transformer T1 and applied to the bases of push-pull modulator transistors Q2 and Q3. Resistor R9 provides equal clipping of both positive and negative peaks to establish the clipping level between 70 and 90 percent modulation. The output from the modulators is taken from their emitters and transformer coupled through transformer T2 to the plate of driver amplifier V4 and power amplifier V5 in the r-f and power amplifier module.

(2) TEST DATA. - If the transmitter functional section has been determined to be defective, it is necessary to trace the signal path through the transmitter section. Perform the steps of procedure of table 4-6 to isolate the trouble to a defective circuit or circuit group. Refer to the servicing block diagram (figure 4-19) for location of test points and signal flow of transmitter functional section. The letter and number designations in parenthesis following test jack designations refer to test jack location reference designations of figure 5-82.

(a) TEST EQUIPMENT REQUIRED.

1. R-F Wattmeter AN/URM-43C.
2. Multimeter TS-505/U.
3. Audio Oscillator TS-382B/U.

(b) TEST SETUP. - Set Radio Receiver-Transmitter RT-695/PRC-41 on the test bench with its dust cover removed, and connect Power Supply PP-3700/PRC-41 to provide the required primary power. Refer to figure 5-20.

(c) TRANSMITTER FUNCTIONAL SECTION CIRCUIT TROUBLE ISOLATION. - To determine which circuit or circuit group is defective, perform the steps of procedure of table 4-6 in sequence. After each PRELIMINARY ACTION, compare the indications obtained with the expected result in the NORMAL INDICATION column. If the indications are normal, proceed to the next step. If abnormal indications are observed, follow the procedures outlined in the NEXT STEP column.

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TABLE 4-6. TRANSMITTER FUNCTIONAL SECTION, TROUBLE ISOLATION

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Test jack 1A2J2(C23) test point ③).	Connect R-F Wattmeter AN/URM-43C to antenna plug 1A9J28(A45). Place OFF-T/R-T/R/G-DIAL LIGHT switch on Radio Receiver-Transmitter RT-695/PRC-41 In T/R position. Connect Multimeter TS-505/U to test jack 1A2J2(C23).). Press-to-talk button on Handset H-33E/PT.	Measure -2.5 to -3.5 volts dc.	If indication is not Obtained, make voltage checks of low-frequency oscillator 1A2Q7 by use of table 5-3 and visually inspect 1A2S3 for bent contact arms.
2	Test jack 1A2J1(C19), test point ④).	With R-F Wattmeter AN/URM-43C connected to antenna connector 1A9J28 (A45), connect Multimeter TS-505/U to test jack 1A2J1(C19). Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R position. inductors Press press-to-talk button on H-33E/PT.	Measure -0.8 to -1.5 volts dc.	If Indication is not Obtained, make voltage checks of frequency oscillator 1A2Q5 by use of table 5-3 and check the setting 1A2L9 through 1A2L18 by use of alignment procedures of section 5 for 1st and 2nd i-f amplifier module.
3	Test jack 1A2J3(C17)) test point ⑧)	With R-F Wattmeter AN/URM-43C connected to antenna connector 1A9J28 (A45), connect multimeter TS-505/U to test jack 1A2J3(C17).). Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R position. Press press-to-talk button ton H-33E/PT.	Measure -2.8 volts dc.	If indication is not Obtain, make voltage checks of transmitter buffer 1A2Q6, transmitter mixer 1A2Q4, and i-f amplifiers 1A2Q1 and 1A2Q2 by use of table 5-3.
4	Test jack 1A9J27(A42).	Same as step 3 except connect TS-505/U to test jack 1A9J27(A42).	Measure +0.5 volts dc.	If Indication is not proceed to step 5 of table 4-8.
5	Test jack 1A8J7(A8)) test point ⑨).	With R- F Wattmeter AN/URM-43C connected to antenna connector 1A9J28 (A45), connect Multimeter TS-505/U to test jack 1A8J7(A8). Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R position. Press press-to-talk button on H-33E/PT.	Measure +1.8 volts dc.	If indication is not Obtain, make voltage and resistance checks of r-f amplifiers 1A8V1 thru 1A8V4 by use of tables 5-10 and 5- 11. Perform steps 8 and 9 of table 4-2.

TABLE 4-6. (Continued)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
6	Plug 1A9P8 (test point ③)	Connect R-F Wattmeter AN/URM-43C to antenna connector 1A9J28(A45)., Press press-to-talk button on H-33E/PT.	Measure 3 watts. Proceed to step 7.	If indication is not obtained, measure voltage and resistance of 1A8V5 by use of tables 5-10 and 5-11. Proceed to step 7. If normal Indication is not obtained, replace receive-transmit switch assembly.
7	Test jack 1A9J16(C42) test point ⑩)	Set OFF-T/R-T/R/G-DIAL LIGHT switch to OFF position with H-33E/PT keyed. Measure continuity between 1A9J16(C42) and 1A9J21(A44).	Zero resistance.	
8	Jack 1A6J2 (G12, test point ⑪)	With R-F Wattmeter AN/URM-43C connected to antenna connector 1A9J28 (A45), connect Multimeter TS-505/U to test jack 1A6J2(G12). Connect audio Oscillator TS-382B/U to MIC INPUT jacks on Junction box (refer to figure 5-1). Set audio oscillator for 1000 cps with an output level to provide 1 volt across the 82Q resistor of the dummy microphone. Connect junction box to one of AUDIO connectors on front panel of RT-695//PRC-41., Set function control in T/R position. Close switches S1 and S2 on junction box.	Measure 10 volts ac at jack 1A6J2(G12).	

4-6. OVER-ALL SUBORDINATE CIRCUITS.

a. DESCRIPTION. - Refer to figure 4-19. The subordinate circuits are those circuits which support the main functions (main receiver, guard receiver, and transmitter functional sections) of Radio Receiver-Transmitter RT-695/PRC-41. These circuits are considered to be: the main chassis, primary, power distribution, frequency generation, control, and antenna circuits. Because these circuits provide functions which are essentially separate, no attempt is made to balance one against the other or to provide an all-inclusive trouble isolation test for the over-all subordinate circuits. In this paragraph, a description followed by test data for trouble isolation is provided for each subordinate circuit. The primary power required for operation may be obtained from Storage Battery BB-451/U, Power Supply PP-3700/PRC-41, or from an aircraft or vehicular power source. The power

distribution circuits are common to the three main functional sections. The frequency generation circuits are common to both the main receiver and transmitter functional sections. The control circuits are inclusive of the mechanical linkages required for frequency selection and frequency indication on the MC frequency selectors, volume adjustment, squelch adjustment, and function selection. These control circuits do not include those fine adjustment trimmers or potentiometers used to obtain optimum performance.

b. MAIN CHASSIS 1A9. - The main chassis of Radio Receiver-Transmitter RT 595/PRC-41 forms a mounting base for eight modular subassemblies and a control panel. The cmdr .chassis contains the mechanical linkage between the frequency selector knobs on the control panel and the tuned circuits of three of these modules. Refer to paragraph 4-6f(1)(a). The modules are secured to the main chassis by redheaded captive screws. Electrical

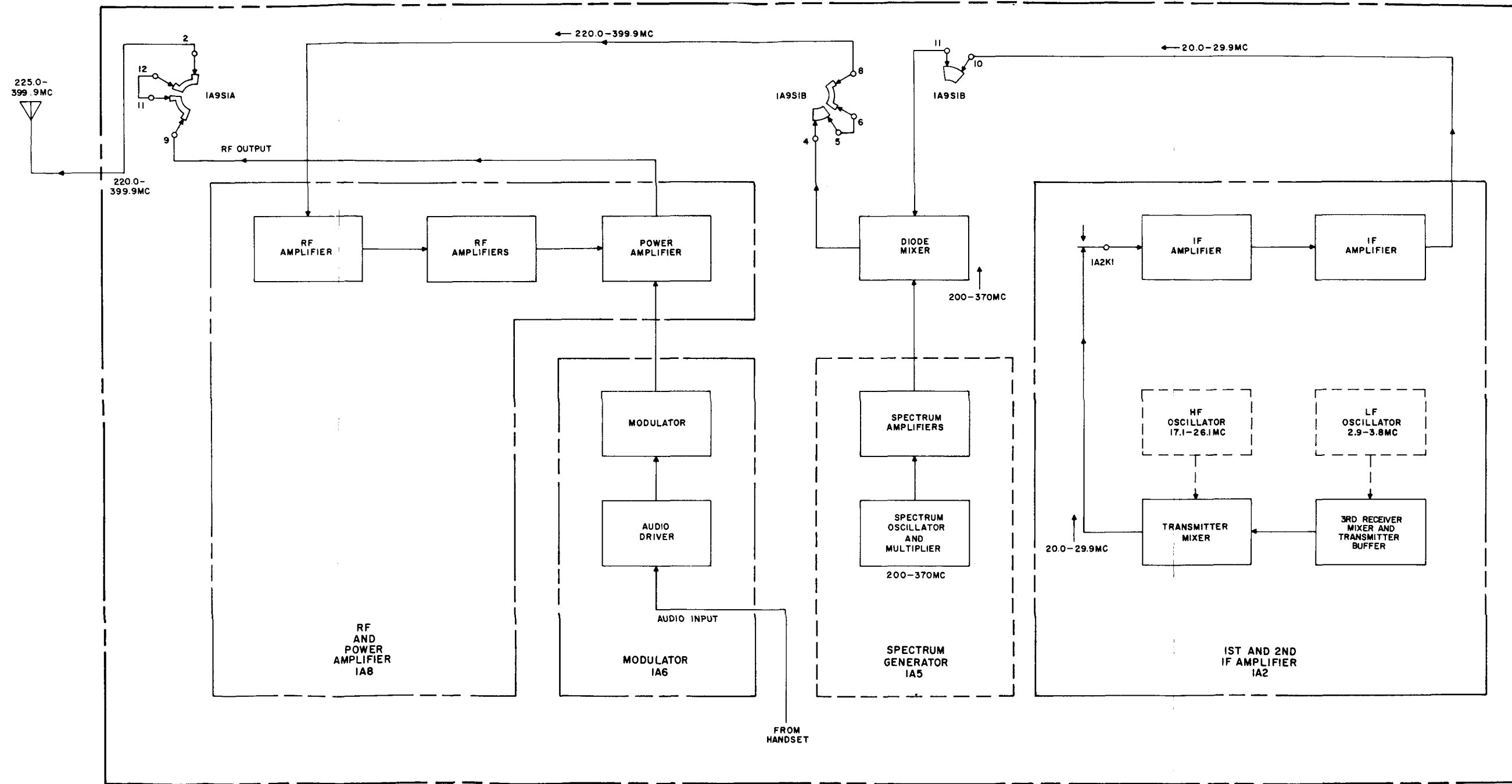


Figure 4-5. Radio Receiver-Transmitter RT-695/PRC-41,
Transmitter Functional Section Block Diagram

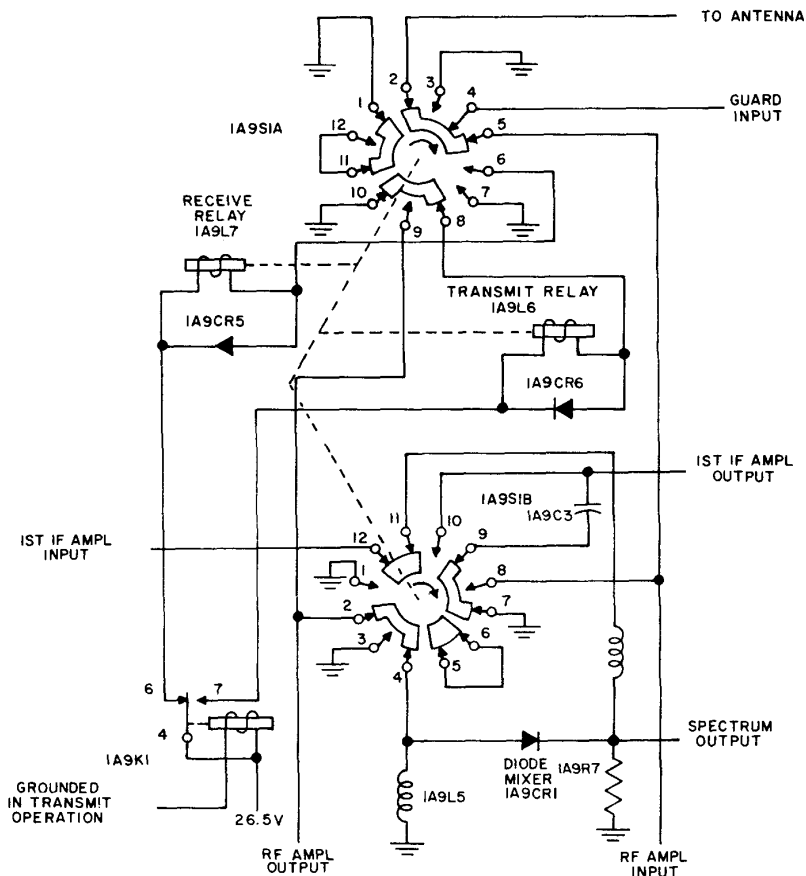


Figure 4-6. Receiv-Transmit Switch, Simplified Schematic Diagram

interconnection between modules is provided by multipin connectors on the main chassis which mate with the applicable modules. Refer to figure 5-83. The main chassis also contains the receive-transmit switch, mixer circuit control relays, fuses, cabling, and filament regulator transistor IA9Q1.

(1) FUNCTIONAL DESCRIPTION.

(a) RECEIVE-TRANSMIT SWITCH.

Refer to figure 4-6. The receive-transmit switch is a rotary type coaxial switch having two rotor sections and is located on the main chassis. This switch may be actuated to one position in either direction by rotary solenoids IA9K7 and IA9K8. When the press-to-talk button on Handset H-33E/PT is pressed (equipment placed in transmit operation), relays IA9K1, K3, and K4 become energized. Relay IA9K7 then becomes energized, since it is grounded through contacts 8 and 10 of switch S1A and is provided 26.5 volts dc through the

contacts of relay IA9K1. Relay IA9K7 causes coaxial switches S1A and S1B to be rotated clockwise one position. At this time, the ground is removed from relay IA9K7 and it is de-energized. The opposite condition exists when the press-to-talk button is released (equipment placed in receive operation). Releasing the press-to-talk button places 26.5 volts dc on relay IA9K8. Relay IA9K8 is energized, since it is grounded through switch S1A, contacts 3 and 6. The two coaxial switches are now caused to rotate counterclockwise one position. At this time the ground is removed from relay IA9K8 and it is de-energized.

(2) TEST DATA. - Trouble isolation considerations for the main chassis of Radio Receiver-Transmitter RT-695/PRC-41 are concerned with the main chassis cabling, detail parts of filtering and voltage regulation circuits, receive-transmit relays, and mechanical linkages. Refer to paragraph 4-6f for information pertaining to control circuits. Trouble isolation of the wiring

of the main chassis cable and detail parts involves point-to-point continuity testing by use of figure 5-82. Refer to step 11 of table 4-4, step 5 of table 4-5, and step 6 of table 4-6 for testing procedures of the receive-transmit switch. Check filament regulator 1A9Q1 voltages by use of table 5-12. The letter and number designations in parenthesis following test jack designations refer to the test jack location reference designations of figure 5-82. Mechanical troubles may be located by inspection.

c. PRIMARY POWER CIRCUITS.

(1) FUNCTIONAL DESCRIPTION.

(a) STORAGE BATTERY BB-451/U.

Storage Battery BB-451/U is used to provide the required dc primary supply for Radio Receiver-Transmitter RT-695/PRC-41. The BB-451/U is made up of 16 series-connected cells. Each cell provides 1.86 volts open circuit when fully charged with a capacity of 25-ampere hours (nominal). Storage Battery BB-451/U may be operated in any attitude without spilling out the electrolyte.

(b) POWER SUPPLY PP-3700/PRC-

41. - Refer to figure 4-19. Power Supply PP-3700/PRC-41 is used to provide the required 26.5-volt d-c primary supply for Radio Receiver-Transmitter RT-695/PRC-41 when a 115- (cables normally connected for 115 volts ac) or 230-volt, 50- to 400-cps supply is available. The 115 -or 230-volt, 50- to 400-cps primary supply is

stepped down to 45 volts by transformer T1, rectified, filtered, and made available to the RT-695/PRC-41. Refer to figure 5-82. With the OFF-T/R-T/R/G-DIAL LIGHT switch on the front panel of the RT-695/PRC-41 in any position except OFF, power is applied through the filter to series regulator Q3. D-c amplifiers Q1 and Q2 supply the required filtered base current for series regulator Q3. Diode CR7, in combination with a variable resistor, provides a voltage reference of 28 volts at the base of d-c amplifier Q1. An overload protection circuit is provided by diode CR9, overload trip Q4, and voltage reference diode CR8. If for some reason the 26.5 volt d-c output supply should become shorted and draw excessive current, the voltage at the emitter of series regulator Q3 is caused to drop below the reference level of 15 volts dc set by Zener diode CR8. This permits voltage reference diode CR9 and overload trip Q4 to conduct sufficiently to lower the reference voltage at the base of d-c amplifier Q1, which prevents conduction of d-c amplifiers Q1 and Q2 and series regulator Q3. The d-c amplifiers and series regulator will remain turned off even though the higher load may be removed. The output circuit is held open until the OFF-T/R-T/R/G-DIAL LIGHT switch is switched to the OFF position for at least 5 seconds and then returned to one of the other positions of this control.

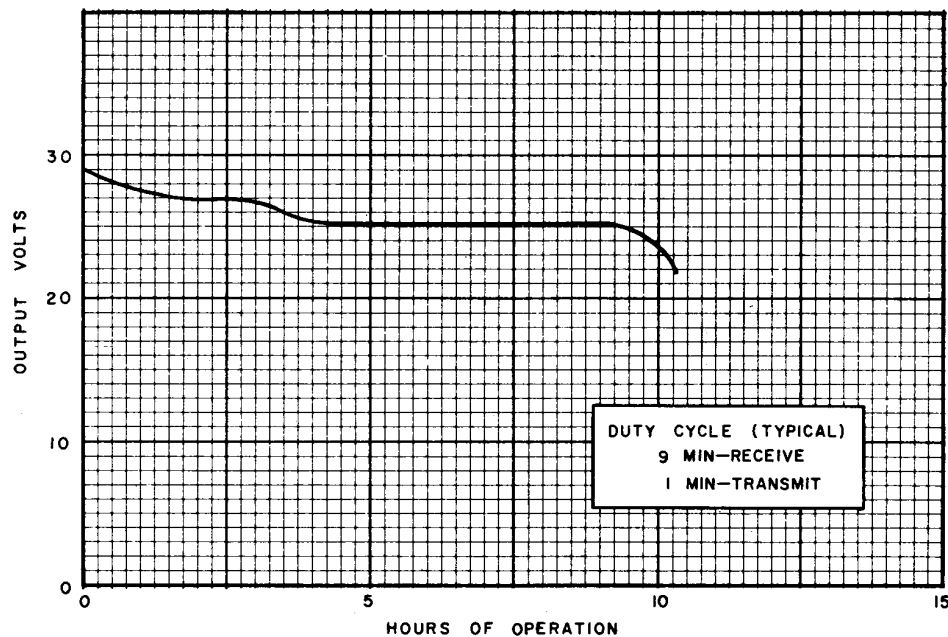


Figure 4-7. Storage Battery BB-451/U, Typical Rate of Discharge

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(2) STORAGE BATTERY BB-451/U TEST DATA. -Any trouble isolation considerations for Storage Battery BB-451/U are concerned with its ability to provide the required d-c voltage for operation of the RT-695/PRC-41.. The normal procedure for checking the level of charge of a battery is by measuring the terminal voltage developed across a very high load resistance. This procedure provides very little indication when applied to Storage Battery BB-451/U because of the characteristics of charge and discharge. Refer to figure 4-7. Instructions for battery use and a log for recording battery charges are printed on the inside of the battery cover.

(3) POWER SUPPLY PP-3700/PRC-41 TEST DATA.- Trouble isolation considerations for Power

Supply PP-3700/PRC-41 are concerned with its ability to provide the required 26.5 volts for operation of Radio Receiver-Transmitter RT-695/ PRC-41. If the PP-3700/PRC-41 does not provide the required 26.5-volt d-c supply, connect it into the test setup described in paragraph 4-6c(3)(b) and perform the trouble isolation procedures of table 4-7.

(a) TEST EQUIPMENT REQUIRED.

1. Multimeter AN/PSM-4C.
2. Power Resistor.

(b) TEST SETUP. - Set Power Supply PP-3700/PRC-41 on the test bench with the side which clamps to the rear of Radio Receiver-Transmitter- RT-695/PRC-41 upward. Loosen two red headed captive

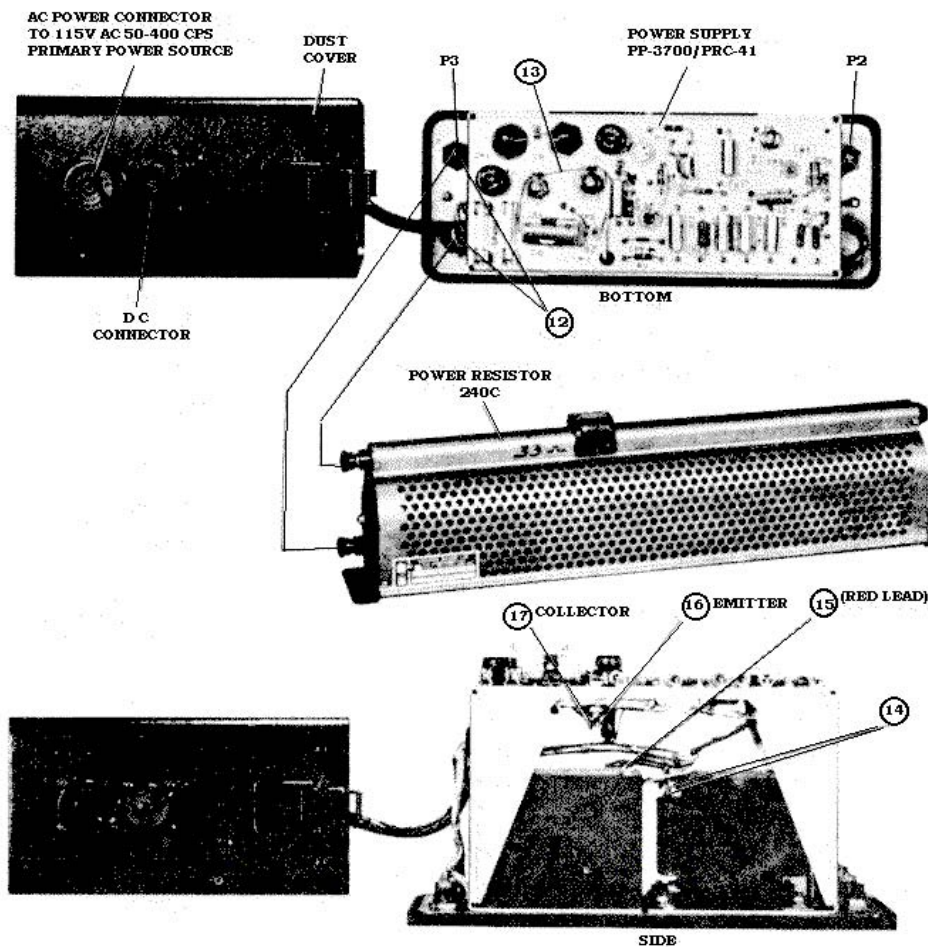


Figure 4-8. Power Supply PP-3700/PRC-41, Test Setup

screws in the top plate. Remove the main chassis from the dust cover. Connect Power Electric Cable Assembly CS-8687/PRC-41 between a-c power connector on the PP-3700/PRC-41 dust cover and the 115-volt, 50- to 400-cps primary power source. Refer to figure 4-8.

(c) POWER SUPPLY PP-3700/PRC-41
CIRCUIT TROUBLE ISOLATION. - To determine

which circuit or circuit group is defective, perform the steps of procedure of table 4-7 in the sequence listed. After each PRELIMINARY ACTION, compare the indications obtained with the expected result in the NORMAL INDICATION column. If the indications are normal, proceed to the next step. If abnormal indications are observed, follow the procedures outlined in the NEXT STEP column.

TABLE 4-7. POWER SUPPLY PP-3700/PRC-41, TROUBLE ISOLATION

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Wiring side of plugs P1 and P3. Refer to figure 4-8 (test point 12).	Connect a jumper between P3 and P2. Adjust Power Resistor for 8 ohms and connect it between P1 and P3. Connect Multimeter AN-PSM-4C to test point 12.	Measure 26.5 volts dc.	If output voltage is not 26.5 volts dc but is less than 30 volts dc and greater than 24 volts dc, adjust variable resistor R6 for 26.5-point volts dc output. If output cannot be adjusted to 26.5 volts dc, proceed to step 4. If output voltage is zero, proceed to step 2.
2	Visual.	Remove a-c input power to P-3700/PRC-41. Check fuses F1 and F2. right	Fuses F1 and F2 check all right.	Proceed to step 3.
3	Test point 13. Refer to figure 4-8.	Connect Multimeter AN/PSM-4C between test point 13 and ground	Measure 41±3 volts dc	If voltage is zero, remove for at least 5 seconds, and replace jumper connected between P2 and P3 and listen for relay K1 to click. If relay K1 does not click, replace relay K1. If relay K1 is heard to click, proceed to step 4.
4	Test point 13. Refer to figure 4-8.	Connect Multimeter AN/PSM-4C between test point 14 and ground.	Measure 45±3 volts ac.	If indication is abnormal, proceed to step 5.
5	Test point 15. Red lead on inductor L2.	Connect Multimeter AN/PSM-4C to test point 15.	Measure 41±3 volts dc.	If indication is abnormal, replace power transformer T1. If indication is normal, check diodes CR1 through CR4 and replace defective diode.
6	Test point 16. Refer to figure 4-8.	Connect Multimeter AN/PSM-4C between test point 16 and ground.	Measure 37±3 volts dc.	If indication is abnormal, check inductor L1 for short, and resistor R1 for open or short. If indication is normal, proceed to step 7.

TABLE 4-7. (Continued)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
7	Test point 17. Refer to figure 4-8.	Connect Multimeter AN/PSM-4C between test point 17 and ground	Measure 27±2 volts dc.	If indication is normal, replace Q3. If indication is abnormal, refer to table 5-13 and make voltage measurements of dc amplifiers Q1 and Q2 and overload trip Q4. Table 5-13 provides voltage measurements for these stages with equipment operation normal and in overload trip condition. If measured voltages differ materially from those given in table 5-13, check associated circuitry for a defective detail part.

d. POWER DISTRIBUTION CIRCUITS.

(1) FUNCTIONAL DESCRIPTION. -

Refer to figure 4-9. The power distribution circuits are the switching and circuitry which provide the required power for operation of the circuits and detail parts of Radio Receiver-Transmitter RT-695/PRC-41. The primary 26.5 volts dc for operating the RT-695/ PRC-41 is applied through the electrical contacts of Receiver-Transmitter Case CY-3884/PRC-41 to the main chassis of the RT-695/PRC-41.. This primary power may be supplied by Storage Battery BB-451/U Power Supply PP-3700/PRC-41, or by an aircraft or vehicular power source. The 26.5-volt d-c primary supply is used to provide power for the 180-volt and -6.8-volt d-c supplies in the d-c power supply module, to energize the necessary relays for receive-transmit switching, and for filament and transistor voltages

(a) D-C POWER SUPPLY MODULE

1A1 Refer to figure 5-82. When the OFF-T/R-LIGHT switch is placed in the T/R position the 26.5-volt d-c primary supply is applied to pin 4 of transformer T1 and the collectors of both switching transistors Q1 and Q2 of the d-c power supply module. Since no two transistors are exactly alike, either Q1 or Q2 will begin to conduct because of the positive biasing of the bases of Q1 and Q2. Assuming Q1 begins to conduct first, current flows through that section of the primary winding of transformer T1 between pins 3 and 4. As the field about winding 3-4 expands, an induced voltage is developed across the secondary 8-9 and the base feedback windings 1-2 and 6-7. Transistor Q1 continues to conduct until the core of transformer T1 becomes saturated. At saturation, the base voltage of Q1 goes to zero and Q1 stops conduction. The magnetic field about the primary windings of 1-2 and 3-4 begins to collapse, and Q2 is switched on and begins

to conduct. Switching transistor Q2 continues to conduct until it has again saturated the core of transformer T1, and then Q1 is again switched on. Transistors Q1 and Q2 provide an 800-cps output to bridge rectifiers CR1 through CR4. Inductor L1 and capacitors C1, C2, and C3 form a low-pass filter. Resistor R5 is a bleeder resistor for the filtered output. Zener diode CR5 is connected between ground and Band provides the -6.8-volt d-c output. The B+ supply is 180 volts dc and is made available to the modulator, spectrum generator, and r-f and power amplifier modules.

(b) FILAMENT CIRCUITS. -

The vacuum tubes requiring filament voltage are contained in the spectrum generator and r-f and power amplifier modules. Refer to figure 4-10. These filaments are connected in series parallel. All tubes require 6.3 volts for filament operation. Resistors 1A9R2, 1A9R3, 1A9R6, and 1A9R8 are voltage equalizing resistors. Transistor 1A9Q1 is a filament voltage regulator.

(c) RECEIVE-TRANSMIT

RELAYS, DIAL LIGHT, AND GUARD RECEIVER MODULE. 26.5-volt d-c primary supply is available to the receive-transmit relays, the dial lights, and the transistor stages of the guard receiver module. Refer to paragraph 4-6f(1)(b) and 4-6f(1)(c) for a description of power distribution and operation of the receive-relays. The dial lights are lit when the OFF-T/R-T/R/G-DIAL LIGHT switch is in the DIAL LIGHT position for illuminating the front panel controls of Radio Receiver-Transmitter RT-695/PRC-41.. When the OFF-T/R-T/R/G-DIAL LIGHT switch is placed in the T/R/G position, the 26.5-volt d-c primary supply is applied to the collector and base of voltage regulator

ORIGINAL

Figure 4-9

TM-03816A-35/2
NAVSHIPS 94755

AN/PRC-41
TROUBLE SHOOTING

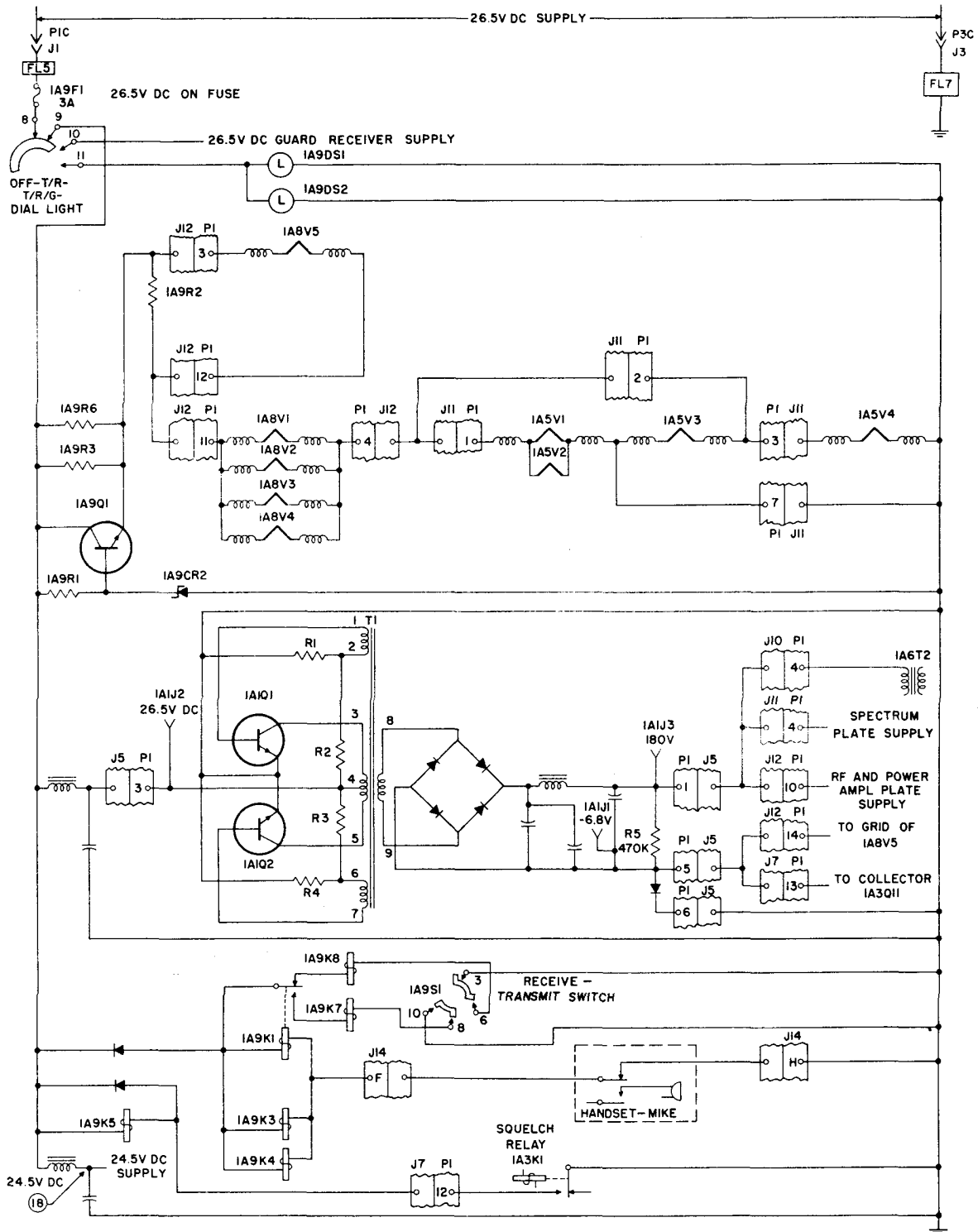


Figure 4-9. Radio Receiver-Transmitter RT-695/PRC-41, Power Distribution

ORIGINAL

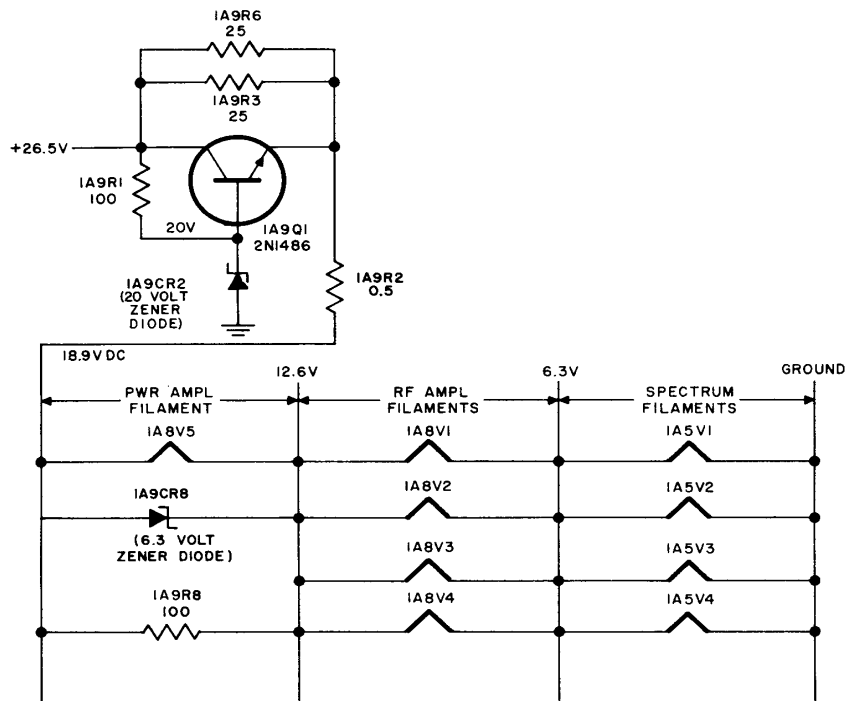


Figure 4-10. Radio Receiver-Transmitter RT-695/PRC-41, Filament Circuits

1A7Q14. The emitter of voltage regulator Q14 provides a regulated supply for the transistor stages of the guard receiver module.

(2) TEST DATA. - If the power distribution circuits are suspected or known to be defective, perform the steps of procedure of table 4-8 to isolate the trouble to a defective circuit or circuit group. Refer to the servicing block diagram (figure 4-19) for location of test points. The letter and number designations in parenthesis following test jack designations refer to the test jack location reference designation of figure 5-82.

(a) TEST EQUIPMENT REQUIRED.

1. Multimeter TS-505/U.

(b) TEST SETUP. - Set Radio Receiver-Transmitter RT-695/PRC-41 on the test bench with its dust cover removed. To provide the required power, connect Power Supply PP-3700/PRC-41 to the RT-695/PRC-41. Refer to figure 5-20.

(c) POWER DISTRIBUTION CIRCUIT TROUBLE ISOLATION. - To determine which circuit or circuit group of the power distribution circuits is defective, perform the steps of procedure of table 4-8 in the sequence listed. After each

PRELIMINARY ACTION, compare the indications obtained with the expected results in the NORMAL INDICATION column. If the indications are normal, proceed to the next step. If abnormal indications are observed, follow the procedures outlined in the NEXT STEP column.

e. FREQUENCY GENERATOR CIRCUITS.

The frequency generator circuits are composed of the circuits of the spectrum generator module and the high- and low-frequency oscillator stages in the 1st and 2nd i-f amplifier module. These circuits provide the required frequency injection for both the main receiver and transmitter functional sections. The following frequency generation discussion is applicable to that required for frequency conversion and carrier development of the main receiver and transmitter functional sections of Radio Receiver-Transmitter RT-695/PRC-41. Refer to paragraph 4-4a for a discussion of frequency generation for the guard receiver functional section.

(1) FUNCTIONAL DESCRIPTION (RECEIVE OPERATION). - The three injection frequency signals for Radio Receiver-Transmitter RT-695/PRC-41 are obtained from three crystal-controlled

ORIGINAL

TABLE 4-8. POWER DISTRIBUTION CIRCUITS, TROUBLE ISOLATION

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Fuse 1A9F1 on rear of Radio Receiver-Transmitter RT-695/PRC-41 main chassis	Connect Multimeter TS-505/U between fuse test jack and ground.	Measure 26.5 volts dc.	If no Indication is obtained, check Power Supply PP-3700/PRC-41 and fuse 1A9F1.
2	Collector of 1A9Q1	Connect Multimeter TS-505/U between collector of 1A9A1 and ground.	Measure 26.5 volts dc.	If indication is not obtained, check fuse 1A9F1 and OFF- T/R-T/R/G-DIAL LIGHT switch 1A9S3.
3	Emitter of 1A9Q1.	Connect Multimeter TS-505/U between emitter of 1A9Q1 and	Measure 18.9 volts dc.	If indication is not obtained, voltage at base of transistor 1A9Q1 (measure ground.20 volts dc).
4	CH30 (E44, refer to figure	Connect Multimeter TS-505/U between CH30 and ground.	Measure 12.6 volts dc.	If indication is not obtained, check heater voltage by use of tables 5-6 and 5-82). 5-10. Measure tube heaters in spectrum generator and r-f and power amplifier modules for continuity.
5	Test jack 1A1J2(F7).	Connect Multimeter TS-505/U between 1A1J2(F7) and ground.	Measure 26.5 volts dc.	If indication is not obtained, remove d-c power supply module and check continuity between pin 3 of 1A9J5 and fuse test jack 1A9F1.
6	Test jack 1A1J3(F8).	Set Multimeter TS-505/U to 250-volt d-c range and connect it between 1A1J3(F8) and ground.	Measure 180 volts dc	If indication is not obtained, check transistors.Q1 and Q2, bridge rectifiers CR1 and through CR4, and associated circuits of d-c power supply module.
7	Test jack 1A1J1(F8).	Set Multimeter TS-505/U to 50-volt d-c range and connect it between 1A1J1(F8) and ground.	Measure -6.8 volts dc.	If indication is not obtained, check Zener diode 1A1CR5 and for a short between pin 5 of plug 1A1P1 and ground.
8	Test point 18. Refer to figure 4-1.	Connect Multimeter TS-505/U between junction of capacitor 1A9C2 and inductor 1A9L2 and ground.	Measure 26.5 volts dc.	If indication is not obtained, check continuity of inductor 1A9L2.
9	1A9J8, pin 9.	Remove audio module. Connect Multimeter TS-505/U to pin 9 of 1A9J8.	Measure 24.5 volts dc.	If indication is not obtained, check continuity between pin 9 of 1A9J8, and 1A9L2.

TABLE 4-8. (Continued)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
10	1A9J7, pins and 11.	Replace audio module and remove 3rd i-f and squelch module. Connect TS-505/U in turn between 1A9J7 pin 5 and ground and pin 11 and ground.	Measure 24.5 volts dc.	If indication is not obtained, check relay 1A9K3.
11	1A9J6, pin 3.	Replace 3rd i-f and squelch module. Set frequency selector knobs to 229.9 mc. Remove 1st and 2nd i-f amplifier module. Press press-to-talk button on HandsetH-33E/PT. Connect TS-505/U to pin 3 of 1A9J6.	Measure 26.5 volts dc.	If indication is not obtained, check relay 1A9K3.
12	1A9J6, pin 6.	Unkey press-to-talk button on H-33E/PT. Connect TS-505/U to pin 6 of 1A9J6.	Measure 24.5 volts dc.	If indication is not obtained, measure continuity between pin 6 of 1A9J6 and 1A9L2.
13	1A9J9, pin 3.	Replace 1st and 2nd i-f amplifier module. Remove guard receiver module. Connect TS-505/U to pin 3 of 1A8J9. Set OFF-T/R-T/R/G-DIAL LIGHT switch in T/R/G position.	Measure 26.5 volts dc.	If indication is not obtained, check function switch 1A9S3 and relay 1A9K4.
14	1A9J10, pin 3.	Replace guard receiver module and remove modulator module. Connect TS-505/U to 1A9J10, pin 3. Press press-to-talk button on H-33E/PT.	Measure 26.5 volts dc.	If indication is not obtained, check 1A9K3.
15	1A9J10, pin 8.	Connect TS-505/U to 1A9J10, pin 8.	Measure 24.5 volts dc.	If indication is not obtained, check 1A9K3.
16	1A9J12, pin 20.	Unkey press-to-talk button on H-33E/PT. Replace modulator module. Remove r-f and power amplifier module. Connect TS-505/U to 1A9J12, pin 20	Measure 24.5 volts dc.	If indication is not obtained, check continuity to 1A9L2.

oscillators. The first injection signal, 200 to 370 mc, is obtained from the spectrum generator module, while the second (17.1 to 26.1 mc) and third (2.9 to 3.8 mc) injection signals are obtained from high and low-, respectively, frequency oscillator stages in the 1st and 2nd i-f amplifier module. Figure 4-11 lists the three injection frequencies for each frequency in the operating range of the RT-695/PRC-41. In receive operation, signals in the 225.0- to 399.9-mc range are

mixed with the appropriate spectrum generator module output frequency in the range of 200 to 370 mc to produce the 20 to 29.9-mc first i-f frequency. The first intermediate frequency is then mixed with the appropriate high-frequency oscillator output to provide the second intermediate frequency in the range of 2.9- to 3.8-mc. The second intermediate frequencies are then mixed with the appropriate low-frequency oscillator output to provide the third intermediate

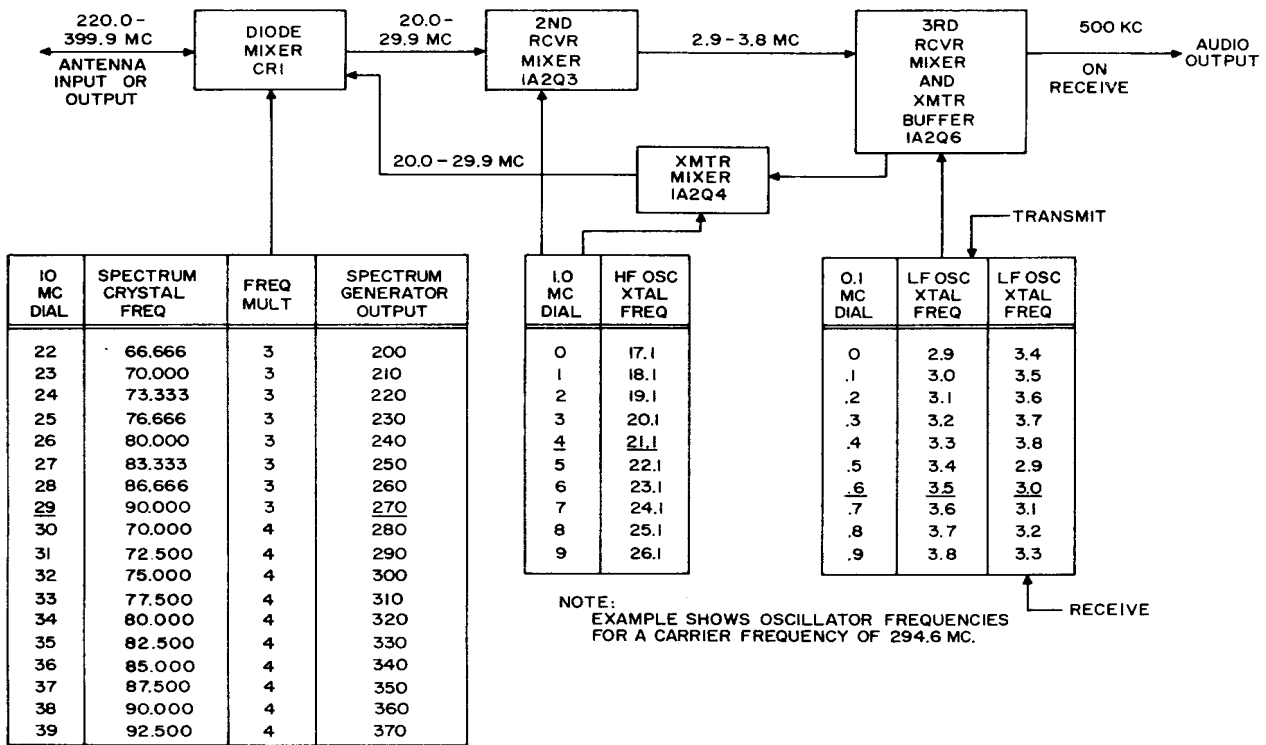


Figure 4-11. Main Receiver and Transmitter Functional Section, Frequency Scheme

frequency of 500 kc.

(2) FUNCTIONAL DESCRIPTION

(TRANSMIT OPERATION). - In transmit operation, the output of the appropriate low- and high-frequency oscillator crystal frequencies are mixed in transmitter mixer 1A2Q4 of the 1st and 2nd i-f amplifier module to produce the intermediate frequencies in the range of 20.0 to 29.9 mc. This intermediate frequency is then mixed in diode mixer 1A9CR1 with the appropriate spectrum generator module output frequency to produce an output signal in the 225.0- to 399.9-mc range.

(3) I- F FREQUENCY CALCULATION.

- The following procedure may be used to find the three injection frequencies from the final transmit or receive operation frequency. Refer to figure 4-11.

Example: 294.6 mc Subtract 20.0 mc from the operating frequency. For this example, 20 from 294.6 gives 274.6. The first two digits of this number (10-mc-digits) with an added 0 gives 270 mc, which is the spectrum generator module injection frequency.

270.0 mc

$$\begin{array}{r} 294.6 \text{ mc} \\ 4.0 \\ \hline +17.1 \\ \hline 21.1 \text{ mc} \end{array}$$

$$\begin{array}{r} 294.6 \text{ mc} \\ 0.6 \\ \hline +2.9 \\ \hline 3.5 \text{ mc} \end{array}$$

To determine the 17.1- to 26.0 mc oscillator frequency, add 17.1 to the unit digit. In this case 4 + 17.1 = 21.1 mc.

In transmit operation, the low-frequency oscillator frequency can be determined by adding mc to the tenth megacycle digit. In this case, 0.6 + 2.9 = 3.5 mc.

In receive operation, the low-frequency oscillator is shifted ± 500 kc from the predetermined transmit frequency. Since the oscillator frequency varies from 2.9 to 3.8 mc, this frequency can be determined from the transmit oscillator frequency. If it is 3.4 mc or greater, subtract 500 kc. If it is 3.3 mc or less, add 500 kc.

(a) SPECTRUM GENERATOR

MODULE. - Refer to figure 5-82. The spectrum generator module supplies an injection signal of 200 to 370 mc in 10-megacycle steps to the receiver first mixer or the transmitter second mixer (diode mixer 1A9CR1). The spectrum generator module consists

of a crystal oscillator followed by a multiplier and a two-stage r-f amplifier. The crystal oscillator is a series mode crystal oscillator with one of 18 crystals in the grid circuit of V1. The crystals are operated on the fifth mode. Both the crystal and the plate tank circuit of V1, which is tuned to the crystal frequency, are switched to obtain the desired frequency. Capacitor C6 is the capacity portion of the plate tank. Choke coil L19 tunes out crystal reactance as different crystals are selected. A tuned circuit, Z1, and capacitor C10 in plate circuit of V2, is tuned to triple or quadruple the oscillator frequency for output frequencies from 200 to 370 mc. This signal is fed to two grounded-grid amplifiers, V3 and V4. The plate circuits of V3 and V4 are tuned with plate tank circuits identical to the plate tank circuit of V2. When a new frequency is selected, both the inductance and capacitance of tuned circuits Z1, Z2, and Z3 are varied to obtain the proper resonant frequency. The output is fed to mixer 1A9CR1 on the main chassis.

(b) HIGH-FREQUENCY OSCILLATOR 1A2Q5. - High-frequency oscillator 1A2Q5 is located in the 1st and 2nd i-f amplifier module. This 17.1-26.1-mc oscillator is a feedback type oscillator employing series-mode crystals. The oscillator output is switched from second receiver mixer 1A2Q3 to transmitter mixer 1A2Q4 by energizing relay 1A2K2. The undesired harmonics of high-frequency oscillator Q5 are attenuated by a lowpass filter composed of R28 and the input capacitance of the respective mixers.

(c) LOW-FREQUENCY OSCILLATOR 1A2Q7. - Low-frequency oscillator 1A2Q7 is located in the 1st and 2nd i-f amplifier module. Low-frequency oscillator 1A2Q7 is similar to a Colpitts vacuum-tube oscillator. Switches S3 and S4 perform two functions: (1) switch 2.9- to 3.8-mc crystals in receive operation; and (2) with the aid of relay 1A2K3, change crystal frequency by ± 500 kc for transmitter- operation. With 1A2K3 in the receive position, low-frequency oscillator 1A2Q7 frequency is ± 500 kc from the second intermediate center frequency. With 1A2K3 in the transmit position (energized), the low- oscillator and second intermediate frequencies are identical. Relay 1A2K3 also grounds the low-frequency oscillator receive crystal in this position. The low-frequency oscillator signal is fed through transistor 1A2Q6, which acts as a buffer amplifier for the low-frequency oscillator in transmit operation, to transmitter mixer 1A2Q4.

(4) TEST DATA. - Trouble isolation considerations for the frequency generation circuits are concerned with their ability to provide the required frequency injection for receive and transmit operations of Radio Receiver-Transmitter RT-695/PRC-41. If trouble is known or suspected as being caused by a defective frequency generation circuit, connect the RT-695/PRC-41 into the test setup described in para- 4-6e(4)(b) and perform the trouble isolation procedures of table 4-9. The letter and number designations in parenthesis following test point designation refer to the test point location reference designation of figure 5-82.

TABLE 4-9. FREQUENCY GENERATION, CIRCUIT TROUBLE ISOLATION

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
1	Test jack 1A2J2 (C23, test point 3.	Connect Multimeter TS-505/U between test point 3 and ground.	Measure -2.5 to -3.5 volts dc.	If indication is not obtained, proceed to step 2.
2	Same as step 1.	Same as step 1 but rotate the 0.1-mc frequency selector knob from .9 through .0.	Same as step	If indication is not obtained, check those low-frequency crystal circuits associated with frequency selector knob setting and measure voltages of transistor 1A2Q7 by use of table 5-3.
3	Test jack 1A2J1 (C19, test point 4.	Connect Multimeter TS-505/U between test point 4 and ground.	Measure -0.8 to -1.5 volt dc.	If indication is not obtained, proceed to step 4.

TABLE 4-9. (Continued)

STEP	TEST POINT	PRELIMINARY ACTION	NORMAL INDICATION	NEXT STEP
4	Same as step 3.	Same as step 3 but rotate 1.-mc frequency selector knob from 9. to 0.	Same as step 3.	If indication is not obtained, check those high-frequency crystal circuits associated with frequency selector knob setting and measure voltages of transistor 1A2Q5 by use of table 5-3.
5	Test jack 1A5J1 (G16, test point 19).	Connect Multimeter TS-505/U between test jack 1A5J1(G16) and ground. Place function switch in T/R position.	Measure -12 to -20 volts dc at test point 1A5J1 (G16).	If indication is not obtained, proceed to step 6.
6	Same as step 5.	Same as step 5 but rotate hundreds-tens frequency selector knob from 39 to 22	Same as step 5.	If indication is not obtained, check those spectrum crystal circuits as associated with frequency selector knob setting, and measure voltages of oscillator 1A5V1 by use of table 5-6.
7	Test jack 1A5J2 (G21 test point 5).	Connect Multimeter TS-505/U, between test jack 1A5J2(G21) and ground. Place function switch in T/R position	Measure -2 to -8 volts dc at test point 1A5J2 (G21).	If indication is not obtained, make voltage and resistance checks of multiplier 1A5V2, and of amplifiers 1A5V3 and 1A5V4 by use of tables 5-6 and 5-7 to aid in location of defective detail part

(a) TEST EQUIPMENT REQUIRED.

1. Multimeter TS-505/U.

(b) TEST SETUP. - Set Radio Receiver-Transmitter RT-695/PRC-41 on the test bench with Receiver-Transmitter Case CY-3884/ PRC-41 removed, and connect Power Supply PP3700/PRC-41 to provide the required primary power. Refer to figure 5-20. Set the frequency selector knobs on the front panel of the RT-695/ PRC-41 to 399.9 mc.

(c) FREQUENCY GENERATION CIRCUIT TROUBLE ISOLATION. - To determine which frequency generation circuit and which detail part of the generation circuit is defective, perform the steps of procedure of table 4-9 in the sequence listed. After each PRELIMINARY ACTION, compare the indications obtained with the expected result in the NORMAL INDICATION column. If the indications are normal, proceed to the next step. If abnormal indications are observed, follow the procedures outlined in the NEXT STEP column. The frequency generation circuits are located in the spectrum generator module

(200- to 370-mc output), and the 1st and 2nd i-f amplifier module (high frequency oscillator 1A2Q5, 17.1- to 26.1-mc output, and low-frequency oscillator 1A2Q5, 2.9- to 3.8-mc output) .

f. CONTROL CIRCUITS.

(1) FUNCTIONAL DESCRIPTION. -

The control circuits are composed of the controls on the front panel of Radio Receiver-Transmitter RT-695/PRC-41, and the circuitry and mechanical linkages between the front panel and the controlled module or circuit. Table 3-1 of the Operator's Section of the Installation and Operation Technical Manual for Radio Set AN/PRC-41 lists and describes the controls of Radio Receiver-Transmitter RT-695/PRC-41. The control circuits include application of primary power selection of either transmit/receive, transmit/receive plus guard, or transmit/receive/guard and dial light operation; control of receiver output level; setting of receiver squelch level; and frequency selection. The three frequency selector knobs on the front panel of the RT-695/PRC-41 are mechanically linked to the tuned circuits of the r-f and power amplifier, 1st and 2nd i-f

amplifier, and spectrum generator modules. Rotation of any of the three frequency selector knobs adjusts the applicable tuned circuits of these modules to the frequency which is indicated by the MC frequency indicator window on the front panel of RT-695/PRC-41. The VOL (volume) control permits adjustment of the output level of both the main and guard receivers. The SQUELCH control provides an adjustment which will permit main receiver operation only when a signal is present at the input of the receiver.

(a) MECHANICAL FREQUENCY SELECTION. - Refer to figure 4-12. The selection of a desired frequency within the range of 225.0- to 399.9-mc is provided by the three control knobs on the control panel and is indicated by the frequency dial reading in the MC frequency indicator window. Assume the MC frequency indicator window shows 225.0 mc. If the 10-mc knob (located on the left of the control panel) is rotated one detent position clockwise, the MC frequency indicator window would show 235.0 mc. If the 1-mc knob (located in the center of the control panel) were rotated one detent position clockwise, the MC frequency indicator window would show 236.0 mc. If the .1-mc knob (located on the right side of the control panel)

were then rotated one detent position clockwise, the MC frequency window would show 236.1 mc. A change of one detent position of the 10-mc knob causes the coupler which drives the r-f and power amplifier module to be rotated through 10 degrees and the coupler which drives the spectrum generator module to be rotated through 20 degrees. A change of one detent position of the 1-mc knob causes: the coupler which drives the r-f and power amplifier module to be rotated through 1 degree; the coupler which selects the crystals for the high-frequency oscillator of the 1st and 2nd i-f amplifier module to be rotated through 30 degrees; and the coupler which adjusts the high-frequency slug rack on the 1st and 2nd i-f amplifier module to be rotated through 30 degrees. A change of one detent position of the .1-mc knob causes: the coupler which drives the low-frequency slug rack and low-frequency oscillator of the 1st and 2nd i-f amplifier module to be rotated through 30 degrees; the coupler which drives the high-frequency slug rack to be rotated through 3 degrees; and the coupler which drives the r-f and power amplifier module to be rotated through 0.1 degree. In this way the electrical circuits of the RT-695/PRC-41 may be adjusted to select any desired frequency in the range of 225.0 to 399.9 mc

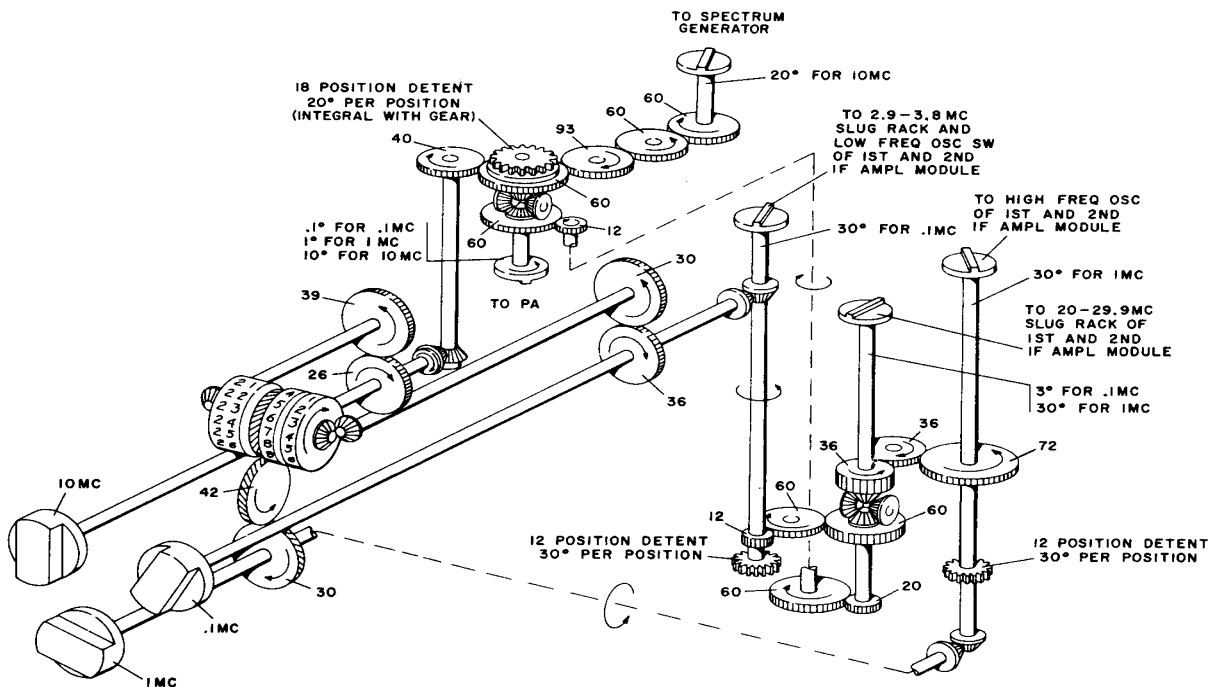


Figure 4-12. Frequency Selection Functional Diagram

(b) RECEIVE OPERATIONAL SWITCHING.- Figure 4-13 shows Radio Receiver-Transmitter RT-695/PRC-41 in receive operation. With the OFF-T/R-T/R/G-DIAL LIGHT switch changed from the OFF position to any of the other positions, the 26.5-volt d-c primary power is applied to the circuits of the RT-695/PRC-41. In receive operation (press-to-talk button on Handset H-33E/PT is not depressed), signals in the 225.0- to 399.9-mc range are received at the antenna, coupled through switch contacts 2 and 5 of receive-transmit switch 1A9S1A and applied to the input of the r-f and power amplifier module. The output signal from the r-f and power amplifier module is coupled through contacts 2 and 4 of receive-transmit switch 1A9S1B to diode mixer 1A9CR1 where it is mixed with the spectrum generator module output signal. The frequency difference between the spectrum generator signal and the received signal is fed through contacts 11 and 12 of receive-transmit switch 1A9S1B to the contacts of de-energized relay 1A2K1, and to the input of the 20 to 29.9-mc i-f amplifiers of the 1st and 2nd i-f amplifier module. In the 1st and 2nd i-f amplifier module, the resulting signal is further mixed with the output of the low- and high-frequency oscillators to produce the final intermediate frequency. The output of the 1st and 2nd i-f amplifier module is coupled to the input of the 3rd i-f and squelch module, where it is detected and fed through the contacts of de-energized relay 1A9K4 to the audio module input. The output of the audio module is coupled to the H-33E/ PT. When squelch relay 1A3K1 is energized, relay 1A9K5 is also energized, grounding pin K of J13 and J14 for automatic relay operation.

(c) TRANSMIT OPERATIONAL SWITCHING. - Figure 4-14 shows Radio Receiver Transmitter RT-695/PRC-41 in transmit operation. Depressing the press-to-talk button on the H-33E/PT provides a ground for the relays on the main chassis (relays 1A9K1, 1A9K3, and 1A9K4). Energizing relay 1A9K1 causes relay 1A9K7 of the receive-transmit switch to be energized and rotates the receive transmit coaxial switch to the transmit position. The contacts of relay 1A9K1 ground the collector of the transistor in the r-f and power amplifier module. The contacts of relay 1A9K3 remove the filtered 24.5-volt d-c supply from the receive circuits and apply it to the transmit circuits, and apply 26.5 volts dc to the modulator module and to the relays of the 1st and 2nd i-f amplifier module. The contacts of relay 1A9K4 break the audio output connection from the 3rd i-f and squelch module to the audio module and remove the 26.5-volt d-c supply from the guard receiver module. The contacts of energized relay K3 In the 1st and 2nd i-f amplifier module shift the low-frequency oscillator +500 kc and ground the receive crystal. The contacts of energized relay K2 of the 1st and 2nd i-f amplifier module inject the signal from the high-frequency oscillator into the transmitter mixer and ground the base of Q3. The sum of these two oscillator output frequencies, in the 20- to 29.9-mc range, is fed

through the contacts of energized relay K1 of the 1st and 2nd i-f amplifier module to the 20- to 29.9-mc i-f amplifiers. The output of the 20- to 29.9-mc i-f amplifiers is fed through contacts 10 and 11 of receive-transmit switch 1A9S1B to diode mixer 1A9CR1. The 20- to 29.9-mc i-f signals are mixed with the spectrum generator module output signals in the diode mixer to produce the output signals in the 225- to 399.9-mc range. The output from diode mixer 1A9CR1 is fed through contacts 4 and 8 of receive-transmit switch 1A9S1B to the input of the r-f and power amplifier module. The output from the r-f and power amplifier module is fed through contacts 9 and 2 of receive-transmit switch 1A9S1 to the antenna for radiation.

(2) CONTROL CIRCUITS TROUBLE ISOLATION. - Trouble-shooting considerations for the control circuits of Radio Receiver-Transmitter RT695/PRC-41 are concerned with the ability of the operating controls to control the functional sections and circuits of the RT-695/PRC-41. Since control is very closely related to the particular functional section which is in operation, no special test is provided. Tests for the control circuits are covered as part of the test data of the respective functional sections or circuits. Obviously the inability of any one of the control circuits to function properly is an indication of control malfunction. Further trouble shooting of these circuits may be effected through visual inspection and continuity testing. (Antennas AS-1404/PRC-41 and AS-405/PRC-41 should each indicate an open circuit.)

g. OMNIDIRECTIONAL AND DIRECTIONAL ANTENNAS. - Radio Receiver-Transmitter RT-695/ PRC-41 may utilize either directional Antenna AS1405/PRC-41 or omnidirectional Antenna AS-1404/ PRC-41.

(1) ANTENNA AS-1405/PRC-41. - Antenna AS-1405/PRC-41 is used with Radio Receiver-Transmitter RT-695/PRC-41 for reception and transmission of signals in the 225.0- to 399.9-mc range without electrical or physical adjustments, other than extending the elements which are normally collapsed for storage. This antenna is a planar log periodic dipole array which provides unidirectional directivity characteristics. The nominal input impedance is 50 Ohms. The azimuthal plane voltage patterns are shown in figure 4-15 for several frequencies in the range. The voltage standing-wave ratio for frequencies between 220 and 400 mc is shown in figure 4-16. Antenna AS1405/PRC-41 is operated on Mast AB-777/PRC-41.

(2) ANTENNA AS-1404/PRC-41. - Antenna AS-1404/PRC-41 is used with Radio Receiver-Transmitter RT-695/PRC-41 for reception and transmission of signals in the 225.0- to 399.9-mc range without electrical or physical adjustments. The AS-1404/ PRC-41 has a nominal input impedance of 50 ohms. The azimuthal plane voltage patterns are shown in figure 4-17 for several frequencies in the range. These patterns apply when the AS-1404/PRC-41 is mounted and operated on the RT-695/PRC-41. The voltage standing-wave ratios for frequencies between 220 and 400 mc are shown in figure 4-18 when the AS-1404/PRC-41 is mounted and operated on the RT-695/PRC-41. When Antenna AS-1404/PRC-41 is operated on Mast AB-777/PRC-41, the voltage standing-wave ratio properties and the voltage patterns are approximately the same as when operated on the RT-695/PRC-41.

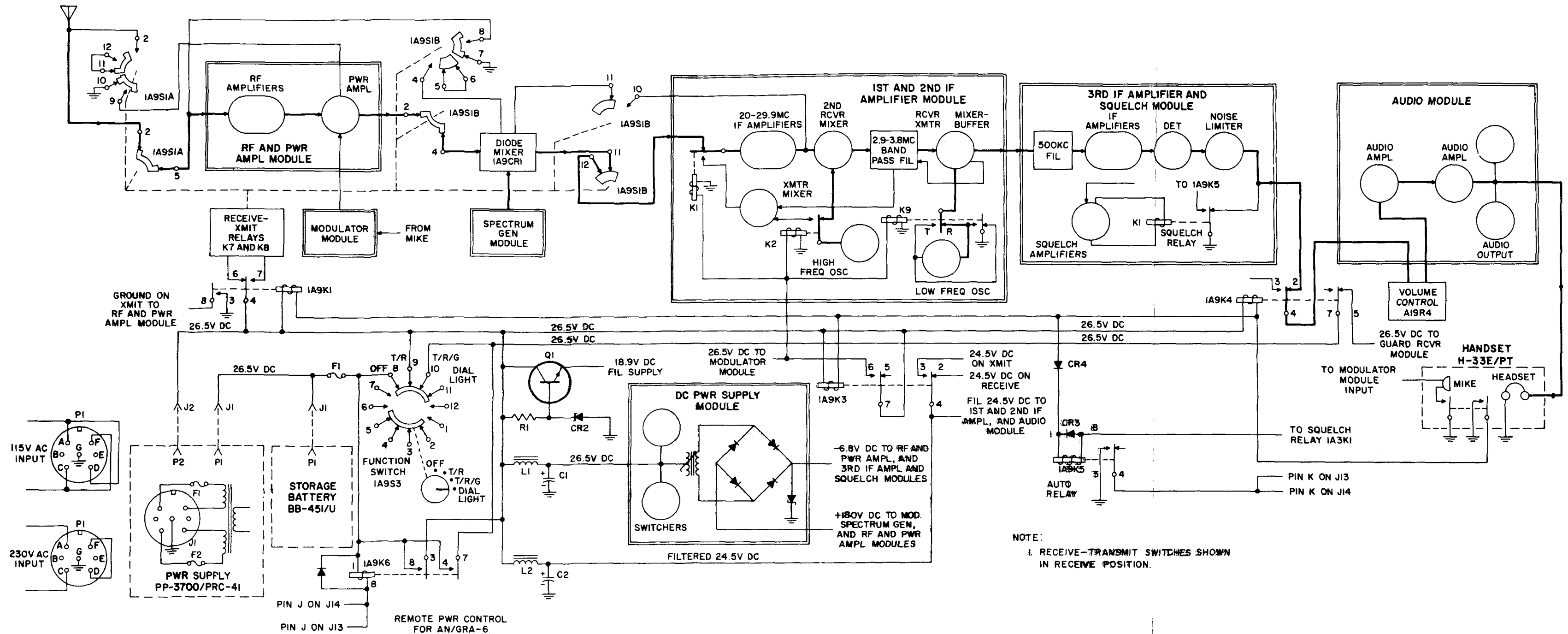


Figure 4-13. Radio Receiver-Transmitter RT-695/PRC-41, Receiver Functional Switching Diagram

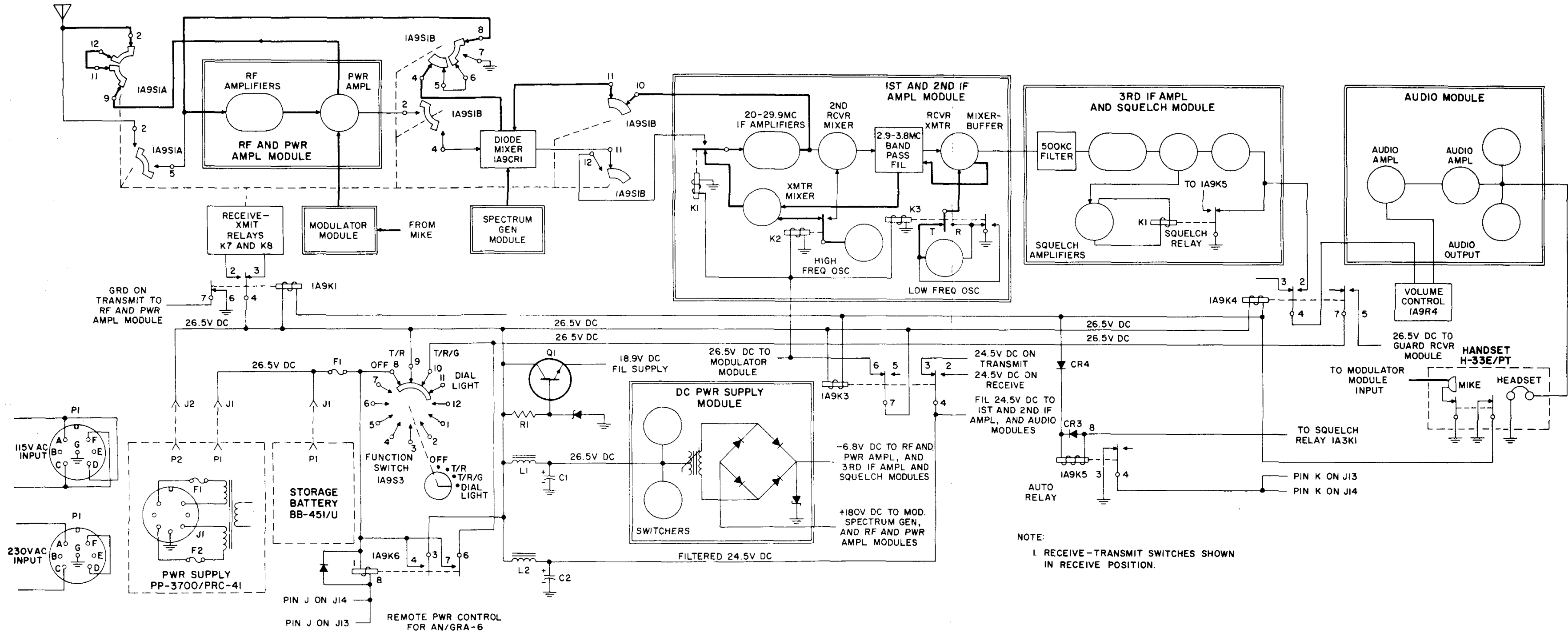


Figure 4-14. Radio Receiver-Transmitter RT-695/PRC-41, Transmitter Functional Switching Diagram

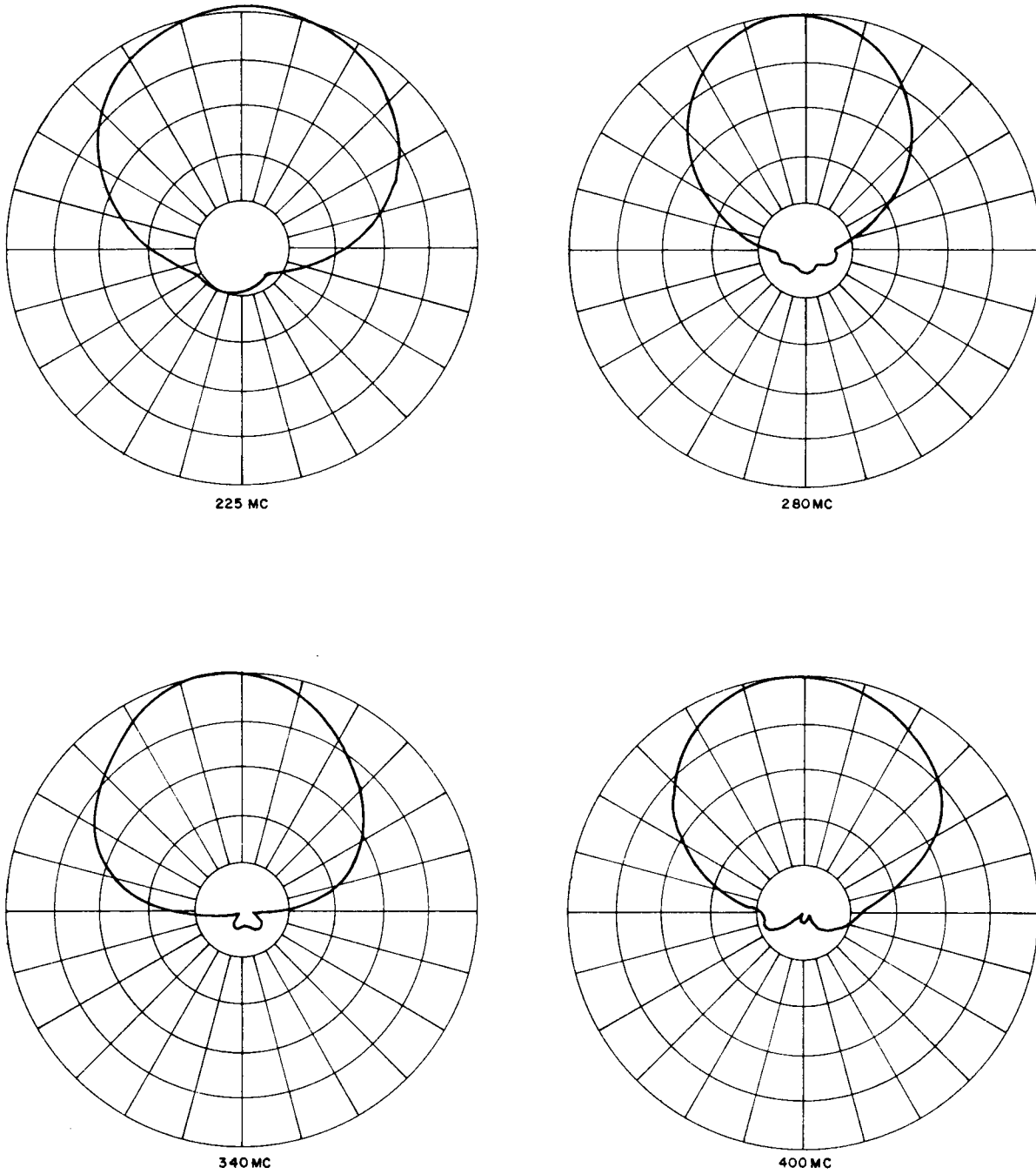


Figure 4-15. Antenna AS-1405/PRC-41, Azimuthal Plane Voltage Pattern

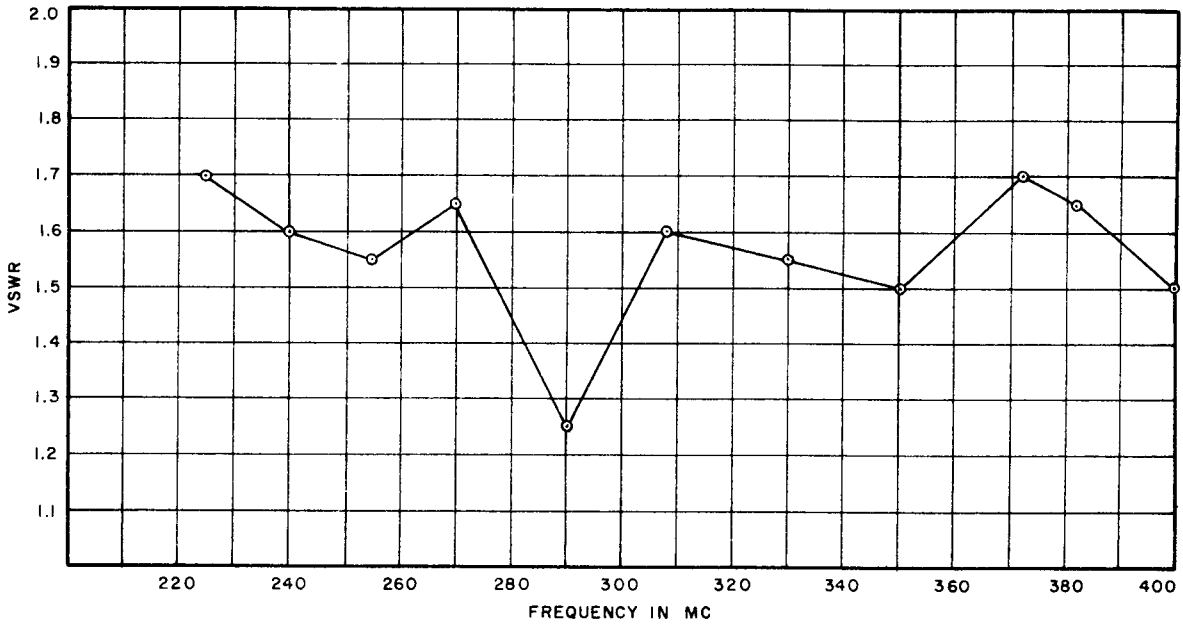


Figure 4-16. Antenna AS-1405/PRC-41, Voltage Standing-Wave Ratio

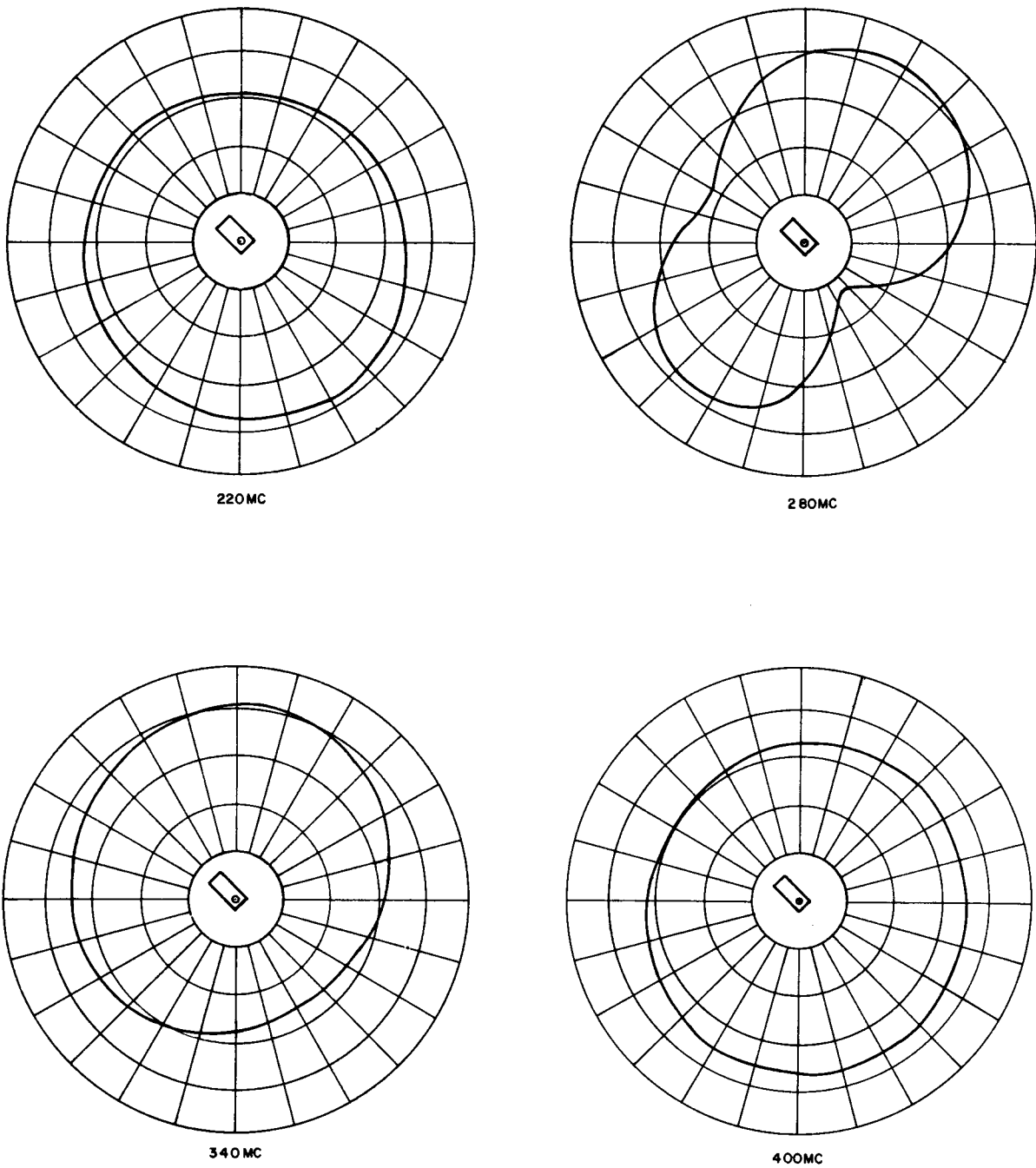


Figure 4-17. Antenna AS-1404/PRC-41, Azimuthal Plane Voltage Pattern

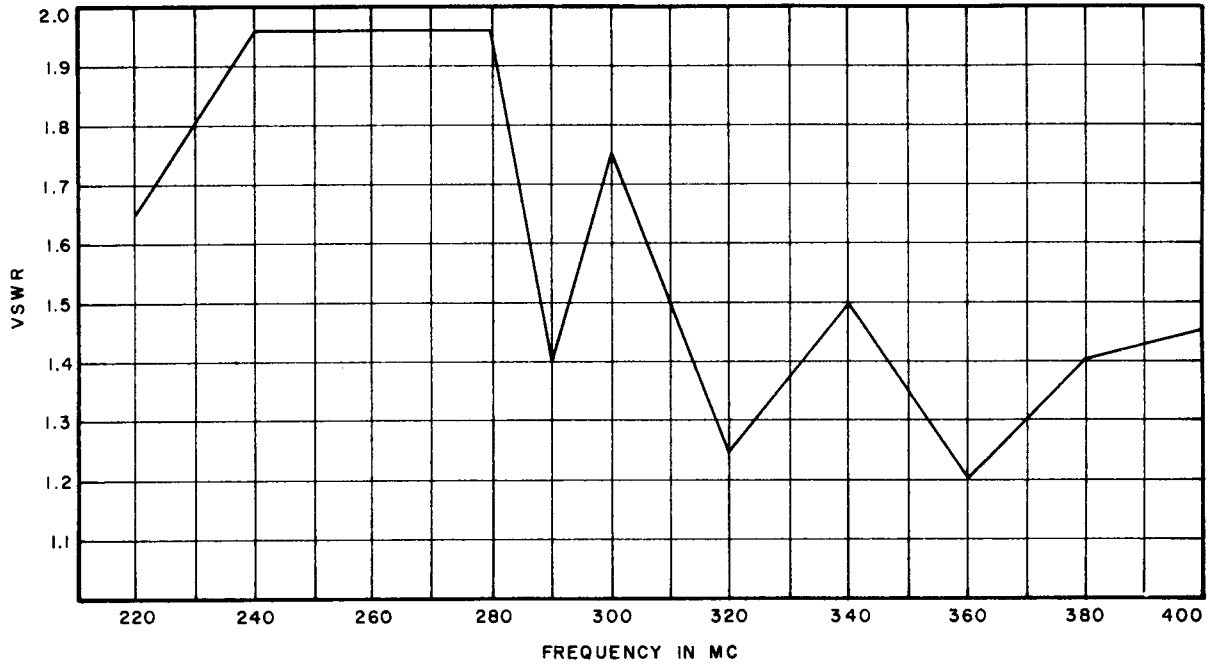


Figure 4-18. Antenna AS-1404/PRC-41, Voltage Standing-Wave Ratio

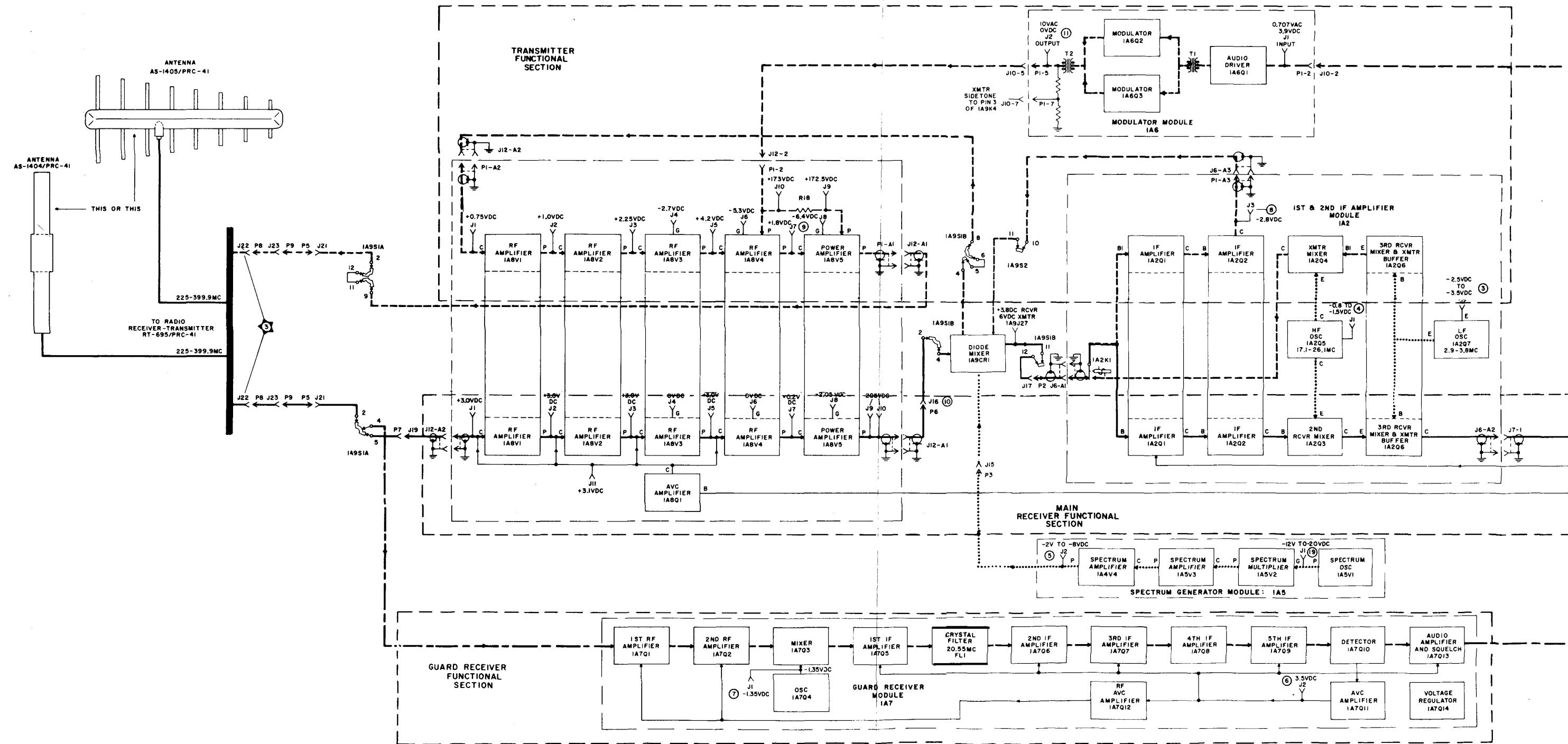


Figure 4-19. Radio Set AN/PRC-41, Functional Section Servicing Block Diagram (Sheet 1 of 2)

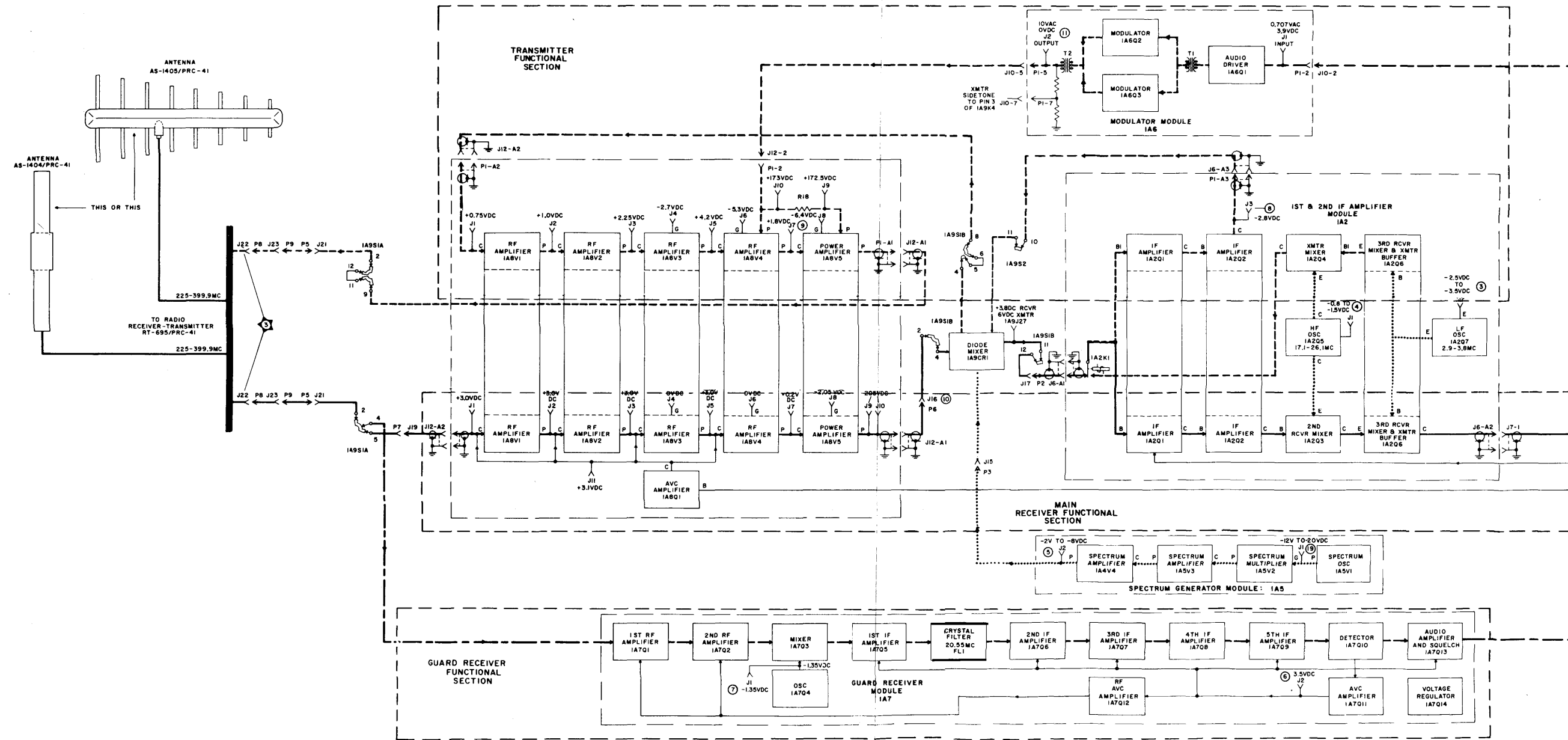


Figure 4-19. Radio Set AN/PRC-41, Functional Section Servicing Block Diagram (Sheet 1 of 2)

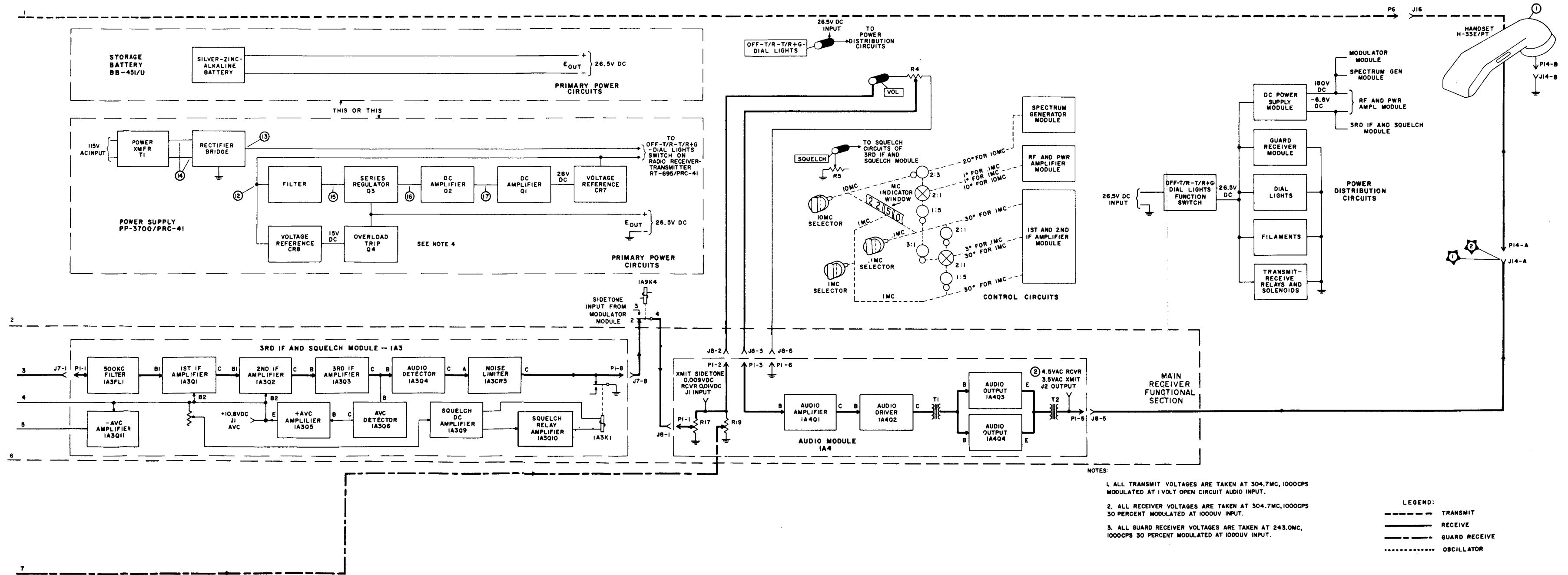


Figure 4-19. Radio Set AN/PRC-41, Functional Section Servicing Block Diagram (Sheet 2 of 2)

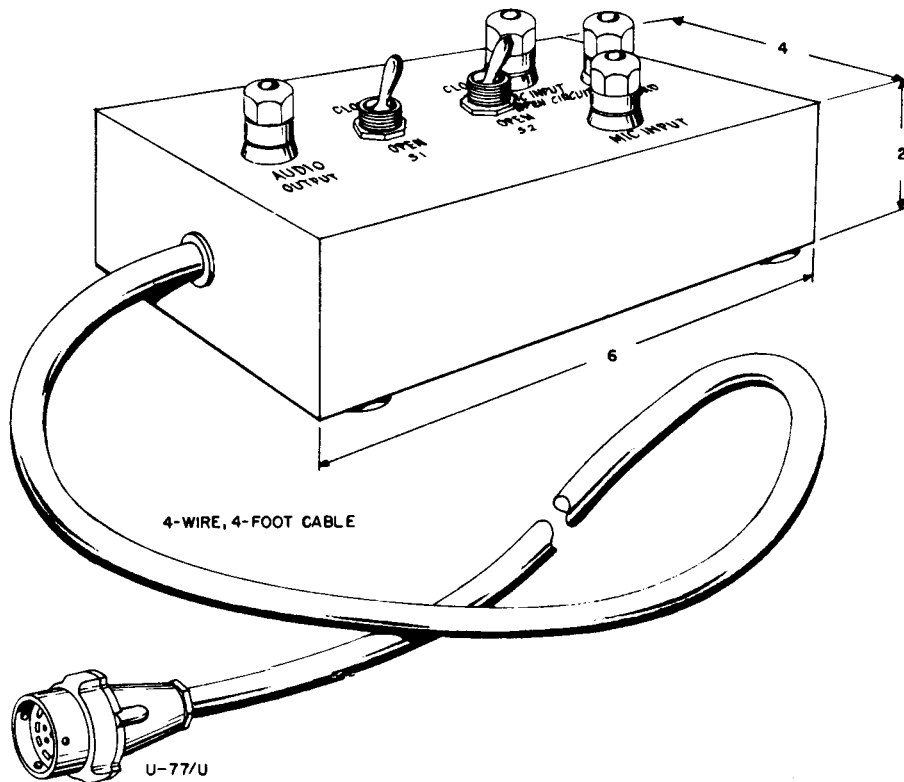
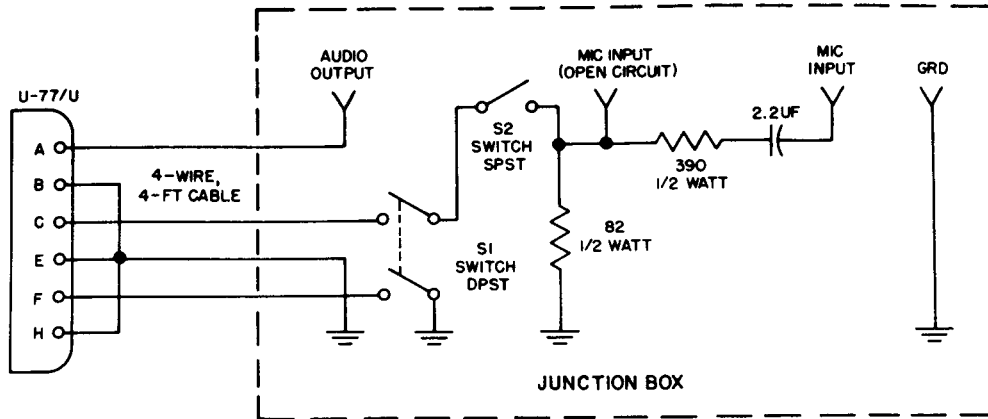


Figure 5-1. Junction Box, Schematic and Suggested Layout for Fabrication

SECTION 5

MAINTENANCE

5-1. FAILURE, AND PERFORMANCE AND OPERATIONAL REPORTS.

Note

The Bureau of Ships no longer requires the submission of failure reports for all equipments. Failure reports and performance and operational reports are to be accomplished for designated equipments (refer to Electronics Installation and Maintenance Book, NavShips 900.000) only to the extent required by existing directives. All failures shall be reported for those equipments requiring the use of failure reports.

5-2. PREVENTIVE MAINTENANCE.

a. MAINTENANCE STANDARDS.

(1) GENERAL. - This section of the handbook provides complete and comprehensive preventive maintenance information so that proper equipment operation can be maintained. In the following material, letter and number designations in parentheses following test jack designations refer to the test jack location reference designations of figure 5-82. For example, test jack designation 1A9J28(A45) is read as jack J28 located in module (or subassembly 1A9 at coordinates A45 as read on figure 5-82.

(2) TEST EQUIPMENT AND SPECIAL TOOLS. - The following test equipment is required for the performance of the preventive maintenance procedures of this section. No special tools are required.

- (a) Signal Generator AN/USM-44A.
- (b) Signal Generator AN/URM-25D.
- (c) R-F Wattmeter AN/URM-43C.
- (d) Oscilloscope AN/USM-105A.
- (e) Output Power Meter ME-2/U.
- (f) Audio Oscillator TS-382B/U.
- (g) Fuse MX-1730/U.
- (h) Multimeter TS-505/U.
- (i) Frequency Counter AN/USM-122.
- (j) Electronic Frequency Converter CV-394/USA-5.
- (k) Transfer Oscillator CM-102/USM-73.
- (l) Adjustable Attenuator DA-233.
- (m) Signal Generator Pad CN-315/URM-26.
- (n) Coaxial Crystal Detector HP-420A. (o) Power Resistor.
- (p) Multimeter AN/PSM-4C.

(3) SPECIAL PROCEDURES. - Except for the daily operational tests, all preventive maintenance tests are to be performed on a test bench

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having available the test equipment listed under paragraph 5-2a(2). Tests are to be performed with Power Supply PP-3700/PRC-41 supplying the required primary power. Refer to figure 5-20. Initially the OFF-T/R-T/R/G-DIAL LIGHT switch should be in the OFF position for making the required test setups.

(a) JUNCTION BOX. - Figure 5-1 illustrates schematically a junction box which is to be fabricated from bulk supplies. Preventive maintenance procedures make reference to and illustrate the use of this junction box. The junction box takes the place of Handset H-33E/PT. It provides a means of keying the transmitter, a connection for audio output, and a dummy microphone load for signal input to Radio Receiver-Transmitter RT-695/PRC-41. Figure 5-1 also provides a suggested layout for connectors and switches, identifying jacks and switch markings, and part numbers of the switch and connectors which must be used to be compatible with Radio Receiver-Transmitter RT-695/PRC-41 and the test equipment listed in paragraph 5-2a(2).

(4) REFERENCE STANDARD PROCEDURES.

Note

The procedures listed below consist of the minimum number of reference standards which will indicate, when completed, the relative performance of the equipment. Each group of tests represents a functional section of the equipment. The procedures are listed in the suggested sequence of performance; however, deviation from the listed order will in no way affect the unity or results of the reference standards, unless otherwise noted.

(5) PREVENTIVE MAINTENANCE PROCEDURES. - The following preventive maintenance procedures are arranged numerically within each maintenance period. Because of the nature of this equipment, all tests except the daily operational tests are to be performed on -the test bench at a facility having the necessary test equipment. Bench performance tests are to be performed on a monthly and semiannual basis.

(6) PERIODIC SCHEDULE CHARTS. - The operator or facility is to prepare periodic schedule charts for recording and checking the results obtained from the preventive maintenance procedures listed in reference standards procedures, table 5-1. Figure 5-2 provides examples of the sort of periodic schedule charts which are to be prepared. These charts are to run for a period of 2 years for each of the reference standard daily, monthly, or semiannual tests.

TABLE 5-1. REFERENCE STANDARDS PROCEDURES

SECTION	ACTION REQUIRED	REFERENCE
Main receiver	Make operational check.	D1
	Visually inspect gear train.	M1
	Record sensitivity.	M4
	Remove module covers to visually inspect detail parts.	SA1
	Record selectivity.	SA2
	Record avc characteristics.	SA4
	Record audio power output.	SA5
	Record distortion.	SA8
Guard receiver	Make operational check.	W1
	Record signal input level required to produce audio output.	M2
	Record sensitivity.	M3
	Record selectivity.	SA3
	Record avc characteristics.	SA6
	Record audio power output.	SA7
	Visually check distortion.	SA9
Transmitter	Make operational check.	D2
	Record power output.	M5
	Record percentage of modulation.	M6
	Record frequency stability.	SA10
	Record modulation fidelity and distortion.	SA11
Power Supply PP-3700/PRC-41	Record 26.5-volt output supply voltage.	SA12

Step Number:
Daily D1 and D2

Enter the name of the month in which the maintenance step is begun in the first empty block of the top row. Fill in the names of the months consecutively thereafter for a period of two years. Log the result in appropriate space after performing Daily step 1.

	1st Year of Operation												2nd Year of Operation											
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								

Time Schedule: Check () if communications was established, and initial 1st Year of Operation.

Day	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												

Time Schedule: Record and Initial

1st year of Operation												
Month	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__
Step M1												
Step M1												
Step M1												

2nd year of Operation												
Month	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__	19__
Step M1												
Step M1												
Step M1												

Figure 5-2. Examples of Periodic Schedule Charts to be Prepared for Recording Preventive Maintenance Results

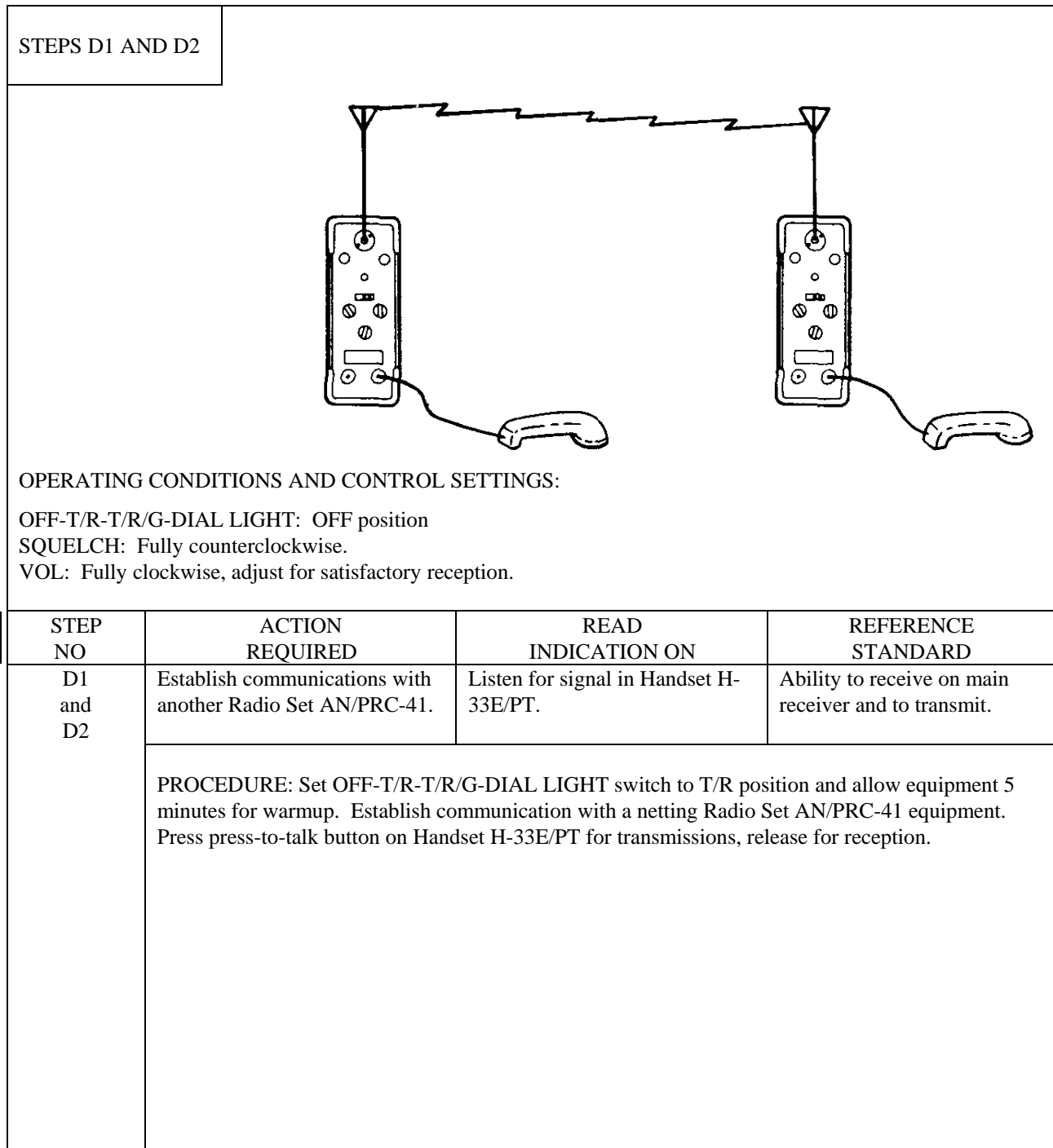


Figure 5-3. Preventive Maintenance Test, D1 and D2

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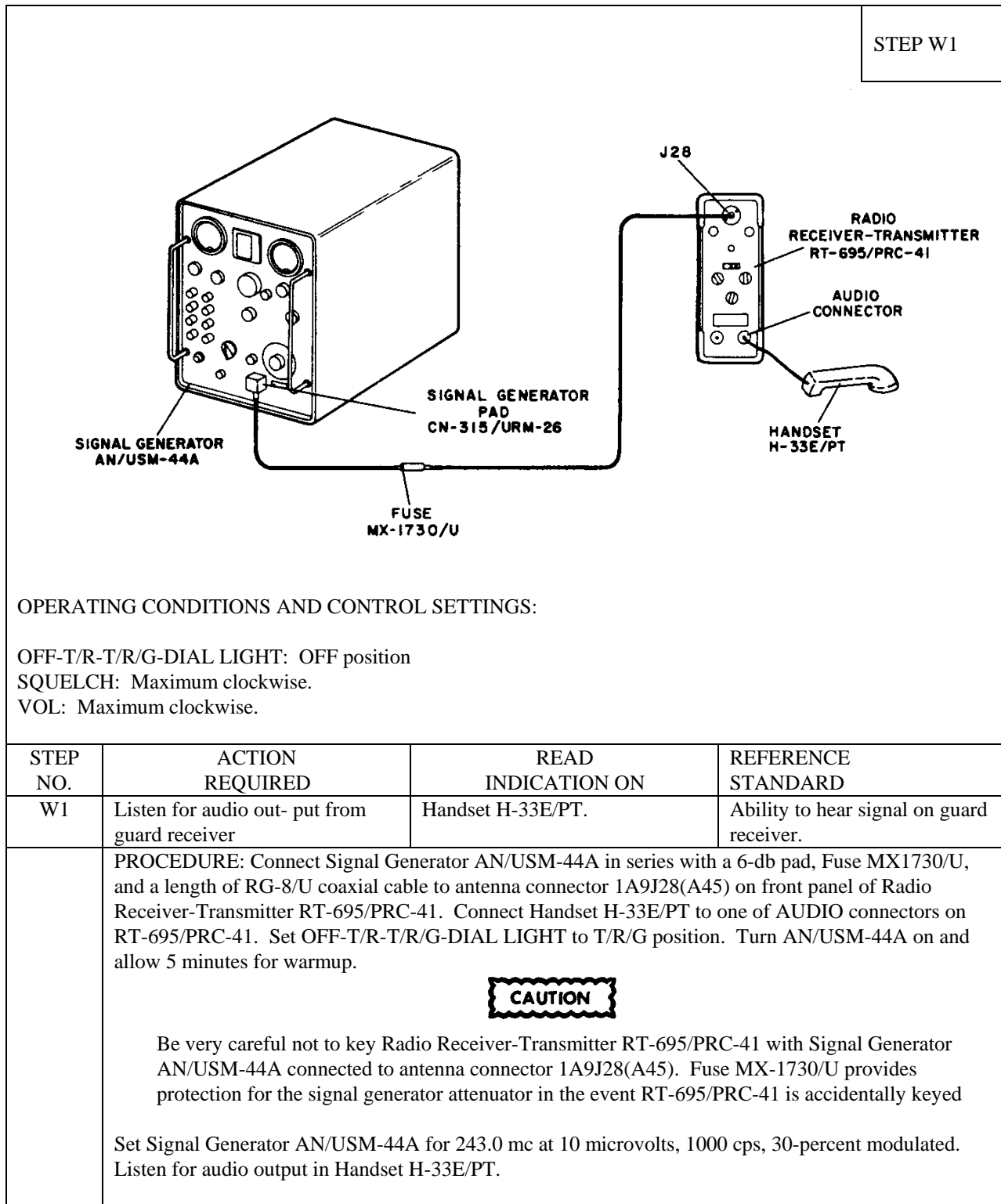


Figure 5-4. Preventive Maintenance Test, W1

STEP M1	<p>OPERATING CONDITIONS AND CONTROL SETTINGS:</p> <p>Remove primary power from Radio receiver-Transmitter RT-695/PRC-41 and remove dust cover.</p>		
STEP NO	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
.M1	Visually inspect main chassis gear train	Visual.	Mechanically tuned modules can be adjusted mechanically by frequency adjustment of front panel frequency selector knobs. There shall be no evidence of damage
<p>PROCEDURE: Remove primary power from Radio Receiver-Transmitter RT-695/PRC-41 and remove dust cover. Inspect gear train for evidence of wear and deterioration and excessive backlash. Rotate frequency selector knobs throughout their range.</p>			

Figure 5-5. Preventive Maintenance Test, M1

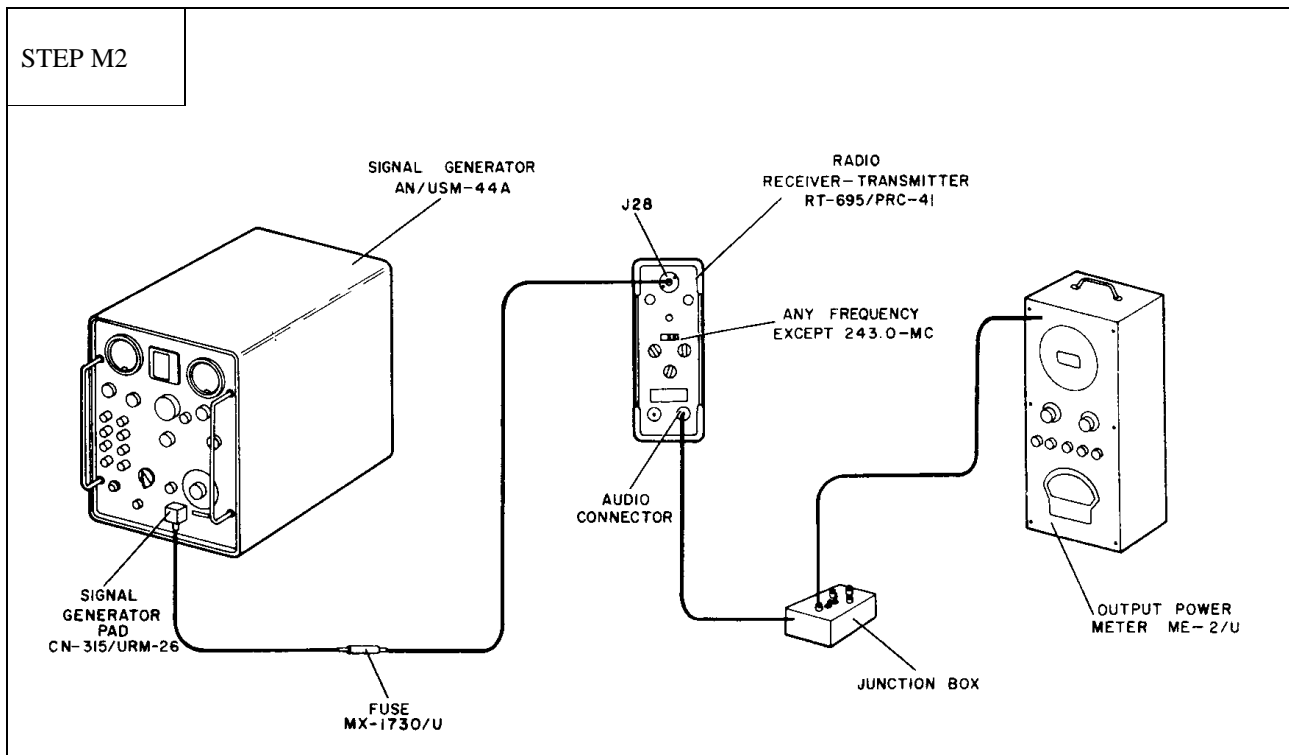


Figure 5-6. Preventive Maintenance Test, M2 (Sheet 1 of 2)

			STEP M2
<p>OPERATING CONDITIONS AND CONTROL SETTINGS:</p> <p>OFF-T/R-T/R/G-DIAL LIGHT: OFF position SQUELCH: Maximum clockwise. VOL: Maximum clockwise. S1 and S2 switches (junction box): Open position.</p>			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M2	Record signal input level required to produce audio output from guard receiver	Signal output level indicator on Signal Generator AN/ USM-44A and Output Power Meter ME-2/U.	Guard receiver should squelch on between 2 and 5 microvolts.
<p>PROCEDURE: Connect Signal Generator AN/USM-44A in series with a 6-db pad, Fuse MX1730/U, and a length of RG-8/U coaxial cable to antenna connector 1A9J28(A45) on the front panel of Radio Receiver-Transmitter RT-695/PRC-41. Connect junction box (refer to figure 5-1) to one of AUDIO connectors on front panel of RT-695/PRC-41. Connect Output Power Meter ME-2/U to AUDIO OUTPUT jack on junction box. Turn test equipment on and allow 10 minutes for warmup. Adjust Signal Generator AN/USM-44A to 243.0 mc at 1000 cps. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R/G position.</p> <p style="text-align: center;">CAUTION</p> <p>Be very careful not to key Radio Receiver-Transmitter RT-695/PRC-41 with Signal Generator AN/USM-44A connected to antenna connector 1A9J28(A45). Fuse MX-1730/U provides protection in event RT-695/PRC-41 is accidentally keyed. Application of transmitter output power to signal generator output will result in attenuator damage.</p> <p>Set the frequency selector knobs on front panel of RT-695/PRC-41 to any frequency other than 243.0 is mc. Beginning with zero output from AN/USM-44A, increase output until an indication is obtained on ME-2/U.</p>			

Figure 5-6. Preventive Maintenance Test, M2 (Sheet 2 of 2)

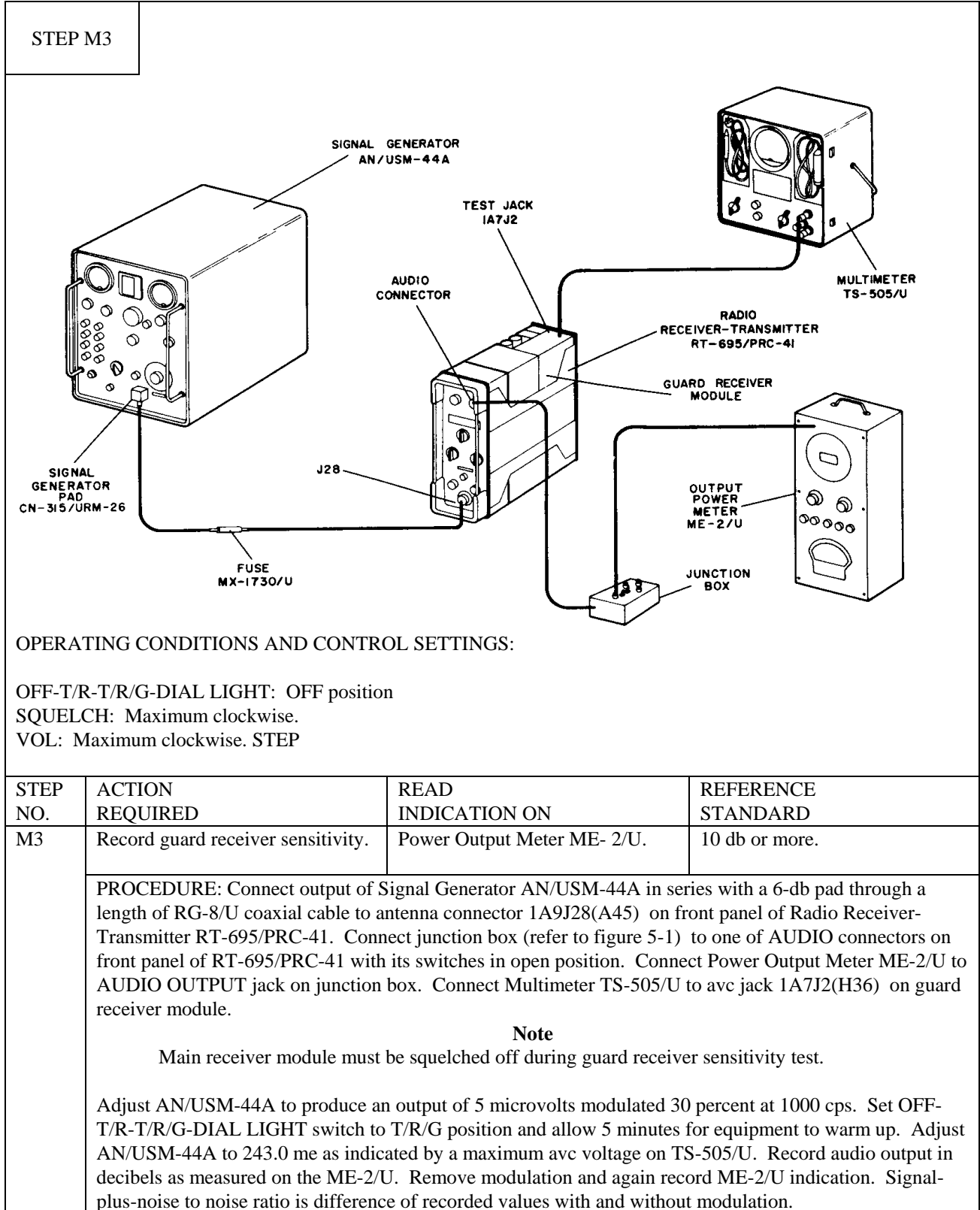


Figure 5-7. Preventive Maintenance Test, M3

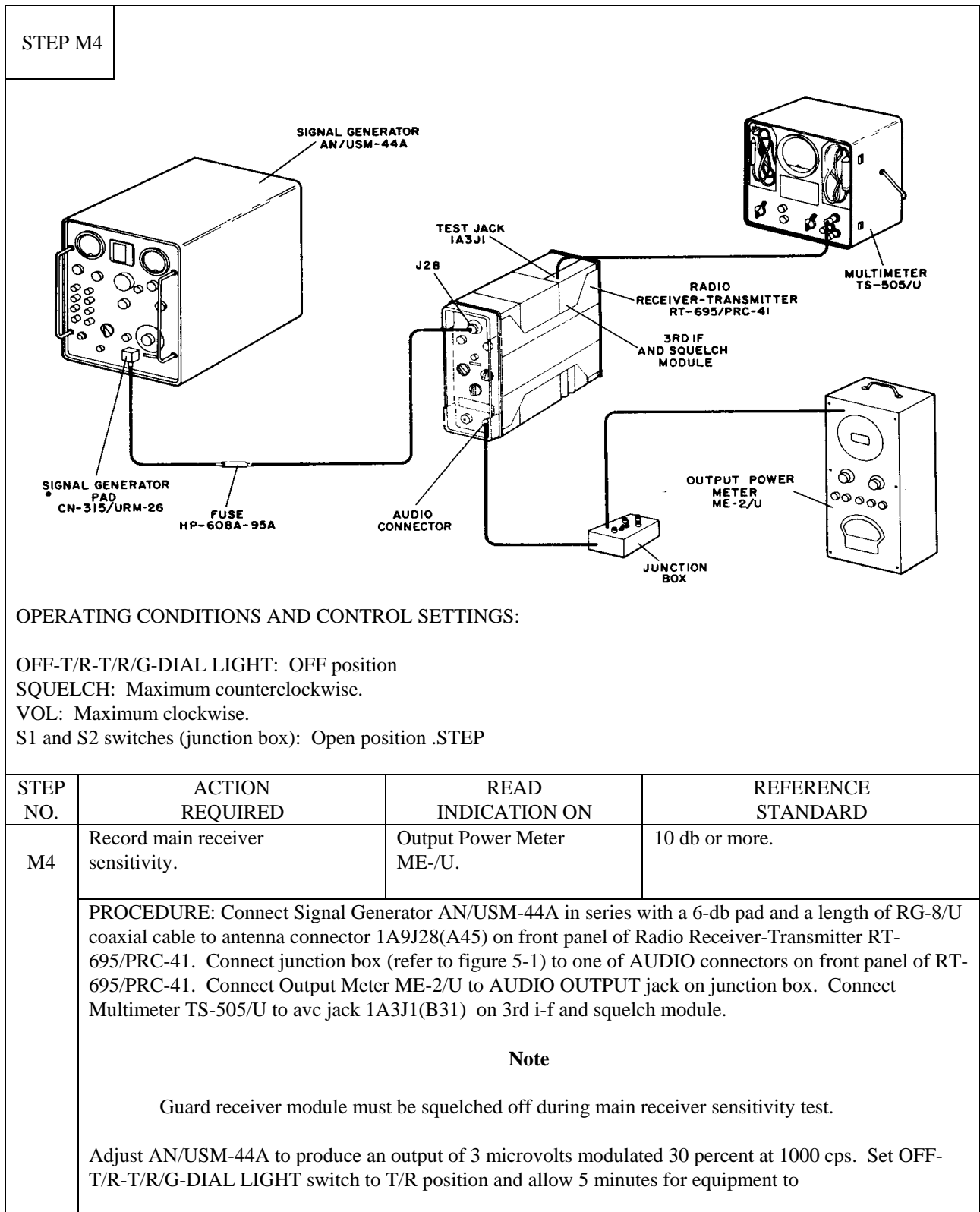
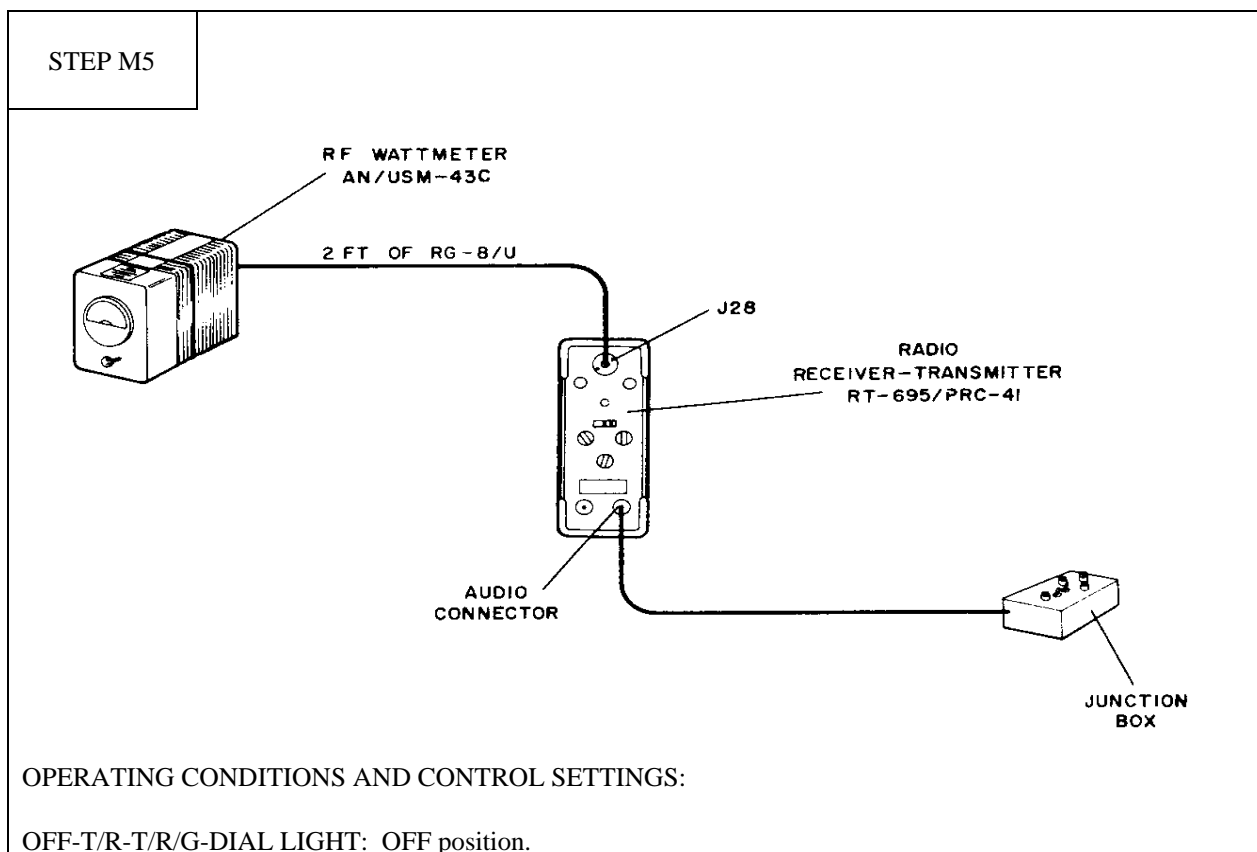


Figure 5-8. Preventive Maintenance Test, M4 (Sheet 1 of 2)

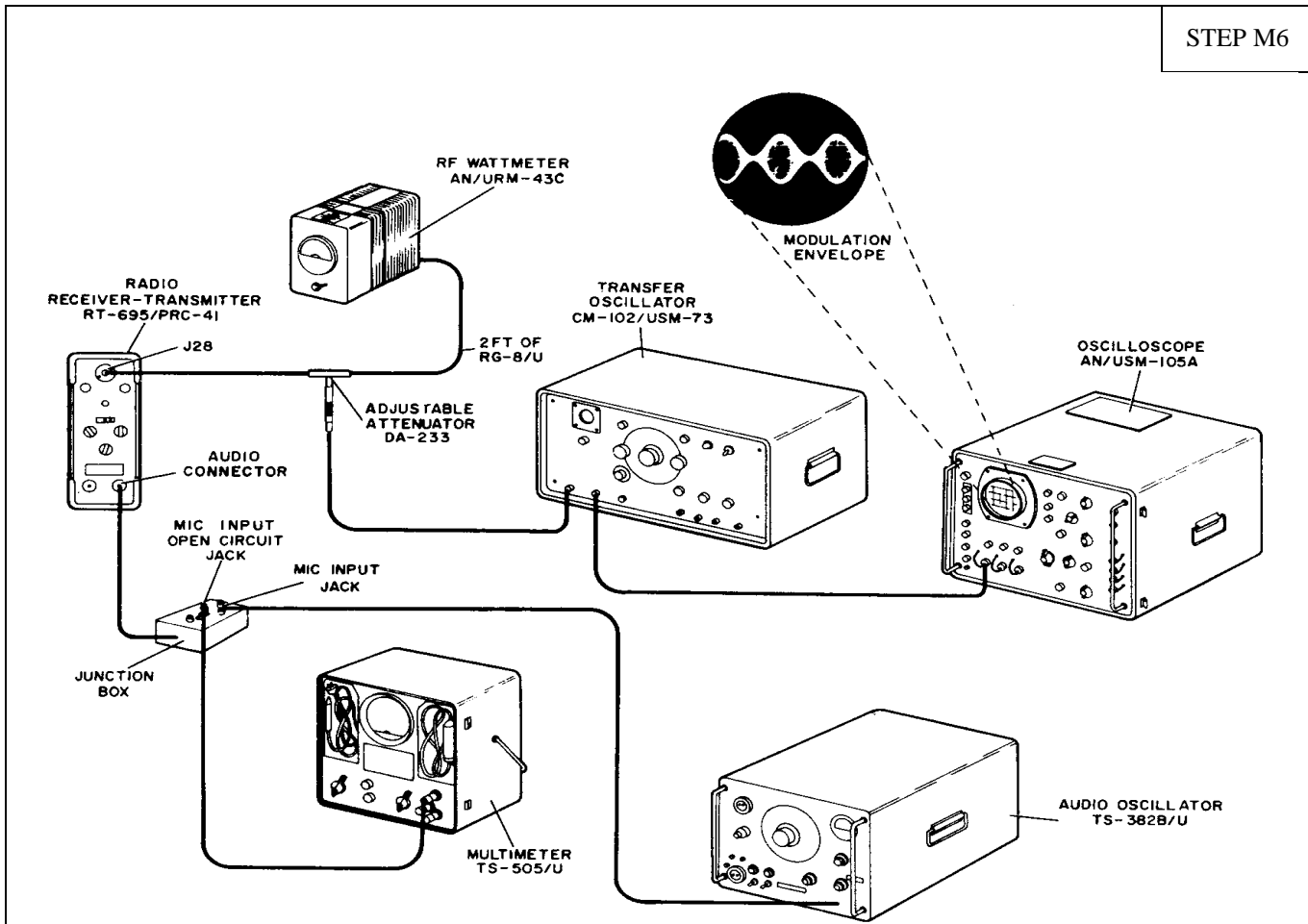
STEP M4			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M4	warm up. Set AN/USM-44A to 225.0 mc as indicated by a maximum avc voltage on Multimeter TS-505/U. Record audio output in decibels as measured on ME-2/U. Remove modulation and again record indications in decibels. Signal-plus-noise to noise ratio is difference of recorded value with and without modulation. Repeat this procedure at 304.7 and 399.9 mc.		

Figure 5-8. Preventive Maintenance Test, M4 (Sheet 2 of 2)



STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M5	Record transmitter power output.	R-F Wattmeter AN/USM-43C.	3 watts average for 1750 channels;
<p>PROCEDURE: Connect a length of RG-8/U coaxial cable between antenna connector 1A9J28 (A45) on Radio Receiver-Transmitter RT-695/PRC-41 and RF Wattmeter AN/USM-43C. Connect junction box (refer to figure 5-1) to one of AUDIO connectors on front panel of RT-695/PRC-41 with its switch in open position. Set OFF T/R-T/R/G-DIAL LIGHT switch to T/R position and allow 5 minutes for the equipment to warm up. Close switch on junction box and measure power output for enough frequencies to check all positions of frequency selector knobs. For example, 225.0, 236.1, 247.2, etc.</p>			

Figure 5-9. Preventive Maintenance Test, M5



STEP M6

OPERATING CONDITIONS AND CONTROL SETTINGS:

- OFF-T/R-T/R/G-DIAL LIGHT: OFF position.
- SQUELCH: Fully counterclockwise.
- VOL: Fully clockwise.
- SWITCH S1 (junction box): Open position.
- SWITCH S2 (junction box): Open position.

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M6	Record percentage of modulation at 225.0, 304.7, and 399.9 mc.	Oscilloscope AN/USM-105A.	Not less than 70-percent modulation for an input of 1.0 volt and clipping shall just start between 70 and 90 percent.
PROCEDURE: Connect Adjustable Attenuator DA-233 between antenna connector 1A9J28(A45) on RT-695/PRC-41 and R-F Wattmeter AN/URM-43C. Connect the output of DA-233 to input of			

Figure 5-10. Preventive Maintenance Test, M6 (Sheet 1 of 2)

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STEP M6			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
M6	<p>Transfer Oscillator CM-102/USM-73. Connect VIDEO output of CM-102/USM-73 to Oscilloscope AN/USM-105A. Connect junction box (refer to figure 5-1) to one of AUDIO connectors on front panel of RT-695/PRC-41. Connect Audio Oscillator TS-382B/U to MIC INPUT jack on junction box. Connect Multimeter TS-505/U to MIC INPUT (OPEN CIRCUIT) jack on junction box. Set OFF-T/R-T/R/G-DIAL LIGHT switch on front panel of RT-695/PRC-41 to T/R position and adjust frequency control knobs for a frequency of 225.0 mc. Apply power to test equipment. Allow 10 minutes for warmup. Close switch S1 on junction box and adjust frequency of Transfer Oscillator CM-102/USM-73 to produce a difference frequency of approximately 200 kc on AN/USM-105A. Adjust signal input level of TS-382B/U for 1 volt (open circuit) at 1000 cps as measured on TS-505/U. Remove TS-505/U from the MIC INPUT (OPEN CIRCUIT) jack. Close switch S2 on junction box and adjust Oscilloscope AN/USM-105A to obtain a modulation envelope pattern. Calculate percentage of modulation according to following formula.</p> $\frac{(P \text{ to } P) - (V \text{ to } V) \times 100}{(P \text{ to } P) + (V \text{ to } V)}$ <p>Percent modulation =</p> <p>Check percent of modulation at 304.7 and 399.9 mc.</p>		

Figure 5-10. Preventive Maintenance Test, M6 (Sheet 2 of 2)

STEP SA1			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
<p>OPERATING CONDITIONS AND CONTROL SETTINGS:</p> <p>Remove primary power from Radio receiver-Transmitter RT-695/PRC-41 and remove dust cover.</p>			
SA1	Visually inspect detail parts of each module.	Visual.	Detail parts and wiring of modules of RT-695/PRC-41 shall show no visual evidence of damage or deterioration.
<p>PROCEDURE: Remove Radio Receiver-Transmitter RT-695/PRC-41 modules from main chassis. Remove module side covers and visually inspect each module for evidence of charred or discolored wiring and detail parts, or other indications of damage.</p>			

Figure 5-11. Preventive Maintenance Test, SA1

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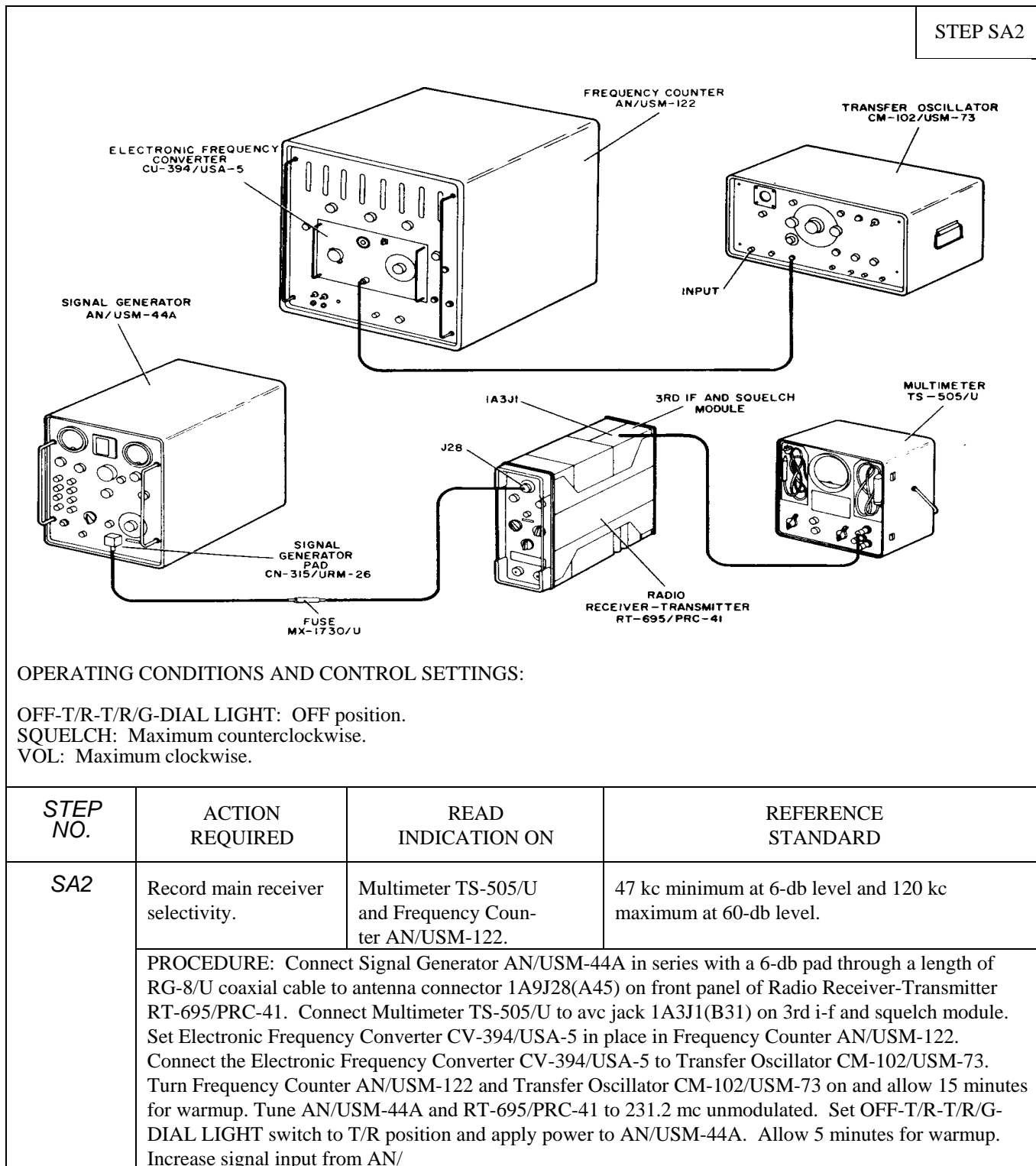


Figure 5-12. Preventive Maintenance Test, SA2 (Sheet 1 of 2)

STEP SA2			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
SA2	USM-44A until a main receiver avc reference level of +5 volts is indicated on TS-505/U. Increase AN/USM-44A signal output 6 db. Increase output frequency of AN/USM-44A until TS-505/U again indicates +5 volts. Remove AN/USM-44A output connection from J28(A45) on front panel of RT-695/PRC-41 and connect it to input on Transfer Oscillator CM-102/USM-73, and record frequency at this point. Reconnect output of AN/USM-44A to P8 on RT-695/PRC-41, decrease output frequency until +5 volts is again obtained, and record frequency at this point. The difference between two measured frequencies is bandwidth at 6-db point. Repeat this procedure at 60-db level. Check bandwidth at 304.7 and 399.9 mc.		

Figure 5-12. Preventive Maintenance Test, SA2 (Sheet 2 of 2)

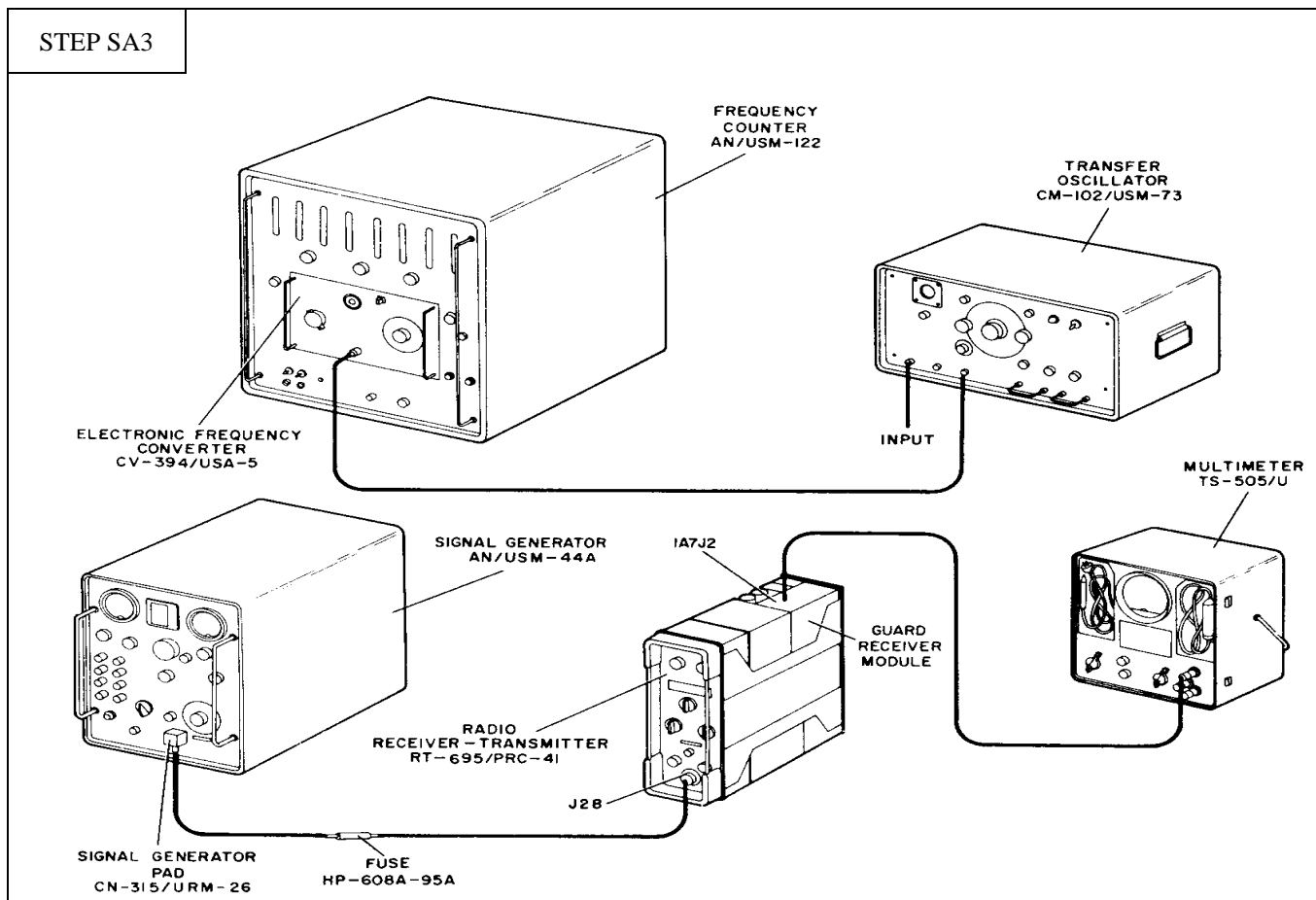


Figure 5-13. Preventive Maintenance Test, SA3 (Sheet 1 of 2)

STEP SA3			
<p>OPERATING CONDITIONS AND CONTROL SETTINGS:</p> <p>OFF-T/R-T/R/G-DIAL LIGHT: OFF position. SQUELCH: Maximum counterclockwise. VOL: Maximum clockwise.</p>			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
SA3	Record guard receiver selectivity.	Multimeter TS-505/U and Frequency Counter AN/USM-122.	50 kc minimum at 6-db point and not more than 200 kc at 60-db level.
<p>PROCEDURE: Connect Signal Generator AN/USM-44A in series with a 6-db pad through a length of RG-8/U coaxial cable to antenna connector 1A9J28(A45) on the front panel of Radio Receiver-Transmitter RT-695/PRC-41. Connect Multimeter TS-505/U to avc jack 1A7J2(H36) on guard receiver module. Set Electronic Frequency Converter CV-394/USA-5 in place in Frequency Counter AN/USM-122. Connect Electronic Frequency Converter CV-394/USA-5 to Transfer Oscillator CM-102/USM-73. Turn Frequency Counter AN/USM-122 and Transfer Oscillator CM-102/USM-73 on and allow 15 minutes for warmup. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R/G position and apply power to AN/USM-44. Allow 5 minutes for warmup. Tune AN/USM-44A to 243.0 mc unmodulated. Increase signal input from AN/USM-44A until a guard receiver avc reference level of +3 volts is indicated on TS-505/U. Increase AN/USM-44A signal output 6 db. Increase output frequency of AN/USM-44A until TS-505/U again indicates +3 volts. Remove AN/USM-44A output connection from 1A9J28(A45) on the front panel at RT-695/PRC-41 and connect it to input on Transfer Oscillator CM-102/USM-73, and record frequency at this point. Reconnect output of AN/USM-44A to antenna connector 1A9J28(A45) on RT-695/PRC-41, decrease output frequency until +3 volts is again obtained, and record frequency at this point. Repeat this procedure at 60-db level.</p> <p style="text-align: center;">CAUTION</p> <p>Be very careful not to key Radio Receiver-Transmitter RT-695/PRC-41 with Signal Generator AN/USM-44A connected to antenna connector 1A9J28(A45). Fuse HP-608A95A provides protection in event RT-695/PRC-41 is accidentally keyed. Application of transmitter output power to signal generator output will result in attenuator damage.</p>			

Figure 5-13. Preventive Maintenance Test, SA3 (Sheet 2 of 2)

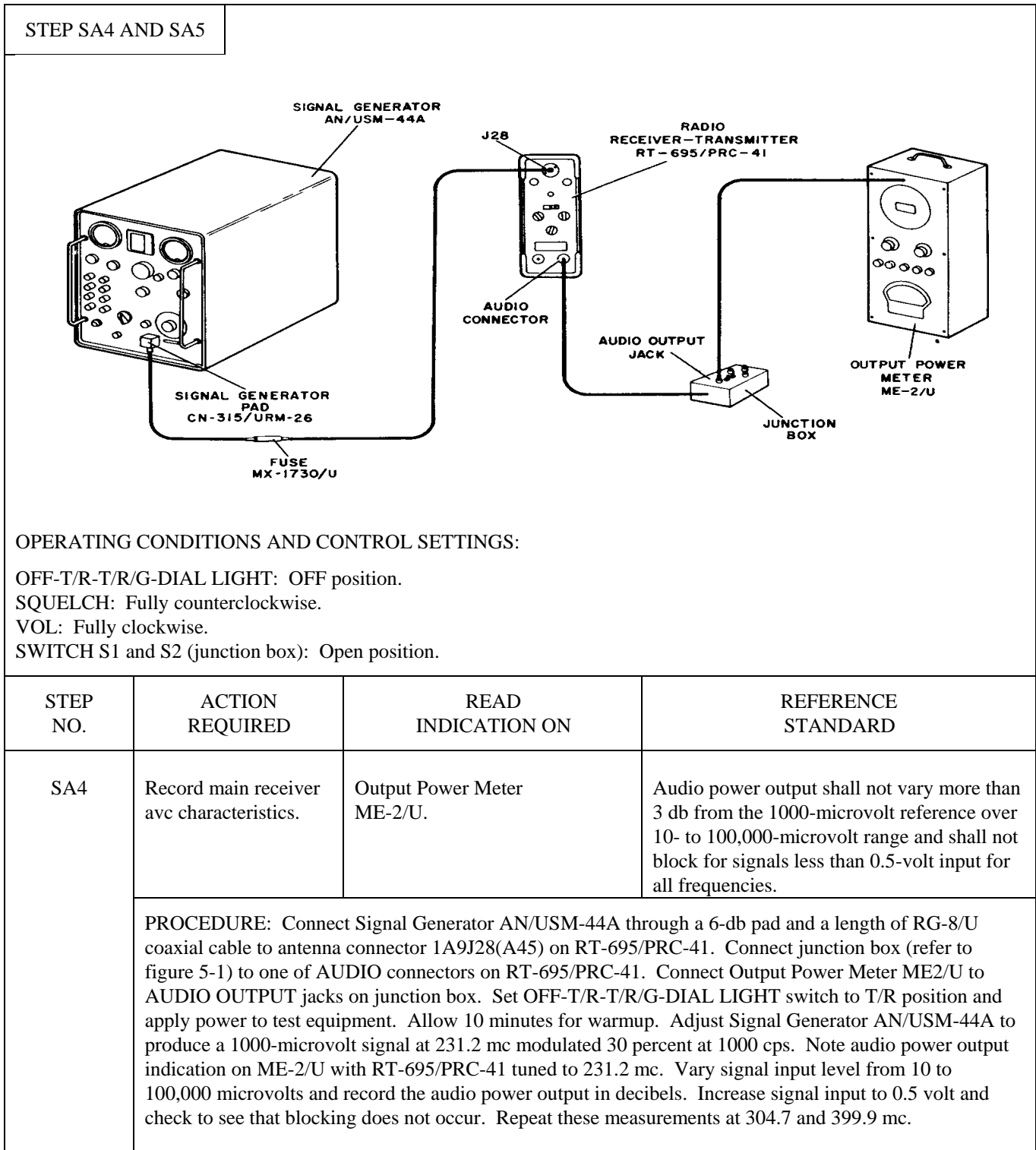


Figure 5-14. Preventive Maintenance Test, SA4 and SA5 (Sheet 1 of 2)

STEP SA4 AND SA5			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
SA5	Record main receiver audio power output.	Output Power Meter ME-2/U.	Audio output shall be at least 50 milliwatts.
<p>PROCEDURE: Connect Signal Generator AN/USM-44A through a 6-db pad and a length of RG-8/U coaxial cable to antenna connector 1A9J28(A45) on RT-695/PRC-41. Connect junction box (refer to figure 5-1) to one of AUDIO connectors on RT-695/PRC-41. Connect Output Power Meter ME2/U to AUDIO OUTPUT jacks on junction box. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R position and apply power to test equipment. Allow 10 minutes for warmup. Set AN/USM-44A to 304.7-mc, 1000-microvolt output modulated 30 percent with 1000 cps. Record audio power output.</p>			

Figure 5-14. Preventive Maintenance Test, SA4 and SA5 (Sheet 2 of 2)

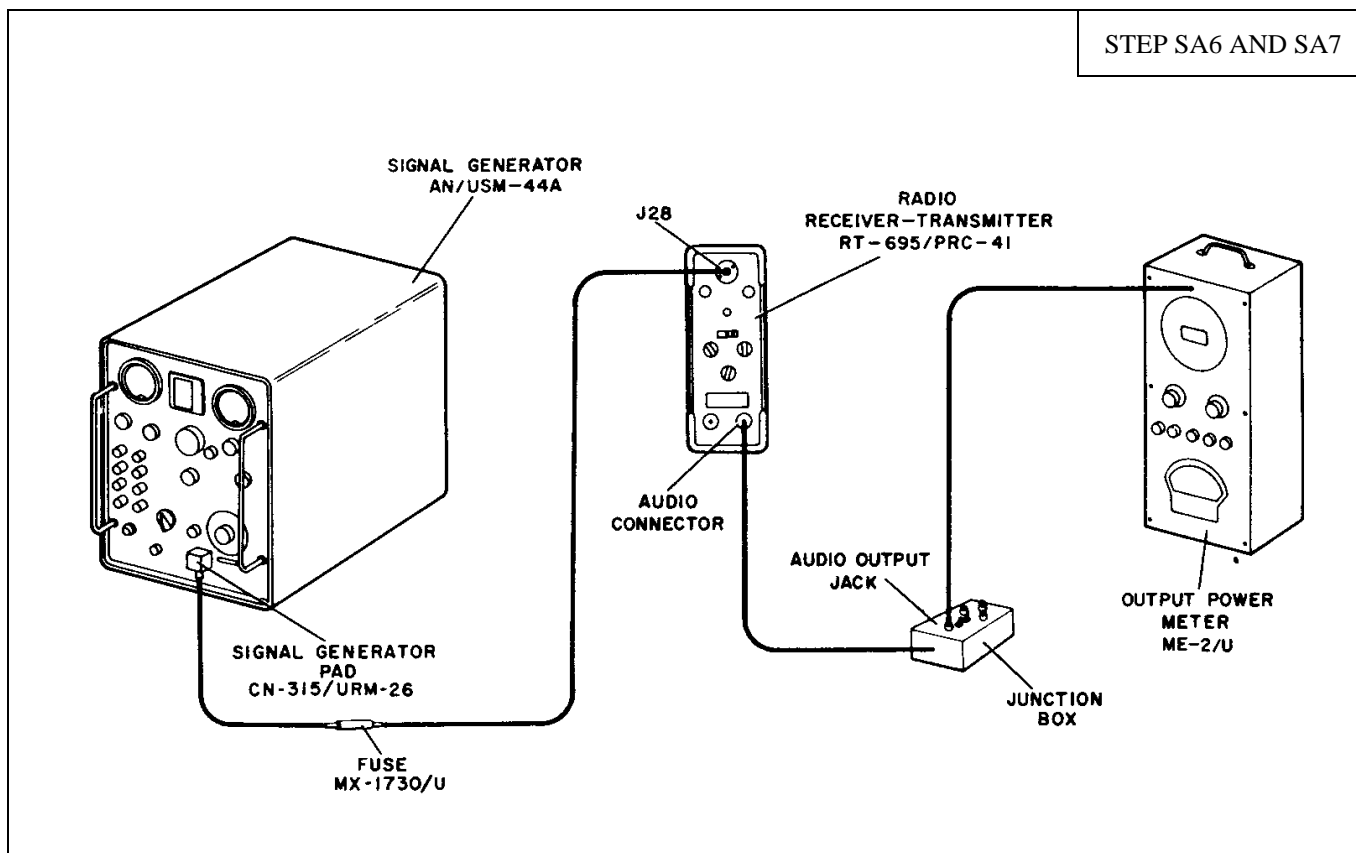
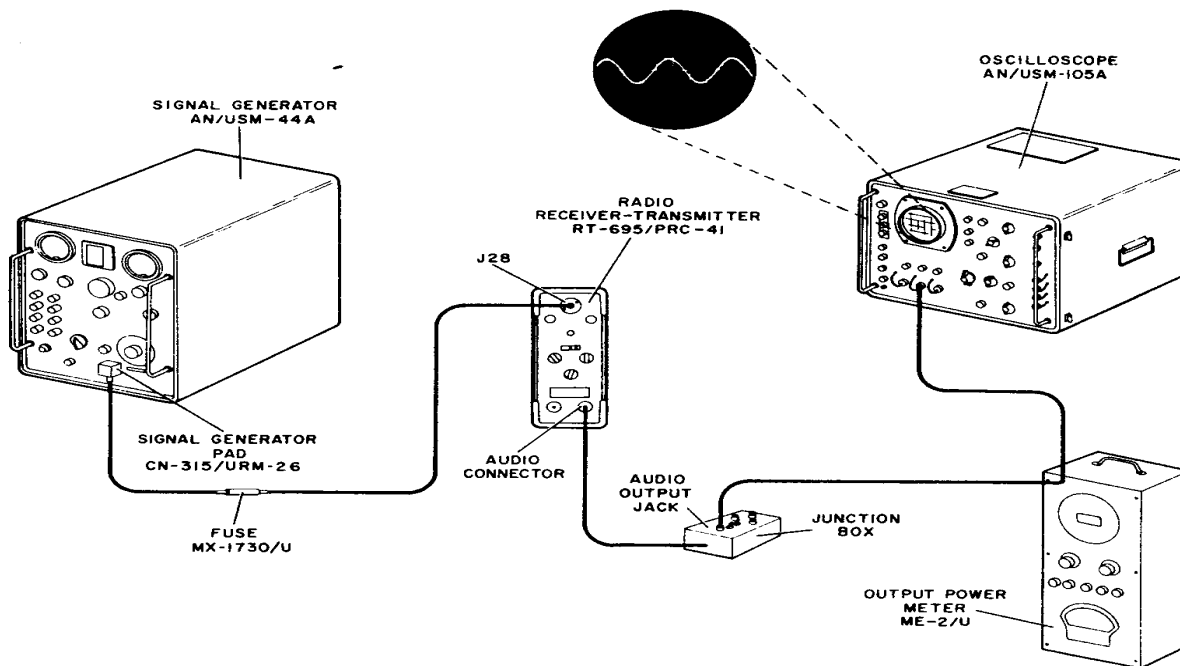


Figure 5-15. Preventive Maintenance Test, SA6 and SA7 (Sheet 1 of 2)

STEP SA6 AND SA7			
<p>OPERATING CONDITIONS AND CONTROL SETTINGS: OFF-T/R-T/R/G-DIAL LIGHT: OFF position. SQUELCH: Maximum counterclockwise. VOL: Maximum clockwise. S1 and S2 SWITCH(junction box): Open position.</p>			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
SA6	Record guard receiver avc characteristics.	Output Power Meter ME-2/U.	Audio power output shall not vary more than 3 db from 1000-microvolt reference over 10 . to 100,000-microvolt range and shall not block signals less than 0.5-volt input for all frequencies:
	<p>PROCEDURE: Connect Signal Generator AN/USM44A through a 6-db pad and a length of RG-8/U coaxial cable to antenna connector 1A9J28(A45) on RT-695/PRC-41. Connect junction box (refer to figure 5-1) to one of AUDIO connectors on RT-695/PRC-41. Connect Output Power Meter ME2/U to AUDIO OUTPUT jack on junction box. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R/G position. Apply power to test equipment and allow 10 minutes for warmup. Adjust Signal Generator AN/USM-44A to produce a 1000-microvolt signal at 243.0 mc modulated 30 percent at 1000 cps. Note audio power output indication on ME-2/U with RT-695/PRC-41 tuned to 231.2 mc. Vary signal input level from 10 to 100,000 microvolts and record audio power output in decibels. Increase signal input to 0.5 volt and check to see that blocking does not occur.</p>		
SA7	Record guard receiver audio power output.	Output Power Meter ME-2/U.	Audio output shall be at least 50 milliwatts.
	<p>PROCEDURE: Connect Signal Generator AN/USM-44A through a 6-db pad and a length of RG-8/U coaxial cable to antenna connector 1A9J28(A45) on RT-695/PRC-41. Connect junction box to one of AUDIO connectors on RT-695/PRC-41. Connect Output Power Meter ME-2/U to AUDIO OUTPUT jacks on junction box. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R/G position. Apply power to test equipment and allow 10 minutes for warmup. Set AN/USM-44A to 243,0-mc, 1000microvolt output, modulated 30 percent with 1000 cps. Record audio power output.</p>		

Figure 5-15. Preventive Maintenance Test, SA6 and SA7 (Sheet 2 of 2)

STEP SA8 AND SA9



OPERATING CONDITIONS AND CONTROL SETTINGS:

- OFF-T/R-T/R/G-DIAL LIGHT: OFF position.
- SQUELCH: Maximum counterclockwise.
- VOL: Maximum clockwise.
- S1 and S2 SWITCH (junction box): Open position.

STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
SA8	Observe main receiver output waveform on Oscilloscope AN/USM-105A.	Oscilloscope AN/USM-105A.	Observe waveform. For a sine wave modulation input, a sine wave output should be obtained.
<p>PROCEDURE: Connect Signal Generator AN/USM-44A through a 6-db pad and a length of RG-3/U coaxial cable to antenna connector 1A9J28(A45) on RT-695/PRC-41. Connect junction box to one of AUDIO connectors on RT-695/PRC-41. Connect Oscilloscope AN/USM-105A to AUDIO OUTPUT jack on junction box. Set OFF-T/R-T/R/G-DIAL LIGHT switch to T/R position and apply power to test equipment. Allow 10 minutes for warmup. Adjust Signal Generator AN/USM-44A to produce a 1000-microvolt signal at 225.0 mc modulated 30 percent at 1000 cps. Observe audio output waveform on AN/USM-105A. Repeat procedure for 304.7 and 399.9 mc.</p>			

Figure 5-16. Preventive Maintenance Test, SA8 and SA9 (Sheet 1 of 2)

STEP SA8 AND SA9			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
SA9	Observe guard output waveform on AN/USM-105A.	Oscilloscope AN/USM-105A.	Observe waveform. For a sine wave modulation input a sine wave output should be obtained.
<p>PROCEDURE: Connect Signal Generator AN/USM-44A through a 6-db pad and a length of RG-8/U coaxial cable to antenna connector 1A9J28(A45) on RT-695/PRC-41. Connect junction box to one of AUDIO connectors on RT-695/PRC-41. Connect Oscilloscope AN/USM-105A to AUDIO OUTPUT jack on junction box. Adjust SQUELCH control to maximum clockwise position. Set OFF/T-R/T/G-DIAL LIGHT switch to T/R/G position. Apply power to test equipment and allow 10 minutes for warmup. Adjust Signal Generator AN/USM-44A to produce a 1000-microvolt signal at 243.0 mc modulated 30 percent at 1000 cps. Observe audio output waveform on AN/USM-105A.</p>			

Figure 5-16. Preventive Maintenance Test, SA8 and SA9 (Sheet 2 of 2)

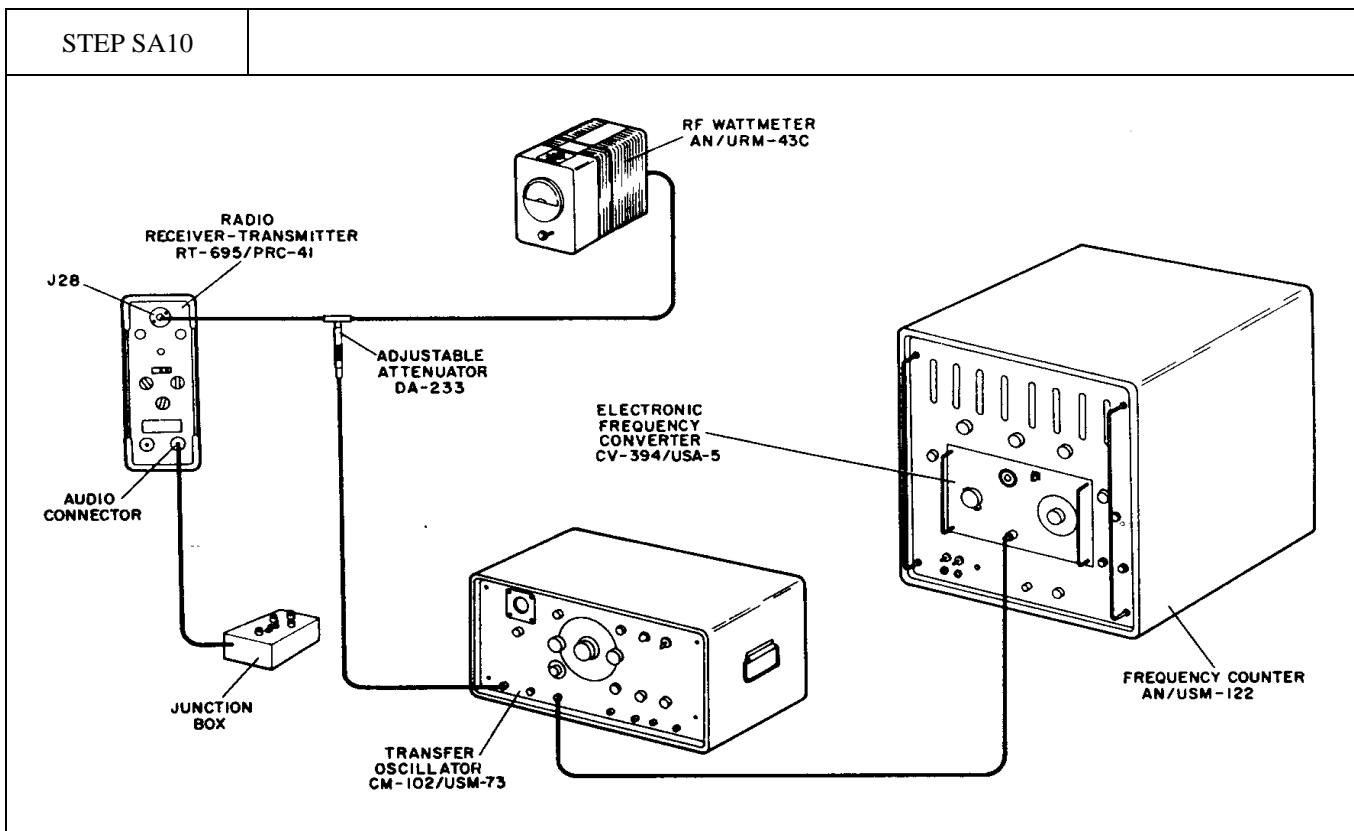


Figure 5-17. Preventive Maintenance Test, SA10 (Sheet 1 of 2)

			STEP SA10
<p>OPERATING CONDITIONS AND CONTROL SETTINGS: OFF-T/R-T/R/G-DIAL LIGHT: OFF position. SQUELCH: Fully counterclockwise. VOL: Fully clockwise. S1 and S2 SWITCH junction box): Open position.</p>			
STEP NO.	ACTION REQUIRED	READ INDICATION ON	REFERENCE STANDARD
SA10	Record transmitter output frequency stability at 225.1, 231.2, 244.9, 257.6, 260.3, 273.0, 286.7, 299.4, 304.7, 212.5, 324.3, 336.1, 348.0, 351.8, 363.6, 375.4, 387.2, and 399.9	Frequency Counter AN/USM-122.	Measured output frequency shall correspond within 15 kc to counter indication on RT-695/PRC-41.
<p>PROCEDURE: Connect Adjustable Attenuator DA-233 between antenna connector 1A9J28(A45) on RT-695/PRC-41 and R-F Wattmeter AN/URM-43C. Set Electronic Frequency Converter CV-394/USA-5 in place in Frequency Counter AN/USM-122. Connect output of DA-233 to input of Transfer Oscillator CM-102/USM-73. Connect frequency meter output of CM-102/USM-73 to input of Electronic Frequency Converter CV-394/USA-5. Set OFF-T/R-T/R/G-DIAL LIGHT switch in T/R position and apply power to the test equipment. Allow 10 minutes for warmup. Adjust frequency selector knobs on RT-695/PRC-41 to 225.1 mc. Set switch S1 on junction box to closed position. Measure output frequency on AN/USM-122. Repeat for frequencies listed above.</p>			

Figure 5-17. Preventive Maintenance Test, SA10 (Sheet 2 of 2)

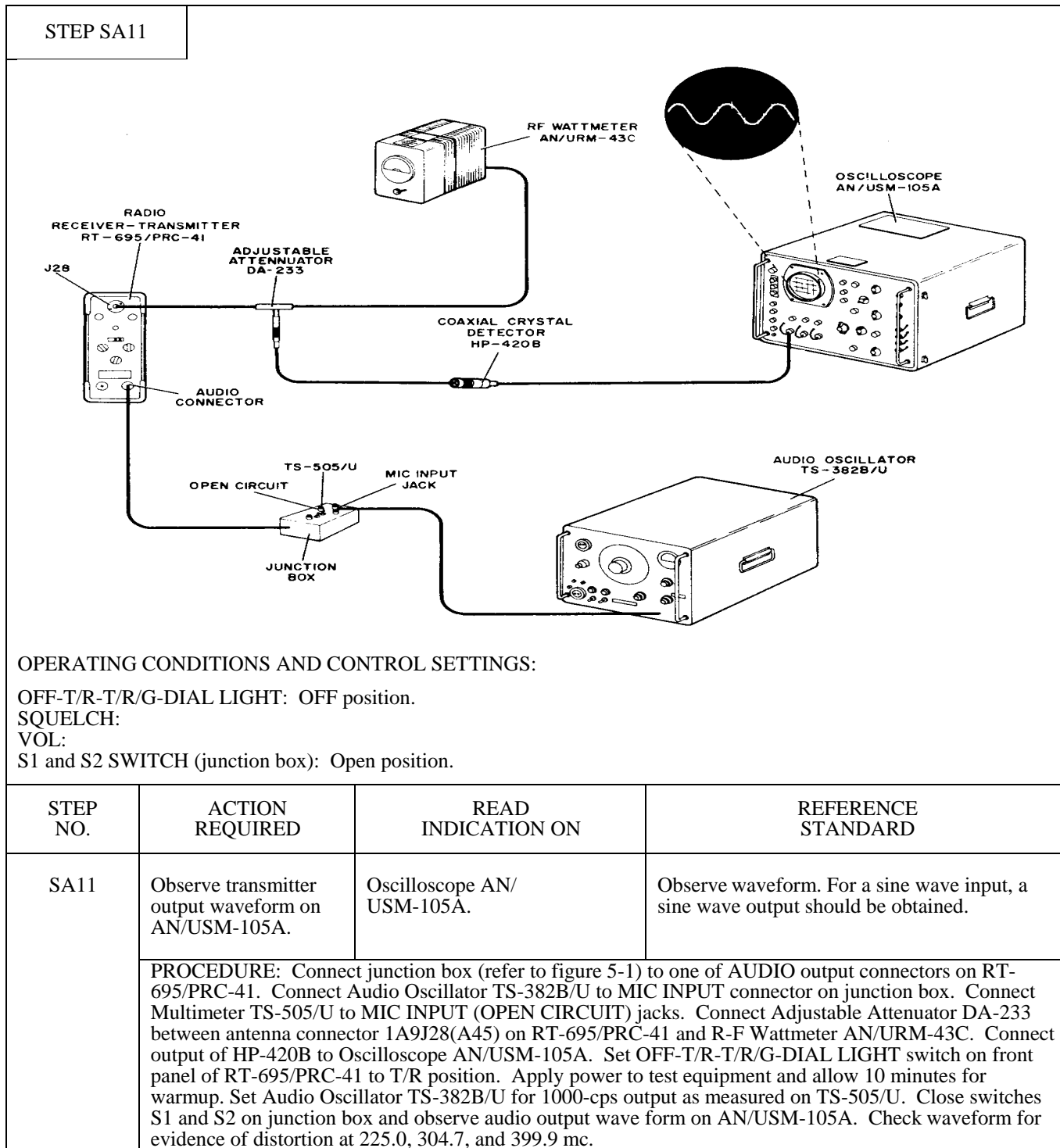


Figure 5-18. Preventive Maintenance Test, SA11

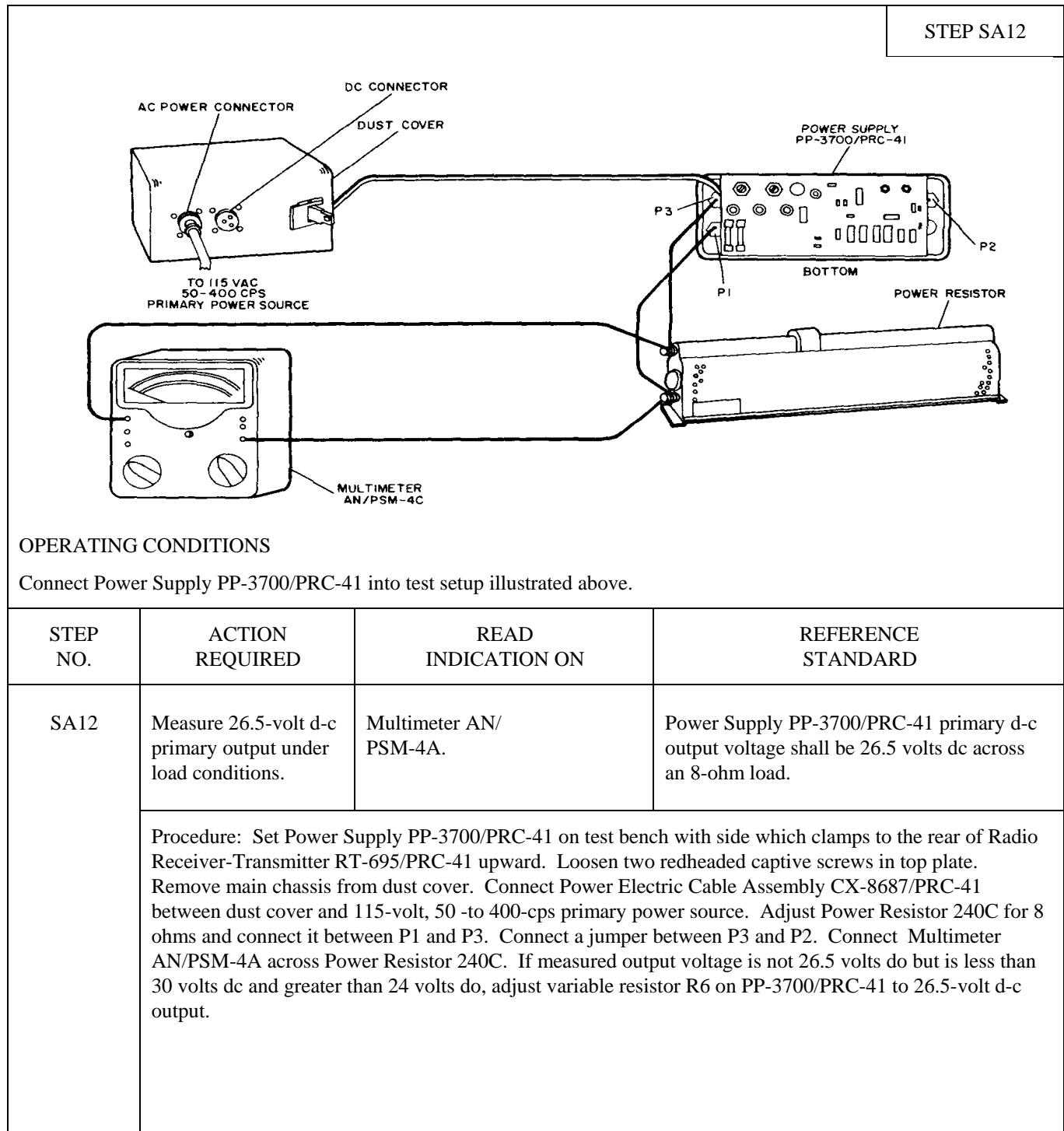


Figure 5-19. Preventive Maintenance Test, SA12

5-3. TUNING AND ADJUSTMENT.

a. GENERAL. - The following paragraphs contain alignment and adjustment procedures necessary to maintain optimum equipment performance. When performing over-all alignment of the equipment, the procedures must be performed in the order in which they occur in the following paragraphs. Before attempting alignment, read the complete alignment procedure carefully to become familiar with the steps involved. Do not attempt alignment of the equipment as a substitute for trouble isolation.

CAUTION

Retracking should be performed only when it has been established that misalignment (mistracking) is the cause of abnormal operation.

(1) TEST EQUIPMENT. - Each alignment or adjustment procedure lists the test equipment required to perform that procedure.

(2) SPECIAL TOOLS AND CABLES. - The special tools supplied with Radio Set Accessory Kit MK-706/PRC-41 are listed in table 1-5 and illustrated in figure 1-13. The special cables supplied with Radio Set Accessory Kit MK-706/PRC-41 are listed in table 1-4 and illustrated in figure 1-12. These special tools and cables are required for the performance of alignment and adjustment procedures.

(3) PRELIMINARY TEST SETUP. - Refer to figure 5-20. Remove the Receiver-Transmitter Case CY-3884/PRC-41 from Radio Receiver-Transmitter RT-695/PRC-41 and connect the d-c maintenance adapter to the rear of the RT-695/PRC-41. Connect Power Electric Cable Assembly CX-8687/PRC-41 between Power Supply PP-3700/PRC-41 and the 115-volt primary source. Connect Power Electric Cable Assembly CX-8686/PRC-41 between Power Supply PP-3700/PRC-41 and the d-c maintenance adapter. Connect Handset H-

33E/PT to one of the AUDIO connectors on the RT695/PRC-41. Before performing the alignment procedures, turn the equipment on and adjust the frequency selector knobs for 225.0 mc. (For removal of the 1st and 2nd i-f amplifier module, set the frequency selector knobs to 229.9 mc.) Set the OFF-T/R-T/R/G-DIAL LIGHT to the OFF position. and remove the spectrum generator, 1st and 2nd i-f amplifier, and r-f and power amplifier modules according to the procedures of paragraph 5-4b. Check the position of the couplers on the main chassis to see that they are in the relative positions shown in figure 5-21. If the main chassis couplers are properly positioned, replace these modules according to the module replacement procedures of paragraph 5-4g.

b. ALIGNMENT OF THE HIGH- AND LOW-FREQUENCY OSCILLATORS OF THE 1ST AND 2ND I-F AMPLIFIER MODULE.

(1) TEST EQUIPMENT REQUIRED.

(a) Multimeter TS-505/U.

(2) ALIGNMENT SETUP.

(a) Perform the preliminary test setup procedure of paragraph 5-3a(3).

(b) Set the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 329.0 mc.

(c) Connect Multimeter TS-505/U to test jack 1A2J1(C19).

(d) Turn the OFF-T/R-T/R/G-DIAL LIGHT switch to the T/R position and allow 10 minutes for the equipment to warm up.

(3) PROCEDURE.

(a) Adjust the 26.1 high-frequency oscillator slug (located on the top of the 1st and 2nd i-f amplifier module) for maximum reading on Multimeter TS-505/U (read approximately -0.7 volt do).

(b) Change the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 328.0 mc and adjust the 25.1 high-frequency oscillator slug in the same way as described for the adjustment of the 26.1 high-frequency oscillator slug in (a) above.

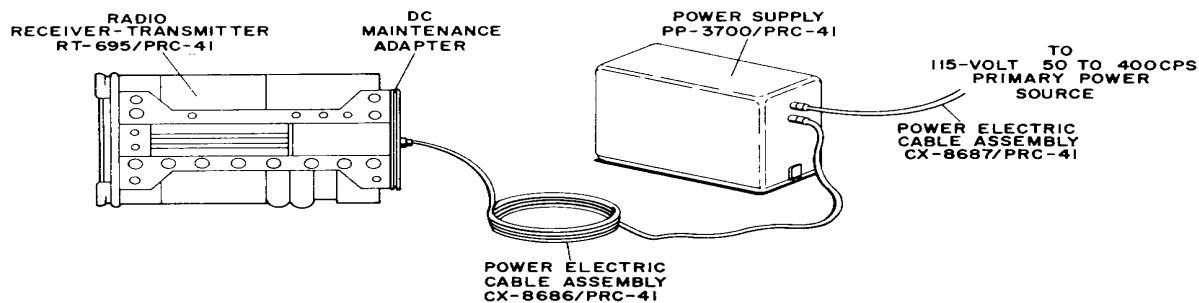


Figure 5-20. Radio Receiver-Transmitter RT-695/PRC-41, Standard Test Bench Setup

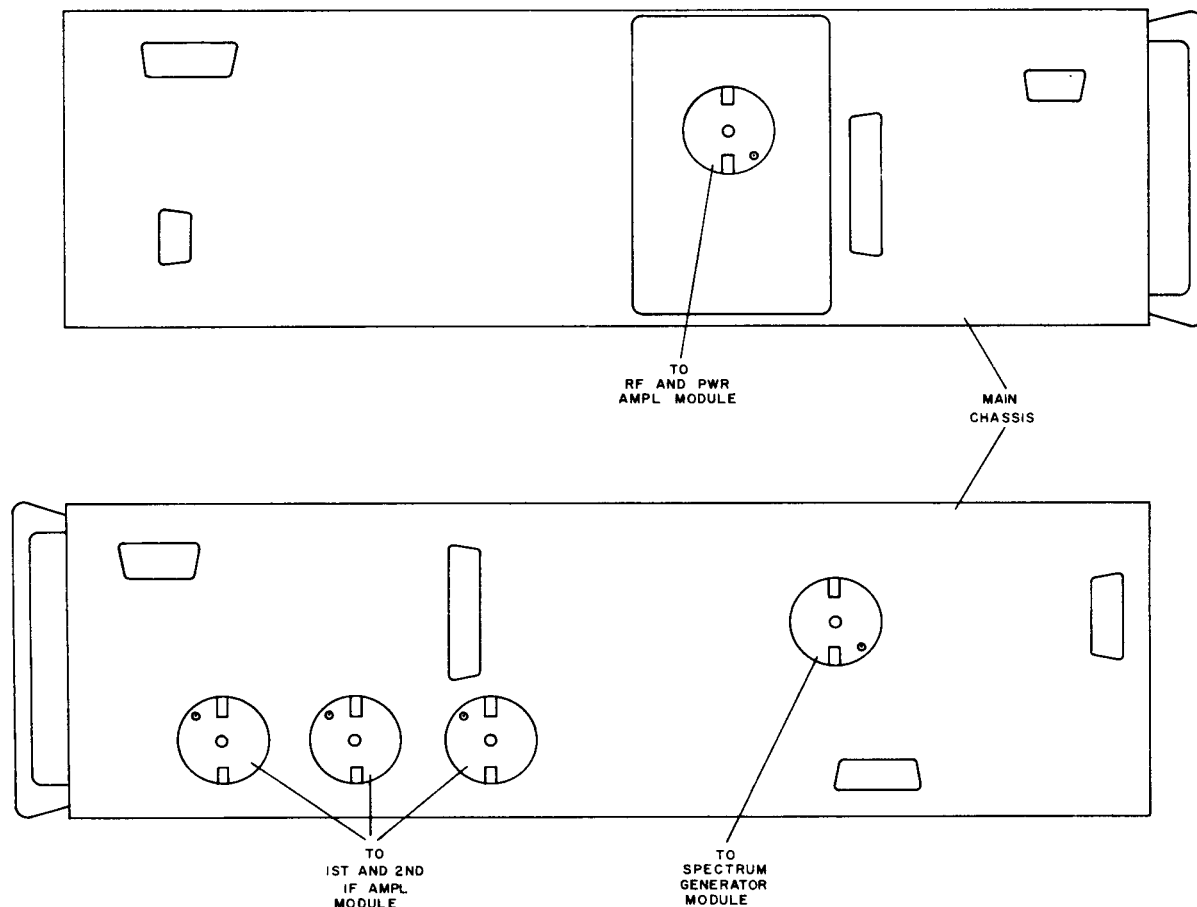


Figure 5-21. Main Chassis Couplers in the 225-Mc Position

(c) Adjust the 24.1 high-frequency oscillator slug with the frequency selector knobs set to 327.0 mc in the same way as (a).

(d) Adjust the 23.1 high-frequency oscillator slug with the frequency selector knobs set to 326.0 mc in the same way as (a).

(e) Adjust the 22.1 high-frequency oscillator slug with the frequency selector knobs set to 325.0 mc in the same way as (a).

(f) Adjust the 21.1 high-frequency oscillator slug with the frequency selector knobs set to 324.0 mc in the same way as (a).

(g) Adjust the 20.1 high-frequency oscillator slug with the frequency selector knobs set to 323.0 mc in the same way as (a).

(h) Adjust the 19.1 high-frequency oscillator slug with the frequency selector knobs set to 322.0 mc in the same way as (a).

(i) Adjust the 18.1 high-frequency oscillator slug with the frequency selector knobs set to 321.0 mc in the same way as (a).

(j) Adjust the 17.1 high-frequency oscillator slug with the frequency selector knobs set to 320.0 mc in the same way as (a).

(k) Switch back through the range of the frequency selector knobs to 329.0 mc and observe that Multimeter TS-505/U reads approximately 0.5 to 1.0 volt on each 1-me position between 329.0 and 320.0 mc.

(l) Connect Multimeter TS-505/U to test jack 1A2J2(C23) and measure approximately 2.5 volts for each setting of the 1-me frequency selector knob. This indicates that the low-frequency oscillator is functioning properly. If this reading is not obtained, refer to the applicable trouble-shooting procedures of section 4.

ORIGINAL

c. ALIGNMENT OF THE 1ST AND 2ND I-F AMPLIFIER STAGES OF THE 1ST AND 2ND I-F AMPLIFIER MODULE.

(1) TEST EQUIPMENT REQUIRED.

- (a) Multimeter TS-505/U.
- (b) Signal Generator AN/USM-44A.
- (c) Oscilloscope AN/USM-105A.

(2) ALIGNMENT SETUP.

- (a) Perform the preliminary test setup procedure of paragraph 5-3a(3).
- (b) Connect Oscilloscope AN/USM-105A to 1A4J2(B39) as an aid in tuning the signal generator to the desired frequency and as a monitor during the alignment process.

(c) Set the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 329.0 mc.

(d) Connect Multimeter TS-505/U to avc test jack 1A3J1(B31).

(3) PROCEDURE.

(a) Connect Signal Generator AN/USM-44A to the input of the i-f module by removing plug 1A9P2 from jack 1A9J17(C42), connecting a BNC to Conhex adapter to 1A9P2, and connecting the AN/USM-44A to the BNC to Conhex adapter. Set the AN/USM-44A for 29.0 mc modulated 30 percent at 1000 cps.

(b) Increase the output level of the AN/USM-44A until a signal can just be tuned in by varying the AN/USM-44A frequency slightly around 29.0 mc. When the AN/USM-44A has been tuned in to exactly 29.0 mc as indicated by a maximum reading on Multimeter TS-505/U, decrease the output level of the AN/USM-44A until it is barely audible in Handset H-33E/PT.

(c) Adjust trimmer capacitors C2, C5, C8, C12, C15, and C20 for a maximum reading on the TS-505/U.

(d) Set the frequency selector knobs to 321.0 mc. Repeat step (b), except set Signal Generator AN/USM-44A to 21.0 mc and adjust inductor slugs L1, L2, L3, L4, L5, and L6 for a maximum reading on the TS-505/U.

(e) Repeat steps (c) and (d) until no further improvement is obtained.

(f) Set the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 329.9 mc.

(g) Set the AN/USM-44A for 29.9 mc modulated 30 percent at 1000 cps.

(h) Repeat step (b), except vary the AN/USM-44A frequency slightly about 29.9 mc.

(i) Adjust inductors L20, L22, and L24 for a maximum reading on the TS-505/U.

(j) Set the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 329.0 mc.

(k) Set the AN/USM-44A for 29.0 mc modulated 30 percent at 1000 cps.

(l) Repeat step (b).

(m) Adjust inductors L19, L21, and L23 for a maximum reading on the TS-505/U.

(n) Repeat steps (f) through (m) above until no further improvement is observed. A fairly good signal should be received with 10-microvolt or less output from the AN/USM-44A.

(o) Remove Signal Generator AN/USM-44A and reconnect plug 1A9P2 to jack 1A9J17(C42).

(p) Remove the modulator module from the main chassis according to the removal procedure of paragraph 5-4b in order to remove the B+ voltage from the final stages. This is to prevent damage to the final stages if they are not properly tuned.

(q) Connect Multimeter TS-505/U to test jack 1A2J3(C17). Set the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 329.9 mc.

(r) Press the press-to-talk button on Handset H-33E/PT and adjust capacitors 1A2C33 and 1A2C20 for a maximum negative reading on the TS-505/U.

(s) Release the press-to-talk button and replace the modulator module according to the replacement procedure of paragraph 5-4g.

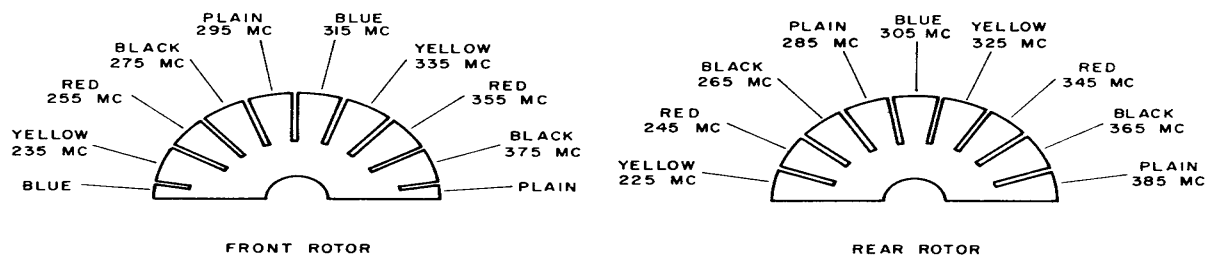


Figure 5-22. Spectrum Generator Module, Tuning Capacitor Rotor Tab Z1, Z2, and Z3, Adjustment Diagram

d. ALIGNMENT OF THE SPECTRUM GENERATOR MODULE.

(1) TEST EQUIPMENT REQUIRED.

(a) Multimeter TS-505/U.

(2) ALIGNMENT SETUP.

(a) Perform the preliminary test setup procedure of paragraph 5-3a(3).

(b) Set the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 399.9 mc.

(c) Connect Multimeter TS-505/U to test jack 1A5J2(G21).

(d) Turn the OFF-T/R-T/R/G-DIAL LIGHT switch to the T/R position and wait for the equipment to warm up for 5 minutes.

(3) PROCEDURE.

(a) Adjust trimmer capacitors C10, C15, and C20 for a maximum reading on the TS-505/U.

(b) Turn Radio Receiver-Transmitter RT-695/PRC-41 off and remove the left side cover.

(c) Remove 12 cross-recessed screws from the rear main chassis plate and dress this plate clear of the rear of the main chassis. Loosen the captive screws on the spectrum generator module

and remove the module. Be very careful not to turn the coupler on the spectrum generator module as it is being removed. Loosen six screws from the rear side of the module and remove the rear side cover. Reinstall the spectrum generator module on the main chassis according to the replacement procedure of paragraph 5-4g.

(d) Turn the OFF-T/R-T/R/G-DIAL LIGHT switch to the T/R position and allow the equipment to warm up.

(e) With Multimeter TS-505/U connected to test jack 1A5J1(G16) and frequency selector knobs set at 395.0 mc, adjust the oscillator tuning slug for a maximum reading on the TS-505/U. (The oscillator tuning slug is accessible from the top of the spectrum generator module.)

(f) Repeat step (e) for each 10-mc increment down through 225.0 mc.

(g) With Multimeter TS-505/U connected to test jack 1A5J2(G21), turn the 10-mc frequency selector knob throughout its range. Observe the reading on the TS-505/U to determine that an output is obtained at all positions of the frequency selector knob.

(h) Set the frequency selector knobs to 399.9 mc and adjust trimmer capacitors 1A5C10, 1A5C15, and 1A5C20 for maximum reading on the TS-505/U.

(i) Set the frequency selector knobs to 389.9 mc. Refer to figure 5-22. Bend the rotor blade segment which has just come into reach with the stator on tuned circuits Z1, Z2, and Z3 to obtain a maximum reading on the TS-505/U.

Note

All adjustment tabs are coded with a dot of colored paint, as specified in the applicable tuning capacitor rotor tab illustration. The tab to be adjusted is identified further as the one partially meshed.

CAUTION

Never bend tabs out beyond a 40-degree angle. Excessive inward bending will cause tab to short against the stator. If a tuned circuit is far from resonance, it may be caused by a circuit discontinuity. If this occurs, check inductance arm contacts and inductance rings for proper contact.

(j) Change the frequency selector knobs to 379.9 mc. Bend the rotor segment which has come into mesh with the stator on tuned circuits Z1, Z2, and Z3 to obtain a maximum reading on the TS-505/U.

(k) Repeat step (g) above for each 10mc increment down to 229.9 mc inclusive. Refer to figure 5-23.

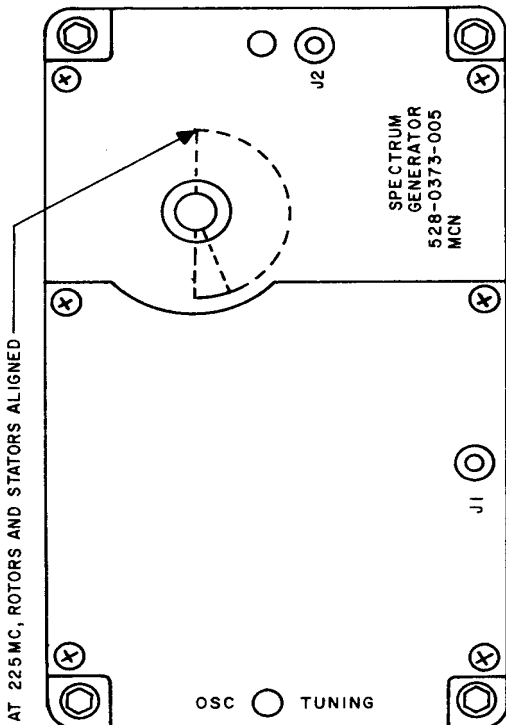


Figure 5-23. Spectrum Generator Module, Rotor-Stator Coincidence at 225-Mc

ORIGINAL

(l) Repeat steps (g) through (k) until no further improvement is obtained.

(m) Repeat steps (e) and (f).

(n) Remove the spectrum generator module, replace its side cover, and reinstall it on the main chassis. Replace rear main chassis plate.

Note

The configuration of the tabs after adjustment should be a smooth contour with no sharp discontinuities. Rechannel the equipment after each tab is bent to remove any backlash of the gears.

e. ALIGNMENT OF THE R-F AND POWER AMPLIFIER MODULE.

(1) TEST EQUIPMENT REQUIRED.

- (a) Multimeter TS-505/U.
- (b) Oscilloscope AN/USM-105A.
- (c) Signal Generator AN/USM-44A.
- (d) R-F Wattmeter AN/URM-43C.

(2) ALIGNMENT SETUP.

(a) Perform the preliminary test setup procedure of paragraph 5-3a(3).

(b) Connect Oscilloscope AN/USM105A to test jack 1A4J2(B39) on the audio module.

(c) Connect Multimeter TS-505/U to avc test jack 1A3J1(B31) on the 3rd i-f and squelch module.

(d) Connect Signal Generator AN/USM-44A to antenna connector 1A9J28 on the front panel of Radio Receiver-Transmitter RT-695/PRC-41.

(e) Set the frequency selector knobs on the Radio Receiver-Transmitter RT-695/PRC-41 to 399.9 mc.

(f) Set Signal Generator AN/USM-44A to 399.9 mc modulated 30 percent at 1000 cps.

(g) Turn the OFF-T/R-T/R/G-DIAL switch to the T/R position and wait for the equipment to warm up.

(h) Advance the output level of the AN/USM-44A until the 399.9 mc signal may be tuned in by varying the AN/USM-44A slightly about the 399.9 mc signal and by observing a maximum reading on the TS-505/U.

(f) Reduce the output level of the AN/USM-44A until the signal is just barely audible in Handset H-33E/PT

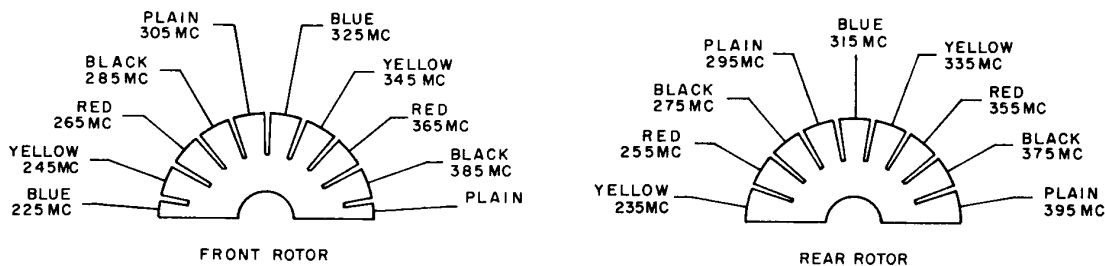


Figure 5-24. R-F and Power amplifier Module, Tuning Capacitor Rotor Tab Z1, Z2, and Z3, Adjustment Diagram

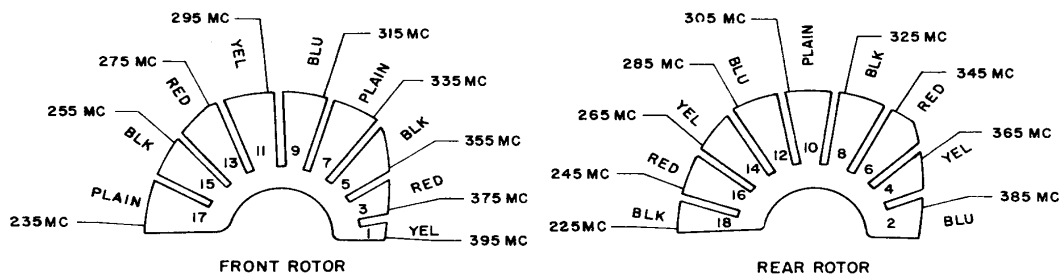


Figure 5-25. R-F and Power Amplifier Module, Tuning Capacitor Rotor Tab Z4, and Z5, Adjustment Diagram

(3) PROCEDURE.

- (a) Adjust capacitors C7, C12, C18, Cal, and C27 for maximum reading on the TS-505/U,
- (b) Change the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 389.9 mc.
- (c) Tune the AN/USM-44A to 389.9 mc by performing the procedures of steps 5-3e(2)(f) and 5-3e(2)(h).
- (d) Bend the rotor tab which has just come into mesh with the stator on tuned circuits Z1 through Z5 for a maximum reading on the TS-505/U. Refer to figures 5-24 and 5-25.

Note

All adjustment tabs are coded, with a dot of colored paint, as specified in the applicable tuning capacitor rotor tab illustration. The tab to be adjusted is identified further as the one partially meshed.



Never bend tabs out beyond a 40-degree angle. Excessive inward bending will cause tab to short against the stator. If a tuned circuit is far from resonance, it may be caused by a circuit discontinuity. If this occurs, check inductance arm contacts and inductance rings for proper contact.

- (e) Repeat rotor tab bending for each 10-mc increment on down to 299.9 mc on tuned circuits Z1 through Z5.

- (f) Set the frequency selector knobs on the RT-695/PRC-41 to 225.0 mc and bend the last rotor tab on tuned circuits Z1 through Z5 for a maximum reading on the TS-505/U.

- (g) Remove Signal Generator AN/USM-44A and connect R-F Wattmeter AN/URM-43C to antenna connector 1A9J28.

- (h) Set the frequency selector knobs on the RT-695/PRC-41 to 399.9 mc.

- (i) Press the press-to-talk button on Handset H-33E/PT.

- (j) Adjust capacitors C7, C12, C18, Cal, and C27 for a maximum reading on the AN/URM-43C.

- (k) Connect Multimeter TS-505/U to test jack 1A8J8(B9).

- (l) Readjust capacitors C18, C12, and C7 for a maximum reading on the TS-505/U.

- (m) Set the frequency selector knobs on the RT-695/PRC-41 to 389.9 mc.

- (n) Bend rotor tabs which have just come into mesh with the stator on tuned circuits Z5 and Z4 for maximum on R-F Wattmeter AN/URM-43C.

- (o) Bend the rotor tabs which have just come into mesh with the stator on tuned circuits Z3, Z2, and Z1 for maximum reading on the TS-505/U.

- (p) Repeat the procedures of steps 5-3e(3)(d) and 5-3e(3)(e) for each 10-mc increment down through 229.9 mc. Refer to figure 5-26.

Note

The configuration of the tabs after adjustment should be a smooth contour with no sharp discontinuities. Rechannel the equipment after each tab is bent to remove any backlash of the gears.

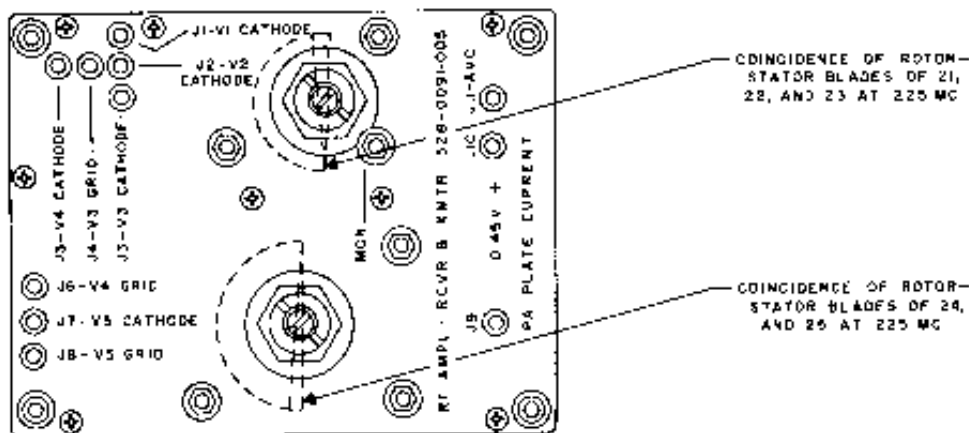


Figure 5-26. R-F and Power Amplifier Module Rotor-Stator Coincidence at 225-Mc

ORIGINAL

(q) Set the frequency selector knobs on the RT-695/PRC-41 to 225.0 mc and repeat steps 5-3e(3)(d) and 5-3e(3)(e).

f. ALIGNMENT OF THE GUARD RECEIVER MODULE.

(1) TEST EQUIPMENT REQUIRED.

- (a) Multimeter TS-505/U.
- (b) Signal Generator AN/USM-44A.
- (c) Oscilloscope AN/USM-105A.

(2) ALIGNMENT SETUP.

(a) Perform the preliminary test setup procedure of paragraph 5-3a(3).

(b) Connect Multimeter TS-505/U to test jack 1A7J2(H36) on the guard receiver module.

(c) Connect Oscilloscope AN/USM105A to test jack 1A4J2(B39) on the audio module.

(d) Connect Signal Generator AN/USM-44A through a 10-uuf capacitor to base 1 of 1A7Q5 (guard receiver module). Set Signal Generator AN/USM-44A to 20.55 mc modulated 30 percent at 1000 cps.

(e) Turn the OFF-T/R-T/R/G-DIAL LIGHT switch to the T/R/G position and wait for the equipment to warm up.

(f) Turn resistor 1A7R46 fully counterclockwise.

(3) PROCEDURE.

(a) Increase Signal Generator AN/USM-44A until a signal appears on the AN/USM -105A.

(b) Adjust L15, L14, L13, L12, L16, and L11 for maximum reading on TS-505/U.

Note

Maintain the output of Signal Generator AN/USM-44A at the minimum level which gives a usable indication on Oscilloscope AN/USM-105A throughout the tuning process.

(c) Adjust the AN/USM-44A for 20.57 mc and readjust L16 and L11 for a maximum indication on the TS-505/U.

(d) Remove Multimeter TS-505/U from test jack 1A7J2(H36) and connect it to test jack 1A7J1(G33).

(e) Adjust inductor L10 for a maximum reading on the TS -505/U. This reading will be approximately -2.0 volts. With inductor L10 not tuned, the reading will be zero.

(f) Remove plug 1A9P4 from jack 1A9J20(C44). Using the supplied adapter, connect Signal Generator AN/USM-44A to guard receiver input 1A9P4.

(g) Connect Multimeter TS-505/U to avc test jack 1A7J2(H36).

(h) Tune in AN/USM -44A by adjusting the output frequency at about the 243.0-mc signal using the minimum level to give an indication on the AN/USM -105A.

(f) Adjust capacitor C22 and inductor L6 for a maximum reading on the TS-505/U.

(j) Adjust capacitors C16, C12, C6, and C1 for a maximum reading on the TS-505/U.

(k) Repeat steps (i) and (j) until no further improvement is obtained.

g. FINAL ADJUSTMENTS.

(1) GENERAL. - After the foregoing alignment procedures have been completed, it is necessary to make the following final adjustments.

(a) 3RD I-F AND SQUELCH MODULE. - Make the final adjustment to the 3rd i-f and squelch module according to the following steps of procedure.

1. Set the frequency selector knobs on the RT-695/PRC-41 to 304.7 mc.

2. Connect Oscilloscope AN/-USM-105A to test jack 1A4J2(B39) on the audio module, and connect Multimeter TS-505/U to 1A8J11 on the r-f and power amplifier module.

3. Connect Output Power Meter ME-2/U to test jack 1A4J2(B39) set to provide a 300-ohm load for the audio module. Remove Handset H -33E/PT.

4. Connect Signal Generator AN/USM-44A to antenna connector 1A9J28 and tune the AN/USM-44A to 304.7 mc by varying the output signal about 304.7 mc and reading a maximum on the TS-505/U. Advance the AN/USM-44A output level to 20 microvolts with 30 percent modulation at 1000 Ups.

5. Adjust potentiometer 1A3R31 in a counterclockwise direction until the voltage begins to rise as indicated on the TS-505/U.

6. Advance the AN/USM-44A output level to 0.5 volt with 30-percent modulation at 1000 eps, and check to see that no blocking occurs as indicated on the AN/USM-105A. If blocking does occur, repeat steps 4 and 5 above, but for 10-microvolt input.

7. Reduce the AN/USM-44A to 1000 microvolts and adjust the modulation to 30 percent at 1000 cps.

8. Adjust potentiometer 1A4R20 to give 50 milliwatts on Output Power Meter ME-2/U.

9. Increase the AN/USM-44A modulation to 50 percent at 1000 cps.

10. Adjust potentiometer 1A3R26 in a clockwise direction until the signal just begins to clip on the AN/USM-105A.

(b) MODULATOR MODULE. - Make the final adjustments to the modulator module according to the following steps of procedure.

1. Connect R-F Wattmeter AN/URM-43A to antenna connector 1A9J28.

2. Connect junction box to one of the AUDIO connectors on the front panel of RT-695/PRC-41 (refer to paragraph 5-2a(3)(a)). Remove Handset H-33E/PT.

3. Connect Oscilloscope AN/-USM-105A to test jack 1A6J2(G12).

4. Connect Audio Oscillator TS-382B/U to the MIC INPUT jack on the junction box. Set the TS-382B/U output level for 1-volt open

circuit rms across the 82 Ω resistor with 1000-cps input.

5. Press the press-to-talk button on Handset H-33E/PT.

6. Adjust potentiometer 1A6R2 until the AN/USM-105A just barely shows evidence of clipping.

7. Unkey Radio Receiver-Transmitter RT-695/PRC-41.

(c) GUARD RECEIVER MODULE. Make the final adjustments to the guard receiver module according to the following steps of procedure.

1. Connect Multimeter TS-505/U to test jack 1A7J2(H36). Connect Oscilloscope AN/USM-105A to test jack 1A4J2(B39).

2. Connect Signal Generator AN/USM-44A to antenna connector 1A9J28 with the RT-695/PRC-41 in the T/R/G position.

3. Set Signal Generator AN/USM-44A to 243.0 mc and tune in its signal by varying the output about 243.0-mc signal until a maximum reading is observed on the TS-505/U.

4. Turn 1A7R46 counterclockwise until the guard receiver module is squelched off with Signal Generator AN/USM-44A set at 2-uv input.

5. Set AN/USM-44A to 243.0 mc, 1000 microvolts 30 percent modulated and adjust 1A4R19 for 50 milliwatts on Output Power Meter ME-2/U.

6. Set the main receiver and the AN/USM-44A to 329.9 mc, 1000 microvolts at 30 percent modulated, and readjust 1A4R20 for 50 milliwatts on Output Power Meter ME-2/U.

7. Repeat 5 3g(1) (c) 5 and 5-3g(1)(c)6 until 50 milliwatts is obtained on both the guard receiver and main receiver.

5-4. REPAIR.

a. REMOVAL, REPAIR, AND REPLACEMENT OF PARTS, MODULES, AND UNITS. - This subsection contains removal, disassembly, repair, reassembly, and replacement information of modules and assemblies of Radio Receiver-Transmitter RT-695/PRC-41. Remove Receiver-Transmitter Case CY-3884/PRC-41 from the RT-695/PRC-41 by loosening four redheaded captive screws at the rear of the CY-3884/PRC-41. The removal of the CY-3884/PRC-41 permits access to the modules of the RT-695/PRC-41. Repair procedures involve the isolation of a defective part by use of the troubleshooting procedures of section 4 and the removal and replacement of the defective detail part. Refer to paragraph 5-4c for disassembly procedures of the mechanical assemblies. Refer to paragraph 5-4e for reassembly procedures. All adjustments of this equipment are covered under paragraph 5-3a.

b. MODULE REMOVAL. - All modules of Radio Receiver-Transmitter RT-695/PRC-41 may be removed by loosening the redheaded captive screws and lifting the module upward. Set the frequency selector knobs on the front panel of the RT-695/PRC-41 to 229.9 mc before removing the 1st and 2nd i-f amplifier module. Set the

frequency selector knobs to 225.0 mc before removing either the spectrum generator or r-f and power amplifier modules.

c. DISASSEMBLY - A mechanical assembly must not be disassembled unless it has been determined to be absolutely necessary to correct a malfunction. Disassembly procedures must not be performed as a matter of exploratory trouble isolation. In most cases, trouble can be corrected by adjustment procedures and intelligent application of operational theory. If trouble is known to exist in a detail part or a small assembly of parts not readily accessible, use the disassembly instructions to provide a guide for complete disassembly. These instructions are not to infer that a module should be regularly disassembled, since the disassembly operation will disturb factory alignment. Use disassembly procedures, and disassemble the module only to the extent necessary to effect the required overhaul. Disassembly is limited to the removal of mechanical items such as gears, bearings, shafts, etc. Internal wiring, resistors, capacitors, or other electrical items are not removed unless such action is necessary for access to a part requiring overhaul. The module disassembly procedures make reference to exploded views which use reference designations for identifying detail parts and assemblies. While performing disassembly procedures, be very careful to avoid excessive strain on internal connections and to prevent distortion of shafts and rotor assemblies. A wiring diagram should be drawn as an aid to reassembly before removal of any part requiring unsoldering of several wires. This diagram should show any color coding or markings of the wires, and the approximate location and identity of the terminals to which they are connected. In cases where lacing is to be removed, or where the lead dress is important, this must also be shown.

CAUTION

Before removing matching or meshing parts, use a scribe or otherwise mark the relative positions of such parts to ensure correct reassembly.

(1) 1ST AND 2ND I-F AMPLIFIER MODULE. - Remove the 1st and 2nd i-f amplifier module from the main chassis of Radio Receiver-Transmitter RT-695/PRC-41 according to the procedures of paragraph 5-4b. To disassemble the 1st and 2nd i-f amplifier module, refer to figure 5-74 and perform the following steps of procedure.

(a) Z1, Z2, AND Z3 SLUG RACK. - To disassemble the Z1, Z2, and Z3 slug rack and to gain access to the amplifier subassembly, refer to figure 5-74 and perform the following steps of procedure.

1. Remove thirteen 2-56 x 3/16-inch self-locking screws, and remove amplifier covers MP16 and MP17 from electrical equipment chassis MP39.

2. From the bottom of the right front corner of the 1st and 2nd i-f amplifier module,

remove a 2-56 x 1/8-inch screw and a 2-56 nut, and remove captive screw H2.

3. Remove a spring pin from each of cams MP12 and MP13. Remove shouldered shaft MP14, cams MP12 and MP13, and two net washers H3. Remove the Z1, Z2, and Z3 slug rack MP22.

4. Remove three 4-40 x 1/8-inch and one 4-40 x 1/4 inch screws from the top of electrical equipment chassis MP39. Unsolder electrical connections at points A (figure 5-39) on wired bracket, coaxial lead and ground connection on amplifier subassembly, and remove two 2-56 x 1/4-inch screws to free relay K3. For further disassembly of amplifier subassembly, refer to figure 5-77.

(b) Z4, Z5, AND Z6 SLUG RACK. - To disassemble Z4, Z5, and Z6 slug rack, refer to figure 5-74 and perform the following steps of procedure.

1. Remove thirteen 2-56 x 3/16inch self-locking screws and remove amplifier covers MP16 and MP17 from electrical equipment chassis MP39.

2. Remove a spring pin from each of cams MP8 and MP9.

3. Remove the retaining ring from shouldered shaft MP11, two cams MP8 and MP9, and two flat washers H3. Remove the Z4, Z5, and Z6 slug rack upward.

(c) OSCILLATOR AND SWITCH BOARD, AND R-F COIL ASSEMBLIES. - To gain access to the detail parts of either the oscillator and switchboard assembly or the r-f coil assembly, remove amplifier cover MP16, remove the retaining ring from the shouldered shaft MP15, and remove shouldered shaft MP15 outward from electrical equipment chassis MP39. For further disassembly procedures, refer to figures 5-75 and 5-76. Refer to figure 5-74 for an exploded view of amplifier subassembly board number 1.

(2) R-F AND POWER AMPLIFIER MODULE. - Remove the r-f and power amplifier module from the main chassis of Radio Receiver-Transmitter RT-695/PRC-41 according to the procedures of paragraph 5-4b. To disassemble the r-f and power amplifier module, refer to figure 5-79 and perform the steps of procedure of either paragraph 5-4c(2) (a) or 5-4c(2)(b) as applicable.

(a) Z1, Z2, AND Z3 TUNED CIRCUITS. - To disassemble the Z1, Z2, and Z3 tuned circuits to gain access to a particular detail part, refer to figure 5-79 and perform the following steps of procedure.

1. Remove eight 2-56 x 1/8-inch cross-recessed screws and remove side cover MP19. Remove retaining ring MP1 from coupler MP5. Remove spring pin from shaft coupler MP4 and remove MP4 from the shaft of shaft gear MP22.

2. Remove two 6-32 x 1/2-inch cross-recessed screws from gear plate MP28 and remove gear plate MP28.

3. Gears MP41, MP21, MP22, and MP23 may be removed as required from bottom plate MP33. (Scribe shaft gear MP22 for reassembly.)

4. Loosen two setscrews in shaft collar MP6(1) and slide MP6(1) and grounding spring MP11 clear of the retaining ring next to the bottom plate bearing. Remove the retaining ring.

5. Loosen two setscrews in shaft collars MP6(2), MP6(3), and MP6(4). Position the rotor of tuned circuit Z3 so that it is completely unmeshed with its stator and slide the straight shaft MP14 outward from the bottom plate MP33 far enough to gain access to the retaining ring which normally rides against bearing MP2(2) in the top plate. Remove the retaining ring. Remove straight shaft MP14 and remove rotors and shaft collars from tuned circuits Z3 through Z1.

(b) Z4 AND Z5 TUNED CIRCUITS. To disassemble Z4 and Z5 tuned circuits to gain access to a particular detail part, refer to figure 5-79 and perform the following steps of procedure.

1. Remove eight 2-56 x 1/8-inch cross-recessed screws and remove side cover MP16. Remove retaining ring MP1 from coupler MP5. Remove spring pin from shaft coupler MP4, and remove MP4 from the shaft of shaft gear MP22.

2. Remove two 6-32 x 1/2-inch cross-recessed screws from gear plate MP28, and remove gear plate MP28.

3. Remove spring pin from gear MP23, and remove gear MP23 from straight shaft MP32.

4. Remove spring pin from gear MP41 and remove gear MP41. Remove gears MP21 and MP22.

5. Remove four 2-56 x 3/8-inch self-locking screws at the corners of bottom plate MP33 and one at location A. Remove six 2-56 x 5/16-inch screws, nuts, and lock washers from location B. Remove the two 2-56 x 3/8-inch screws which secure plug P2, and free plug P2. Remove two 2-56 x 3/16-inch screws, nuts, and lock washers from connector P1, and free connector P1. Remove bottom plate MP33.

6. Loosen two setscrews in rotor capacitors MP29(1) and MP29(2). Loosen two setscrews in shaft collar MP6(5) and remove retaining ring (6). Remove capacitor shaft MP32.

(3) SPECTRUM GENERATOR MODULE. Remove the spectrum generator module from the main chassis of Radio Receiver-Transmitter RT-695/PRC-41 according to the procedures of paragraph 5-4b. Disassemble the spectrum generator module as required according to the procedures of the applicable paragraphs 5-4c(3)(a) through 5-4c(3) (c).

(a) CRYSTAL AND SWITCH SECTION S2. - To remove or gain access to a detail part in the crystal and switch S2 section of the spectrum generator module, refer to figure 5-78 and perform the following steps of procedure.

1. Remove twenty-six 2-56 x 3/16inch screws from side covers MP 17 and MP18. Remove six 2-56 x 1/8-inch and five 2-56 x 3/16-inch screws from front cover MP19, and remove front cover MP19.

2. Remove four 4-40 x 1/4-inch and four 2-56 x 1/4-inch screws from crystal cover MP20. Unsolder test jack 1A5J1(G16) from 100K resistor R3, and remove crystal cover MP20.

3. Remove thermal insulation MP35 from switch S2, and remove switch S2.

4. Remove the 2-56 x 3/16-inch screw, lock washer, and flat washer from end of straight shaft MP25. Remove switch rotor E5. Remove thermal insulation MP34.

(b) COIL TURRET SECTION. - To remove or gain access to a detail part in the coil turret section of the spectrum generator module, refer to figure 5-78 and perform the following steps of procedure.

1. Remove twenty-six 2-56 x 3/16-inch screws from side covers MP17 and MP18. Remove six 2-56 x 1/4-inch and five 2-56 x 3/16-inch screws from front cover MP19, and remove front cover MP19.

2. Remove plastic retaining ring MP1 from shaft coupling MP6, and remove coupling MP9. Remove spring pin from shaft coupling MP6 and remove shaft coupling MP6. Remove retaining ring MP4.

3. Remove six 4-40 x 3/8-inch screws from mounting plate MP21. Free mounting plate MP21 from connector P1 by removing two 2-56 x 3/8-inch screws, nuts, lock washers, and solder lugs. Remove mounting plate MP21.

4. Loosen the setscrews in shaft collar MP7 and remove gear MP13 and shaft collar MP7. Remove three 2-56 x 1/4-inch screws and coil assembly E6.

5. If it becomes necessary to replace straight shaft MP25, perform the disassembly procedures of paragraph 5-4c(3)(a) and the preceding steps of this paragraph, remove retaining ring MP4 and remove straight shaft MP25.

(c) TUNING CIRCUIT SECTION. - To remove or gain access to a detail part in the tuning circuit section of the spectrum generator module, refer to figure 5-78 and perform the following steps of procedure.

1. Remove twenty-six 2-56 x 3/16-inch screws from side covers MP17 and MP18 and remove side covers MP17 and MP18. Remove six 2-56 x 1/4-inch and two 2-56 x 1/8-inch screws from rear cover MP16, and remove rear cover MP16.

2. Remove plastic retaining ring MP1 from shaft coupling MP6 and remove coupling MP9. Remove spring pin from shaft coupling MP6 and remove shaft coupling MP6. Remove retaining ring MP4.

3. Remove six 4-40 x 3/8-inch screws from mounting plate MP21. Free mounting plate MP21 from connector P1 by removing two 2-56 x 3/8-inch screws, nuts, lock washers, and solder lugs. Remove mounting plate MP21.

4. Remove hexnut H3 and bearing housing MP10 from the top of the spectrum generator module. Remove annular bearing MP2 and retaining ring MP5.

5. Loosen the two setscrews on shaft collars MP11 in tuned circuit Z1 and MP7 in tuned circuits Z2 and Z3.

6. Pull straight shaft MP29 outward toward the coupler side of the spectrum generator module so as to clear tuned circuits Z1 through Z3 as required.

7. Remove three capacitor rotors E10 and grounding springs Ea and E4 as required.

(4) RADIO RECEIVER-TRANSMITTER RT-695/PRC-41 MAIN CHASSIS. - Remove Radio Receiver-Transmitter RT-695/PRC-41 modules from the main chassis according to the procedures of paragraph 5-4b. Disassemble the main chassis of Radio Receiver-Transmitter RT-695/PRC-41 as required according to the following procedures. Refer to figure 5-80.

(a) Remove five 6-32 x 5/16-inch screws at location B and loosen one screw at location A on rear plate MP1.

(b) Remove five 6-32 x 5/16-inch screws at location D and loosen one screw at location C on rear plate MP1.

(c) Remove four 6-32 x 1/4-inch screws at location E on frame MP4. Remove three 4-40 x 1/4-inch screws at location F on frame MP4.

(d) Remove four 6-32 x 1/4-inch screws at location J on frame MP3. Remove four 4-40 x 1/4-inch screws at location H on frame MP3.

(e) Loosen the setscrews in control knobs O1 through O6 on front panel MP52 and remove control knobs O1 through O6.

(f) Remove the locking nuts on connectors 1A9J14(F50), 1A9J13(F47), and 1A9J28(A45) on the front panel MP52 and free connectors 1A9J14(F50), 1A9J13(F47), and 1A9J28(A45).

(g) Loosen the locking nuts on the controls, and free control shafts from front panel MP52.

(h) Carefully remove side frames MP3 and MP4 and rear plate MP1 from gear frame MP53 and front panel MP52.

(i) Remove four screws and lock washers from gear frame MP53 at location K and separate front panel MP52 from gear frame MP53.

(j) Remove four 2-56 x 3/16-inch screws from detent MP39, release spring MP77 from sleeve MP45, and remove detent MP39.

(k) Loosen screws in the four coupler clamps MP48, and remove three couplers MP51 and one coupling MP49.

(1) Remove two screws at location L and two spacer nuts MP74 at location M on gear plate MP30. Remove gear plate MP30 from gear frame MP53. At this point access to the remaining detail parts may be obtained as required.

d. REPAIR. - Repair procedures involve isolation of defective electrical parts by use of the trouble-shooting procedures of section 4 and by inspection of mechanical parts and assemblies, the removal and replacement of the defective detail part, and the making of the necessary synchronization and adjustment. Reassemble the disassembled mechanical assembly according to the applicable procedures

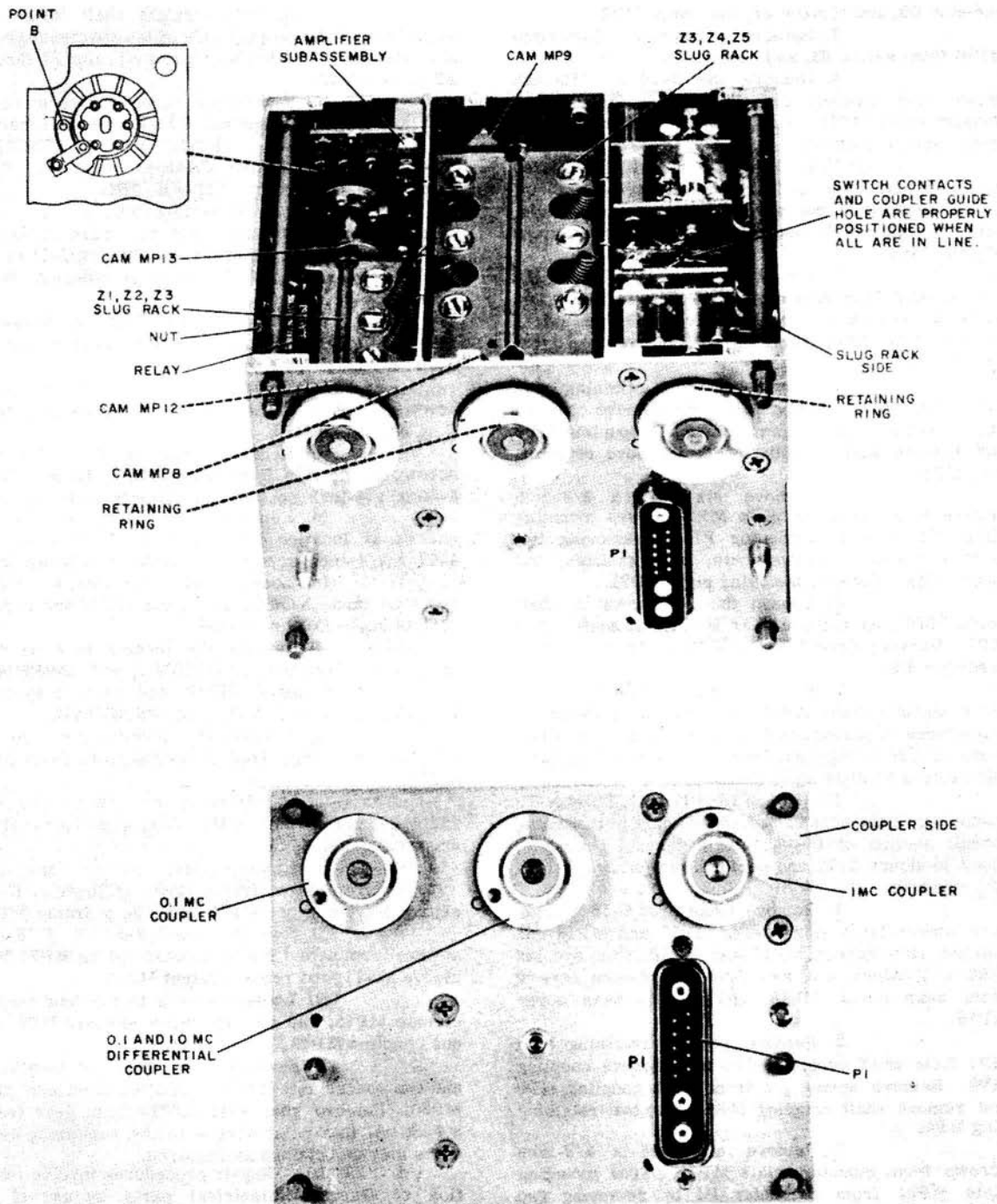


Figure 5-27. 1st and 2nd I-F Amplifier Module, Switch and Cam Positioning Diagram

of paragraph 5-4e. Synchronize the assembly according to the procedures of paragraph 5-4f and make the necessary alignment according to the applicable procedures of paragraph 5-3. Lubricate the equipment as required according to the procedures of paragraph 5-6.

e. REASSEMBLY.

(1) 1ST AND 2ND I-F AMPLIFIER MODULE. - To reassemble the disassembled 1st and 2nd i-f amplifier module, refer to figure 5-74, and perform the steps of procedure of paragraphs 5-4f(1)(a) through 5-4f(1)(c) as required.

(a) Z1, Z2, AND Z3 SLUG RACK. - To reassemble the Z1, Z2, and Z3 slug rack and replace the amplifier subassembly, refer to figure 5-74 and perform the following steps of procedure.

1. Replace the amplifier subassembly in place in electrical equipment chassis MP39 and secure by use of three 4-40 x 1/8-inch and one 4-40 x 1/4-inch screws. Solder electrical connections at points A (refer to figure 5-39) on the wired bracket, the coaxial lead and ground connections on the amplifier subassembly, and secure relay K3 by use of two 2-56 x 1/4-inch screws.

2. Set Z1, Z2, and Z3 slug rack MP22 in place on electrical equipment chassis MP39. Replace the shaft end of shouldered shaft MP14 into the bearing of electrical equipment chassis MP39, through cam MP12, a flat washer H3, slug rack MP22, a second flat washer H3, second cam MP13, through the switches of the amplifier subassembly, and into the bearing of electrical equipment chassis MP39.

3. Set the 1st and 2nd i-f amplifier module on the maintenance bench so it is resting on the wired bracket assembly and the slug racks are upward. Rotate the coupling half so its guide pin hole is located over the silk-screened circle on the coupler side of electrical equipment chassis MP39. The rotor of the rotary switch on the amplifier subassembly should be making contact with its stator at point B (refer to figure 5-27) and the high point on cams MP12 and MP13 should be positioned downward. Replace spring pins in cams MP12 and MP13 and connect the two helical springs MP6.

4. Replace captive screw H2 in the top front position and replace a 2-56 x 1/4-inch screw and nut in the bottom of the right front corner of the 1st and 2nd i-f amplifier module.

5. Replace amplifier side covers MP16 and MP17 and secure in place by use of thirteen 2-56 x 3/16-inch self-locking screws.

(b) Z4, Z5, AND Z6 SLUG RACK. - To reassemble Z4, Z5, and Z6 slug rack, refer to figure 5-74 and perform the following steps of procedure.

1. Set slug rack MP25 in place on electrical equipment chassis MP39.

2. Replace the shaft end of shouldered shaft MP11 into the bearing of electrical equipment chassis MP39, through cam MP8, a flat washer H3, slug rack MP25, a second flat washer H3, second cam MP9, and into the bearing of electrical equipment chassis MP39.

3. Replace retaining ring in shoulder shaft MP11. Rotate the coupling half so its guide pin hole is located over the silk-screened circle on the coupler side of electrical equipment chassis MP39.

4. Rotate cams MP8 and MP9 so their flat sides are upward and to the left, so their collar pinning holes match the holes in shouldered shaft MP11. Replace the spring pins in cams MP8 and MP9 and connect four helical springs MP6. Refer to figure 5-27.

5. Replace side covers MP16 and MP17 and secure in place by use of thirteen 2-56 x 3/16-inch screws.

(c) OSCILLATOR AND SWITCHBOARD, AND R-F CQIL ASSEMBLIES. - With the oscillator and switchboard, and r-f coil assemblies in place on electrical equipment chassis MP39, replace the shaft of shouldered shaft MP15 into the bearing of chassis MP39. Replace the shaft of shouldered shaft MP15 through the oscillator and switchboard assembly, the r-f coil assembly, and into the bearing of electrical equipment chassis MP15. With the coupling half of shouldered shaft MP15 rotated so its guide pin hole is upward, the electrical contacts of the rotary switches in the oscillator and switchboard and the r-f coil assemblies should be upward and in line with the coupling half guide pin hole. Refer to figure 5-27. Replace retaining ring on shouldered shaft MP15.

(2) R-F AND POWER AMPLIFIER MODULE. - To reassemble the disassembled r-f and power amplifier module, refer to figure 5-79 and perform the steps of procedure of paragraphs 5-4f(2)(a) through 5-4f(2)(b) as required.

(a) Z1, Z2, AND Z3 TUNED CIRCUITS. - To reassemble Z1, Z2, and Z3 tuned circuits, refer to figure 5-79 and perform the following steps of procedure.

1. Pass straight shaft MP14 through bottom plate MP33 at location C. Within tuned circuit Z1, replace grounding spring MP11(1), shaft collar MP6(1), bearing MP8(1), and shaft collar and rotor MP10(1) over straight shaft MP14.

2. Continue replacing the rotors, grounding springs, shaft collars, etc, on straight shaft MP14 as MP14 is passed through tuned circuits Z2 and Z3.

3. Replace retaining rings (1 and 2) and replace the 5/8-inch spring pin in straight shaft MP14. Rotate straight shaft MP14 fully clockwise so that the 5/8-inch spring pin is stopped by the stop pin in bottom plate MP33.

4. Position the rotors in each of tuned circuits Z1 through Z3 so that they are in mesh with their stators and so that the flat edges of the stators and rotors are in coincidence at their back side. Refer to figure 5-26. Tighten all shaft collars.

5. Replace shaft gear MP22 in position so the scribe marks which were made during disassembly are matched. Replace gears MP21, MP41, and MP23. Replace gear plate MP28 and secure in place by use of two 6-32 x 1/2-inch cross recessed screws.

6. Replace shaft coupler MP4 and secure in place by use of spring pin. Replace coupler MP5 and secure in place by retaining ring MP1.

(b) Z4 AND Z5 TUNED CIRCUITS. To reassemble Z4 and Z5 tuned circuits, refer to figure 5-79 and perform the following steps of procedure.

1. Carefully pass capacitor shaft MP32 through MP13. Replace rotor capacitor MP29(2), shaft collar MP6(5), bearing MP8(2), grounding spring E1, and retaining ring (6) on capacitor shaft MP32.

2. Replace rotor capacitor MP29(1), shaft collar MP24, grounding spring MP11(3), and retaining ring (5) on capacitor shaft MP32.

3. Replace bottom plate MP33 in position, and secure in place by replacing four 2-56 x 3/8-inch self-locking screws at the corners and one at location A. Replace six 2-56 x 5/16-inch screws, nuts, and lock washers at location B. Secure plug P2 in place by use of two 2-56 x 3/8-inch screws. Secure plug P1 in place by use of two 2-56 x 3/16-inch screws.

4. Check to see that the 5/8-inch spring pin in straight shaft MP14 is against its stop pin. Replace gear MP41 on capacitor shaft MP32 and secure in place by use of its spring pin.

5. Replace gear plate MP28 and secure in place by use of two 6-32 x 1/2-inch cross recessed screws. Replace shaft coupler MP4 and secure in place by use of spring pin. Replace coupler MP5 and secure in place by retaining ring MP1.

(3) SPECTRUM GENERATOR MODULE. To reassemble the disassembled spectrum generator module, refer to figure 5-78 and perform the applicable procedures of paragraphs 5-4f(3)(a) through 5-4f(3)(c).

(a) CRYSTAL AND SWITCH S2 SECTION. - To reassemble the mechanical parts of the crystal and switch S2 section, perform the following steps of procedure.

1. Replace thermal insulation MP34 and switch rotor E5. Secure switch rotor E5 in place by use of a 2-56 x 3/16-inch screw, lock washer, and flat washer.

2. Replace crystal and switch S2 section in place over switch rotor E5. Fit resistor R3 through proper hole in printed circuit switch S2.

3. Replace thermal insulation MP35 over the crystal on switch section S2.

4. Replace crystal cover MP20 and secure by use of four 4-40 x 1/4-inch and four 2-56 x 1/4-inch screws, hold test jack 1A5J1(G16) to 100K resistor R3.

5. Check synchronization according to paragraph 5-4f and make the required adjustments. Replace side covers MP17 and MP18 and secure in place by use of twenty-six 2-56 x 3/16-inch screws. Replace cover MP19 and secure in place by use of six 2-56 x 1/8-inch and five 2-56 x 3/16-inch screws.

(b) COIL TURRET SECTION. - To reassemble the mechanical parts of the coil turret

section, refer to figure 5-78 and perform the following steps of procedure.

1. If straight shaft MP25 and shaft collar MP26 were removed, replace the straight shaft in bearing of chassis MP28. Replace retaining ring MP4 on straight shaft MP25. Reassemble the crystal and switch S2 section according to paragraph 5-4c(3)(a)

2. Replace coil assembly E6 over straight shaft MP25 and secure to shaft collar MP26 by use of three 2-56 x 1/4-inch screws. Replace shaft collar MP7 and gear MP13 on straight shaft MP25 and tighten setscrews in shaft collar MP7.

3. Replace mounting plate MP21 in position on the spectrum generator module and carefully fit gears MP14 located on mounting plate MP21 to gears MP13 and MP33. Position the keying tab of grounding spring E11 in the keying hole on mounting plate MP21. Secure mounting plate MP21 in place by use of six 4-40 x 3/8-inch screws.

4. Secure connector P1 to mounting plate MP21 by use of two 2-56 x 3/8-inch screws, nuts, lock washers, and solder lugs.

5. Replace retaining ring MP4 on straight shaft MP25. Replace shaft coupling MP6 on straight shaft MP25 and secure in place by use of spring pin. Replace coupling MP9 and secure in place by use of plastic retaining ring MP1.

6. Check synchronization according to paragraphs 5-4f and make the required adjustments. Replace side covers MP17 and MP18 and secure in place by use of twenty-six 2-56 x 3/16-inch screws. Replace cover MP19 and secure in place by use of six screws 2-56 x 1/8-inch and five 2-56 x 3/16-inch screws.

(c) TUNING CIRCUIT SECTION.- To reassemble the mechanical parts of the tuning circuit section, refer to figure 5-78 and perform the following steps of procedure.

1. Replace straight shaft MP29 with gear MP33 into position in generator chassis MP30. In tuned circuits Z1, Z2, and/or Z3, replace capacitor rotors E10 and grounding springs E3 and E4 as required.

2. Replace retaining ring MP5 and bearing MP2 on retaining plate MP24 end of straight shaft MP29. Position the keying tab of grounding spring E4 in the keying hole on retaining plate MP24 and replace bearing housing MP10 over bearing MP2.

3. Replace hexnut MPH3 on bearing housing MP10 and tighten.

4. Replace grounding spring E11 on straight shaft MP29. Replace mounting plate MP21 in position on the spectrum generator module, and carefully fit gear MP14 located on mounting plate MP21 to gears MP13 and MP33. Position the keying tab of grounding spring E11 in the keying hole on mounting plate MP21. Secure mounting plate MP21 in place by use of six 4-40 x 3/8-inch screws.

5. Secure connector P1 to mounting plate MP21 by use of two nuts, lock washers, solder lugs, and 2-56 x 3/8-inch screws.

ORIGINAL

6. Replace retaining ring MP4 on straight shaft MP25. Replace shaft coupling MP6 on straight shaft MP25 and secure in place by use of a spring pin. Replace coupling MP9 and secure in place by use of plastic retaining ring MP1.

7. Position and synchronize the three capacitor rotors E10 according to paragraph 5-4f and tighten the setscrews in shaft collars MP7 and MP11. Replace side covers MP17 and MP18 and secure in place by use of twenty-six 2-56 x 3/16-inch screws. Replace rear cover MP16 and secure in place by use of six 2-56 x 1/4-inch and two 2-56 x 1/8-inch screws.

(4) RADIO RECEIVER-TRANSMITTER RT695/PRC-41 MAIN CHASSIS. - To reassemble the disassembled main chassis of Radio Receiver-Transmitter RT-695/PRC-41, refer to figure 5-80 and perform the following steps of procedure.

(a) Replace the detail parts as required on gear frame MP53. Replace gear plate MP30 in position on gear frame MP53 and secure in place by use of two screws at location L and two spacer nuts at location M.

(b) Replace four coupler clamps MP48 and couplers MP51 and MP49 on gear shaft MP85, shaft MP84, the shaft of differential MP71, and gear shaft MP40. Tighten the coupler clamp screws.

(c) Replace detent MP39 and secure in place by use of four screws and lock washers. Replace spring MP77 over sleeve MP45.

(d) Fit front panel MP22 to gear frame MP53 and secure by use of four screws and lock washers at position K.

(e) Carefully fit side frames MP3 and MP4 and rear plate MP1 over gear frame MP53. Reconnect the required electrical connections and fit front panel MP52 to the control shafts of side frames MP3 and MP4 and gear frame MP53.

(f) Secure all control shafts and connectors which project through front panel MP52 by use of their applicable locking nuts. Secure side frames MP3 and MP4 to front panel MP52 by replacing eight 6-32 x 1/4-inch screws and lock washers at position E and J.

(g) Replace five 6-32 x 5/16-inch screws at location B and tighten one screw at location A on rear plate MP1.

(h) Replace five 6-32 x 5/16-inch screws at location D and loosen one screw at location C on rear plate MP1.

(f) Replace four 6-32 x 1/4-inch screws at location E on side frame MP4. Replace three 4-40 x 1/4-inch screws at location F on side frame MP4.

(j) Replace four 4-40 x 1/4-inch screws at location H on side frame MP3. Replace all control knobs in their applicable positions and tighten their setscrews.

f. SYNCHRONIZATION.

(1) 1ST AND 2ND I-F AMPLIFIER MODULE. - The 1st and 2nd i-f amplifier module is synchronized during reassembly. Loss of synchronization or improper angular positioning of switch rotors or couplings is an indication of a defective

detail part which must be located and replaced. Subject the 1st and 2nd i-f amplifier module to the trouble isolation procedures described in the applicable portion of section 4.

(2) R-F AND POWER AMPLIFIER MODULE. - Synchronize the r-f and power amplifier module according to the following steps of procedure.

(a) Rotate the coupling on the r-f and power amplifier module so the guide hole in the coupling is directly over the silk-screened circle on the bottom plate of the r-f and power amplifier module.

(b) Check the rotors and stators of the tuned circuits of the r-f and power amplifier module to determine whether the module is properly synchronized. The module is properly synchronized when the tips of the stator and rotor blades of the tuned circuits coincide at the bottom and are displaced at the top as viewed from the side of the module. Refer to figure 5-26.

(c) If synchronization is required, loosen the applicable rotor shaft collar and adjust the rotors for coincidence with the stator by lining up the tips of the stator and rotor blades at the bottom. Refer to figure 5-26. Adjust the rotors on the shaft so the stator is halfway between the bases of the rotor blades, tighten the rotor shaft collar, and replace the side covers.

(d) If synchronization was required, check that the r-f and power amplifier module is properly aligned according to alignment procedures of paragraph 5-3e.

(3) SPECTRUM GENERATOR MODULE. Synchronize the tuned circuits and printed circuit switch S3 of the spectrum generator module according to the following steps of procedure.

(a) With coupling MP9 secured on shaft coupling MP6 by plastic retaining ring MP1, rotate the coupling until the guide hole on coupling MP9 is directly opposite the silk-screened circle on the casting and the slots in the coupling are perpendicular to a line drawn between the module guide pins.

(b) Visually check that inductor L1 is contacted by the dual wiper of switch S3. Inductor L1 is color-coded with a red and orange dot which may be seen through the observation hole adjacent to the coupler. Rotate the coupler until the red and orange dots can be observed, the rotors of the tuned circuits are fully meshed, and the coupler indication is opposite the silk-screened circle. A 2 to 1 gear ratio exists between the tuned circuit shaft and the turret shaft. Both the tuned circuits and the inductor turret must be properly positioned to avoid a 180-degree ambiguity.

(c) Check the position of the rotor blades of the tuned circuits. They should be fully meshed as illustrated in figure 5-23. If all three tuned circuits are not properly meshed, loosen the gear shaft collar which clamps the drive gear to the turret shaft. Rotate the tuned circuit shaft until all three tuned circuits are properly meshed and tighten the setscrews in the gear shaft collar. If an individual tuned circuit is out of mesh, loosen the setscrews in the collar and rotate the rotor to a fully meshed position as shown in figure 5-23. Do not

disturb the position of the inner shaft while making this adjustment. Adjust the rotors on the shaft so the stator is halfway between the bases of the rotor blades, and tighten the setscrews.

Note

Use care in tightening the setscrews. Make sure the setscrews are engaging a segment of the rotor shaft assembly and that they are not riding on the slots.

(d) Adjust idler gears for a minimum of backlash and binding.

g. REPLACEMENT.

(1) SPECTRUM GENERATOR MODULE.

With Radio Receiver-Transmitter RT-695/PRC-41 still set to 225.0 mc, set the coupler on the spectrum generator module so it is in the same relative position as the main chassis coupler. Look through the trimmer end of the module and rotate the coupler on the module so that the rotor and stator blades are in coincidence. Insert the spectrum generator module in place on the main chassis and tighten the retreaded captive screws.

Note

It is possible to mesh the hole in the spectrum generator module coupler with the pin on the main chassis coupler so that the tuning capacitors are displaced 180 degrees. Make sure tuning capacitors are in mesh. Use a screwdriver on the shaft at the top of the module to effect final fitting before tightening the redheaded captive screws.

(2) R-F AND POWER AMPLIFIER MODULE. - With Radio Receiver-Transmitter RT-695/PRC-41 still set to 225.0 mc, set the coupler on the r-f and power amplifier module so it is in the same relative position as the main chassis coupler. Insert the r-f and power amplifier module in place on the main chassis and tighten the redheaded captive screws.

Note

Use a screwdriver on the shaft at the top of the module to effect final fitting before tightening the redheaded captive screws.

(3) 1ST AND 2ND I-F AMPLIFIER MODULE. Set the frequency selector knobs on Radio Receiver-Transmitter RT-695/PRC-41 to 229.9 mc. Set the couplers on the 1st and 2nd i-f amplifier module so they are in the same relative position as the main chassis

couplers. Insert the 1st and 2nd i-f amplifier module in place on the main chassis. Observe that couplers are properly fitted and tighten the redheaded captive screws.

Note

Use a screwdriver on the shafts at the top of the module to effect final fitting.

5-5. VOLTAGE AND RESISTANCE MEASUREMENTS.

a. Unless noted otherwise, all voltages are taken in receive operation with Radio Receiver Transmitter RT-695/PRC-41 set to 304.7 mc and a signal generator input signal of 304.7 mc, 1000 cps modulated 30 percent at 1000 microvolts. All resistance measurements must be taken with the equipment horned OFF. Resistance measurements are not provided for transistorized circuits, since many ohmmeters will burn out the transistor if not used properly. All module voltage and resistance measurements are to be taken with the module operated on the appropriate extender cable. Refer to table 1-4. Refer to tables 5-2 through 5-14 as required for voltage and resistance measurements.

TABLE 5-2
D-C POWER SUPPLY MODULE,
VOLTAGE MEASUREMENTS

TRANSISTOR	EMITTER	BASE	COLLECTOR
Q1	0.2	-1.0	26.5
Q2	0.2	-1.0	26.5

TABLE 5-3
1ST AND 2ND I-F AMPLIFIER MODULE,
VOLTAGE MEASUREMENTS*

TRAN-SISTOR	EMITTER	BASE ₁	COLLECTOR	BASE ₂
Q1	2.7	3.3	25	1.0
Q2	1.85	2.65	19.5	
Q3	4.7	4.6	25.5	2.85
Q4	0.05	0.75	0	0.55
Q5	3.8	3.9	23	2.7
Q6	0.95	0.97	18.5	
Q7	5.7	5.8	14	

*Set Radio Receiver-Transmitter RT-695/PRC-41 to 309.9 mc, carefully remove the 1st and 2nd i-f amplifier module, and connect the module by use of extension cable W3.

TABLE 5-4
3RD I-F AND SQUELCH MODULE,
VOLTAGE MEASUREMENTS

TRAN-SISTOR	EMITTE R	BASE ₁	COL-LECTO R	BASE ₂
Q1	7.8	4.5	13	8.6
Q2	7.0	4.4	14	7.8
Q3	4.9	5.5	14	
Q4	0.15	0.45	9.5	
Q5	10.5	11	14.5	
Q6	15	14.5	11	
Q7	10	9.2	-0.05	
Q8	0.5	1.25	0.7	
Q9	1.25	1.85	1.4	

TABLE 5-5 AUDIO MODULE, VOLTAGE MEASUREMENTS

TRANSISTOR	EMITTER	BASE	COLLECTO R
Q1	10	10.5	17.5
Q2	5.2	5.7	21
Q3	0.2	0.65	23
Q4	0.2	0.65	23

TABLE 5-6 SPECTRUM GENERATOR MODULE,
VOLTAGE MEASUREMENTS

TUBE VOLT-AGE	CATH-ODE	GRID	PLATE	HEATE R	HEATE R
V1	0.35	-2.3	105	0	6.3
V2	4.2	-4.0	205	0	6.3
V3	2.4	0	205	0	6.3
V4	2.05	0	200	0	6.3

TABLE 5-7
SPECTRUM GENERATOR MODULE,
RESISTANCE MEASUREMENTS

TUBE RESISTANCE	CATHOD E	GRID	PLATE
V1	100	50 k	350 k
V2	700	200 k	350 k
V3	325	0	350 k
V4	750	0	350 k

TABLE 5-8
MODULATOR MODULE, VOLTAGE MEASUREMENTS*

TRANSISTOR	EMITTER	BASE	COLLECTO R
Q1	2.0	2.65	24.5
Q2	0.6	-0.05	22.5
Q3	0.6	-0.05	22.5

*All measurements taken with a 1000-cps, 1-volt (open circuit) input signal with Radio Receiver-Transmitter RT-695/PRC-41 set to 304.7 mc.

TABLE 5-9
GUARD RECEIVER MODULE, VOLTAGE MEASUREMENTS*

TRAN-SISTOR	EMITTE R	BASE ₁	COL-LECTO R	BASE ₂
Q1	7.5	8.2	7.9	
Q2	7.5	8.2	7.9	
Q3	6.8	7.1	7.9	
Q4	11.8	12	18.5	
Q5	3.3	3.9	17	3.7
Q6	3.1	3.7	17	3.6
Q7	2.8	3.5	17	3.3
Q8	2.9	3.5	17	3.4
Q9	2.4	3.1	17	1.8
Q10	0.05	0.5	17	
Q11	17.5	7.1	3.5	
Q12	1.65	2.3	7.9	
Q13	3.8	4.4	3.9	
Q14	19	19.5	24	
Q15	13.5	13	7.8	

*Set Radio Receiver-Transmitter RT-695/PRC-41 to 243.0 mc, operate the module on extender cable W3, and set the SQUELCH control to the maximum counterclockwise position. Adjust the signal input for 1000 cps modulated 30 percent at 1000 micro-volts

TABLE 5-10
R-F AND POWER AMPLIFIER MODULE,
VOLTAGE MEASUREMENTS

TUBE VOLT-AGE	CATH-ODE	GRID	PLAT E	HEATE R	HEATER
V1	2.45	0	125	6.3	12.6
V2	2.1	0	120	6.3	12.6

TABLE 5-10 (Continued)

TUBE VOLT - AGE	CATH-ODE	GRID	PLAT E	HEATER	HEAT ER
V3	2.7	0	195	6.3	12.6
V4	2.75	0	200	6.3	12.6
V5	0.2	-2.25	195	12.6	18.9
TRANSISTO R	EMITTER	COLLECTOR	BASE		
Q1	0	2.3	.45		

TABLE 5-11
R-F AND POWER AMPLIFIER MODULE,
RESISTANCE MEASUREMENTS

TUBE RESISTANC E	CATHOD E	CONTR O L GRID	PLATE
V1	1.4 k	0	375 k
V2	1.4 k	0	375 k
V3	1.4 k	470	375 k
V4	1.4 k	470	375 k
V5	33	330	375 k

TABLE 5-12
RADIO RECEIVER-TRANSMITTER
RT-695/PRC-41, MAIN CHASSIS
VOLTAGE MEASUREMENTS

TRANSISTO R	EMITTER	COLLECTOR	BASE
Q1	18.9	26.5 v	19.5

5-6. LUBRICATION.

a. Lubrication instructions for the mechanical modules of Radio Receiver-Transmitter RT-695/PRC-41 are contained in table 5-15. Lubrication points are designated in figures 5-28 through 5-33. These procedures should be performed only on those assemblies that obviously require lubrication. If the

TABLE 5-13
POWER SUPPLY PP-3700/PRC-41, NORMAL
VOLTAGE MEASUREMENTS*

TRANSISTO R	EMITTE R	COLLECTOR	BASE
Q1	28	43	28.4
Q2	27.3	43	28
Q3	26.4	36	27.2
Q4	14.0	28.4	14.2
*Measurements taken in transmit condition (3 amperes), 115-volt input.			

TABLE 5-14
POWER SUPPLY PP-3700/PRC-41, OVERLOAD
TRIP VOLTAGE MEASUREMENTS*

TRANSISTO R	EMITTE R	COLLECTOR	BASE
Q1	0.11	60	0.8
Q2	0.11	60	0.11
Q3	0.09	50	0.36
Q4	0.7	0.8	1.4
*Measurements taken in transmit condition (3 amperes), 115-volt input.			

mechanical parts of these assemblies are suitably lubricated, do not apply lubricant. If, however, the lubricant is dry, caked, or dirty, clean the component with a suitable solvent, dry it with clean, oil free compressed air, and apply the specified lubricant as instructed in table 5-15. When performing these procedures, check all setscrews in clamps and collars for secure fitting.



Overlubrication may cause serious damage to the equipment. Wipe excess lubrication from exposed parts immediately after lubrication. A thin protective film should be left after wiping. Take care not to saturate any electrical insulation or rubber with lubricant.

TABLE 5-15. LUBRICATION INSTRUCTIONS

MODULE	PART	REFERENCE	FIGURE	LUBRICANT	METHOD OF APPLICATION
R-f and power amplifier module	Contact arm and contact ring	1	5-28, 5-29	See note 1	Apply thin film with a dropper.
	Ground springs	2	5-28, 5-29	See note 1	Apply thin film with a dropper.
1st and 2nd i-f amplifier module	Switches	3	5-30	See note 1	Apply thin film with a dropper.
	Sleeve bearings	4	5-30	MIL-L-6085A	Apply two drops with a dropper.
Spectrum generator module	Inductor arms and inductor rings	5	5-31	See note 1	Apply thin film with a dropper.
	Grounding springs	6	5-31	See note 1	Apply thin film with a dropper.
	Sleeve bearings	7	5-31	MIL-L-6085A	Apply two drops with a dropper.
	Gear teeth and idler Shafts	8	5-31	Texaco Uni-Temp Grease 500	Brush.
RT-695/PRC-41 main chassis	Switch contacts	9	5-31	See note 1	Apply thin film with a dropper.
	Switch contacts	10	5-32,5-33	See note 1	Apply thin film with a dropper.
	Sleeve bearing	11	5-32,5-33	MIL-L-6085A	Apply two drops with a dropper.
	Gear teeth pivot post and detents	12	5-32, 5-33	Texaco Uni-Temp Grease	Brush.
	Ball bearings	13	5-32, 5-33	MIL-L-6085A	Apply two drops with a dropper.
	Helical gears	14	5-32, 5-33	See note 1	Brush.
	Ends of shaft	15	5-32, 5-33	See note 1	Brush.
	Sleeve bearing	16	5-32, 5-33	MIL-L-6085A	Apply two drops with a dropper.

NOTES:

1. Lubricant consists of 10 parts by weight of MIL-G-3278 grease, 45 parts by weight of butyl alcohol, and 45 parts by weight of xylene.
2. Do not lubricate clutch parts. These parts must be kept free of all contaminants (grease, oil, dirt, etc).

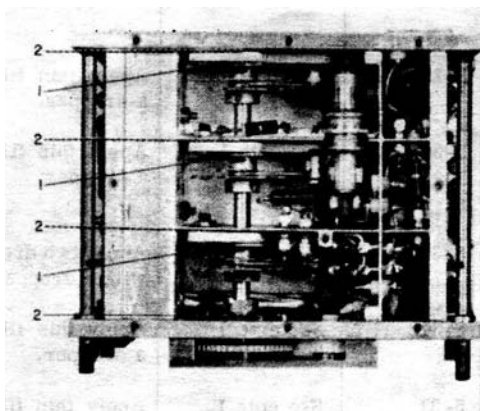


Figure 5-28. R-F and Power Amplifier Module, Left Side View, Lubrication Points

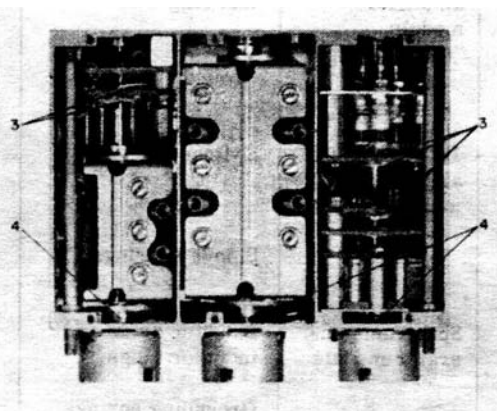


Figure 5-30. 1st and 2nd I-F Amplifier Module, Lubrication Points

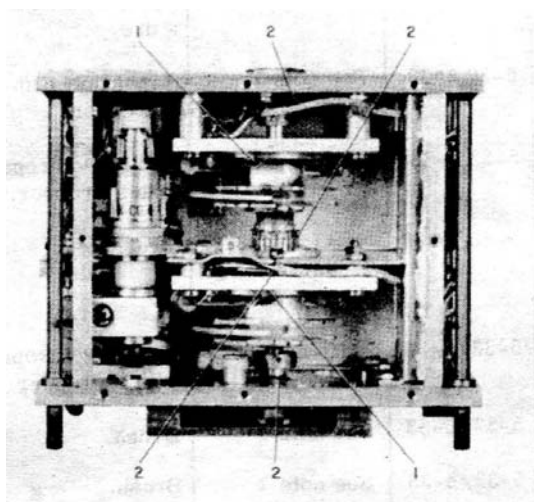


Figure 5-29. R-F and Power Amplifier Module, Right Side View, Lubrication Points

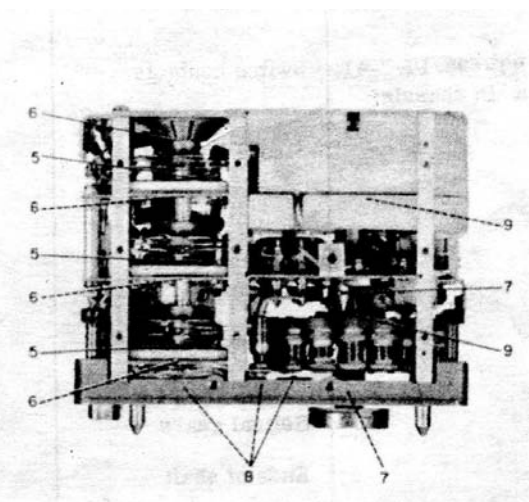
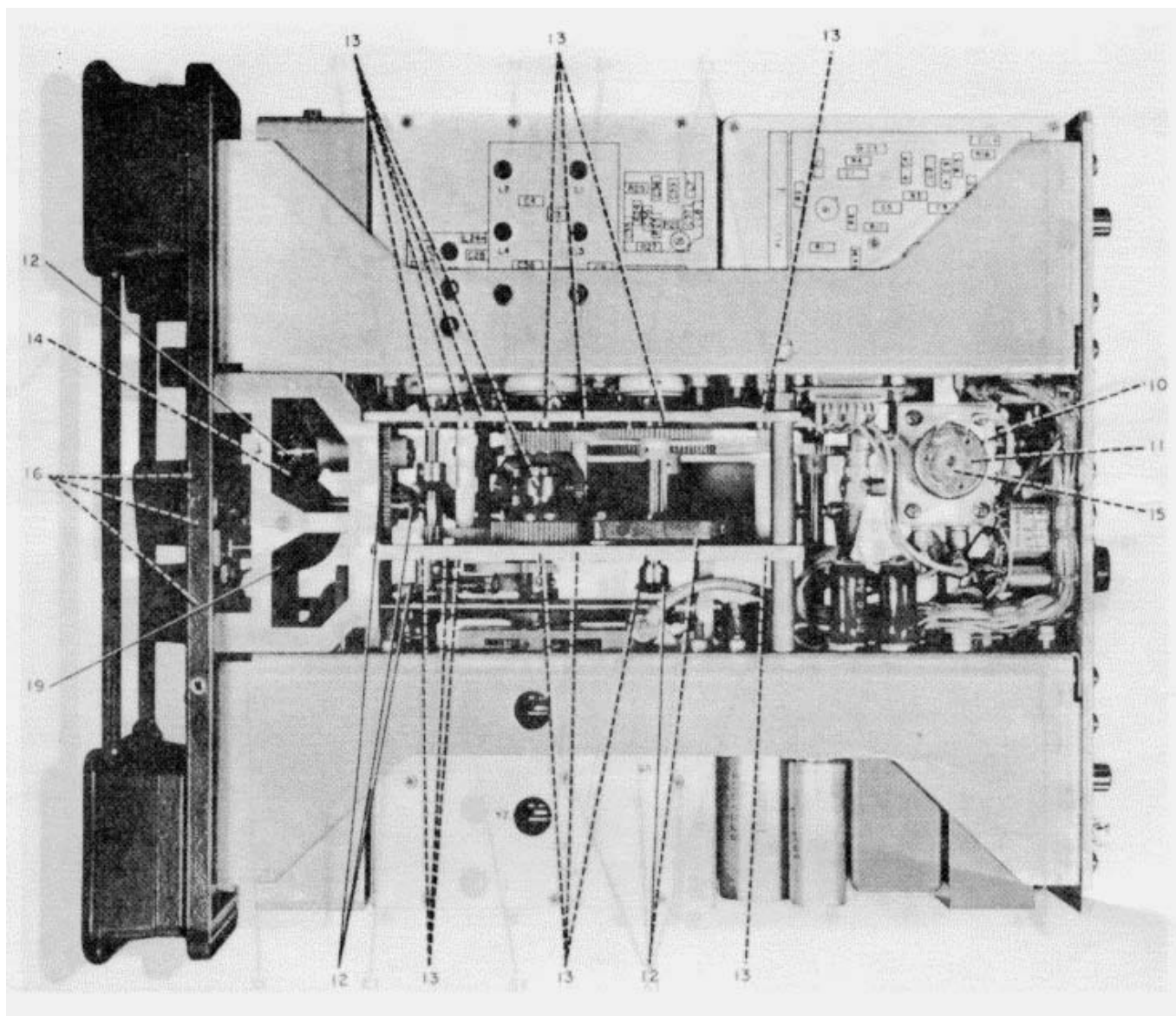


Figure 5-31. Spectrum Generator Module, Lubrication Points

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*Figure 5-32. Radio Receiver-Transmitter RT-695/PRC-41,
Right Side View, Lubrication Points*

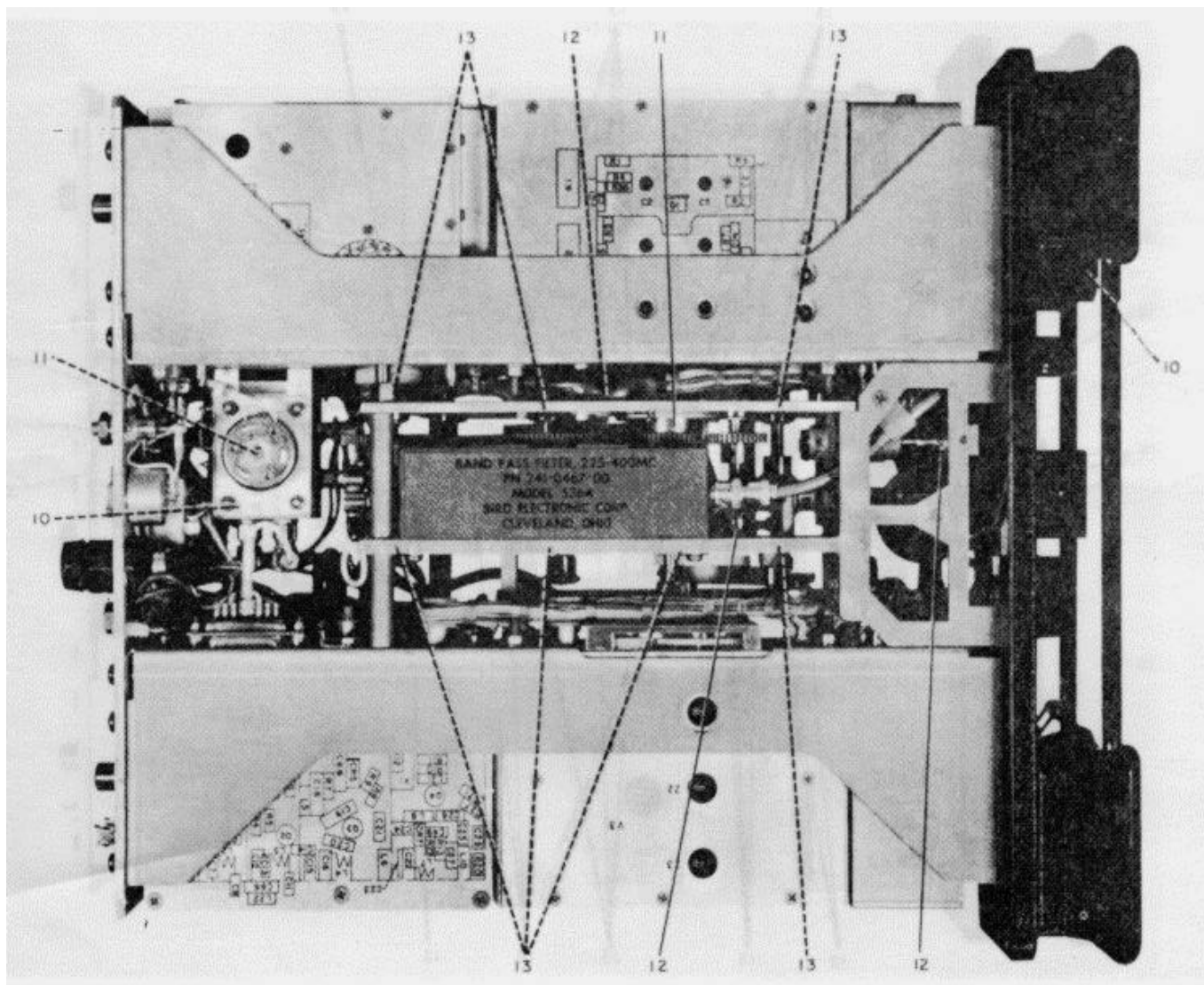


Figure 5-33. Radio Receiver-Transmitter RT-695/PRC-41
Left Side View, Lubrication Points

5-7. PARTS LOCATION.

a. Refer to figures 5-34 through 5-81 for location and identification of detail parts, adjustments,

and test points. Refer to section 6 of this handbook for further information pertaining to any particular detail part or assembly.

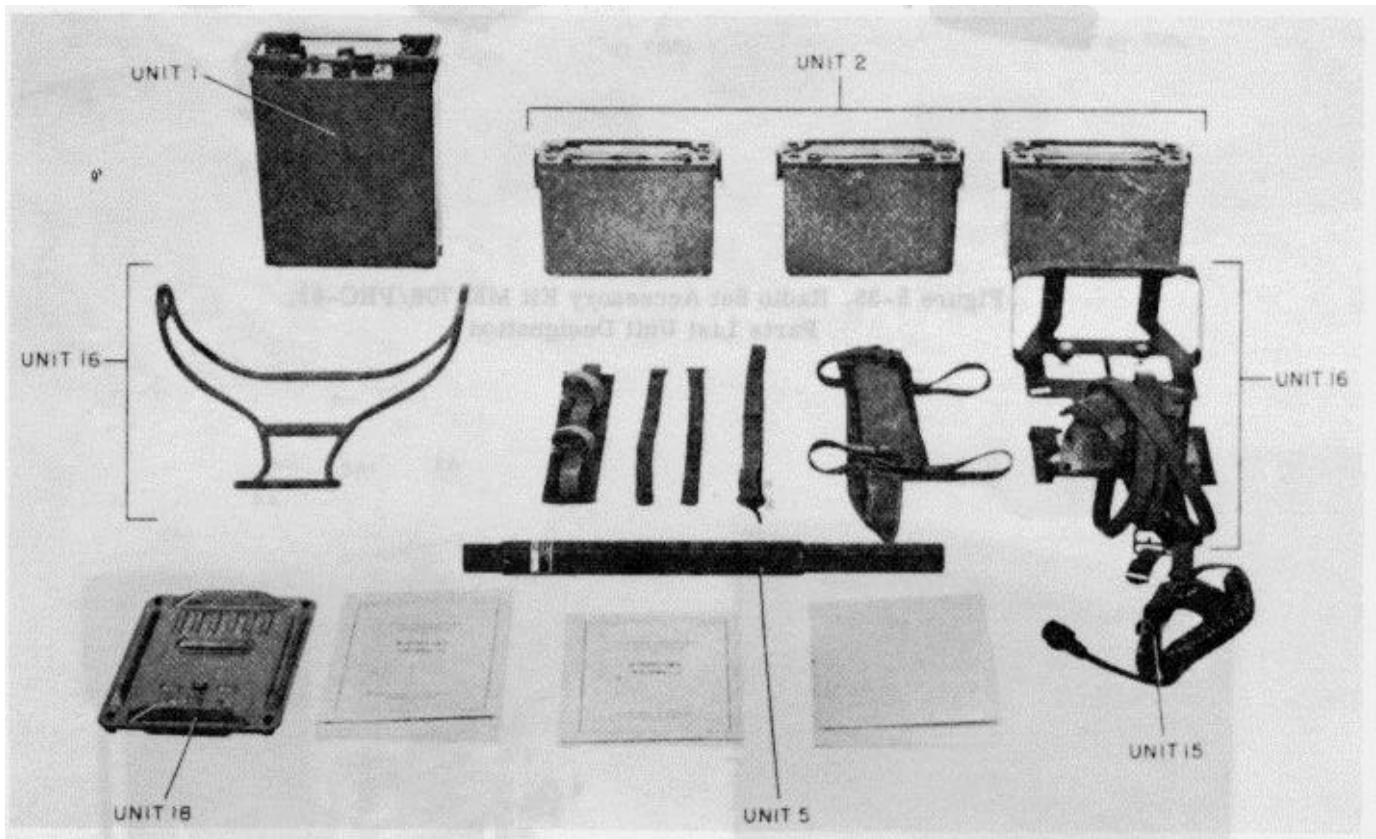


Figure 5-34. Radio Set AN/PRC-41, Parts List Unit Designation

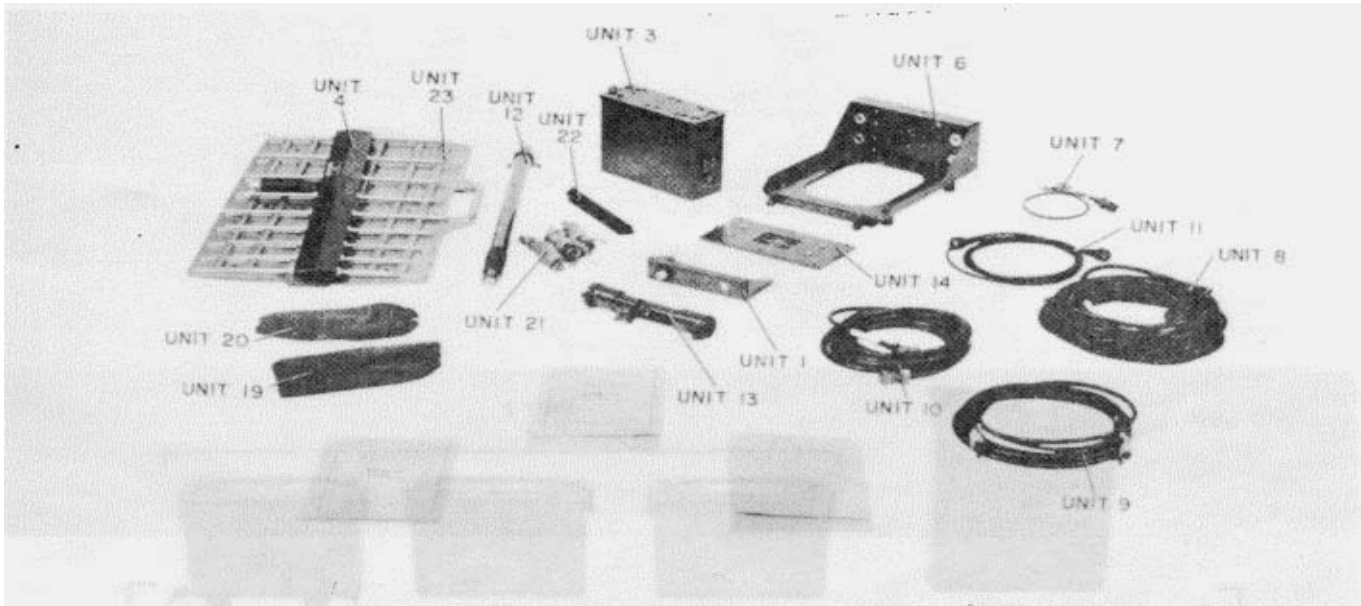


Figure 5-35. Radio Set Accessory Kit MK-706/PRC-41,
Parts List Unit Designation

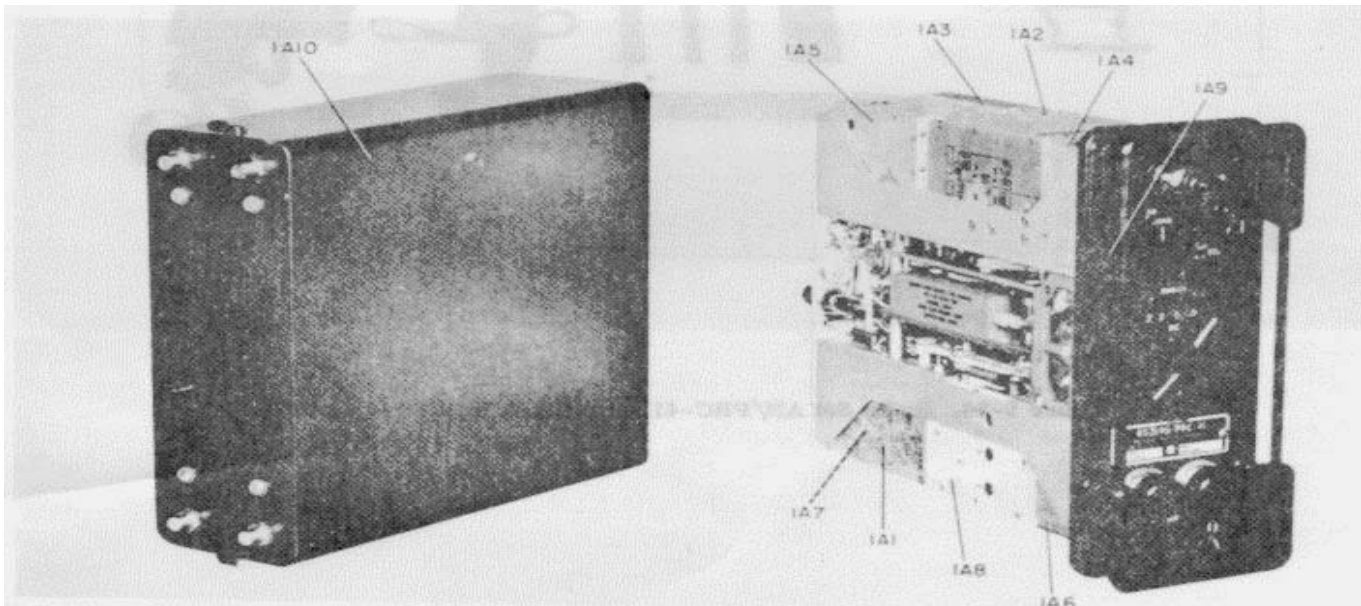


Figure 5-36. Radio Receiver-Transmitter RT-695/PRC-41, and
Receiver-Transmitter Case CY-3884/PRC-41

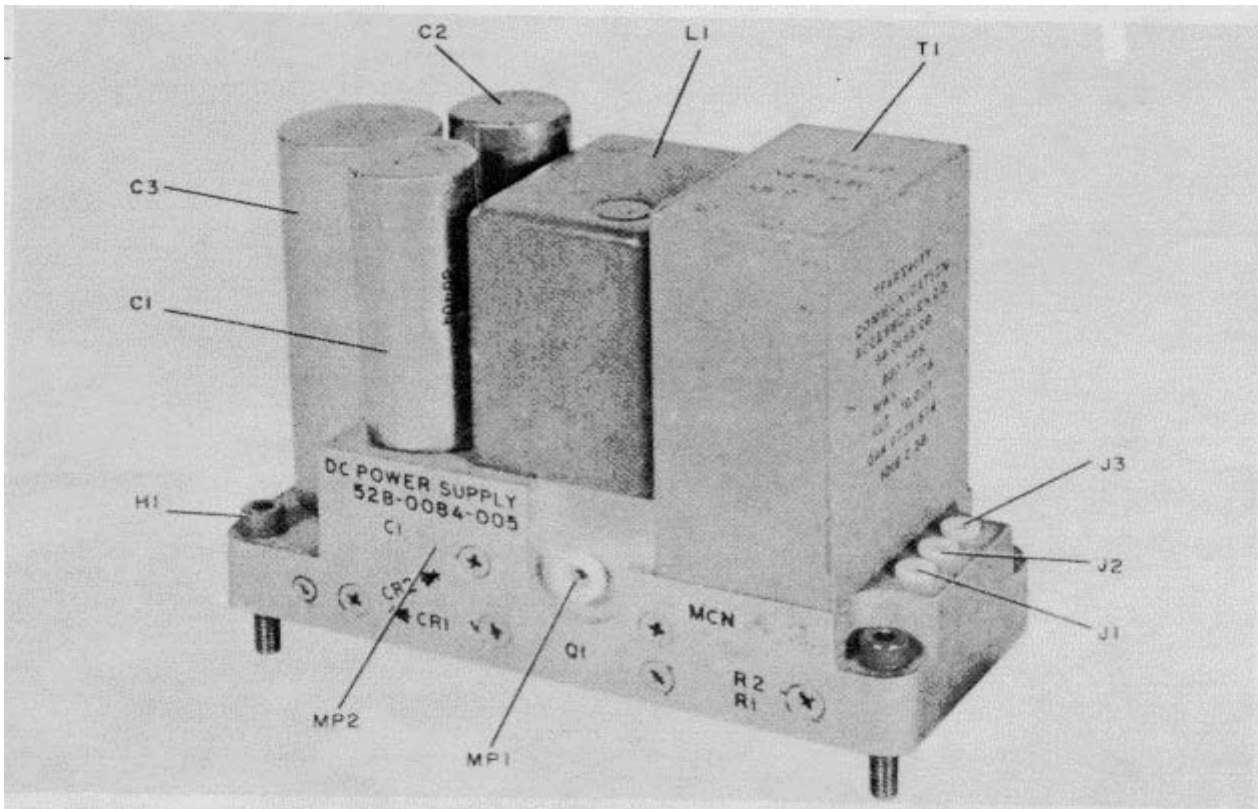


Figure 5-37. D-C Power Supply Module,
Oblique View, Parts Location

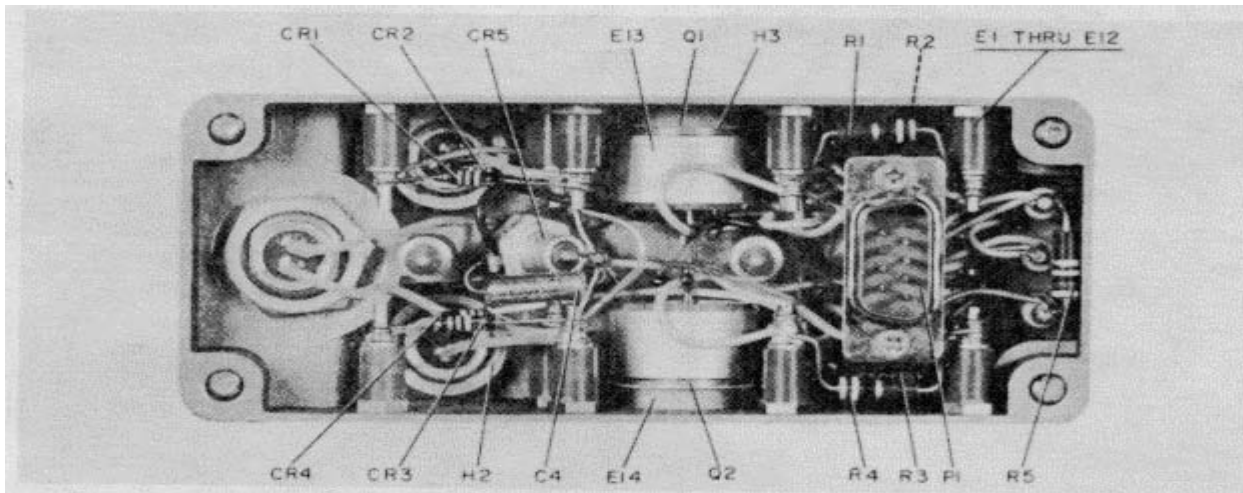


Figure 5-38. D-C Power Supply Module,
Bottom View, Parts Location

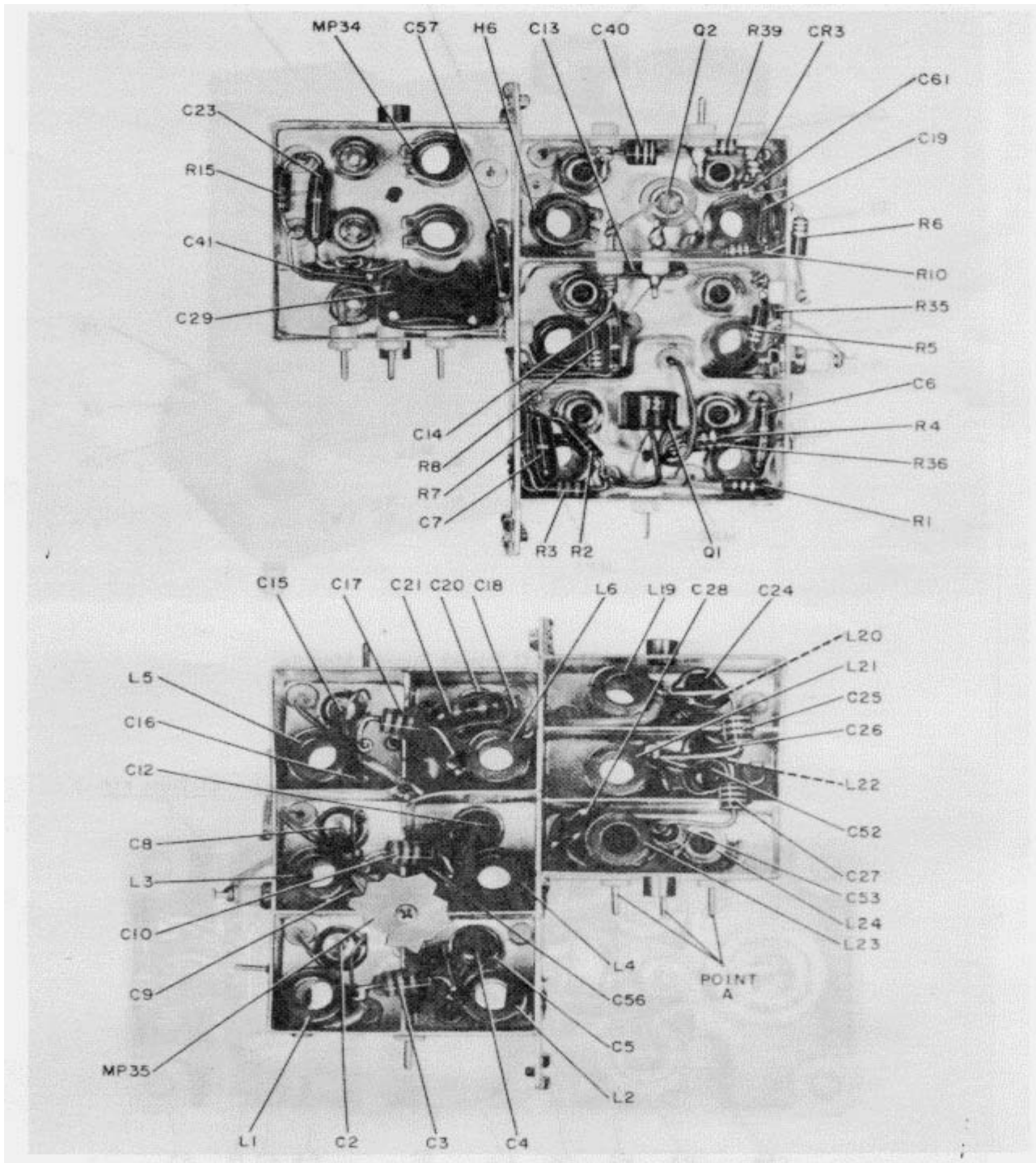


Figure 5-39. 1st and 2nd I-F Amplifier Module,
Wired Bracket, Parts Location

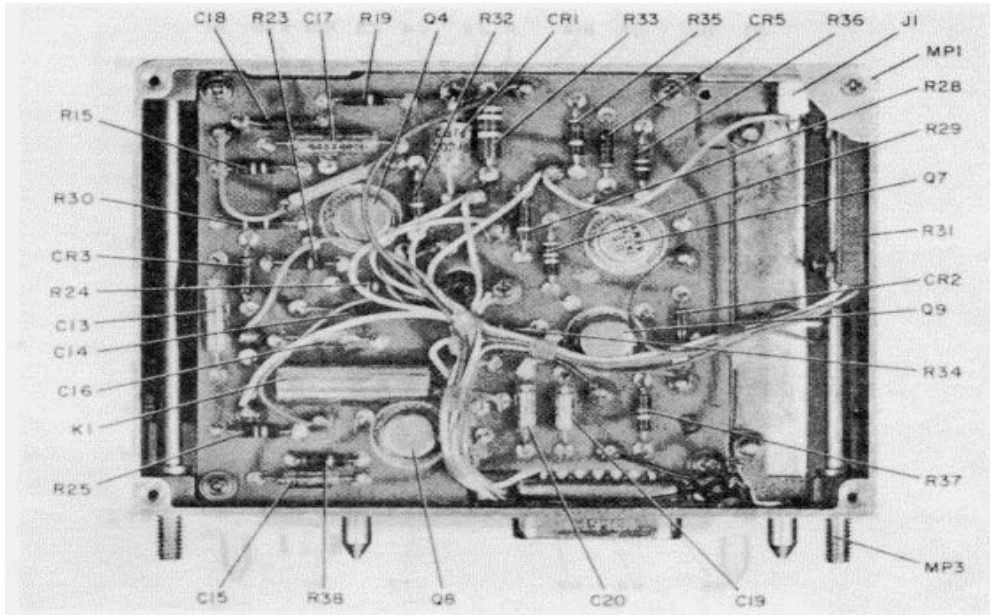


Figure 5-40. 3rd I-F and Squelch Module,
Right Side View, Parts Location

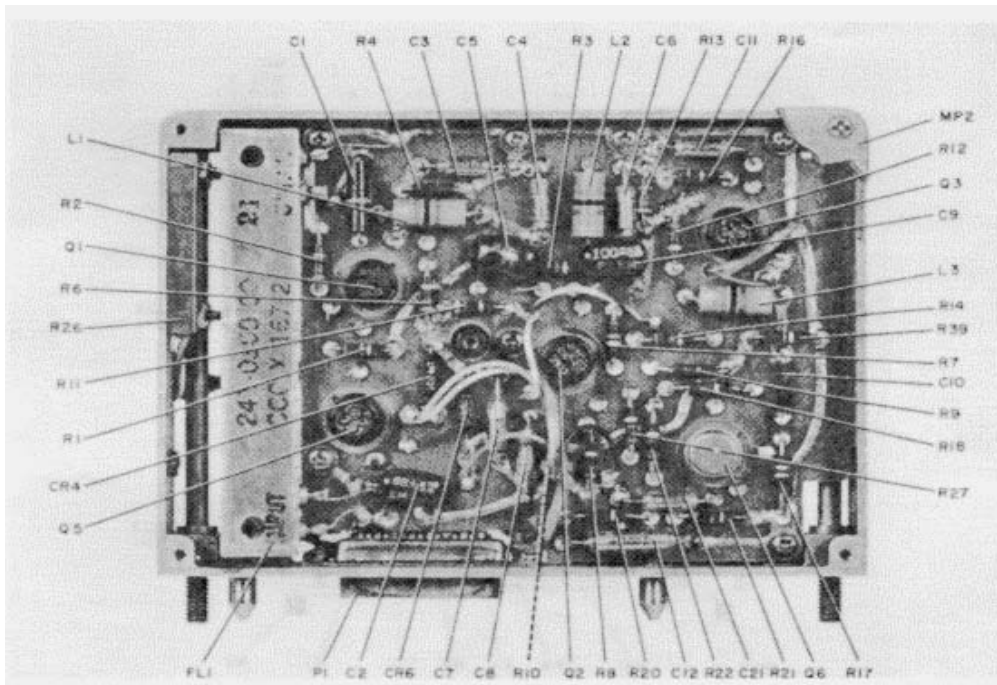


Figure 5-41. 3rd I-F and Squelch Module,
Right Side View, Parts Location

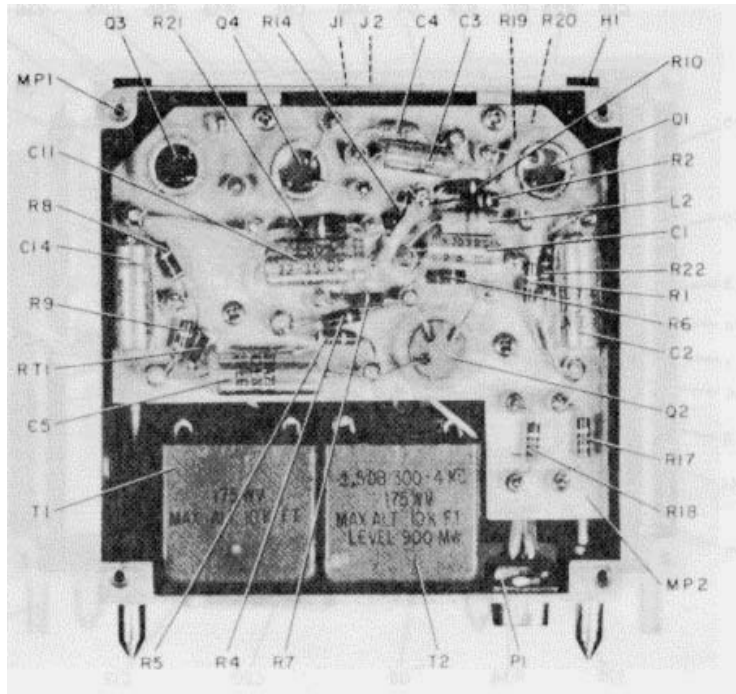


Figure 5-42. Audio Amplifier Module, Rear View, Parts Location

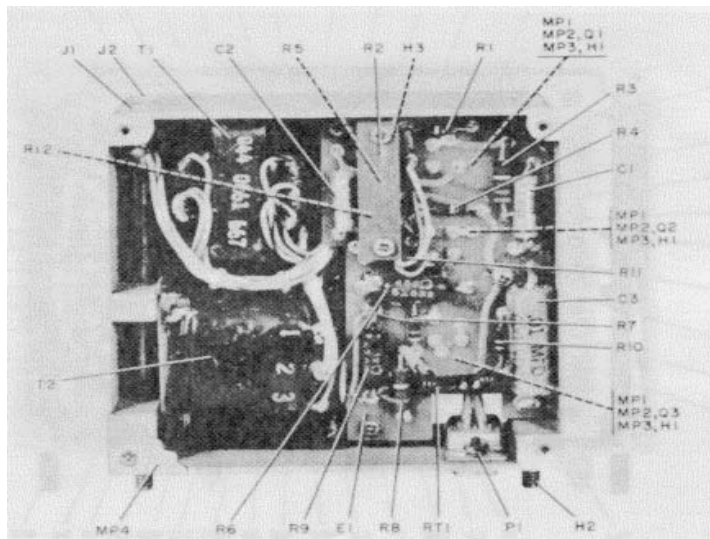


Figure 5-43. Modulator Module, Front View, Parts Location

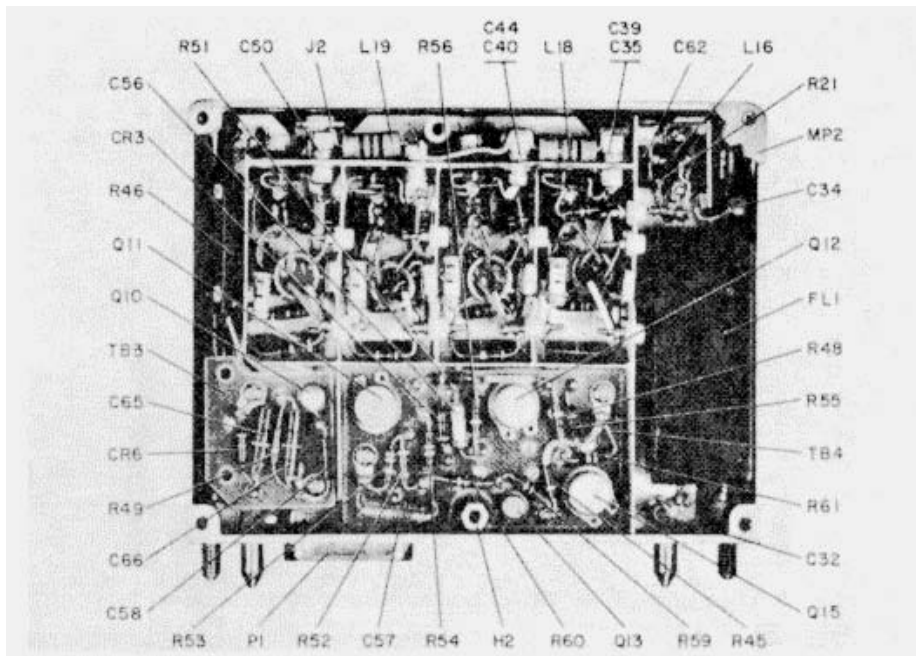


Figure 5-44. Guard Receiver Module, Right Side View, (1 of 2), Parts Location

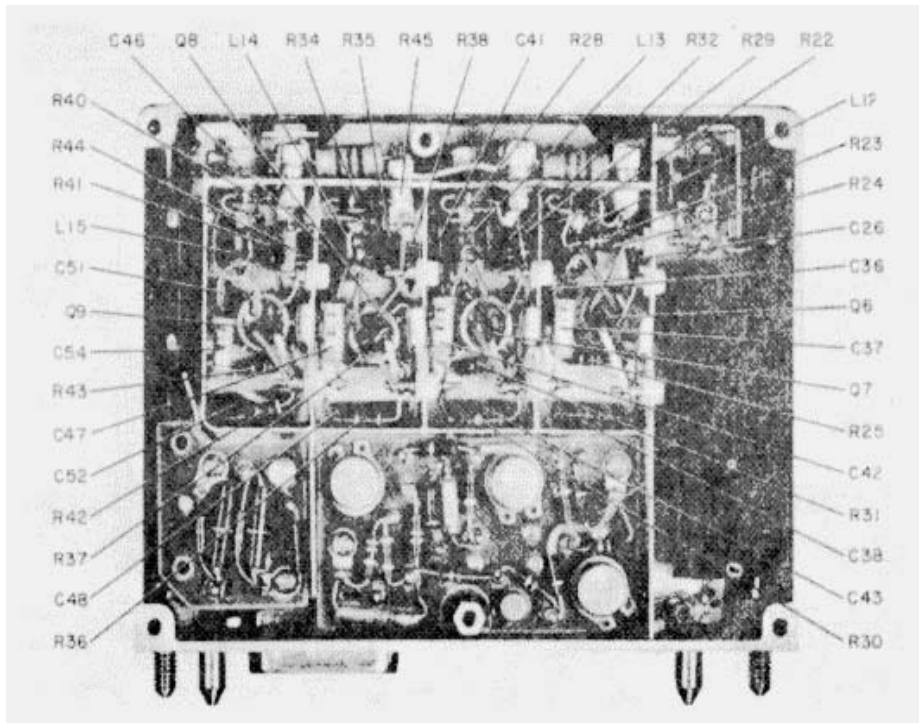


Figure 5-45. Guard Receiver Module, Right Side View, (2 of 2), Parts Location

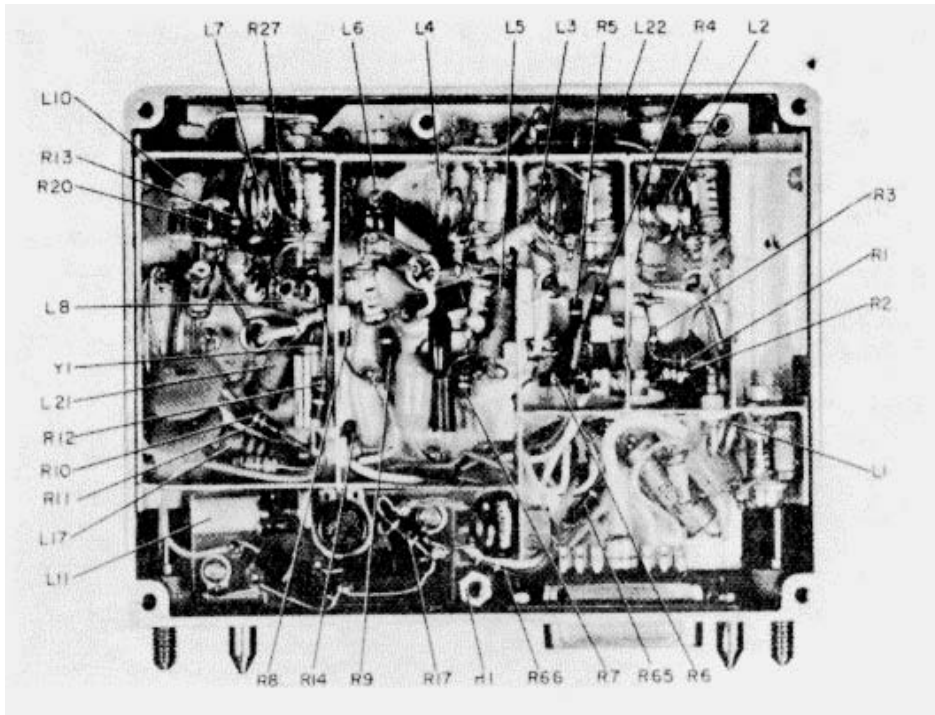


Figure 5-46. Guard Receiver Module, Left Side View, (1 of 2), Parts Location

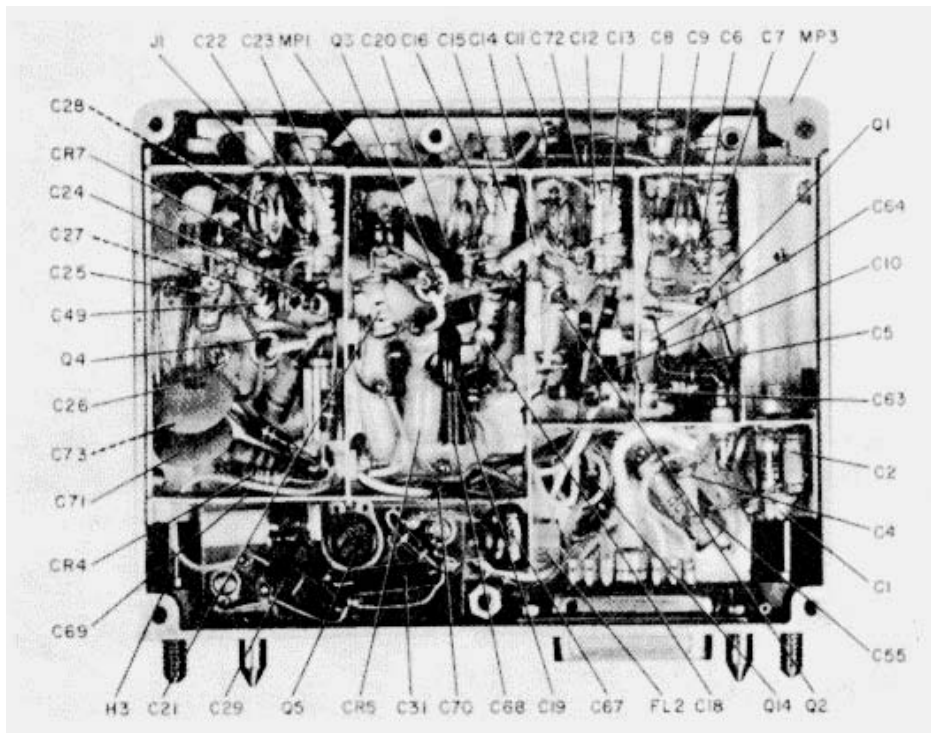


Figure 5-47. Guard Receiver Module, Left Side View, (2 of 2), Parts Location

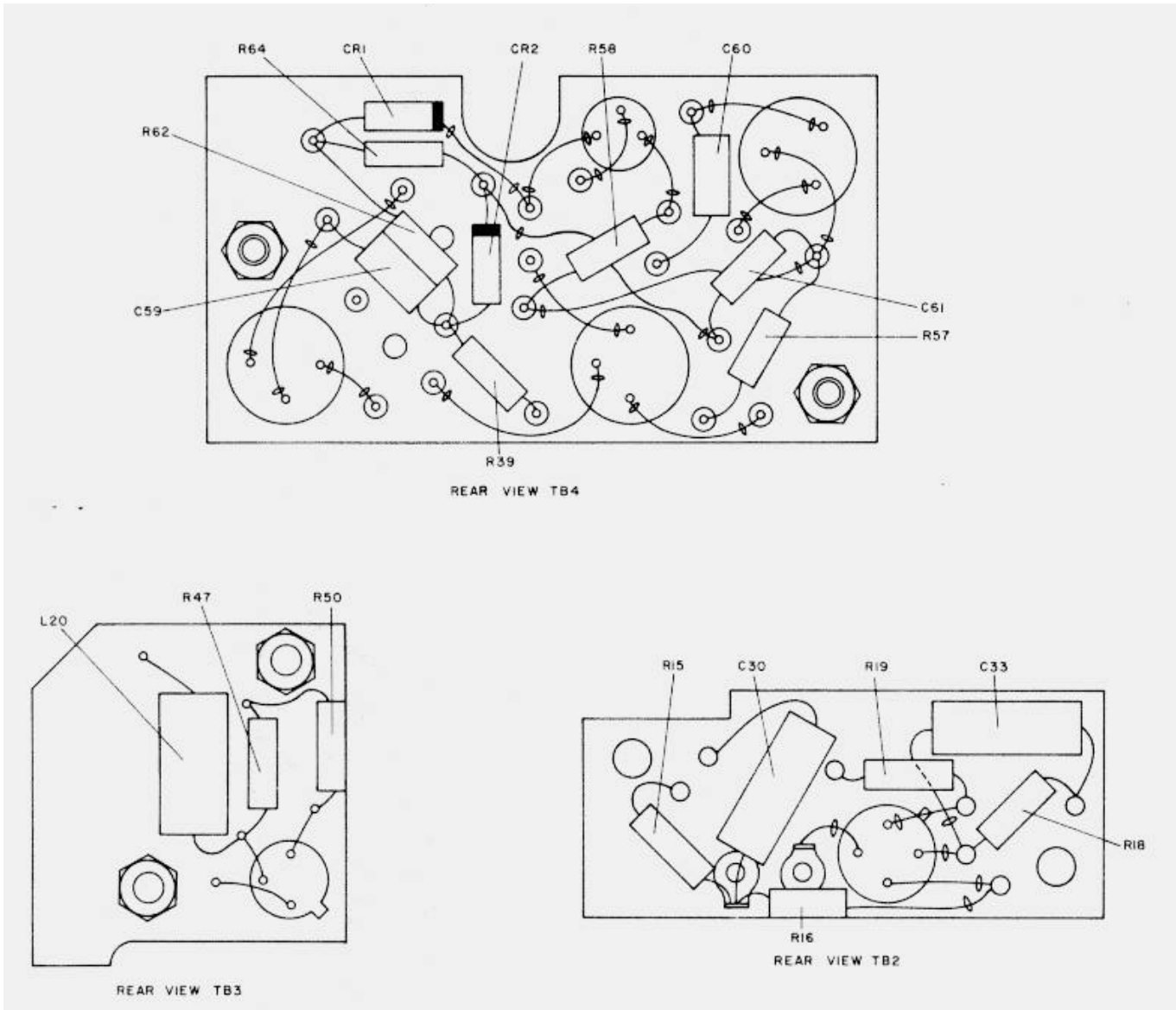


Figure 5-48. Guard Receiver Module, Terminal Board, Parts Location

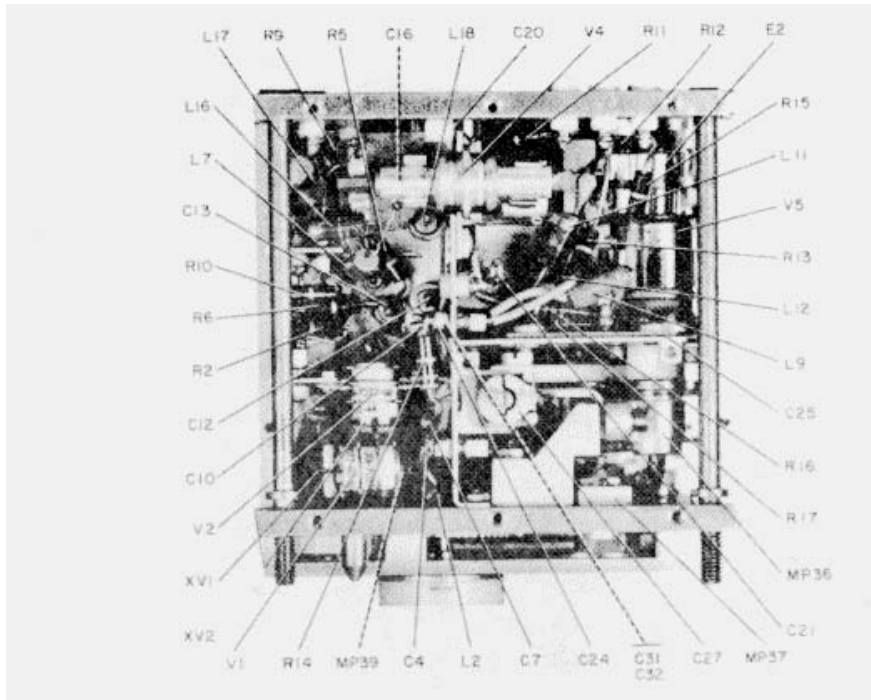


Figure 5-49. R-F and Power Amplifier Module, Rear View, Parts Location

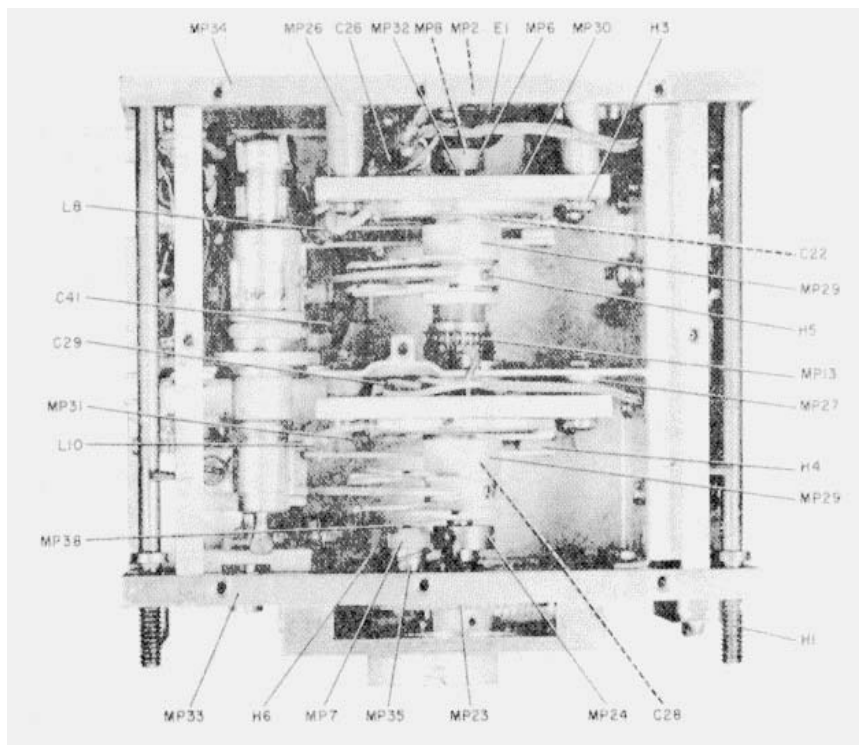


Figure 5-50. R-F and Power Amplifier Module, Left Side View, Parts Location

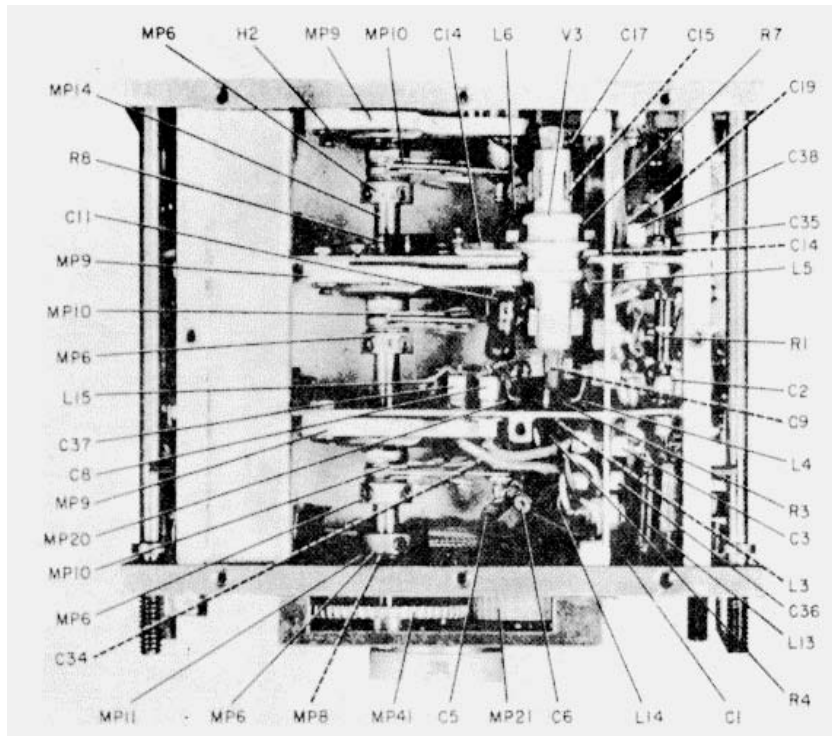


Figure 5-51. R-F and Power Amplifier Module, Right Side View, Parts Location

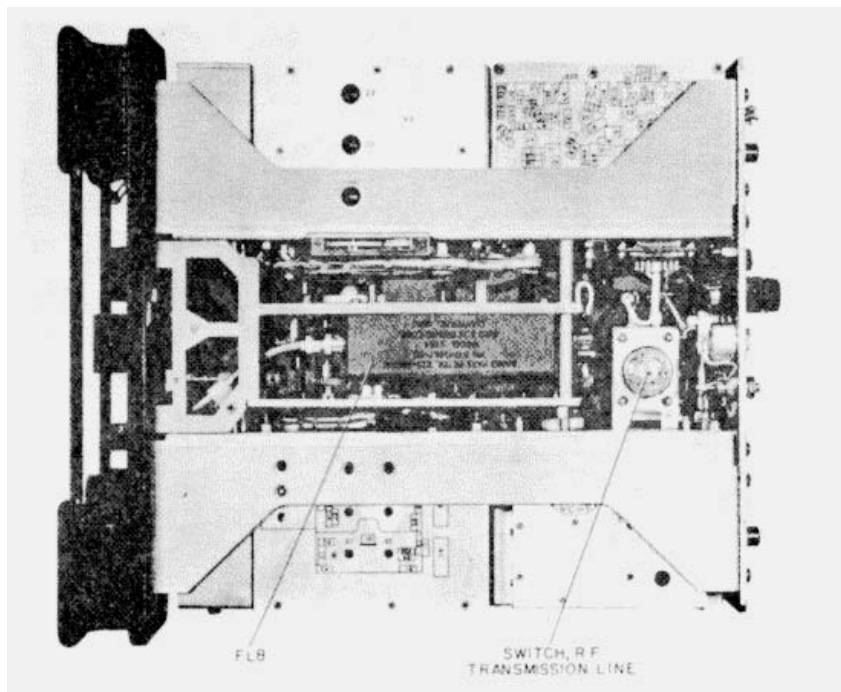


Figure 5-52. Radio Receiver-Transmitter RT-649/PRC-41, Left Side View Parts Location

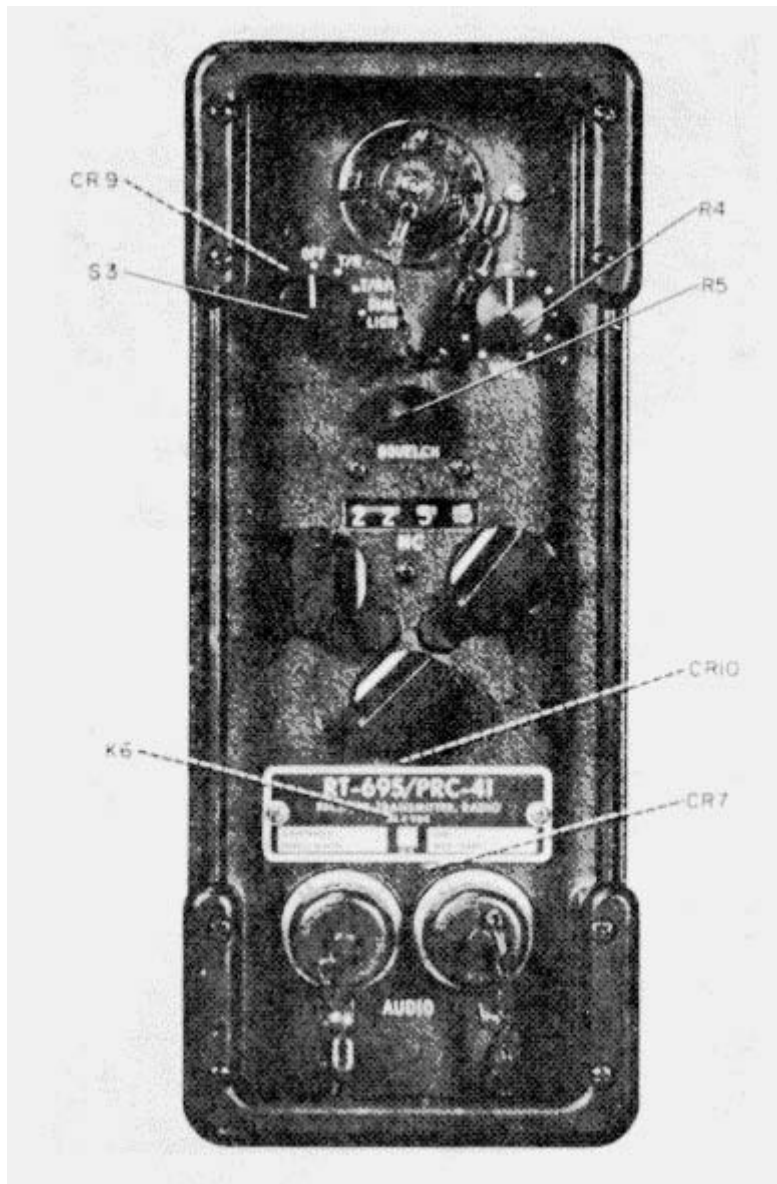


Figure 5-53. Radio Receiver-Transmitter RT-649/PRC-41, Front Panel, Parts Location

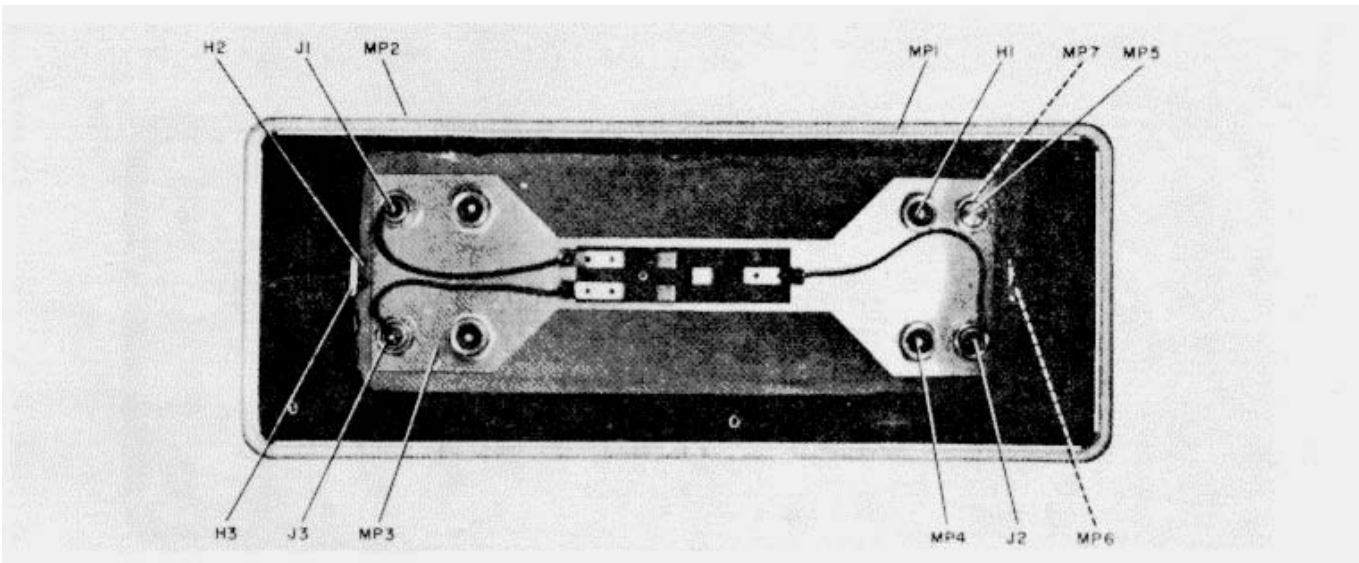


Figure 5-54. Receiver-Transmitter Case CY-3884/PRC-41, Inside View, Parts Location

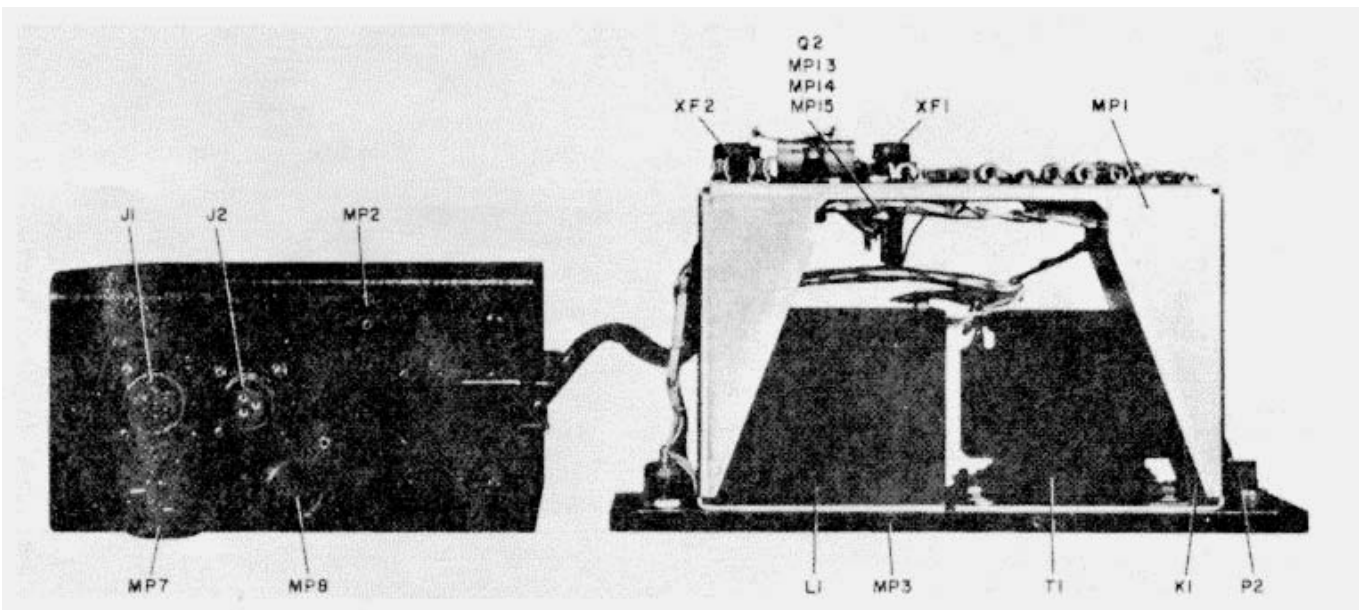


Figure 5-55. Power Supply PP-3700/PRC-41, Dust Cover Displaced, Parts Location

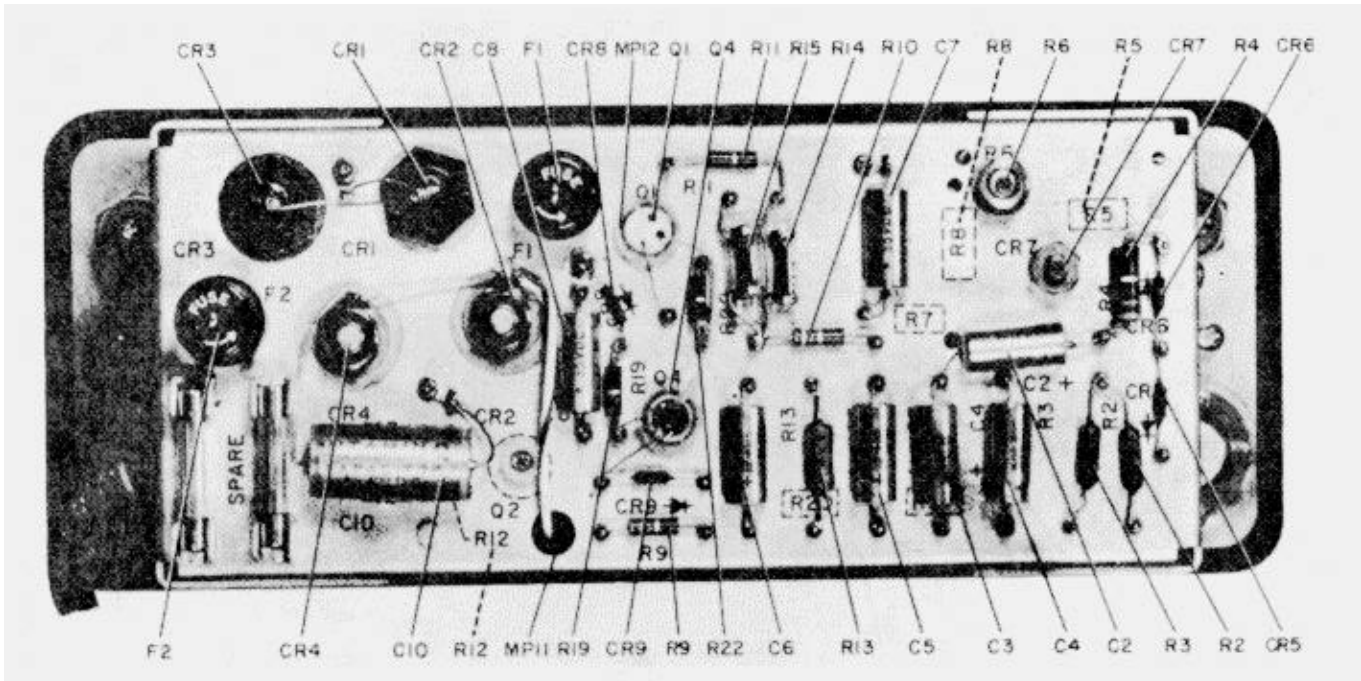


Figure 5-56. Power Supply PP-3700/PRC-41, Bottom View, Cover Removed, Parts Location

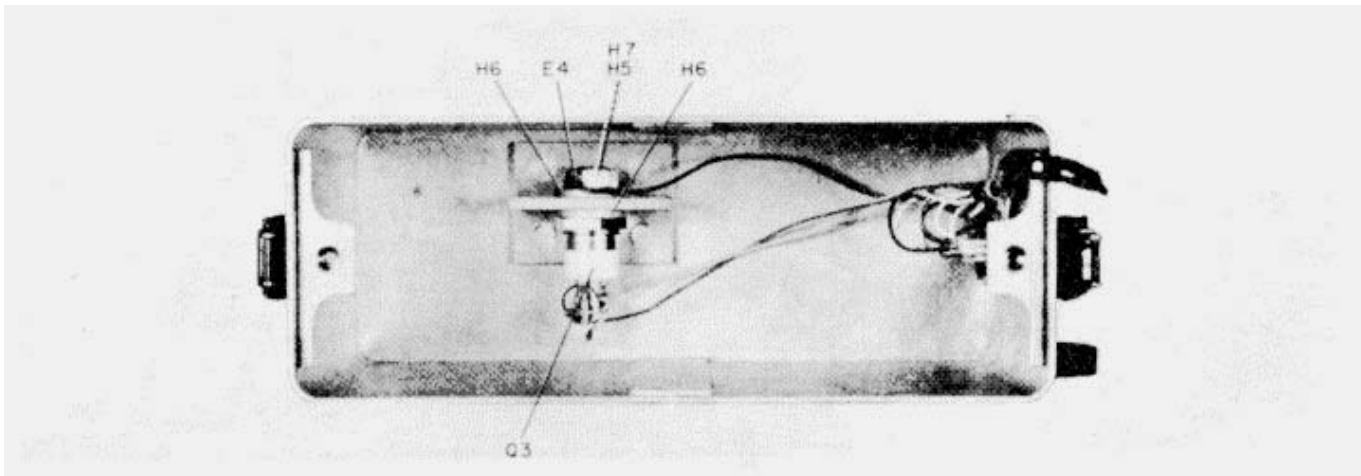


Figure 5-57. Power Supply PP-3700/PRC-41, Side View, Dust Cover Removed, Parts Location

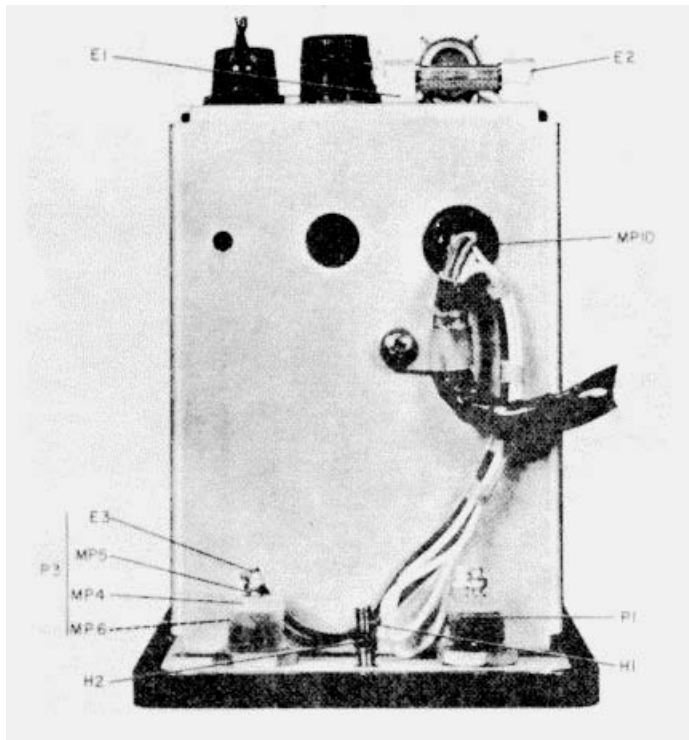


Figure 5-58. Power Supply PP-3700/PRC-41, End View, Dust Cover Removed, Parts Location

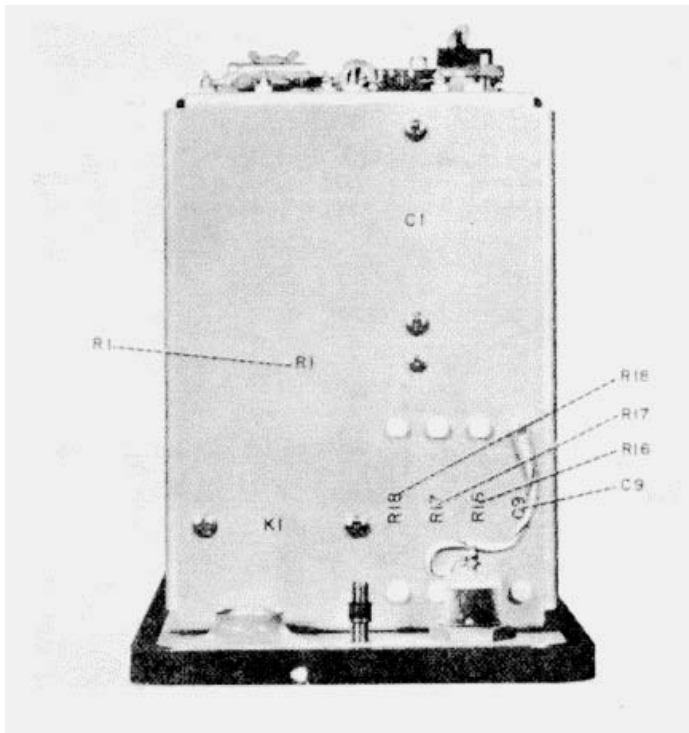


Figure 5-59. Power Supply PP-3700/PRC-41, Oblique View, Parts Location

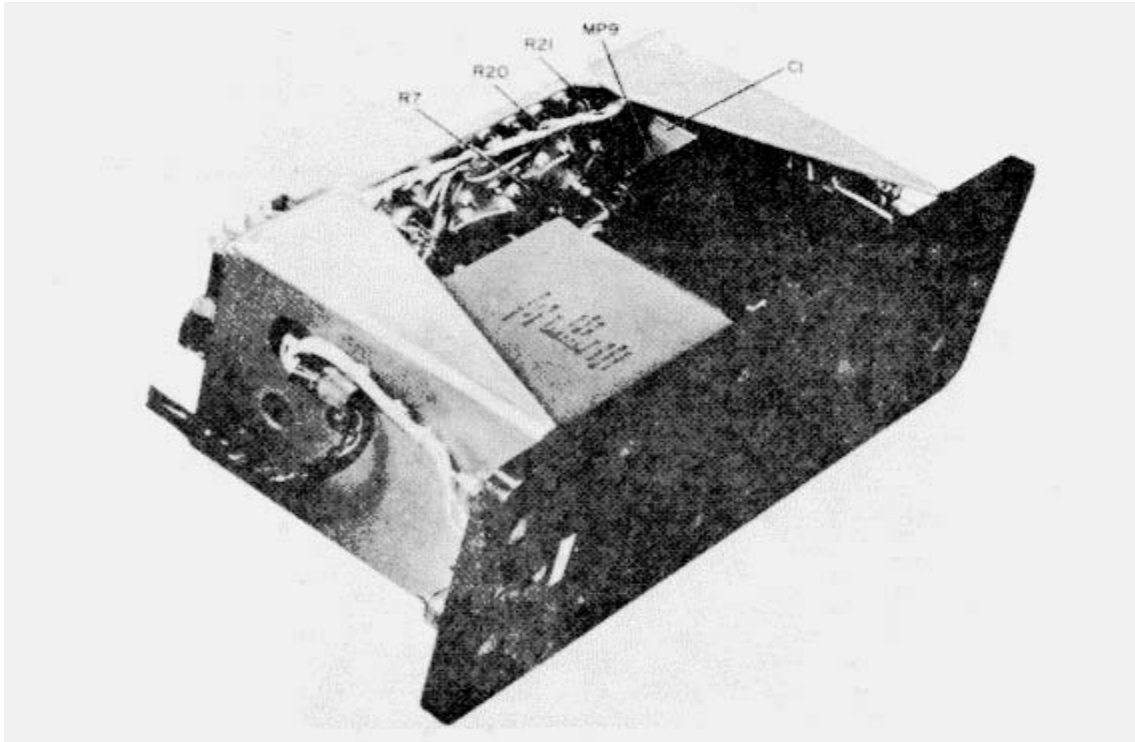


Figure 5-60. Power Supply PP-3700/PRC-41, Oblique View, Cover Removed, Parts Location

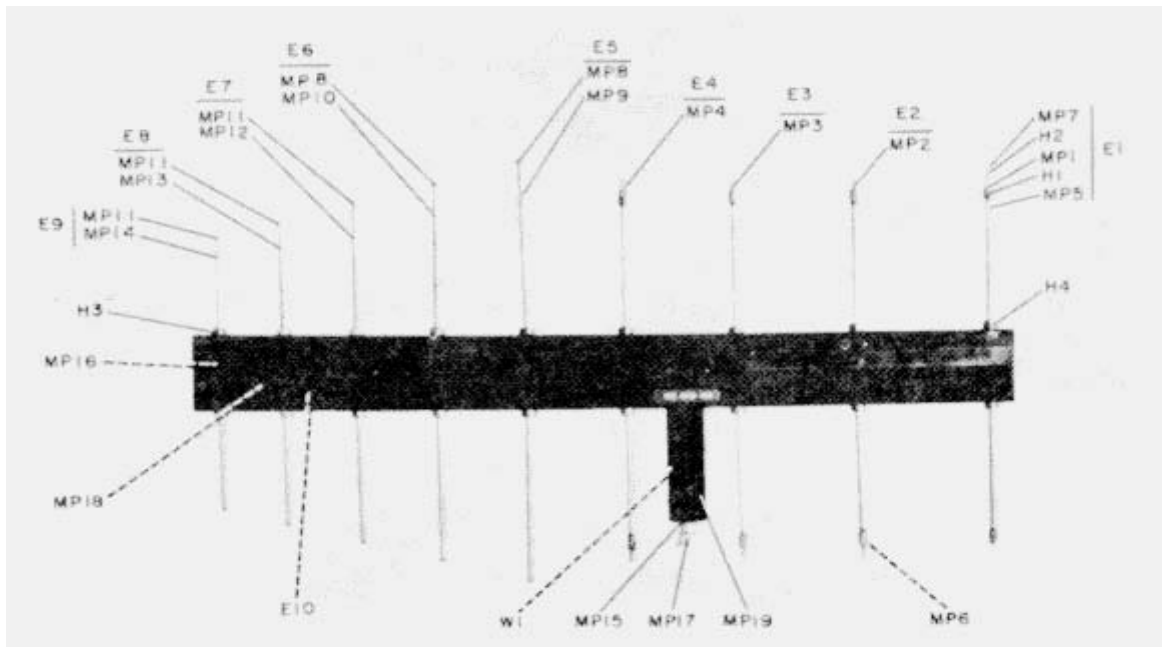


Figure 5-61. Antenna AS-1405/PRC-41, Parts Location

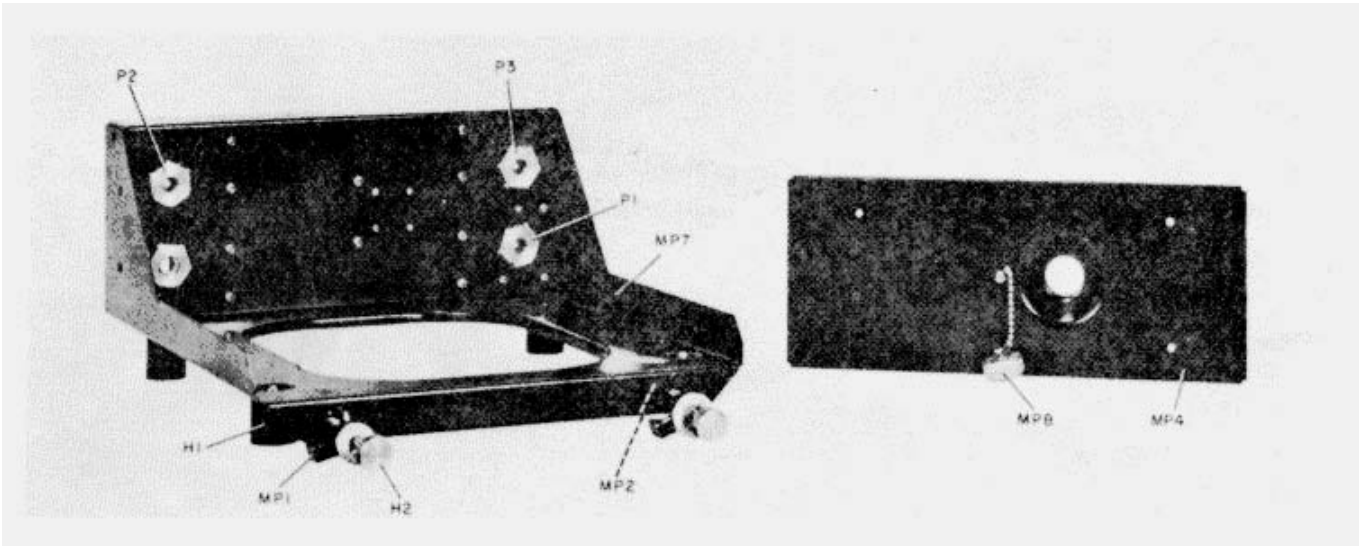


Figure 5-62. Mounting MT-2976/PRC-41, Parts Location

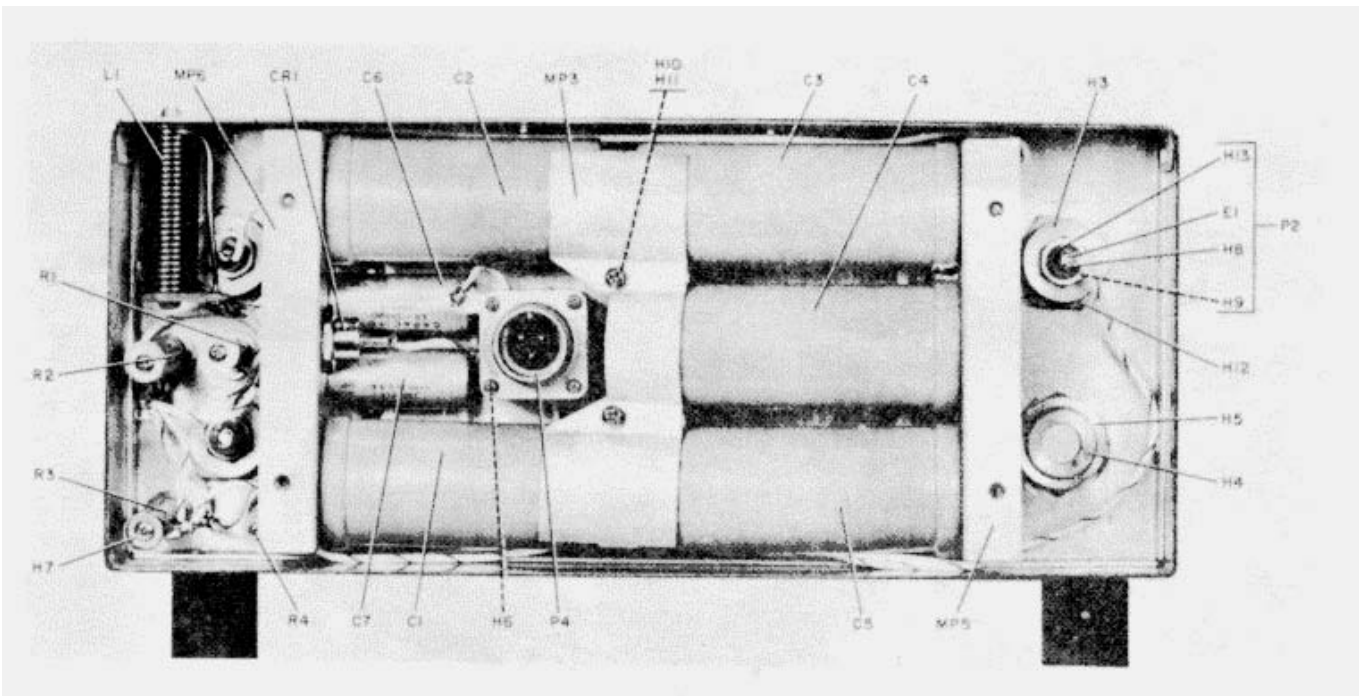


Figure 5-63. Mounting MT-2976/PRC-41, Rear View, Parts Location

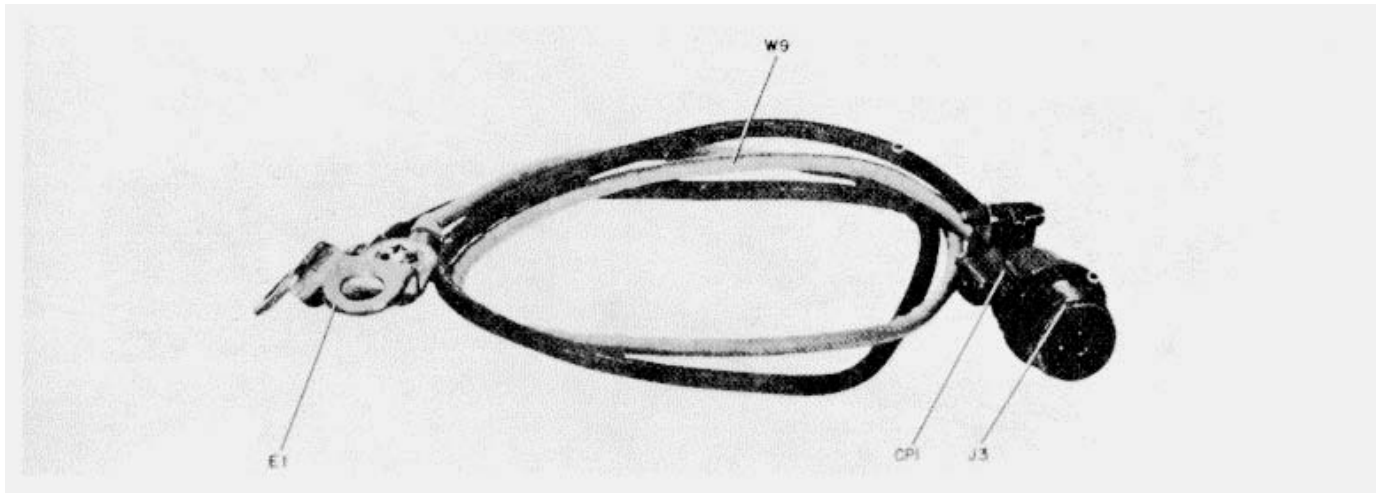


Figure 5-64. D-C Adapter Cable, Parts Location

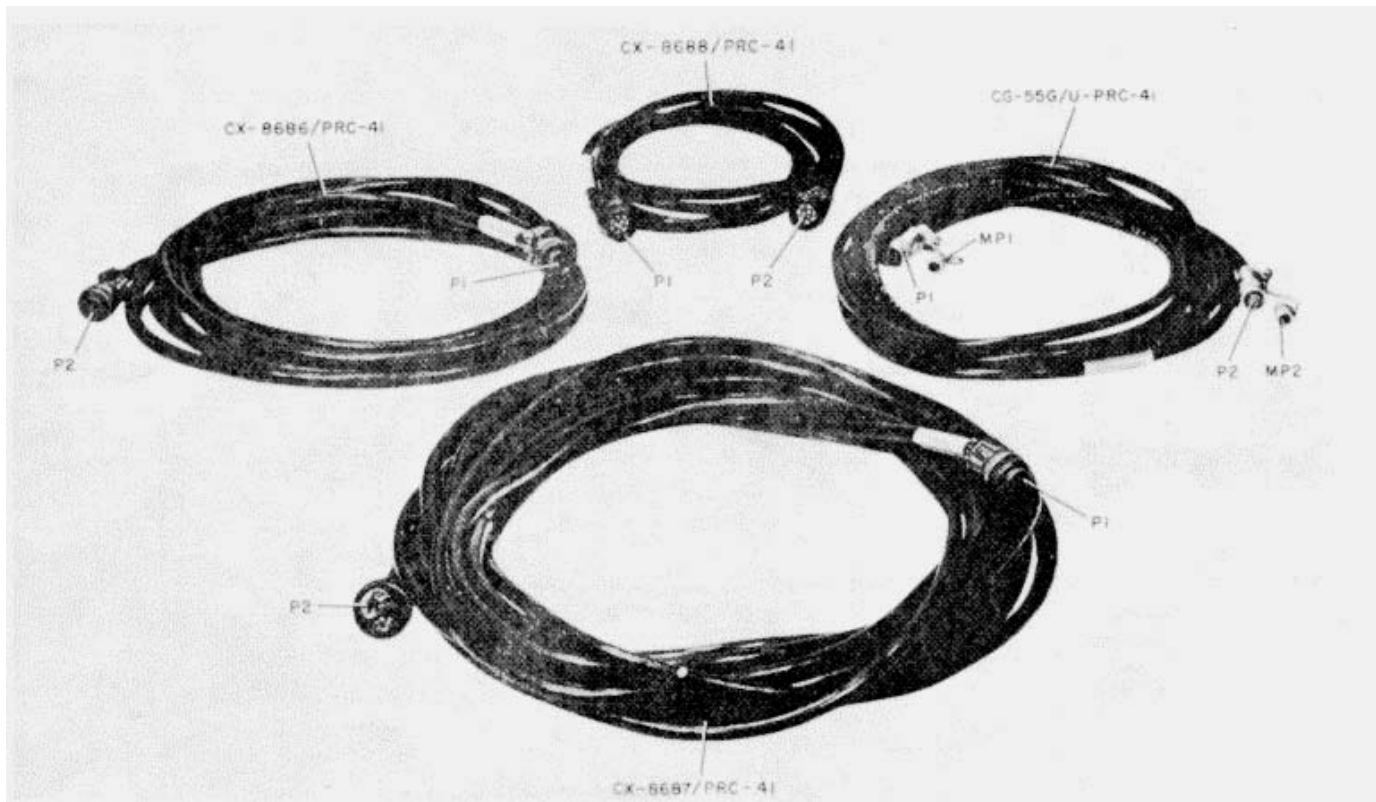


Figure 5-65. Cable Assemblies, Parts Location

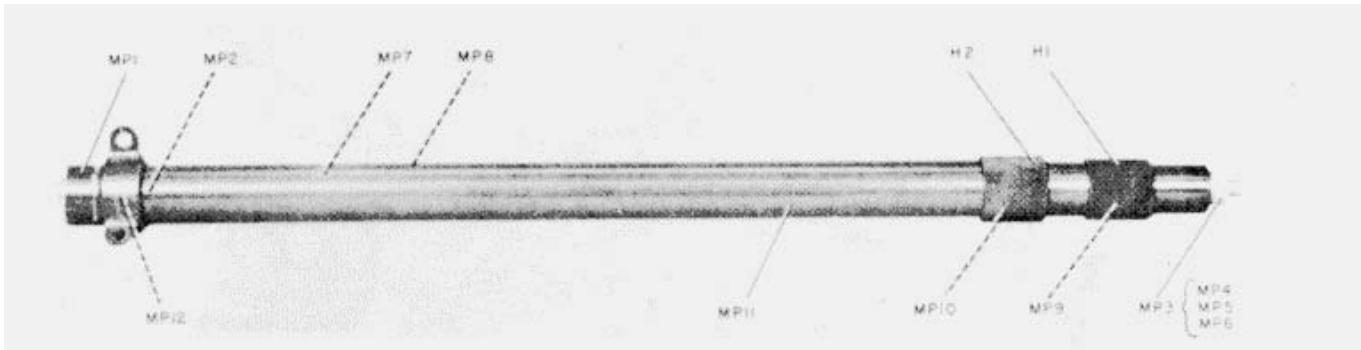


Figure 5-66. Mast AB-777/PRC-41, Parts Location

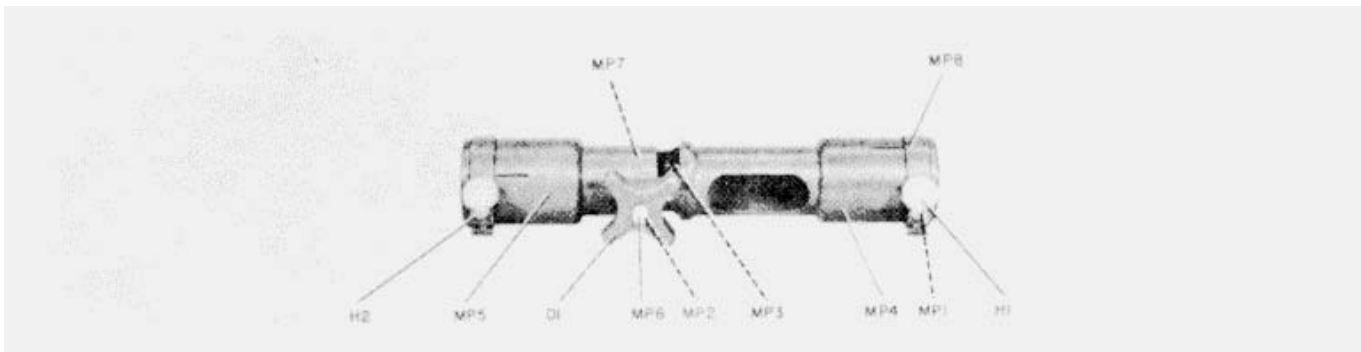


Figure 5-67. Adjustable Antenna Mast Adapter, Parts Location

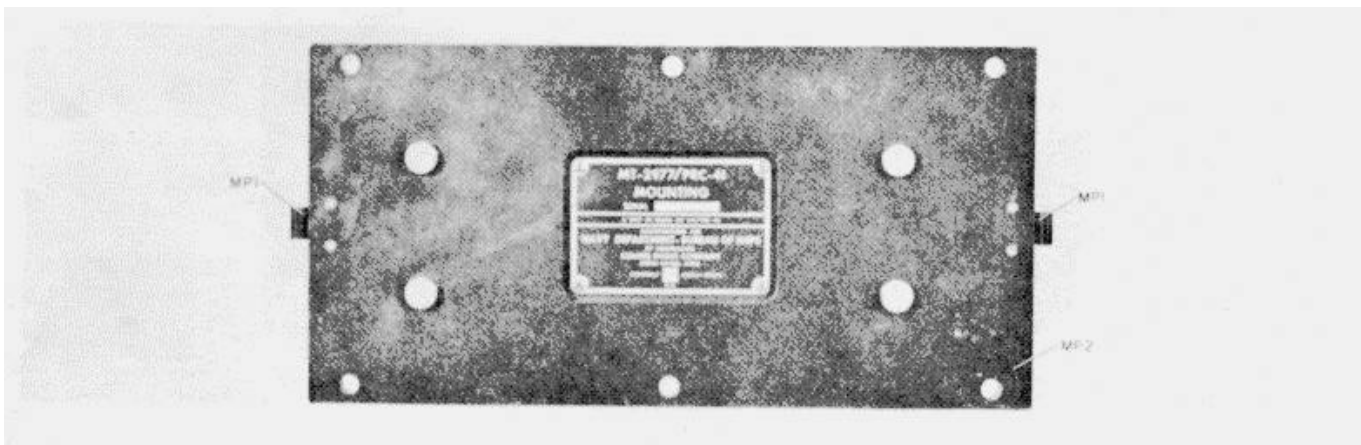


Figure 5-68. Mounting MT-2977/PRC-41 Parts Location

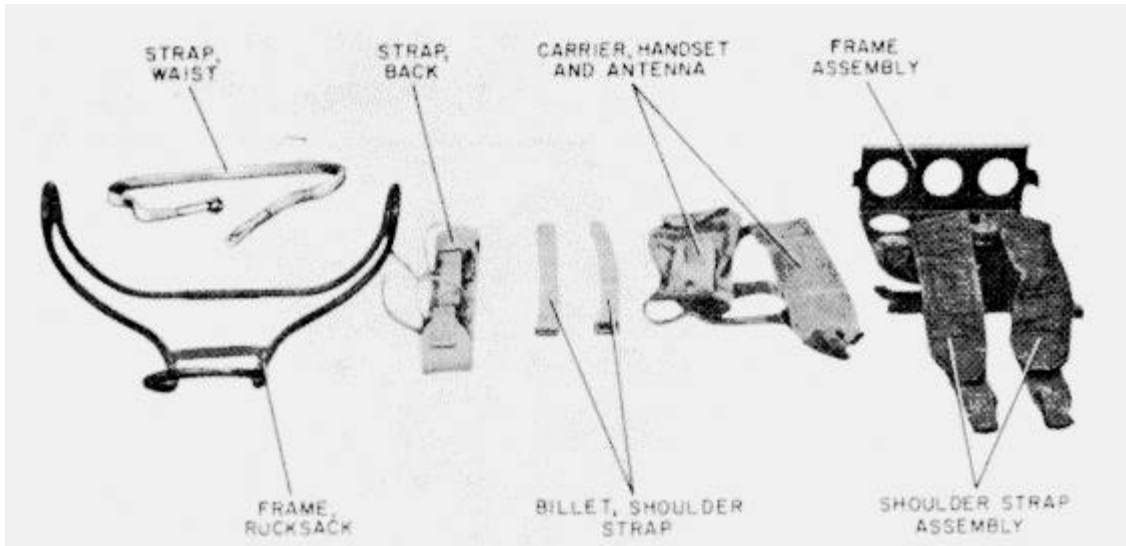


Figure 5-69. Rucksack Frame and Harness

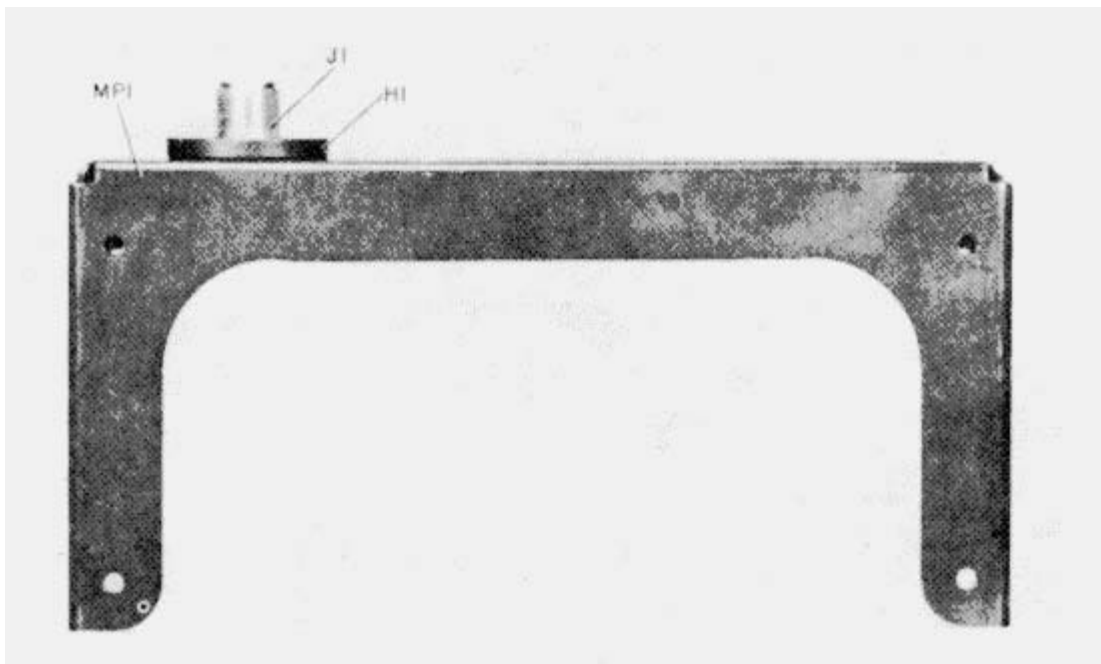


Figure 5-70. Antenna Mounting Bracket, Parts Location

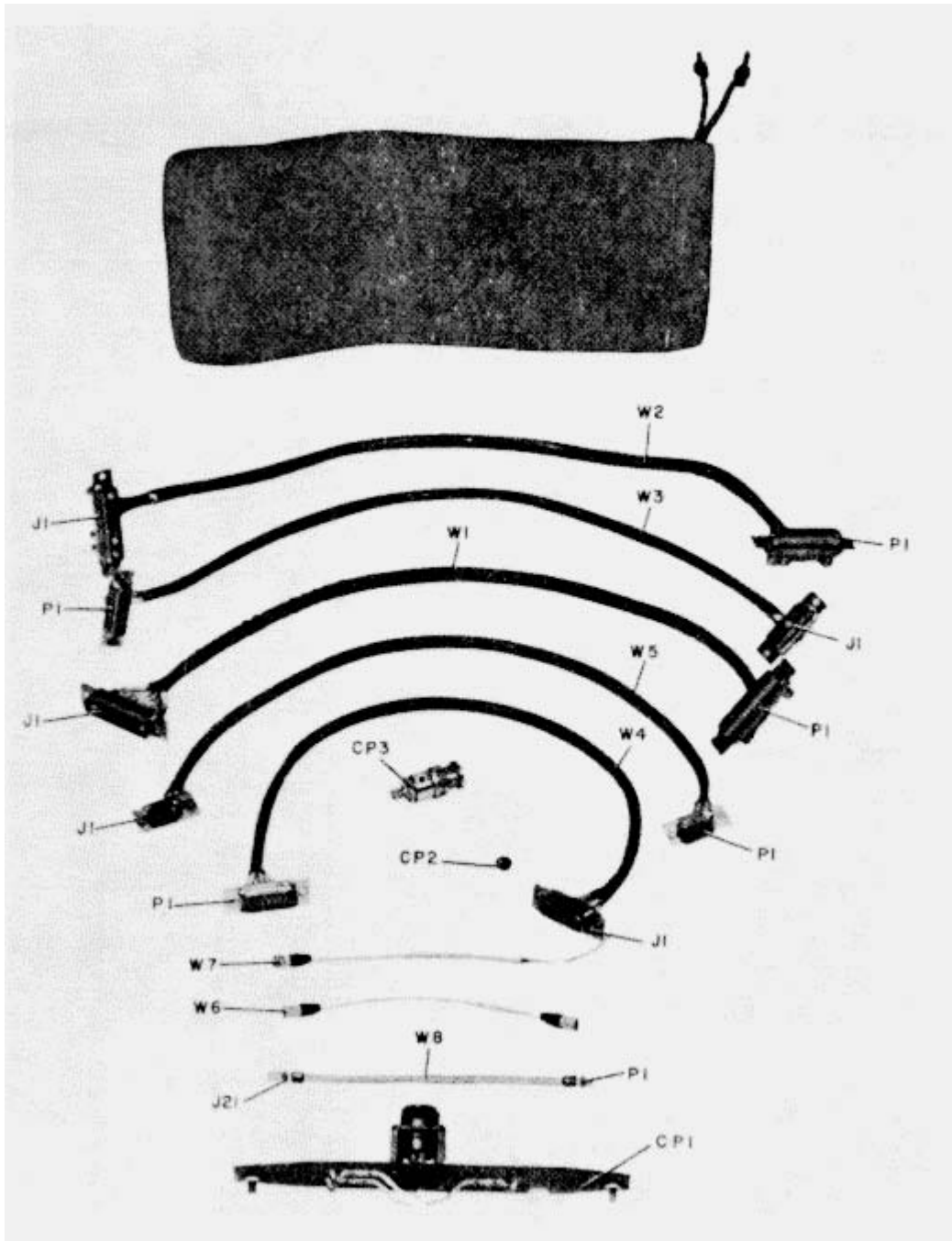


Figure 5-71. Maintenance Cable Set, Parts Location

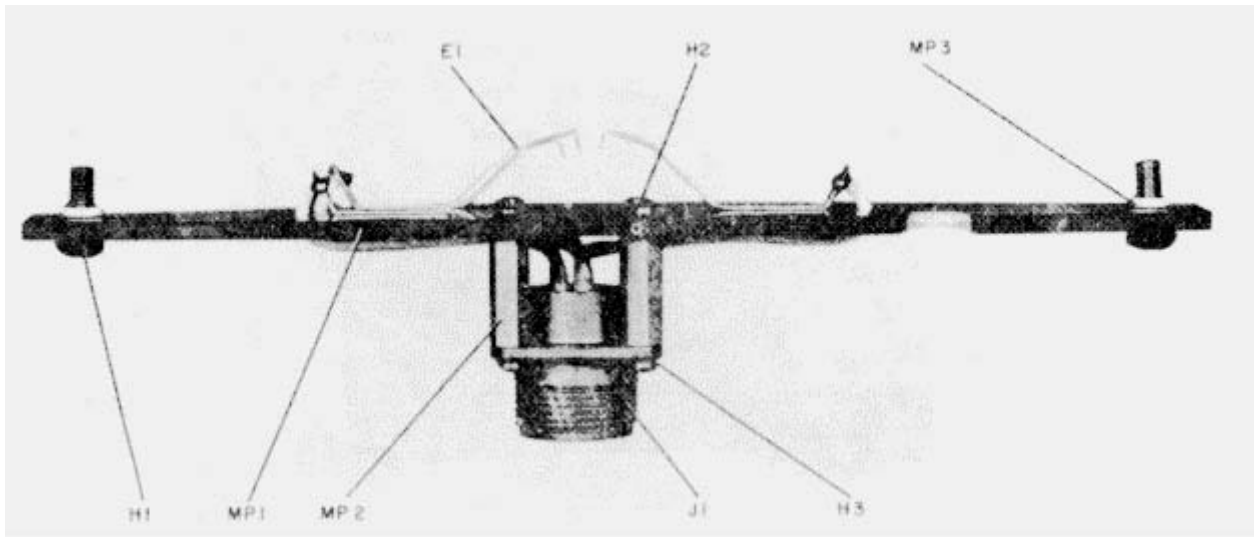


Figure 5-72. D-C Maintenance Adapter, Parts Location

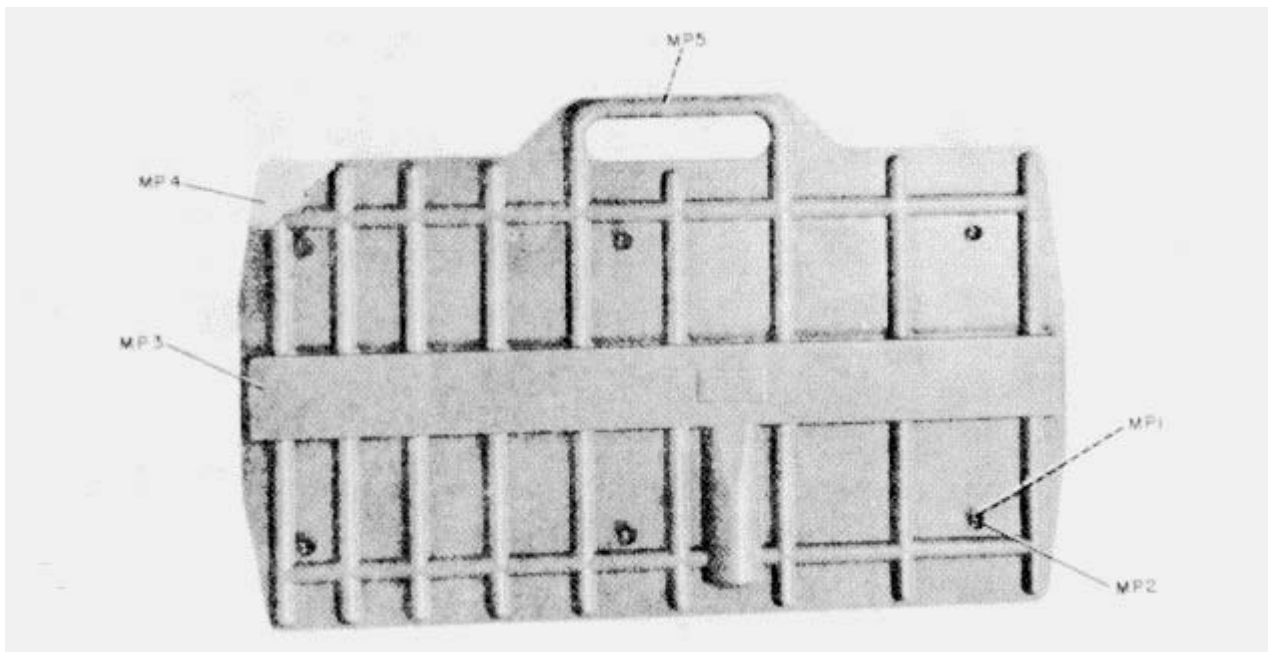


Figure 5-73. Directional Antenna Carrying Bracket, Parts Location

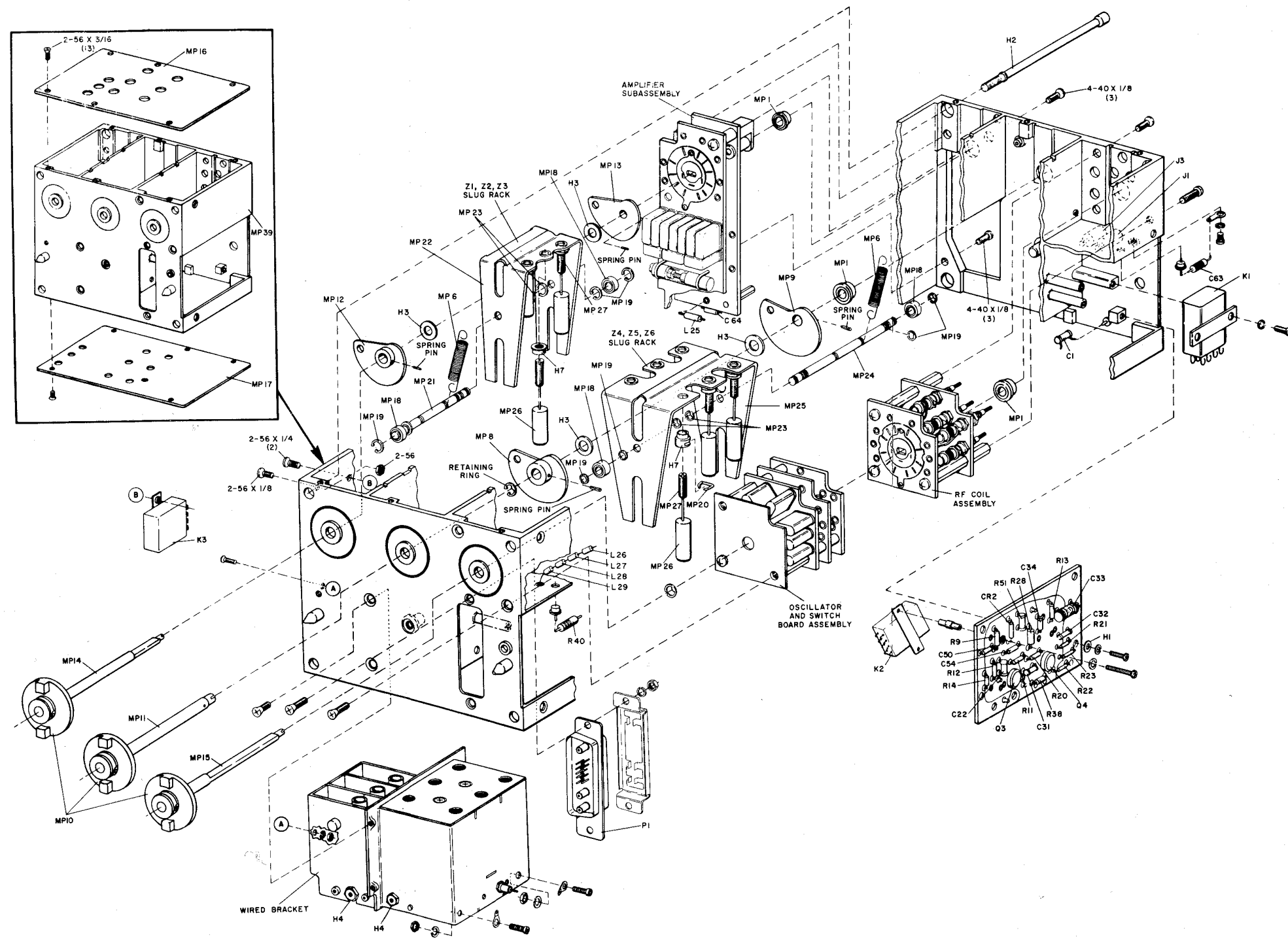


Figure 5-74. 1st and 2nd I-F Amplifier Module, Exploded View
5-67

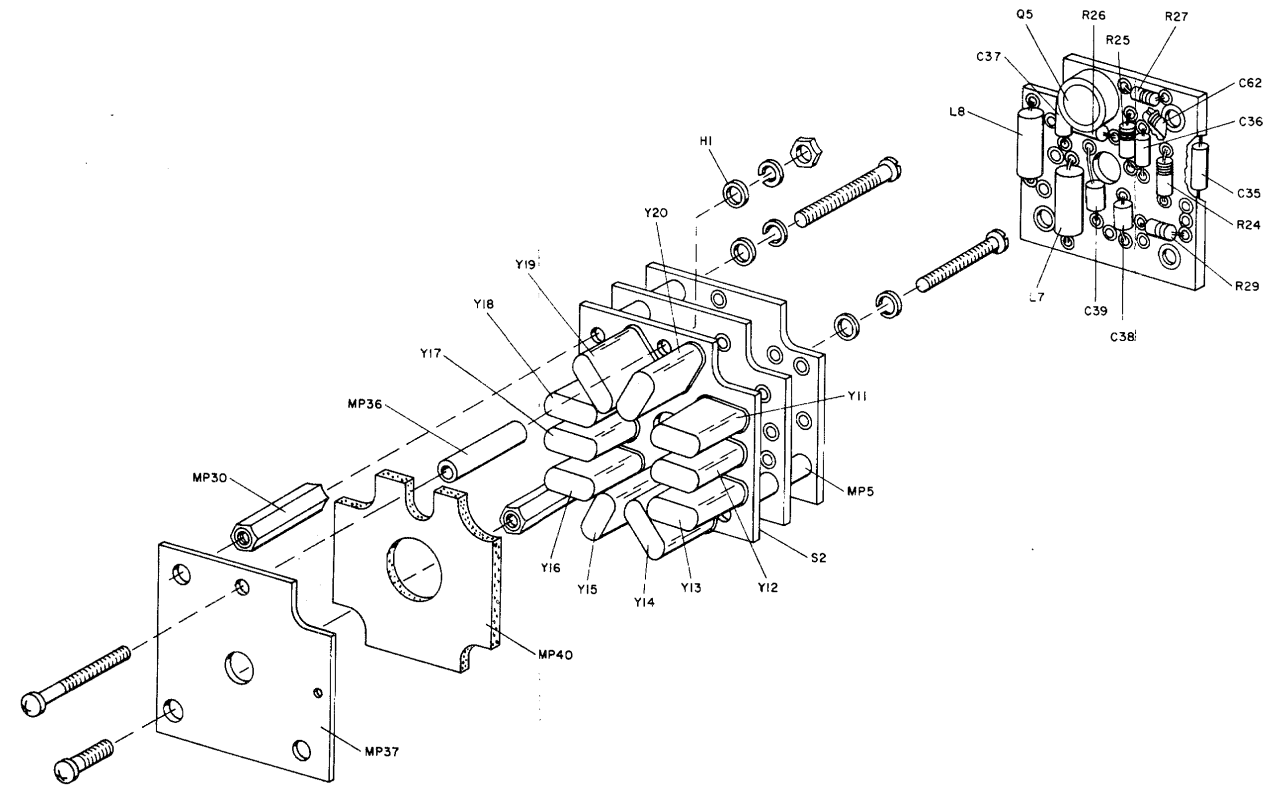


Figure 5-75. 1st and 2nd I-F Amplifier Module, Oscillator and Switchboard Assembly, Exploded View.

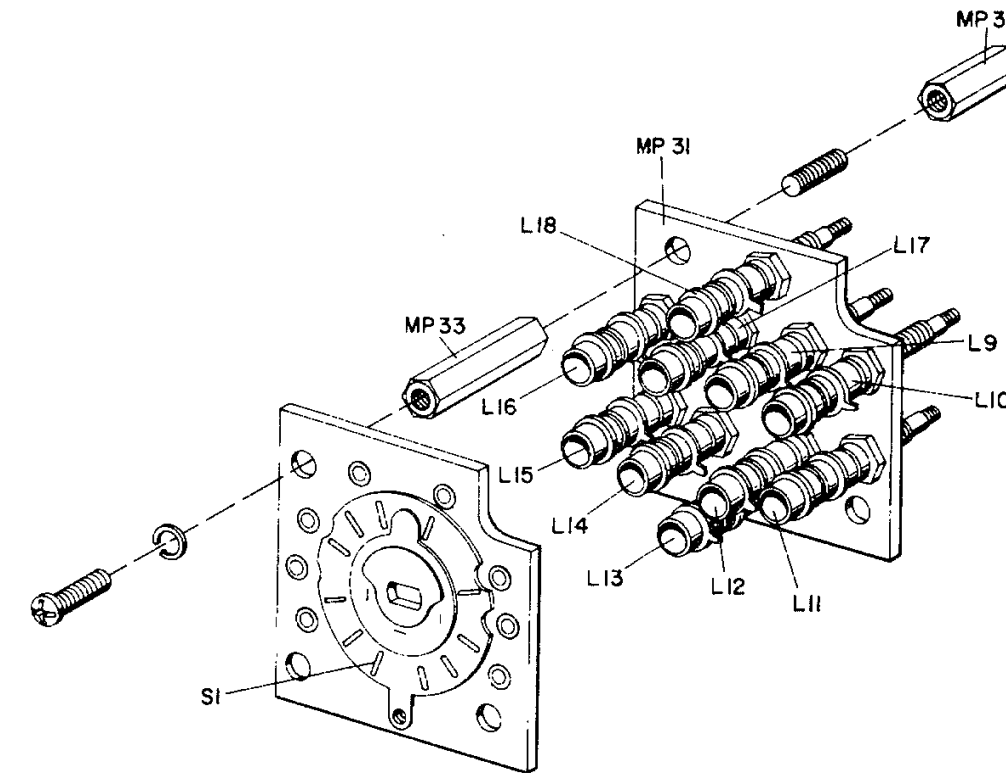


Figure 5-76. 1st and 2nd I-F Amplifier Module, R-F Coil Assembly, Exploded View

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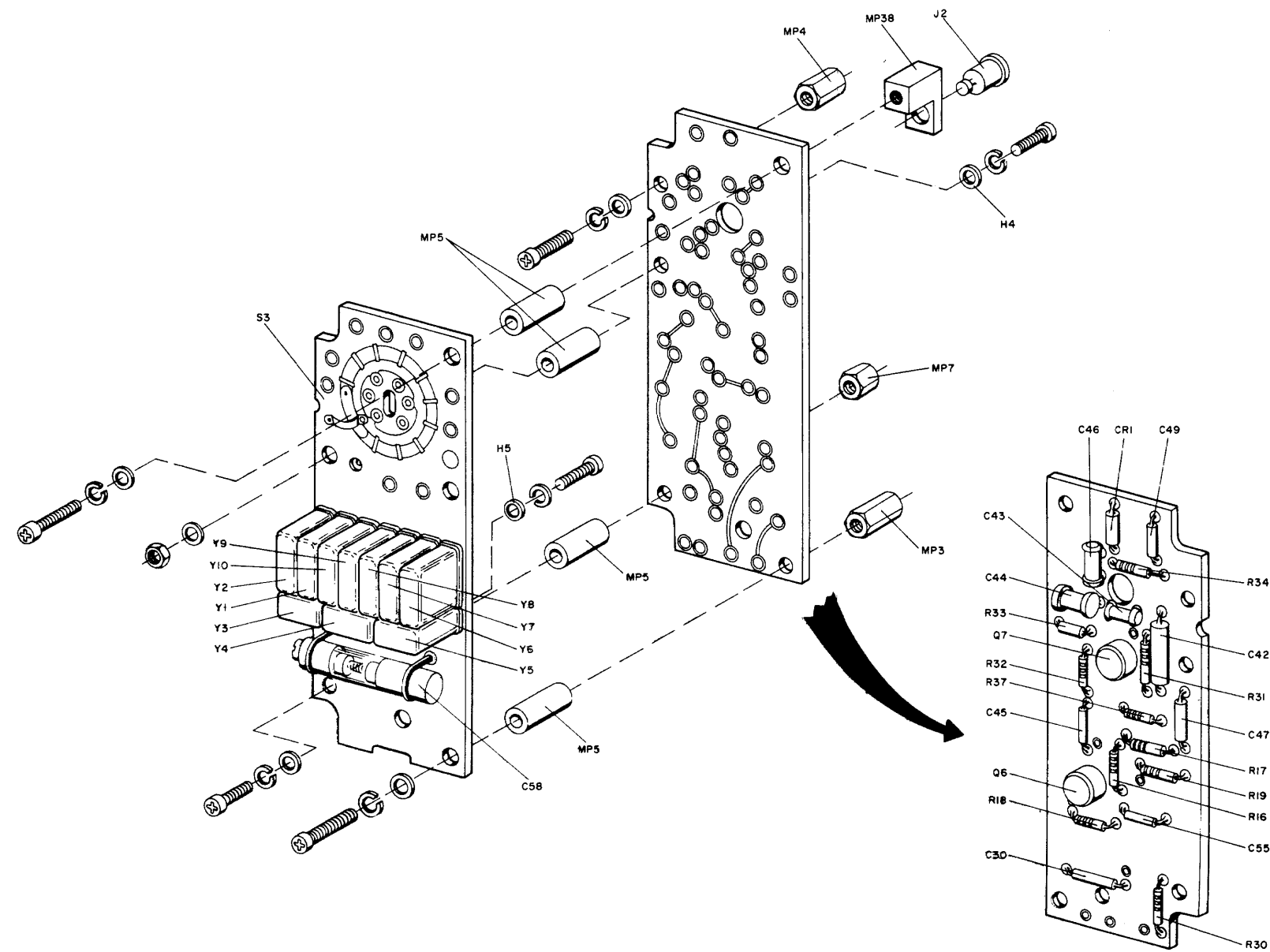


Figure 5-77. 1st and 2nd I-F Amplifier Module, Amplifier Subassembly, Exploded View

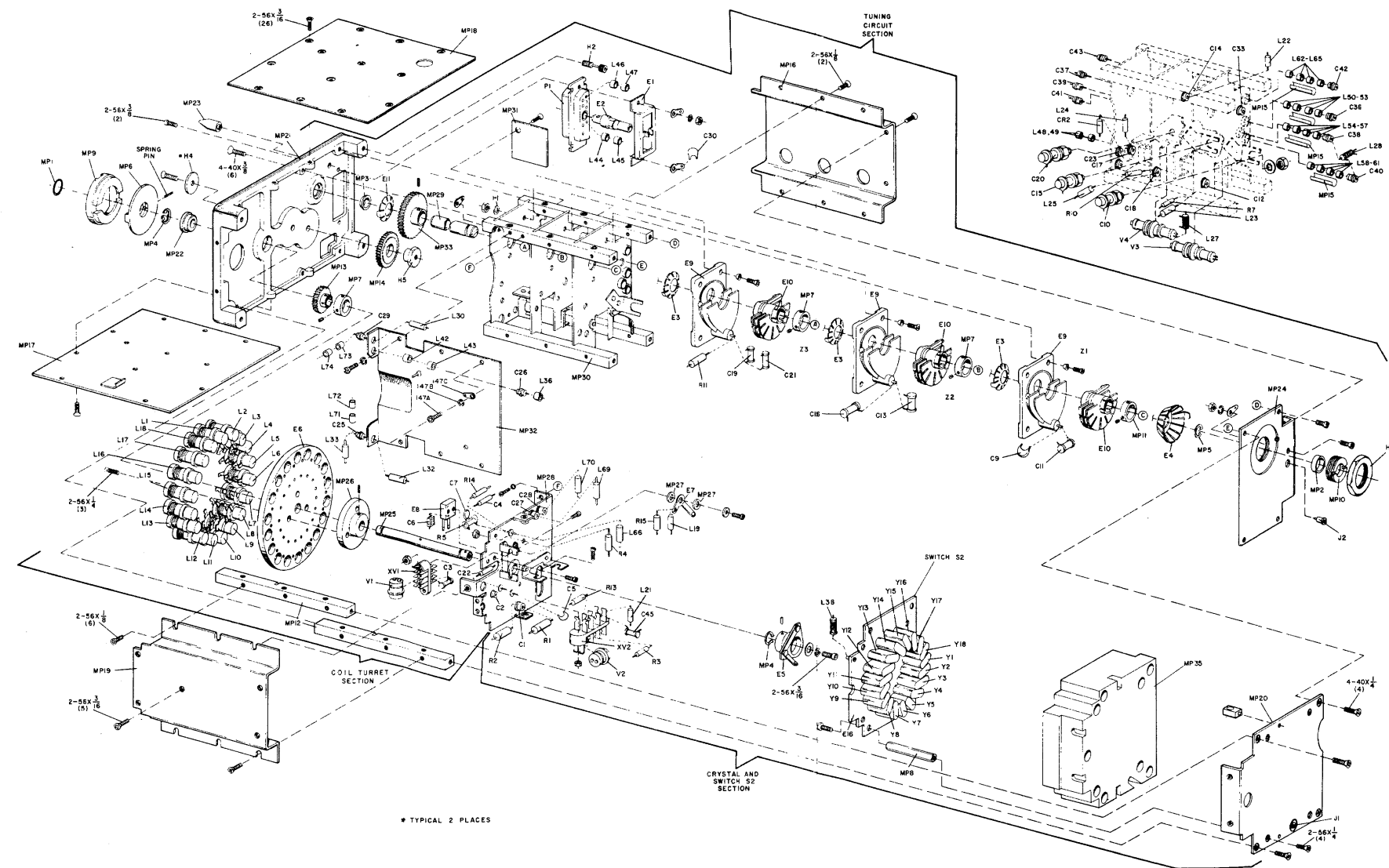


Figure 5-78. Spectrum Generator Module, Exploded View

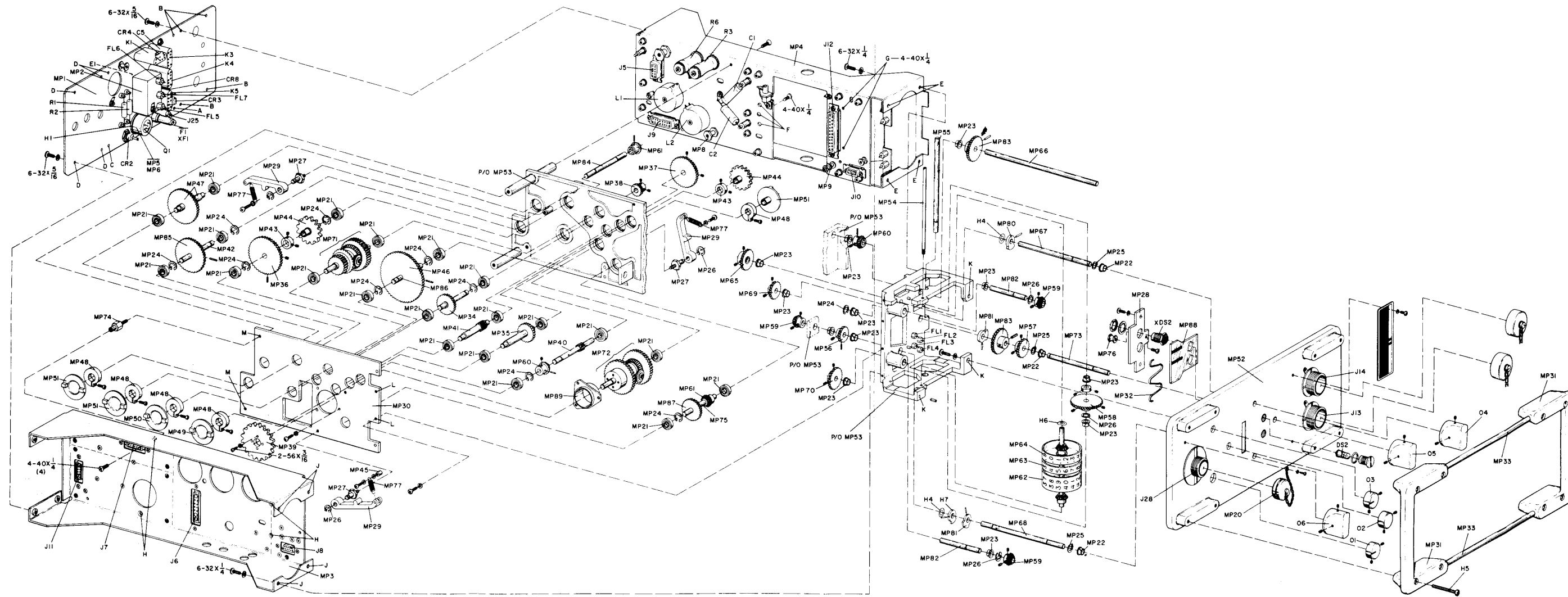


Figure 5-80. Radio Receiver-Transmitter RT-695/PRC-41,
Main Chassis, Exploded View

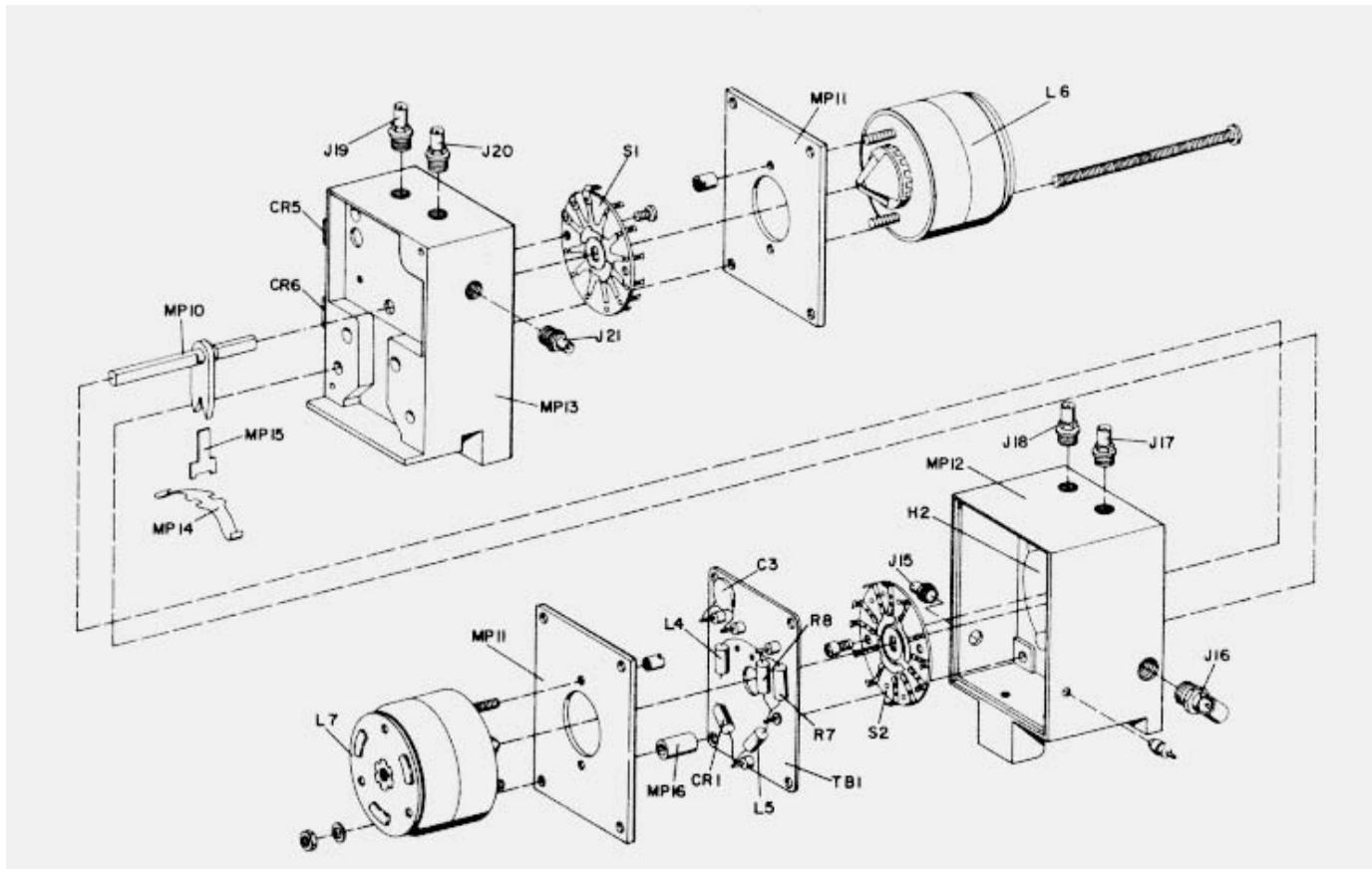


Figure 5-81. Receive-Transmit Switch,
Exploded View

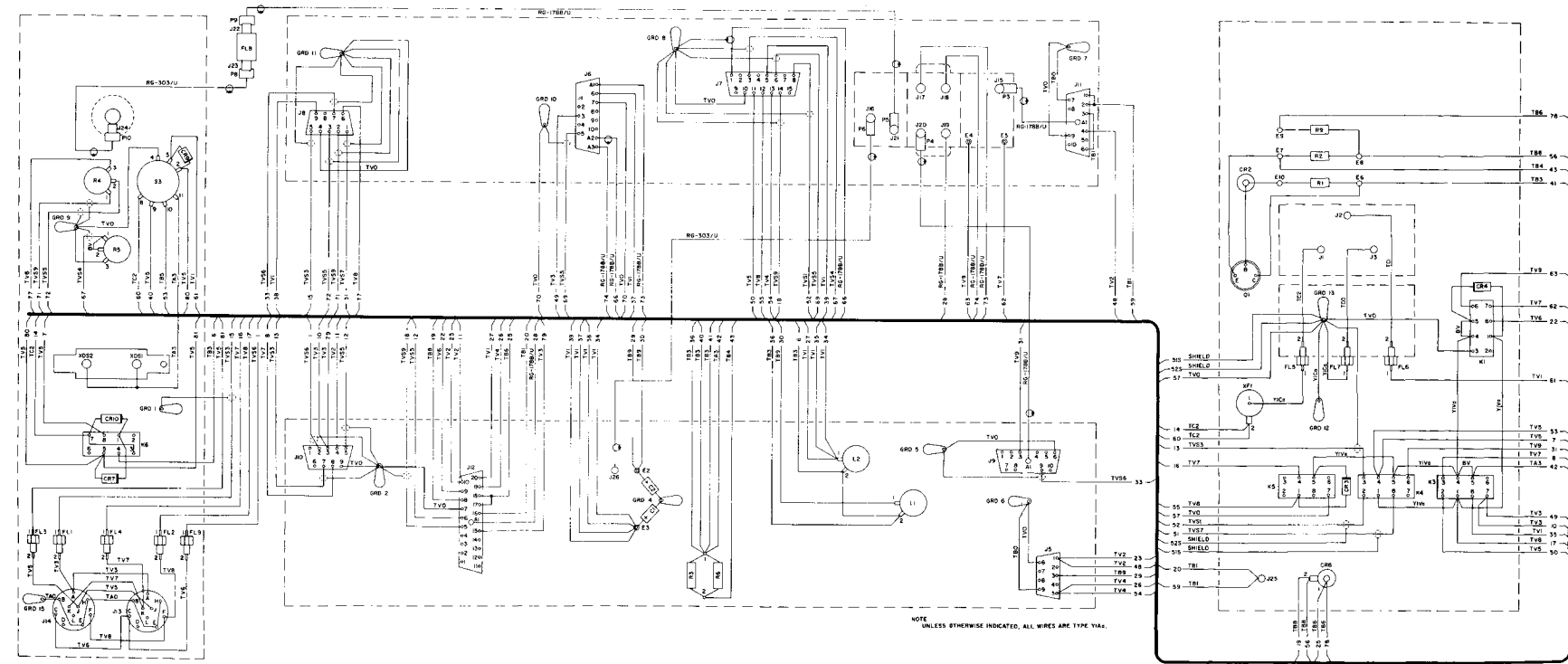


Figure 5-83. Radio Receiver-Transmitter RT-695/PRC-41, Main Chassis Wiring Diagram

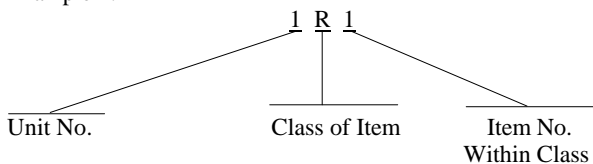
SECTION 6

PARTS LIST

6-1. INTRODUCTION.

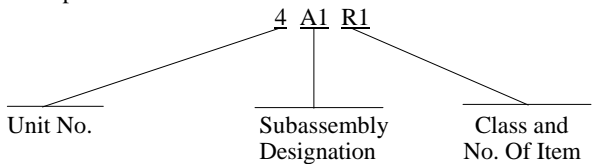
a. REFERENCE DESIGNATIONS. - The unit numbering method of assigning reference designations has been used to identify units, assemblies, subassemblies, and parts. This method has been expanded as much as necessary to adequately cover the various degrees of subdivision of the equipment. Examples of this unit numbering method and typical expansions of the same are illustrated by the following:

Example 1:



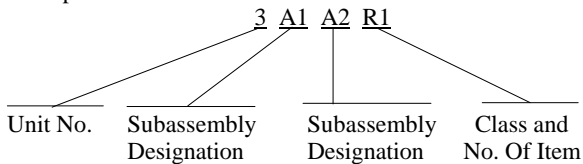
Read as: First (1) resistor (R) of first unit (1).

Example 2:



Read as: First (1) resistor (R) of first (1) subassembly (A) of fourth (4) unit.

Example 3:



Read as: First (1) resistor (R) of second (2) subassembly (A) of first (1) subassembly (A) of third (3) unit.

b. REF DESIG PREFIX. - Partial reference designations are used on the equipment and illustrations. The partial reference designations consist of the class letter(s) and the identifying item number. The complete reference designations may be obtained by placing the proper prefix before the partial reference designations. Prefixes are provided on illustrations following the notation REF DESIG PREFIX.

6-2. LIST OF UNITS.

Table 6-1 is a listing of the units comprising the equipment. The units are listed by unit numbers in numerical order. Thus when the complete reference designation of a part is known, this table will furnish the identification of the unit in which the part is located, since the first number of a complete reference designation identifies the unit. Table 6-1 also provides the following information for each unit listed: (1) quantity per equipment, (2) official name, (3) designation, (4) colloquial name, and (5) location of the first page of its parts listing in table 6-2.

6-3. MAINTENANCE PARTS LIST.

Table 6-2 lists all units and their maintenance parts. The units are listed in numerical sequence. Maintenance parts for each unit are listed alphabetically-numerically by class of part following the unit designation. Thus the parts for each unit are grouped together. Table 6-2 provides the following information: (1) the complete reference designation of each unit, assembly, subassembly, or part, (2) reference to explanatory notes in paragraph 6-6, (3) noun name and brief description, and (4) identification of the illustration which pictorially located the part.

Printed circuit boards, assembly boards, modules, etc. are listed first as individual items in the maintenance parts list. In addition, at the completion of a parts listing for each unit, the individual circuit board, assembly board, module, etc. is then broken down by components into separate parts listing. When there is a redundancy of such electronic assemblies in subsequent units, reference is made to the parts breakdown previously listed.

Note

Classified parts are designated by the following classification symbols placed in the NOTES column (in addition to any numerically identified notes) of the Maintenance Parts List: C, Confidential; CMH, Confidential-Modified Handling; S, Secret; TS, Top Secret. A brief description is given for all key parts (parts differing from any parts previously listed in this table) and sub-key parts (parts identical to a key part but appearing for the first time for a unit). The names and descriptions are omitted for other parts, but reference is made to the key or sub-key part for the data. Unless otherwise indicated, all drawing numbers apply to equipment manufacturer and all type numbers apply to part manufacturer.

6-4. LIST OF MANUFACTURERS.

Table 6-3 lists the manufacturers of parts used in the equipment. The table includes the manufacturer's code used in table 6-2 to identify the manufacturers.

6-5. STOCK NUMBER IDENTIFICATION.

Allowance parts list (APL) issued by the Electronics Supply Office (ESO) include federal stock numbers

and source maintenance and recoverability codes. Therefore, reference should be made to the APL prepared for the equipment for stock numbering information.

6-6. NOTES.

The following notes provide information as referenced in table 6-2.

1. GOVERNMENT FURNISHED EQUIPMENT.

TABLE 6-1. LIST OF UNITS

NO.	QTY	NAME OF UNIT	DESIGNATION	COLLOQUIAL NAME	PAGE
1	1	Radio Receiver-Transmitter	RT-695/PRC-41	Receiver-Transmitter	6-3
2	3	Storage Battery	BB-451/U	D-C Power Supply	6-40
3	1	Power Supply	PP-3700/PRC-41	A-C Power Supply	6-39
4	1	Antenna	AS-1405/PRC-41	Dirt. Antenna	6-41
5	1	Antenna	AS-1404/PRC-41	Omni. Antenna	6-43
6	1	Mounting	MT-2976/PRC-41	Mounting, Rec & Xmtr	6-43
7	1	Battery Adapter		Battery Adapter	6-44
8	1	Power, Electric Cable Assembly	CX-8687/PRC-41	Cable Assembly	6-45
9	1	Power, Electric Cable Assembly	CX-8686/PRC-41	Cable Assembly	6-45
10	1	Radio Frequency Cable Assembly	CG-55G/U	Cable Assembly	6-45
11	1	Special Purpose Electrical Cable Assembly	CX-8688/PRC-41	Cable Assembly	6-45
12	1	Mast	AB-777/PRC-41	Ant. Mast	6-46
13	1	Antenna Mast Adapter		Ant. Mast Adapter	6-46
14	1	Mounting	MT-2977/PRC-41	Mount, A-C Power Supply	6-47
15	1	Handset	H- 33E/PT	Handset	6-47
16	1	Harness		Harness	6-47
17	1	Bracket Assembly		Bracket Assembly	6-48

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TABLE 6-1. (Continued)

NO	QTY	NAME OF UNIT	DESIGNATION	COLLOQUIAL NAME	PAGE
18	1	Spare Parts Kit		Spare Parts Kit	6-48
19	1	Maintenance Kit		Maintenance Kit	6-48
20	1	Tool Kit		Tool Kit	6-50
21	3	Guy Rope Assembly		Guy Rope Assembly	6-50
22	3	Guy Stake		Guy Stake	6-50
23	1	Directional Antenna Case		Dirt. Ant. Case	6-51
24	1	Radio Set Case	CY-3883/PRC-41	Radio Set Case	6-51
25	1	Electronic Equipment Case	CY-3885/PRC-41	Accessory Kit Case	6-51
26	1	Equipment Repair Parts		Equipment Repair Parts	6-51

TABLE 6-2. MAINTENANCE PARTS LIST

RADIO RECEIVER-TRANSMITTER RT-695/PRC-41

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
1		1 RADIO RECEIVER-TRANSMITTER: 225.0 to 399.99 mc frequency range, 1 band, 1750 channels; 26.5 v dc; 4-5/8 in. by 11-3/8 in. by 13-3/4 in. o/a; mfr 13499 part no. 522-2526-005	5-36

D-C POWER SUPPLY MODULE

1A1		POWER SUPPLY: electronic type rectification, full wave; 190 v dc at 150 ma, 26.5 v dc, -6.8 v dc at 7 ma; 1.437 in. by 4.375 in.; mfr 13499 part no. 528-0084-005	5-36
1A1C1		CAPACITOR, FIXED PAPER DIELECTRIC: 1 uf ± 20%, 400 v dc; mfr 56289 part no S66404	5-37
1A1C2		CAPACITOR, FIXED PAPER DIELECTRIC: same as 1A1C1	5-37
1A1C3		CAPACITOR, FIXED PAPER DIELECTRIC: 3 uf ± 20%, 400 v dc; mfr 56289 part no S66401	5-37
1A1C4		CAPACITOR, FIXED, ELECTROLYTIC: 15 uf ± 20%, 20 V dc; mfr 56289 part no. 150D156X0020B2	5-38
1A1CR1		SEMICONDUCTOR DEVICE, DIODE: MIL-E-11/1143 type 1N649	5-38
1A1CR2		SEMICONDUCTOR DEVICE, DIODE: same as 1A1CR1	5-38

ORIGINAL

TABLE 6-2 (Continued)

D-C POWER SUPPLY MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
1A1CR3		SEMICONDUCTOR DEVICE, DIODE: same as 1A1CR1	5-38
1A1CR4		SEMICONDUCTOR DEVICE, DIODE: same as 1A1CR1	5-38
1A1CR5		SEMICONDUCTOR DEVICE, DIODE: silicon; hermetically sealed; mfr 81483 part no. 1N1591A	5-38
1A1E1		TERMINAL, STUD: insulated, brass; 1/4 in. hex, 5/8 in. lg; mfr 91663 part no. RTMT12M	5-38
1A1E2 thru 1A1E12 1A1E13		TERMINAL, STUD: same as 1A1E1	5-38
1A1E14		CAP, TRANSISTOR: aluminum 11/16-24 internal thd; 3/4 in. dia. 7/16 in. lg; mfr 13499 part no. 548-7003-002	5-38
1A1H1		BASE, TRANSISTOR: aluminum; 11/16-24 external thd; 0.265 in. lg; 0.391 in. lg o/a; mfr 13499 part no. 548-7002-002	5-38
1A1H2		SCREW, EXTERNALLY RELIEVED BODY: alloy steel, zinc plated; hexagon socket cap screw, 8-32 NC-2 thd, 3/8 in. lg; mfr 13499 part no. 544-8109-002	5-37
1A1H3		NUT, PLAIN, ROUND, CAP: aluminum, chromate dip; 0.21875 in. w, 0.625 in. dia; mfr 13499 part no. 548-7024-002	5-38
1A1J1		WASHER: glass cloth, silicone rubber; 0.086 in. id, 0.750 in. od, 0.0050 in. thk; mfr 13499 part no. 547-2288-003	5-38
1A1J2		JACK, TIP: for use w/0.080 in. dia plug tip; 5.5 amp; mfr 98291 part no. SKT10WHITE	5-37
1A1J3		JACK, TIP: same as 1A1J1	5-37
1A1L1		JACK, TIP: same as 1A1J1	5-37
1A1MP1		REACTOR: metal; hermetically sealed; 1.250 in. by 1.750 in. by 1.750 in. o/a dim; excl terminals; mfr 70674 part no. A12008	5-37
1A1MP2		INSULATOR BUSHING: plastic; 5/16 in. dia by 0.150 in. lg; 0.177 in. id undercut to 0.096 in.; mfr 13499 part no. 548-7004-002	5-37
1A1P1		CHASSIS, ELECTRICAL EQUIPMENT: aluminum alloy, chromate dip finish; 1.624 in. by 1.914 in. by 4.413 in.; mfr 13499 part no. 548-7030-004	5-37
1A1Q1		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 contacts, 1 connector mating end, arc resistant plastic dielectric; straight shape; 0.421 in. by 0.484 in. by 1.203 in., mfr 91146 part no. DE9PC7	5-38
1A1Q2		TRANSISTOR: MIL-S-19500/180(SIGC) type no. 2N1486	5-38
1A1R2		TRANSISTOR: same as 1A1Q1 -	5-38
1A1R2		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF390K	5-38
+		RESISTOR, FIXED, WIREWOUND: 1,200 ohms \pm 5%, 2.5w at + 25 ⁰ C derated linearly to zero at +275 ⁰ C; 3/16 in. dia by 1/2 in. lg excluding leads; mfr 91637 part no. RSM2C12000H	5-38
1A1R3		RESISTOR, FIXED, WIREWOUND: same as 1A1R2	5-38
1A1R4		RESISTOR, FIXED, COMPOSITION: same as 1A1R1	5-38
1A1R5		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF474K	5-38
1A1T1		TRANSFORMER, POWER, STEP-DOWN AND STEP-UP: 3 primary and 1 secondary winding; 26 v dc at 800 cps supply; 6.8 v, 180 v; 1-1/8 in. by 1-15/16 in. by 2-3/8 in. .; mfr 13499 part no. 548-7028-003	5-37

TABLE 6-2. (Continued)

1ST AND 2ND IF AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A2 1A2C1		AMPLIFIER, INTERMEDIATE FREQUENCY: mfr 13499, part no. 528-0085-005 CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10 uuf \pm 1/4 uuf 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 331026C0H0100C	5-36 5-74
1A2C2		CAPACITOR, VARIABLE, GLASS DIELECTRIC: tubular, piston type; 0.8 uuf min. to 8.5 uuf max., 1000 v dc; mfr 73899 part no. VC20G	5-39
1A2C3		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 0.75 uuf \pm 5%, 500 v dc mfr 78488 part no. GA-75UUFORM5PCT	5-39
1A2C4		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C1	5-39
1A2C5		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A2C2	5-39
1A2C6		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10,000 uuf \pm 20%, 100 v dc mfr 96095 part no. MC80V103AM	5-39
1A2C7		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-39
1A2C8		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A2C2	5-39
1A2C9		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 7 uuf \pm 1/4 uuf 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C, mfr 72982 part no. 331026C0H0709C	5-39
1A2C10		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C3	5-39
1A2C11		NOT USED	5-74
1A2C12		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A2C2	5-39
1A2C13		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-39
1A2C14		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-39
1A2C15		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A2C2	5-39
1A2C16		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C9	5-39
1A2C17		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C3	5-39
1A2C18		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 3.0 uuf \pm 1/4 uuf, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 331026C0J0309C	5-39
1A2C19		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-39
1A2C20		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A2C2	5-39
1A2C21		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C1	5-39
1A2C22		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 47 uuf \pm 5%, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 338026C0H0470J	5-74
1A2C23		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-39
1A2C24		CAPACITOR, FIXED, MICA DIELECTRIC: 510 uuf \pm 5%, 300 v dc; mfr 72136 part no DM15F511J300WV	5-39
1A2C25		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 5.6 uuf \pm 5%, 50 v dc mfr 78488 part no. GA5-6UUFORM5PCT	5-39
1A2C26		CAPACITOR, FIXED, MICA DIELECTRIC: 180 uuf \pm 2%, 50 v dc mfr 72136 part no, DM15F181G500WV	5-39
1A2C27		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C25	5-39
1A2C28		CAPACITOR, FIXED, MICA DIELECTRIC: 220 uuf \pm 2%, 500 v dc mfr 72136 part no. DM15F221G500WV	5-39
1A2C29		CAPACITOR, FIXED, MICA DIELECTRIC: 1000 uuf \pm 2%, 500 v dc; mfr 72136 part no. DM19F102G500WV	5-39
1A2C30		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-77
1A2C31		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 22 uuf \pm 5%, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C, mfr 72982 part no. 331026C0H0220J	5-74
1A2C32		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100 uuf \pm 2%, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C, mfr 72982 part no. 338026U2J0101G	5-74
1A2C33		CAPACITOR, VARIABLE, GLASS DIELECTRIC: 0.8 uuf to 8.5 uuf, 1000 v dc; mfr 73899 part no. VC9GW	5-74
1A2C34		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C32	5-74

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TABLE 6-2. (Continued)

1ST AND 2ND IF AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A2C35		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-75
1A2C36		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1000 uuf \pm 20%, 100 v dc mfr 96095 part no. MC80V102AM	5-75
1A2C37		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C36	5-75
1A2C38		CAPACITOR, FIXED, MICA DIELECTRIC: 180 uuf \pm 5%, 500 v dc; mfr 72136 part no. DM15F181J500VV	5-75
1A2C39		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf \pm 2%, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 331026U2J0200G	5-75
1A2C40		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C25	5-39
1A2C41		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-39
1A2C42		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-77
1A2C43		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C32	5-77
1A2C44		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 43 uuf \pm 5%, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 338026C0H0430J	5-77
1A2C45		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C36	5-77
1A2C46		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C32	5-77
1A2C47		CAPACITOR, FIXED, ELECTROLYTIC: 1 uf \pm 20%, 35 v dc; mfr 56289 part no. 150D105X0035A2	5-77
1A2C48		NOT USED	5-74
1A2C49		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C36	5-77
1A2C50		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C36	5-74
1A2C51		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C32	5-74
1A2C52		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C18	5-39
1A2C53		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C25	5-39
1A2C54		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C36	5-74
1A2C55		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C36	5-77
1A2C56		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C1	5-39
1A2C57		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-39
1A2C58		CAPACITOR, VARIABLE, GLASS DIELECTRIC 1.0 uuf to 21.0 uuf, 1MC/S at 25°C frequency, 1000 v dc mfr 73899 part no. VC42GW	5-77
1A2C59		NOT USED	5-74
1A2C60		NOT USED	5-74
1A2C61		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C36	5-39
1A2C62		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C36	5-75
1A2C63		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C6	5-74
1A2C64		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A2C39	5-74
1A2CR1		SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/188 type 1N251	5-77
1A2CR2		SEMICONDUCTOR DEVICE, DIODE: same as 1A2CR1	5-74
1A2CR3		SEMICONDUCTOR DEVICE, DIODE: same as 1A2CR1	5-39
1A2H1		WASHER, FLAT: brass, cadmium plated; 0.099 in. ID, 0.187 in. OD, 0.020 in. thk; mfr 13499 part no. 504-0705-003	5-75
1A2H2		SCREW, SHOULDER, NO. 1: CRES, passivate finish; 0.127 in. hex, 0.270 in. dia. 3.546 in. lg; mfr 13499 part no. 544-8222-002	5-74
1A2H3		WASHER, FLAT: brass; 0.188 in. ID, 0.3125 in. OD, 0.020 in. thk; mfr 13499 part no. 544-8632-002	5-74
1A2H4		NUT, PLAIN, HEXAGON: brass, silver plated; 1/4 in. hex; 8-32 UNC-2B thd, 1/16 in. thk; mfr 13499 part no. 544-8678-002	5-74
1A2H5		CAP, RIVET: CRES, passivate finish; 0.127 in. ID, 0.218 in. OD, 0.029 in. thk; mfr 13499 part no. 502-1512-002	5-77
1A2H6		WASHER, SPRING TENSION: phosphor bronze; 0.281 in. ID, 0.370 in. OD, 0.010 in. thk; mfr 13499 part no. 544-8634-002	5-39

TABLE 6-2. (Continued)

1ST AND 2ND IF AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A2H7		NUT, SLUG ADJUSTING: brass, bright alloy plate; 0.216 in. ID, 0.281 in. OD, 0.250 in w; mfr 13499 part no. 540-8601-002	5-74
1A2J1		JACK, TIP: accommodates std phone tip; 1250 v ac, 5 amp; mfr 98291 part no. SKT2BC	5-74
1A2J2		JACK, TIP: same as 1A2J1	5-77
1A2J3		JACK, TIP: same as 1A2J1	5-74
1A2K1		RELAY, ARMATURE: 2 contacts; low level, 50 mv at 30 ma; 26.5 v dc nom; 600 ohms \pm 10%, hermetically sealed; mfr 01526 part no. 3SAF1263	5-74
1A2K2		RELAY, ARMATURE: same as 1A2K1	5-74
1A2K3		RELAY, ARMATURE: contact arrangement 2B, rf, 1 v max rated voltage, 100 ua resistive current rating; contact arrangement 1B, dc, 28 v max rated voltage 1 amp resistive current rating, mfr 13499 part no. 544-8688-002	5-74
1A2L1		COIL, RADIO FREQUENCY: 25 turns, single layer wound type; no 30 AWG enamel insulated wire, 0.072 ohms dc res; mfr 13499 part no. 544-8671-002	5-39
1A2L2		COIL, RADIO FREQUENCY: same as 1A2L1	5-39
1A2L3		COIL, RADIO FREQUENCY: same as 1A2L1	5-39
1A2L4		COIL, RADIO FREQUENCY: same as 1A2L1	5-39
1A2L5		COIL, RADIO FREQUENCY: same as 1A2L1	5-39
1A2L6		COIL, RADIO FREQUENCY: same as 1A2L1	5-39
1A2L7		COIL, RADIO FREQUENCY: single layer wound; 0.47 uh nom inductance, 0.09 ohm dc resistance, 1600 ma current rating; mfr 82142 part no 10100-126	5-75
1A2L8		COIL, RADIO FREQUENCY: single layer wound; 26 turns no. 32 AWG wire; 3.9 uh inductance, 0.16 ohm max dc resistance, 1440 ma max current rating; mfr 82142 part no. 10102-114	5-75
1A219		COIL, RADIO FREQUENCY: 23 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 17.1 mc, min self-resonant freq; 0.262 ohm dc res; mfr 13499 part no. 544-8703-003	5-76
1A2L10		COIL, RADIO FREQUENCY: 22 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 18.1 mc, min self-resonant freq; 0.229 ohm dc res, mfr 13499 part no. 544-8704-003	5-76
1A2L11		COIL, RADIO FREQUENCY: 21 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 19.1 mc, min self-resonant freq; 0.213 ohm dc res; mfr 13499 part no. 544-8705-003	5-76
1A2L12		COIL, RADIO FREQUENCY: 19 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 20.1 mc, min self-resonant freq; 0.196 ohm dc res, mfr 13499 part no. 544-8706-003	5-76
1A2L13		COIL, RADIO FREQUENCY: 18 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 21.1 mc, min self-resonant freq; 0.196 ohm dc res; mfr 13499 part no. 544-8707-003	5-76
1A2L14		COIL, RADIO FREQUENCY: 17 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 22.1 mc, min self-resonant freq; 0.180 ohm dc res; mfr 13499 part no. 544-8708-003	5-76
1A2L15		COIL, RADIO FREQUENCY: 16 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 23.1 mc, min self-resonant freq; 0.180 ohm dc res; mfr 13499 part no. 544-8709-003	5-76
1A2L16		COIL, RADIO FREQUENCY: 15 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 24.1 mc, min self-resonant freq; 0.164 ohm dc res; mfr 13499 part no. 544-8710-003	5-76

TABLE 6-2. (Continued)

1ST AND 2ND IF AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A2L17		COIL, RADIO FREQUENCY: 14 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 25.1 mc, min self-resonant freq; 0.164 ohm dc res; mfr 13499 part no. 544-8711-003	5-76
1A2L18		COIL, RADIO FREQUENCY: 13 turns; single layer wound type; no. 32 AWG polyurethane insulated wire; 26.1 mc, min self-resonant freq; 0.147 ohm dc res; mfr 13499 part no. 544-8712-003	5-76
1A2L19		COIL, RADIO FREQUENCY: 53 turns; single layer wound type; no. 34 AWG enamel insulated wire; 0.182 ohm dc res; mfr 13499 part no. 544-6872-002	5-39
1A2L20		COIL, RADIO FREQUENCY: .same as 1A2L12	5-39
1A2L21		COIL, RADIO FREQUENCY: .same as 1A2L19	5-39
1A2L22		COIL, RADIO FREQUENCY: .same as 1A2L12	5-39
1A2L23		COIL, RADIO FREQUENCY: .same as 1A2L19	5-39
1A2L24		COIL, RADIO FREQUENCY: .same as 1A2L12	5-39
1A2L25		COIL, RADIO FREQUENCY: 2.20 uh \pm 10%, 125 mc, frequency, 1.10 ohms max dc resistance, 450 ma dc current rating; mfr 82142 part no. 10100-130	5-74
1A2L26		BEAD, FERRITE: 0.047 in. ID, 0.138 in. OD, 0.118 in. lg mfr 02114 part no. 56-590-65-3B	5-74
1A2L27		BEAD, FERRITE: same as 1A2L26	5-74
1A2L28		BEAD, FERRITE: same as 1A2L26	5-74
1A2L29		BEAD, FERRITE: same as 1A2L26	5-74
1A2MP1		BEARING, BALL, ANNULAR: stainless steel; radial, flanged outer ring, deep groove type, double shielded; 0.313 in. ID, 0.359 in. OD, 0.125 in. w; mfr 83086 part no. SFR155PPK25-7	5-74
1A2MP2		NOT USED	5-74
1A2MP3		NUT, PLAIN, HEX: aluminum, chemical finish; 4-40 UNC-2B thd 0.343 in. lg, mfr 13499 part no. 540-9036-003	5-77
1A2MP4		NUT, PLAIN, HEX: aluminum, chemical finish; 4-40 UNC-2B thd, 0.312 in. lg; mfr 13499 part no. 540-9035-003	5-77
1A2MP5		SPACER SLEEVE: aluminum; 0.035 in. thk by 0.187 in. OD by 0.187 in. lg; mfr 13499 part no. 541-5977-002	5-77
1A2MP6		SPRING, HELICAL, EXTENSION: CRES; 0.187 in. by 0.411 in. by 1.102 in. o/a dim., mfr 13499 part no. 544-8633-002	5-74
1A2MP7		NUT, PLAIN, HEX: aluminum, chemical finish; 4-40 UNC-2B thd, 0.218 in. lg; mfr 13499 part no. 540-9032-003	5-77
1A2MP8		CAM, CONTROL: brass; 0.187 in. by 0.796 in. by 0.828 in. o/a dim.; mfr 13499 part no. 544-8629-002	5-74
1A2MP9		CAM, CONTROL: brass; 0.187 in. by 0.796 in. by 0.796 in. o/a dim., mfr 13499 part no. 544-8630-002	5-74
1A2MP10		COUPLING, SHAFT, FLEXIBLE: insert type; 0.906 in. by 0.250 in. o/a dim.; mfr 13499 part no. 546-4872-002	5-74
1A2MP11		SHAFT, STRAIGHT: CRES, passivate finish; 0.1873 in. dia., 3.454 in. lg, mfr 13499 part no. 546-4875-002	5-74
1A2MP12		CAM, CONTROL: brass; 0.187 in. by 0.625 in. by 0.796 in. o/a dim., mfr 13499 part no. 544-8636-002	5-74
1A2MP13		CAM, CONTROL: brass; 0.187 in. by 0.593 in. by 0.781 in. o/a dim., mfr 13499 part no. 544-8637-002	5-74
1A2MP14		SHAFT, STRAIGHT: CRES, passivate finish; 0.1873 in. dia. 3.454 in. lg, mfr 13499 part no. 546-4876-002	5-74
1A2MP15		SHAFT, STRAIGHT: CRES, passivate finish; 0.1873 in. dia. 3.454 in. lg, mfr 13499 part no. 546-4877-002	5-74

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TABLE 6-2. (Continued)

1ST AND 2ND IF AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO
1A2MP16		COVER, AMPLIFIER: aluminum; 0.032 in. by 3.234 in. by 4.421 in. o/a dim.; mfr 13499 part no. 544-8669-002	5-74
1A2MP17		COVER, AMPLIFIER: aluminum; 0.032 in. by 3.234 in. by 4.421 in. o/a dim.; mfr 13499 part no. 544-8670-002	5-74
1A2MP18		BEARING, BALL, ANNULAR: stainless steel, plain finish; radial, double shielded; 0.125 in. ID, 0.250 in. OD, 0.1094 in. w; mfr 83086 part no. SR144PK28- 7	5-74
1A2MP19		RING, RETAINING: beryllium copper; external types; 0.112 in. ID. 0.010 in. thk material; mfr 39462 part no. 5100-12C	5-74
1A2MP20		CLIP, RETAINING: CRES; 0.030 in. by 0.199 in. by 0.310 in. o/a dim.; mfr 13499 part no. 502-6005-002	5-74
1A2MP21		POST, FOLLOWER: CRES, passivate finish; 0.1245 in. dia. 1.850 in. lg; mfr 13499 part no. 544-8638-002	5-74
1A2MP22		BASE, AMPLIFIER: CRES; incl 3 nuts; 1 in. by 1.522 in. by 2.218 in. o/a dim.; mfr 13499 part no. 544-8676-002	5-74
1A2MP23		RING, RETAINING: copper, type "E" 0.094 in. ID, 0.015 in. thk; mfr 89462 part no. 5133-12C	5-74
1A2MP24		POST, FOLLOWER: CRES, passivate finish; 0.1245 in. dia. 2.890 in. lg; mfr 13499 part no. 544-8635-002	5-74
1A2MP25		BASE, AMPLIFIER: CRES; incl 6 nuts; 1.344 in. by 2.156 in. by 2.562 in. o/a dim.; mfr 13499 part no. 544-8677-002	5-74
1A2MP26		CORE, ADJUSTABLE TUNING: powdered iron core; 0.5 mc to 10 mc; 0.199 in. by 1 in. excl wire lead; mfr 92054 part no. 52-3811	5-74
1A2MP27		SCREW, ADJUSTABLE CORE: brass, silver plated; 0.025 in. ID, 0.089 in. OD, 0.438 in. lg, mfr 13499 part no. 544-8673-002	5-74
1A2MP28		INSULATOR, DISK: silicone rubber; 25/64 in. dia by 1/16 in. thk; mfr 13499 part no. 546-6075-002	5-74
1A2MP29		COVER, CRYSTAL: 0.094 in. by 1.312 in. by 1.437 in. o/a dim.; mfr 13499 part no. 544-8645-002	5-77
1A2MP30		NUT, SLEEVE: aluminum, chemical; 4-40 UNC-2B thd; 0.562 in. lg; mfr 13499 part no. 540-9043-003	5-75
1A2MP31		PLATE, COIL MOUNTING: aluminum, chromate dip; 0.032 in. thk, 1.343 in. by 1.343 in.; mfr 13499 part no. 544-8641-002	5-76
1A2MP32		NUT, SLEEVE: aluminum, chemical; 4-40 UNC-2B thd, 0.500 in. lg; mfr 13499 part no. 540-9041-003	5-76
1A2MP33		NUT, PLAIN, HEXAGON: aluminum, chromate dip; 4-40 UNC-2B thd, 0.187 in. w across flats, 0.687 in. lg o/a; mfr 13499 part no. 540-9047-003	5-76
1A2MP34		RING, RETAINING: copper; split ring type; 0.25C in. ID, 0.025 in. thk; mfr 89462 part no. 5100-27C	5-39
1A2MP35		COVER, AMPLIFIER: brass, silver plated; 0.032 in. thk, 1.453 in. dia. 2.352 in. lg mfr 13499 part no. 544-8644-002	5-39
1A2MP36		SPACER, SLEEVE: aluminum, chromate dip; 0.093 in. by 0.156 in. by 0.562 in.; mfr 13499 part no. 545-7138-002	5-75
1A2MP37		PLATE, CRYSTAL HOLDER: aluminum, chromate dip; 0.032 in. thk; 1.3125 in. by 1.328 in.; mfr 13499 part no. 544-8651-002	5-75
1A2MP38		BRACKET, CONNECTOR, RECEPTACLE, ELECTRICAL: aluminum, chromate dip; 0.250 in. by 0.344 in. by 0.531 in.; mfr 13499 part no. 544-8657-002	5-77
1A2MP39		AMPLIFIER SUBASSEMBLY: 3.370 in. by 4.253 in. by 4.432 in. o/a dim.; mfr 13499 part no. 546-4885-003	5-74
1A2MP40		DAMPENER, CRYSTAL, NO. 2: rubber sheet; 1-1/4 in. by 1-1/4 in.; mfr 13499 part no. 544-8682-002	5-75

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TABLE 6-2. (Continued)

1ST AND 2ND IF AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A2P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 10 #20 male contacts, 1 connector mating end; 5 amps, arc resistant plastic dielectric, 3-1/64 in. by 2-5/64 in.; mfr 71468 part no. DBM13W3PC27; includes 3 plugs CONNECTOR, PLUG, ELECTRICAL: single coaxial contact, 50 ohms, mfr 71468 part no. DM53740-5000 (p/o 1A2P1) qty 3	5-74
1A2Q1		TRANSISTOR: MIL-S-19500/80A(SIGC) type 3N35	5-39
1A2Q2		TRANSISTOR: silicon; hermetically sealed; mfr 07688 part no. 2N716	5-39
1A2Q3		TRANSISTOR: same as 1A2Q1	5-74
1A2Q4		TRANSISTOR: same as 1A2Q1	5-74
1A2Q5		TRANSISTOR: same as 1A2Q1	5-75
1A2Q6		TRANSISTOR: MIL-T-19500/69B(NAVY) type 2N338	5-77
1A2Q7		TRANSISTOR: same as 1A2Q6	5-77
1A2R1		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF153K	5-39
1A2R2		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF272K	5-39
1A2R3		RESISTOR, FIXED, COMPOSITION: same as 1A2R2	5-39
1A2R4		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF273K	5-39
1A2R5		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF102K	5-39
1A2R6		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF471K	5-39
1A2R7		RESISTOR, FIXED, COMPOSITION: same as 1A2R5	5-39
1A2R8		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF221K	5-39
1A2R9		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF104K	5-74
1A2R10		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF682K	5-39
1A2R11		RESISTOR, FIXED, COMPOSITION: same as 1A2R1	5-74
1A2R12		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF472K	5-74
1A2R13		RESISTOR, FIXED, COMPOSITION: same as 1A2R12	5-74
1A2R14		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF103K	5-74
1A2R15		RESISTOR, FIXED, COMPOSITION: same as 1A2R5	5-39
1A2R16		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF152K	5-77
1A2R17		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF333K	5-77
1A2R18		RESISTOR, FIXED, COMPOSITION: same as 1A2R5	5-77
1A2R19		RESISTOR, FIXED, COMPOSITION: same as 1A2R12	5-77
1A2R20		RESISTOR, FIXED, COMPOSITION: same as 1A2R1	5-74
1A2R21		RESISTOR, FIXED, COMPOSITION: same as 1A2R12	5-74
1A2R22		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF182K	5-74
1A2R23		RESISTOR, FIXED, COMPOSITION: same as 1A2R14	5-74
1A2R24		RESISTOR, FIXED, COMPOSITION: same as 1A2R1	5-75
1A2R25		RESISTOR, FIXED, COMPOSITION: same as 1A2R12	5-75
1A2R26		RESISTOR, FIXED, COMPOSITION: same as 1A2R22	5-75
1A2R27		RESISTOR, FIXED, COMPOSITION: same as 1A2R14	5-75
1A2R28		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF120K	5-74
1A2R29		RESISTOR, FIXED, COMPOSITION: same as 1A2R5	5-75
1A2R30		RESISTOR, FIXED, COMPOSITION: same as 1A2R5	5-77
1A2R31		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF393K	5-77
1A2R32		RESISTOR, FIXED, COMPOSITION: same as 1A2R2	5-77
1A2R33		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF332K	5-77
1A2R34		RESISTOR, FIXED, COMPOSITION: same as 1A2R9	5-77
1A2R35		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF101K	5-39
1A2R36		RESISTOR, FIXED, COMPOSITION: same as 1A2R14	5-39
1A2R37		RESISTOR, FIXED, COMPOSITION: same as 1A2R12	5-77
1A2R38		RESISTOR, FIXED, COMPOSITION: same as 1A2R5	5-74
1A2R39		RESISTOR, FIXED, COMPOSITION: same as 1A2R9	5-39

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TABLE 6-2. (Continued)

1ST AND 2ND I-F AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A2R40		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF121K	5-74
1A2S1		PRINTED CIRCUIT PLATE: plastic board; 0.062 in. by 1.325 in. by 1.343 in. board dim.; mfr 13499 part no. 544-8695-003	5-76
1A2S2		PRINTED CIRCUIT PLATE: same as 1A2S1	5-75
1A2S3		PRINTED CIRCUIT PLATE: plastic board; 0.062 in. by 1.297 in. by 3.343 in. o/a dim.; mfr 13499 part no. 544-8697-003	5-77
1A2Y1		CRYSTAL UNIT, QUARTZ: 2.90000 mc, mfr 00136 part no. 290-9303-00	5-77
1A2Y2		CRYSTAL UNIT, QUARTZ: 3.00000 mc, mfr 00136 part no. 290-9604-00	5-77
1A2Y3		CRYSTAL UNIT, QUARTZ: 3.10000 mc, mfr 00136 part no. 290-9605-00	5-77
1A2Y4		CRYSTAL UNIT, QUARTZ: 3.20000 mc, mfr 00136 part no. 290-9606-00	5-77
1A2Y5		CRYSTAL UNIT, QUARTZ: 3.30000 mc, mfr 00136 part no. 290-9607-00	5-77
1A2Y6		CRYSTAL UNIT, QUARTZ: 3.40000 mc, mfr 00136 part no. 290-9608-00	5-77
1A2Y7		CRYSTAL UNIT, QUARTZ: 3.50000 mc, mfr 00136 part no. 290-9609-00	5-77
1A2Y8		CRYSTAL UNIT, QUARTZ: 3.60000 mc, mfr 00136 part no. 290-9610-00	5-77
1A2Y9		CRYSTAL UNIT, QUARTZ: 3.70000 mc, mfr 00136 part no. 290-9611-00	5-77
1A2Y10		CRYSTAL UNIT, QUARTZ: 3.80000 mc, mfr 00136 part no. 290-9612-00	5-77
1A2Y11		CRYSTAL UNIT, QUARTZ: 17.10000 mc, mfr 85675 part no. M04496	5-75
1A2Y12		CRYSTAL UNIT, QUARTZ: 18.10000 mc, mfr 85675 part no. M04495	5-75
1A2Y13		CRYSTAL UNIT, QUARTZ: 19.10000 mc, mfr 85675 part no. M04494	5-75
1A2Y14		CRYSTAL UNIT, QUARTZ: 20.10000 mc, mfr 85675 part no. M04493	5-75
1A2Y15		CRYSTAL UNIT, QUARTZ: 21.10000 mc, mfr 85675 part no. M04492	5-75
1A2Y16		CRYSTAL UNIT, QUARTZ: 22.10000 mc, mfr 85675 part no. M04491	5-75
1A2Y17		CRYSTAL UNIT, QUARTZ: 23.10000 mc, mfr 85675 part no. M04490	5-75
1A2Y18		CRYSTAL UNIT, QUARTZ: 24.10000 mc, mfr 85675 part no. M04489	5-75
1A2Y19		CRYSTAL UNIT, QUARTZ: 25.10000 mc, mfr 85675 part no. M04488	5-75
1A2Y20		CRYSTAL UNIT, QUARTZ: 26.10000 mc, mfr 85675 part no. M04487	5-75

3RD I-F AND SQUELCH MODULE

1A3		AMPLIFIER, INTERMEDIATE FREQUENCY: 500 kc operating frequency; 47 kc band w at 6 db down; 50 ohms input, 10,000 ohms output; 26.5 v dc operating power; 0.937 in. by 3.250 in. by 4.437 in.; mfr 13499 part no. 528-0372-005	5-36
1A3C1		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10,000 uuf \pm 20%, 100 v dc; mfr 96095 part no. MC80V103AM	5-41
1A3C2		CAPACITOR, FIXED, MICA DIELECTRIC: 68 uuf \pm 5% 500 v dc mfr 72136 part no. DM15E680J500WV	5-41
1A3C3		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uf \pm 20%, 20 v dc mfr 56289 part no. 150D225X0020A2	5-41
1A3C4		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C3	5-41
1A3C5		CAPACITOR, FIXED, MICA DIELECTRIC: 220 uuf \pm 5% 500 v dc mfr 72136 part no. DM15F221J500WV	5-41
1A3C6		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C3	5-41
1A3C7		CAPACITOR, FIXED, ELECTROLYTIC: 0.10 UF \pm 20%, 35 v dc mfr 56289 part no. 150D104X0035A2	5-41
1A3C8		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C3	5-41
1A3C9		CAPACITOR, FIXED, MICA DIELECTRIC: 100 uuf \pm 5%, 500 v dc mfr 72136 part no. DM15F101J500WV	5-41
1A3C10		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1000 uuf \pm 20%, 100 v dc; mfr 96095 part no. MC80V102AM	5-41

ORIGINAL

TABLE 6-2. (Continued)

3RD I-F AND SQUELCH MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A3C11		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C3	5-41
1A3C12		CAPACITOR, FIXED, ELECTROLYTIC: 15 uf ±20%, 20 v dc; mfr 56289 part no. 150D156X0020B2	5-41
1A3C13		CAPACITOR, FIXED, ELECTROLYTIC: 4.7 uf ±20%, 35 v dc; mfr 56289 part no. 150D475X0035B2	5-40
1A3C14		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A3C10	5-40
1A3C15		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C3	5-40
1A3C16		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C3	5-40
1A3C17		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C12	5-40
1A3C18		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A3C10	5-40
1A3C19		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C3	5-40
1A3C20		CAPACITOR, FIXED, ELECTROLYTIC: 1 uf ±20%, 35 v dc; mfr 56289 part no. 150D105X0035A2	5-40
1A3C21		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A3C7	5-41
1A3CR1		SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/115(NAVY) type 1N3024B	5-40
1A3CR2		SEMICONDUCTOR DEVICE, DIODE: MIL-E-1 type 1N457	5-40
1A3CR3		SEMICONDUCTOR DEVICE, DIODE: same as 1A3CR2	5-40
1A3CR4		SEMICONDUCTOR DEVICE, DIODE: same as 1A3CR2	5-41
1A3CR5		SEMICONDUCTOR DEVICE, DIODE: same as 1A3CR2	5-40
1A3CR6		SEMICONDUCTOR DEVICE, DIODE: same as 1A3CR2	5-41
1A3E1		PRINTED CIRCUIT BOARD: plastic; 0.062 in. by 3.070 in. by 3.437 in.; incl 9 terminals and 95 tubeless; mfr 13499 part no. 548-7386-005	5-41
1A3E2		PRINTED CIRCUIT BOARD: plastic; 0.062 in. by 3.070 in. by 3.162 in.; incl 14 terminals and 71 tubeless; mfr 13499 part no. 548-7384-005	5-41
1A3FL1		FILTER, BANDPASS: 0.500 in. by 0.500 in. by 3.000 in. o/a dim.; excl terminals; 500 kc center freq and a 6 db passband of 50 kc; mfr 81815 part no. X167-2	5-41
1A3J1		JACK, TIP: for use with 0.080 in. dia male contact; 5.5 amp; continuous duty; mfr 98291 part no. SKT41WHITE	5-40
1A3K1		RELAY, ARMATURE: 1C contact arrangement; 1 amp at 28 v dc; 26.5 v dc nom coil voltage; 725 ohms ±10%, at +25°C coil resistance, mfr 01526 part no. 3S2791DB170A9	5-40
1A3L1		COIL, RADIO FREQUENCY: single layer wound; 300 turns no. 40 AWG; 500 uh nom inductance, 11 ohms dc resistance, 0.1 amp current rating; 0.190 in. dia by 0.440 in. lg mfr 99800 part no. 2500-14	5-41
1A3L2		COIL, RADIO FREQUENCY: same as 1A3L1	5-41
1A3L3		COIL, RADIO FREQUENCY: same as 1A3L1	5-41
1A3MP1		COVER, CHASSIS: aluminum; 0.032 in. by 3.218 in. by 4.406 in.; mfr 13499 part no. 548-7371-002	5-40
1A3MP2		COVER, CHASSIS: aluminum; 0.032 in. by 3.218 in. by 4.406 in.; mfr 13499 part no. 548-7370-002	5-41
1A3MP3		SCREW, SHOULDER, NO. 2: CRES, passivate finish; 8-32 UNC-2A thd, 0.127 in. hex.; 0.270 in. dia. 3.584 in. lg; mfr 13499 part no. 544-8223-002	5-40
1A3P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 contacts, 1 connector mating end; arc resistant plastic dielectric; straight shape; 0.421 in. by 0.484 in. by 1.531 in.; mfr 91146 part no. DA15PC7	5-41
1A3Q1		TRANSISTOR: MIL-S-19500/80A(SIGC) type 3N35	5-41
1A3Q2		TRANSISTOR: same as 1A3Q1	5-41
1A3Q3		TRANSISTOR: MIL-T-19500/69B(NAVY) type 2N338	5-41
1A3Q4		TRANSISTOR: MIL-S-19500/99A(SIGC) type 2N697	5-40
1A3Q5		TRANSISTOR: same as 1A3Q3	5-41

ORIGINAL

TABLE 6-2. (Continued)

3RD I-F AND SQUELCH MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A3Q6		TRANSISTOR: MIL-S-19500/177(NAVY) type 2N1132	5-41
1A3Q7		TRANSISTOR: MIL-S-19500/111(SIGC) type 2N329A	5-40
1A3Q8		TRANSISTOR: same as 1A3Q4	5-40
1A3Q9		TRANSISTOR: same as 1A3Q4	5-40
1A3R1		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF123K	5-41
1A3R2		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF472K	5-41
1A3R3		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF221K	5-41
1A3R4		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF272K	5-41
1A3R5		NOT USED	
1A3R6		RESISTOR, FIXED, COMPOSITION: same as 1A3R2	5-41
1A3R7		RESISTOR, FIXED, COMPOSITION: same as 1A3R1	5-41
1A3R8		RESISTOR, FIXED, COMPOSITION: same as 1A3R2	5-41
1A3R9		RESISTOR, FIXED, COMPOSITION: same as 1A3R4	5-41
1A3R10		RESISTOR, FIXED, COMPOSITION: same as 1A3R4	5-41
1A3R11		RESISTOR, FIXED, COMPOSITION: same as 1A3R2	5-41
1A3R12		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF682K	5-41
1A3R13		RESISTOR, FIXED, COMPOSITION: same as 1A3R2	5-41
1A3R14		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF101K	5-41
1A3R15		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF683K	5-40
1A3R16		RESISTOR, FIXED, COMPOSITION: same as 1A3R4	5-41
1A3R17		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF104K	5-41
1A3R18		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF222K	5-41
1A3R19		RESISTOR, FIXED, COMPOSITION: same as 1A3R18	5-40
1A3R20		RESISTOR, FIXED, COMPOSITION: same as 1A3R18	5-41
1A3R21		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF153K	5-41
1A3R22		RESISTOR, FIXED, COMPOSITION: same as 1A3R14	5-41
1A3R23		RESISTOR, FIXED, COMPOSITION: same as 1A3R2	5-40
1A3R24		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF103K	5-40
1A3R25		RESISTOR, FIXED, COMPOSITION: same as 1A3R24	5-40
1A3R26		RESISTOR, VARIABLE, WIREWOUND: 20,000 ohms $\pm 5\%$, 1 w, mfr 80294 part no. 224L1-203	5-41
1A3R27		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF101J	5-41
1A3R28		RESISTOR, FIXED, COMPOSITION: same as 1A3R18	5-40
1A3R29		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF473K	5-40
1A3R30		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF822K	5-40
1A3R31		RESISTOR, VARIABLE WIREWOUND: 5000 ohms $\pm 5\%$, 1 w, mfr 80294 part no. 224L1-502	5-40
1A3R32		RESISTOR, FIXED, COMPOSITION: same as 1A3R3	5-40
1A3R33		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF391K	5-40
1A3R34		RESISTOR, FIXED, COMPOSITION: same as 1A3R12	5-40
1A3R35		RESISTOR, FIXED, COMPOSITION: same as 1A3R2	5-40
1A3R36		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF823K	5-40
1A3R37		RESISTOR, FIXED, COMPOSITION: same as 1A3R24	5-40
1A3R38		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF150K	5-40
1A3R39		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF223K	5-41

ORIGINAL

TABLE 6-2. (Continued)

AUDIO AMPLIFIER

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A4		AMPLIFIER, AUDIO FREQUENCY: 0.5 w power output; mfr 13499 part no. 528-0087-005	5-36
1A4C1		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uf ±20%, 35 v dc; mfr 56289 part no. 150D225X0035B2	5-42
1A4C2		CAPACITOR, FIXED, ELECTROLYTIC: 47 uf ±20%, 20 v dc; mfr 56289 part no. 150D476X0020R2	5-42
1A4C3		CAPACITOR, FIXED, ELECTROLYTIC: 15 uf ±20%, 20 v dc; mfr 56289 part no. 150D156X0020B2	5-42
1A4C4		CAPACITOR, FIXED, ELECTROLYTIC: 0.056 uf ±10%, 35 v dc; mfr 56289 part no. 150D563X9035A2	5-42
1A4C5		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A4C2	5-42
1A4C6		NOT USED	
thru			
1A4C10			
1A4C11		CAPACITOR, FIXED, ELECTROLYTIC: 22 uf ±20%, 35 v dc; mfr 56289 part no. 150D226X0035R2	5-42
1A4C12		NOT USED	5-42
1A4C13		NOT USED	5-42
1A4C14		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A4C11	5-42
1A4H1		SCREW, SHOULDER, NO. 1: CRES, passivate finish; 8-32UNC-2A thd, 0.127 in. hex, 0.270 in. dia. 3.546 in. lg, mfr 13499 part no. 544-8222-002	5-42
1A4J1		JACK, TIP: for use with 0.080 in. dia male contact; 5.5 amp; continuous duty; mfr 98291 part no. SKT41WHITE	5-42
1A4J2		JACK, TIP: same as 1A4J1	5-42
1A4L1		COIL, RADIO FREQUENCY: mfr 96906, MS type MS16225-5	5-42
1A4L2		COIL, RADIO FREQUENCY: 50 mh, 1000 cps ±2%, 500 v rms dielectric strength; 200 ohms dc resistance per H; 1-1/16 in. dia by 1/2 in. w; mfr 88063 part no. MP206-14B	5-42
1A4MP1		COVER, AMPLIFIER: aluminum, chromate dip finish; 0.032 in. by 3.209 in. by 3.437 in.; mfr 13499 part no. 54B-7001-002	5-42
1A4MP2		PLATE ASSEMBLY, CHASSIS: aluminum plate, 0.032 in. by 2.616 in. by 3.250 in.; incl 33 terminals and 4 transistor holders; mfr 13499 part no. 548-7022-004	5-42
1A4P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 contacts, 1 connector mating end; arc resistant plastic dielectric; straight shape; 0.421 in. by 0.484 in. by 1.203 in.; mfr 91146 part no. DE9PC7	5-42
1A4Q1		TRANSISTOR: MIL-T-19500/69B(NAVY) type 2N338	5-42
1A4Q2		TRANSISTOR: MIL-S-19500/207(SIGC) type 2N1481	5-42
1A4Q3		TRANSISTOR: MIL-T-19500/74(NAVY) type 2N656	5-42
1A4Q4		TRANSISTOR: same as 1A4Q3	5-42
1A4R1		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF103K	5-42
1A4R2		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF153K	5-42
1A4R3		NOT USED	
1A4R4		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF222K	5-42
1A4R5		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF471K	5-42
1A4R6		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF562K	5-42
1A4R7		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF102K	5-42
1A4R8		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF472K	5-42
1A4R9		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF331K	5-42
1A4R10		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF272K	5-42
1A4R11		NOT USED	

TABLE 6-2. (Continued)

AUDIO AMPLIFIER

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A4R12		NOT USED	
1A4R13		NOT USED	
1A4R14		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF221K	5-42
1A4R15		NOT USED	
1A4R16		NOT USED	
1A4R17		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF333K	5-42
1A4R18		RESISTOR, FIXED, COMPOSITION: same as 1A4R17	5-42
1A4R19		RESISTOR, VARIABLE, WIREWOUND: 10,000 ohms \pm 5%, 1 w; mfr 80294 part no. 224L1-103	5-42
1A4R20		RESISTOR, VARIABLE, WIREWOUND: same as 1A4R19	5-42
1A4R21		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF101K	5-42
1A4R22		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF332K	5-42
1A4RT1		RESISTOR, THERMAL: 1000 ohms at 25°C; 1800 ohms at 25°C; designed for ac, dc; mfr 10646 part no. 997F17	5-42
1A4T1		TRANSFORMER, AUDIO FREQUENCY: primary 1200 ohms, 12 ma; secondary 40,000 ohms; CT; 300 to 4000 cps; continuous duty cycle; mfr 70674 part no. A11874	5-42
1A4T2		TRANSFORMER, AUDIO FREQUENCY: primary 600 ohms, 5 ma; CT; secondary 300 ohms; 300 to 4000 cps; continuous duty cycle; mfr 70674 part no. A11873	5-42

SPECTRUM GENERATOR MODULE

1A5C1		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1000 uuf -0% +100% at room temp, 500 v dc; mfr 72982 part no. 2465004W5T0102P	5-78
1A5		SPECTRUM GENERATOR: mfr 13499 part no. 528-0373-005	5-36
1A5C2		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C1	5-78
1A5C3		CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC22CH060C	5-78
1A5C4		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1000 uuf -20% +100%, 500 v dc; mfr 71590 part no. BB61-102TW6X	5-78
1A5C5		CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC20CH040C	5-78
1A5C6		CAPACITOR, FIXED, MICA DIELECTRIC: 470 uf \pm 5%, 300 v dc; mfr 72136 part no. DM15F471J300WV	5-78
1A5C7		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C4	5-78
1A5C8		NOT USED	
1A5C9		CAPACITOR, FIXED, MICA DIELECTRIC: 20 uuf \pm 5%, 500 v dc; mfr 72136 part no. DM15C200J500WV	5-78
1A5C10		CAPACITOR, VARIABLE, GLASS DIELECTRIC: concentric type 0.4 uuf min. 0.8 uuf maxi straight line capacity tuning characteristic; screwdriver adjustment; 5/16 in. dia by 9/16 in, lg o/a; mfr 73899 part no. VC21G	5-78
1A5C11		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 2.0 uuf \pm 1/4 uuf, 500 v dc; mfr 72982 part no. 331026COK0209C	5-78
1A5C12		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C1	5-78
1A5C13		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 20 uuf \pm 5%, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 331026COH0200J	5-78
1A5C14		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C1	5-78
1A5C15		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A5C10	5-78
1A5C16		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C11	5-78
1A5C17		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C1	5-78

TABLE 6-2. (Continued)

SPECTRUM GENERATOR MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A5C18		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 400 uuf -0% +100% room temp, 360 v dc; mfr 72982 part no. 2404032W5P0401P	5-78
1A5C19		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C13	5-78
1A5C20		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A5C10	5-78
1A5C21		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1.5 uuf ±1/4 uuf 500 v dc; mfr 72982 part no. 331026COK0159C	5-78
1A5C22		CAPACITOR, FIXED, MICA DIELECTRIC: 51 uuf ±5%, 500 v dc; mfr 72136 part no. C)M15E510J500WV	5-78
1A5C23		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C1	5-78
1A5C24		NOT USED	
1A5C25		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C18	5-78
1A5C26		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C18	5-78
1A5C27		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C1	5-78
1A5C28		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C1	5-78
1A5C29		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C18	5-78
1A5C30		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 470 uuf ±20%, 500 v dc; mfr 01939 part no. 19C185A1	5-78
1A5C31		NOT USED	
1A5C32		NOT USED	
1A5C33		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C1	5-78
1A5C34		NOT USED	
1A5C35		NOT USED	
1A5C36 thru 1A5C41		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A5C18	5-78
1A5C42		NOT USED	
1A5C43		NOT USED	
1A5C44		NOT USED	
1A5C45		CAPACITOR, FIXED, MICA DIELECTRIC: same as 1A5C6	5-78
1A5CR1		NOT USED	
1A5CR2		SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/188 type 1N251	5-78
1A5E1		CONTACT, ELECTRICAL: beryllium copper; gold plated finish; 0.234 in. by 0.499 in. by 1.531 in. o/a dim.; mfr 13499 part no. 539-3540-003	5-78
1A5E2		CONNECTOR, PLUG ELECTRICAL: single coaxial contact; 50 ohms; mfr 71468 part no. DM53740-5000	5-78
1A5E3		CONTACT, ELECTRICAL: beryllium copper; gold-plated contact surface; 0.484 in. dia by 0.040 in. h o/a dim.; mfr 13499 part no. 544-7455-003	5-78
1A5E4		CONTACT, ELECTRICAL: copper, gold plated; 1-1/16 in. dia by 1/4 in. h; mfr 13499 part no. 544-8407-002	5-78
1A5E5		ROTOR, ELECTRICAL SWITCH: mfr 13499 part no. 549-3809-002	5-78
1A5E6		PRINTED CIRCUIT BOARD: plastic, copper clad; 2.312 in. dia by 0.031 in. thk o/a dim.; mfr 13499 part no. 549-3787-003	5-78
1A5E7		CONTACT, ELECTRICAL: elkonium; 0.008 in. by 0.655 in. by 0.687 in. o/a dim.; mfr 13499 part no. 548-7683-003	5-78
1A5E8		CONTACT ASSEMBLY, ELECTRICAL: mfr 13499 part no. 549-3808-002	5-78
1A5E9		STATOR, SOLDERED: 0.687 in. by 1.125 in. by 1.750 in. o/a dim.; mfr 13499 part no. 544-8481-002	5-78
1A5E10		ROTOR, SOLDERED: 1.125 in. dia by 0.562 in. o/a dim.; mfr 13499 part no. 544-8482-002	5-78

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TABLE 6-2. (Continued)

SPECTRUM GENERATOR MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A5E11		CONTACT, ELECTRICAL: beryllium copper; gold plated finish; 0.531 in. dia by 0.050 in. h o/a dim.; mfr 13499 part no. 547-0797-003	5-78
1A5E12		NOT USED	
1A5E13		COIL ASSEMBLY, RADIO FREQUENCY: 18 rf coils mounted on printed circuit board; mfr 13499 part no. 549-3810-003	5-78
1A5E14		NOT USED	
1A5E15		NOT USED	
1A5E16		PRINTED CIRCUIT BOARD: plastic, copper clad; 0.031 in. by 2.109 in. by 2.289 in. o/a dim.; mfr 13499 part no. 549-3779-004	5-78
1A5H1		WASHER, FINISH: copper, alloy plated finish; 0.091 in. ID countersunk 82 deg. 0.212 in. OD, 0.062 in. thk; mfr 13499 part no. 545-6590-002	5-78
1A5H2		SCREW, EXTERNALLY RELIEVED BODY: alloy steel, zinc plated hexagon socket cap screw, 8-32 NC-2 thd, 3/8 in. lg; mfr 13499 part no. 544-8109-002	5-78
1A5H3		NUT, PLAIN, HEXAGON: CRES, passivate finish; 0.563 in. hex, 0.062 in. thk; mfr 13499 part no. 544-8410-002	5-78
1A5H4		WASHER, RECESSED: aluminum, chromate dip; 0.187 in. ID, 0.438 in. OD, 0.050 in. thk; mfr 13499 part no. 544-8444-002	5-78
1A5H5		NUT, SLEEVE: CRES, passivate finish; 0.375 in. hex; 0.187 in. lg 0.2499 in. dia; mfr 13499 part no. 544-8446-002	5-78
1A5J1		JACK, TIP: miniature self sealing for use with 0.080 diameter plugs, teflon insulation; 5.5 amp, continuous duty cycle; mfr 98291 part no. SKT5BCWHITE; p/o 1A5MP20	5-78
1A5J2		JACK, TIP: same as 1A5J1; p/o 1A5MP24	5-78
1A5L1		COIL, RADIO FREQUENCY: 9 turns; single layer wound; no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded red and orange; mfr 13499 part no. 549-3839-004	5-78
1A5L2		COIL, RADIO FREQUENCY: 9 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded red; mfr 13499 part no. 549-3838-004	5-78
1A5L3		COIL, RADIO FREQUENCY: 8 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown and white; mfr 13499 part no. 549-3837-004	5-78
1A5L4		COIL, RADIO FREQUENCY: 8 turns, single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown and violet; mfr 13499 part no. 549-3836-004	5-78
1A5L5		COIL, RADIO FREQUENCY: 7 turns, single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown and blue; mfr 13499 part no. 549-3835-004	5-78
1A5L6		COIL, RADIO FREQUENCY: 7 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown and green; mfr 13499 part no. 549-3834-004	5-78
1A5L7		COIL, RADIO FREQUENCY: 7 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown and yellow; mfr 13499 part no. 549-3833-004	5-78
1A5L8		COIL, RADIO FREQUENCY: 6 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown and orange; mfr 13499 part no. 549-3832-004	5-78
1A5L9		COIL, RADIO FREQUENCY: 9 turns; single layer wound; no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown and red; mfr 13499 part no. 549-3831-004	5-78

TABLE 6-2. (Continued)

SPECTRUM GENERATOR MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A5L10		COIL, RADIO FREQUENCY: 8 turns; single layer wound type, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown; mfr 13499 part no. 549-3830-004	5-78
1A5L11		COIL, RADIO FREQUENCY: 8 turns; single layer wound; no. 26 AWG, polyurethane insulation; 40 ohms dc res, color coded white; mfr 13499 part no. 549-3829-004	5-78
1A5L12		COIL, RADIO FREQUENCY: 7 turns; single layer wound type, no. 26 AWG, polyurethane insulation; 40 ohms dc res, color coded violet; mfr 13499 part no. 549-3828-004	5-78
1A5L13		COIL, RADIO FREQUENCY: 7 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res, color coded blue; mfr 13499 part no. 549-3827-004	5-78
1A5L14		COIL, RADIO FREQUENCY: 7 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded green; mfr 13499 part no. 549-3826-004	5-78
1A5L15		COIL, RADIO FREQUENCY: 6 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded yellow; mfr 13499 part no. 549-3825-004	5-78
1A5L16		COIL, RADIO FREQUENCY: 6 turns; single layer wound; no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded orange; mfr 13499 part no. 549-3824-004	5-78
1A5L17		COIL, RADIO FREQUENCY: 6 turns, single layer wound, no. 26 AWG, polyurethane insulation; 40 ohms dc res; color coded red, mfr 13499 part no. 549-3823-004	5-78
1A5L18		COIL, RADIO FREQUENCY: 6 turns; single layer wound, no. 26 AWG; polyurethane insulation; 40 ohms dc res; color coded brown, mfr 13499 part no. 549-3822-004	5-78
1A5L19		COIL, RADIO FREQUENCY: 0.56 uh, 0.135 ohms, 1220 ma; mfr 99800 part no. 1537-07	5-78
1A5L20		NOT USED	
1A5L21		COIL, RADIO FREQUENCY: single layer wound; enamel insulation; 0.47 uh nom inductance; 0.09 ohm max dc resistance; 1600 ma max current rating; 3/16 in. dia. 7/16 in. o/a dim., excl terminals; mfr 82142 part no. 10100-126	5-78
1A5L22 thru 1A5L25		COIL, RADIO FREQUENCY: same as 1A5L21	5-78
1A5L26		NOT USED	
1A5L27		CHOKE, BIFILAR: 0.125 in. dia by 0.484 in. lg o/a dim., mfr 13499 part no. 546-9210-002	5-78
1A5L28		CHOKE, BIFILAR: same as 1A5L27	5-78
1A5L29		NOT USED	
1A5L30		COIL, RADIO FREQUENCY: same as 1A5L21	
1A5L31		NOT USED	
1A5L32		COIL, RADIO FREQUENCY: same as 1A5L21	5-78
1A5L33		COIL, RADIO FREQUENCY: same as 1A5L21	5-78
1A5L34		NOT USED	
1A5L35		NOT USED	
1A5L36		COIL, RADIO FREQUENCY: same as 1A5L21	5-78
1A5L37 thru 1A5L41		NOT USED	

ORIGINAL

TABLE 6-2. (Continued)

SPECTRUM GENERATOR MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A5L42		BEAD, FERRITE: ferrite; 0.047 in. ID, 0.138 in. OD, 0.118 in. lg; mfr 02114 part no. 56-590-65-3B	5-78
1A5L43 thru 1A5L61 1A5L62 thru 1A5L65 1A5L66 1A5L67 1A5L68 1A5L69		BEAD, FERRITE: same as 1A5L42 NOT USED COIL, RADIO FREQUENCY: mfr 96906 MS type MS16225-7 NOT USED NOT USED COIL, RADIO FREQUENCY: single layer wound; enamel insulation; 0.15 uh nom inductance, 0.03 ohm dc resistive, 2.4 amp current rating; 0.187 in. dia. 0.437 in. lg; mfr 82142 part no. 10100-123	5-78 5-78 5-78
1A5L70 1A5L71 thru 1A5L74 1A5MP1		COIL, RADIO FREQUENCY: same as 1A5L69 BEAD, FERRITE: same as 1A5L42 RING, PLASTIC: molded of nonaging vinyl; 0.364 in. ID, 0.504 in. OD, 0.070 in. thk; mfr 78189 part no. 213-141216-00-2303	5-78 5-78 5-78
1A5MP2		BEARING, BALL, ANNULAR: stainless steel, plain finish; radial, double shielded; 0.1875 in. ID, 0.3125 in. OD, 0.1250 in. w; mfr 83086 part no. SR156PPK28-7	5-78
1A5MP3		BEARING, BALL, ANNULAR: 1 row, radial, 0.359 in. OD by 0.1250 in. lg; mfr 83086 part no. SFR156PPK28-7	5-78
1A5MP4		RING, RETAINING: mfr 96906 MS type MS16633-1018	5-78
1A5MP5		RING, RETAINING: steel, cadmium plated; 0.187 in. dia shaft; 0.161 in. ID, 0.250 in. OD, 0.015 in. thk; mfr 89462 part no. 5103-18MD	5-78
1A5MP6		COUPLING HALF, SHAFT: stainless steel, passivate finish; 0.3125 in. OD, 0.106 in. thk flange, 0.289 in. lg o/a, 0.420 in. lg of bore; mfr 13499 part no. 540-8153-002	5-78
1A5MP7		COLLAR, SHAFT: aluminum, chromate dip; 0.228 in. ID, 0.375 in. OD, 0.137 in. w; mfr 13499 part no. 544-7442-002	5-78
1A5MP8		POST, ELECTRICAL-MECHANICAL EQUIPMENT: aluminum, chromate clipped; hex cross sectional shape, 0.750 in. lg of post, 0.187 in. w across flats; 2-56 internal thd size; mfr 13499 part no. 540-9018-003	5-78
1A5MP9		INSERT, FLEXIBLE COUPLING: plastic 0.938 in. dia by 0.185 in. lg mfr 13499 part no. 548-7038-002	5-78
1A5MP10		HOUSING, BEARING: CRES, passivate finish; 0.234 in. ID to counterboard 0.3132 in. ID, 7/16-32 thd OD, 0.234 in. lg; mfr 13499 part no. 544-8408-002	5-78
1A5MP11		COLLAR, SHAFT, NO. 2: brass; 0.228 in. ID, 0.375 in. OD, 0.164 in. w; mfr 13499 part no. 544-8409-002	5-78
1A5MP12		POST, CHASSIS, NO. 1: brass, silver plated; 0.186 in. by 0.186 in. by 2.938 in.; mfr 13499 part no. 549-3788-003	5-78
1A5MP13		GEAR, SPUR: CRES; 0.531 in. OD;) by 0.265 in. lg o/a dim.; mfr 13499 part no. 544-8419-002	5-78
1A5MP14		GEAR, SPUR: phosphor bronze; 0.781 in. dia by 0.156 in. lg o/a dim., mfr 13499 part no. 544-8445-002	5-78
1A5MP15		INSULATOR, PLATE: plastic; 5/8 in. by 1-1/16 in.; mtr 13499 part no. 547-0785-002	5-78

TABLE 6-2. (Continued)

SPECTRUM GENERATOR MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A5MP16		COVER, GENERATOR SET: aluminum; 0.032 in. by 2.359 in. by 2.921 in. o/a dim.; mfr 13499 part no. 544-8470-002	5-78
1A5MP17		COVER, GENERATOR: aluminum; 0.125 in. by 3.109 in. by 3.625 in. o/a dim., mfr 13499 part no. 549-3791-003	5-78
1A5MP18		COVER, GENERATOR SET: aluminum; 0.375 in. by 3.109 in. by 3.625 in. o/a dim.; mfr 13499 part no. 548-7752-003	5-78
1A5MP19		COVER, GENERATOR: aluminum, chromate dip; 0.422 in. by 2.329 in. by 3.156 in.; mfr 13499 part no. 548-7751-003	5-78
1A5MP20		COVER, GENERATOR: aluminum; 0.040 in. by 2.359 in. by 2.437 in. o/a dim., mfr 13499 part no. 549-3802-003; c/o 1A5J1	5-78
1A5MP21		PLATE, MOUNTING, SPECTRUM: aluminum; 0.489 in. by 2.438 in. by 4.437 in. o/a dim.; mfr 13499 part no. 544-8514-004; c/o 1A5MP22, 1A5MP23	5-78
1A5MP22		BEARING, SLEEVE: bronze; 0.1885 in. max ID, 0.3595 in. max OD, 0.130 in. max lg, 0.4712 in. OD flange, 0.0337 in. w flange; mfr 70417 part no. F347-4MILL6085A, p/o 1A5MP21	5-78
1A5MP23		PIN, LOCATING: brass, chemical polish; 0.1249 in. ID, 0.1867 in. OD, 0.344 in. lg; mfr 13499 part no. 544-0277-002; p/o 1A5MP21	5-78
1A5MP24		PLATE, RETAINING, BEARING: aluminum; 0.452 in. by 1.871 in. by 2.375 in. o/a dim.; mfr 13499 part no. 548-7132-003 c/o 1A5J2	5-78
1A5MP25		SHAFT, STRAIGHT, OSCILLATOR: CRES passivate finish; 0.1873 in. dia. 2.093 in. lg; mfr 13499 part no. 549-3793-003	5-78
1A5MP26		COLLAR, PRINTED CIRCUIT BOARD: aluminum, chromate dip, 7/16 in. ID, 13/16 in. OD, 9/32 in. lg; mfr 13499 part no. 549-3785-002 .	5-78
1A5MP27		INSULATOR, PLATE: plastic; 0.136 in. ID, 0.250 in. OD, 0.125 in. thk, mfr 13499 part no. 548-7682-002	5-78
1A5MP28		PLATE, CHASSIS: brass, 0.406 in. by 2.491 in. by 2.352 in. o/a dim., mfr 13499 part no. 548-7681-003	5-78
1A5MP29		GEARSHAFT, SPUR: brass; 0.968 in. dia by 3.203 in. lg o/a dim., mfr 13499 part no. 544-8451-002	5-78
1A5MP30		CHASSIS, ELECTRICAL EQUIPMENT: mfr 13499 part no. 549-3817-004	5-78
1A5MP31		PLATE, COVER: brass, silver plated, 3/4 in. by 27/32 in., mfr 13499 part no. 547-0789-002	5-78
1A5MP32		PLATE, ELECTRICAL SHIELD: brass, 0.381 in. by 2.359 in. by 2.796 in. o/a dim.; mfr 13499 part no. 548-7755-004	5-78
1A5MP33		GEAR, SPUR: phosphor bronze; 1.031 in. dia by 0.265 in. lg o/a dim., mfr 13499 part no. 544-8453-002	5-78
1A5P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 10 no. 20 contacts; 5 amp; 1-17/32 in. lg, mfr 71468 part no. DAM11W1PC27	5-78
1A5R1		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF333K	5-78
1A5R2		RESISTOR, FIXED, COMPOSITION: same as 1A5R1	5-78
1A5R3		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF104K	5-78
1A5R4		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF103K	5-78
1A5R5		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF681K	5-78
1A5R6		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF153K	5-78
1A5R7		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF331K	5-78
1A5R8		NOT USED	
1A5R9		NOT USED	
1A5R10		RESISTOR, FIXED, COMPOSITION: same as 1A5R5	5-78
1A5R11		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF223K	5-78
1A5R12		NOT USED	
1A5R13		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF224K	5-78

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TABLE 6-2. (Continued)

SPECTRUM GENERATOR MODULE

REF DESIG	NOTE	NAME AND DESCRIPTION	FIG. NO.
1A5R14		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF101K	5-78
1A5R15		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF471K	5-78
1A5V1		ELECTRON TUBE: MIL-E-1 type 7077	5-78
1A5V2		ELECTRON TUBE: same as 1A5V1	5-78
1A5V3		ELECTRON TUBE: MIL-E-1 type 7554	5-78
1A5V4		ELECTRON TUBE; same as 1A5V3	5-78
1A5XV1		SOCKET, ELECTRON TUBE: beryllium copper, silver plated; for use with GE microminiature tube 7077; mfr 04435 part no. 86-001	5-78
1A5XV2		SOCKET, ELECTRON TUBE: same as 1A5XV1	5-78
1A5Y1		CRYSTAL UNIT, QUARTZ: 66.66667 mc; mfr 00136 part no. 289-1986-00	5-78
1A5Y2		CRYSTAL UNIT, QUARTZ: 70.00000 mc; mfr 00136 part no. 289-1987-00	5-78
1A5Y3		CRYSTAL UNIT, QUARTZ: 73.33333 mc; mfr 00136 part no. 289-1988-00	5-78
1A5Y4		CRYSTAL UNIT, QUARTZ: 76.66667 mc; mfr 00136 part no. 289-1989-00	5-78
1A5Y5		CRYSTAL UNIT, QUARTZ: 80.00000 mc; mfr 00136 part no. 289-1990-00	5-78
1A5Y6		CRYSTAL UNIT, QUARTZ: 83.33333 mc; mfr 00136 part no. 289-1991-00	5-78
1A5Y7		CRYSTAL UNIT, QUARTZ: 86.66667 mc; mfr 00136 part no. 289-1992-00	5-78
1A5Y8		CRYSTAL UNIT, QUARTZ: 90.00000 mc; mfr 00136 part no. 289-1993-00	5-78
1A5Y9		CRYSTAL UNIT, QUARTZ: same as 1A5Y2	5-78
1A5Y10		CRYSTAL UNIT, QUARTZ: 72.50000 mc; mfr 00136 part no. 289-2008-00	5-78
1A5Y11		CRYSTAL UNIT, QUARTZ: 75.00000 mc; mfr 00136 part no. 289-2009-00	5-78
1A5Y12		CRYSTAL UNIT, QUARTZ: 77.50000 mc; mfr 00136 part no. 289-2010-00	5-78
1A5Y13		CRYSTAL UNIT, QUARTZ: same as 1A5Y5	5-78
1A5Y14		CRYSTAL UNIT, QUARTZ: 82.50000 mc; mfr 00136 part no. 289-2011-11	5-78
1A5Y15		CRYSTAL UNIT, QUARTZ: 85.00000 mc; mfr 00136 part no. 289-2012-00	5-78
1A5Y16		CRYSTAL UNIT, QUARTZ: 87.50000 mc; mfr 00136 part no. 289-2013-00	5-78
1A5Y17		CRYSTAL UNIT, QUARTZ: same as 1A5Y8	5-78
1A5Y18		CRYSTAL UNIT, QUARTZ: 92.50000 mc; mfr 00136 part no. 289-2014-00	5-78

MODULATOR MODULE

1A6		MODULATOR, RADIO TRANSMITTER: 5 w max power output; 300 to 3500 cps; 80 ohms input, 3000 ohms output; 24.5 v, 26.5 v and 190 v dc operating power; 1.437 in. by 3.437 in. by 3.562 in.; mfr 13499 part no. 528-0089-005	5-36
1A6C1		CAPACITOR, FIXED, ELECTROLYTIC: 5.6 uf \pm 10%, 35 v dc; mfr 56289 part no. 150D565X9035B2	5-43
1A6C2		CAPACITOR, FIXED, WIREWOUND: 56 uf \pm 10%, 6 v dc mfr 56289 part no. 150D566X9006B2	5-43
1A6C3		CAPACITOR, FIXED, PAPER DIELECTRIC: 0.01 uf \pm 20%, 600 v dc; mfr 56289 part no. 196P10306S4	5-43
1A6E1		PRINTED CIRCUIT BOARD: plastic; 0.062 in. by 1.750 in. by 3 in.; incl 54 tubeless; mfr 13499 part no. 548-7014-005	5-43
1A6H1		WASHER: glass cloth, silicone rubber; 0.086 in. ID, 0.750 in. OD, 0.0050 in. thk; mfr 13499 part no. 547-2288-003	5-43
1A6H2		SCREW, SHOULDER, NO. 2: CRES, passivate finish; 8-32 UNC-2A thd, 0.127 in. hex.; 0.270 in. dia. 3.584 in. lg; mfr 13499 part no. 544-8223-002	5-43
1A6H3		SPACER, SLEEVE: aluminum, chromate dip; 0.031 in. wall, 0.125 in. lg; 0.156 in. OD; mfr 13499 part no. 541-5949-002	5-43
1A6J1		JACK, TIP: for use with 0.080 in. dia male contact; 5.5 amp; continuous duty; mfr 98291 part no. SKT41WHITE	5-43

TABLE 6-2. (Continued)

MODULATOR MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A6J2		JACK, TIP: same as 1A6J1	5-43
1A6MP1		BASE, TRANSISTOR: aluminum; 11/16-24 external thd, 0.265 in. lg; 0.391 in. lg o/a; mfr 13499 part no. 548-7002-002	5-43
1A6MP2		CAP, TRANSISTOR: aluminum; 11/16-24 internal thd; 3/4 in. dia by 7/16 in. lg; mfr 13499 part no. 548-7003-002	5-43
1A6MP3		INSULATOR, BUSHING: plastic; 0.313 in. dia by 0.150 in. lg; 0.177 in. ID undercut to 0.096 in.; mfr 13499 part no. 548-7004-002	5-43
1A6MP4		COVER, MODULATOR: aluminum, chromate dip finish; 0.032 in. by 3.209 in. by 3.437 in.; mfr 13499 part no. 548-7000-002	5-43
1A6P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 contacts, 1 connector mating end; arc resistant plastic dielectric; straight shape; 0.421 in. by 0.484 in. by 1.203 in., mfr 91146 part no. DE9PC7	5-43
1A6Q1		TRANSISTOR: MIL-S-19500/180(SIGC) type 2N1486	5-43
1A6Q2		TRANSISTOR: same as 1A6Q1	5-43
1A6Q3		TRANSISTOR: same as 1A6Q1	5-43
1A6R1		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF101K	5-43
1A6R2		RESISTOR, VARIABLE, WIREWOUND: 1000 ohms \pm 5%, 1/2 w; mfr 80294 part no. 224L1-102	5-43
1A6R3		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF682K	5-43
1A6R4		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF821K	5-43
1A6R5		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF470K	5-43
1A6R6		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW69V431	5-43
1A6R7		RESISTOR, FIXED, COMPOSITION: same as 1A6R5	5-43
1A6R8		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF272K	5-43
1A6R9		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW69V120	5-43
1A6R10		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF154K	5-43
1A6R11		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF153K	5-43
1A6R12		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF391K	5-43
1A6RT1		RESISTOR, THERMAL: 330 ohms \pm 10%, 1 w; mfr 10646 part no. 763F89	5-43
1A6T1		TRANSFORMER, AUDIO FREQUENCY: primary 500 ohms, 50 ma; secondary 4500 ohms, CT; 250 to 4000 cps; continuous duty cycle; mfr 95088 part no. TS3698	5-43
1A6T2		TRANSFORMER, AUDIO FREQUENCY: primary 160 ohms; CT; secondary 3000 ohms, 60 ma; 250 to 4000 cps; continuous duty cycle; mfr 95088 part no. TS3699	5-43

GUARD RECEIVER MODULE

1A7		RECEIVER, RADIO: mfr 13499 part no. 528-0090-005	5-36
1A7C1		CAPACITOR, VARIABLE, GLASS DIELECTRIC: 0.8 uf to 8.5 uf, 1 Mc/S at 25°C frequency, 1000 v dc; mfr 73899 part no. VCJ705	5-47
1A7C2		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 5,0 uuf \pm 1/2 uuf, 500 v dc at 80°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 301626C0H0509D.	5-47
1A7C3		NOT USED	
1A7C4		CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC20CJ030C	5-47
1A7C5		CAPACITOR, FIXED, MICA DIELECTRICS: 1000 uuf \pm 5%, 100 type dc; mfr 72136 part no. DM15E102J100WV	5-47
1A7C6		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A7C1	5-47

ORIGINAL

TABLE 6-2. (Continued)

GUARD RECEIVER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A7C7		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 6.0 uuf ±1/2 uuf, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 301626C0H0609D	5-47
1A7C8		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1000 uuf -0% +100% at room temp, 500 v dc mfr 72982 part no. 2465002W5T0751P	5-47
1A7C9		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 2 uuf ±1/2 uuf, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 301626C0K0209D	5-47
1A7C10		CAPACITOR, FIXED, MICA DIELECTRIC: same as 1A7C5	5-47
1A7C11		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-47
1A7C12		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A7C1	5-47
1A7C13		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10 uuf *1/2 uuf, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 301626C0H0100D	5-47
1A7C14		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 0.5 uuf ±1/4 uuf, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 301626C0K0508C	5-47
1A7C15		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 7.0 uuf ±1/2 uuf, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 301626C0H0709D	5-47
1A7C16		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A7C1	5-47
1A7C17		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C9	5-47
1A7C18		CAPACITOR, FIXED, MICA DIELECTRIC: 47 uuf ±5%, 500 v dc mfr 72136 part no. DM15E470J500WV	5-47
1A7C19		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10,000 uuf ±20%, 100 v dc mfr 96095 part no. MC80V103AM	5-47
1A7C20		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-47
1A7C21		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 18 uuf ±10%, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 301626C0H0180K	5-47
1A7C22		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A7C1	5-47
1A7C23		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C13	5-47
1A7C24		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C9	5-47
1A7C25		CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC20TJ060D	5-47
1A7C26		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1500 uuf ±10%, 500 v dc; mfr 01939 part no. 29C155A2	5-47
1A7C27		CAPACITOR, FIXED, MICA DIELECTRIC: 20 uuf ±5%, 500 v dc mfr 72136 part no. DM15C200J500WV	5-47
1A7C28		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C26	5-47
1A7C29		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-47
1A7C30		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-48
1A7C31		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-47
1A7C32		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C13	5-44
1A7C33		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-48
1A7C34		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 27 uuf ±10%, 500 v dc at 85°C, 400 v dc at 100°C, 250 v dc at 125°C; mfr 72982 part no. 331051U1H0270K	5-44
1A7C35		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-44
1A7C36		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-45
1A7C37		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C21	5-45
1A7C38		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-45
1A7C39		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-44
1A7C40		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-44
1A7C41		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-45
1A7C42		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C21	5-45
1A7C43		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-45
1A7C44		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-44
1A7C45		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-45

TABLE 6-2. (Continued)

GUARD RECEIVER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A7C46		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-45
1A7C47		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C21	5-45
1A7C48		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-45
1A7C49		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C9	5-47
1A7C50		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-44
1A7C51		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-45
1A7C52		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-45
1A7C53		NOT USED	
1A7C54		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C21	5-45
1A7C55		CAPACITOR, FIXED, ELECTROLYTIC: 22 uuf ±20%, 35 v dc; mfr 56289 part no. 150D226X0035R2	5-47
1A7C56		CAPACITOR, FIXED, ELECTROLYTIC: 2.2 uf ±20%, 20 v dc mfr 56289 part no. 150D225X0020A2	5-44
1A7C57		CAPACITOR, FIXED, ELECTROLYTIC: 10 uf ±20%, 20 v dc mfr 56289 part no. 150D106X0020B2	5-44
1A7C58		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1000 uuf ±20%, 100 v dc; mfr 96095 part no. MC80V102AM	5-44
1A7C59		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A7C56	5-48
1A7C60		CAPACITOR, FIXED, ELECTROLYTIC: 0.056 uf ±10%, 35 v dc; mfr 56289 part no. 150D563X9035A2	5-48
1A7C61		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A7C56	5-48
1A7C62		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C58	5-44
1A7C63		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-47
1A7C64		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C8	5-47
1A7C65		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-44
1A7C66		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-44
1A7C67		CAPACITOR, FIXED, MICA DIELECTRIC: 100 uuf ±5%, 500 v dc mfr 72136 part no. DM15F101J500WV	5-47
1A7C68		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C19	5-47
1A7C69		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C58	5-47
1A7C70		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C58	5-47
1A7C71		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A7C26	5-47
1A7C72		CAPACITOR, FIXED, ELECTROLYTIC: 4.7 uf ±20%, 35 v dc; mfr 56289 part no. 150D475X0035B2	5-47
1A7C73		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A7C72	5-47
1A7CR1		SEMICONDUCTOR DEVICE, DIODE: MIL-E-1/1258(NAVY) type 1N751A	5-48
1A7CR2		SEMICONDUCTOR DEVICE, DIODE: MIL-E-1 type 1N457	5-48
1A7CR3		SEMICONDUCTOR DEVICE, DIODE: MIL-E-1/258(NAVY) type 1N753A	5-44
1A7CR4		SEMICONDUCTOR DEVICE, DIODE: same as 1A7CR3	5-47
1A7CR5		SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/115(NAVY) type 1N3027B	5-47
1A7CR6		SEMICONDUCTOR DEVICE, DIODE: silicon; mfr 03877 part no. 1N816	5-44
1A7CR7		SEMICONDUCTOR DEVICE, DIODE: MIL-D-19500/188 type 1N251	5-47
1A7FL1		FILTER, BANDPASS: 20.500 mc; center freq; 20.525 to 20.575 mc; bandwidth; 0.500 in. by 0.812 in. by 1.875 in. o/a dim.; mfr 00136 part no. 2B5	5-44
1A7FL2		FILTER, RADIO INTERFERENCE: metal case; 200 v dc; 5 amp; 0.250 in. lg, 0.250 in. w, 0.812 in. h o/a, excl wire leads; mfr 01121 part no. SMFB2	5-47
1A7H1		NUT, PLAIN, HEXAGON: aluminum, chromate dip; 0.1875 in. hex; 4-40 UNC-2B thd, 0.643 in. lg mfr 13499 part no. 548-7153-002	5-46
1A7H2		NUT, PLAIN, HEXAGON: aluminum, chromate dip; 0.1875 in. hex; 4-40 UNC-2B thd, 0.615 in. lg; mfr 13499 part no. 548-7171-002	5-44

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TABLE 6-2. (Continued)

GUARD RECEIVER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A7H3		SCREW, SHOULDER: CRES, passivate finish; 0.125 in. ID, 0.250 in. OD, 3.578 in. lg; mfr 13499 part no. 548-7159-002	5-47
1A7J1		JACK, TIP: miniature self sealing for use with 0.080 diameter plugs; Teflon insulation; 5.5 amp continuous duty cycle; mfr 98291 part no. SKT5BCWHITE	5-47
1A7J2		JACK, TIP: for use w/ 0.080 diameter plug; 5.5 amp; continuous duty; mfr 98291 part no. SKT10WHITE	5-44
1A7L1		COIL, RADIO FREQUENCY: single layer wound type; 3 turns of no. 16 AWG wire; mfr 13499 part no. 548-7156-002	5-46
1A7L2		COIL, RADIO FREQUENCY: single layer wound type; 3 turns of no. 18 AWG wire; mfr 13499 part no. 548-7157-002	5-46
1A7L3		COIL, RADIO FREQUENCY: same as 1A7L2	5-46
1A7L4		COIL, RADIO FREQUENCY: same as 1A7L2	5-46
1A7L5		COIL, RADIO FREQUENCY: single layer wound; magnet wire w/enamel or Formvar insulation; 0.33 uh inductance; 0.07 ohm resistance, 2000 ma current; mfr 82142 part no. 10100-125	5-46
1A7L6		COIL, RADIO FREQUENCY: single layer wound type; 21 turns of no. 36 AWG wire; mfr 13499 part no. 548-7155-002	5-46
1A7L7		COIL, RADIO FREQUENCY: same as 1A7L2	5-46
1A7L8		COIL, RADIO FREQUENCY: single layer wound; 0.47 uh nom inductance, 0.09 ohms max dc resistance, 1600 ma max current rating; mfr 82142 part no. 10100-126	5-46
1A719		NOT USED	
1A7L10		COIL, RADIO FREQUENCY: single layer wound type; 7 turns of no. 26 AWG wire, mfr 13499 part no. 548-7579-003	5-46
1A7L11		COIL, RADIO FREQUENCY: same as 1A7L6	5-46
1A7L12		COIL, RADIO FREQUENCY: same as 1A7L6	5-45
1A7L13		COIL, RADIO FREQUENCY: same as 1A7L6	5-45
1A7L14		COIL, RADIO FREQUENCY: same as 1A7L6	5-45
1A7L15		COIL, RADIO FREQUENCY: same as 1A7L6	5-45
1A7L16		COIL, RADIO FREQUENCY: single layer wound type; 15 turns of no. 36 AWG wire; mfr 13499 part no. 548-7136-002	5-44
1A7L17		COIL, RADIO FREQUENCY: 550 ma cur; 1.00 ohms; 12.0 ±10%, uhf 3/16 in. dia; 7/16 in. lg overall; mfr 99800 part no. 1840-32	5-46
1A7L18		COIL, RADIO FREQUENCY: same as 1A7L17	5-44
1A7L19		COIL, RADIO FREQUENCY: same as 1A7L17	5-44
1A7L20		COIL, RADIO FREQUENCY: same as 1A7L17	5-48
1A7L21		COIL, RADIO FREQUENCY: same as 1A7L5	5-46
1A7L22		COIL, RADIO FREQUENCY: same as 1A7L5	5-46
1A7MP1		GROMMET, RUBBER: black synthetic; 5/16 in. ID, 7/16 in. OD; mfr 93106 part no. GB2156	5-47
1A7MP2		COVER, RECEIVER, NO. 1: aluminum, chromate dip; 0.063 in. thk, 3.218 in. dia. 4.406 in. lg; mfr 13499 part no. 548-7576-003	5-44
1A7MP3		COVER, RECEIVER, NO. 2: aluminum, chromate dip; 0.063 in. thk, 3.218 in. dia. 4.406 in. lg; mfr 13499 part no. 548-7578-003	5-47
1A7P1		CONNECTOR, RECEPTACLE, ELECTRICAL: monoblock insert; ten no. 20 contacts; 5 amp; mfr 71468 part no. DAM11W1PC27	5-44
1A7Q1	:	TRANSISTOR silicon; hermetically sealed; mfr 07688 part no. 2N917	5-47
1A7Q2		TRANSISTOR: same as 1A7Q1	5-47
1A7Q3		TRANSISTOR: same as 1A7Q1	5-47
1A7Q4		TRANSISTOR: same as 1A7Q1	5-47
1A7Q5		TRANSISTOR: MIL-S-19500/80A(SIGC) type 3N35	5-47

TABLE 6-2. (Continued)

GUARD RECEIVER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A7Q6 thru 1A7Q9		TRANSISTOR: same as 1A7Q5	5-45
1A7Q10		TRANSISTOR: silicon; hermetically sealed; mfr 07688 part no. 2N706	5-44
1A7Q11		TRANSISTOR: MIL-S-19500/111(SIGC) type 2N329A	5-44
1A7Q12		TRANSISTOR: MIL-S-19500/99A(SIGC) type 2N697	5-44
1A7Q13		TRANSISTOR: MIL-S-19500/120(SIGC) type 2N706	5-44
1A7Q14		TRANSISTOR: same as 1A7Q12	5-47
1A7Q15		TRANSISTOR: same as 1A7Q11	5-44
1A7R1		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF103K	5-46
1A7R3		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF222K	5-46
1A7R3		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF102K	5-46
1A7R4		RESISTOR, FIXED, COMPOSITION: same as 1A7R1	5-46
1A7R3		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-46
1A7R6		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-46
1A7R7		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF223K	5-46
1A7R3		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-46
1A7R9		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF152K	5-46
1A7R10		RESISTOR, FIXED, COMPOSITION: same as 1A7R1	5-46
1A7R11		RESISTOR, FIXED, COMPOSITION: same as 1A7R1	5-46
1A7R12		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF182K	5-46
1A7R13		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF104K	5-46
1A7R14		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF472K	5-46
1A7R15		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-48
1A7R16		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF153K	5-48
1A7R17		RESISTOR, FIXED, COMPOSITION: same as 1A7R14	5-46
1A7R18		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF332K	5-48
1A7R19		RESISTOR, FIXED, COMPOSITION: same as 1A7R7	5-48
1A7R20		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-46
1A7R21		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF470K	5-44
1A7R22		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-45
1A7R23		RESISTOR, FIXED, COMPOSITION: same as 1A7R16	5-45
1A7R24		RESISTOR, FIXED, COMPOSITION: same as 1A7R14	5-45
1A7R25		RESISTOR, FIXED, COMPOSITION: same as 1A7R18	5-45
1A7R26		RESISTOR, FIXED, COMPOSITION: same as 1A7R7	5-45
1A7R27		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF123K	5-46
1A7R28		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-45
1A7R29		RESISTOR, FIXED, COMPOSITION: same as 1A7R16	5-45
1A7R30		RESISTOR, FIXED, COMPOSITION: same as 1A7R14	5-45
1A7R31		RESISTOR, FIXED, COMPOSITION: same as 1A7R18	5-45
1A7R32		RESISTOR, FIXED, COMPOSITION: same as 1A7R7	5-45
1A7R33		NOT USED	
1A7R34		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-45
1A7R35		RESISTOR, FIXED, COMPOSITION: same as 1A7R16	5-45
1A7R36		RESISTOR, FIXED, COMPOSITION: same as 1A7R14	5-45
1A7R37		RESISTOR, FIXED, COMPOSITION: same as 1A7R18	5-45
1A7R38		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF473K	5-45
1A7R39		RESISTOR, FIXED, COMPOSITION: same as 1A7R27	5-48
1A7R40		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-45
1A7R41		RESISTOR, FIXED, COMPOSITION: same as 1A7R16	5-45
1A7R42		RESISTOR, FIXED, COMPOSITION: same as 1A7R14	5-45

TABLE 6-2. (Continued)

GUARD RECEIVER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A7R43		RESISTOR, FIXED, COMPOSITION: same as 1A7R18	5-45
1A7R44		RESISTOR, FIXED, COMPOSITION: same as 1A7R7	5-45
1A7R45		RESISTOR, FIXED, COMPOSITION: same as 1A7R2	5-44
1A7R46		RESISTOR, VARIABLE, WIREWOUND: 5000 ohms \pm 10%, 0.8 w; mfr 80294 part no. 236P1-502	5-44
1A7R47		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF154K	5-48
1A7R48		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-44
1A7R49		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF221K	5-44
1A7R50		RESISTOR, FIXED, COMPOSITION: same as 1A7R1	5-48
1A7R51		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-44
1A7R52		RESISTOR, FIXED, COMPOSITION: same as 1A7R14	5-44
1A7R53		RESISTOR, FIXED, COMPOSITION: same as 1A7R18	5-44
1A7R54		RESISTOR, FIXED, COMPOSITION: same as 1A7R1	5-44
1A7R55		RESISTOR, FIXED, COMPOSITION: same as 1A7R49	5-44
1A7R56		RESISTOR, FIXED, COMPOSITION: same as 1A7R3	5-44
1A7R57		RESISTOR, FIXED, COMPOSITION: same as 1A7R1	5-48
1A7R58		RESISTOR, FIXED, COMPOSITION: same as 1A7R16	5-48
1A7R59		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF823K	5-44
1A7R60		RESISTOR, FIXED, COMPOSITION: same as 1A7R16	5-44
1A7R61		RESISTOR, FIXED, COMPOSITION: same as 1A7R1	5-44
1A7R62		RESISTOR, FIXED, COMPOSITION: same as 1A7R27	5-48
1A7R63		NOT USED	
1A7R64		RESISTOR, FIXED, COMPOSITION: same as 1A7R59	5-48
1A7R65		RESISTOR, FIXED, COMPOSITION: same as 1A7R2	5-46
1A7R66		RESISTOR, FIXED, COMPOSITION: same as 1A7R21	5-46
1A7TB1		NOT USED	
1A7TB2		TERMINAL BOARD: plastic; incl 10 terminals, 0.062 in. by 0.703 in. by 1.687 in. board dim.; mfr 13499 part no. 548-7181-003	5-47
1A7TB3		TERMINAL BOARD: plastic; incl 5 terminals. 0.062 in. by 1 in. by 1.125 in. board dim.; mfr 13499 part no. 548-7150-003	5-44
1A7TB4		TERMINAL BOARD: plastic, glass cloth; 1/16 in. by 1-5/32 in. by 2-9/64 in.; incl 23 terminals; mfr 13499 part no. 548-7581-003	5-44
1A7Y1		CRYSTAL UNIT, QUARTZ: 111.2250 mc; mfr 00136 part no. 290-9602-00	5-46

R-F AND POWER AMPLIFIER MODULE

1A8		AMPLIFIER, RADIO FREQUENCY: 225 to 400 mc freq range, mfr 13499 part no. 528-0091-00	5-36
1A8C1		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 470 uuf \pm 20%, 500 v dc; mfr 96296 part no. CD8WA471M	5-51
1A8C2		CAPACITOR, FIXED, CERAMIC DIELECTRIC: 400 uuf -0% +100% at room temp, 360 v dc; mfr 72982 part no. 2404032W5P0401P	5-51
1A8C3		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-51
1A8C4		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-49
1A8C5		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C1	5-51
1A8C6		CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20B type CC22CKIR5D	5-51
1A8C7		CAPACITOR, VARIABLE, GLASS DIELECTRIC: 0.8 uuf to 4.5 uuf, 1000 v dc; mfr 73899 part no. VC21G	5-49
1A8C8		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-51

TABLE 6-2. (Continued)

R-F AND POWER AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A8C9		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C1	5-51
1A8C10		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-49
1A8C11		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C6	5-51
1A8C12		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A8C7	5-49
1A8C13		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-49
1A8C14		CAPACITOR: includes grid plate Collins Radio Company part no. 548-7077-002, insulator Collins Radio Company part no. 548-7102-003, bushing Collins Radio Company part no. 548-7078-002	5-51
1A8C15		CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20B type CC22CH200J	5-51
1A8C16		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-49
1A8C17		CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC22UK020D	5-51
1A8C18		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A8C7	5-79
1A8C19		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-51
1A8C20		CAPACITOR: includes grid plate Collins Radio Company part no. 548-7077-002, insulator Collins Radio Company part no. 548-7103-003, bushing Collins Radio Company part no. 548-7078-002	5-49
1A8C21		CAPACITOR, VARIABLE, GLASS DIELECTRIC: same as 1A8C7	5-49
1A8C22		CAPACITOR: includes 1A8MP29 and 1A8MP30	5-50
1A8C23		CAPACITOR: p/o 1A8MP25	5-79
1A8C24		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-49
1A8C25		CAPACITOR: includes grid plate Collins Radio Company part no. 548-8570-003, insulator Collins Radio Company part no. 548-7101-003, bushing Collins Radio Company part no. 548-7078-002	5-49
1A8C26		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C1	5-50
1A8C27		CAPACITOR, VARIABLE, AIR DIELECTRIC: single section; 1.2 uuf to 5.0 uuf; mfr 77630 part no. 875001	5-49
1A8C28		CAPACITOR: includes 1A8MP29 and 1A8MP30	5-50
1A8C29		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C1	5-50
1A8C30		CAPACITOR, VARIABLE, GLASS DIELECTRIC: 0.4 uuf to 4.0 uuf, 700 v dc; includes mounting facilities; mfr 13499 part no. 922-3007-00	5-79
1A8C31		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-49
1A8C32		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-49
1A8C33		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-79
1A8C34		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-51
1A8C35		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-51
1A8C36		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-51
1A7C37		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-51
1A8C38		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C2	5-51
1A8C39		CAPACITOR, FIXED, ELECTROLYTIC: MIL-C-3965 type CL23CH2R5TN3	5-79
1A8C40		CAPACITOR, FIXED, CERAMIC DIELECTRIC: MIL-C-20D type CC22TJ040D	5-40
1A8C41		CAPACITOR, FIXED, CERAMIC DIELECTRIC: same as 1A8C17	5-50
1A8E1		CONTACT, ELECTRICAL: copper, gold plated; 1-1/16 in. diaby 1/4 in. h; mfr 13499 part no. 544-8407-002	5-50
1A8E2		ADAPTER, HEATER: 0.422 in. diaby 0.234 in. lg; mfr 13499 part no. 540-8750-002	5-49
1A8H1		SCREW, SHOULDER, NO. 2: CRES, passivate finish; 8-32 UNC-2A thd, 0.127 in. hex, 0.270 in. dia. 3.584 in. lg; mfr 13499 part no. 544-8223-002	5-50
1A8H2		WASHER, FINISHING: copper, alloy plated finish; 0.091 in. ID, countersunk 82 deg. 0.212 in. OD, 0.062 in. thk; mfr 13499 part no. 545-6590-002	5-51
1A8H3		WASHER, FLAT: copper, bright alloy; 0.125 in. ID, 0.250 in OD, 0.016 in. thk; mfr 13499 part no. 543-5575-003	5-50

TABLE 6-2. (Continued)

R-F AND POWER AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A8H4		NUT, SPECIAL: aluminum, chromate dip; 4-40 UNC-2B thd, 5/16 in. by 3/8 in.; mfr 13499 part no. 548-7558-002	5-50
1A8H5		SETSCREW: steel, cadmium plated; fluted multiple spline, cup point; 2-56 NC-3A thd, 3/32 in. lg; mfr 13499 part no. 328-0368-00	5-50
1A8H6		SCREW, MACHINE: nylon; slotted fillister head; 4-40 UNC-2A thd, 3/8 in. lg; mfr 13499 part no. 330-2248-00	5-50
1A8H7		NUT, PLAIN, NEXAGON: CRES, passivate finish; 7/16-32 UN-2B thd, 0.5625 in. hex, 0.062 in. thing; mfr 13499 part no. 544-8410-002	5-79
1A8J1		JACK, TIP: miniature self sealing for use with 0.080 diameter plugs; Teflon insulation; 5.5 amp; continuous duty; mfr 98291 part no. SKT5BCWHITE	5-79
1A8J2 thru 1A8J11		JACK, TIP: same as 1A8J1	5-79
1A8K1		RELAY, ARMATURE: 2C contact arrangement; 2 amp at 28 v dc or 115 v ac; 550 ohms dc resistance; single layer wound; mfr 01526 part no. 3S2791G200R9C	
1A8L1		COIL, RADIO FREQUENCY: single layer wound, magnet wire; 0.15 uh inductance, 0.03 ohm, 2400 ma current; mfr 82142 part no. 10100-123	5-49
1A8L2		COIL, RADIO FREQUENCY: single layer wound; 0.47 uh nom inductance, 0.09 ohm max dc resistance, 1600 ma max current rating; mfr 82142 part no. 10100-126	5-49
1A8L3		COIL, RADIO FREQUENCY: single layer wound; magnet wire w/ enamel or Formvar insulation; 0.33 uh inductance, 0.07 ohm, resistance, 2000 ma current mfr 82142 part no. 10100-125	5-51
1A8L4		COIL, RADIO FREQUENCY: .same as 1A8L2	5-51
1A8L5		COIL, RADIO FREQUENCY: .same as 1A8L2	5-51
1A8L6		COIL, RADIO FREQUENCY: .same as 1A8L2	5-51
1A8L7		COIL, RADIO FREQUENCY: .same as 1A8L2	5-49
1A8L8		COIL, RADIO FREQUENCY: .same as 1A8L2	5-50
1A8L9		COIL, RADIO FREQUENCY: .same as 1A8L3	5-49
1A8L10		COIL, RADIO FREQUENCY: .same as 1A8L2	5-50
1A8L11		COIL, RADIO FREQUENCY: .same as 1A8L2	5-49
1A8L12		COIL, RADIO FREQUENCY: .same as 1A8L2	5-49
1A8L13		COIL, RADIO FREQUENCY: .single layer wound; 14 turns no. 28 AWG; mfr 13499 part no. 545-5671-002	5-51
1A8L14		COIL, RADIO FREQUENCY: .same as 1A8L13	5-51
1A8L15		COIL, RADIO FREQUENCY: .same as 1A8L13	5-51
1A8L16		COIL, RADIO FREQUENCY: .same as 1A8L2	5-49
1A8L17		COIL, RADIO FREQUENCY: .same as 1A8L2	5-49
1A8MP1		RING, PLASTIC: 0.364 in. ID, 0.504 in. OD, 0.070 in. thk; mfr 78189 part no. 213-141216-00-2303	5-50
1A8MP2		BEARING, BALL, ANNULAR: stainless steel, plain finish; radial; 0.1875 in. ID, 0.3125 in. OD, 0.1250 in. w; mfr 40920 part no. S5632CHHP28L02	5-50
1A8MP3		BEARING, BALL, ANNULAR: single row; flanged; radial; 0.1875 in. ID, 0.359 in. OD, 0.1250 in. w; mfr 40920 part no. S5632FCHHP37L01	5-79
1A8MP4		COUPLING, SHAFT, FLEXIBLE: CRES coupling and insert; 0.938 in. diaby 0.189 in. lg; mfr 13499 part no. 540-8152-002	5-79
1A8MP5		INSERT, FLEXIBLE COUPLING: plastic; 0.938 in. diaby 0.185 in. lg; mfr 13499 part no. 548-7038-002	5-79
1A8MP6		COLLAR, SHAFT: aluminum, chromate dip; 0.135 in. by 0.228 in. by 0.375 in.; mfr 13499 part no. 544-7442-002	5-50

TABLE 6-2. (Continued)

R-F AND POWER AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A8MP7		ARM, CAM: plastic; 0.187 in. by 0.250 in. by 1.094 in.; mfr 13499 part no. 548-7055-002	5-50
1A8MP8		HUB, GROUNDING: brass, gold and rhodium plated; 0.187 in. ID, 0.270 in. OD, 0.174 in. lg; mfr 13499 part no. 544-7446-002	5-50
1A8MP9		STATOR ASSEMBLY: 0.550 in. by 1.203 in. by 1.547 in.; mfr 13499 part no. 544-7449-002	5-51
1A8MP10		ROTOR ASSEMBLY: 0.535 in. by 0.593 in. by 1.186 in. o/a approx; mfr 13499 part no. 544-7450-002	5-51
1A8MP11		CONTACT, ELECTRICAL: copper w/ gold plated finish; 12 slots spaced 30 deg apart; 0.484 in. dia. 0.005 in thk, mfr 13499 part no. 544-7455-003	5-51
1A8MP12		HOUSING, BEARING: CRES; 7/16-32 external thd; 0.234 in. lg o/a; 0.313 in. ID undercut to 0.234 in. dia; mfr 13499 part no. 544-8408-002	5-79
1A8MP13		SPRING, RETAINING, CONTACT: CRES, passivate finish; 0.406 in. ID 0.430 in. OD, 0.024 in. thk; mfr 13499 part no. 544-8520-002	5-50
1A8MP14		GEAR AND SHAFT ASSEMBLY: aluminum gear w/ 58 teeth, gold plated brass shaft, 0.250 in. diaby 3.500 in. lg, mfr 13499 part no. 548-7228-003	5-51
1A8MP15		INSULATOR, BLOCK: plastic; 0.625 in. by 0.656 in. by 0.843 in.; incl contacts, terminals and clips; mfr 13499 part no. 548-7048-002	5-49
1A8MP16		COVER, AMPLIFIER: aluminum, chromate dip finish; 0.032 in. by 3.190 in. by 4.359 in.; mfr 13499 part no. 548-7051-002	5-79
1A8MP17		COVER, AMPLIFIER: aluminum, chromate dip; 0.032 in. by 3.190 in. by 3.375 in.; mfr 13499 part no. 548-7052-002	5-79
1A8MP18		COVER, AMPLIFIER: aluminum, chromate dip finish; 0.032 in. by 3.190 in. by 3.375 in.; mfr 13499 part no. 548-7053-002	5-79
1A8MP19		COVER, AMPLIFIER: aluminum; 0.032 in. by 3.190 in. by 4.359 in.; mfr 13499 part no. 548-7063-002	5-79
1A8MP20		INSULATOR, BLOCK: plastic; 0.468 in. by 0.656 in. by 0.688 in.; incl contacts, terminals and clips; mfr 13499 part no. 548-7054-002	5-51
1A8MP21		GEARSHAFT, SPUR: plastic; 36 teeth; 0.791 in. diaby 0.531 in. lg; mfr 13499 part no. 548-7064-002	5-51
1A8MP22		GEARSHAFT, SPUR: CRES; 58 teeth; 1.250 in. diaby 0.719 in. lg; mfr 13499 part no. 548-7065-002	5-79
1A8MP23		GEAR, SPUR: plastic; 0.187 in. ID, 1.250 in. OD, 0.250 in. lg; 58 teeth; mfr 13499 part no. 548-7066-002	5-50
1A8MP24		CAM, CONTROL: brass, gold and rhodium plated; 0.437 in. diaby 0.240 in. lg; mfr 13499 part no. 548-7073-002	5-50
1A8MP25		CLIP ASSEMBLY, ELECTRON TUBE: 0.718 in. by 0.750 in. by 1.281 in. approx o/a dim., mfr 13499 part no. 548-7076-002	5-49
1A8MP26		SPACER, SLEEVE, LONG: aluminum, chromate dip; 0.120 in. by 0.250 in. by 0.437 in., mfr 13499 part no. 548-7079-002	5-50
1A8MP27		SPACER, SLEEVE, SHORT: aluminum, chromate dip; 0.120 in. by 0.125 in. by 0.250 in.; mfr 13499 part no. 548-7081-002	5-50
1A8MP28		PLATE, GEAR: aluminum, chromate dip finish; 0.312 in. by 2.219 in. by 3.188 in.; mfr 13499 part no. 548-7104-003	5-79
1A8MP29		ROTOR ASSEMBLY, CAPACITOR: 0.531 In. by 0,937 in. by 1.218 in. approx o/a; mfr 13499 part no. 548-7105-003, p/o A18C22, 1A8C28	5-50
1A8MP30		STATOR ASSEMBLY, GRID): 0.998 in. by 1.656 in. by 2,501 in. approx; mfr 13499 part no. 548-7115-004, p/o 1A8C22, 1A8C28	5-50
1A8MP31		STATOR ASSEMBLY, PLATE: 0.765 in. by 1.781 in. by 2.671 in. approx; mfr 13499 part no. 548-7116-004	5-50

ORIGINAL

TABLE 6-2. (Continued)

R-F AND POWER AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A8MP32		SHAFT ASSEMBLY, CAPACITOR: silver plated brass shaft and rotor sleeve, coin silver contact sleeve; 0.437 in. diaby 3,347 in. lg mfr 13499 part no. 548-7123-004	5-50
1A8MP33		PLATE, BOTTOM: aluminum; 0.187 in. by 3.375 in. by 4.375 in.; incl hardware; mfr 13499 part no. 548-7125-005	5-50
1A8MP34		PLATE, TOP: aluminum; 0.187 in. by 3.375 in. by 4.375 in.; mfr 13499 part no. 548-7127-005	5-50
1A8MP35		SPACER, SLEEVE, ARM: aluminum, chromate dip; 0.089 in. by 0.140 in. by 0.250 in.; mfr 13499 part no. 548-7057-002	5-50
1A8MP36		CLAMP, TUBE: silver plated brass; 0.234 in. by 0.375 in. by 0.672 in.; mfr 13499 part no. 548-7237-002	5-49
1A8MP37		BLOCK, MOUNTING CONNECTOR: brass, silver plated; 0.138 in. by 0.375 in. by 0.906 in.; mfr 13499 part no. 548-7430-002	5-49
1A8MP38		INSERT, SCREW THREAD: aluminum, chromate dip finish; 0.250 in. w across flats by 0.128 in. lg; 2-56 thd; mfr 13499 part no. 548-7061-002	5-50
1A8MP39		SPACER, SLEEVE: aluminum, chromate dip; 0.031 in. wall, 0.156 in. OD, 0.312 in. lg; mfr 13499 part no. 541-5955-002	5-49
1A8MP40		SPACER, SLEEVE: aluminum, chromate dip; 0.031 in. wall, 0.156 in. OD, 0.375 in. lg; mfr 13499 part no. 541-5957-002	5-79
1A8MP41		GEAR, SPUR: aluminum; 58 teeth; 0.187 in. ID, 0.250 in. OD, 0.250 in. lg; mfr 13499 part no. 548-7067-002	5-51
1A8P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 20 male contacts, 1 coaxial; 425 v ac, 5 amp; mfr 71468 part no. DBM21WIPC27	5-79
1A8P2		CONNECTOR, RECEPTACLE, ELECTRICAL: miniature; 1 male contact, 50 ohms; 5 amp; mfr 98278 part no. 052-0471	5-79
1A8Q1		TRANSISTOR: MIL-S-19500/207(SIGC) type 2N1481	5-79
1A8R1		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF105K	5-51
1A8R2		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF820K	5-49
1A8R3		RESISTOR, FIXED, COMPOSITION: same as 1A8R1	5-51
1A8R4		RESISTOR, FIXED, COMPOSITION: same as 1A8R2	5-51
1A8R5		RESISTOR, FIXED, COMPOSITION: same as 1A8R1	5-49
1A8R6		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF101K	5-49
1A8R7		RESISTOR, FIXED, COMPOSITION: same as 1A8R1	5-51
1A8R8		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF471K	5-51
1A8R9		RESISTOR, FIXED, COMPOSITION: same as 1A8R1	5-49
1A8R10		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF151K	5-49
1A8R11		RESISTOR, FIXED, COMPOSITION: same as 1A8R1	5-49
1A8R12		RESISTOR, FIXED, COMPOSITION: same as 1A8R8	5-49
1A8R13		RESISTOR, FIXED, COMPOSITION: same as 1A8R1	5-49
1A8R14		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF330K	5-49
1A8R15		RESISTOR, FIXED, COMPOSITION: same as 1A8R1	5-49
1A8R16		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF331K	5-49
1A8R17		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF681K	5-49
1A8R18		RESISTOR, FIXED, WIREWOUND: 10 ohms \pm 1%, 2.5 w; mfr 91637 part no. RSM2C00100F	5-79
1A8R19		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW67V272	5-79
1A8R20		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF472K	5-79
1A8R21		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF103K	5-79
1A8R22		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF332K	5-79
1A8R23		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF222K	5-79
1A8R24		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW67V182	5-79

TABLE 6-2. (Continued)

R-F AND POWER AMPLIFIER MODULE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
1A8R25		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF472K	5-79
1A8R26		RESISTOR, FIXED, COMPOSITION: same as 1A8R25	
1A8TB1		TERMINAL BOARD: plastic; 0.062 in. by 0.938 in. by 1.313 in.; incl 4 terminals; mfr 13499 part no. 548-7034-002	5-79
1A8V1		ELECTRON TUBE: .MIL-E-1 type 7077	5-49
1A8V2		ELECTRON TUBE: .same as 1A8V1	5-49
1A8V3		ELECTRON TUBE: .MIL-E-1 type 7554	5-51
1A8V4		ELECTRON TUBE: .same as 1A8V3	5-51
1A8V5		ELECTRON TUBE: .MIL-E-1C type 6442	5-51
1A8XV1		SOCKET, ELECTRON TUBE: miniature; silver plated copper contacts; mfr 04435 part no. 86-001	5-51
1A8XV2		SOCKET, ELECTRON TUBE: miniature; silver plated copper contacts; mfr 04435 part no. 86-071	5-51

RECEIVER AND TRANSMITTER SUBASSEMBLY

1A9		RECEIVER-TRANSMITTER SUBASSEMBLY: mfr 13499 part no. 548-7158-005	5-36
1A9C1		CAPACITOR, FIXED, ELECTROLYTIC: 33 uf ±20%, 35 v dc; mfr 56289 part no. 150D336X0035S2	5-81
1A9C2		CAPACITOR, FIXED, ELECTROLYTIC: same as 1A9C1	5-80
1A9C3		CAPACITOR, FIXED, MICA DIELECTRIC: 39 uuf ±5%, 500 v dc; mfr 72136 part no. DM15E390J500WV	5-81
1A9C4		NOT USED	
1A9C 5		NOT USED	
1A9CR1		SEMICONDUCTOR DEVICE, DIODE: silicon; hermetically sealed; mfr 80131 part no. 1N916	5-81
1A9CR2		SEMICONDUCTOR DEVICE, DIODE: mfr 07688 JETEC type 1N1358A	5-80
1A9CR3		SEMICONDUCTOR DEVICE, DIODE: MIL-E-1/1143 type 1N647	5-80
1A9CR4		SEMICONDUCTOR DEVICE, DIODE: same as 1A9CR3	5-80
1A9CR5		SEMICONDUCTOR DEVICE, DIODE: same as 1A9CR3	5-81
1A9CR6		SEMICONDUCTOR DEVICE, DIODE: same as 1A9CR3	5-81
1A9CR7		SEMICONDUCTOR DEVICE, DIODE: same as 1A9CR3	5-53
1A9CR8		SEMICONDUCTOR DEVICE, DIODE: silicon; mfr 81483 part no, 69-1020-10Z6-3	5-80
1A9CR9		SEMICONDUCTOR DEVICE, DIODE: same as 1A9CR3	5-53
1A9CR10		SEMICONDUCTOR DEVICE, DIODE: same as 1A9CR3	5-53
1A9DS1		LAMP, INCANDESCENT: MIL-L-6363 type MS25237-327	5-80
1A9DS2		LAMP, INCANDESCENT: same as 1A9DS1	5-80
1A9E1		CONTACT ASSEMBLY, ELECTRICAL: 0.342 in. by 1.125 in. by 2.062 in. o/a dim.; mfr 13499 part no. 548-7516-003; c/o 1A9J1, 1A9J2, 1A9J3	5-80
1A9F1		FUSE, CARTRIDGE: MIL-F-15160 type F02A250V3AS	5-80
1A9FL1		FILTER, RADIO INTERFERENCE: 5500 uuf -0% +100%, 200 v dc; 50 DB min attenuation; mfr 01121 part no. SMFB-A2	5-80
1A9FL2 thru 1A9FL7 1A9FL8		FILTER, RADIO INTERFERENCE: same as 1A9FL1	5-80
		FILTER, HIGH PASS-LOW PASS: 200 to 400 mc passband, 10 w power rating in passband; 0.750 in. by 1.125 in. by 3.875 in. o/a dim., excl connectors; mfr 13499 part no. 241-0467-00	5-52

ORIGINAL

TABLE 6-2. (Continued)

RECEIVER AND TRANSMITTER SUBASSEMBLY

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A9F19		FILTER, RADIO INTERFERENCE: same as 1A9FL1	5-80
1A9H1		WASHER: glass cloth, silicone rubber; 0.086 in. ID, 0.750 in. OD, 0.0050 in. thk; mfr 13499 part no. 547-2288-003	5-80
1A9H2		SHIM: plastic; 0.010 in. thk by 1.031 in. dia/o a dim.; mfr 13499 part no. 548-7350-002	5-81
1A9H3		WASHER, FLAT: brass; 0.190 in. ID, 3/8 in. OD, 0.002 in. thk; mfr 13499 part no. 502-1145-002	5-80
1A9H4		WASHER, SPRING TENSION, NO. 1: copper, chemical polish; 0.130 in. ID, 0.375 in. OD, 0.0080 in. thk; mfr 13499 part no. 548-7497-002	5-80
1A9H5		WASHER, STOP: aluminum; 0.080 in. by 0.342 in. by 0.571 in. o/a dim.; mfr 13499 part no. 548-7498-002	5-80
1A9J1		CONTACT, ELECTRICAL: silver-plated copper contact surface; 0.187 in. die by 0.342 in. lg o/a dim.; mfr 13499 part no. 548-7447-002; p/o 1A9E1	5-80
1A9J2		CONTACT, ELECTRICAL: same as 1A9J1	5-80
1A9J3		CONTACT, ELECTRICAL: same as 1A9J1	
1A9J4		NOT USED	
1A9J5		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 no. 20 female contacts; 5 amp; mfr 71468 part no. DEF9SC7A101	5-80
1A9J6		CONNECTOR, RECEPTACLE, ELECTRICAL: 10 male contacts; 5 amp; mfr 71468 part no. DBMF13W3SIC27	5-80
1A9J7		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 no. 20 female contacts; 5 amp; mfr 71468 part no. DAF15SC7A101	5-80
1A9J8		CONNECTOR, RECEPTACLE, ELECTRICAL: same as 1A9J5	5-80
1A9J9		CONNECTOR, RECEPTACLE, ELECTRICAL: 10 no. 20 contacts; 5 amp; mfr 71468 part no. DAMF11W1S1C27	5-80
1A9J10		CONNECTOR, RECEPTACLE, ELECTRICAL: same as 1A9J5	5-80
1A9J11		CONNECTOR, RECEPTACLE, ELECTRICAL: same as 1A9J9	5-80
1A9J12		CONNECTOR, RECEPTACLE, ELECTRICAL: 20 contacts; 5 amp; mfr 71468 part no. DBMF21W1S1C27	5-80
1A9J13		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-10544 type U79U	5-80
1A9J14		CONNECTOR, RECEPTACLE, ELECTRICAL: same as 1A9J13	5-80
1A9J15		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; 0.281 in. diaby 0.593 in. o/a dim.; mfr 98291 part no. 3012	5-81
1A9J16		CONNECTOR, RECEPTACLE, ELECTRICAL: low loss plastic dielectric; 0.375 in. by 0.515 in. by 0.843 in. o/a dim.; mfr 94375 part no. RF0752	5-81
1A9J17 thru 1A9J21		CONNECTOR, RECEPTACLE, ELECTRICAL: same as 1A9J15	5-81
1A9J22		NOT USED	
1A9J23		NOT USED	
1A9J24		ADAPTER, CONNECTOR: 50 ohms nom impedance; 5 amp; Teflon insulation; mfr 91146 part no. MB-N-ARB-MF	5-80
1A9J25		JACK, TIP: for use w/ 0.080 in. diaplug tip; 5.5 amp; mfr 98291 part no. 5-80 SKT10WHITE	
1A9K1		RELAY, ARMATURE: 2C at 2 amp, 28 v dc or 115 v ac; 550 ohms, 26 v dc 5-80 coil; 1 inductive winding; 0.359 in. by 0.797 in. by 0.875 in.; mfr 01526 part no. 3S2791G200N9C	
1A9K2		NOT USED	
1A9K3		RELAY, ARMATURE: same as 1A9K1	5-80
1A9K4		RELAY, ARMATURE: same as 1A9K1	5-80
1A9K5		RELAY, ARMATURE: same as 1A9K1	5-80

TABLE 6-2. (Continued)

RECEIVER AND TRANSMITTER SUBASSEMBLY

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A9K6		RELAY, ARMATURE: 2C contact arrangement; 10 amp at 28 v dc contact rating; 26 v dc coil voltage, 300 ohms $\pm 10\%$, at +25°C coil resistance; continuous duty cycle; mfr 09026 part no. BR7X300D2S3-26V	5-53
1A9L1		REACTOR: 1 winding; 1 mh inductance; 1500 amp dc current; 1 ohm dc res; 1.062 in. diaby 0.500 in. lg o/a dim.; mfr 88063 part no. 76-0091-86	5-80
1A9L2		REACTOR: same as 1A9L1	5-80
1A9L3		NOT USED	5-80
1A9L4		COIL, RADIO FREQUENCY: 1200 ma current; 0.68 uh, $\pm 20\%$, 0.15 dc resistance ohms; 7/16 in. lg; 2 wire leads; mfr 82142 part no. 10100-127	5-81
1A9L5		COIL, RADIO FREQUENCY: single layer wound; 0.47 uh nom inductance, 0.09 ohm dc resistance, 1600 ma dc current rating; mfr 82142 part no. 10100-126	5-81
1A9L6		SOLENOID, ELECTRICAL: 1 coil, 12.5 ohms resistance, 30 v dc maxi 1 in. diaby 0.843 in. lg o/a dim., excl wire leads; mfr 81840 part no. A38992-001	5-81
1A9L7		SOLENOID, ELECTRICAL: same as 1A9L6	5-81
1A9MP1		CHASSIS, RECEIVER-TRANSMITTER: aluminum; 0.697 in. by 3.656 in. by 10.250 in. o/a dim.; mfr 13499 part no. 548-7403-005	5-80
1A9MP2		FILTER BOX: brass; 0.781 in. by 1.125 in. by 2.062 in. o/a dim.; mfr 13499 part no. 548-7519-003	5-80
1A9MP3		CHASSIS, ELECTRICAL EQUIPMENT: aluminum; 3.015 in. by 3.656 in. by 11.187 in. o/a dim.; mfr 13499 part no. 548-7233-005	5-80
1A9MP4		CHASSIS, ELECTRICAL EQUIPMENT: aluminum; 2.937 in. by 3.656 in. by 11.187 in. o/a dim.; mfr 13499 part no. 548-7235-005	5-80
1A9MP5		BASE, TRANSISTOR: aluminum; 11/16-24 external thd, 0.265 in. lg; 25/64 in. lg o/a; mfr 13499 part no. 548-7002-002	5-80
1A9MP6		CAP, TRANSISTOR: aluminum; 11/16-24 internal thd; 3/4 in. diaby 7/16 in. lg; mfr 13499 part no. 548-7003-002	5-80
1A9MP7		SPACER, SLEEVE: aluminum, chromate dipped; 0.152 in. ID, 0.250 in. OD, 0.250 in. lg; mfr 13499 part no. 541-6021-002	5-80
1A9MP8		NUT, PLAIN, HEXAGON: aluminum; 4-40 thd, 0.250 in. hex, 0.250 in. lg; mfr 13499 part no. 540-9160-003	5-80
1A9MP9		SHAFT, SWITCH: 0.324 in. by 0.703 in. by 1.281 in. o/a dim.; mfr 13499 part no. 548-7539-002	5-80
1A9MP10		COVER, SWITCH: aluminum, chromate dip; 0.063 in. thk; 1.206 in. by 1.518 in.; mfr 13499 part no. 548-7347-002	5-81
1A9MP11		BLOCK, ELECTRICAL EQUIPMENT: bronze; 1.096 in. by 1.294 in. by 1.923 in. o/a dim.; mfr 13499 part no. 548-7598-003	5-81
1A9MP12		BLOCK, ELECTRICAL EQUIPMENT: bronze; incl 4 terminals; 0.905 in. by 1.264 in. by 1.908 in. o/a dim., excl terminals; mfr 13499 part no. 548-7536-003	5-81
1A9MP13		SPRING, SWITCH: copper; 0.163 in. by 0.218 in. by 0.915 in. o/a dim.; mfr 13499 part no. 548-7542-003	5-81
1A9MP14		SPRING, CLIP: beryllium copper, silver plated; 0.253 in. by 0.260 in. by 0.412 in.; mfr 13499 part no. 548-7540-002	5-81
1A9MP15		SPACER, SLEEVE: aluminum, chromate dip; 0.058 in. wall, 0.250 in. OD, 0.428 in. lg; mfr 13499 part no. 548-7349-002	5-81
1A9MP16		COVER, ELECTRICAL CONNECTOR: mfr 95712 part no. 583-3	5-81
1A9MP17		BEARING, BALL, ANNULAR: mfr 13499 part no. 309-1795-00	5-80
1A9MP18		BEARING, BALL, ANNULAR: ground, single row, radial, self contained; 0.036 in. flange w, 0.312 in. ring OD, 0.359 in. flange OD; 0.125 in. w o/a; mfr 43334 part no. 77NM1220ZD5J	5-80

TABLE 6-2. (Continued)

RECEIVER AND TRANSMITTER SUBASSEMBLY

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG. NO.
1A9MP19		BEARING, SLEEVE: nylon; 0.500 in. dia by 0.342 in. lg o/a dim.; mfr 96881 part no. 5L5F	5-80
1A9MP20		RING RETAINING: steel type "E"; 0.145 in. ID, 0.335 in. OD, 0.025 in. thk; mfr 89462 part no. 5133-18MD	5-80
1A9MP21		RING, RETAINING: steel, crescent type; 0.161 in. ID, 0.015 in. thk; mfr 89462 part no. 5103-18MD	5-80
1A9MP22		RING, RETAINING: steel, cadmium plated; 0.187 in. dia shaft; 0.181 in. ID, 0.364 in. OD, 0.035 in. thk; mfr 79136 part no. 5555-18MD	5-80
1A9MP23		POST, PIVOT, THREADED: CRES, passivate finish; 0.3125 in. hex; 0.1868 in. dia. 0.578 in. lg; mfr 13499 part no. 548-7388-002	5-80
1A9MP24		BRACKET, SOCKET: aluminum, chromate dip; 0.900 in. thk, 1.047 in. dia. 2.4375 in. lg; mfr 13499 part no. 548-7391-002	5-80
1A9MP25		PAWL: CRES; 0.250 in. by 0.375 in. by 1.842 in. o/a dim.; mfr 13499 part no. 548- 7393- 003	5-80
1A9MP26		PLATE, GEAR, NO. 1: aluminum, chromate dipped; 0.125 in. thk; 3.656 in. by 6.281 in.; mfr 13499 part no. 548-7395-004	5-80
1A9MP27		HANDLE, BOW: aluminum; 0.937 in. by 2.750 in. by 4.656 in. o/a dim.; mfr 13499 part no. 548-7441-003	5-80
1A9MP28		CONTACT, ELECTRICAL: copper contact surface; 0.156 in. by 0.290 in. by 1.250 in. o/a dim.; mfr 13499 part no. 548-7446-002	5-80
1A9MP29		GUARD, PANEL: CRES, blacken; 0.250 in. dia. 6.446 in. lg; mfr 13499 part no. 548-7450-002	5-80
1A9MP30		GEARSHAFT, SPUR: delrin; 0.790 in. dia by 1.875 in. lg o/a dim.; mfr 13499 part no. 548-7453-002	5-80
1A9MP31		GEARSHAFT, SPUR: delrin; 0.875 in. dia by 1.875 in. lg o/a dim., mfr 13499 part no. 548-7454-002	5-80
1A9MP32		GEAR, SPUR: aluminum; 1.541 in. dia by 0.375 in. lg o/a dim.; mfr 13499 part no. 548-7455-002	5-80
1A9MP33		GEAR, SPUR: delrin; 1.291 in. dia by 0.375 in. lg o/a dim.; mfr 13499 part no. 548-7457-002	5-80
1A9MP34		GEAR, SPUR: CRES; 0.458 in. dia by 0.375 in. lg o/a dim.; mfr 13499 part no. 548-7458-002	5-80
1A9MP35		GEAR, SPUR: CRES; 1.428 in. dia by 0.125 in. thk o/a dim.; mfr 13499 part no. 548-7452-002	5-80
1A9MP36		GEARSHAFT, SPUR: CRES; 0.291 in. dia by 2.562 in. lg o/a dim.; mfr 13499 part no. 548-7463-002	5-80
1A9MP37		GEARSHAFT, SPUR: delrin; 0.291 in. dia by 2.312 in. lg o/a dim.; mfr 13499 part no. 548-7464-002	5-80
1A9MP38		SHAFT, STRAIGHT, SPECTRUM: CRES, passivate finish, 0.1872 in. dia. 2.125 in. lg, mfr 13499 part no. 548-7460-002	5-80
1A9MP39		BEARING, SLEEVE: porous bronze; 0.1250 in. ID, 0.1585 in. OD, 0.1900 in. lg; mfr 13499 part no. 548-6021-002	5-80
1A9MP40		MOUNT, CONNECTOR: aluminum; 0.625 in. by 1.281 in. by 1.500 in. o/a dim.; mfr 13499 part no. 548-6065-002	5-80
1A9MP41		SPACER, SLEEVE: aluminum, chromate dip; 1/8 in. ID, 15/64 in. OD, 3/16 in. lg; mfr 13499 part no. 548-7470-002	5-80
1A9MP42		GEAR, SPUR, IDLER, NO. 3: aluminum, anodize finish; 0.375 in. by 0.500 in.; mfr 13499 part no. 548-7477-002	5-80
1A9MP43		GEARSHAFT, SPUR: delrin; 1.291 in. dia by 1.875 in. lg o/a dim.; mfr 13499 part no. 548-7521-003	5-80

ORIGINAL

TABLE 6-2. (Continued)

RECEIVER AND TRANSMITTER SUBASSEMBLY

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
1A9MP44		CLAMP, COUPLER: stainless steel, passivate finish; 0.187 in. w, 0.562 in. dia. mfr 13499 part no. 548-7478-002	5-80
1A9MP45		COUPLING HALF, SHAFT: CRES; 0.937 in. dia by 0.353 in. lg o/a dim.; mfr 13499 part no. 548-7522-003	5-80
1A9MP46		COUPLING HALF, SHAFT: CRES; 0.937 in. dia by 0.328 in. lg o/a dim.; mfr 13499 part no. 548-7523-003	5-80
1A9MP47		COUPLING HALF, SHAFT: CRES; 0.937 in. dia by 0.303 in. lg o/a dim.; mfr 13499 part no. 548-7524-003	5-80
1A9MP48		PANEL, FRONT: aluminum; 4.440 in. by 4.552 in. by 11.352 in.; mfr 13499 part no. 548-7442-005	5-80
1A9MP49		HOUSING, GEAR: aluminum; 3.525 in. by 3.656 in. by 8.431 in. o/a dim.; mfr 13499 part no. 548-7445-005	5-80
1A9MP50		SHAFT, STRAIGHT-DIAL CONTROL: CRES, passivate finish; 0.1238 in. dia. 3,594 in. lg; mfr 13499 part no. 548-7486-002	5-80
1A9MP51		SHAFT, STRAIGHT, NO. 4: CRES, passivate finish; 0.1872 in. dia, 3.594 in. lg; mfr 13499 part no. 548-7487-002	5-80
1A9MP52		GEAR, SPUR: aluminum; 0.583 in. dia by 0.312 in. lg o/a dim.; mfr 13499 part no. 548-7489-002	5-80
1A9MP53		GEAR, HELICAL: aluminum; 0.906 in. dia by 0.312 in. lg o/a dim.; mfr 13499 part no. 548-7491-002	5-80
1A9MP54		GEAR, HELICAL: aluminum; 1.484 in. dia by 0.312 in. lg o/a dim.; mfr 13499 part no. 548-7492-002	5-80
1A9MP55		GEAR, BEVEL: CRES; 0.562 in. dia by 0.375 in. lg o/a dim.; mfr 13499 part no. 548-7503-002	5-80
1A9MP56		GEAR, BEVEL: CRES; 0.562 in. dia by 0.375 in. lg o/a dim.; mfr 13499 part no. 548-7505-002	5-80
1A9MP57		GEAR, BEVEL, NO. 3: CRES, passivate finish; 16 teeth, 20 degree pressure angle, 32 diametral pitch; 0.187 in. ID, 0.594 in. OD, 0.375 in. lg; mfr 13499 part no. 548-7504-002	5-80
1A9MP58		DIAL ASSEMBLY: 1.437 in. dia by 1.562 in. lg o/a dim.; mfr 13499 part no. 548-7507-002	5-80
1A9MP59		DIAL ASSEMBLY: 1.437 in. dia by 0.421 in. lg o/a dim.; mfr 13499 part no. 548-7508-002	5-80
1A9MP60		DIAL ASSEMBLY: 1.437 in dia by 1.264 in. lg o/a dim.; mfr 13499 part no. 548-7509-002	5-80
1A9MP61		GEAR CLUSTER, BEVEL-SPUR: two complements of 16 and 36 teeth; 0.790 in. dia by 0.468 in. lg o/a dim.; mfr 13499 part no. 548-7510-002	5-80
1A9MP62		SHAFT, STRAIGHT, DIAL: CRES, passivate finish; 0.1872 in. dia. 5.031 in. lg; mfr 13499 part no. 548-7511-002	5-80
1A9MP63		SHAFT, STRAIGHT, DIAL, CONTROL, TENS: CRES, passivate finish; 0.1872 in. dia. 4.094 in. lg; mfr 13499 part no. 548-7500-002	5-80
1A9MP64		SHAFT, STRAIGHT, DIAL, CONTROL, TENTHS: CRES, passivate finish; 0.1872 in. dia. 3.453 in. lg; mfr 13499 part no. 548-7501-002	5-80
1A9MP65		GEAR, SPUR, COUNTER, NO. 2: aluminum, anodize finish; 39 teeth, 20 degree pressure angle, 48 diametral pitch; 5/16 in. by 13/32 in.; mfr 13499 part no. 548-7490-002	5-80
1A9MP66		GEAR, SPUR, COUNTER, NO. 7: aluminum, anodize finish; 5/16 in. by 13/32 in.; mfr 13499 part no. 548-7495-002	5-80
1A9MP67		SPIDER, DIFFERENTIAL: 2 to 1 differential ratio; 25 minutes, max differential backlash; 5 in. oz starting torque; 1.250 in. dia by 2.922 in. lg o/a dim. mfr 13499 part no. 990-0511-00	5-80

ORIGINAL

TABLE 6-2. (Continued)

RECEIVER AND TRANSMITTER SUBASSEMBLY

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
1A9MP68		SPIDER, DIFFERENTIAL: 2 to 1 differential ratio; 10 minutes, max differential backlash; 2.500 in. oz starting torque; 1.250 in. dia by 2.500 in. lg o/a dim.; mfr 13499 part no. 990-0512-00	5-80
1A9MP69		SHAFT, STRAIGHT, DIAL, CONTROL, UNITS: CRES, passivate finish; 0.1872 in. dia. 3.0781 in. lg; mfr 13499 part no. 548-7502-002	5-80
1A9MP70		STUD, EXTENSION: aluminum; 0.312 in. w across flats by 0.824 in. lg o/a dim.; mfr 13499 part no. 548-7469-002	5-80
1A9MP71		SHAFT, STRAIGHT, INPUT: CRES, passivate finish; 0.1872 in. dia. 1.875 in. lg; mfr 13499 part no. 548-7471-002	5-80
1A9MP72		BUTTON, CABLE: plastic; 4-40 NC-2B internal tied, 0.187 in. lg by 0.250 in. hex; mfr 13499 part no. 541-5177-002	5-80
1A9MP73		SPRING, HELICAL, EXTENSION: steel; 0.187 in. dia by 0.781 in. lg o/a dim.; mfr 13499 part no. 340-1018-00	5-80
1A9MP74		COLLAR, STOP: aluminum; 0.226 in. by 0.426 in. by 0.618 in.; 0.187 in. dia bore; mfr 13499 part no. 548-7526-003	5-80
1A9MP75		COLLAR, STOP: aluminum, chromate dip; 0.156 in. by 0.426 in. by 0.618 in.; 0.187 in. dia bore; mfr 13499 part no. 548-7480-002	5-80
1A9MP76		SHAFT, STRAIGHT, SPUR GEAR: CRES, passivate; 0.1872 in. dia. 1.766 in. lg; mfr 13499 part no. 548-7488-002	5-80
1A9MP77		GEAR, SPUR: aluminum, anodize finish; 48 teeth 20 degree pressure angle, 48 diametral pitch; 3/8 in. by 13/32 in.; mfr 13499 part no. 548-7479-002	5-80
1A9MP78		SHAFT, STRAIGHT: CRES, passivate finish; 0.1872 in. dia. 2.573 in. lg; mfr 13499 part no. 548-7459-002	5-80
1A9MP79		GEAR, SPUR: aluminum, anodize finish; 60 teeth, 20 degree pressure angle, 48 diametral pitch; 3/8 in. by 13/32 in.; mfr 13499 part no. 548-7456-002	5-80
1A9MP80		SHAFT, STRAIGHT, SPECTRUM IDLER: CRES, passivate finish; 0.1872 in. dia. 1.875 in. lg; mfr 13499 part no. 548-7461-002	5-80
1A9MP81		GEAR, SPUR, INPUT: CRES, passivate finish; 40 teeth, 20 degree pressure angle, 48 diametral pitch; 3/8 in. by 13/32 in.; mfr 13499 part no. 548-7472-002	5-80
1A9MP82		WINDOW, DIAL: clear plastic; 0.060 in. thk; 1.312 in. by 1.719 in. by 1.844 in., mfr 13499 part no. 548-7514-003	5-80
1A9MP83		BUSHING, SLEEVE, GEARSHAFT: phosphor bronze, chemical polish; 0.8760 in. ID, 1.000 in. OD, 0.375 in. lg; mfr 13499 part no. 548-7397-002	5-80
1A901		KNOB, VOLUME: aluminum, black anodize; 0.609 in. ID, 0.750 in. OD, 0.875 in. lg; mfr 13499 part no. 548-7389-002	5-80
1A902		KNOB-SQUELCH: aluminum, black anodize; 0.468 in ID, 0.531 in. OD, 0.563 in. lg; mfr 13499 part no. 548-7390-002	5-80
1A903		KNOB, VOLUME CONTROL: aluminum, black anodize; 0.609 in. ID, 0.750 in. OD, 0.875 in. lg; mfr 13499 part no. 549-6144-002	5-80
1A904		KNOB: setscrew type; aluminum body; 1.125 in. dia by 0.750 in. lg o/a dim.; mfr 13499 part no. 549-6077-002	5-80
1A905		KNOB: same as 1A904	5-80
1A906		KNOB: same as 1A904	5-80
1A9Q1		TRANSISTOR: MIL-S-19500/180(SIGC) type 2N1486	5-80
1A9R1		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW69V101	5-80
1A9R2		RESISTOR, FIXED, WIREWOUND: 0.50 ohms \pm 1% 2.5 w; mfr 44655 part no. 884-3	5-80
1A9R3		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW30V250	5-80
1A9R4		RESISTOR, VARIABLE, COMPOSITION: MIL-R-94B type RV5NAYSD103D	5-53
1A9R5		RESISTOR, VARIABLE, COMPOSITION: 50,000 ohms \pm 20%, 1/2 w, mfr 13499 part no. 380-6952-00	5-53

ORIGINAL

TABLE 6-2. (Continued)

RECEIVER AND TRANSMITTER SUBASSEMBLY

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
1A9R6		RESISTOR, FIXED, WIREWOUND: same as 1A9R3	5-80
1A9R7		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF391K	5-81
1A9R8		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC07GF474K	5-81
1A9R9		RESISTOR, FIXED, WIREWOUND: same as 1A9R1	
1A9S1		SWITCH SECTION, ROTARY: 2 circuit, 12 position; 4 moving, 16 fixed contact; mfr 13499 part no. 269-2273-00	5-81
1A9S2		SWITCH SECTION, ROTARY: 3 circuit, 12 position; 5 moving, 15 fixed contacts; mfr 13499 part no. 269-2274-00	5-81
1A9S3		SWITCH, ROTARY: 2 circuit, 4 position, 1 section, 2 moving, 6 fixed contacts, mfr 81716 part no. 211576F1C	5-53
1A9TB1		TERMINAL BOARD: incl five solder stud terminals; 0.032 in. by 1.116 in. by 1.428 in. board dim.; mfr 13499 part no. 548-7687-003	5-81
1A9XDS1		LIGHT, INDICATOR: used with T-1 3/4 midget flange base; red lens; thread mounted; mfr 08817 part no. 855878	5-80
1A9XDS2		LIGHT, INDICATOR: same as 1A9KDS1	5-80
1A9XF1		FUSEHOLDER: extractor post type; 15 amp; accommodates 1 fuse; 45/64 in. dia by 2-1/4 in. lg; mfr 71400 part no. HKPEHLQRWZ	5-80

RECEIVER-TRANSMITTER CASE CY-3884/PRC-41

1A10		CASE, RECEIVER-TRANSMITTER: aluminum, enamel finish; 4 in. by 10.750 in. by 12.875 in. o/a; mfr 13499 part no. 522-3257-00	5-54
1A10H1		SCREW, MACHINE: stainless steel, passivate finish, slotted pan head, 10-32 NF-2A tied, 3/4 in. lg; mfr 13499 part no. 548-7362-002	5-54
1A10H2		SCREW, MACHINE: stainless steel; passivate finish; 6-32 NC-2A tied, 7/16 in. lg; mfr 13499 part no. 549-6246-002	5-54
1A10H3		NUT STRIP: CRES, passivate finish, 3/8 in. by 11/16 in., mfr 13499 part no. 553-9663-002	5-54
1A10J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 silver male contact; 0.452 in. w across flats by 0.781 in. lg, excl contact; mfr 13499 part no. 548-7367-003	5-54
1A10J2		CONNECTOR, RECEPTACLE, ELECTRICAL: same as 1A10J1	5-54
1A10J3		CONNECTOR, RECEPTACLE, ELECTRICAL: same as 1A10J1	5-54
1A10MP1		SHIELDING STRIP, RADIO FREQUENCY: monel, silicone sponge, closed cell; 3/16 in. dia; mfr 13499 part no. 018-1291-00	5-54
1A10MP2		CASE, RECEIVER-TRANSMITTER: aluminum; 4.420 in. by 11.170 in. by 12.171 in. o/a dim.; mfr 13499 part no. 548-7223-005	5-54
1A10MP3		PLATE, RETAINING, ELECTRICAL CONNECTOR: 0.718 in. by 3.125 in. by 10 in. o/a dim.; mfr 13499 part no. 548-7369-004	5-54
1A10MP4		SEAL, RUBBER, ROUND SECTION: silicon rubber; 0.240 in. ID, 0.450 in. OD, 0.405 in. lg; mfr 13499 part no. 548-7363-002	5-54
1A10MP5		PIN, LOCATING: CRES, passivate finish, 0.563 in. hex, 0.422 in. dia. 0.781 in. lg; mfr 13499 part no. 548-7368-003	5-54
1A10MP6		STRIKE, CATCH: steel; 0.187 in. by 0.562 in. by 0.625 in. o/a dim.; mfr 13499 part no. 549-6247-002	5-54
1A10MP7		GASKET: MIL-P-5516 type AN6227-7	5-54

ORIGINAL

TABLE 6-2. (Continued)

STORAGE BATTERY BB-451/U

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
2	SEE NOTE 1	BATTERY, STORAGE: silver zinc, alkaline; 24 volt nominal, 25 amp hour nominal; rechargeable, supplied in a dry charge condition; contained in a watertight fiber case; weight is 14.2 pounds; 7-11/16 in. by 11-9/16 in. by 4-9/64 in.; mfr 13499 part no. 522-2527-004	1-5

POWER SUPPLY PP-3700/PRC-41

3		POWER SUPPLY: 26.5 v dc, 4 amp output; 115 to 230 v ac, 50 to 400 cycles, single; 4-3/16 in. w by 7-3/4 in. h by 12-1/8 in. lg, mfr 13499 part no. 522-2528-005	5-56
3C1		CAPACITOR, FIXED, ELECTROLYTIC: 660 uf -15% +75%, 50 v dc; mfr 24446 part no. 29F1089	5-60
3C2		CAPACITOR, FIXED, ELECTROLYTIC: 33 uf \pm 20%, 35 v dc; mfr 56289 part no. 150D336X0035S2	5-56
3C3		CAPACITOR, FIXED, ELECTROLYTIC: same as 3C2	5-56
3C4		CAPACITOR, FIXED, ELECTROLYTIC: 47 uf +20%, 35 v dc; mfr 56289 part no. 150D476X0035S2	5-56
3C5		CAPACITOR, FIXED, ELECTROLYTIC: 100 uf \pm 20%, 20 v dc; mfr 56289 part no. 150D107X0020S2	5-56
3C6		CAPACITOR, FIXED, ELECTROLYTIC: same as 3C5	5-56
3C7		CAPACITOR, FIXED, ELECTROLYTIC: same as 3C2	5-56
3C8		CAPACITOR, FIXED, ELECTROLYTIC: same as 3C2	5-56
3C9		CAPACITOR, FIXED, ELECTROLYTIC: same as 3C4	5-59
3C10		CAPACITOR, FIXED, PAPER DIELECTRIC: 0.1 uf \pm 20%, 400 v dc; mfr 00656 part no. 931-4552-00	5-56
3CR1		SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/134(SIGC) type 1N249B	5-56
3CR2		SEMICONDUCTOR DEVICE, DIODE: same as 3CR1	5-56
3CR3		SEMICONDUCTOR DEVICE, DIODE: same as 3CR1	5-56
3CR4		SEMICONDUCTOR DEVICE, DIODE: same as 3CR1	5-56
3CR5		SEMICONDUCTOR DEVICE, DIODE: MIL-E-1/1143 type 1N647	5-56
3CR6		SEMICONDUCTOR DEVICE, DIODE: same as 3CR5	5-56
3CR7		SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/124(SIGC) type 1N2990B	5-56
3CR8		SEMICONDUCTOR DEVICE, DIODE: MIL-S-19500/117(NAVY) type 1N965B	5-56
3CR9		SEMICONDUCTOR DEVICE, DIODE: same as 3CR5	5-56
3E1		CLIP, ELECTRICAL: spring bronze, albaloy finish; for use with 1/4 dia fuses; 0.335 in. by 0.430 in.; mfr 71400 part no. 4548	5-58
3E2		CLIP, ELECTRICAL: same as 3E1	5-58
3E3		CONTACT, ELECTRICAL: silver; 0.187 in. dia by 13/16 in. lg; mfr 13499 part no. 549-1692-002; p/o 3P1, 3P2, 3P3	5-58
3E4		TERMINAL, LUG: brass; 0.515 in. dia mfg hole, accommodates 0.125 in dia conductor; mfr 13499 part no. 548-7547-002	5-57
3F1		FUSE, CARTRIDGE: slow blow; 1-1/2 amp, 250 v, mfr 71400 part no. MDX1 1-2	5-57
3F2		FUSE, CARTRIDGE: same as 3F1	5-56
3H1		SCREW, MACHINE, MODIFIED, NO. 1: stainless steel, passivate finish; slotted pan head; 10-32 NF-2A tied, 0.750 in. lg; mfr 13499 part no. 548-7362-002	5-58
3H2		RING, RETAINING: sleeve type, copper; 0.215 in. dia for size 10 screw; mfr 91314 part no. 340-0643-00	5-58

ORIGINAL

TABLE 6-2. (Continued)

STORAGE BATTERY BB-451/U

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
3H3		NUT, PLAIN, HEXAGON: CRES; passivate; 5/8-18 UNF-2B tied, 0.688 in. w across flats, 0.125 in thk; mfr 13499 part no. 548-7419-002	5-58
3H4		WASHER: glass cloth, silicone rubber; 0.086 in. ID, 0.750 in. OD, 0.0050 in. thk; mfr 13499 part no. 547-2288-003	5-56
3H5		WASHER: glass cloth, silicone rubber coated; 0.500 in. ID, 1.375 in. OD, 0.0050 in. thk; mfr 13499 part no. 553-5038-003	5-57
3H6		WASHER: aluminum; 0.515 in. ID, 1.250 in. OD, 0.125 in. thk; mfr 13499 part no. 553-5039-003	5-57
3H7		WASHER: plastic; 0.510 in. ID, 0.672 in. OD, 0.125 in. thk; mfr 13499 part no. 553-5041-003	5-57
3J1		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R16S1P	5-56
3J2		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R14S7S	5-56
3K1		RELAY, ARMATURE: 2 C contact arrangement; 10 amp at 28 v dc contact rating; 26 v dc coil voltage, 300 ohms $\pm 10\%$ at + 25°C coil resistance, continuous duty cycle; mfr 09026 part no. BR7X300D2S3-26V	5-56
3L1		REACTOR: fixed inductance type; 80 mh inductance; 1.5 ohms, 3.5 amp; mfr 98055 part no. TS3722	5-56
3MP1		CHASSIS, ELECTRICAL EQUIPMENT: aluminum; 3.592 in. by 5 in. by 8-3/16 in.; mfr 13499 part no. 548-7551-005	5-56
3MP2		CASE, POWER SUPPLY: aluminum; 3.940 in. by 7-13/32 in. by 11.050 in.; mfr 13499 part no. 548-7424-004	5-56
3MP3		COVER, POWER SUPPLY: aluminum; 0.624 in. by 4.156 in. by 10.937 in. o/a, mfr 13499 part no. 548-7422-004	5-56
3MP4		SHELL, ELECTRICAL CONNECTOR: plastic, 0.750 in. dia by 47/64 in. lg, mfr 13499 part no. 548-7420-003; p/o 3P1, 3P2 and 3P3	5-58
3MP5		RING, RETAINING: steel; 0.260 in. dia by 0.025 in. thk o/a dim.; mfr 79136 part no. 5555G9MD; p/o 3P1, 3P2, and 3P3	5-58
3MP6		SPACER, SLEEVE, NONMETALLIC: neoprene rubber; 0.406 in. dia. 0.437 in. lg; mfr 13499 part no. 548-7238-002; p/o 3P1, 3P2, and 3P3	5-58
3MP7		DUST CAP: with rubber gasket and chain; 1-1/8 in. dia gasket, 4-5/8 in, lg chain; mfr 02660 part no. 9760-16-291	5-56
3MP8		CAP, PROTECTIVE DUST AND MOISTURE SEAL: w/ chain; 1-1/16 in. dia by 7/16 in. deep; 7/8-20 tied; mfr 02660 part no. 9760-14-291	5-56
3MP9		RETAINER, CAPACITOR: aluminum, 0.719 in. by 0.750 in. by 2-3/32 in., mfr 13499 part no, 548-7418-002	5-60
3MP10		GROMMET, RUBBER: synthetic; 13/32 in. ID, 11/16 in. OD, 1/4 in. lg, 1/2 in. dia by 1/16 in. w groove; mfr 75543 part no. 911	5-58
3MP11		GROMMET, RUBBER: synthetic; 0.343 in OD, 0.250 in. OD of groove, 0.062 in. thk flange, 0.125 in. dia hole, 0.187 in. h o/a, 0.062 in. w groove, mfr 75543 part no. 901	5-56
3MP12		HOLDER, TRANSISTOR: polypropylene, for use with TO-5 case type, mfr 13499 part no. 352-9970-00	5-56
3MP13		BASE, TRANSISTOR: aluminum; 11/16-24 external tied, 0.265 in. lg; 25/64 in lg o/a; mfr 13499 part no. 548-7002-002.	5-57
3MP14		CAP, TRANSISTOR: aluminum; 11/16-24 internal tied; 3/4 in. dia by 7/16 in. lg; mfr 13499 part no. 548-7003-002	5-57
3MP15		INSULATOR, BUSHING: plastic; 5/16 in. dia by 0.150 in. lg; 0.177 in. ID undercut to 0.096 in.; mfr 13499 part no. 548-7004-002	5-57
3MP16		NOT USED	
3P1		CONNECTOR: c/o 3E3 and 3MP4, 3MP5, and 3MP6	5-58
3P2		CONNECTOR: same as 3P1	5-56

ORIGINAL

TABLE 6-2. (Continued)

STORAGE BATTERY BB-451/U

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
3P3		CONNECTOR: same as 3P1	5-58
3Q1		TRANSISTOR: MIL-S-19500/182(NAVY) type 2N1893	5-56
3Q2		TRANSISTOR: MIL-S-19500/180(SIGC) type 2N1486	5-57
3Q3		TRANSISTOR: Westinghouse part no. 2N2110	5-57
3Q4		TRANSISTOR: MIL-S-19500/99A(SIGC) type 2N697	5-56
3R1		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW67V471	5-59
3R2		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW69V150	5-56
3R3		RESISTOR, FIXED, WIREWOUND: same as 3R2	5-56
3R4		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF331K	5-56
3R5		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF821K	5-56
3R6		RESISTOR, VARIABLE, COMPOSITION: MIL-R-94B type RV5LAYS102B	5-56
3R7		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF332K	5-60
3R8		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF562K	5-56
3R9		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF333K	5-56
3R10		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF393K	5-56
3R11		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF273K	5-56
3R12		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC32GF472K	5-56
3R13		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW69V561	5-56
3R14		RESISTOR, THERMAL: 100,000 ohms \pm 10%, 1 w; mfr 10646 part no. 763H8	5-56
3R15		RESISTOR, THERMAL: same as 3R14	5-56
3R16		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW69V681	5-59
3R17		RESISTOR, FIXED, WIREWOUND: same as 3R16	5-59
3R18		RESISTOR, FIXED, WIREWOUND: same as 3R16	5-59
3R19		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC20GF102K	5-56
3R20		RESISTOR, FIXED, COMPOSITION: MIL-R-11 type RC42GF680K	5-60
3R21		RESISTOR FIXED, COMPOSITION: same as 3R20	5-60
3R22		RESISTOR FIXED, COMPOSITION: MIL-R-11 type RC20GF471K	5-56
3T1		TRANSFORMER, POWER, STEP-DOWN: 115 v, 230 v, 50 to 420 cps primary, 40 v at 3.5 amp secondary; mfr 95088 part no. TS3682	5-55
3XF1		FUSEHOLDER: extractor post type; 15 amp; accommodates 1 fuse; 45/64 in. dia by 2-1/4 in. lg; mfr 71400 part no. HKPEHLQRWZ	5-57
3XF2		FUSEHOLDER: same as 3XF1	5-57

DIRECTIONAL ANTENNA AS-1405/PRC-41

4		ANTENNA: array, "yagi"; 225 to 400 mc; movable rotating; mfr 13499 part no. 522-2529-005	5-61
4E1		ANTENNA ELEMENT: 3/8 in. dia by 12.812 in. lg, approx; mfr 13499 part no. 548-7313-003; c/o 4MP1, 4MP5, 4MP6, 4MP7 and 4H1, 4H2	5-61
4E2		ANTENNA ELEMENT: 3/8 in. dia by 10.656 in. lg, approx; mfr 13499 part no. 548-7314-003; c/o 4MP2, 4MP5, 4MP6, 4MP7 and 4H1, 4H2	5-61
4E3		ANTENNA ELEMENT: 3/8 in. dia by 9.468 in. lg, approx; mfr 13499 part no. 548-7315-003; c/o 4MP3, 4MP5, 4MP6, 4MP7 and 4H1, 4H2	5-61
4E4		ANTENNA ELEMENT: 3/8 in. dia by 8.374 in. lg, approx; mfr 13499 part no. 548-7316-003; c/o 4MP4, 4MP5, 4MP6, 4MP7 and 4H1, 4H2	5-61
4E5		ANTENNA ELEMENT: 0.312 in. dia by 7.656 in. lg; mfr 13499 part no. 548-7308-003; c/o 4MP8, 4MP9	5-61
4E6		ANTENNA ELEMENT: 0.312 in. dia by 6.750 in. lg; mfr 13499 part no. 548-7309-003; c/o 4MP8, 4MP10	5-61

ORIGINAL

TABLE 6-2. (Continued)

DIRECTIONAL ANTENNA AS-1405/PRC-41

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
4E7		ANTENNA ELEMENT: 0.312 in. dia by 5.875 in. lg; mfr 13499 part no. 548-7310-003; c/o 4MP11, 4MP12	5-61
4E8		ANTENNA ELEMENT: 0.312 in. dia by 5.250 in. lg; mfr 13499 part no. 548-7311-003; c/o 4MP11, 4MP13	5-61
4E9		ANTENNA ELEMENT: 0.312 in. dia by 4.656 in. lg; mfr 13499 part no. 548-7312-003; c/o 4MP11, 4MP14	5-61
4E10		CONTACT STRIP, ELECTRICAL: copper, silver plated; 0.010 in. by 2-5/16 in by 29-5/8 in.; mfr 13499 part no. 548-7307-003	5-61
4H1		NUT, SLEEVE: CRES; 0 375 in. dia. 0.563 in. lg; mfr 13499 part no. 548-7289-002	5-61
4H2		PIN, SPRING: MIL type MS16562-190	5-61
4H3		INSERT, LARGE,: brass; 0.625 in. dia by 1-1/2 in. lg; incl pin; mfr 13499 part no. 548-7356-002	5-61
4H4		INSERT, SMALL: brass; 0.562 in. dia by 1-1/2 in. lg; incl pin; mfr 13499 part no. 548-7357-002	5-61
4MP1		ELEMENT SECTION, ANTENNA: brass tube; 0.089 in. ID, 0.205 in. OD, 7-5/32 in. lg; mfr 13499 part no. 548-7291-002	5-61
4MP2		ELEMENT SECTION, ANTENNA: brass tube; 0,089 in. ID, 0,205 in. OD, 5 in. lg, mfr 13499 part no. 548-7292-002	5-61
4MP3		ELEMENT SECTION, ANTENNA: brass tube; 0.089 in. ID, 0.205 in. OD, 3-13/16 in. lg; mfr 13499 part no. 548-7293-002	5-61
4MP4		ELEMENT SECTION, ANTENNA: brass tube; 0.089 in. ID, 0.205 in. OD, 2-23/32 in. lg; mfr 13499 part no. 548-7294-002	5-61
4MP5		ELEMENT SECTION, ANTENNA: brass tubing; 5/16 in. dia by 6-1/8 in. lg, mfr 13499 part no. 548-7287-002	5-61
4MP6		FERRULE, ELEMENT: brass, chrome plated; 0.270 in. dia by 15/64 in. lg; mfr 13499 part no. 548-7288-002	5-61
4MP7		CAP, ELECTRICAL: brass, 0.250 in. dia by 1/2 in. lg; mfr 13499 part no. 548-7290-002	5-61
4MP8		PLUG, ELEMENT: brass; 0.312 in. dia by 0.250 in. lg; mfr 13499 part no. 548- 7300-002	5-61
4MP9		ELEMENT SECTION, ANTENNA: brass tubing; 0.248 in. ID, 0.312 in. OD, 7-17/32 in, lg; mfr 13499 part no. 548-7295-002	5-61
4MP10		ELEMENT SECTION, ANTENNA: brass tubing; 0.248 in. ID, 0.312 in. OD, 6-5/8 in. lg; mfr 13499 part no. 548-7296-002	5-61
4MP11		PLUG, ELEMENT: brass; 0.250 in. dia by 0.250 in. lg; mfr 13499 part no. 548-7301-002	5-61
4MP12		ELEMENT SECTION, ANTENNA: brass tubing; 0.186 in. ID, 0.250 in. OD, 5-7/8 in. lg; mfr 13499 part no. 548-7297-002	5-61
4MP13		ELEMENT SECTION, ANTENNA: brass tubing; 0.186 in. ID, 0.250 in. OD, 5-1/8 in. lg; mfr 13499 part no. 548-7298-002	5-61
4MP14		ELEMENT SECTION, ANTENNA: brass tubing; 0.186 in. ID, 0.250 in. OD, 4-17/32 in. lg; mfr 13499 part no. 548-7299-002	5-61
4MP15		NOT USED	
4MP16		SUPPORT, ANTENNA: 1.500 in. by 5.781 in. by 24.562 in. approx o/a dim.; mfr 13499 part no. 548-7284-002	5-61
4MP17		COVER, ELECTRICAL CONNECTOR: mfr 95712 part no. 583-3	5-61
4MP18		LINE SECTION, RADIO FREQUENCY TRANSMISSION: brass; 5/32 in, by 0.343 in. by 29.749 in.; mfr 13499 part no. 548-7285-002	5-61

TABLE 6-2. (Continued)

DIRECTIONAL ANTENNA AS-1405/PRC-41

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
4MP19		BOOM, ANTENNA: 0.875 in. by 3.500 in. by 30.718 in. approx o/a dim.; mfr 13499 part no. 548-7318-004; c/o 4E10 and 4H3, 4H4 and 4MP15, 4MP16, 4MP17, 4MP18 and 4W1	5-61
4W1		CABLE ASSEMBLY, RADIO FREQUENCY: type RG-141A/U coaxial cable terminated w/1 connector; 46-1/2 in. lg o/a; mfr 13499 part no. 548-7286-002 CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-71A type UG-1095A/U; p/o 4W1	5-61 5-61

ANTENNA AS-1404/PRC-41

5		ANTENNA: stud type; 225 to 400 mc; fixed; mfr 13499 part no. 522-2530-003	5-35
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MOUNTING MT-2976/PRC-41

6		MOUNTING: aluminum; item attached to mounting by locking jaws in front and connector receptacle at rear; 5-9/16 in. h by 11-1/4 in. w by 16-7/32 in. lg; mfr 13499 part no. 522-2531-005	5-62
6C1		CAPACITOR, FIXED, ELECTROLYTIC: 1300 uf -10% +100%, 50 v dc; mfr 56289 part no. D34393	5-63
6C2		CAPACITOR, FIXED, ELECTROLYTIC: same as 6C1	5-63
6C3		CAPACITOR, FIXED, ELECTROLYTIC: 1,675 uf -10% +100%, 50 v dc; mfr 56289 part no. D34394	5-63
6C4		CAPACITOR, FIXED, ELECTROLYTIC: same as 6C3	5-63
6C5		CAPACITOR, FIXED, ELECTROLYTIC: same as 6C3	5-63
6C6		CAPACITOR, FIXED, PAPER DIELECTRIC: 1.0 uf \pm 20%, 100 v dc; mfr 56289 part no. 186P10501S15	5-63
6C7		CAPACITOR, FIXED, PAPER DIELECTRIC: same as 6C6	5-63
6CR1		SEMI CONDUCTOR DEVICE, DIODE: MIL-S-19500/134(SIGC) type 1N249B	5-63
6E1		CONTACT, ELECTRICAL: silver; 0.210 in. dia by 1.000 in. lg o/a dim.; mfr 13499 part no. 548-7206-002; p/o 6P1, 6P2, and 6P3	5-63
6H1		NUT, SLEEVE: aluminum; 1.000 in. dia by 1.000 in. lg o/a dim.; mfr 13499 part no. 548-7406-002	5-62
6H2		THUMBSCREW: CRES; 0.750 in. dia by 3.250 in. lg o/a dim.; mfr 13499 part no. 548-7216-002	5-62
6H3		BUSHING, MACHINE THREAD: CRES; 1.000 in. w across flats by 0.375 in. lg o/a dim.; mfr 13499 part no. 548-7209-002	5-63
6H4		BUSHING, MACHINE THREAD: CRES; 1.000 in. w across flats by 0.375 in. lg o/a dim.; mfr 13499 part no. 548-7210-002	5-63
6H5		NUT, PLAIN, HEXAGON: CRES; 1.000 in. w across flats by 0.187 in. lg o/a dim.; mfr 13499 part no. 548-7211-002	5-63
6H6		POST, ELECTRICAL-MECHANICAL EQUIPMENT: aluminum; 0.187 in. w across flats by 1.375 in. lg o/a dim.; mfr 13499 part no. 540-9028-003	5-63
6H7		WASHER, FLAT: rd shape; CRES, passivated finish; 0.120 in. ID, 0.375 in. OD, 0.018 in. thk; mfr 13499 part no. 504-0730-003	5-63
6H8		RING, RETAINING: steel, type "3"; 0.094 in. ID, 0.230 in. OD, 0.015 in. thk, mfr 89462 part no. 5133-12MD; p/o 6P1, 6P2, and 6P3	5-63

ORIGINAL

TABLE 6-2. (Continued)

MOUNTING MT-2976/PRC-41

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
6H9		SPRING, HELICAL, COMPRESSION: steel; 7/8 in. free lg, 0.145 in. ID, 0.180 in. OD; mfr 91314 part no. 340-1010-00	5-63
6H10		POST, ELECTRICAL-MECHANICAL EQUIPMENT: aluminum; 6-32 UNC-2B tied; 5/16 in. hex, 0.718 in. lg; mfr 13499 part no. 540-9455-003	5-63
6H11		POST, ELECTRICAL-MECHANICAL EQUIPMENT: aluminum; 6-32 UNC-2B tied; 5/16 in. hex, 0.625 in. lg; mfr 13499 part no. 540-9452-003	5-63
6H12		NUT, CONTACT: CRES; 1.000 in. w across flats by 0.468 in. lg o/a dim.; mfr 13499 part no. 548-7212-002	5-63
6H13		INSULATOR, BUSHING: plastic; 0.500 in. w across flats by 0.625 in. lg o/a dim.; mfr 13499 part no. 548-7207-002; p/o 6P1, 6P2, and 6P3	5-63
6L1		COIL, RADIO FREQUENCY: single layer wound; 26 turns no. 14 AWG wire; 2.218 in. lg by 31/32 in. w by 3/4 in. dia overall; mfr 13499 part no. 240-0021 -00	5-63
6MP1		CLAMP, RIM CLENCHING: aluminum; 0.375 in. by 0.953 in. by 1.062 in. o/a dim.; mfr 13499 part no. 548-7215-002	5-62
6MP2		PIN, CLEVIS: CRES; 0.375 in. dia by 0.656 in. lg o/a dim.; mfr 13499 part no. 548-7214-002	5-62
6MP3		STRAP, RETAINING: aluminum; 0.396 in. by 1.500 in. by 4.404 in. o/a dim; mfr 13499 part no. 548-7411-003	5-63
6MP4		COVER, FILTER: aluminum; 0.531 in. by 4.718 in. by 11.480 in. o/a dim., mfr 13499 part no. 548-7221-004	5-62
6MP5		RETAINER, CAPACITOR: aluminum; 1.312 in. by 2.109 in. by 4.500 in. o/a dim.; mfr 13499 part no. 548-7410-003	5-63
6MP6		RETAINER, CAPACITOR: aluminum; 1.312 in. by 2.109 in. by 4.500 in. o/a dim.; mfr 13499 part no. 548-7408-003	5-63
6MP7		TRAY, MOUNT: aluminum bracket CRES tray; 6.187 in. by 11.600 in. by 14.937 in. o/a dim.; mfr 13499 part no. 548-7218-004	5-62
6MP8		CAP, PROTECTIVE DUST AND MOISTURE SEAL: aluminum alloy, cadmium plated; 1-1/16 in. dia. 7/16 in. lg, 7/8-20 thd for mtg, w/chain, mfr 02660 part no. 9760-14-291	5-62
6P1		ADAPTER, POWER SUPPLY: silver contact, plastic bushing; 0.500 in, w across flats by 1 in. lg; mfr 13499 part no. 548-7208-002; c/o 6E1 and 6H8, 6H9, and 6H13	5-62
6P2		ADAPTER, POWER SUPPLY: same as 6P1	5-62
6P3		ADAPTER, POWER SUPPLY: same as 6P1	5-62
6P4		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R14S7P	5-63
6R1		RESISTOR, FIXED, WIREWOUND: MIL-R-26 type RW29VR56	5-63
6R2		RESISTOR, FIXED, WIREWOUND: same as 6R1	5-63
6R3		RESISTOR, FIXED, WIREWOUND: same as 6R1	5-63
6R4		RESISTOR, FIXED, WIREWOUND: same as 6R1	5-63

BATTERY ADAPTER W-9

7		BATTERY ADAPTER ASSEMBLY, ELECTRICAL: 27.250 in. lg o/a approx; mfr 13499 part no. 548-7568-002	5-64
7E1		TERMINAL, LUG: copper; 0.750 in. by 0.750 in. by 1.750 in., mfr 13499 part no. 548-7566-002	5-64
7J1		NOT USED	

ORIGINAL

TABLE 6-2. (Continued)

BATTERY ADAPTER W-9

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
7J2 7J3		NOT USED CONNECTOR, RECEPTACLE, ELECTRICAL: 3 no. 16 female contacts, 22 amp; 3 no. 14 AWG wire accommodations; mfr 71468 part no. CA3101E14S7SME	5-64

POWER ELECTRIC CABLE ASSEMBLY CX-8687/PRC-41

8		CABLE ASSEMBLY, POWER, ELECTRIC: 2 conductors, no. 16 AWG terminated ea end w/connector; 50 ft lg o/a; mfr 13499 part no. 522-2533-002	5-65
8P1 8P2		CONNECTOR, PLUG, ELECTRICAL: MIL-C-5015 type AN3106A16SIS CONNECTOR, PLUG, ELECTRICAL: steel, cadmium plated; 2 prong; 10 amp at 250 v, 15 amp at 125 v; mfr 74545 part no. 7057	5-65 5-65

POWER ELECTRIC CABLE ASSEMBLY CX-8686/PRC-41

9		CABLE ASSEMBLY, POWER, ELECTRIC: 3 conductors no. 14 AWG terminated ea end w/connector; 20 ft lg o/a; mfr 13499 part no. 522-2534-002	5-65
9P1		CONNECTOR, PLUG, ELECTRICAL: 3 no. 16 male contacts, 22 amp; 3 no. 14 AWG wire accommodations; mfr 91146 part no. CA3106E14S7PME	5-65
9P2		CONNECTOR, PLUG, ELECTRICAL: 3 no. 16 female contacts, 22 amp 3 no. 14 AWG wire accommodations; mfr 71468 part no. CA3106E14S7SME	5-65

RADIO FREQUENCY CABLE ASSEMBLY CG-55G/U

10		CABLE ASSEMBLY, RADIO FREQUENCY: 50 ohms, coaxial; stranded copper conductor; 20 ft lg o/a; terminated each end w/connector; mfr 13499 part no. 522-2535-003	5-65
10MP1		CONNECTOR, PLUG, ELECTRICAL: MIL-C-71 type UG21DU CLAMP, CABLE: nylon; 0.48 in. ID 0.045 in. thk; one 0.173 in. dia mtg hole; mfr 09922 part no. HP7N	5-65 5-65
10MP2		COVER, ELECTRICAL, CONNECTOR: "N" series, female cap and chain; 5/8 in. by 31/32 in.; mfr 95712 part no. 9756-1	5-65

SPECIAL PURPOSE ELECTRICAL CABLE ASSEMBLY CX-8688/PRC-41

11		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 10 conductors no. 26 AWG; terminated ea end w/connector; 10 ft lg o/a; mfr 13499 part no. 522-2536-002	5-65
11P1		CONNECTOR, PLUG, ELECTRICAL: 10 female contacts; 1-9/32 in. by 3-7/32 in. o/a; mfr 02660 part no. 164-28	5-65
11P2		CONNECTOR, PLUG, ELECTRICAL: same as 11P1	5-65

TABLE 6-2. (Continued)

MAST AB-777/PRC-41

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
12		MAST: aluminum; 28.250 in. closed max h, 78.250 in. when nested; mfr 13499 part no. 522-2537-004	5-65
12H1		NUT, SLEEVE, SMALL: CRES, chemically black; 1.500 in. dia. 1.625 in. lg; mfr 13499 part no. 548-7277-003	5-65
12H2		NUT, SLEEVE, LARGE: CRES, chemically black; 1.625 in. dia. 1.625 in. lg; mfr 13499 part no. 548-7276-003	5-65
12MP1		CAP, MAST: aluminum alloy, green enamel finish; 2.687 in. dia by 2 in. lg; mfr 13499 part no. 548-7279-00	5-65
12MP2		CAP, TUBE: aluminum; 1.390 in. dia by 0.375 in. lg; mfr 13499 part no. 548-7274-002	5-65
12MP3		SPIKE ASSEMBLY, ANTENNA ANCHOR: 0.875 in. dia by 7.875 in. lg, mfr 13499 part no. 548-7266-002, c/o 12MP4, 12MP5, and 12MP6	5-65
12MP4		PIN, SPRING: MIL type MS16562-217	5-65
12MP5		SPIKE, ANTENNA ANCHOR: CRES, 0.500 in. dia by 7.875 in. lg, mfr 13499 part no. 548-7264-002	5-65
12MP6		BUSHING, SPIKE: CRES; 0.437 in. ID, 0.875 in OD, 1.375 in. lg; 3/4-14 external tied, 3/8 in. lg; mfr 13499 part no. 548-7265-002	5-65
12MP7		MAST SECTION: aluminum; 1.250 in dia by 25.625 in. lg, mfr 13499 part no. 548-7269-003	5-65
12MP8		MAST SECTION: aluminum; 1.225 in. ID, 1.375 in. OD, 24 in. lg; mfr 13499 part no. 548-7270-002	5-65
12MP9		WEDGE, SMALL: plastic; 1.219 in. ID, 1.333 in. OD, 0.500 in. lg, mfr 13499 part no. 548-7273-002	5-65
12MP10		WEDGE, LARGE: plastic; 1.375 in. ID, 1.489 in. OD, 0.500 in. thk, mfr 13499 part no. 548-7272-002	5-65
12MP11		MAST SECTION: aluminum; 1.385 in. ID, 1.498 in. OD, 22.500 in. lg; mfr 13499 part no. 548-7271-002	5-65
12MP12		PLUG, MAST: CRES; 1.390 in. dia by 0.375 in. lg; mfr 13499 part no. 548-7275-002	5-65

ANTENNA MAST ADAPTER

13		ADJUSTMENT, ELEVATION: mfr 13499 part no. 548-7335-004	5-67
13H1		THUMBSCREW: CRES; 0.750 in. dia by 0.219 in. h head, 10-32 thd, 0.750 in. lg; 1.625 in. lg o/a; mfr 13499 part no. 548-7332-002	5-67
13H2		WASHER, FLAT: CRES, passivate finish; 0.203 in. ID, 0.375 in. OD, 0.006 in. thk, mfr 13499 part no. 547-2314-003	5-67
13MP1		PIN, SPRING: MIL type MS16562-190	5-67
13MP2		PIN, SPRING: MIL type MS16562-192	5-67
13MP3		PIN, SPRING: MIL type MS16562-223	5-67
13MP4		JOINT SECTION, LONG: 1.875 in. dia by 6.625 in. lg, approx; mfr 13499 part no. 548-7328-002	5-67
13MP5		JOINT SECTION, SHORT: 1.875 in. dia by 4.062 in. lg, approx; mfr 13499 part no. 548-7324-002	5-67
13MP6		SHAFT, STRAIGHT: CRES; 0.312 in. dia by 1.375 in. lg, 5/16-24 external thd, 0.750 in. lg; mfr 13499 part no. 548-7330-002	5-67
13MP7		PIN, STRAIGHT, HEADLESS: CRES; 0.312 in. dia by 0.484 in. lg; mfr 13499 part no. 548-7329-002	5-67

ORIGINAL

TABLE 6-2. (Continued)

ANTENNA MAST ADAPTER

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
13MP8		CLAMP, LOOP: aluminum; accommodates 1-3/4 in. dia material; mfr 13499 part no. 548-7334-002	5-67
1301		KNOB: cast iron, green enamel finish; screw on type, star shape; 2 in dia by 0.750 in. thk; mfr 13499 part no. 548-7331-002	5-67

MOUNTING MT-2977/PRC-41

14		MOUNTING: aluminum; item attached to mounting by two quick release clamps; 3/8 in. h by 5-1/4 in. w by 10-3/4 in. lg; mfr 13499 part no. 522-2539-003	5-68
14MP1		BRACKET, SHELF: aluminum, chromate dip; 0.125 in. by 0.281 in. by 0.812 in.; mfr 13499 part no. 548-7198-002	5-68
14MP2		RING, RETAINING: aluminum, chromate dip; 0.125 in. by 2.188 in. by 3.563 in.; mfr 13499 part no. 548-7204-004	5-68

HANDSET H-33E/PT

15	SEE NOTE 1	HANDSET: waterproof telephone handset c/o a carbon microphone and magnetic earphone element, push-to-talk switch, cord and handle. Handset in accordance with the latest version of MIL-H-11134B; mfr 05062 part no. 1212	1-6
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ELECTRICAL EQUIPMENT HARNESS

16	SEE NOTE 1	ELECTRICAL EQUIPMENT HARNESS: FRAME, RUCKSACK: steel; 6.125 in. by 9 in. by 17 in.; mfr 13499 part no. 015-1630-00	5-69 5-69
		STRAP, WAIST: with one snap and adjustable slide; adjustable length approx from 26.500 in. to 46 in.; mfr 13499 part no. 011-0110-00	5-69
		STRAP, BACK: duck cloth w/ steel tips and buckles; 15 in. lg strap; mfr 13499 part no. 021-0190-00	5-69
		BILLET, SHOULDER STRAP: water repellent webbing, steel tip; 16-1/4 in. lg excl tip; mfr 13499 part no. 021-0192-00	5-69
		CARRIER, HANDSET AND ANTENNA: cotton duck, MIL-D-10861, type I; mfr 13499 part no. 021-0253-00	5-69
		SHOULDER, STRAP ASSEMBLY: incl strap support and 2 plates; mfr 13499 part no. 548 7583-003	5-69
		FRAME ASSEMBLY: 4.906 in. by 7.875 in. by 10.686 in.; mfr 13499 part no. 548-7590-003	5-69

TABLE 6-2. (Continued)

BRACKET ASSEMBLY

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
17		BRACKET ASSEMBLY, CONNECTOR: 1-7/8 in. by 4.937 in. by 8-5/8 in.; mfr 13499 part no. 548-7413-003	5-70
17H1		NUT, PLAIN, ROUND: brass, silver plated; 5/8-24 UNEF-2B, thd, 0.187 in. thk, 1.250 in. dia; mfr 94375 part no. 02105-2	5-70
17J1		ADAPTER, CONNECTOR: MIL-C-71 type UG30DU	5-70
17MP1		BRACKET, CONNECTOR MOUNTING: aluminum; 1-7/32 in. by 4-3/16 in. by 8.625 in.; mfr 13499 part no. 548-7414-004	5-70

SPARE PARTS KIT

18		SPARE PARTS KIT: c/o HOLDER ASSY, TOP, mfr 13499 part no. 554-6868-004, HOLDER ASSY, BOTTOM, mfr 13499 part no. 554-6867-004, 1 Electron Tube MIL type 7554, 1 Electron Tube MIL type 7077, 1 Electron Tube, MIL type 6442, 2 Lamps, MS type MS25237-327 and 6 Fuses, MIL type F02A250V1 1-2AS	
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MAINTENANCE KIT

19		MAINTENANCE ACCESSORY KIT: incl 8 cables, 3 test adapters and 1 bag; mfr 13499 part no. 548-7559-00	5-71
19CP1		ADAPTER, TEST: 1-3/8 in. by 1-1/2 in. by 8-3/16 in.; mfr 13499 part no. 548-7545-003; c/o 19E1, 19H1, 19H2, 19H3, 19J1, 19MP1, 19MP2, and 19MP3	5-72
19CP2		ADAPTER, TEST: miniature screw on; 50 ohms, male to male adapter for use with miniature RF connectors; mfr 13499 part no. 357-9918-00	5-71
19CP3		ADAPTER, TEST: miniature, 50 ohms, male to male adapter for adapting standard BNC series connectors to miniature screw on type RF connectors; mfr 13499 part no. 357-9919-00	5-71
19E1		CONTACT, ELECTRICAL: copper, silver plated; 0.250 in. by 0.500 in. by 1.753 in.; mfr 13499 part no 548-7361-002; p/o 19CP1	5-72
19H1		SCREW, MACHINE: MIL type MS35217-55; p/o 19CP1	5-72
19H2		SCREW, MACHINE: MIL type MS35216-14; p/o 19CP1	5-72
19H3		WASHER, LOCK: MIL type MS35337-78; p/o 19CP1	5-72
19J1		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL-C-5015 type MS3102R14S7P; p/o 19CP1	5-72
19J2		ADAPTER, CONNECTOR: MIL-C-71 type UG29B/U	5-72
19MP1		CONTACT ASSEMBLY, ELECTRICAL: 0.625 in. by 1.375 in. by 8.188 in.; 3 elec contacts mtd on plastic plate; mfr 13499 part no. 548-7544-003; p/o 19CP1	5-72
19MP2,		NUT, SLEEVE: aluminum, chromate dipped; open end type; headless; 4-40 NC-2B thd, 0.250 in. w across flats, 0.750 in. lg; mfr 13499 part no. 540-9176-003; p/o 19CP1	5-72
19MP3		RING, PLASTIC. plastic; 0.254 in. dia by 0.070 in. thk o/a dim.; mfr 78189 part no. 213-070408-00-2303; p/o 19CP1	5-72

TABLE 6-2. (Continued)

MAINTENANCE KIT

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
19W1		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: stranded no. 22 AWG conductors, type RG-178B/U coaxial cable terminated "/connectors ea end; 18 ft lg o/a; mfr 13499 part no. 548-7569-003	5-71
19W1J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 20 female contacts; 1 coaxial; 5 amp; no. 20 AWG wire accommodations; mfr 71468 part no. DBM21W1S	5-71
19W1P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 20 male contacts, 1 coaxial; 425 v ac, 5 amp; mfr 71468 part no. DBM21W1PC27	5-71
19W2		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: stranded copper conductors no. 22 AWG, RG-178 B/U cable terminated ea end "/connectors; 18 ft lg o/a; mfr 13499 part no. 548-7571-003	5-71
19W2J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 10 female contacts 3 coaxial; 5 amp; no. 20 AWG wire accommodations; mfr 71468 part no. DBM13W3SC27	5-71
19W2P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 10 male contacts, 5 amp, 1200 v ac; 0.234 in. by 0.484 in. by 2.078 in.; mfr 71468 part no. DBM13W3PC27	5-71
19W3		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: stranded no. 22 AWG conductors, RG-178 B/U cable terminated ea end "/connectors; 18 ft lg o/a; mfr 13499 part no. 548-7572-003	5-71
19W3J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 10 female contacts; 1 coaxial; 5 amp; no. 20 AWG wire accommodations; mfr 71468 part no. DAM11W1SC27	5-71
19W3P1		CONNECTOR, RECEPTACLE, ELECTRICAL: monobloc insert; ten no. 20 contacts; 5 amp; mfr 71468 part no. DAM11W1PC27	5-71
19W4		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: stranded no. 22 AWG conductors terminated ea end "/connector; 18 ft lg o/a; mfr 13499 part no. 548-7573-003	5-71
19W4J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 female contacts, 5 amp; mfr 71468 part no. DA15SC7A101	5-71
19W4P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 15 male contacts; 5 amp; arc resistant plastic dielectric; no. 20 AWG wire accommodations; mfr 91146 part no. DA15PC7	5-71
19W5		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: stranded no. 22 AWG conductor terminated ea end w/ connector; 18 ft lg o/a; mfr 13499 part no. 548-7574-003	5-71
19W5J1		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 male contacts; 5 amp; arc resistant plastic dielectric; no. 20 AWG wire accommodations; mfr 91146 part no. DE9PC7	5-71
19W5P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 9 female contacts; 5 amp; arc resistant plastic dielectric; no. 20 AWG wire accommodations; mfr 71468 part no. DE9SC7A101	5-71
19W6		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 0.218 in. by 0.625 in. by 8 in. o/a dim.; mfr 13499 part no. 548-7560-002	5-71
19W7		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 0.218 in. hex by 8 in. lg o/a dim.; mfr 13499 part no. 548-7561-002	5-71
19W8		CABLE ASSEMBLY, RADIO FREQUENCY: type RG-303/U coaxial cable, terminated each end "/connector; 18 in. lg o/a; mfr 98278 part no. 030-0443	5-71
19W8J2		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd contact; socket insert, push on type; straight shape; mfr 94375 part no. R500	5-71
19W8P1		CONNECTOR, RECEPTACLE, ELECTRICAL: 1 rd male contact; pin insert; beryllium copper contact; 0.760 in. lg by 0.250 in. across flats; mfr 94375 part no. Y500	5-71

TABLE 6-2. (Continued)

TOOL KIT

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
20		<p>TOOL KIT, ELECTRICAL: 12 electronic tools and 1 brush enclosed in cotton duck bag; mfr 13499 part no. 548-7538-003 BAG, COTTON DUCK: 3-1/2 in. w, 7-1/4 in. lg; mfr 15814 part no. A6125 KEY, SOCKET HEAD SCREW: "T" handle wrench for no. 8 socket cap screw; steel, black parkerized; 3 in. by 5.625 in.; mfr 70276 part no. GT1003 SCREWDRIVER, FLAT TIP: 5/16 in. by 1-3/8 in. blade, 3-1/2 in. lg handle; mfr 65814 part no. 62 ALIGNMENT TOOL, ELECTRONIC EQUIPMENT: handle, nylon; end fittings, steel, special tuning tool, w/screwdriver one end, slotted fitting, other; mfr 13499 part no. 024-0168-00 SCREWDRIVER, OFFSET: no. 1 Phillips cross tip each end 3.250 in. lg; mfr 79061 part no. P111 KEY, SOCKET HEAD SCREW: steel; splined type 6 flutes 0.094 in. major dia; "L" type handle, 1.875 in. nom lg; mfr 13499 part no. 024-0018-00 KEY, SOCKET HEAD SCREW: steel; splined type 4 flutes 0.076 in. major dia; 1.749 in. nom lg; mfr 13499 part no. 024-9730-00 KEY, SOCKET HEAD SCREW: splined type, 6 flutes; non-adjustable blade type; 0.060 in. dia. 1.622 in. nom long arm lg; mfr 13499 part no. 024-2900-00 KEY, SOCKET HEAD SCREW: steel; 2 working ends, multiple spline socket; mfr 13499 part no. 024-0178-00 SCREWDRIVER, FLAT TIP: pocket clip; steel blade, 0.0925 in. dia. 3 in. lg blade; phenolic handle; 0.4375 in. dia by 2.375 in. lg handle; mfr 79061 part no. A116-3 SCREWDRIVER, FLAT TIP: w/plastic handle, 1/4 in. dia; CRES bit, 1-1/8 in. la; mfr 13499 part no. 544-8359-002 WRENCH, SPANNER: CRES; 0.065 in. thk, 1.250 in. OD, 4.375 in. lg; mfr 13499 part no. 548-7431-002 BRUSH, PAINT: stiff bristle; 0.281 in. dia. 1 in. lg; 6.250 in. lg o/a; mfr 13499 part no. 024-0371-00</p>	1-13

GUY ROPE ASSEMBLY

21		GUY ROPE ASSEMBLY: 3/16 in. dia by 10 ft lg 3 strand mfr; 13499 part no. 015- 2103-00	5-35
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GUY STAKE

22		STAKE, GUY: CRES, chemically blacken; 1 in. by 1 in. by 10 in.; mfr 13499 part no. 548-7338-003	5-35
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TABLE 6-2. (Continued)

DIRECTIONAL ANTENNA CASE

REF DESIG	NOTES	NAME AND DESCRIPTION	FIG NO.
23		COVER ASSEMBLY, ANTENNA: 1.280 in. by 19.718 in. by 31.531 in, o/a dim.; mfr 13499 part no. 548-7427-004	5-73
23MP1		GROMMET, PLASTIC: acetol resin and nylon; 0.429 in. lg; black; mfr 83014 part no. H322-3-1	5-73
23MP2		PLUNGER: acetol resin and nylon; 0.632 in. dia by 0,380 in. lg; black; mfr 13499 part no. 015-2243-00	5-73
23MP3		COVER, ANTENNA: plastic; 0.781 in. by 19.718 in. by 31.531 in.; right cover; mfr 13499 part no. 548-7428-005	5-73
23MP4		COVER, ANTENNA: plastic; 0.781 in. by 19.718 in. by 31.531 in., left cover; mfr 13499 part no. 548-7429-005	5-73
23MP5		ROD, HANDLE: aluminum; 0.620 in. ID, 0.750 in. OD, 5.125 in. lg; mfr 13499 part no. 548-7426-002	5-73

RADIO SET CASE CY-3883/PRC-41

24		CASE, TRANSIT, RADIO SET: nonmoisture absorbing light weight material; w/handles; mfr 13499 part no. 021-0207-00	1-2
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ELECTRONIC EQUIPMENT CASE CY-3885/PRC-41

25		CASE, CARRYING, ELECTRONIC EQUIPMENT: light weight materials; four handles, two at each end of the case; zinc chromate finish except handle grip; case is watertight, 11.312 in. dia by 13.955 in. lg o/a; mfr 13499 part no. 021-0208-00	1-3
26		EQUIPMENT REPAIR PARTS: c/o the following: ELECTRON TUBE: MIL-E-1 type 7077 (qty 1) ELECTRON TUBE: MIL-E-1 type 7554 (qty 1) ELECTRON TUBE: MIL-E-1C type 6442 (qty 1) LAMP, INCANDESCENT: MIL-L-6363 type MS25237-327 (qty 2) FUSE, CARTRIDGE: MIL-F-15160 type F02A250V3AS (qty 2) FUSE, CARTRIDGE: slow blow; 1-1/2 amp, 250 v; mfr 71400 part no. MDX1 1-2 (qty 4)	

TABLE 6-3. LIST OF MANUFACTURERS

MFR CODE	NAME	ADDRESS
00136	McCoy Electronics Co.	Mount Holly Springs, Pa.
01121	Allen-Bradley Co.	Milwaukee, Wisconsin
01526	General Electric Co., Specialty Control Department of Industrial Electronics Division of Electronic, Atomic and Defense Systems Group	Waynesboro, Va.
01939	Sprague Electric Co. of Wisconsin	Grafton, Wisconsin
02114	Ferroxcube Corp. of America	Saugerties, New York
02660	Ampenol-Borg Electronics Corp.	Broadview (Chicago), Ill.
03877	Transitron Electronic Corp.	Wakefield, Mass.
04435	Jettron Products Co.	Hanover, N. J.
05062	Audiosears Corp.	Roxbury, New York
07688	Joint Electronic Tube Engineering Council	Washington, D. C.
08817	Electralab, Inc.	Needham Heights, Mass.
09026	Babcock Relays, Inc.	Costa Mesa, California
09922	Burndy Corp.	Norwalk, Connecticut
10646	Carborundum Co.	Niagara Falls, New York
13499	Collins Radio Company	Cedar Rapids, Iowa
15814	C. R. Daniels, Inc.	Daniels, Maryland
24446	General Electric Co.	Schenectady, New York
40920	Miniature Precision Bearings, Inc.	Keene, N. H.
43334	New Departure Division of General Motors Corp.	Bristol, Connecticut
44655	Ohmite Mfg. Co.	Skokie, Illinois
56289	Sprague Electric Co.	North Adams, Mass.
65814	J. H. Williams and Co.	Buffalo, N. Y.
70276	Allen Mfg. Co.	Hartford, Connecticut
70417	Amplex Division of Chrysler Corp.	Detroit, Michigan
70674	Audio Development Co.	Minneapolis, Minnesota
71400	Bussmann Fuse Division of McGraw-Edison Co.	St. Louis, Mo.
71468	Cannon Electric Co.	Los Angeles, California
71590	Centralab Division of Globe Union, Inc.	Milwaukee, Wisconsin
72136	Electro Motive Mfg. Co.	Willimantic, Connecticut
72982	Erie Resistor Corp.	Erie, Pennsylvania
73899	JFD Electronics Corp.	Brooklyn, New York
74545	Hubbell, Harvey, Inc.	Bridgeport, Conn.
75543	Lavelle Rubber Co.	Chicago, Illinois
77630	Radio Condenser Co.	Camden, N.J.
78189	Shakeproof Division of Illinois Tool Works	Elgin, Illinois
78488	Stackpole Carbon Co.	St. Marys, Pa.
79061	Vaco Products Co.	Chicago, Illinois
79136	Waldes, Kohinoor, Inc.	Long Island City, New York
80131	Electronic Industries Association	Washington, D. C.
80294	Bourns Laboratories, Inc.	Riverside, California
81483	International Rectifier Corp.	El Segundo, California
81716	Oak Mfg. Co.	Crystal Lake, Illinois
81815	Communications Coil Co.	Chicago, Illinois
81840	Leland, G. H., Inc.	Dayton, Ohio
82142	Jeffers Electronics Division of Speer Carbon Co.	Du Bois, Pennsylvania
83014	Hartwell Aviation Supply Co.	Los Angeles, California
83086	New Hampshire Ball Bearing, Inc.	Peterborough, N. H.
85675	Midland Mfg. Co., Inc.	Kansas City, Mo.
88044	Aeronautical Standards Group, Departments of Navy and Air Force	Washington, D.C.
88063	Communications Accessories Co.	Lees Summit, Mo.
89462	Waldes, Kohinoor, Inc.	Cambridge, Mass.
91146	Cannon Electric Co., Eastern Division	Salem, Mass.
91314	Lewis Spring and Mfg. Co., Inc.	Chicago, Illinois
91637	Dale Products, Inc.	Columbus, Nebraska

TABLE 6-3. (Continued)

MFR CODE	NAME	ADDRESS
92054	Radio Cores, Inc.	Oak Lawn, Illinois
93106	Accurate Products Co., Inc.	Chicago, Illinois
94375	Automatic Metal Products Co.	Brooklyn, New York
95088	Trasonic, Inc.	Bakersfield, California
95712	Dage Electric Co., Inc.	Beech Groove, Indiana
96095	Hi-Q Division of Aerovox Corp.	Olean, New York
96296	Solar Mfg. Co.	Los Angeles, California
96881	Thomson Industries, Inc.	Manhasset, N. Y.
96906	Military Standards	New Bedford, Mass.
98055	Whaling City Marine Co., Inc.	South Pasadena, California
98278	Microdot, Inc.	New Rochelle, New York
98291	Sealectro Corp.	New Rochelle, New York
99800	Delevan Electronics Corp.	East Aurora, New York

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For explanation of abbreviations used, see AR 320-50.

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